THE **BOARD** OF **DIRECTORS'** REPORT TO THE **CONGRESS OF COLOMBIA**

ISSN-2145-6801

03/
2018

March 2018

REPORT OF THE **BOARD OF DIRECTORS** TO THE **CONGRESS OF THE REPUBLIC**

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

ISSN - 2145-6801

BANCO DE LA REPUBLICA
COLOMBIA

Bogota, April 4, 2018

HONORABLE CHAIRMEN AND MEMBERS
Of the Third Standing
Constitutional Committees of
Of the Senate of the Republic
And the House of Representatives

Dear Sirs:

In compliance with Article 5, Act of Congress 31/1992, the Board of Directors of *Banco de la República* hereby submits to the Congress of the Republic of Colombia a *report* on the macroeconomic results for 2017 and the outlook for 2018 for its consideration. The last two chapters report on the composition of the international reserves and the projections for *Banco de la República*'s financial situation in 2018.

Cordially,

Juan José Echavarría

Governor

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Introduction

The figures for 2017 and beginning of 2018 indicate that the Colombian economy is reaching the end of the adjustment process that was required as a result of the sequence of shocks over the last few years which affected its macroeconomic performance. The first shock, and undoubtedly the most severe one, was the fall in the price of crude oil that started in the second half of 2014. This produced a sharp deterioration in the terms of trade with significant consequences for economic growth and for foreign and domestic equilibrium. Subsequently, the "El Niño" phenomenon, which started around the end of 2015, caused a significant rise in food prices that put pressure on consumer inflation. Likewise, the collapse in the economic activity of our major trading partners in the region, who were also affected by the oil shock or by the drop in the prices of other commodities (such as copper), weakened the demand for our non-traditional exports. Last of all, the 2016 tax reform, a measure that was necessary for our fiscal sustainability and included an increase in the VAT as its main component, reduced the disposable income of households and, thus temporarily, the growth of consumption.

The numerous effects of these sequences of shocks on the Colombian economy has been carefully analyzed in detail in the previous *Reports to Congress*. Different aspects are highlighted in this *Report*. First of all, the ability of the economy has shown to adjust without major upsets and while avoiding crisis situations. Secondly, the change in the trend of the shocks: some of these have already disappeared, and others are continuing to lose strength.

The figure that best shows the macroeconomic adjustment may be the deficit in the current account which, for 2017, was USD10.359 billion (-3.3% of the GDP). This was even lower than the deficit registered in 2013 (USD 12.722 billion; -3.4% of the GDP), which was the last year of high petroleum prices. The magnitude of this adjustment can be appreciated better when it is recalled that in 2015, the current account registered a deficit of -6.4% of the GDP, which declined in 2016 and went to -4.4% of the GDP. This was the result of a much larger fall in foreign expenses than the decline in income from abroad due to the stagnation of domestic demand and the depreciation of the exchange rate. This external imbalance continued to correct itself in 2017 but with the difference that the adjustment during this last year was explained not by the decrease of expenditures but by the recovery of foreign revenue which made it possible to more than offset the growth of imports and of outflows due to factor income.

A second variable that reveals the extent of the adjustment is the trend of inflation. Towards the end of 2017, annual consumer inflation stood at 4.09% and, at the beginning of 2018, it continued to decline as it registered a level of 3.37% in February and thus approached the target of 3.0%. The decline in inflation has been fast if one remembers that less than two years ago, in July 2016, it reached a peak of 8.97% per annum, which was its highest level since the year 2000. Various factors contributed to this significant reduction in inflation including the normalization of the climate conditions and the end of the pass through of the depreciation of the exchange rate to prices in the economy, especially to tradable goods and the weakening of aggregate demand itself. In addition, the timely reaction of monetary policy, as will be mentioned below, was another factor that played a crucial role in reversing the rise in inflation expectations that threatened to make the price shocks that were transitory in character persist.

Another important ingredient in the macroeconomic adjustment has been the national government's management of the finances. As is well known, the petroleum shock significantly affected the government's fiscal balance if one bears in mind the fact that the oil revenue amounted to the equivalent of 3.3% of the GDP and thus contributed 19.5% of the nation's total income in 2013. By 2016, this revenue had disappeared. Between these years, the government's deficit rose 1.6% of the GDP, i.e., going from 2.4% to 4.0% of the GDP, which corresponds to only half of the drop in oil revenue. This was possible due to the 2014 tax reform and the performance of expenditures, which remained constant at a level of 19% of the GDP. The new tax reform that went into effect starting in 2017 made it possible to resume the adjustment of the deficit as it went from 4.0% in 2016 to 3.6% in 2017. According to the government's financial plan, this adjustment will continue in 2018 when it is projected that a deficit of 3.1% of the GDP will be reached. It should be noted that, over the course of these years, the structural balance—which discounts the cyclical component of the deficit—has complied with the limits set by the fiscal rules.

Several factors that affected the economy are beginning to reverse themselves. First of all, the international environment has been improving for Colombia to the extent that the developed economies and various Latin American countries appear more vigorous. A recovery in the terms of trade is also anticipated as a result of the rise in the prices for petroleum and for other raw materials exported by the country. Domestically, an impetus is expected from the investment in public works projects and from the increase in exploration and drilling for crude oil in response to the better prices for it. The recent reductions in the benchmark interest rate on the part of *Banco de la República* should contribute the same way to the degree that they succeed in stimulating consumption and investment. In this context, economic activity is expected to start to recover as the forecasts made by the Bank's technical staff, the government and the International Monetary Fund (IFM) indicated. All of these agreed on an estimate of 2.7% in GDP growth for the present year in comparison to the 1.8% growth registered in 2017.

Thus, there is every reason to expect that the Colombian economy will bring an adjustment phase to a close in 2018 after a negative shock and that it will approach its long-term equilibrium characterized by an inflation rate that is on target and a sustainable deficit in the current account while the growth will draw close to its potential. In spite of this, lagged effects of the shock to the terms of trade still exist as was the case with investment where the growth declined during the adjustment process and remained low in 2017. The topic is of particular interest since a low rate of investment limits the potential growth and, with it, the possibilities of long-term growth, which could not be improved with countercyclical policies.

The *Report* includes a box that describes the channels through which a shock to the terms of trade impacts investment and identifies the types of investments that have been affected the most. The box showed that the downturn in the economy generates situations that feed back into the decline in investment such as the loss of confidence and the deterioration in growth expectations, the greater budgetary constraints on public investment, and the tightening of credit conditions. Added to this is the rising cost of imported capital goods due to the devaluation of the peso and drop in the profits of the petroleum and mining companies. As was to be expected, investment in the mining sector and sectors that are dependent on imported capital goods such as industrial machinery and transportation equipment have been affected the most. In contrast, investment in public works and in housing and buildings (up until 2016) has performed better partly due to infrastructure programs and the subsidies for the interest rates resulting from the purchase of housing. For 2018, the improvement in the terms of trade, the higher profits in the oil industry, and the progress on the infrastructure programs are expected to be reflected in greater investment.

As part of the adjustment process, economic growth slowed down just as it did in other commodity exporting countries that were affected by similar shocks. However, this slowdown has been moderate considering the magnitude of the shocks that were received. As a result, the Colombian economy has once again demonstrated its resilience just as it had previously after the 2009 international financial crisis, which had also affected its macroeconomic performance. Nevertheless, unlike this shock, which was strong but transitory, the adjustment of the economy has proved to be more prolonged this time given the persistence of the shock to the terms of trade and its interaction with the other shocks that followed one another. In spite of that, the access to foreign financing and sound macroeconomic fundamentals contributed to the achievement of an orderly adjustment and a cushioning of its effects. Among these fundamentals, foreign exchange flexibility, fiscal rules, the soundness of the financial system, the high level of the international reserves, and the clearing of payroll taxes stand out.

The monetary policy, within the framework of the inflation targeting plan, has played a key role in the entire adjustment process. In retrospect, the handling of the benchmark interest rate went through a 'cycle within the cycle'. After the shock to the terms of trade had started around July 2014, the interest rate remained unchanged at a level of 4.5% for somewhat more than a year. That could seem paradoxical in view of the inflationary pressure that began to arise as a result of the pass through of the devaluation to the prices of tradable goods, and subsequently, the increase in the food prices that began to be affected by El Niño. However, both pressures were considered to be transitory in nature and a result of supply shocks. An increase in the interest rate at that moment would have accentuated the slowdown in growth without preventing an increase in prices. It was only when there was evidence that inflation expectations were beginning to break free that the Board of Directors of *Banco de la República* (BDBR) decided, in September 2015, to start a gradual increase in the benchmark interest rate. This continued until it reached a level of 7.75% in July 2016. If an uncontrolled rise in inflation expectations had been tolerated, it would have strengthened the price and wage indexing mechanisms and along with that, inflationary inertia. The evidence shows that inflation expectations never exceeded 5% in spite of the fact that inflation hit a peak of 8.97% in July 2016.

Starting in December 2016, when it was noted that inflation expectations had declined and that the effects of the pass through of the devaluation to the prices for tradable goods and of El Niño on food prices was weakening, the BDBR decided to start a progressive reduction in the policy interest rate. As of January 2018 this had accumulated a decrease of 325 basis points (bp). With this, the cycle of increases and reductions of the interest rate was completed in the midst in the adjustment process.

The increase in the benchmark interest rate described above moderated the growth of domestic demand and restrained inflation expectations and, with this, it reduced inflationary inertia during 2017. Added to that was the relative stability of the peso and the normalization of food prices once the effects of El Niño and the trucker's strike of June and July 2016 disappeared. Subsequently, the reduction in the rates was achieved without this disrupting the process of the convergence of inflation with its target nor the necessary adjustment of inflation expectations even in spite of the upward pressure that resulted from the increase in the value added tax (VAT) and other indirect taxes at the beginning of 2017. At present, the stance of monetary policy is moderately expansionary since the real policy interest rate is below the neutral interest rate. This will make it possible to offer a stimulus to economic activity that will become more visible in the coming months to the extent that the pass through of the recent cuts in the policy rate to the economy as a whole are completed.

As has already been noted, consumer price inflation registered a 3.37% annual change in the rate at the end of February. This shows a significant decline during the first two months of the year compared to the 4.09% inflation registered at the end of 2017. A large part of this decrease was due to the disappearance of the statistical effect of the increase in VAT and other indirect taxes that went into effect a year ago. In addition, certain specific price increases that occurred at the end of 2017 were reversed at the beginning of the year. Food price inflation, in turn, continued to decline to a level of 0.94% per annum while inflation of prices for tradables (excluding food) stood at 3.11% yearly.

These indicators confirm that convergence of inflation with the 3.0% target is acquiring greater strength.

Nevertheless, it is still possible to identify the existence of mechanisms that could maintain some inflationary inertia and thus hold back the process of inflation converging with the target to some degree. This is the case with non-tradable goods (excluding food), which registered 5.14% inflation per annum at the end of February as a reflection of the increase in the minimum wage (5.9% for 2018). This puts upward pressure on the prices of labor-intensive services such as health and education. Furthermore, the recent rise in the international oil price has triggered increases in the prices of fuel, which partly explains the high 6.14% per annum inflation of regulated prices in February. There is pressure also from inflation expectations that, according to recent surveys, stood within a range of 3.3% to 3.6% for different periods of time. Finally, possible upturns in food prices towards the second half of 2018 should not be ruled out whether due to more limited planting or to the effect of climate changes.

The abovementioned indicates that, in spite of the significant progress seen in the convergence of inflation with the target and the normalization of prices for food and tradable goods, it is essential to be prudent with monetary policy in order to continue offering a stimulus to the recovery of economic activity without compromising the fulfillment of the inflation target.

Regarding the labor market, the performance of the national unemployment rate, which remained at a relatively stable level (primarily up to the end of 2016) in spite of the slowdown seen in the growth of the GDP, is notable. The above was examined in a box in the July 2017 *Report* where the conclusion was drawn that the drop in labor participation, especially in the thirteen major cities, was the reason for this occurrence. This began to change during the previous year when an increase was seen in the national unemployment rate, which went from 9.1% in December 2016 to 9.5% during the same month in 2017. That was a consequence of a deterioration in the employment rate (ER) which was not offset by a decline in the overall participation rate (OPR). Something similar happened in the thirteen major cities.

The national unemployment rate is substantially lower than the one seen for the thirteen (or even 23) main cities in the country. The explanation for this lies in the low unemployment rate reported by DANE for the rural area. Thus, for example, for the November 2017 to January 2018 quarterly moving average, the unemployment rate in the thirteen cities was 10.9% while for the rural area, it was 5.4%. In order to understand this performance, a box is included in the current *Report* that examines agricultural employment and compares it to the performance of the labor market in urban areas. The positive agricultural employment concentrated mainly in the “other major districts” and the rural area (with 182 thousand newly employed) seen in 2017 is highlighted there. This makes agriculture the branch of economic activity that generated the most employment on the national level over the last year.

The central forecast scenario for 2018 drawn up by the technical staff confirms that the economy is probably approaching the end of the adjustment process. As was noted, a growth in the GDP of 2.7% was estimated for this year and was recently corroborated after an examination of the economic activity indicators for the first two months of the year. With respect to inflation, this is expected to continue converging with the 3.0% target as it was doing at the beginning of this year. Finally, the current account deficit will continue to approach 3.0% after the positive record it showed at the end of 2017. These forecasts are subject to risks that are considered in alternative scenarios. These take into account changes in the conditions abroad, in the trajectory of domestic demand, in unforeseen pressure from food prices, or other components of the consumer price index. In their periodic inflation reports, *Banco de la República* will keep the country informed about the performance of these variables.

The diagnostic, including fact and figure details, contained in this *Report* of the situation of the Colombian economy and the management of monetary policy not only fulfills its function as a mechanism for the accountability of the BDBR to the Honorable Congress but also offers the general public and foreign analysts an important document for study that makes it possible to understand the progress in the economic adjustment and the work that still remains to be done.

01 International Context

During 2017, global economic activity showed a better performance underpinned by world trade. In addition, the latter, together with the increase in the prices of raw materials, spurred the recovery of the emerging economies. In spite of the high uncertainty in global politics, the financial markets continued to present historically low levels of volatility in 2017.

Global growth that is higher than what was seen in 2017, some levels of the terms of trade that are favorable for emerging economies, and access to stable global financing in spite of its higher cost resulting from the increases in interest rates in the main developed economies are expected in 2018.

The recovery of worldwide economic activity is still becoming stronger, especially in Europe, Asia, and the United States. According to the United Nations (UN), the World Bank, and the International Monetary Fund (IMF), the global economy could have grown approximately 3.0% at market prices during 2017.[1] This reflects an upward revision of the projections made at the beginning of this year. Likewise, these entities expect that global growth for 2018 will be 3.1% on average at market prices[2] (Table 1.1). The main factors that have characterized the recovery of the global economy are: 1) greater growth of international trade backed by a rise in investment, especially in Asia; 2) a rise in industrial production; 3) a reinforcement of the confidence indicators, and 4) an improvement in the expectations of growth in the emerging countries that are exporters of raw materials, especially those that

1 Growth of 3.66%, on average, in 2017 in terms of purchasing power parity.

2 Growth of 3.76%, on average, expected in 2018 in terms of purchasing power parity.

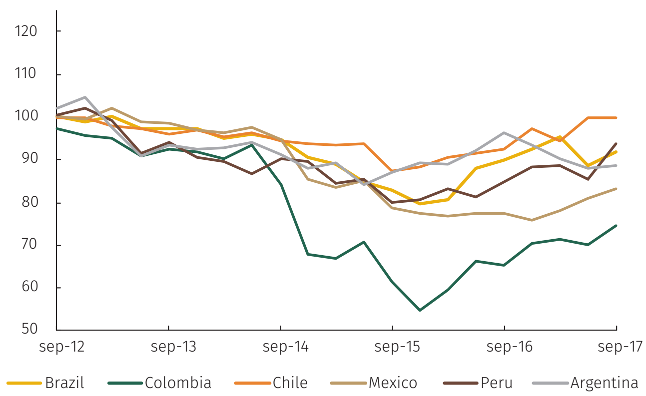
Table 1.1
Growth Rates of the Regions Based on the World Bank, the International Monetary Fund (IMF), and the United Nations (UN)
(percentage)

	World Bank						IMF						UN					
	PPP/			Market prices			PPP/			Market prices			PPP/			Market prices		
	2016	2017b/	2018b/	2016	2017b/	2018b/	2016	2017b/	2018b/	2016	2017b/	2018b/	2016	2017	2018	2016	2017b/	2018b/
World	3.2	3.7	3.7	2.4	3.0	3.1	3.2	3.7	3.9	2.5	3.2	3.3	3.1	3.6	3.7	2.4	3.0	3.0
Advanced economies				1.6	2.3	2.5	1.7	2.3	2.3							1.6	2.2	2.0
Euro zone				1.8	2.4	2.1	1.8	2.4	2.2							1.8	2.1	2.0
Emerging economies				3.7	4.3	4.5	4.4	4.7	4.9							3.8	4.3	4.6
Latin America and the Caribbean				-1.5	0.9	2.0	-0.7	1.3	1.9							-1.3	1.0	2.0

a/ Purchasing power parity
b/ Estimated
Sources: World Bank, IMF, and UN

Graph 1.1
Terms of trade

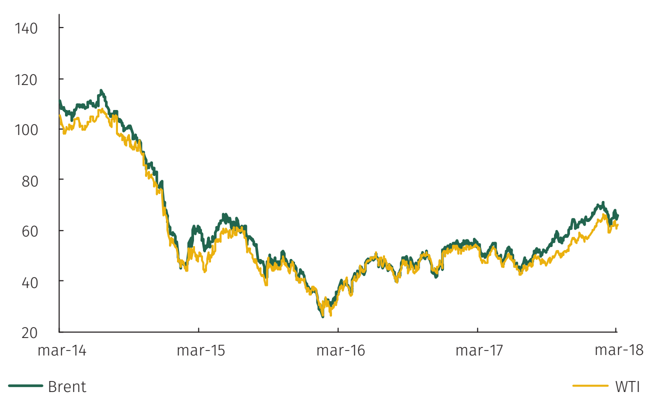
(2012 index =100)



Source: Datastream.

Graph 1.2
International Price of Oil (Brent and WTI)

(Dollars per barrel)



Source: U.S Energy Information Administration (EIA).

export petroleum, metals, and minerals,[3] together with a sharp expansion on the part of importing economies like China.

The rise in the prices for raw materials has raised South America's terms of trade which, in some countries, are reaching levels that are similar to those that existed before the shock of 2014 (Graph 1.1). In the case of petroleum, the price per barrel for the Brent benchmark reached USD 66.73 at the end of 2017 when it presented a rise of 22% with respect to the year before (Graph 1.2). This sustained rise in prices comes from the improved global outlook for growth, the climatic conditions that the United States has undergone, the limitation on oil production under the agreement of the Organization of Petroleum Exporting Countries (OPEC), and the political conflicts in the Middle East. However, the prices of the 5-year contracts for futures showed levels that were close to USD 55.49 per barrel, which suggests the possibility of a downward adjustment in the coming years.

3 According to the World Bank, the price index for metals and minerals rose 23% between 2016 and 2017 while the index for raw materials for fuel rose 22% during the same period. This is primarily represented by the increase in the price of crude oil (average of the spot price of the Brent, Dubai, and WTI benchmarks).

Thus, the higher demand from abroad and higher terms of trade observed in 2017 have created favorable conditions for the emerging economies like Colombia. A major growth of the global economy generates benefits by means of different channels. For example, a greater demand from abroad may encourage exports and, therefore, the growth of open economies. The fact that the United States, the largest economy in the world, could grow at historically high rates would generate benefits through the expansion of exports and of greater flows of investment and remittances. Similarly, the growth of the terms of trade benefits the national income of countries that are exporters of commodities. In addition, it can drive investment in this sector, which has seen a significant setback caused by the weakness of the prices.

The recovery of foreign demand and better terms of trade in 2017 made it possible to support the expansion of emerging economies like Colombia.

Nevertheless, in spite of the fact that the international outlook is favorable for 2018 in general terms, there are several risks that could have negative effects on the emerging economies like Colombia.

For 2018, the effects that the normalization of monetary policy in developed economies could have on financial volatility and capital flows is a relevant uncertainty factor.

The first is related to the tightening of international financial conditions triggered by the continuing normalization of monetary policy in the developed economies and the way that the financial markets are accommodating themselves to this new reality. This adjustment could occur in a context of high volatility. In relation to this situation, the high prices on the stock market and low levels of the term premia implicit in the securities of the governments of the advanced countries along with an acceleration of monetary policy normalization could cause a market correction and an additional increase in the volatility.

Another source of uncertainty is that no one knows what effects the tax reform in the United States could have, especially for capital flows to the emerging economies. The tax rate was lowered in that country thus going from 35% to 21% for companies, and this could generate an increase in their capital flows.

Last of all, the effects of the protectionist policies that could affect world trade are also uncertain. For example, these include the negotiations of the North American Free Trade Agreement (NAFTA), *Brexit*, and the international trade tensions caused by the recent announcements by the US government of imposing tariffs of 25% and 10% on imports of steel and aluminum, which could result in retaliation on the part of the European Union, China, and other trading partners.

Note that the risk from the tightening of international financial conditions and a contraction in global liquidity, which remains at historically high levels,[4] is extremely relevant to emerging-market economies (EME). A recent note prepared by the Bank for International Settlements (BIS),[5] emphasized the following aspects of the EME that could amplify the impact of a tightening of international financial conditions: 1) the increase in the interest rates in the United States could be accompanied by an appreciation of the US dollar with particularly negative effects on companies with a high exposure to this currency; 2) the financial cycle remains in an expansionary phase in many emerging economies and this is reflected in the high growth of prices for assets (e.g., housing) and credit and thus amplifies the size of some of the accumulated imbalances; 3) inflation in the advanced economies could rise more than expected thus generating reactions in the markets and more volatile scenarios; 4) the depth and the components of the international investments in the local financial markets could amplify the impact of external shocks and, last of all, 5) there would be limited maneuvering room for the use of countercyclical policies.

Another risk factor is the one associated with the impact that the recent protectionist measures in the United States and other economies could have on global trade.

The factors identified could apply (in different intensities) to the case of Colombia. The fourth point is especially relevant since it is related to the share in the local financial markets held by international investors and their risk taking in emerging markets. As has been emphasized in the past editions of this *Report*,[6] Colombia has been a major recipient of foreign investors in the local financial markets. These investors went from holding a 3.5% share in 2007 to a 26.4% share one decade later. In addition to global factors associated with the international liquidity and with the low interest rates abroad, the announcement by JP Morgan in 2014 to increase Colombia's share in the index of emerging debt GBI-EM Global Diversified (from 3.2% to 8%), along with some simplifications of the tax rules explained, in part, the growing trend of the participation of foreigners in the local public debt market.

Colombia has been a major recipient of investment by foreign investors in the local financial markets. These investors went from holding a 3.5% share in 2007 to a 26.4% share one decade later.

4 One way to evaluate global liquidity is through the performance of transnational bank credits. The logic behind this measurement carried out by the BIS supports the idea that greater international liquidity should be reflected in a greater amount of transnational bank credit. According to the most recent data from the BIS international banking statistics, the global rate of growth of these credits as of September 2017 was 2.1%, which is close to the average for the past five years (2.6%). When the transnational banking flows to emerging economies are taken (as an indicator of liquidity for this group of economies), the rate of growth as of September 2017 was 18.11% which is much higher than the average for the past five years (11.9%). This suggests that a large proportion of the global liquidity has shifted to this group of economies.

5 Note prepared by the BIS for the bimonthly meeting of governors in January 2018 entitled: "How Will the Unwinding of Central Bank Asset Purchases Affect Emerging Market Economies (EMEs)?"

6 See Box 2: "Share of Local Government Bond Market Held by Foreigners," in the *Board of Directors' Report to the Congress of Colombia*, March 2017 and Box 3: "Share of Local South American Financial Markets Held by Foreign Investors," in the *Board of Directors' Report to the Congress of Colombia*, July 2017.

The share that foreign agents hold in the local markets generates benefits with the development of capital markets.

In 2017, world trade and the increase in the prices of raw materials spurred the recovery of the emerging economies.

The greater entrance of foreigners into the local markets generates benefits with regards to the development of capital markets by building greater liquidity and expanding the investor base. This, in turn, facilitates the gradual and orderly adjustment of the economy to external shocks. However, it also generates challenges from the standpoint of macroeconomic and financial stability. First of all, even though the data on Colombia indicate that a significant portion of the capital inflows is due to long-term investors such as pension funds and sovereign wealth funds, there is a significant amount that is concentrated within a limited number of investors. Secondly, there is evidence that the large institutional investors may react better than others when they face strong shocks.[7] Last of all, the tightening of monetary policy in developed countries together with the implementation of protectionist policies could affect the EME through a possible decrease in the capital flows towards these economies.

The recent performance of the global economy is analyzed below with an emphasis on the most relevant aspects for Colombia and after that the outlook for 2018 is laid out.

1.1 Performance during the second half of 2017

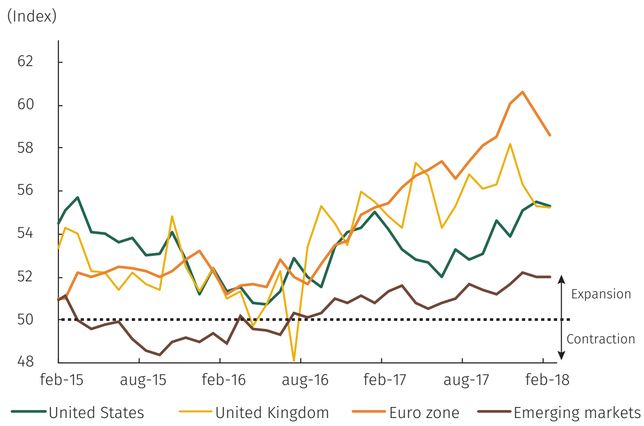
During the second half of 2017, the global economy continued to gain strength. In the case of the advanced economies, the expansion was backed by an easing of the deflationary pressure that had been registered in the 2015-2016 period through a significant increase in international trade and growth of domestic demand. In the case of emerging economies, the growth was supported by strong domestic demand in China, the increase in the prices of raw materials, especially for countries that are exporters of metal, minerals, and crude oil, and by the change in the phase of the cycle for some countries such as Brazil.

With respect to the foreign context, world trade reached a growth of 4.3% in 2017 compared to the growth of 2.3% for the previous year according to World Bank figures. Moreover, the global trade indicator[8] came to a value of 102.3; in other words, it stood 2.3% above the medium-term trend. This phenomenon was spurred by the recovery of the importing economies such as China, which experienced a growth of 6.9%. This is reflected in the increase in the demand from abroad and household income as well as by an

7 Evidence of this is reported by the IMF in the 2014 Global Financial Stability Report.

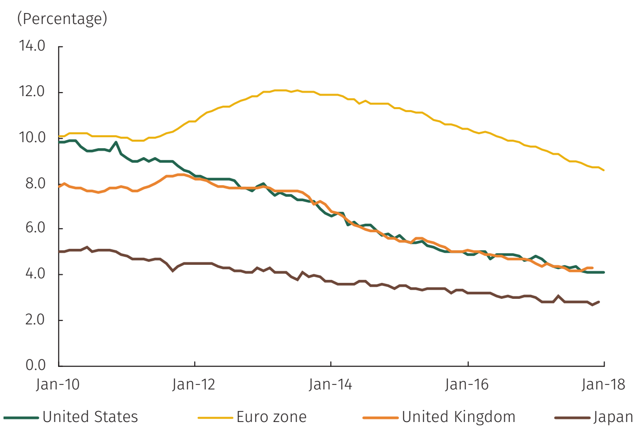
8 Values of 100 indicate that the growth is in the medium-term trend, values above 100 indicate that the growth is above the trend, and values below 100 indicate that it is below it.

Graph 1.3
Manufacturing Indices
(PMI: purchasing managers index)



Source: Bloomberg.

Graph 1.4
Unemployment Rate



Source: Eurostat.

South America succeeded in leaving behind the 2016 recession due to the recovery of Brazil and Argentina, which had been going through contractions.

upturn in investment in machinery, electronic items, and semiconductors. Nevertheless, global trade is expected to grow at lower rates over the next few years as a result of the low expansion in the integration of value chains due to the growing protectionist policies (e.g., the recent implementation of tariffs on steel and aluminum on the part of the United States) and to the possible slowdown in China where risks persist with regards to their high indebtedness, which, according to IMF estimates reaches levels of 242%[9] of the GDP and surpasses the long-term trend.[10]

During 2017, manufacturing production[11] continued to recover, especially in the euro zone[12] and the United States (Graph 1.3). Furthermore, the creation of employment in the main advanced countries continued to contribute to the rise in domestic demand and the prices of raw materials. In the case of the euro zone, the unemployment rate has reached its lowest level since 2009 (Graph 1.4). In addition, the rate of investment continued its upward trend (Graph 1.5).

South America succeeded in leaving behind the 2016 recession due to the recovery of Brazil and Argentina. These had been presenting negative growth (from -3.5% in 2016 to 0.9% in 2017 and from -2.2% in 2016 to 2.9% in 2017 respectively[13]). According to the UN and the World Bank, the growth in 2017 for Latin America and the Caribbean is estimated to have been around 1.0%, and they project an increase to around 2.0% for this year. During the second half of 2017, Brazil managed to overcome negative investment rates

9 Total debt of non-financial sector with respect to GDP.

10 Other calculations suggest something similar. For example, the indicator of the credit to GDP gap with respect to its long-term trend proposed by the BIS shows a level of 18.9% for June 2017. A simple average of this gap since 1995 amounts to 6.5%.

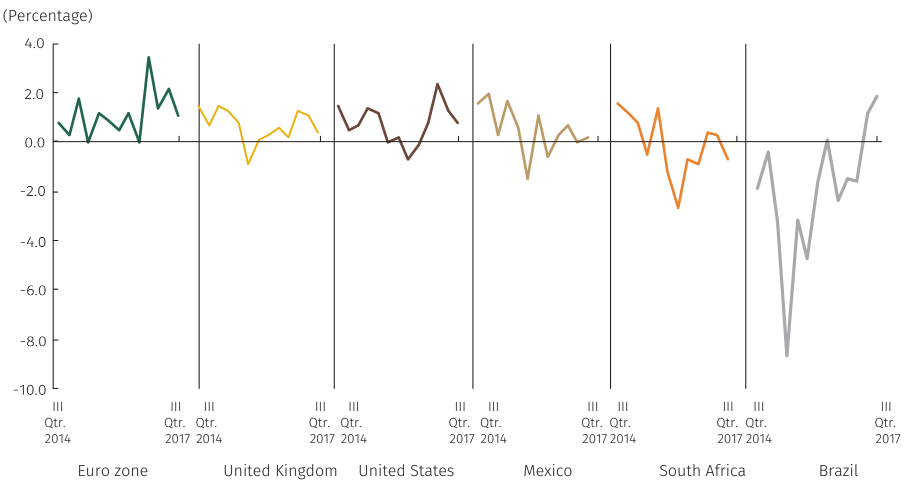
11 The PMI, for both emerging and advanced economies, has risen since the middle of 2016 (since the indicator is above 50, it suggests an expansion of economic activity for both groups of countries).

12 The PMI indicator reached a value of 60.6 in December 2017, the highest in 17 years.

13 Data and estimates of the Economic Commission for Latin America and the Caribbean (ECLAC).

associated, to some extent, with the declines in the prices for commodities at the end of 2014 (Graph 1.5).

Graph 1.5
Growth Rate of Fixed Gross Capital Formation



Sources: OECD, FED, and Trading Economics.

In contrast, the growth forecasts for Venezuela are much less encouraging and are, on average, at -10.4% and -4.9% for 2017 and 2018 respectively.[14] The inflation measurements continue to show rates of more than three digits. According to the UN, the change in prices for 2017 was 448.8% and according the International Monetary Fund (IMF) it came to 1,133%. This phenomenon was exacerbated by the monetary base infusion for the financing of the fiscal deficit which, in turn, furthered the depreciation of the currency. This crisis has unleashed a huge migration of the Venezuelan population to different countries including Colombia. According to migration statistics,[15] 686,363 Venezuelans were registered entering this country in the year 2017.

In general, after the shock to the prices for raw materials and its impact on national revenue in many economies in the region, the adjustment of the economies has generated significant fiscal pressure with effects on the sovereign risk rating of some countries.

After the shock to the prices for raw materials and its impact on national revenue for many economies in the region, the adjustment of the economies has generated significant fiscal pressure with effects on the sovereign risk rating.

14 Average of the World Bank, IMF, ECLAC and the UN forecasts.

15 The cumulative entrance of Venezuelans into Colombia from January until November 2017 (obtained from Colombian Immigration).

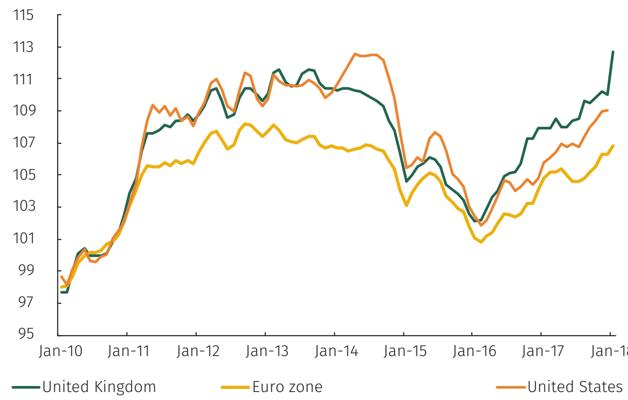
The sovereign ratings of Brazil,[16] Costa Rica,[17] Ecuador,[18] Guatemala,[19] Venezuela,[20] and Colombia[21] have been lowered recently by some of the risk rating agencies.

With regards to the global outlook for prices, the ones associated with the producer continue to rise (Graph 1.6) due in part to the steady increases in petroleum prices. Something similar is happening to consumer prices where the recent increase in fuel prices pushed the general level of inflation upward in the advanced economies (Graph 1.7). Although the underlying inflation is staying below the central banks' targets and salaries remain at low levels in spite of the low unemployment in these economies, the uncertainty about an increase in inflation has recently generated some concern in the markets. In the United States in particular, the latest information on wages showed a 2.9% increase in comparison to January 2017. This is the highest level since the economic crisis which, if it should pass

The rise in the price for crude oil has generated a transfer to the producer price indices and, to a lesser extent, to the consumer price indices in developed countries.

Graph 1.6
Producer Price Index

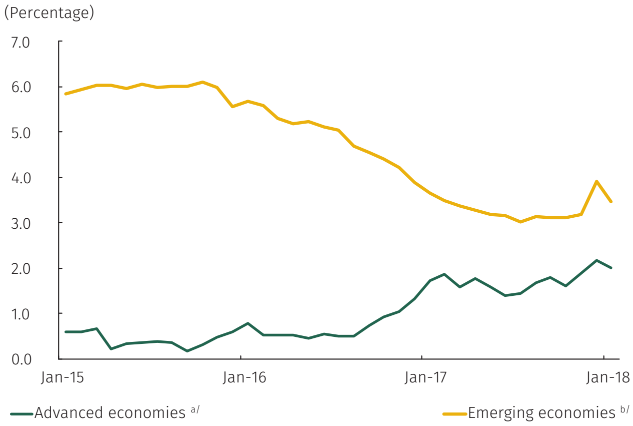
(2010 index =100)



Source: OECD.

Graph 1.7
Inflation in Emerging and Advanced Economies

(Percentage)



a/ United States, United Kingdom, Canada, and Euro zone.
b/ Brazil, China, India, Indonesia, Mexico, Russia, Saudi Arabia, South Africa.
Source: OECD.

16 The delay in the approval of the fiscal adjustment and the pension reform led to a decrease in the credit rating of their long-term sovereign debt. Standard & Poor's placed the rating between BB and BB- in January of 2018.

17 Costa Rica's fiscal deficit, which stood at 5.9% in 2017 was the main cause for the Ba1 to Ba2 decline in their long-term credit rating on the part of Moody's, and in January 2018, Fitch Ratings lowered the outlook from stable to negative.

18 The government's growing debt and interest burden, weak institutional capacity, and lack of monetary flexibility were the arguments for Standard & Poor's reducing the long-term credit rating of Ecuador from B to B- in June 2017.

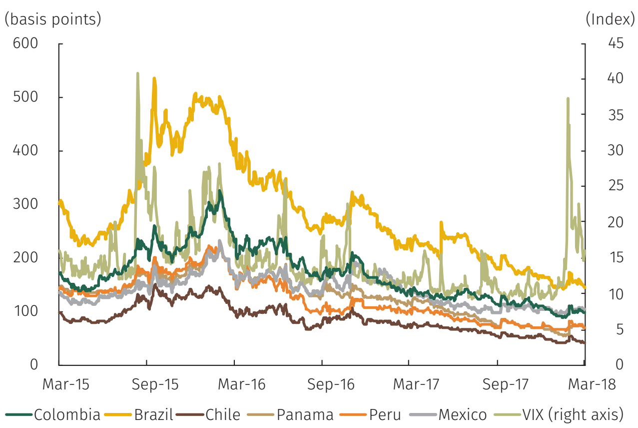
19 The outlook of weak growth added to a political crisis due to serious cases of corruption induced the rating agency, Standard & Poor's, to lower the credit rating of Guatemala from BB to BB- at the end of 2017.

20 Standard & Poor's lowered the rating of the long-term sovereign debt to SD (partial *default*) following the non-payment of USD 200 million on their global bonds. The Fitch agency also lowered the credit rating from C to RD (restricted *default*) due to the fact that bond creditors had not received the interest payments for sovereign bonds that mature in 2019 and 2024.

21 In December 2017, Standard & Poor's lowered Colombia's credit rating and took it from BBB to BBB- due to the weak growth of the economy in 2017 and the dependence on extraordinary income to compensate for the low performance of the tax reform in 2016.

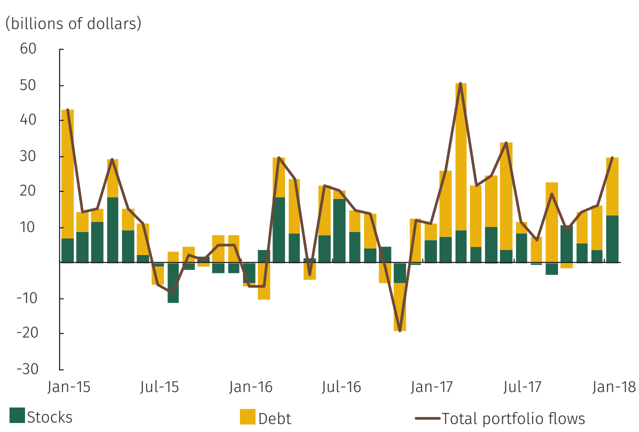
Despite high uncertainty in global politics, financial markets continued to present historically low levels of volatility in 2017.

Graph 1.8
Financial Volatility Indices and CDS of Some Countries in the Region



Source: Bloomberg.

Graph 1.9
Portfolio Flows to Emerging Markets



Source: Institute of International Finance.

through to prices, may require a faster tightening of monetary policy.

In this context, the gradual normalization of monetary policy in the developed economies has continued. In the case of the United States, during 2017 the Federal Open Market Committee (FOMC) raised the target range of the interest rate three times, as they took it from 0.75%-1.00% to 1.25%-1.50%. The Bank of England, in turn, raised the monetary policy rate to 0.5% in November 2017 for the first time in ten years.

With regard to the economies of emerging markets, the overall levels of inflation and underlying inflation have advanced in the last few months. Inflation is still moderate in Latin America. In the case of Argentina, inflation is expected to continue declining, if the growth of wages is lowered. Furthermore, in Brazil, inflation was reduced to 3.0% after a drastic drop in the food prices resulting from the exceptional harvest. Something similar occurred in several countries that saw this reflected in the food price figures with a slowdown and even drops after the upward shock from *El Niño* in 2016.

In spite of the high uncertainty in global politics, the financial markets continued to present historically low levels of volatility in 2017 (Graph 1.8). The *credit default swaps* (CDS) of the region, in turn, are holding to that trend. Nevertheless, after the United States reported the above-mentioned wage information, the stock markets corrected for the impetus they were carrying and presented a correction due to possible future inflationary pressures and their impact on monetary policy.[22]

In spite of this international context, capital flows into the EEM continue. In particular, the demand for their bonds continued rising and exceeded USD 180 billion (b) during 2017. This increase is important compared to the USD 36.2 b

22 The VIX (volatility index of the *put* options market in Chicago) rose, going to levels greater than 37, the highest figure reported since August 2015. The S&P500 index fell more than 10%.

Recovery is expected for most Latin American countries in 2018.

in international flows of debt in 2016 (Graph 1.9). The portfolio flows, in turn, amounted to USD 245.1 b during 2017 compared to USD 99.3 b the previous year.

1.2 Outlook for 2018

The world economy is expected to continue to become stronger in 2018 and reach a growth rate of 3.1% at market prices. This could be explained by the surge coming from the advanced economies (2.25% on average based on data from the World Bank and the UN). This forecast reflects the expectation that the surge in demand will continue, especially in the United States, where the fiscal reform could provide further impetus to the domestic demand in the short term thus generating greater growth for their main trading partners. However, this fiscal reform could put pressures on some EME through a decrease in capital flows due to the repatriation of profits by US companies to their country of origin.

Nonetheless, as has been indicated in recent reports by different international organizations, the low growth of productivity in the most important advanced economies (e.g., the United States, Japan, and Europe), together with the presence of high levels of indebtedness (especially household) and the impossibility of adopting structural reforms, threaten the medium-term growth, which could impair the *momentum* of the current situation.

The growth rate for the emerging economies will be 4.55%, a slight upturn compared to the 4.3% seen in 2017. This growing expansion could be supported by improved expectations for growth for the countries exporting raw materials, especially petroleum producers. In Latin America, while the global economic recovery has been transmitted to and the prices of raw materials have benefited exporting countries, the better economic outlook is accompanied by a high degree of uncertainty. According to ECLAC[23], the growth projections for the region in 2018 are 2.2% compared to the 0.8% estimated for 2017.

Generally speaking, a recovery is expected for most of the countries in Latin America. For example, an expansion close to 2.4% is projected for Mexico during 2018 due to the better outlook that the surge in US demand, the rise in oil company income, and the reconstruction activities resulting from the disasters of 2017 have generated. A 2.0% growth is expected for Brazil, which would show the growth of exports that reduced the deficit in the current account. According to ECLAC, Central America will have a growth rate of close to 3.6% in 2018, which is above the 3.3% for 2017. However, the level of uncertainty is high

23 Forecasts from the November 2017 *Preliminary Overview of the Economies of Latin America and the Caribbean.*

because of the effects that the monetary stance in the advanced countries and recent initiatives in the United States with respect to the tax code could have on capital flows. In addition, it should be noted that the uncertainty could be accentuated by the electoral and political panorama because of the presidential elections in many countries[24] in the region.

Given these forecasts, the estimates in the case of petroleum prices are expected to decline over the course of 2018 from the high levels reached in the first few months of the year (close to USD 70 per barrel) although only to a level that, on average, will probably be higher than what was seen in 2017.

In relation to the expectations around the international financial conditions, the advanced economies are expected to move in the direction of a tightening of monetary policy. It is important to bear in mind the fact that recently, after the publication of data on wages in the United States for February 2018, which could suggest inflationary pressure, the stock markets overreacted and made a 10% correction in ten days. In addition, volatility increased significantly, which makes it complicated to forecast whether or not financial conditions could change more quickly than expected.

In summary, worldwide economic recovery will continue throughout 2018 as a result of a favorable environment abroad with a growth of international trade as well as a high domestic demand in advanced economies and China. Likewise, the prices of raw materials are projected continue the recovery started in 2016, but at a lower rate than what was seen in 2017. However, uncertainty persists, especially due to monetary policy decisions in the advanced economies, the possible appreciation of the dollar, the probable tightening of international financial conditions, and the effects of commercial pressure on worldwide trade initiated by the United States. Furthermore, there is the possibility that the recent favorable scenario for the prices of commodities exported by Colombia such as petroleum could possibly go through a downward correction.[25]

Worldwide economic recovery will continue during 2018 as a result of a favorable environment abroad due to global trade and the domestic demand in advanced economies and China. In addition, the prices of raw materials could be somewhat higher than in 2017.

24 Costa Rica, Paraguay, Colombia, Mexico, Brazil and Venezuela.

25 The prices of 5-year contracts for futures showed levels that were close to USD 55.49 per barrel which suggests the possibility of a downward adjustment in the coming years.

02

The Colombian Economy: Results of 2017 and Outlook for 2018

The results of the national accounts for 2017 and the projections for this year indicate that the slowdown in the Colombian economy would have ended last year, and that a recovery process would begin in 2018.

The reduction of the current account deficit in 2017 and the one expected for 2018 suggest that the external balance would continue to adjust thanks to the better performance of the prices of commodities and a more dynamic external demand.

In 2017, inflation recorded a downward trend ending the year at 4.09%. It is expected to continue its convergence to the 3.0% target in 2018.

The results of the national accounts for 2017 and projections for this year indicate that the slowdown of output may have ended last year, and that in 2018 the Colombian economy will probably be able to start a recovery process. Similarly, the reduction of the current account deficit in 2017 and what is expected for 2018 suggest that the external balance could continue its adjustment. With respect to the behavior of prices, inflation registered a downward trend in 2017 and ended the year at 4.09%. Inflation is expected to continue its convergence with the target of 3.0% in 2018.

As will be explained in this section, in 2017 the dissipation of a number of adverse shocks[26] that affected the Colombian economy may have been completed. First of all, the international price for crude oil rose for the second consecutive year though at levels lower than those seen at the beginning of 2014 due to which the terms of trade, national revenue, and investment directed towards that sector continued to recover (Box 1). With respect to foreign demand, after five years of continuous slowdown in worldwide economic activity, the country's main trading partners presented stronger growth in 2017. At the same time, the real exchange rate remained above the average registered in the last ten years. These events could have been a stimulus for exports of goods and services from Colombia.

The international price of oil rose for the second consecutive year in 2017, and the country's main trading partners saw more vigorous economic growth.

Higher petroleum prices and the better demand from abroad were reflected in a smaller deficit in the dollar-denominated trade balance for 2017. Transfers registered significant growth (13.6%) due to the increase in workers' remittances. The net outflows due to factor income rose primarily due to the increased transfer of profits by the petroleum and coal companies. With these figures, the current account of the balance of payments continued adjusting as it went from -4.3% as a percentage of the gross domestic product (GDP) in 2016 to -3.3% in 2017.

Despite the recovery of national revenue in 2017, its growth continued to be limited due to which, the increase in spending remained weak.

In Colombia, a number of facts are highlighted that could have explained the trend of domestic demand in 2017. Although the national revenue recovered, its growth remained low and thus the increase in expenditures remained limited and consistent with the sluggishness of income. Another fact was the increase in the value added tax (VAT) and other indirect taxes at the beginning of last year, measures which were needed to preserve the country's fiscal sustainability but that affected the purchasing power of households. The above may have been partly offset by the decline in inflation, which improved the family purchasing power. This was also due to the reductions in the benchmark interest rate over the course of 2017 (from 7.75% to 4.75%) that tended to stimulate consumption and investment in a context in which there was an excess of installed capacity in the economy and an inflation and inflation expectations that continued to converge with the target. Another circumstance to emphasize in 2017 was the greater investment in public works projects generated by the local and regional governments as well as by the petroleum sector.

26 The decline in petroleum prices, which started in about mid-2014, generated a decline in the investment directed towards this sector and a deterioration in the terms of trade and the country's national revenue. At the same time, the slowdown in demand from abroad became accentuated and, as a result, industrial exports fell. Moreover, the recorded presence of a strong El Niño phenomenon since the end of 2015 affected agricultural production and increased the prices for food and electricity.

The reductions in the policy interest rate made throughout 2017 were transmitted to the interest rates for loans, primarily to commercial loans and mortgages, and to a lesser extent, to consumer loans.

The reductions in the policy interest rate carried out over the course of 2017 were transmitted to the interest rates for loans, mainly to the commercial and mortgage loans and, to a lesser degree, consumer loans. Commercial borrowing, which, as of mid-2017, had been declining for a full year, recovered at the end of the year. However, it registered real rates of growth that could be described as historically low. The nominal growth of the loan portfolio targeting households (consumer and mortgage) moderated and, at the end of 2017, it still had a much higher rate of growth than the one registered for the nominal GDP. The above credit trend occurred in a context in which the loan portfolio risk indicators were deteriorating. However, the financial system's loan-loss provisions and capital adequacy measures remain at appropriate levels.

With all of the above, in 2017, the Colombian economy grew 1.8%, a figure that is lower than the one registered in 2016 (2.0%), in spite of the fact that the growth of domestic demand (1.6%) was better than what had been seen the previous year (0.5%). This surge is primarily explained by the faster paced increase in public consumption (4.0%), the investment in public works (7.1%), machinery and transportation equipment (3.6%), and private consumption (1.7%). Exports fell 0.6% (less than the previous year, -1.2%) while imports rose 0.2%.

For 2018, the forecasts of the technical staff suggest that economic growth will probably be close to 2.7%.

With regard to prices, the direct effects of the sharp supply shocks, which had diverted inflation from the target starting at the end of 2014, disappeared in 2017. Thus, between the end of 2016 and of 2017, inflation went from 5.75% to 4.09%. The greatest slowdown was registered by the food segment, especially processed food and eating away from home. The consumer price index (CPI) excluding food also declined just like the rest of the core inflation indicators, although to a lesser extent, as it was affected by the price indexation and the increases in indirect taxes at the beginning of the year. In December 2017, the average of the four measurements of core inflation stood at 4.66%.

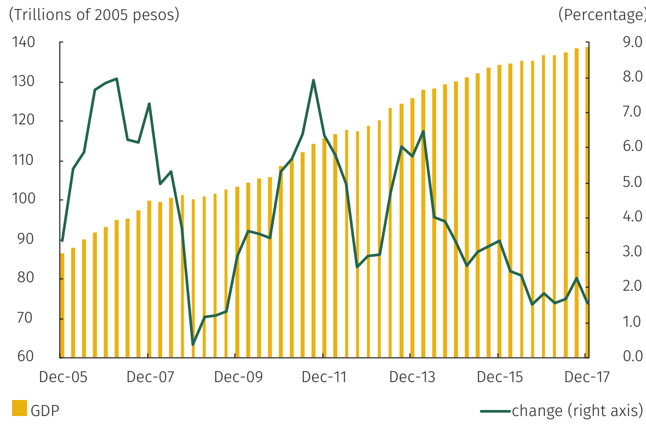
For 2018, the forecasts of the technical staff suggest that economic growth will probably be close to 2.7%. This assumes a price for crude oil (Brent benchmark) that could remain at an average that is around USD62 per barrel and that the demand abroad continues to recover. With this, an improvement in dollar-denominated exports that could contribute to reducing the deficit in the current account to 3.1% of the GDP is expected. The investment in public works projects, primarily in roads and in machinery and equipment, will probably be stronger. Likewise, the reductions in the benchmark interest rate that have been made up to now should help the recovery of consumption and investment. With respect to price trends, the direct effect of the increase in the VAT on inflation should have disappeared by the end of the first quarter of 2018. The economy's excess of installed capacity should also contribute to the convergence of inflation with the target of 3%.

2.1 Economic Activity

2.1. 1 Change in Economic Activity in 2017

According to the information from the national accounts published by the National Bureau of Statistics (DANE), the GDP registered an annual expansion of 1.8% last year (Graph 2.1). This figure represented a slight downturn with respect to what was registered in 2016 (2.0%). This result occurred in a context in which total consumption remained at rates of growth that were similar to those in 2016, investment ceased to fall, and imports did not decline as had happened in the past.

Graph 2.1
Gross Domestic Product
(seasonally adjusted)



Source: DANE, calculations by *Banco de la República.*

These figures, together with the forecasts for 2018, which will be shown below, suggest that the slowdown in the Colombian economy bottomed out in 2016 and 2017. During this last year, the adjustment of the economy to lower levels of the terms of trade made significant progress as is suggested by the moderate growth in expenditures and the closure of the deficit in the current account.

The resulting growth of the GDP for 2017 as a whole was supported by an improved performance in the foreign demand, favorable financial conditions at the international level, and better terms of trade, especially because of higher prices for crude oil and coal. Nevertheless, the prices for the last two are still lower than the ones seen in mid-2014 when their fall significantly battered national revenue. The improvement in conditions abroad together with a moderate growth in domestic demand made a closure of the external imbalance possible in addition to the closure that had been seen in 2016.

In the domestic sphere as will be mentioned in section 2.3, the decline in inflation contributed to maintaining the purchasing power of family income in spite of the negative effect that raising the VAT and the other indirect taxes had on private consumption. Added to the above is a major investment in public works and an upswing in public consumption, which contributed positively to the moderate growth of the Colombian economy. Thus, the increase in domestic demand climbed in 2017 with a slight increase in the level of imports, a fact that contrasted with the sharp contraction seen in 2016 for this item.

It should be pointed out that the decline of inflation made a more expansionary handling of monetary policy possible throughout 2017. Although the transmission of the decreases in the benchmark interest rate to some of the market rates was partial, this reduction was a relief for the income available in the economy. Given the lag with which monetary policy works, this transmission is expected to be completed in 2018 when the effect of the decline in rates on productive activity should be greater.

All the above contributed to an expansion of 1.6% in domestic demand for the full year compared to 2016, a year in which a growth of barely 0.5% per annum was registered. As can be seen from the analysis of the different items that it is made up of, the upswing in absorption was mainly attributable to the better performance of investment. The aggregate consumption, in turn, grew at a rate that was slightly higher than the rate for the previous year. Nonetheless, its composition was different: while the growth of the private component was slightly higher than what had been seen the previous year, the public one reported significantly higher increases than those registered in the past (Table 2.1). In this respect, the increase in the VAT and the accumulated effects of the change in the relative prices by means of a reduction in the prices of non-tradable goods with respect to tradable ones continued to limit the possibilities of expansion of not only private consumption, particularly of durable and semi-durable consumer goods, but also imported capital goods.

GDP growth for 2017 as a whole was supported by a better performance in the foreign demand, favorable financial conditions at the international level, and better terms of trade.

This being the case, the largest downturns within private consumption occurred in semi-durable consumption. The consumption of non-durable goods and of services decreased marginally while consumption of durable goods did not fall. In principle, the improvement in the agricultural supply (a result of getting over El Niño) and the subsequent decline in food prices may have made it possible for consumption of non-durable goods to maintain a growth rate that was somewhat similar to the one in 2016. The consumption of services, in turn, was probably affected, in part, by the supply shocks in the aviation transportation sector towards the end of the year. The increase in the VAT, the accumulated depreciation of the peso with respect to the dollar, and a high basis of comparison towards the end of 2016, especially in the case of consumption of durables led, in turn, to private consumption of durable and semi-durable goods showing their lowest record within household spending. In contrast, the greater public consumption was the result of a positive level of implementation on the part of regional and local governments, which had probably more than offset the gradual expenditure adjustment process on the part of the national central government (NCG).

Domestic demand grew 1.6% in comparison to 2016, the year in which a growth of 0.5% per annum was registered, largely due to the performance of the investment.

With respect to the performance of gross fixed capital formation, 2017 was a year in which its recovery was the result of the better performance of some of its components. While the investment in public works and in machinery and equipment registered significant expansion, the investment in the construction of buildings and in transportation equipment showed downward trends.

Table 2.1
Real Annual Growth of the GDP by Type of Expenditure

	2016	2017				2017
	Full year	I Qtr.	II Qtr.	III Qtr.	IV Qtr.	Full year
Total Consumption	1.7	2.0	2.3	2.9	1.6	2.2
Household Consumption	1.5	1.6	2.0	2.5	0.9	1.7
Non-durable Goods	2.2	1.1	2.0	2.9	2.0	2.0
Semi-durable Goods		-3.6	-3.3	-1.5	-1.0	-2.4
Durable Goods	-1.0	7.1	-1.7	6.7	-8.2	0.7
Services	2.6	2.7	2.6	1.9	1.1	2.1
Final government consumption	2.4	3.8	3.5	4.4	4.2	4.0
Gross Capital Formation	-3.3	-0.9	0.7	0.0	0.5	0.1
Gross Fixed Capital Formation	-2.7	-1.7	1.5	0.3	0.3	0.1
Agriculture, Forestry, Hunting, and Fishing		1.9	-4.9	-2.2	3.4	-0.5
Machinery and Equipment	-8.2	-0.9	4.3	6.7	4.5	3.6
Transportation equipment	-31.3	-3.6	-2.1	-0.2	-13.1	-5.0
Construction and Buildings	6.4	-8.0	-8.2	-15.9	-13.1	-11.3
Public works	-0.4	3.5	7.2	9.1	8.7	7.1
Services	-2.7	-3.1	1.4	0.9	4.2	0.8
Domestic demand	0.5	1.4	1.8	2.1	1.3	1.6
Total Exports	-1.2	-5.9	2.6	5.0	-3.8	-0.6
Total Imports	-7.3	-1.1	4.4	1.9	-4.0	0.2
GDP	2.0	1.5	1.7	2.3	1.6	1.8

Source: DANE, calculations by *Banco de la República.*

In the case of public works, the positive performance of this segment was associated with the larger disbursements of funds by local and regional governments for the implementation of the engineering work as well as due to the increased investment in exploration and development by various firms in the oil sector. In 2017, the spending on different highway projects did not contribute to the expansion of the GDP just as had been predicted by the authorities in the infrastructure sector, the technical staff at *Banco de la República*, and market analysts at the beginning of last year.

In connection with the deterioration in building construction, several factors contributed to the decline. For this component of investment, some sluggishness in construction work in the non-residential segment was observed as well as an increase in the accumulation of the available supply and a weakening of the demand for offices, commercial premises, and high-income housing. For investment in transportation equipment, the accumulated depreciation of the exchange rate, the accumulated stock for this type of capital, and the high basis of comparison towards the end of 2016 contributed its poor performance.

With respect to the foreign trade accounts, the results for 2017 revealed that the correction of the deficit in the trade balance was driven more by an improvement in the prices than by an increase in the quantities exported. Indeed, sales abroad in constant pesos registered a slight decrease although this result was better than what had been seen in 2016. Even though dollar-denominated figures showed significantly higher increases, this had more to do with the international prices than with the quantities traded. The decline was linked to the weak performance of primarily crude oil, coal, and coffee production. In contrast, real imports expanded at a rate of 0.2% per annum. As was reported, this would have been consistent with the recovery of the gross capital formation.

Regarding supply, the sectors that grew the most in 2017 were agriculture (4.9%) and financial services (3.8%). In contrast, mining (-3.6%) was the branch that showed the greatest reduction followed by industry (-1.0%), construction (-0.7%), and transportation (-0.1%) (Table 2.2).

In this environment, the GDP for tradables showed an expansion of 0.5% in 2017, which was similar to the one registered the year before (0.4%). However, when mining is excluded, the GDP for those activities grew 1.3% (2.2% in 2016). In addition, the GDP for the non-tradables branches also showed a downturn as it went from 3.1% in 2016 to 2.6% in 2017.

Table 2.2
Real Annual GDP Growth by Branches of Economic Activity

	2016	2017				2017
	Full year	I Qtr.	II Qtr.	III Qtr.	IV Qtr.	Full year
Agriculture, forestry, hunting and fishing	1.6	8.6	4.0	6.3	1.0	4.9
Mining and quarrying	-7.0	-8.5	-4.9	-1.0	0.5	-3.6
Manufacturing industry	3.4	1.2	-3.1	-0.9	-1.4	-1.0
Electricity, gas and water	-0.8	-1.1	1.4	2.0	2.3	1.1
Construction	4.5	-1.4	0.9	-1.8	-0.6	-0.7
Buildings	6.0	-7.1	-7.6	-14.7	-12.4	-10.4
Public works	2.6	3.4	7.2	9.1	8.7	7.1
Commerce, repairs, restaurants and hotels	2.6	0.4	1.9	2.2	0.3	1.2
Transportation, storage and communications	0.6	-0.6	0.8	0.5	-1.0	-0.1
Financial, real estate and corporate services	4.4	3.9	3.9	4.0	3.4	3.8
Social, community and personal services	2.0	3.2	3.3	3.6	3.7	3.4
Subtotal –value added	2.2	1.4	1.4	2.0	1.3	1.5
Taxes minus subsidies	0.6	2.5	3.9	5.2	3.9	3.9
GDP	2.0	1.5	1.7	2.3	1.6	1.8

Sources: DANE, calculations by *Banco de la República*.

Agriculture showed a favorable performance after suffering shocks such as El Niño and the trucker's strike that affected the agricultural supply during a large part of 2016 (Box 2). Within this branch of activity, the strength of the other agricultural products, which is explained by the increase in annual (8.1%) and perennial (8.9%) crops, was emphasized. In addition, livestock production and hunting grew 4.1% with the support of areas related to milk, poultry, and eggs. In contrast, there was a 1.7% annual decline in coffee production which, according to the trade association, was due to problems in harvesting the coffee beans caused by the increase in rainfall towards the end of the year.

Although financial services continued to expand more than the rest of the sectors, there was a downturn in those services as they went from 4.4% in 2016 to 3.8% in 2017. Considering its high share of the GDP (21.2%), this sector has remained one of those that has contributed the most to the expansion of the economy. Within this area of business, the growth of financial intermediation (6.7%) and of real estate and housing rental (2.8%) stands out.

In contrast, mining showed a sharp decline in 2017 (-3.6%), after having contracted 7.0% the previous year. In this segment, both petroleum and coal production showed setbacks that were caused by the adjustment process that the sector went through after the fall of international prices for these products and the subsequent decrease in the levels of mining-energy investment. In fact, how this sector went from growing 9.3% on average between 2008 and 2013 to falling to 2.9% on average between 2014 and 2017 should be noted.

Agriculture showed a favorable performance after suffering shocks that affected the agricultural supply during a large part of 2016.

The manufacturing industry as a whole reported a poor performance during 2017 as it fell 1.0%. When petroleum refining is excluded, it fell 2.5%. According to the National Association of Colombian Business Owners (ANDI), business owners attributed this decline to both a low domestic and foreign demand and the rising cost of imported production supplies. It is relevant that the above counteracted the positive effect that the accumulated depreciation could, in principle, be expected to have on this production. Likewise, even though several trade agreements have been signed in the past few years and a search for new markets has been stimulated, there currently are limitations on the expansion of the supply of goods that can be exported due to the low demand abroad and the firms' difficulties in taking advantage of a competitive exchange rate.

The construction of both residential and commercial buildings declined.

Last of all, as was mentioned, construction had a setback that was mainly due to the deterioration of building construction, which counteracted the impetus of public works. Similarly, the GDP for transportation showed a decline of 0.1%. It should be noted that this activity declined 1.0% in the fourth quarter. This was caused by the negative effect that the Avianca strike had on air transportation and which registered an annual change of -5.5% for that quarter.

2.1.2 Outlook for Economic Activity in 2018

The information available makes it possible to think that a substantial part of the Colombian economy's adjustment to the terms of trade shock had already taken place in 2017. A better performance in the growth of the GDP is anticipated for this year since the critical factors (both foreign and domestic) that determine its growth show clear signs of recovery. In this context, the technical staff at *Banco de la República* have estimated an economic growth of 2.7% per annum in their central forecast. The risks to this forecast are more balanced and this reflects the recent trend of crude oil prices and the improvement of the conditions on the international scene. Thus, the Colombian economy could gradually become more dynamic in 2018 with a growth that will probably approach a rate that is closer to what could be a potential long-term rate of expansion estimated at around 3.3%.[27]

The outlook for GDP growth for this year is related to the assumptions about the performance of factors abroad. Thus, in 2018 a recovery of economic growth is anticipated for our main trading partners with respect to what was registered last year. In particular, greater vitality in developed economies is envisioned accompanied by a recovery (although smaller) in the growth of most of the Latin American countries. The combination of the two factors assumes a positive contribution of foreign demand to the growth of the Colombian economy.

A better performance in the growth of the GDP is anticipated for 2018 since the critical factors (both foreign and domestic) that determine its trend show signs of recovery.

Furthermore, although the significant increases in the price for petroleum in the first few months of 2018 could be transitory in nature, the growth forecasts for the GDP for 2018 as a whole assume a rise in this and other international prices for raw materials exported by this country. To be precise, the international Brent price for crude oil (benchmark for Colombia) is expected to stand at USD 62 on average for the entire year. This represents an increase of 9.5% compared to the information from 2017.

When considering this recovery of petroleum prices, both an improvement in the level of the terms of trade compared to last year and an incentive for exploration and drilling for oil in Colombian territory can also be seen. In addition, this could contribute to a better performance of the gross national income available and of the fiscal accounts of the NCG in the medium and long term. The higher foreign demand and rise in the level of the terms of trade could foster a better performance for net dollar-denominated exports which, in turn, would continue to help the trade deficit and the current account to make the adjustment.

In their central forecast, the technical staff at *Banco de la República* estimated an economic growth of 2.7% per year with a more sTable Bisk balance based on this forecast.balanceado.

27 This estimate is an average of different methodologies used by *Banco de la República* to calculate the potential GDP. To be specific, the approximation, which corresponds to the production function, suggests that the potential GDP growth was probably 3.40% in 2017 and will be 3.43% in 2018.

The estimated recovery assumes capital inflows at relatively stable levels.

The estimated recovery also assumes that the Colombian economy will likely continue to be funded without any serious inconvenience by the savings abroad during 2018 and that the capital inflows will probably remain at relatively stable levels. This is taking into account the fact that recent downward revisions of the outlook for Colombian public debt on the part of the risk rating companies were not transmitted to the country-risk indicators. Note that there are some risks in this aspect and increases in the cost of foreign credit are not ruled out given the normalization of the monetary policy stance in the advanced economies.

At the national level, GNC expenditures and investment in public works are expected to make a positive contribution to the expansion of output in 2018. In the first case, a growth is expected that is slightly lower for the current year than what may have been seen for 2017 as a whole. This would be the result, to a great extent, of the effects of the electoral calendar and the adjustment that is expected in the fiscal accounts on the part NCG in line with the provisions of the Medium-Term Fiscal Framework (MFMP in Spanish) and with the deficit that is allowed by the regulatory fiscal framework. However, a greater implementation by regional and local governments is expected compared to last year.

Growth in 2018 should turn out to be facilitated by an additional reduction of inflation and by the recent monetary policy actions.

With regards to the investment in public works, significant expansions in this type of expenditure are projected like those observed in 2017. This is due to greater expenditures on infrastructure on the part of the regional governments which, in turn, would supplement the positive performance expected for the investment in exploration and development in the petroleum sector and, to a lesser degree, the investment in tertiary roads and other highways in the 4G framework.

Growth in 2018 should turn out to be favored by an additional reduction of inflation and by the recent monetary policy actions, all of which would give impetus to the real disposable income in the economy and with it, spending. This would occur provided that the market rates continue reacting to the accumulated downward movements to date in *Banco de la República*'s intervention rate. However, there is the risk that the high levels of indebtedness that agents in the economy have and the recent deterioration in the loan portfolio could act as constraints on an expansion of demand through this channel.

For this year, private consumption is expected to remain modest and thus similar to what was registered for the 2017 aggregate. As has already been stated, even if lower inflation and a more expansionary monetary policy stance represent a relief for the purchasing power and available income of households that are net debtors, the high financial burden households have and the, as yet, low levels of confidence will probably limit their performance in 2018. This could be especially relevant for segments of durable and semi-durable consumption that, in both cases, will probably register growth rates that are below their historical averages.

With all of the above, the forecasts of GDP growth in 2018 presented in this *Report* include an implicit surge in the rate of expansion of domestic demand in comparison to what was seen in 2017. This better performance would probably occur, mainly, in a context of major growth rates of gross capital formation. In addition to the contribution of public works already described, the benefits of the reduction of the tax burden on companies that was approved in the tax reform should play an important role in private investment this year. With the above, increases are expected in the areas of machinery for industry and transportation equipment. In contrast, for investment in building construction, mediocre performance is likely to be seen again due to the sluggishness that the demand in this market has shown during the recent period. This has produced an excess of supply in the sector of buildings (commercial premises, offices, and high-income housing).

With respect to the foreign trade accounts, the forecasts of GDP growth for the current year assume that foreign demand will make a positive contribution to economic activity. Sales abroad should be driven by the better performance of both commodities and the goods classified as non-traditional. Exports of services, in particular in the tourism sector, could also play an important role. Imports, in turn, registered positive growth rates. This could be the result of a greater expansion of an intense domestic demand for goods and services from abroad. Specifically, purchases of capital goods will probably be necessary to put the GDP on track to reach its potential growth.

The forecasts for 2018 include an implicit upsurge in domestic demand compared to 2017.

From the sector standpoint, the recovery of domestic demand will probably facilitate the production of tradable and non-tradable goods and services at the same time as stronger trading partners could make it possible to stimulate the tradable productive apparatus and with it, the gradual adjustment process in growth that the Colombian economy has been going through in recent years could be consolidated. In addition, the competitive level of the exchange rate should also assist in this process.

The recovery of domestic demand facilitated the production of tradable and non-tradable goods and services.

With respect to agricultural work, the forecasts made by international agencies such as the National Oceanic and Atmospheric Administration (NOAA) point to better climatic conditions, which makes it possible to expect favorable performance for the sector. Likewise, the forecasts for international food prices indicate somewhat higher levels than those seen in 2017, which would also stimulate the cultivation of such products. Furthermore, the improvements in the security conditions in the rural areas is also expected to make positive performance in the agricultural sector possible. However, there is the risk that the decline in domestic prices for food seen in 2017 could discourage planting of agricultural products, which would, in turn, limit the expansion of the GDP for this sector.

In the GDP for mining, in turn, an expansion stimulated by the higher petroleum and coal prices is estimated for 2018 as a whole after two years in which production decreased as a result of the fall in their prices. The recent increases in these prices, if maintained at the levels seen in January 2018, would imply a significant rebound in comparison with the levels registered, on average, during 2017. However, there could be some reductions during the second half of the year since, in the opinion of the majority of the analysts, the rise seen at the beginning of 2018 is transitory. It should be noted that in spite of the above, the estimates point to an average price in 2018 that would be higher than the one in 2017. Moreover, the international prices would make it possible for inflows of mining-energy investment to grow in such a way that a better performance of the investment projects could be expected compared to what was implemented last year.

During 2017, the labor market deteriorated as a consequence of the economic slowdown that started in 2015.

In the case of the manufacturing industry, a significant part of the sub-branches that it is made up of are expected to recover in 2018 in line with the projections for better domestic demand and for our trading partners who purchase industrial goods. All of that could occur in a context in which the exchange rate remains stable so that business owners are able to: 1) take advantage of elements of competitiveness with respect the foreign demand, and 2) plan and get access to imported capital goods and production supplies.

Last of all, the expected growth of public works projects will continue to stimulate non-tradable production and contribute significantly to the growth of the GDP for this year and the next. It should be noted that investment in public works for mining will probably make it possible to expect favorable growth for the sector. Furthermore, this sector has productive chains with branches such as industry and transportation due to which, it should also contribute to strengthening these groups.

2.2 Labor Market

In general terms, the labor market deteriorated in 2017 as a consequence of the economic slowdown that started in 2015 and that may have bottomed out last year. The national rate of unemployment (UR) rose in 2017, and began to show signs of a growing trend. Such behavior persisted throughout the year in the urban UR (Box 3). Regarding employment levels, although they grew on average during 2017, they showed declines on both the national level and and that of the urban areas in the second half of the year. Finally, considering the fact that the upswing in the growth forecast for 2018 is moderate and its effects on the labor market are somewhat lagged, the deterioration of the conditions in that market are expected to continue this year although at a pace that is slower than what was seen in 2017.

2.2.1 Unemployment[28]

According to the National Bureau of Statistics' (DANE) *General integrated household survey* (GEIH in Spanish), the UR rose during 2017. The quarterly moving average[29] shows a marked rising trend for the thirteen major metropolitan areas. With regards to the national level, the UR seems to have begun to follow this trend although its rise has been more moderate (Graph 2.2).

Graph 2.2
Unemployment Rate
(seasonally adjusted quarterly moving average)

Source: DANE (GELH) and calculations by *Banco de la República*.

2.2.2 Labor Supply and Demand

The trend of unemployment can be explained by the interaction between the labor supply, represented by the overall participation rate (OPR), and the demand, expressed by the employment rate (ER). For the national total, both the OPR and the ER showed slight increases during the first half of 2017; however, in the second half of the year both fell. Thus, the increase in the national UR since mid-year is a consequence of a deterioration in the ER that was not offset by a decline in the OPR (Graph 2.3, panel A). In the thirteen areas, in turn, the seasonally adjusted series for the OPR and ER showed declines throughout 2017 as a whole. In this geographical domain also, the decrease in the ER surpassed the decline in the OPR due to which the UR presented an annual increase (Graph 2.3, panel B).

The downswing in the ER during 2017 reflects the reductions seen in the employment levels for both the national total and the thirteen areas respectively during the second half of the year. However, as an average for the year, employment showed positive rates of annual growth in 2017 in these domains: the number of people employed grew 1.0% and 0.1% per annum in the national total and in the thirteen areas respectively (Graph 2.4). With respect to the OPR, its reductions at the national and urban level were pervasive in all the groups in the population but were concentrated among those under the age of 25 and above 45 in both domains.

By branch of economic activity, the creation of national employment during 2017 was, on average, seen to be driven mainly by the sector of

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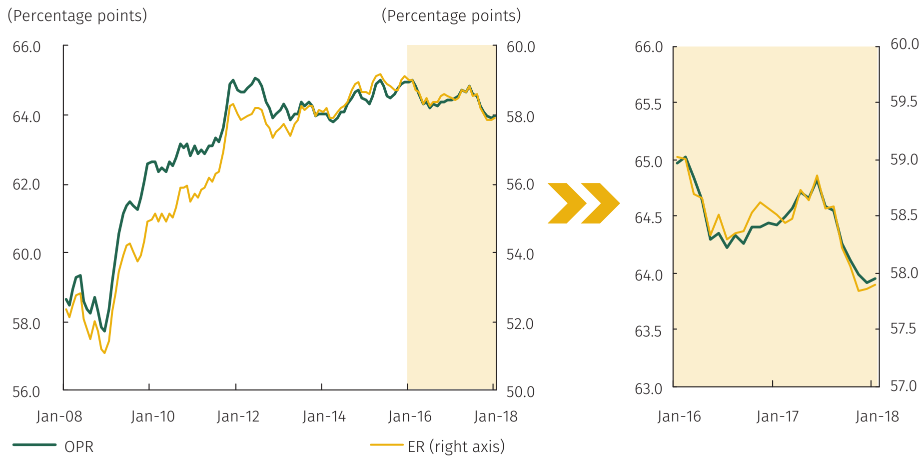
28 The labor market is showing a seasonal adjustment, i.e., its numbers are systematically higher or lower depending on the time of year. Therefore, this has to be corrected through statistical techniques in order to compare different months of the same year. Because of that, what is presented in this section is seasonally adjusted.

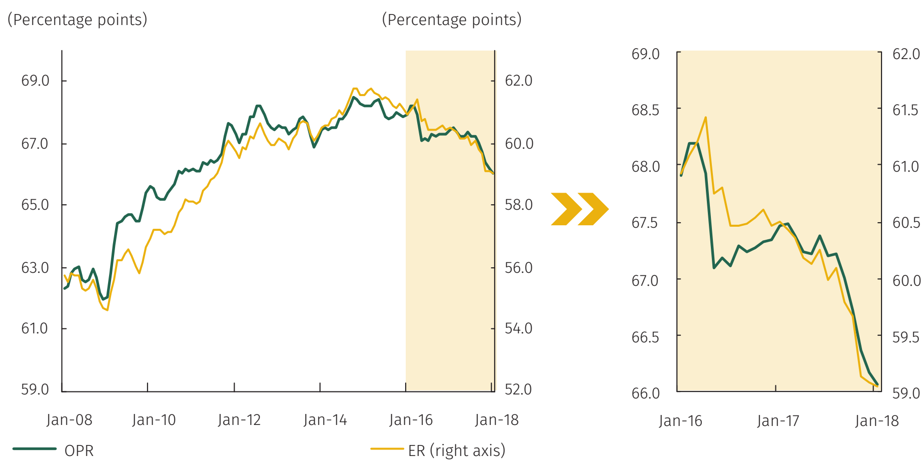
29 The quarterly moving average has fewer errors with respect to the monthly series since it shows less variability.

Graph 2.3
Overall Participation Rate (OPR) and Employment Rate (ER)
(seasonally adjusted)

A. National Total



B. Thirteen areas



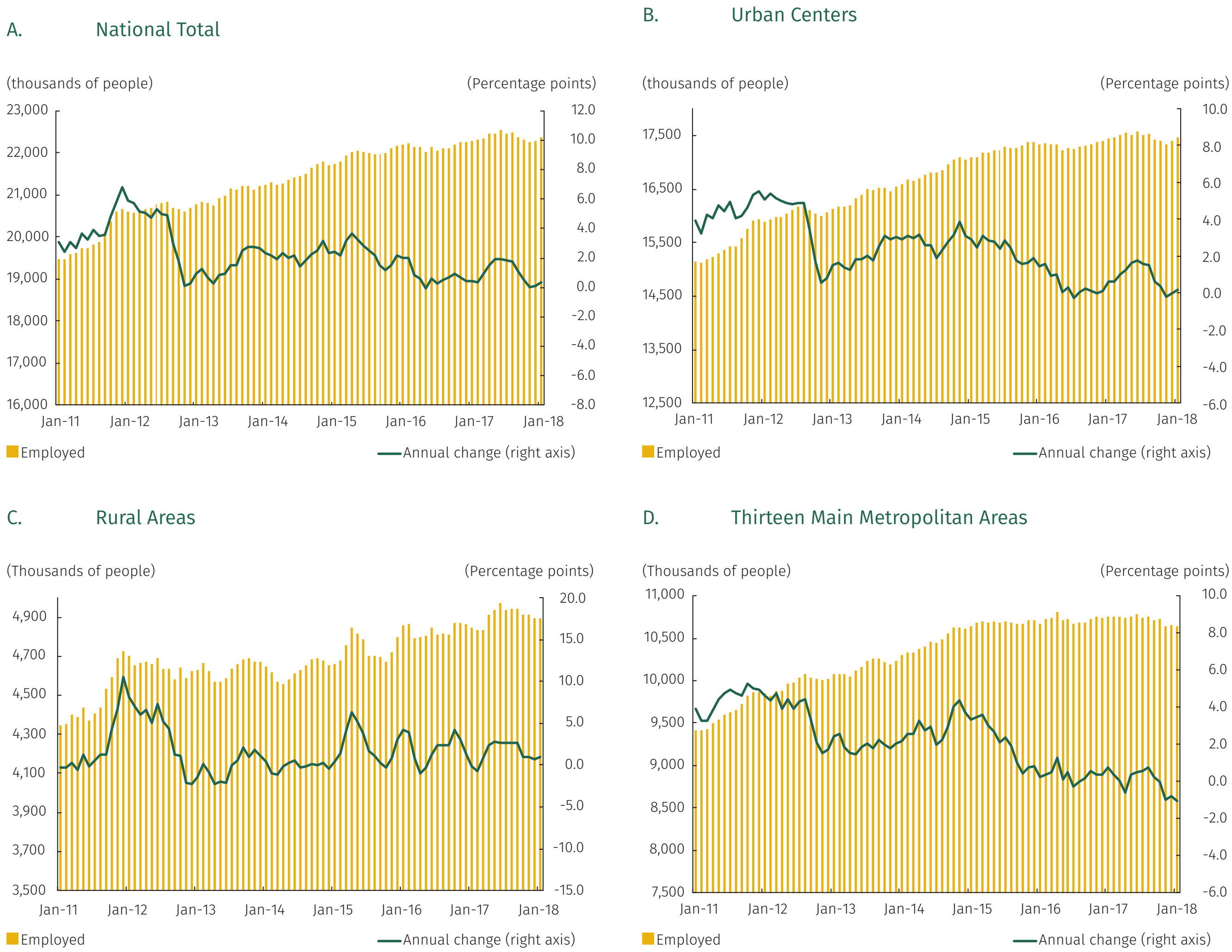
Source: DANE (GIHS)

agriculture, animal husbandry, hunting, forestry and fishing, the manufacturing industry, and the real estate, business, and rental sector. The offsetting effect of employment in rural areas during the first half of 2017 stands out. The sector of commerce, hotels and restaurants, and the construction sector are among the branches that significantly subtracted from the generation of employment in 2017.

2.2.3 Quality of Employment and Labor Market Conditions

Even with the sluggishness of the labor market seen in 2017, the quality of employment indicators in the thirteen areas did not show a significant deterioration during the year. Specifically, the number of

Graph 2.4
Number of People Employed Seasonally Adjusted and Annual Change



Sources: DANE (GELH), calculations by *Banco de la República*.

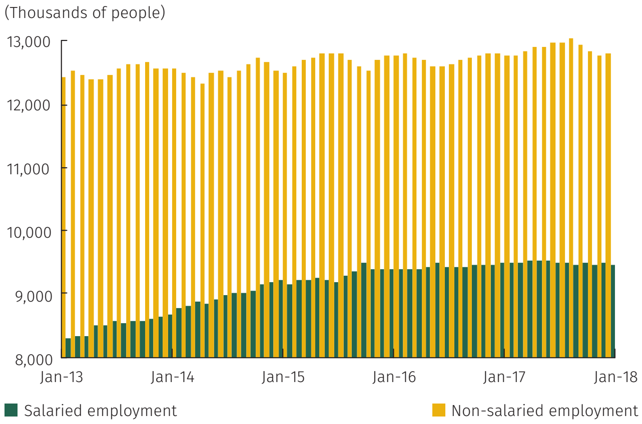
salaried employees rose slightly, and the legal[30] job market remained practically stable. Increases in legal jobs and salaried employment are usually associated with progress in the quality of employment since the workers with these types of jobs enjoy greater job stability, higher wages, and greater access to loans – factors that in turn, boost household confidence and consumption.

Within the national total, the number of wage-earners rose 0.7% per annum, on average, over the course of 2017 while the number of non-salaried workers grew 1.3% annually. The salaried employment

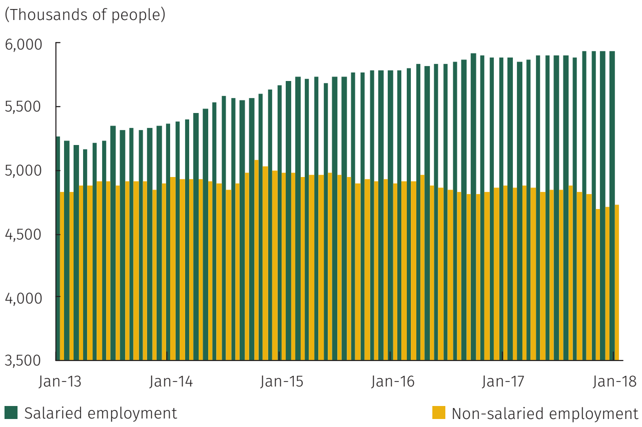
30 All workers or laborers in private companies and the government are considered wage-earners. This is based, in turn, on DANE's definition, which is founded on the resolutions of the United Nations International Labor Organization (ILO), employers and workers in companies that have up to five workers, unpaid family workers, unpaid workers in other household companies or businesses, domestic workers, day laborers or peons, and independent workers who work in establishments that have up five people with the exception of independent professionals are informal (DANE, 2009).

Graph 2.5
Employment by Type of Occupation
(seasonally adjusted quarterly moving average)

A. National Total



B. Thirteen areas



Source: DANE (GEIH), calculations by *Banco de la República.*

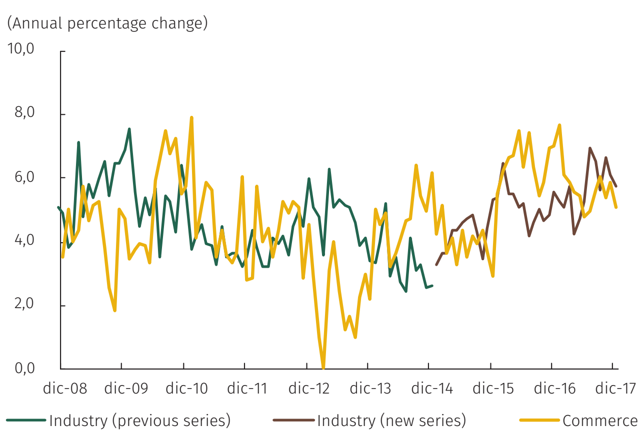
rose on average 0.9% per annum in the thirteen areas while the non-salaried employment fell 0.8% annually. However, since mid-2017, there have been reductions in the number of non-wage-earners in both geographical domains (Graph 2.5). Also in the thirteen areas, in turn, the growth rates for formal and informal employment during 2017 were 0.5% and -0.3% respectively per annum.

2.2.4 Wage and Labor Costs

During 2017, the salary adjustments were higher than the inflation target. Between January and December, the nominal wages in retail trade and industry rose 5.7% per year on average (Graph 2.6, panel A). With regards to heavy construction and housing construction, the nominal wages registered an average annual growth of 4.3% and 5.7% respectively. In both cases, these rates remained relatively stable throughout the year after the readjustments in the first quarter (Graph 2.6, panel B). Nevertheless, there is some evidence that the increases in labor productivity could account for the difference between the adjustment in nominal wages and inflation.

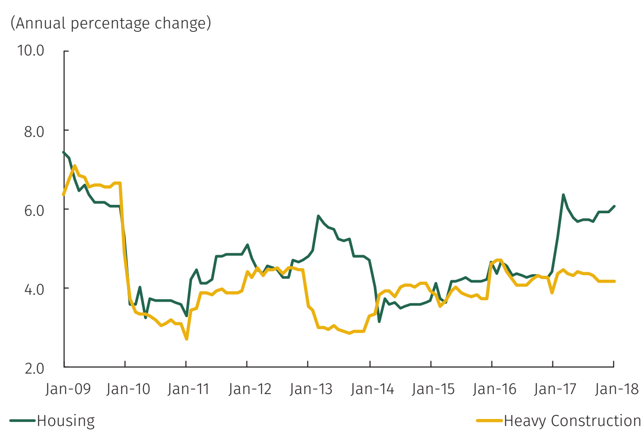
Graph 2.6
Nominal Salary Index

A. Industry and commerce



Source: DANE (EMCM and EMM), calculations by *Banco de la República.*

B. Heavy construction and housing



Source: DANE (ICCV and ICCP), calculations by *Banco de la República.*

2.2.5 Outlook for 2018

Despite the economic recovery projected for 2018, the labor market indicators will probably continue to deteriorate though at a slower pace.

Even though a recovery of economic activity is anticipated for 2018, the labor market indicators could deteriorate this year although at a slower pace than in 2017. To be specific, the UR could continue its rise in 2018, but it is expected that that increase will be more moderate. The above would be due to the fact that the surge in growth forecast for 2018 is moderate and that there is a lag between that recovery and the resulting reaction in the labor market.

The information on nominal wages as of December 2017 indicates that these are still adjusting at rates that are above the inflation target. This trend is one that could continue at the beginning of 2018 given the increase in the minimum wage for the current year (5.9%).

In short, given that no significant improvement in the labor market conditions is anticipated, no significant pressure on wages or, by means of this channel, on prices, should be seen. Nevertheless, given the importance that the adjustment to the minimum wage has for the labor market, it could be the source of some upward pressure on prices, especially for services such as health and education. It should be noted that the above should not interrupt the process of inflation converging with the target over the course of the year.

2.3 Inflation

During 2017, the total annual inflation continued to converge with the target of 3.0% set by the Board of Directors of *Banco de la República* (BDBR). A similar trend was seen in the various core inflation indicators although, in this case, the decline was slower. A low basis for comparison in the second half of 2016 due to the positive performance of food prices and some unexpected supply shocks that made themselves felt at the end of the year provoked upswings in inflation in the second half of the year. Nevertheless, it is believed that these events will have a short-term impact on consumer prices and should reverse themselves at the beginning of 2018.

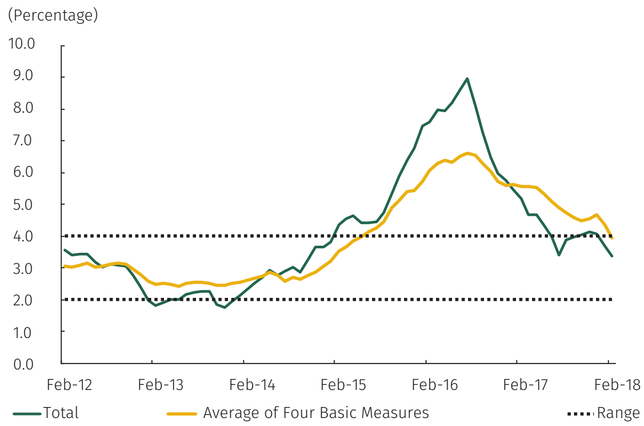
The monetary policy implemented between September 2015 and August 2016 (with a total increase of 325 basis points [bp] in the interest rate) geared towards ensuring the gradual reduction of inflation to its target helped to moderate the growth of domestic demand, bring about a reduction of inflation expectations, reduce the role of the various indexing mechanisms, and with that, defuse inflationary inertia during 2017. Added to that was the existence of the excess productive capacity that resulted from the weak aggregate demand, the relative stability of the peso, and the normalization of food prices once the effects of El Niño and the trucker's strike in 2016 disappeared. These factors offset the upward pressure that resulted from the increase in indirect taxes at the beginning of the year.

Even though the Colombian economy should be more dynamic in 2018, the excess productive capacity will not disappear as a result of which, the pressure of demand on prices will continue to be limited. Furthermore, the economic recovery should occur in a favorable foreign context with moderate pressure from the exchange rate. All of this should contribute to inflation continuing on its trajectory of convergence with the target of 3.0% though at a somewhat slower pace than had been predicted earlier.

2.3.1 Inflation in 2017

At the close of 2017, annual consumer inflation stood at 4.09%, which meant a significant drop compared to what had been seen the year before (5.75%). Core inflation also decreased significantly over the last year, although to a lesser extent. The average of the four indicators used by *Banco de la República* stood at 4.66% in December of this year compared to the 5.60% registered at the end of 2016 (Graph 2.7). In spite of the widespread declines in the indicators over the course of the year, none of them managed to end December below 4.0% (Table 2.3).

Graph 2.7
Total Consumer Inflation and Core Inflation



Sources: DANE, calculations by *Banco de la República*.

Consumer inflation saw a sharp drop in the first seven months of the year thus standing at 3.40% in July, its lowest level since the beginning of 2010. Starting in August it surged and slightly exceeded 4% during the last few months of the year. The break in the trend had been anticipated by the Bank's models and by market analysts. However, the result at the end of the year somewhat surpassed the forecasts of the technical staff.

The downward trend in the first half of the year is mainly due to the prices of food, which were returning to normal levels after the sharp rises registered starting in the middle of 2015 and continuing until August 2016 as a result of the effect of El Niño and the trucker's strike. In fact, the impact of these shocks finally vanished in the first half of 2017 and as a result, the annual change for food was lowered substantially. It stood at only 0.20% in July, 702 bp less than it was at the end of 2016. The prices of perishable food, those for processed food, and, to a lesser extent, those for eating out contributed to this fall primarily in the first half of the year.

The positive trend for food price inflation resulting from the recovery of the harvests also occurred in a context of economic weakness with an aggregate demand that was growing well below its long-term potential rate. All of this limited the price adjustments in general.

Table 2.3
Consumer Price and Core Inflation Indicators
As of February 2018

Description	Weight	Dec-16	Mar-17	Jun-17	Jul-17	Sep-17	Dec-17	Jan-18	Feb-18
Total	100.00	5.75	4.69	3.99	3.40	3.97	4.09	3.68	3.37
Non-food	71.79	5.14	5.13	5.12	4.79	4.71	5.01	4.61	4.40
Tradables	26.00	5.31	5.59	4.41	4.09	3.41	3.79	3.16	2.50
Non-tradables	30.52	4.85	5.33	5.21	5.20	5.21	5.49	5.37	4.95
Regulated items	15.26	5.44	4.05	6.01	5.03	5.68	5.86	5.27	6.14
Food	28.21	7.22	3.65	1.37	0.20	2.22	1.92	1.49	0.94
Perishables	3.88	-6.63	-13.09	-14.72	-16.92	-0.32	5.84	6.50	5.86
Processed	16.26	10.74	6.28	3.29	2.24	0.84	-0.91	-1.27	-1.81
Eating-out	8.07	8.54	8.94	7.62	7.10	6.01	5.21	4.05	3.51
Core inflation indicators									
Non-food		5.14	5.13	5.12	4.79	4.71	5.01	4.61	4.40
Core 20		6.18	6.01	5.31	5.22	4.87	4.87	4.72	4.27
CPI excluding perishable food, fuel and public utilities		6.03	5.61	5.07	4.88	4.31	4.02	3.68	3.26
CPI excluding food and regulated items		5.05	5.44	4.87	4.72	4.44	4.76	4.42	3.91
Average of all indicators		5.60	5.55	5.09	4.90	4.58	4.66	4.36	3.96

Source: DANE, calculations by *Banco de la República.*

Furthermore, since the transfer of the accumulated depreciation from previous years was largely completed in 2016, it was not a factor that would have a relevant effect on their trend.

The limited pressures from demand and the foreign exchange made it possible for the annual change in the CPI for tradables (excluding food and regulated prices) to decline during the first three quarters of the year (Table 2.3) in spite of the fact that this basket suffered a considerable part of the increase in indirect taxes (and especially of the VAT) that the tax reform and Liquor law entailed. The impact of these measures would have been 100 bp on the annual variation of the CPI for tradable goods and 50 bp on the total annual inflation according to estimates made by the technical staff at *Banco de la República*. The increase in these taxes represented a one-time shock on the price levels, which was concentrated in the months of February and March 2017, and, therefore, affected the annual inflation for twelve months as of those dates as will be explained below.

Even though downward factors, such as the ones that have already been identified, prevailed against prices in 2017 and particularly during the

In spite of the fact that downward factors prevailed against prices in 2017, inflation continued to show a significant persistence, which prevented it from declining further.

first three quarters of the year, consumer inflation and, especially core inflation, continued to show a significant persistence, which caused it to remain above the target. Circumstances such as the 7.0% increase in the minimum wage (decreed at the end of 2016 and put into effect in 2017) and the practice of indexing prices to the rate of past inflation rather than to the target of 3.0% were a manifestation of this problem throughout the year. These would probably be the main reasons why the annual change in the CPI for non-tradable goods (excluding food and regulated items) resisted the downward pressure during the year (Table 2.3).

In the last two months of 2017, unanticipated transitory shocks, which should reverse in 2018, put upward pressure on the prices of tradable and non-tradable baskets.

The prices for regulated items did not contribute to the decline in consumer inflation in 2017 either. This, in turn, was accompanied by considerable volatility between quarters (Table 2.3). The main upward pressure on regulated prices was concentrated in the prices of fuel and fees for water and sewer. In the first case, the upswings resulted from the higher international price for petroleum in 2017 compared to 2016 and to the increase in indirect taxes for this item (green tax) since the tax reform had gone into effect. The CPI for fuel showed an annual change of 9.94% as of December of that year, which is significantly higher than the one at the end of the previous year (1.83%). In the case of the CPI for water and sewer, the adjustments (which went from 4.92% at the end of 2016 to 8.07% at the end of 2017) were mainly attributable to the activation of indexing mechanisms and to the revision of rates in some cities to make an increase of the coverage possible. On the other hand, the fees for electricity showed a reduction in the magnitude of their adjustments (at 2.07% for December 2017 compared to 6.00% for the same month in 2016) as a result of the fact that the shock caused by El Niño was surmounted. However, this decline did not offset the increases in the other two items.

Starting in August, annual consumer inflation experienced a moderate rise which, up until November, was largely dictated by the upturn in the annual change of the CPI for food. This performance was the result of a very low basis of statistical comparison from the same period in 2016 when prices dropped sharply in response to the normalization of the supply conditions and the increase in the supply of food that that this situation brought about. In the second half of 2017, the agricultural cycle, now experiencing normal conditions, meant more limited price reductions and even slight increases in some cases as has been the norm.

Towards November and December, specific circumstances that were difficult to anticipate and had short-term effects on prices had an impact on the sub-baskets of tradable and non-tradable goods and reinforced the rise in annual inflation to levels that were a little higher than expected. This meant, specifically, increases in prices for airline tickets and for tickets of a particular value for soccer games that had not been seen during the same period the previous year and which should reverse themselves totally or partially in 2018.

2.3.2 Outlook for 2018

The forecasts made by the technical staff at *Banco de la República* show that annual consumer inflation will continue to converge gradually with the 3.0% target during 2018.

In line with what was expected by market analysts and the technical staff at *Banco de la República*, there was a significant decrease in the annual consumer inflation as it stood at 3.37% in the first two months of 2018 (Table 2.3). The year began with significant decreases in the main baskets that the CPI consists of. A large part of the decrease was caused by the disappearance of the impact that the indirect taxes associated with the last tax reform had (especially in February) and by the reversal of those specific increases seen last November and December (soccer and airline tickets). In addition, the performance of agricultural supply was satisfactory at the beginning of the year, which allowed for a low variation in the CPI for food and one that was lower than expected.

The forecasts made by the technical staff at *Banco de la República* suggest that annual consumer inflation will continue to converge gradually with the target of 3.0% during 2018. In March and perhaps in April, significant declines should be seen again since the upward effect on annual inflation due to the increase in taxes should come to an end during these two months. The largest decrease should be seen in the CPI for tradables (excluding food and regulated items) since this sub-basket was the one most battered by the increase in the VAT in 2017. Something similar is expected for the CPI for non-tradables, which should show a substantial reduction for the same reason.

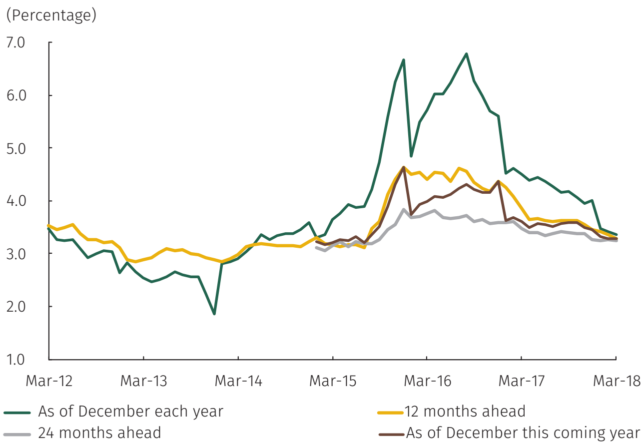
Despite the widespread presence of downward factors, there is a risk that inflationary inertia could hold back the process of converging to 3.0%.

Although the economic growth projected for 2018 is greater than the growth for 2017, this will not stop excess productive capacity and a negative output gap from continuing to appear. Thus, the demand pressure on prices will remain low, which should help reduce core inflation through smaller adjustments in the prices for tradables and non-tradables and for eating away from home in the case of the CPI for food.

Significant upward pressures due to the exchange rate is not anticipated in 2018. In an environment of greater global growth, better terms of trade, and monetary policy in the advanced economies that gradually adjusts, the Colombian peso should exhibit stability.

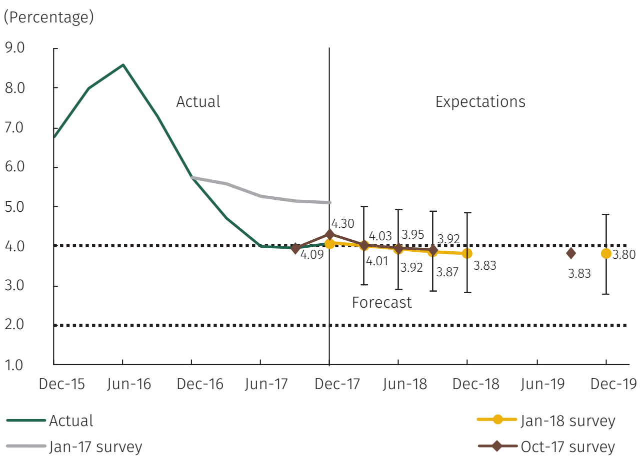
In spite of the widespread pressure of downward factors on inflation in 2018, there are indications that suggest that this could maintain significant inertia with extensive, still active, indexation mechanisms, which could delay the process of converging with 3.0%. Such is the case of prices for the sub-basket of indexed items for which the annual change declined in the first two months of the year (from 6.96% in December to 6.18% in February) but is still significantly above 3.0%. In addition, inflation expectations at various horizons were stable at close to 3.5% at the beginning of February according to the different measurements (Graphs 2.8, 2.9, and 2.10).

Graph 2.8
Annual Inflation Forecasts by Banks and Brokerage Firms



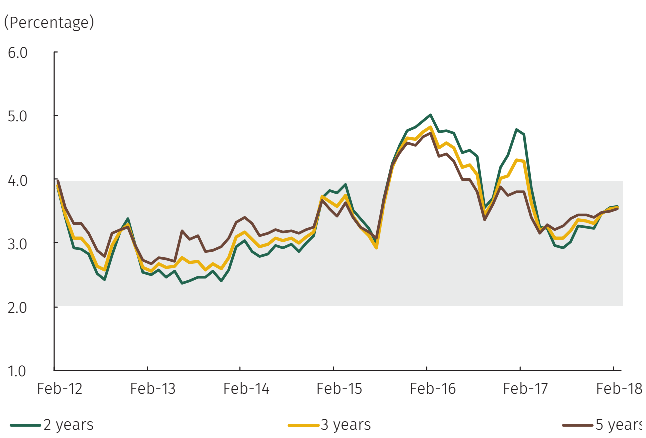
Source: *Banco de la República.*

Graph 2.9
Real Inflation and Inflation Expectations (for three, six, nine, twelve, and twenty-four months ahead)
(Annual inflation)



Note: Each expectation is given with its respective standard deviation.
Sources: DANE and *Banco de la República* (Quarterly Survey of Expectations).

Graph 2.10
Break Even Inflation (BEI) two, three and five years ahead[a/]



a/ Monthly average
Sources: *Banco de la República.*

Likewise, the 5.9% increase in the minimum wage for this year, which is a relatively high figure considering the inflation at the end of 2017 and the possible gains in labor productivity (about 1.0% according to the usual estimates), could lead to price adjustments that are higher than the target in the case of the price of labor-intensive services. Something like this could be seen in educational and health services during the first two months of the year for which the DANE has reported annual variations on the order of 6.0%. These rises have prevented a decrease that is greater than the annual variation for non-tradables, which will probably continue to show significant rigidity with levels that are above 4.0% at the end of 2018.

Last of all, the CPI for regulated prices should also maintain high adjustments with respect to the target of 3.0% over the course of the year and not much different from those seen in 2017. One reason for that is the higher international price that is expected for fuel, which should translate into rather considerable increases in the respective domestic prices in the absence of a significant appreciation of the peso to offset them as was expected to occur. In addition, adjustments higher than 3.0% are envisioned in the case of public transportation based on decisions that have already been implemented by the authorities in Bogotá and of electricity rates due to regulatory changes that will go into effect starting in the second quarter of the year.

The inflation forecast described faces upward and downward risks equally. In the first case, the risk might come from the prices of food, which could end up higher than expected if there is a supply shock caused by the weather or if the relatively low prices at present discourage farmers from planting crops to an excessive extent. It could also come from a greater depreciation of the peso as a result of a faster adjustment of monetary policy in the advanced economies or a deterioration of confidence due to domestic or foreign factors.

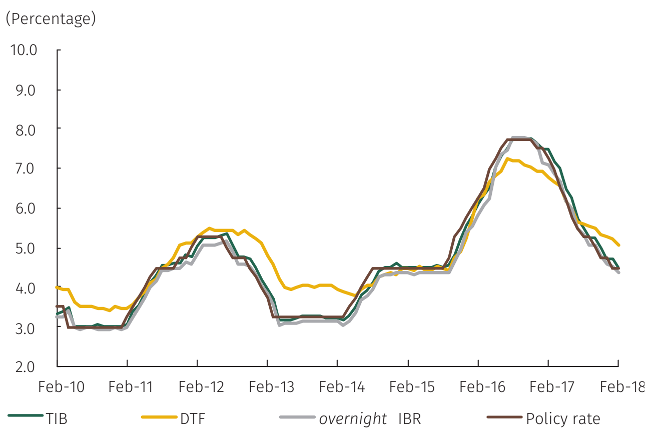
With respect to the downward risks, these could be caused by an international price for crude oil that could be sustained at the levels seen in the first two-month period for longer than was anticipated. A high price for petroleum should induce an appreciation of the peso that would generate downward pressure on consumer prices. This effect will probably predominate over the upward pressure that a higher international price would exercise on the domestic fuel prices.

2.4 Interest Rates and Financial Sector

2.4.1 Performance of Interest Rates in 2017

2.4.1.1 Banking Interest Rates

Graph 2.11
Banco de la República Intervention Rate [a/], Overnight IBR [b/], Interbank Rate (IBR)[b/] and DTF [b/]



a/ Policy rate based on date of the BDBR meeting.
b/ The average monthly rate is used.
Source: Office of the Financial Superintendent of Colombia, calculations by *Banco de la República.*

As of December 2016, the BDBR began to gradually reduce its policy interest rate. Thus, at the end of 2017, the benchmark rate stood at 4.75%, a figure that is 300 bp lower than had been registered the year before. In January 2018, the BDBR decided to carry out a further reduction of 25 bp and set the policy rate at 4.50% (Graph 2.11). These reductions have been transmitted at different levels of intensity to the lending and deposit rates, mainly to the rates for commercial loans and to a lesser extent, the ones for deposits and those for households. In particular, consumer lending rates have reacted more slowly.

The downward cycle in the policy rate was transmitted to the short-term rates. During the period in which the overnight repo rate was being reduced, the interbank interest rate (IIR) for the same period was lowered 335 bp and the *overnight* banking benchmark indicator (BBI) was cut 340 bp (Graph 2.11). On the same dates, the ones for deposits decreased a little less partly because they had already been declining since the last quarter of 2016 in a context of the greater availability of liquidity from the sales of TES on the part of the banks. The decline in inflation and the possibility that a change in the monetary policy stance may occur sooner could have also contributed to this trend. The longer-term rates for deposits have been lowered more than the short-term rates. The aggregate CD rate was reduced by 200 bp and the DTF by 195 bp during the same period.

In the lending rates, the ones for commercial loans fell more than the policy rate (as of December 2017) (Table 2.4). With respect to the consumer loan rates (including credit cards) the declines were more intense during the second half of the year partly as a consequence of the change in the frequency with which they are calculated and publication of the usury rate. However, these reductions have been lower than the ones for the policy rate. As of December 2017, there were decreases in

Table 2.4
Financial System's Main Nominal Interest Rates and Sensitivities (percentage)

Date	Policy Interest Rate (end of month)	Lending rates (monthly average)				Lending rates (monthly average)						
						Households			Commercial			
		DTF	CDT	Weighted liabilities a/	Three month IBR a/	Consumer	Mortgage b/	Credit card c/	Ordinary	Preferential	Treasury	Total Assets d/
Jan-16	6.00	5.74	6.46	4.62	6.32	18.63	11.62	28.34	12.65	9.55	10.27	12.93
Feb-16	6.25	6.25	7.07	4.78	6.58	18.45	11.87	28.14	12.61	10.70	10.63	13.33
Mar-16	6.50	6.35	7.46	4.96	6.72	18.49	11.99	28.28	13.55	10.67	11.43	13.91
Apr-16	7.00	6.65	7.64	5.18	6.98	18.73	12.19	29.24	14.25	11.43	11.80	14.77
May-16	7.25	6.83	7.76	6.45	7.38	19.01	12.43	29.46	14.29	11.44	12.11	14.82
Jun-16	7.50	6.91	7.86	6.24	7.54	19.14	12.49	29.44	14.31	11.71	12.10	14.77
Jul-16	7.75	7.26	7.95	6.54	7.69	19.27	12.63	30.28	14.71	12.02	11.96	15.28
Aug-16	7.75	7.19	8.04	5.78	7.82	19.54	12.73	30.45	14.72	12.14	12.32	15.23
Sep-16	7.75	7.18	7.79	6.06	7.74	19.57	12.78	30.60	14.63	12.07	11.84	15.34
Oct-16	7.75	7.09	7.52	5.66	7.71	19.84	12.70	31.38	14.47	11.97	12.03	15.41
Nov-16	7.75	7.01	7.51	5.44	7.63	19.64	12.68	31.39	14.59	11.99	12.32	15.52
Dec-16	7.50	6.92	7.41	5.29	7.20	19.39	12.59	31.52	14.06	11.58	11.86	14.45
Jan-17	7.50	6.94	7.41	6.02	7.33	20.88	12.45	31.87	14.30	11.27	12.22	15.11
Feb-17	7.25	6.78	7.43	5.63	7.03	20.03	12.56	31.69	13.79	11.37	12.03	14.87
Mar-17	7.00	6.65	7.08	5.16	6.64	19.78	12.42	31.61	13.84	11.22	11.96	15.13
Apr-17	6.50	6.53	6.84	5.36	6.20	19.87	12.38	31.71	13.71	10.65	11.26	14.47
May-17	6.25	6.17	6.54	5.05	5.87	19.78	12.36	31.54	13.37	10.09	10.68	14.02
Jun-17	5.75	5.96	6.31	4.23	5.50	19.47	12.02	31.18	12.89	9.75	10.57	13.50
Jul-17	5.50	5.65	6.00	4.38	5.35	19.39	11.57	31.16	12.64	9.47	10.27	13.58
Aug-17	5.25	5.58	6.06	4.52	5.19	18.91	11.29	30.97	12.27	9.14	9.47	13.27
Sep-17	5.25	5.52	5.97	4.12	5.15	18.87	11.01	30.19	12.04	8.77	9.17	12.69
Oct-17	5.00	5.46	5.93	4.95	4.95	18.88	10.91	29.93	12.13	8.79	8.79	13.05
Nov-17	4.75	5.35	5.82	3.70	4.56	18.67	10.90	29.40	11.72	8.72	9.11	12.87
Dec-17	4.75	5.28	5.55	3.69	4.66	18.66	10.83	28.89	11.33	8.43	8.16	11.66
Jan-18	4.50	5.21	5.59	3.84	4.48	19.25	10.74	29.37	11.59	8.28	8.04	12.53
Feb-18	4.50	5.07	5.50	3.96	4.41	18.60	10.82	29.55	11.32	7.92	7.99	12.06
Difference (bp) Nov/16 vs. Dec/17	-300	-173	-196	-175	-298	-99	-185	-251	-326	-356	-416	-386
Difference (bp) Nov/16 vs. Feb/18	-325	-195	-200	-148	-322	-105	-185	-185	-326	-408	-434	-346
Sensitivity (bp) Nov/16 vs. Dec/17		0.58	0.65	0.58	0.99	0.33	0.62	0.84	1.09	1.19	1.39	1.29
Sensitivity (bp) Nov/16 vs. Feb/18		0.60	0.62	0.46	0.99	0.32	0.57	0.57	1.00	1.25	1.33	1.06

a/ End of month data
b/ Corresponds to the amount-weighted average of the rate for peso- and UVR-denominated disbursements for the purchase of non-low income housing. Before figuring out the weighted average for the UVR-denominated credit rate, the annual change in UVR was added.
c/ Neither one-payment purchases nor advances are included.
d/ Corresponds to the amount-weighted average of consumer, ordinary, preferential, and treasury loans. The weight of Treasury loans corresponds to one fifth of their weekly disbursement.
Source: Office of the Financial Superintendent of Colombia.

the interest rates for commercial loans (treasury -416 bp, preferential -356 bp, and ordinary -326 bp), for credit cards (-251 bp), consumer (-99 bp), and mortgage loans (-185 bp). In contrast, as of February 2018, there were transitory increases in the rates for consumer and ordinary loans. The latter resulted from the seasonal adjustment that these rates introduce in the first month of the year due, in part, to the low amounts lent, especially in the segment of promissory notes and credit cards owing to the increase in the usury rate in February.

In real terms, there have been decreases in the interest rates of loans and deposits.

In real terms, there have also been declines in interest rates on loans and deposits. In the lending rates, when the average of several measurements of inflation expectations is discounted[31] (real *ex ante* interest rates), both the commercial rates and those for households and deposits were reduced after the change in the monetary policy stance. Nevertheless, with the upturn in the credit card rates seen over the course of the year, this real rate had a slight increase as of February.

The Colombian government bond market was very dynamic in 2017.

When the real commercial rates were deflated with total inflation, they registered a decline during 2017 while the consumer and term deposit rates produced an increase. So far this year, all of the real lending rates (commercial and household loans) and the deposit rates (DTF, CD) registered an increase based on information as of February (Graph 2.12).

2.4.1.2 Government Bond Market

During 2017, the price[32] of securities issued by the government (TES) rose in accordance with the movements of the monetary policy benchmark rate, the decline of inflation, the increase in the share held by foreigners, and the continuity of the conditions of global liquidity (Graph 2.13). That year the percentage of the share in the local TES market held by foreigners increased and went from 25% at the end of 2016 to 26.6% in 2017.

The market was very dynamic during 2017. The annual average daily amount of the Colombian public debt securities traded on the SEN and MEC systems for 2017 was COP 6.2 trillion (t), a figure that is higher than the COP 3.77 t seen in 2016. In 2018, the average daily amount stood at COP 6.3 t as of February 28.

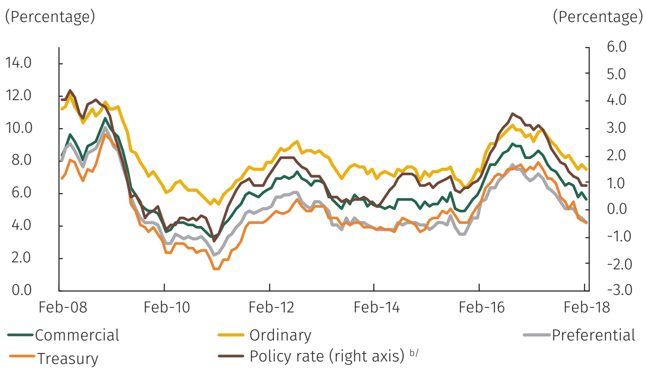
31 Specifically, the average of five measurements of inflation expectations is discounted: for a year from now obtained from a survey of financial analysts, for a year from now obtained from the quarterly survey of economic expectations, from the *break even inflation* for two and three years from now, and the *forward break even inflation* for two to three years from now.

32 There is an inverse relationship between the price of a TES and its market interest rate. For example, if a security promises pay $110 at maturity and its market price is $100, its interest rate is 10%. If the market price of the same security rises to $105, then its rate falls (4.8% = [110/105] - 1) because at the end, the holder will still receive the same $110.

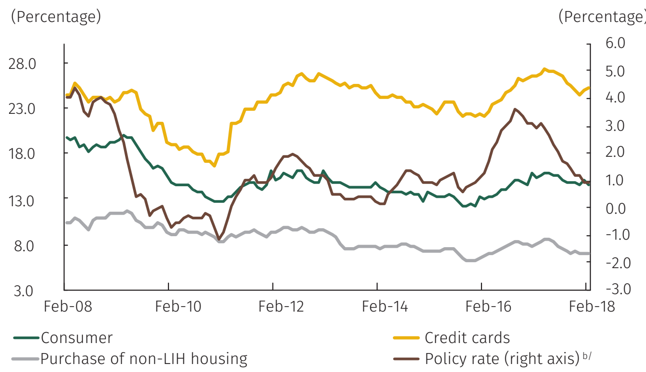
Graph 2.12
Real Interest Rates for Loans

A. Real Interest Rates ex ante[a/]

i. *Business Loans*



ii. *Household Loans*

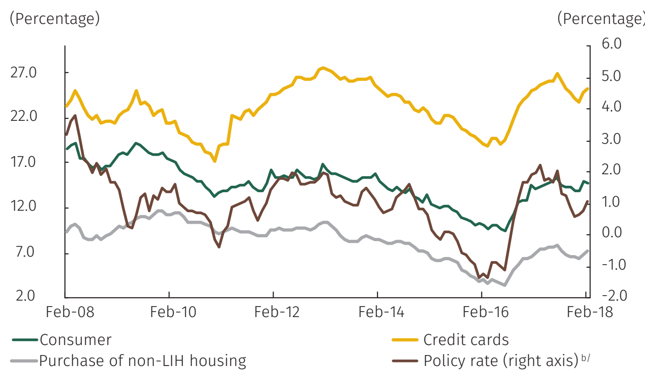


a/ The average of several expected inflation measures is used as a deflator: a one-year obtained from the Monthly Survey to Financial Analysts; a one-year obtained from the Quarterly Survey of Economic Expectations; the 2 and 3-year break even inflation (BEI), and the forward 2 to 3-year BEI.
b/The policy rate corresponds to the one set by the BDBR during their monthly meeting; the other rates correspond to the monthly average (weighted by amount).
Source: Office of the Financial Superintendent of Colombia, calculations by *Banco de la República*.

B. Real Interest Rates ex post[a/]

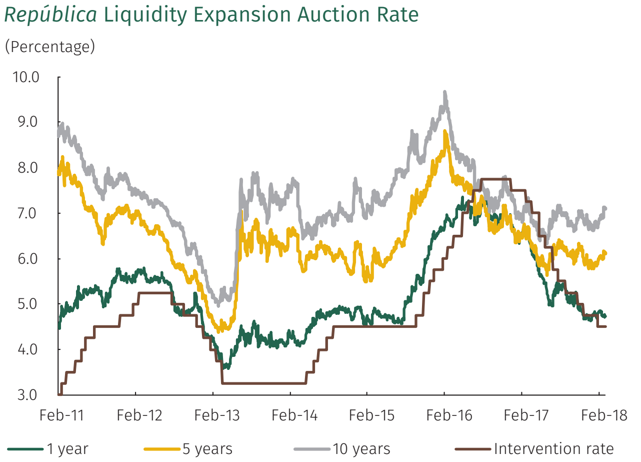
i. *Business Loans*

ii. *Household Loans*



a/ The total CPI was used as the deflator.
b/ The policy rate is the one set by the Board of Directors at their monthly meeting; the other rates correspond to the monthly average (weighted by amount).
Source: Office of the Financial Superintendent of Colombia, calculations by *Banco de la República*.

Graph 2.13
Zero-coupon Peso-denominated TES rate, and *Banco de la República* Liquidity Expansion Auction Rate



Sources: SEN (electronic trading system) and MEC (Colombian electronic market), calculations by *Banco de la República*.

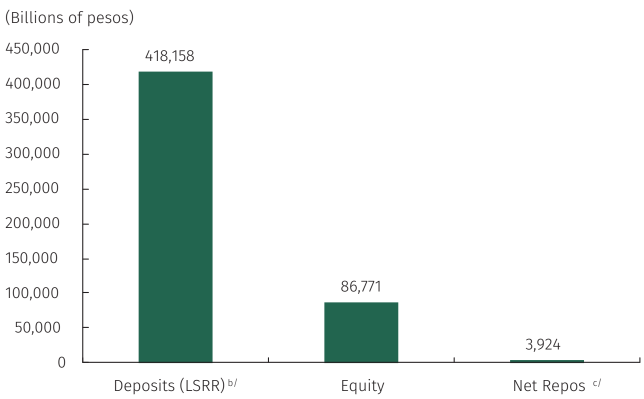
During the first few months of the year there have been devaluations in view of the expectation that the cycle of cuts in the monetary policy rate and increases in the US Federal Reserve (Fed) rates would be finalized.

2.4.2 Credit institutions' main accounts

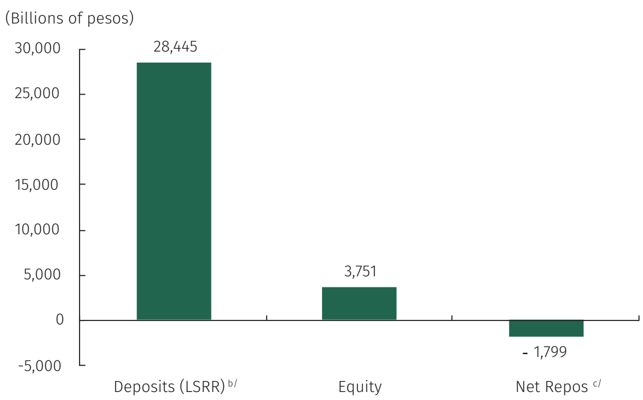
In this section, the performance of deposits so far this year (liabilities subject to reserve requirements), the loan portfolio, and the financial system's investments, which correspond to the most significant items on the credit establishments' (CE) financial position statements, are examined.

Graph 2.14
Net Repos, Liabilities Subject to Reserve Requirements (LSRR), and Credit Institutions' Equity[a/]

A. Balance at the Close of 2017

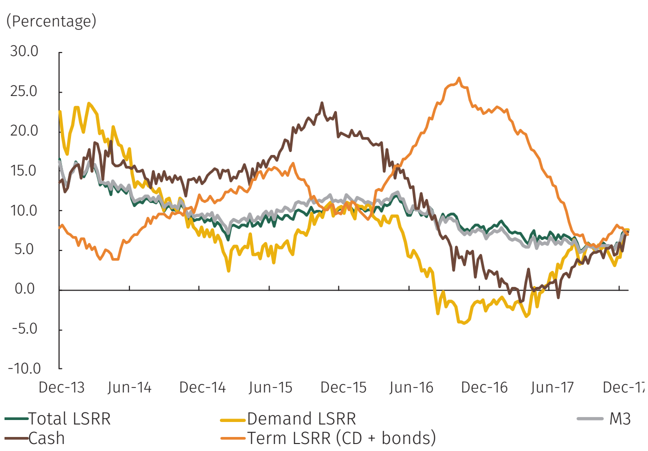


B. Annual Changes at the Close of 2017



a/ The balances presented correspond to Friday, December 29, 2017 and the annual changes are calculated with respect to Friday, December 30, 2016.
b/ Corresponds to demand and term deposits at the credit establishments.
c/ Net Non-reserve interest-bearing deposits.
Source: Office of the Financial Superintendent of Colombia, calculations by *Banco de la República*.

Graph 2.15
Annual Growth of M3, Cash, and Liabilities Subject to Reserve Requirements (LSRR)
(total, demand, and term)



Source: Office of the Financial Superintendent of Colombia, calculations by *Banco de la República*.

In 2017, and especially during the first three quarters, the CE's balance continued its trend towards a slowdown that it had carried over from the previous year and which is consistent with a more sluggish economy. Because of that, the loan portfolio and liabilities subject to reserve requirements (LSRR), which are the main assets and liability segments, had limited growth comparable to the growth at the end of 2009 and in early 2010.

The LSRR, which are the deposits that different agents have in the CE and constitute their most important source of funds, declined between January and September. In the last quarter, and especially in the last few weeks, their rate of increase rose slightly. At the end of the year, the deposits registered a balance of COP 418.158 t and an annual increase of 7.3% (3.1% in real terms) (Graph 2.14).

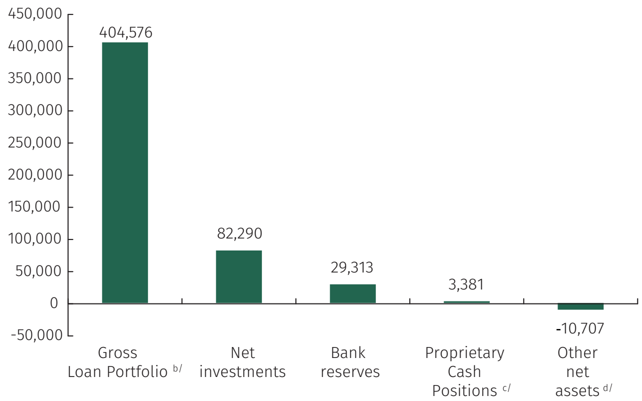
By type of deposit, the growth rate of term deposits (CD + bonds) declined during the first three quarters while the rate for demand deposits rose thus maintaining the trend that had carried over from the second half of 2016 when the decline in inflation began and brought the cycle of increases in the benchmark interest rate an end. In the last few months of the year, these two types of deposits showed more sTable Bates of increase (Graph 2.15).

The slowdown for the LSRR was also reflected in M3 (LSRR plus cash), which is the monetary aggregate that includes the set of financial assets that agents can use to make payments in legal currency. Cash, which is the other component of this aggregate, began to regain its rate of expansion starting in May as a result of which, LSRR, cash, and the M3 were growing at similar rates (7.3%, 7.4%, and 7.3%, and in real terms at 3.09%, 3.13%, and 3.08% respectively) at the end of the year.[33]

33 At the close of 2017, the M3 balance was COP 477.656 t, for the LSRR the balance was COP 418.158 t, and the one for cash was COP 59.498 t.

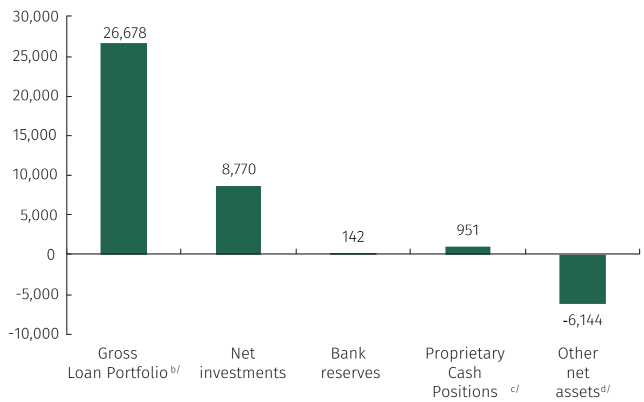
Graph 2.16
Credit Establishments' Main Assets[a/]

A. Balance at the Close of 2017
(Billions of pesos)



B. Annual Changes at the Close of 2017

(Billions of pesos)



a/ The balances presented correspond to Friday, December 29, 2017 and the annual changes are calculated with respect to Friday, December 30, 2016.
b/ Corresponds to the loan portfolio balance on the credit establishments' balance sheet. Loans to employees are not included.
c/ Stock brokers not included. The absolute variations correspond to the fluctuations in dollars multiplied by the average exchange rate for the period.
d/ Net liabilities other than net repos of remunerated deposits not subject to reserve requirements (DRNCE) and LSRR.
Source: Office of the Financial Superintendent of Colombia, calculations by *Banco de la República*.

With respect to assets, the gross loan portfolio denominated in legal currency also maintained the slowing trend that it had carried over from 2016. The balance[34] amounted to COP 404.576 trillion (t), with an annual change of 7.2% (2.9% in real terms). Furthermore, investments showed an 11.9% rise (a real 7.5%) as a result of which, the balance was COP 82.290 t at the end of December (Graph 2.16).

By types, the performance of the gross loan portfolio was mainly the result of the sluggishness of the commercial and microcredit portfolios (4.8% annually, which corresponds to a real 0.7%) in spite of the fact that the rates for the commercial loans fell more than the policy rate (see Section 2.4.1). The growth of loans to households, in turn, also decreased. For these latter ones, the downturn in consumer loans was more marked (from 13% at the close of 2016 to 9.6% at the close of 2017)[35] than the downturn for housing loans (from 13.8% to 11.8%)[36] that showed rates of expansion which were relatively stable starting in August. In the latest quarter, the growth of the loan portfolio rose a little as a consequence of a moderate recovery in commercial loans (Graph 2.17).[37]

The foreign currency loan portfolio, which is granted to companies almost in its entirety, also maintained the trend it had carried over from 2016. Its balance in dollars maintained annual declines throughout 2017 as a whole and ended up with a drop of 10.5% in December (Graph 2.18).

According to the *Survey on the Loan Situation*,[38] the sluggishness of the loan portfolio was the

34 This balance shows adjustments due to operational *leasing*.

35 In real terms, from 7.5% per annum to 4.4% yearly.

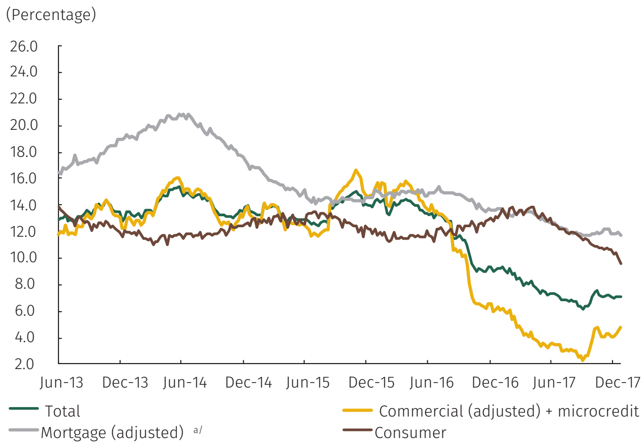
36 In this case, the mortgage portfolio shows adjustments due to securitization. In real terms, the adjusted mortgage portfolio went from growing 8.2% at the end of 2016 to 6.4% on the same date in 2017.

37 Note that, in addition, the statistical effects related to the the merger of Bancolombia with Leasing Bancolombia at the end of 2016, which had a downward impact on the growth of the commercial loan portfolio, disappeared in November. This was due to the fact that Bancolombia had lent the portfolio to Leasing Bancolombia for a period that was greater than one year and, therefore, these loans were registered in the commercial portfolio.

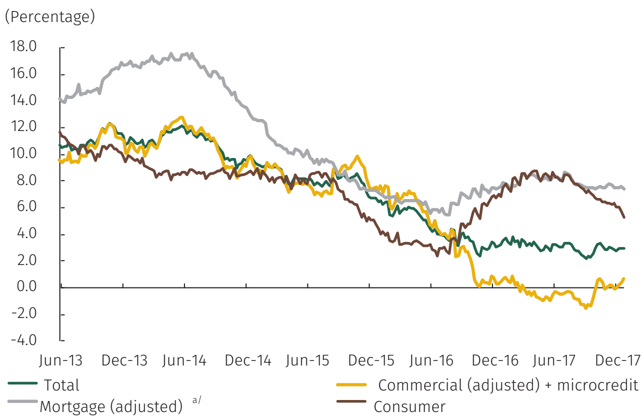
38 Available at http://www.banrep.gov.co/es/reporte-de-la-situacion-del-credito-en-colombia

Graph 2.17
Annual Growth of Loan Portfolio by Type (National Currency)

A. Nominal Growth

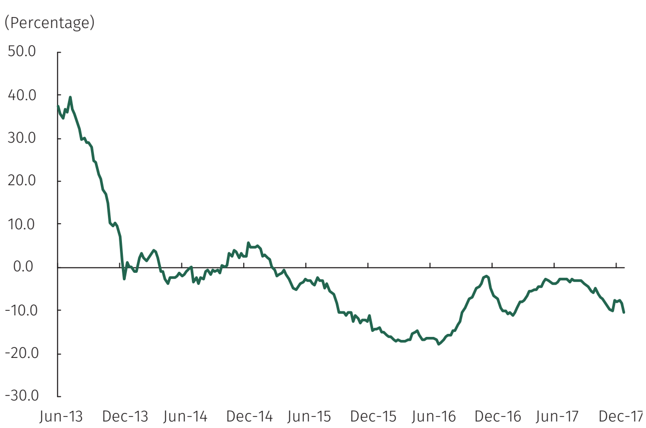


B. Real growth (deflated by the total CPI)



a/ Includes securitizations of the mortgage loan portfolio.
Source: Office of the Financial Superintendent of Colombia, calculations by *Banco de la República*.

Graph 2.18
Annual Growth of the Loan Portfolio in Foreign Currency (expressed in dollars)



Source: Office of the Financial Superintendent of Colombia, calculations by *Banco de la República*.

result of both supply and demand factors. Based on that survey, throughout the year the credit institutions faced a lower demand for loans of all types and, at the same time, they raised their requirements for granting new loans (Box 4). The above is consistent with the lower growth of the economy and with the deterioration in the loan portfolio seen during the year (see Section 2.4.3).

2.4.3 Some Measurements of Financial System Risk[39]

At the close of 2017, the CE maintained solid indicators of capital adequacy and liquidity in spite of factors such as the economic downturn seen since 2014. This downturn has been reflected in a lower growth of the total loan portfolio and a greater increase in the risky and non-performing loan portfolios. It has had an impact on the risk indicators for credit that, since the middle of 2016, have been showing a deterioration that surpasses the average for the past five years.

In line with the slower expansion rate of the CE loan portfolio, the growth rate for the sources of financing remained at levels close to zero. In contrast, an increase in investment, spurred mainly by the appreciation in the public debt market, can be seen. As a result of these shocks there is a lower level of profitability for the CE.

2.4.3.1 Credit Risk

In 2017, pronounced rises were seen in the credit risk indicators, especially those corresponding to the commercial loan portfolio. These upswings are mostly explained by the economic downturn and the weakening position of important debtors within the modality that have been affected by shocks in their respective sectors.

39 The information in this section was obtained from the balance sheets reported by the financial entities to the *Office of the Financial Superintendent of Colombia*.

Monetary Base

At the close of 2017, the balance of the monetary base stood at COP 88.811 t with a nominal annual growth of 5.0%, which is equivalent to an increase of COP 4.213 t. By component, the increase in the monetary base is explained by the performance of cash, which rose 7.3% (COP 4.071 t) while the balance of the bank reserves was similar to the one at the end of 2016 (a COP 142 b rise equivalent to 0.5%).

In the first half of the year, the growth of both cash and the reserves was low (an average of 0.6% and -2.9% per annum respectively). At that time, inflation and the interest rates were already declining although they were still at relatively high levels which could discourage the possession of cash and demand deposits in place of term deposits.[1] The latter have a reserve requirement ratio that is lower than the one for demand deposits, which resulted in a lower required reserve.[2] In the second half of the year, the growth of cash and of the reserves recovered (they grew 4.2% on average in both cases).

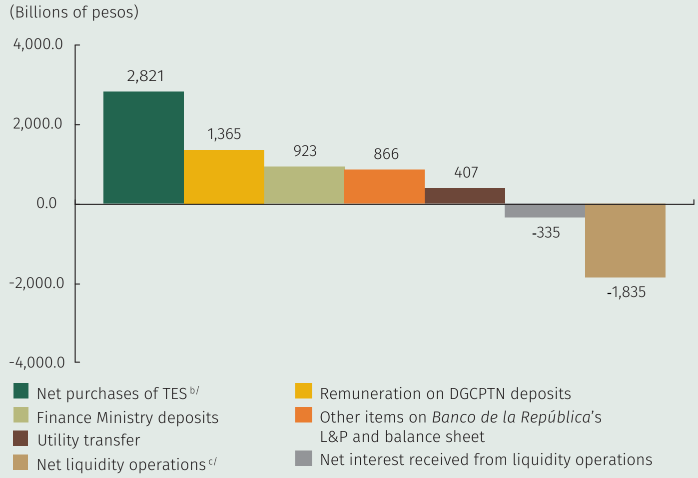
Based on sources, the main expansionary factor for the monetary base in 2017, just as it was the previous year, was the COP 2.821 t in net purchases of TES on the part of the Bank (result of COP 3.899 t in purchases and COP 1.078 t in maturities and coupons). It should be remembered that *Banco de la República* had used definitive sales of TES as a sterilization mechanism during the years in which it regularly carried out purchases of foreign currency on the foreign exchange market and drove the balance of the securities held by the Bank to historical lows.[3]

The second expansionary factor relates to the NCG. The lower balance of the General Office of Public Credit and the National Treasury's (DGCPTN in Spanish) interest-earning deposits in the Bank (COP 923 b) compared to what had been registered at the close of 2016, the remuneration for those deposits (COP 1.365 t), and the transfer of the profits to the NCG (COP 407 b) generated a COP 2.695 t expansion of the monetary base. Other items in the L&P and the Bank's balance sheet also had a COP 866 b expansionary effect.

The main source of primary liquidity contraction, in turn, came from the COP 1.835 t decrease in liquidity transactions corresponding to smaller expansion repos coming to COP 1.640 t and larger monetary contraction deposits reaching COP 195 b. Net interest received through the liquidity operations amounted to COP 335 b.

Last of all, no purchases or sales of foreign currency were made by *Banco de la República* on the foreign exchange market in 2017 (Graph A).

Graph A
Origin of monetary base in 2017[a/]



a/ Figures at the close of the calendar month
b/ This is the result of purchases minus sales and maturities of these securities held by *Banco de la República*.
c/ Corresponds to the net transactions, i.e., it includes the expansion repos and the balance of DRNCE for all maturities.
Source: *Banco de la República*.

1 See Sections 2.3 and 2.4, as well as the *Reports to Congress* in March and June of last year.

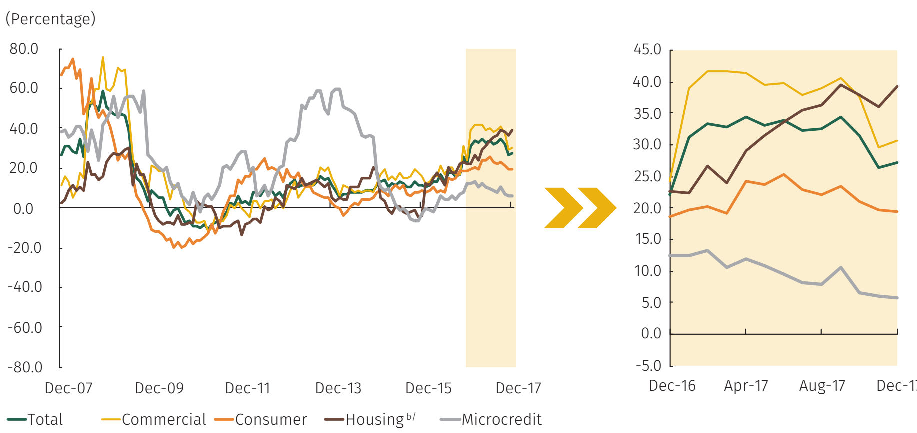
2 See the External Resolution 5/2008.

3 See Box 2: "Primary Liquidity Supply by *Banco de la República*, 2008-2016," in the July 2016 *Report to the Congress of the Republic*.

Between December 2016 and the same month in 2017, the risky loan portfolio surged as it went from growing 22.0% to growing 27.0% in real terms (Graph 2.19). This performance is due especially to the commercial loan portfolio at risk, which presented a growth rate of 30.5%. In addition, the housing loan portfolio was the one that registered the strongest upswing, as it showed an annual change of 16.7 pp.

Between December 2016 and the same month in 2017 the risky loans portfolio surged.

Graph 2.19
Real Annual Growth of Risky Loans[a/]



a/ Deflated by the CPI. Special financial institutions (second-tier banks) are not included.
b/ The jumps seen in January 2015 and January 2016 resulted from the reclassification of residential leasing from the commercial loan portfolio to the housing portfolio.
Source: Office of the Financial Superintendent of Colombia, calculations by *Banco de la República*.

The surge in the risky loan portfolio and the stability of the growth of the gross loan portfolio triggered a rise in the total quality indicator by risk (QIR)[40] during the period under analysis: this indicator rose 2.0 pp and, in December 2017, reached a value of 9.9%, a figure that is similar to the maximum registered in May 2009. By type, all the loan portfolios showed deterioration between December 2016 and the same month in 2017, with the commercial portfolio, which saw its indicator rise 2.8 pp, doing the best (Table 2.5).

With regard to the materialization of credit risk, the growth rate of the non-performing loan portfolio rose 21.8 pp annually between December 2016 and a year later thus standing at 36.0% during that month. The portfolio that registered the highest growth rate was the commercial portfolio (56.8%) followed by the housing (32.5%), consumer (21.7%), and microcredit (10.0%) portfolios. This last category is the only one that reported a slowdown in the period under analysis (Graph 2.20).

By type, all the loan portfolios showed deterioration between December 2016 and the same month in 2017.

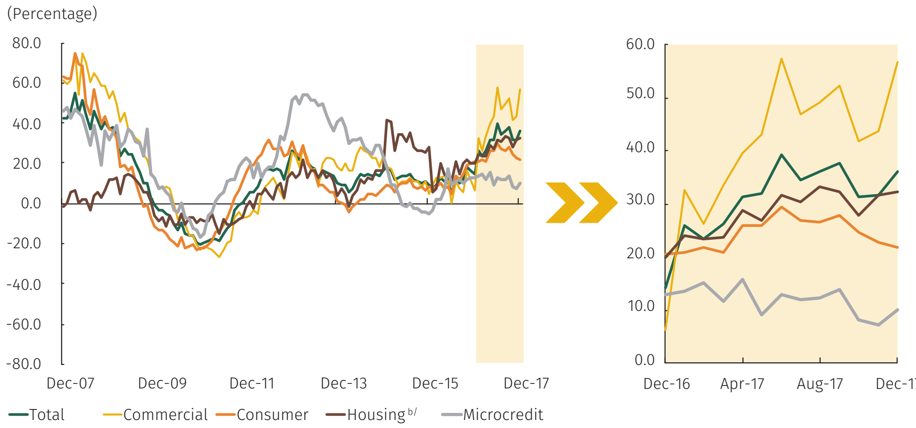
40 The QIR is defined as the ratio between the risky and the total loan portfolio (the risky loan portfolio corresponds to all the loans with ratings other than A on a scale from A to E where A is the best rating).

Table 2.5
Credit Risk Indicators by Type
(percentage)

Modality	Type Quality indicator by risk (QIR)			Quality indicator by default (QID) excluding penalties			Quality indicator by default (QID) including penalties		
	Dec-16	Dec-17	Average Dec-2016 to Dec-2017[a/]	Dec-16	Dec-17	Average Dec-2016 to Dec-2017[a/]	Dec-16	Dec-17	Average Dec-2016 to Dec-2017[a/]
Total Loan Portfolio	7.9	9.9	9.4	3.6	4.8	4.7	7.7	9.2	9.0
Commercial	8.6	11.4	10.7	2.3	3.7	3.6	5.0	6.6	6.4
Consumer	7.8	8.9	8.7	5.0	5.8	5.8	12.8	14.2	14.0
Housing	4.1	5.4	4.9	5.5	6.8	6.8	6.0	7.2	7.2
Microcredit	11.8	12.1	11.8	7.2	7.7	7.7	14.3	14.6	14.8

a/ Average Monthly Data
Source: Office of the Financial Superintendent of Colombia, calculations by *Banco de la República*.

Graph 2.20
Real Annual Growth of Non-Performing Loans[a/]



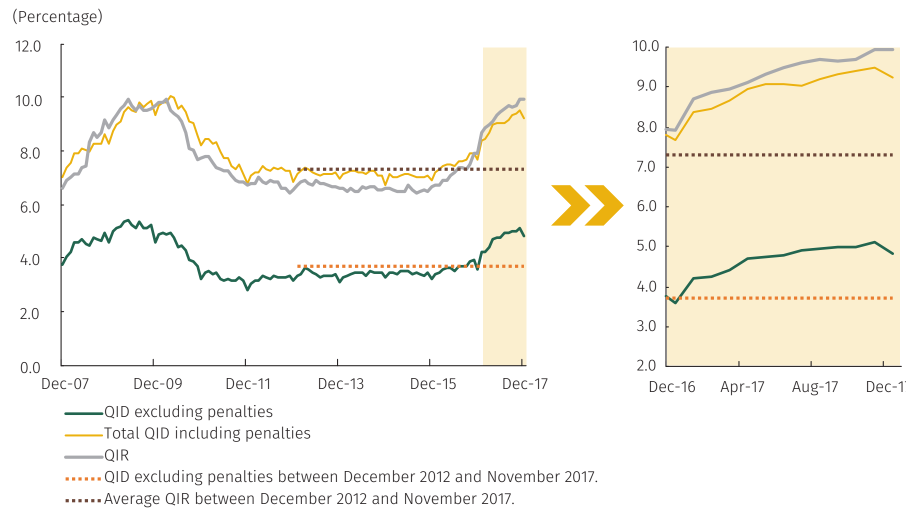
a/ Deflated by the CPI. Special financial institutions (second-tier banks) are not included.
b/ The high levels of growth for the housing loan portfolio in 2015 are due to the fact that with the implementation of the IFRS starting in January 2015, residential leasing was reclassified from the commercial loan portfolio to the housing loan portfolio.
Source: Office of the Financial Superintendent of Colombia, calculations by *Banco de la República*.

The quality indicator by default (QID),[41] including and excluding penalties, in turn, rose 1.2 pp and 1.6 pp respectively during the period under analysis and came to levels of 4.8% and 9.2% also respectively (Graph 2.21). These indicators worsened noticeably in 2017 and are above their averages for the last five years in the cases of both the total portfolio as well as each one of the specific portfolios (Table 2.5).

The coverage ratio (CR), which is calculated as the ratio between the loan-loss provisioning and the non-performing portfolio, registered a

41 The QID excluding penalties is defined as the ratio between the non-performing and the total loan portfolios (the non-performing portfolio includes the loans that have not been paid for a period equal to or greater than 30 days), while the QID including penalties, such as the ratio between the non-performing and the total loan portfolios with the addition of the penalties (these are assets which, being considered noncollectable or lost, have been removed from the income statement in accordance with the legal provisions in force).

Graph 2.21
Quality Indicators of the Gross Loan Portfolio by Default and by Risk



Source: Office of the Financial Superintendent of Colombia, calculations by *Banco de la República.*

value of 120.0% in December 2017, a figure lower than the one registered the previous year (137.2%). This reduction occurred because the growth rate of the loan-loss provisions has been lower than that of the past-due portfolio (19.0% compared to 36.0%).

In short, over the last year, the credit risk indicators for the credit establishments have deteriorated as a result of the current macroeconomic conditions and the difficulties some specific sectors have had. Even though credit risk had materialized for t01financial intermediaries, both the basic and the total capital adequacy measures registered values of 11.0% and 16.6% respectively and were thus higher than their averages for the last five years (10.6% and 15.9% respectively).

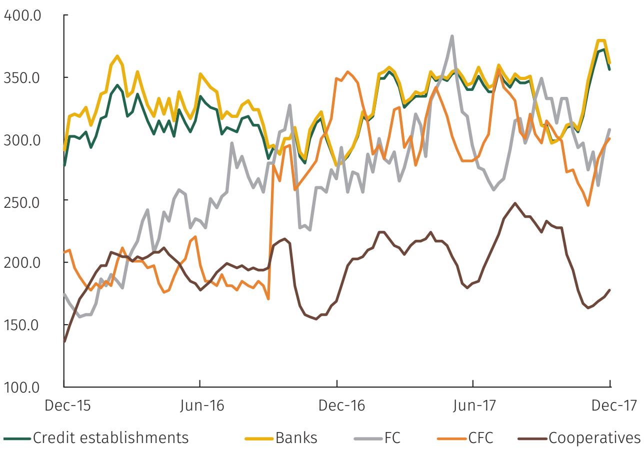
2.4.3.2 Liquidity Risk

In order to evaluate the liquidity the entities have available to meet their short-term obligations, the liquidity risk indicator (LRI_R), defined as the ratio between the balance of liquid assets (available and liquid investments) and an estimate of the net requirements of short-term liquidity (thirty days) is used. If the LRI_R is higher than 100%, the entity has enough liquidity to meet its obligations within a thirty day period, but if not, it could have problems covering them in the short term.

The various credit institutions have liquid assets to cover their short-term obligations.

As of December 2017, the CE's level of liquidity stood at 356.8%, a figure that is 78.0 pp higher than what was registered the year before. This performance was mainly the result of the levels of liquidity the banks presented. Likewise, the investment banks (IB) and cooperatives also showed increases in their LRI_R; in contrast, the commercial finance companies (CFC) exhibited a slight reduction. In spite of the

Graph 2.22
30-Day Liquidity Risk Indicator[a/]

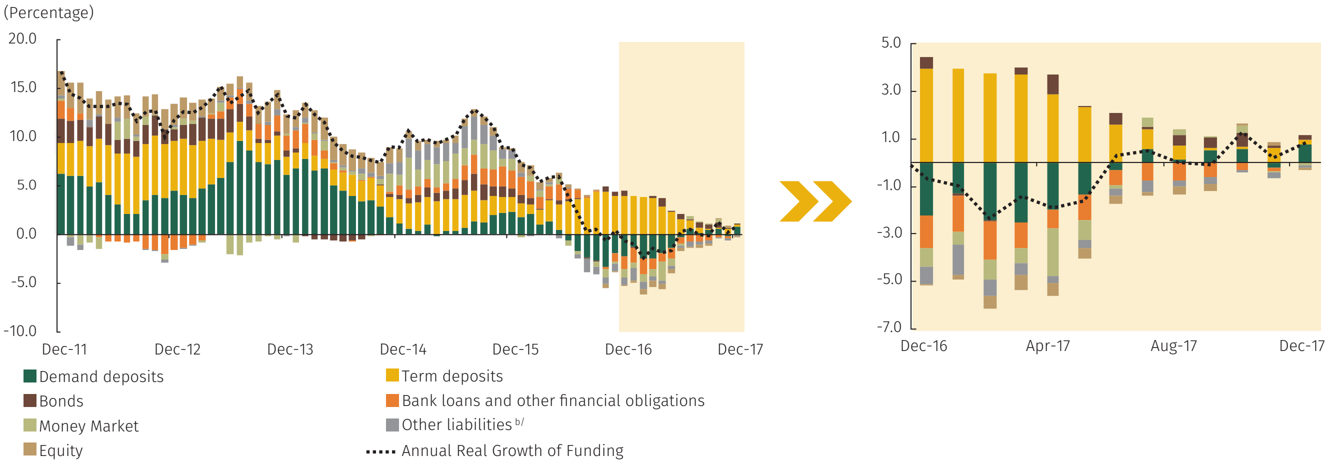


a/ Corresponds to a four-week moving average.
Source: Office of the Financial Superintendent of Colombia, estimates by *Banco de la República.*

fluctuations of the indicator, the different types of entities generally have sufficient liquid assets to face their short-term obligations (Graph 2.22).

In a manner that is consistent with the loan portfolio, the real, annual growth of funding, understood as the sum of liabilities and equity, remained at levels close to zero. Unlike what was seen months ago, funding registered positive rates of growth and, as of December 2017, this stood at 0.9%. By components, the term deposits were seen to be the component that contributed the most to funding in 2017, which means that credit institutions have opted for more stable, although more costly, funding sources (Graph 2.23).

Graph 2.23
Real, Annual Growth of Funding (liabilities + equity) and Contribution of Their Components[a/]



a/ CPI is used as a deflator. Special financial entities (second tier banks) are not included.
b/ Other liabilities include other financial instruments, accounts payable, BOCAS, BOCEAS, etc.
Source: Office of the Financial Superintendent of Colombia, estimates by *Banco de la República.*

2.4.3.3 TES Market Risk

Financial institutions can have TES as part of their assets (their proprietary position) or as part of the assets they manage for their clients (third party position). During 2017, the financial system's TES portfolios, both the proprietary and managed ones, rose and their indicator of volatility has remained relatively stable.

As of December 29, 2017, the value of the financial system's TES portfolio held in a proprietary position rose COP 7.1 t in comparison to December 30, 2016 and stood at COP 55.0 t. For 2017, there was an increase in the TES portfolio for all of the different types of entities in the financial system. The most significant increase

During 2017 the financial system's TES portfolios, both the proprietary and managed ones, rose.

was for the banks, which raised their TES balance by COP 4.9 t during the period under analysis. This is mainly explained by the declines in the monetary policy rate, which have generated appreciations in the government bond market where the CEs hold a large share. The insurance companies, investment banks, and stock brokerage firms presented increases of COP 0.9 t, COP 0.5 t, and COP 0.8 t respectively.

With regards to the managed funds, there was a COP 24.5 t increase during the same period that came to a balance of COP 177.9 t. The above mentioned is mainly due to the increased acquisition of these securities on the part of foreign investors and pension funds both of which increased their TES portfolios by COP 9.9 t and COP 6.4 t respectively. Thus, these agents reached a 37.9% and 52.6% share of the total funds administered (Table 2.6).

The increase on the part of foreigner investors in the TES portfolio is in line with the trend observed since the beginning of 2014.

The increase in holdings on the part of foreign investors in the TES portfolio is in line with the trend seen since the beginning of 2014. As was explained in the first chapter of this *Report*, this was especially due to the better conditions of global liquidity, the greater yields of emerging economies as well as the improvements with respect to taxes in the Colombian fiscal system and the accessibility to the local market for these investors (see Box 2 in the *Board of Directors' March 2017 Report to the Congress of the Republic*).

Like the rest of TES holders, the financial entities may face losses due to valuation resulting from a fall in the price of said securities. This risk is quantified by the change in the exposed TES balance and with a measurement called value at risk (VaR). This methodology, based on the returns observed, estimates the maximum loss that an institution may experience in its investment portfolio or in the managed one over a 1-day horizon for a given level of confidence.[42] It should be mentioned that an appropriate measure of the financial system's market risk is the VaR of their proprietary position since the losses associated with the portfolios managed by the system are faced by the investors.

As of December 29, 2017, the average monthly VaR for the proprietary position of the financial entities declined slightly with respect to what had been seen 12 months ago (0.4% in comparison to 0.5%). The indicator is below the levels seen in 2013 when the volatility in the financial markets rose as a result of the announcements about the possible gradual phasing out of the United States Federal Reserve's asset purchase program (Graph 2.24).

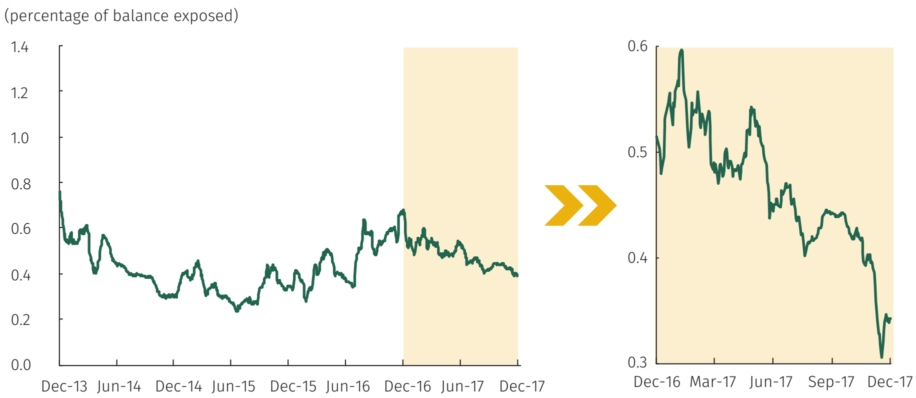
42 To illustrate, if the VaR of a financial institution is 5% at a 99% confidence level, it indicates that the maximum loss that this entity might face in one day would be 5% of the value of their portfolio and there is only a 1% chance of surpassing this.

Table 2.6
Change in TES Balance in Financial System's Proprietary and Managed Positions
(trillions of pesos)

TES balance		
Entities	Dec 30-2016	Dec 29-2017
a) Financial System: proprietary position		
Credit institutions		
Commercial banks		37.5
Investment banks		2.6
Commercial finance companies		0.0
Financial cooperatives	0.0	0.0
Non-banking Financial Institutions (NBFI)		
Pension Funds		0.2
Stock Brokerage Firms		1.7
Trust Funds		0.1
Insurance and Capitalization Companies	12.0	12.9
Total	47.9	55.0
b) Financial System: Managed Position		
Foreigners	57.5	67.4
Stock Brokerage Firms		0.0
Trust Funds	57.5	67.4
Pensions	87.1	93.5
Pension Funds		74.1
Trust Funds[a/]	18.1	19.5
Mutual Funds[b/]	1.0	1.6
Stock Brokerage Firms		0.5
Trust Funds	0.8	1.1
Others	7.8	15.3
Stock Brokerage Firms		0.1
Trust Funds	6.7	15.2
Total	153.4	177.9
C) Others[c/]		26.2
Total supply	228.5	259.1

a/ Pension liabilities managed by trust companies.
b/ Information from format 351.
c/ "Others" includes *Banco de la República*, National Office of the Treasury and Public Credit, Fogafin, etc.
Sources: Office of the Financial Superintendent of Colombia and *Banco de la República*.

Graph 2.24
VaR of the Financial System's Proprietary Position
(weekly moving average)



Source: *Banco de la República.*

2.5 External Balance and Foreign Exchange Policy

During 2014, the decline in the terms of trade translated into a sharp contraction of the country's export earnings. This, added to the rates of growth the current outflows were maintaining in a context of ample foreign financing, implied an increase in the deficit in the current account.

Then, in 2015 and 2016, the current expenditures began to shrink, at an even higher rate than income. Thus, the drop in exports was more than offset by the lower imports of goods and services and by the decreases in the profits of companies that have foreign capital. This is consistent with the lower domestic demand, smaller capital flows, and the accumulated depreciation of the exchange rate. With this, the deficit in the current account declined as a share of the GDP going from 6.4% to 4.3% between 2015 and 2016 and reached a level in dollars similar to the one in 2013, the year prior to the oil price shock.

In 2017, the additional adjustment to the country's current account was no longer due to a decline in outflows as had been seen two years before but rather to the recovery of income from abroad which made it possible to more than offset the growth of imports and of outflows due to factor income. The performance of the Colombian peso was mainly associated with the change in the price for petroleum, although to a lesser extent than in previous years, and to the strength of the dollar around the world.

The additional adjustment of the country's current account in 2017 was explained by the recovery of foreign revenue, which made it possible to more than offset the growth of outflows.

The correction of the deficit in the current account is expected to continue during 2018 driven in large part by the effect of the recovery of demand abroad on manufactured Colombian goods and the trend of the international price of crude oil. This is in an environment of higher costs for foreign financing.

2.5.1 Colombia's Foreign Balance in 2017

During 2017, the country's balance of payments current account registered a deficit of USD 10.359 b (3.3% of the GDP) which is lower than it had been in 2016.

During 2017, the country's balance-of-payments current account registered a deficit of USD 10.359 b, which was USD 1.770 b lower than what had been registered 2016 (Table 2.7). As a share of the GDP, the deficit was 3.3%, which meant a decline of 1.0 percentage points (pp) in comparison to what had been registered in 2016 when it came to 4.3% of the GDP. The current deficit was financed by net capital inflows of USD 9.694 b (3.1% of the GDP), which included the accumulation of USD 545 m in international reserves.[43] The errors and omissions are estimated at USD 665 m.

Note that the development in Colombia's balance-of-payments current account shows a tight relationship with the performance of the trade balance of goods due to the high share that exports and imports have in the country's total current income and expenditures.[44]

Thus, the deficit in the trade balance in goods declined USD 4.393 b per annum during 2017. The country's exports totaled USD 39.474 b during the period under analysis with an annual increase of 15.8% (USD 5.395 b) (Table 2.7). The increase in the total value shipped came mainly from the higher foreign sales of coal (USD 2.751 b), petroleum and its derivatives (USD 2.263 b), and, to a lesser extent, due to the increase in shipments of industrial products (USD 643 m), coffee (USD 322 m), and bananas and flowers (USD 90 m). In contrast, sales abroad of non-monetary gold registered reductions (USD 781 m). The higher exported value of petroleum and coal is explained by the rise in their export prices (30.6% and 26.9% respectively) and by the upswing in the amount of coal shipped (26.1%). In contrast, the volumes of petroleum sold dropped 6.6%.

Imports of products totaled USD 44.241 b (Table 2.7) with an annual rise of 2.3% (USD 1.002 b). This rise was general, with the greater imports of supplies and capital goods for industry (USD 892 m, 4.1%), of transportation equipment (USD 205 m, 6.2%), and of consumer goods (USD 47 m, 0.5%) being the most notable. The decrease in the purchases of fuel and lubricants from abroad (USD 545 m, 12.0%) stands out. The increase in imports was the result of the larger quantities purchased from abroad and the slight general recovery in US dollar-denominated import prices.

43 Note that this accumulation of reserves is the result of income from the net yields on international reserves amounting to USD 550 m and USD 5 m in net outflows for other *Banco de la Republica* transactions.

44 The analysis of the structure and change in the current account income over the last 15 years shows that foreign sales of merchandise are its main component since these hold a share that ranges between 64% and 81% of the total income. Regarding the current expenditure flows, their most important component is importing goods which represented, on average, 64% of the total outlays (62% in 2017).

Table 2.7
Colombia’s Balance of Payments
(annual flows in millions of dollars)

	2016 (pr)	2017 (pr)	Change (dollars)
Current Account (A + B + C)	-12,129	-10,359	1,770
(percentage of the GDP)	-4.3	-3.3	
A. Goods and Services (1 + 2)	-12,767	-8,878	3,889
1. Goods (a - b)	-9,160	-4,766	4,393
a. Exports FOB	34,079	39,474	5,395
b. Imports FOB	43,239	44,241	1,002
2. Services (a - b)	-3,608	-4,111	-504
a. Exports	7,677	8,326	650
b. Imports	11,284	12,438	1,153
B. Factor Income	-5,249	-8,167	-2,918
Income	4,996	5,475	478
Outlays	10,245	13,641	3,396
C. Current Transfers	5,887	6,685	798
Income	6,696	7,558	862
Outlays	808	873	65
Financial Account[a/] (A + B + C + D)	-12,682	-9,694	2,989
(percentage of the GDP)	-4.5	-3.1	
A. Direct Investment (ii - i)	-9,332	-10,828	-1,497
i. Foreign in Colombia (FDI)	13,849	14,518	
(percentage of the GDP)	4.9	4.7	
ii. Colombian Abroad	4,517	3,690	
B. Portfolio Investment (1 + 2)	-3,718	-1,577	2,141
1. Public Sector (ii - i)	-6,273	-7,250	
i. Foreign Portfolio Investment (a + b)	9,292	6,695	
a. International markets (bonds)	1,910	2,914	
b. Domestic Market (TES)		3,781	
ii. Portfolio Investment Abroad	3,019	-555	
2. Private Sector (ii - i)	2,556	5,673	
i. Foreign Portfolio Investment (a + b)		1,099	
a. International markets (bonds)		854	
b. Domestic Markets		245	
ii. Portfolio Investment Abroad	2,171	6,772	
C. Other Capital Flows public sector + private sector	202	2,166	1,964
D. Reserve Assets	165	545	380
Errors and Omissions (E and O)	-553	665	1,219
MEMO ITEM:			
Financial account excluding change in international reserves	-12,848	-10,239	2,609
Change in International Reserve	165	545	

(pr): preliminary
a/ In the financial accounts, the negative sign on net flows (A, B, C, and D) reflects funding resources entering the Colombian economy. In this respect, positive changes imply less foreign financing in the balance of payments.
Note: the results presented at the current date follow the recommendations of the sixth version of the IMF Balance of Payments Manual. Therefore, the financial account is presented with a negative sign for the net capital income. For further information and methodological changes consult http://www.banrep.gov.co/balanza-pagos.
Source: *Banco de la República.*

With respect to the deficit in the service account, this rose USD 504 m during 2017 (Table 2.7) due to the higher increase in imports compared to the exported services. In the area of exports, the higher income received for trips as well as the sale of insurance, financial, business, and transportation services is highlighted. Regarding imports, the greater outlays associated with expenditures on insurance and financial services as well as the expenses of Colombian travelers abroad and payments for business and transportation services are the most outstanding. In contrast, purchases from abroad associated with other services declined.

In 2017, the increase in net outflows for factor income was mainly caused by the higher profits of the businesses with FDI.

During 2017, the increase in net expenditures for factor income (USD 2.918 b) (Table 2.7), in turn, came mainly from the higher profits of businesses with foreign direct investment (FDI), which registered an annual growth rate of USD 2.646 b (56.1%). At the same time, the payment of interest associated with the foreign debt rose USD 749 m (13.6%) in comparison to 2016. The higher outflows due to FDI profits are associated, in particular, with the increase in the estimated earnings for the companies that work in oil drilling (USD 1.403 b) and mining and quarrying (USD 1.291 b) due to the higher prices for exports. These higher earnings were partially offset by the reduction in the profits of the foreign companies in the manufacturing sector (USD 281 m), financial establishments (USD 148 m), and transportation, warehousing, and communications (USD 148 m).

The reduction of the country's current deficit was offset by the lower capital flows in terms of the financial account.[45] As a result of that, net capital inflows of USD 9.694 b were registered in 2017. These were USD 2.989 b lower than what had been seen the previous year when they totaled USD 12.682 b. During the period under analysis in particular, USD 20.107 b in net income from foreign capital, outflows of Colombian capital (USD 9.665 b), net payments for financial derivatives (USD 203 m), and a USD 545 m increase in international reserves were registered. In terms of the GDP, the financial account went from 4.5% to 3.1% (Table 2.7).

These funds from abroad that the country has received came primarily from FDI, portfolio investment in the local market, and the placement of debt securities on the international markets.

These resources from abroad that the country has received came primarily from FDI (USD 14.518 b), portfolio investment in the local market (USD 4.026 b), and the placement of debt securities on the international markets (USD 3.767 b). These results were partially offset by net payments on loans and other credit from abroad (USD 2.204 b).

45 According to the *IMF's Proposed Balance of Payments Manuel*, sixth version, the financial account appears with the same sign as the current account. The financial account is the result of the difference between asset and liability flows. If the current account has a deficit, then the financial account is negative, which indicates that the Colombian economy has had to resort to foreign financing (liabilities) or liquidate its foreign assets in order to finance its current excess spending. In contrast, if the current account is positive (surplus), the financial account will also be positive which would indicate that the country has the capacity to lend funds to the rest of the world.

In 2017, USD 14.518 b was received through FDI (4.7% of the GDP), an amount that is USD 669 m (4.8%) higher than what had been received the year before. The distribution of FDI by economic activity for this period was as follows: mining and petroleum (30.4%), transportation and communications (23.9%), manufacturing (15.6%), financial and business services (11.4%), commerce and hotels (6.2%), electricity, gas, and water (3.2%), and the remaining sectors (9.2%). The flow of Colombian direct investment abroad, in turn, was estimated at USD 3.690 b and the majority of this was made by businesses in the industrial and electricity sectors. As can be seen in Table 2.7, net direct investment totaled USD 10.828 b, an amount that is almost equivalent to the country's current deficit and something that has not been seen since the year 2012.

The country, in turn, received USD 7.793 b in foreign portfolio investment in 2017, which is USD 1.114 b lower than what had been received a year earlier. Of these funds, 51.7% came from the placement of long-term debt securities, the majority of which were issued by entities in the public sector, on the international markets, and 48.3% of these funds were allocated by foreign investors to the purchases of TES and stocks in the local market. The outflows of Colombian capital for investment totaled USD 6.217 b. They corresponded to portfolio investments made by private sector companies (USD 6.772 b) and were partially offset by the liquidation of investments made by the public sector (USD 555 m) (Table 2.7).

Finally, the country increased its assets abroad by USD 2.166 b, which came mainly from other capital flows and originated primarily from payments for loans acquired by public sector entities. This amount is USD 1.964 b greater compared to the USD 202 m in assets seen the previous year.

2.5.2 Projection of the Balance of Payments for 2018

After the correction of the foreign imbalance seen in 2016, the Colombian economy continued to adjust and the deficit in the current account continued to be corrected during 2017 until it stood at 3.3% of the GDP. Last year's adjustment was mainly caused by the recovery in foreign revenue, especially due to exports of products and, to a lesser extent, the increase in the remaining items, remittances and tourism in particular. Indeed, the results of the current account in 2017 show that the lower foreign deficit was due to a growth in income of close to 14%, which was higher than the 8.6% increase in outflows. This is expected to continue in 2018, spurred in large part by the effect of the recovery of foreign demand on manufactured Colombian goods and the trend of the international price of crude oil.

The lower foreign deficit in 2018 is expected to be due to a growth of income that is higher than the increase in expenses.

The projection for the balance of payments for 2018 indicates that the current account deficit as a percentage of the GDP will probably be around 3.1% as the most likely figure. This forecast falls within a context of higher prices for petroleum than those registered in 2017 and of the greater buoyancy of foreign demand. This last is due to the estimated growth of the main trading partners. In particular, the growth of developed countries is expected to remain stable and the growth of the majority of Latin American economies is expected to rise (Table 2.8).

Table 2.8
Balance of Payments, 2017 and Forecast for 2018
(millions of dollars)

	2016 (pr)	2017 (pr)	2018 (proJ)
Current Account (A + B + C + D)	-12,128.9	-10,359.2	-10,186.5
Percentage of the GDP	-4.3	-3.3	-3.1
A. Goods	-9,159.8	-4,766.5	-3,235.2
Exports	34,079.2	39,474.3	43,112.5
Imports	43,238.9	44,240.8	46,347.8
B. Non-factor services	-3,607.7	-4,111.5	-4,728.1
Exports	7,676.8	8,326.3	9,105.4
Imports	11,284.4	12,437.7	13,833.5
C. Factor Income	-5,249.0	-8,166.6	-9,520.8
D. Transfers	5,887.5	6,685.4	7,297.6
Financial Account (A + B + C + D)	-12,682.4	-9,693.8	-10,186.5
A. Direct Investment (ii - i)	-9,331.6	-10,828.5	-9,100.1
i. Foreign in Colombia (FDI)	13,849.0	14,518.0	13,093.7
ii. Colombian Abroad	4,517.4	3,689.6	3,993.6
B. Portfolio Investment	-3,717.8	-1,576.8	1,918.6
C. Other Investments (loans, other credit and derivatives)	201.9	2,166.3	-3,682.3
D. Reserve Assets	165.1	545.1	677.3
Errors and Omissions (E and O)	-553.5	665.3	0.0

(pr): preliminary
(proj): projected
Source: *Banco de la República.*

Furthermore, a moderate growth in the imports of products is expected if the recovery seen in 2017 continues. This could occur due to the greater economic activity anticipated for 2018, which will stimulate imports for all of the sectors in general and the larger purchases of capital goods on the part of the mining-energy sector because of the better outlook for prices.

Given the above, the resulting trade balance for 2018 is expected to have a lower deficit than it did last year mainly spurred by the growth in exports of products, a majority of which will be petroleum and its derivatives and industrial products. Thus, a large part of the

The upward pressure on the current deficit in 2018 could be associated to a greater extent with factor income.

adjustment of the current imbalance could be due to this item. Another factor that could also contribute to reducing the current deficit will probably be the higher transfers due the expected growth of the remittances sent from the United States, Europe, and some Latin American countries.

Furthermore, upward pressure on the current deficit in 2018 could be associated to a greater extent with factor income for which an increase in the profits of companies that have foreign capital is expected, especially from those that work in the petroleum sector as a result of the higher prices compared to what was seen in 2017. It should be noted that, to the degree in which higher income from exports is anticipated for oil companies with FDI, this will be reflected in an increase in their profits due to factor income. An improvement in the profits for companies working in sectors other than mining-energy is also expected that is consistent with the better growth anticipated for the economy. Higher payments for interest on the foreign debt (bonds and loans acquired by entities in the public and private sectors) due to the higher level of debt, and, in addition, to the increase in the foreign interest rates could be added to the above.

In terms of the financing of the current account, direct investment is expected to continue being the main source of foreign capital in 2018.

The deficit in services for 2018 is estimated to be at levels higher than it was last year. With respect to outflows, these will probably rise as a result of the higher spending of Colombians on trips abroad, the increased outlays on freight costs, and the growth of the petroleum technical services given the higher international prices for crude oil. Meanwhile, income will probably grow mainly due to the greater income from tourism, which is facilitated by the improvement in global growth.

In terms of the financing of the current account, direct investment is expected to continue being the main conduit for foreign capital inflows in 2018. In addition, a major reduction in loans (net disbursements) from multilateral entities and foreign banks is expected in contrast with net repayments in 2017. With regards to the portfolio investments, the central scenario for 2018 assumes a more limited placement of bonds on the part of the public sector and less activity on the part of foreigners in the TES market.

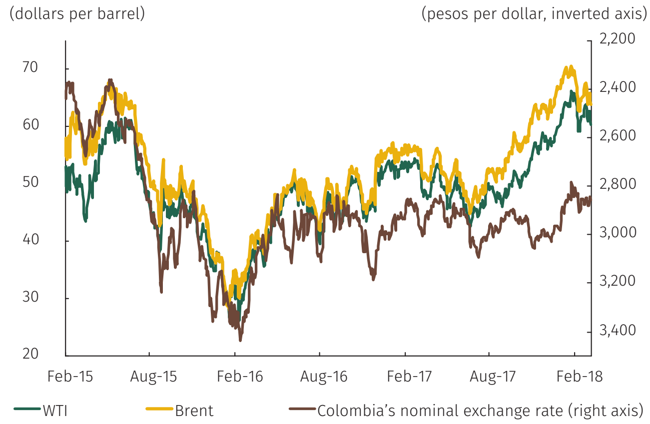
2.5.3 Changes in the Exchange Rate in 2017 and During the Elapsed Months of 2018.

During 2017, the dollar continued to weaken with respect to most currencies. This trend was primarily due to the greater probability of a tighter monetary policy on the part of the European Central Bank, the Bank of England, and the Bank of Japan; the political uncertainty concerning the adoption and effects of the tax reform in the United States; and the decline in the credibility of the effectiveness of the policies announced by the US President during his campaign on the part of certain analysts. Specifically, at the close of the year, the US currency had weakened 9.9% per annum with respect to the currencies of the advanced economies[46] and depreciated 5.3% with respect to the currencies of emerging countries.[47]

In Latin America, the currencies appreciated in line with the weakening of the US dollar, influenced also by the increase in the prices of raw materials. However, this performance was limited by idiosyncratic events and political uncertainty in the majority of the countries.

In the case of the Colombian peso, the trend was mainly associated with the change in the price for petroleum,[48] although to a lesser extent than in previous years, and with the performance of the dollar around the world (Graph 2.25). At the local level, concerns about the more limited outlook for growth of the GDP also had an influence.

Graph 2.25
Nominal Exchange Rate and International Price of Petroleum



Source: Bloomberg.

In comparison to the currencies of our major trading partners (based on the NERI), the Colombian peso was reinforced during the first quarter of 2017 compared to the close of 2016 when the country's exchange rate was above COP 3,000 per US dollar. After that, there was a trend towards depreciation, which lasted until July when once again it broke the barrier of COP 3,000 per US dollar. Although it was somewhat volatile, the exchange rate remained at close to COP 2,970 per US dollar on average between August and December 2017. With this, as mentioned, the Colombian peso registered an appreciation of 0.6% when comparing December 2016 with the same month in 2017. In terms of the annual averages, the appreciation in 2017 was 3.4%. So far in 2018, this phenomenon continued supported by the price of petroleum.

If the changes in prices in Colombia and the rest of the countries are ruled out (real exchange rate index, RERI), the peso was also strengthened with respect to the country's main trading partners as a group (RERI-CPI and RERI-PPI; Graph 2.26). This is seen more intensely in

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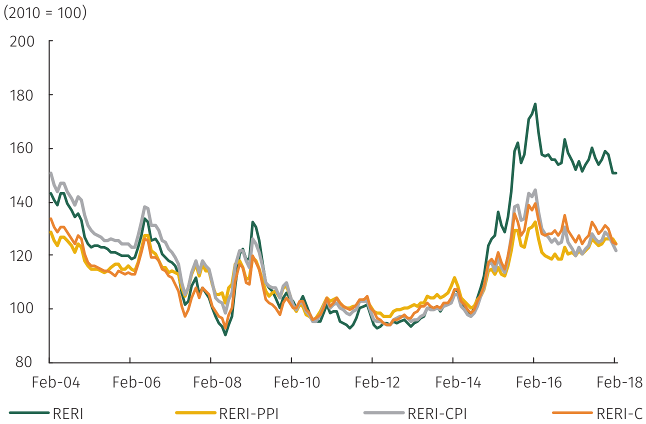
46 According to the *Bloomberg dollar spot index* (BBDXY) which includes the currencies of Europe, Japan, Canada, Mexico, the United Kingdom, Australia, Switzerland, South Korea, China, and Brazil. This group corresponds to the United States' main trading partners combined with those with the greatest liquidity (based on the BIS' three-year survey).

47 According to the FXJPEMCI index, which includes the currencies of Brazil, Russia, China, Mexico, South Africa, South Korea, Chile, Israel, Taiwan, Peru, Turkey, India, Argentina, Malaysia, Colombia, Hungary, Indonesia, Egypt, Thailand, the Czech Republic, the Philippines, Morocco, Pakistan, Jordan, and Poland.

48 Between January 1, 2016 and February 7, 2017, the ratio of the correlation between the levels of the Brent price for petroleum and the average peso-dollar exchange rate was -81%.

Graph 2.26
Multilateral Real Exchange Rate (nominal and real)



Note: The RERI shows the changes of the nominal exchange rate of the Colombian peso with respect to the currencies of our main trading partners as a group. The RERI-PPI and the RERI-CPI compare the purchasing power of the Colombian peso to our main trading partners by using the PPI and CPI, respectively, as deflators. With the RERI-C (for competitiveness), a comparison is made with our main competitors in the US in the coffee, banana, flower, and textile markets.
Source: *Banco de la República.*

the first few months of 2018 and is very closely related to the trend in the price of petroleum. Something similar can be seen if the purchasing power of the Colombian peso is compared to its competitors in the United States in the coffee, banana, flower, and textile markets (RERI-CPI and RERI-C). When the annual averages are taken, the performance of the indicators is uneven and depends on the deflator; while the RERI-CPI and the RERI-C show a real appreciation, the RERI-PPI exhibits a real depreciation. In the first two months of 2018, the above became more accentuated in each of the methodologies mentioned previously.

So far in 2018, the US dollar has weakened with respect to currencies of its main trading partners and the currencies of emerging countries. This occurred mainly during January and was influenced by smaller gaps in terms of growth in the United States compared to the euro zone and Japan, the outlook for monetary policy in the major developed economies, and some comments made by officials in the US government who have hinted that a weak dollar would be good for its economy.

2.5.4 International Reserve Indicators

Banco de la República recognizes the importance of having a suitable level of international liquidity to deal with capital outflows as well as to improve confidence in the country. In addition to the reserve accumulation strategy, Colombia has had a line of contingent financing with the IMF since May 2009, which is granted to member countries with good economic performance, prudent policies, and a sound economic policy framework. On June 5, 2017, the IMF reaffirmed the agreement on access to contingent resources, amounting to approximately USD 11.350 b, for Colombia. Although the economic authorities do not envisage making use of these funds, they consider having them prudent in the event of a sudden cut off in external financing.

To determine whether or not there are enough international reserves to prevent and deal with external shocks, various indicators are used, which are described below (Table 2.9). In general, the international markets think low values for these could be warning signs of the external vulnerability of an economy.

To establish the economy's ability to respond to capital outflows triggered by a speculative attack, the level of the reserves is compared to different economic variables including monetary aggregates such

Table 2.9
Indicators of Colombia's International Reserves

	2010	2011	2012	2013	2014	2015 (pr)	2016 (pr)	2017 (proj)
Balance								
Net international reserves (NIR) (millions of dollars)[a/]	28,452	32,300	37,467	43,633	47,323	46,731	46,675	47,629
Indicators								
A. Foreign Debt Repayment Indicator								
Repayment of foreign debt (millions of dollars)		14,364	22,539	16,773	21,755	24,018	22,334	29,706
NIR/current year foreign debt repayments		2.25	1.66	2.60	2.18	1.95	2.09	1.60
NIR/coming year foreign debt repayments[b/]		1.43	2.23	2.01	1.97	2.09	1.57	1.91
B. Appropriate External Liquidity Position								
NIR/(current year debt service)		1.84	1.44	2.14	1.84	1.63	1.72	1.36
NIR/(coming year debt service)[c/]		1.24	1.84	1.69	1.66	1.73	1.34	1.59
NIR/(current year debt repayments + current year current account deficit)	1.48	1.34	1.11	1.49	1.14	1.10	1.35	1.19
NIR/(coming year debt repayments + coming year current account deficit)[d/]	1.18	0.95	1.28	1.05	1.11	1.36	1.16	1.36
C. Other International Reserve Indicators								
NIR as months of product imports		7.4	7.9	9.2	9.2	10.8	13.0	12.9
NIR as months of total imports		6.1	6.5	7.4	7.6	8.7	10.3	10.1
NIR/M3 (percentage)		24.1	22.1	24.7	30.2	35.5	31.7	29.6
NIR/GDP (percentage)	9.9	9.6	10.1	11.5	12.5	16.0	16.7	15.4

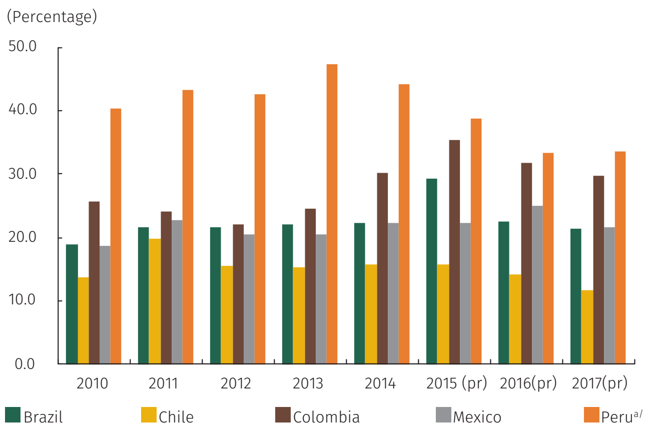
(pr): preliminary (proj): projected.
a/ The net international reserve balance includes the contributions to the Latin American Reserve Fund (FLAR in Spanish).
b/ The debt repayments for the coming year correspond to the projected payments on foreign debt at the closing of the projected balance of payments. Includes the balance of the short-term debt.
c/ The interest for the coming year corresponds to the estimated payments at the closing of the predicted balance of payments.
d/ The current account deficit for the coming year is a forecast.
Source: *Banco de la República.*

as M2 or M3. When the various indicators of Colombia's international liquidity are compared to those of countries in the region, the ratio of reserves to M3 for 2017 is seen to register levels above those of Brazil, Chile, and Mexico and lower in comparison to Peru's (Graph 2.27).[49]

The ratios of net reserves to repayment of the total foreign debt and to the current account deficit show the country's ability to meet its credit obligations with the rest of the world in an extreme scenario where access to international financing is completely closed off. In the ratio of international reserves to debt repayment, debt servicing, and current account deficit plus debt repayment, Colombia historically registers levels that are above those of Chile and below Brazil's and

49 In the case of Peru, the banking reserve requirements are excluded from the balance of the international reserves.

Graph 2.27
International Reserves/M3



(pr): preliminary
a/ The banking reserve requirements are excluded from the balance of international reserves.
Source: Central banks, The Economist Intelligence Unit (updated February 2018) and *Banco de la República*.

Peru's (Graph 2.28). For Colombia these indicators have registered values that, on average, are above one, especially during the latest decade.[50]

The indicator of reserves to GDP, in turn, is at lower levels than those seen for the rest of Colombia's peers in the region.[51] With respect to reserves measured in months of product imports, these show that, in 2017, Colombia's relative position was low only with respect to Brazil and higher or equal to the rest of the economies analyzed (Graph 2.29).

The results of various indicators for Colombia between 2010 and 2017 are shown in Table 2.9. In the case of the ratio of net reserves to M3, an improvement in the indicator was evident up to the year 2015 along with a slight decline over the two years following that. This 2015 result was associated with the purchase of reserves on the part of the Bank up until December 2014, with the slowdown in the growth rate of the monetary aggregate since mid-2013, and with the effect of depreciation on the M3 valuation in dollars. As of 2016, the level of reserves was similar to that of the previous year while the dollar-denominated M3 registered a positive growth rate, which reduces the estimated value of the indicator. In 2017, a growth rate that is (7.3%) higher than that of the reserves (2.0%) is seen for dollar-denominated M3, which is why the value of the indicator has declined.

The ratio of net reserves to total imports of goods and services shows the number of months of purchases abroad that an economy is able to cover using its international reserves in the event of an abrupt change in the trade balance. This indicator estimates 10.1 months for 2017, which is higher than the average of 7.6 months since the year 2000. When this indicator is calculated for imports of goods, it rises to 12.9 months.

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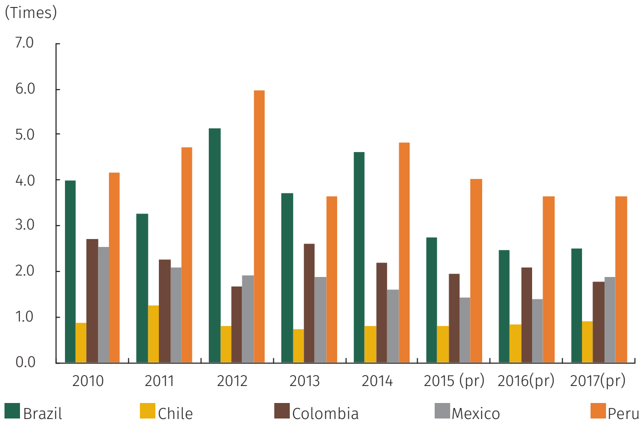
50 According to the IMF, "Debt and Reserve Related Indicators of External Vulnerability" (2000), there is empirical evidence for a sample of emerging economies, which makes it possible to establish the value of 1 for these types of reserve indicators as a benchmark. Specifically, the Guidotti–Greenspan rule states that a country's reserves should be equal to the balance of the short-term external debt, which implies a ratio of 1 for this indicator. The explanation is that countries should have enough reserves to be able to withstand a massive withdrawal of short-term external capital.

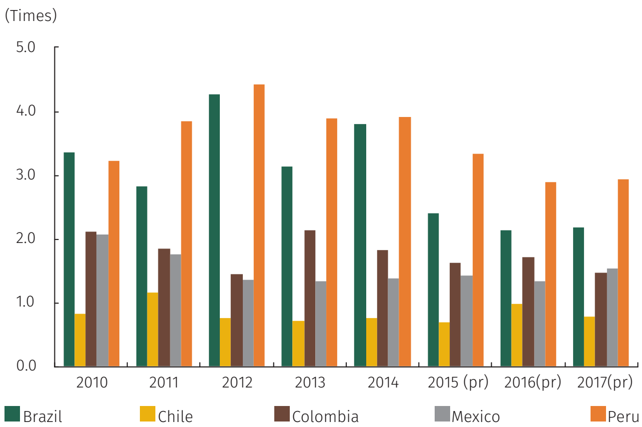
51 In order to ensure that this accounting period is comparable, the GDP of the countries under analysis, including Colombia, corresponds to the GDP converted into dollars using the purchasing power parity rates of the World Bank.

Graph 2.28
Appropriate Foreign Liquidity Position Indicators

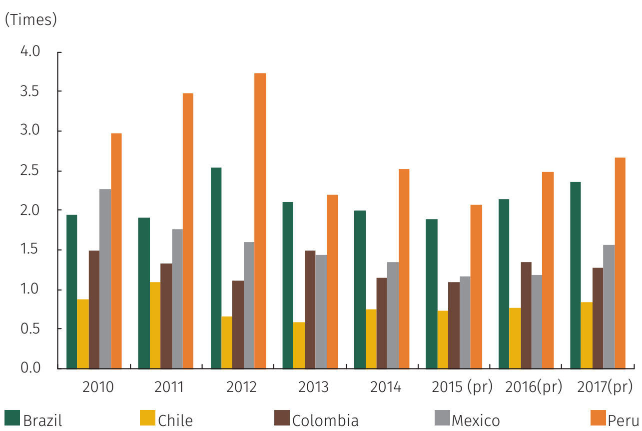
A. International Reserves/Current Year Repayment



B. International Reserves/Current Year Debt Service



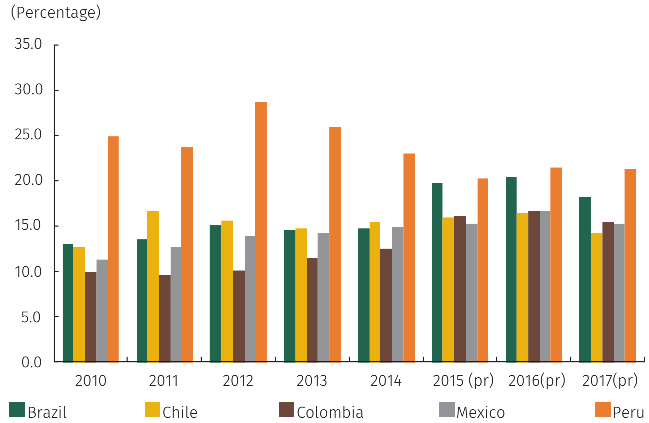
C. International Net Reserves/Current Year Current Account (Deficit + Amortizations)



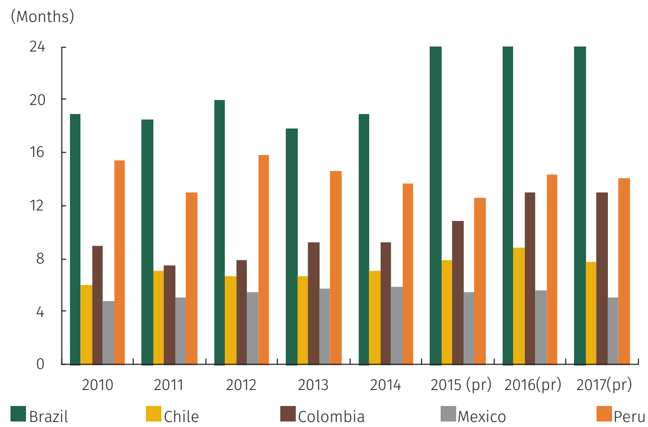
(pr): preliminary
Source: Central banks, The Economist Intelligence Unit (updated February 2018) and *Banco de la República*.

Graph 2.29
Other International Reserve Indicators

A. International Net Reserves/GDP



B. International Net Reserves as Months of Product Imports



(pr): preliminary
Note: the GDP of the countries under analysis corresponds to the GDP converted into dollars using the purchasing power parity rates of the World Bank.
Source: Central banks, The Economist Intelligence Unit (updated February 2018) and *Banco de la República*.

Box 1
Impact of the Reduction in the Terms of Trade on Investment

The shocks to commodity prices and their impact on the terms of trade (TT) are a relevant uncertainty factor with regards to the economic cycles in countries that export commodities, in particular when they have to do with products from extraction occupations such as mining and oil drilling. The international literature on the subject is abundant and, among other items, it analyzes the channels through which the shocks are transmitted to the TT and to the internal and external adjustment processes. The case of Colombia arouses interest, and it is often included within the sample of countries for which this phenomenon is studied – for recent works related to this, see Aslam et al. (2016); Roch (2017); Adler et al. (2017); Grigoli et al. (2017); Fornero (2016).

Boxes were included in recent issues of this *Report* that examined the following topics: 1) the channels of influence the petroleum shock had on the Colombian economy (March, 2015); 2) the comparison with the economies of Chile and Peru, which have been affected by similar shocks (July 2016); and 3) the Colombian economy's process of adjustment to the petroleum shock (July 2017). Based on the international literature, these boxes and the macro-analysis included in recent reports coincided in their indications that certain characteristics of the Colombian economy such as the exchange rate flexibility, the fiscal regulations, the soundness of the financial system, and the high level of international reserves contributed to cushioning the effects of the shock to the TT. The response of monetary policy also played a foundational role in this process. Therefore, at the beginning of 2018, the current account deficit has returned to a level similar to the one it had before the shock, inflation is approaching its target, and economic activity is beginning to rebound.

However, other consequences that are more persistent than the shock to the TT have not yet been overcome. One of the most remarkable is the investment slowdown, which has been especially strong when it is compared to the performance it registered during the period of favorable TT that contributed to reducing the country's risk premium, eased restrictions on foreign indebtedness, and attracted high volumes of foreign direct investment.

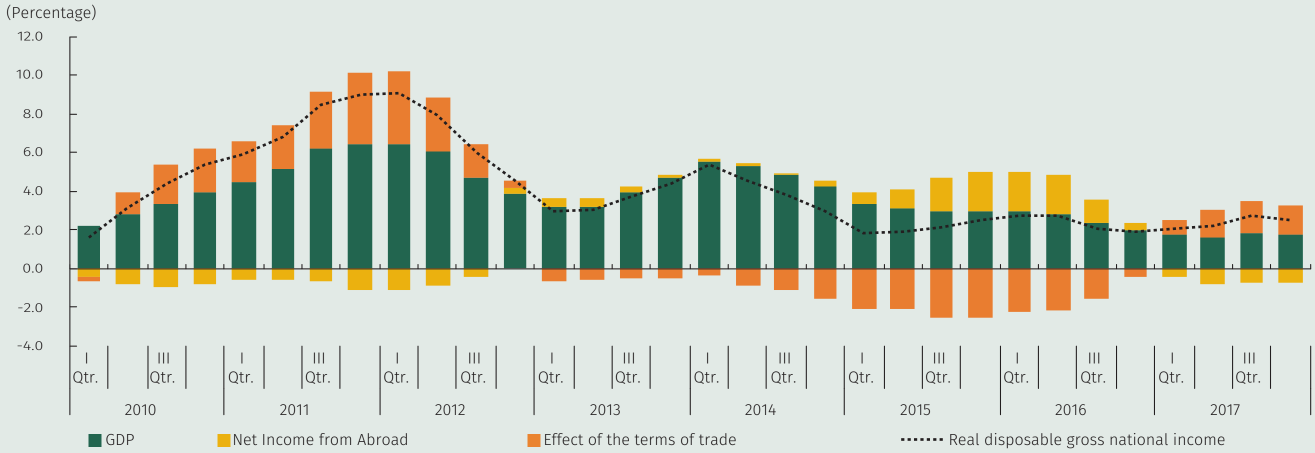
The analysis of the investment performance makes it possible to get a perspective on the medium-term effects of the shock to the TT. A recent study done by researchers at the International Monetary Fund (IMF) (Aslam et al., 2016) shows that the response of the investment and its effect on capital stock with respect to TT variations is the main channel that has an influence on the potential growth of the GDP. The latter is a variable that is central to monetary policy decision-making (Williams, 2017). A smaller expansion of the potential GDP implies a lower growth of the per capita output in the future, which could not be relieved by just countercyclical policies.

There are different mechanisms by means of which a shock to the TT impacts the investment. First of all, the effects of this shock have extended to the aggregate investment as a result of the widespread adjustment of domestic demand in response to the downturn in the available national income caused by the decline of the TT (Graphs B1.1 and B1.2). Added to the above are the lower expectations of economic growth (Graph B1.3), which are partially explained by the persistence of the shock, which is a factor that the literature has found relevant for determining the implications of these types of external disruptions for the economy (Kent and Cashin, 2003; Andrews and Rees, 2009). In addition, the reduction of TT also affects public investment (Bems and Li, 2015). As detailed below, the decrease in fiscal revenue associated with crude oil curtails the capability of the public sector to make investments.

Secondly, the companies that earn profits from mining and oil drilling have been directly affected. The lower level of income and profits these firms earned reduced their ability to generate their own resources which, coupled with the reduction in the profitability of the projects, led to a decrease in their investment and that of their parent companies in this extraction business (Graph B1.4). The direct relationship between investment in the mining sector and the international prices of these raw materials has also been seen in other countries, such as Australia, Canada, Chile, Peru, and South Africa (Fornero et al., 2016).

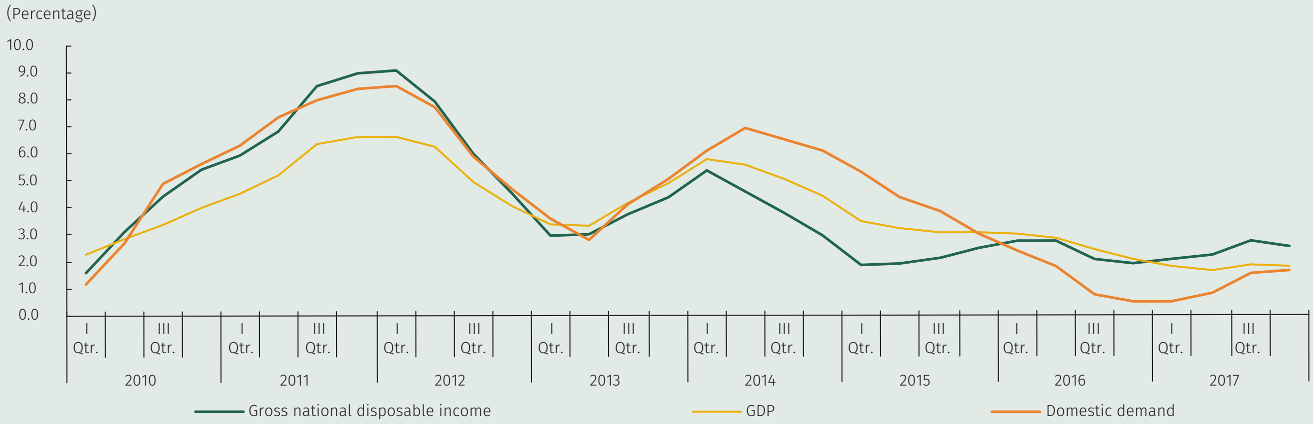
Another pertinent channel has been the variation in relative prices associated with currency depreciation. In general, different studies have shown that exchange rate flexibility allows for better absorption of TT shocks (Broda, 2004). With regard to investment, this channel has a positive effect in the medium term to the extent it generates incentives for investment on the part of the economic sectors that produce and export tradable goods and services. However, in the short term, depreciation makes investment more expensive due to the increase in the costs of foreign financing and the imports of capital goods when denominated in local currency (Graphs B1.5 and B1.6).

Graph B1.1
Contribution to the change in the gross national disposable income by Components
(accumulated over four quarters)



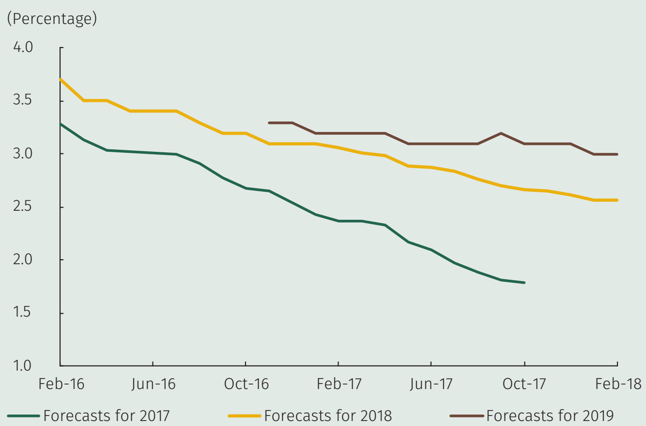
Source: DANE, calculations by *Banco de la República*.

Graph B1.2
Gross national disposable income, domestic demand, and GDP, cumulative over four quarters
(annual change)



Source: DANE, calculations by *Banco de la República*.

Graph B1.3
Analysts' Consensus on the Forecast of Real Growth of Colombia's GDP
(annual change)



Source: Focus Economics.

Graph B1.4
Profits of Foreign Mining and Petroleum Companies Measured as a Percentage of the GDP

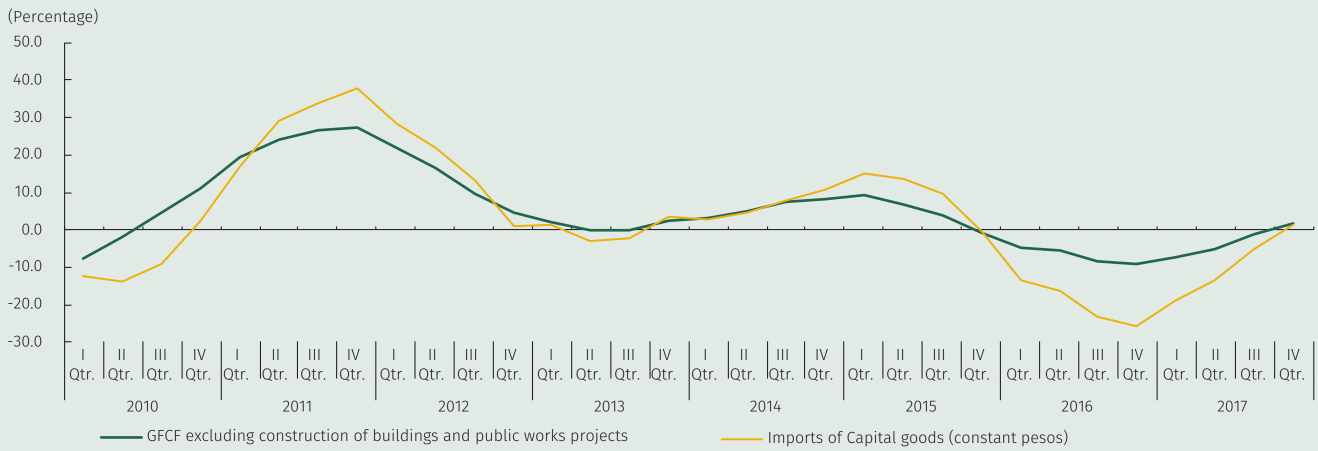
Source: *Banco de la República*.

Graph B1.5
Index of Peso-denominated Import Prices
(base 2005 = 100)

Source: *Banco de la República.*

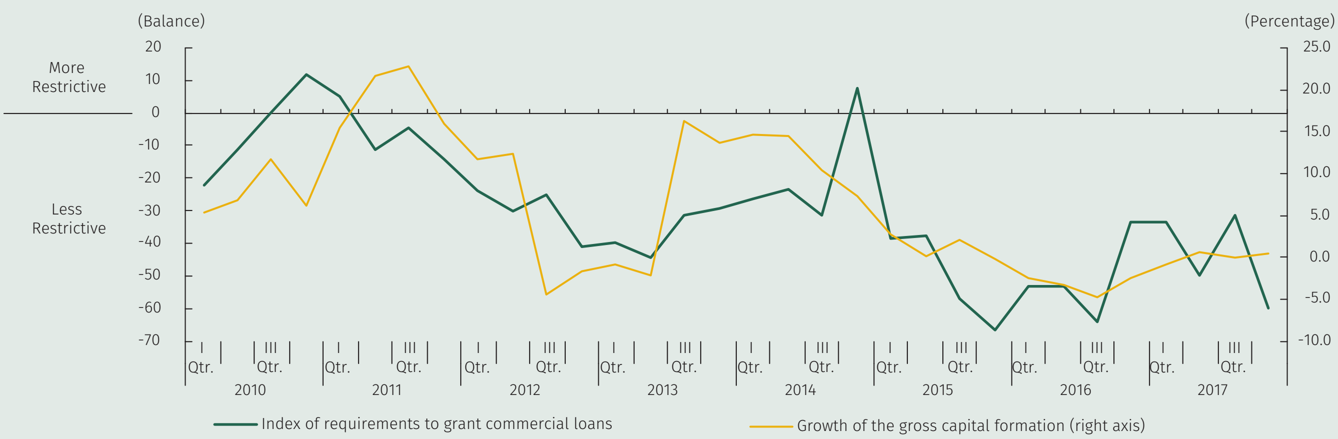
Moreover, the downturn of the economy, in this case related to the decline in the TT, has implications for the credit cycle and the access firms have to financing for their investment programs (Lown and Morgan, 2006). Indeed, note that the banks have been increasing their requirements for granting commercial loans since 2014 and, in the case of the aggregate during 2017, these requirements were similar to those registered on average in 2009 (Graph B1.7). The interest rates for these types of loans, in turn, rose temporarily after the shock to the TT although they have been decreasing in line with the decline in *Banco de la República's* benchmark interest rate. Likewise, the risk premia of a country tends to increase when there is a reduction in the TT (Hamann *et al.*, 2015), and this affects the cost of foreign financing (Graph B1.8).

Graph B1.6
Imports of Capital Goods (in constant pesos) and Gross Fixed Capital Formation, Cumulative Four Quarters
(annual change)



Source: DANE, calculations by *Banco de la República.*

Graph B1.7
Change in the Requirements for Granting New Commercial and Investment Loans
(balance, annual change)



Source: Survey of the loan situation in Colombia, December 2017, calculations by *Banco de la República.*

Graph B1.8
Credit default swaps 5 years ahead

Source: Bloomberg.

The combination of all the factors mentioned above has been mirrored by the deterioration of the investment indicators in Colombia. Gross capital formation (GCF) registered an average rate of variation in real terms of -0.7% between 2015 and 2017 after it experienced an average growth of 10.3% between 2011 and 2014 (Table B1.1). The less favorable performance of the GCF led to a downturn in the real rate of investment, measured as the ratio between GCF and GDP in pesos at constant 2005 prices. This indicator hit record highs in June 2014, a few months before the TT shock, when investment reached 30.1% of GDP. After almost three years of adjustment, the impact of the TT reduction resulted in a downswing of almost 3 percentage points (pp) in the investment rate within a context of a GDP slowdown. A decline of similar magnitude also took place for the nominal rate of return (Graphs B1.9 and B1.10). This indicator also declined in the countries in the region that were affected by the TT shock (Graph B1.11) and which have not recovered to the levels they had prior to the shock.

In particular, the drop in investment between 2015 and 2017 was the result of what happened in the areas of transportation equipment as well as machinery and equipment with respect to Gross Fixed Capital Formation (GFCF). These areas registered significant adjustments after the shock to the TT due to the fact that they are the components of investment in which imports have a high share. These declines, in turn, translated into a drop in the real rate of investment in tradable capital goods,1[1] which declined by about 20% (Graph B1.12) between the second quarter of 2014 and the fourth quarter of 2017.

In contrast, the GFCF for construction of new buildings maintained a positive variation until 2016 due in part to the low-income housing programs fostered by the NCG. However, the information available for 2017 as a whole shows a decline of 11.3% in this area.

Furthermore, between 2014 and 2017 the GFCF for public works showed a better performance than that of the aggregate GDP (Table B1.1). In principle, progress in the implementation of different infrastructure and tertiary road projects by regional and local governments contributed to

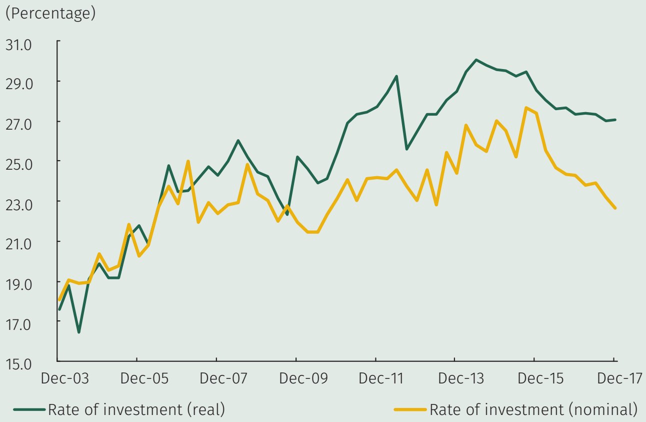
Table B1.1
Real Annual Growth of Investment by Type of Expenditure
(percentage)

	2011	2012	2013	2014	2015	2016	2017				2017
							I Qtr.	II Qtr.	III Qtr.	IV Qtr.	
Gross Capital Formation	18.9	4.3	6.3	11.6	1.2	-3.3	-0.9	0.7	0.0	0.5	0.1
Gross Fixed Capital Formation	19.0	4.7	6.8	9.8	1.8	-2.7	-1.7	1.5	0.3	0.3	0.1
Agriculture, Forestry, Hunting, and Fishing	9.5	-12.9	-5.4	1.5	-0.7	6.0	1.9	-4.9	-2.2	3.4	-0.5
Machinery and Equipment	23.2	13.3	0.2	7.6	-4.1	-8.2	-0.9	4.3	6.7	4.5	3.6
Transportation equipment	64.0	-9.6	-1.7	9.6	0.1	-31.3	-3.6	-2.1	-0.2	-13.1	-5.0
Construction and Buildings	5.2	5.1	11.1	7.7	2.6	6.4	-8.0	-8.2	-15.9	-13.1	-11.3
Public works	18.3	4.8	10.8	14.0	5.3	-0.4	3.5	7.2	9.1	8.7	7.1
Services	7.4	7.2	4.1	10.2	2.8	-2.7	-3.1	1.4	0.9	4.2	0.8
GDP	6.6	4.0	4.9	4.4	3.1	2.0	1.5	1.7	2.3	1.6	1.8

Source: DANE, calculations by *Banco de la República*.

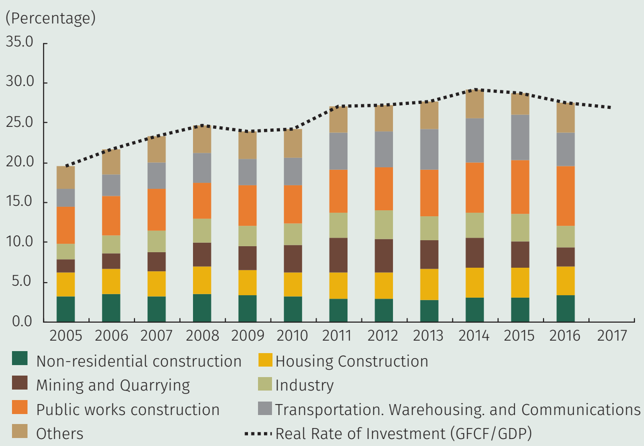
1 Investment related to machinery and equipment, transportation equipment, inventories, capital goods for agriculture, and services associated with the improvement of capital assets.

Graph B1.9
Nominal and Real Investment Rates in Colombia
(nominal and real GFC/GDP, base 2005)



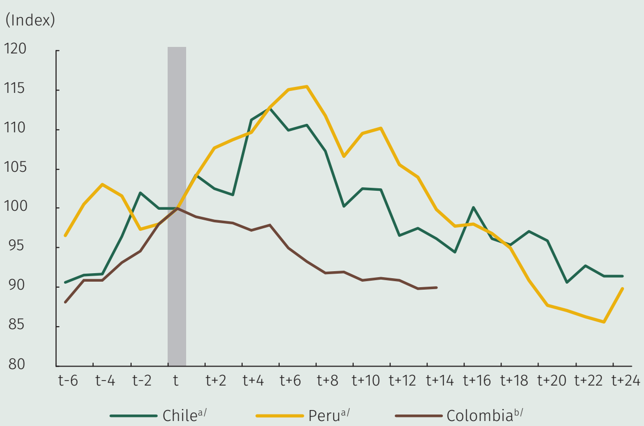
Source: DANE, calculations by *Banco de la República.*

Graph B1.10
Productive Sectors that Invested in the Colombian Economy: Real Investment Rate by Sector (GFCF/GDP)



Source: DANE, calculations by *Banco de la República.*

Graph B1.11
Real Rates of Investment in Colombia, Chile, and Peru (periods after the shock to the TT)

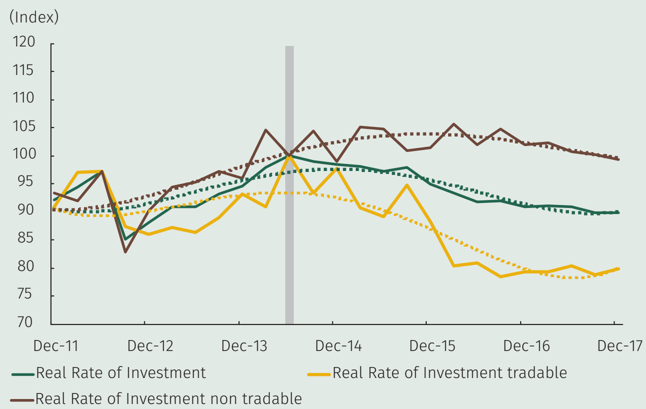


a/ Base September 2011 = 100.
b/ Base January 2014=100.
Sources: Official statistics offices of each country and DANE, calculations by *Banco de la República.*

this. The latter compensated for the drop registered in the area of public works for mining (Graph B1.13), which was the result of the decrease in exploration and development of mines or oil wells given the low international prices for commodities. Based on the indicator of investment in public works (IIPW) published by DANE, while the component associated with mining fell close to 20% between 2014 and 2017, the other components registered an expansion of about 40%, and this contributed to the growth of the investment aggregate in public works. That being the case, the rate of investment in non-tradable capital goods (construction of buildings and public works) did not show reductions for the above-mentioned period (Graph B1.12).

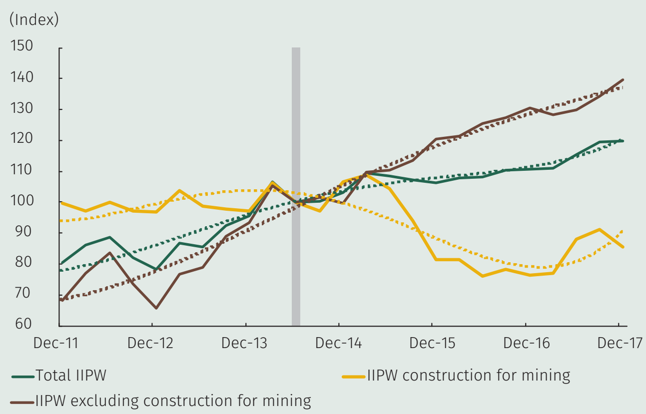
Given the above, it becomes relevant to explain in further detail how the adjustment of the investment in the Colombian economy took place.[2] On one hand, the analysis done by institutional agents using annual figures available up to 2016

Graph B1.12
Adjustment of the Real Investment Rates in Colombia
(total, tradable and non-tradable, base June 2014 = 100)



Source: DANE, calculations by *Banco de la República.*

Graph B1.13
Indicator of Investment in Public Works (IIPW) seasonally adjusted
(June 2014 base = 100)



Source: DANE, calculations by *Banco de la República.*

2 Estimates made by the technical team at *Banco de la República* based on information from the annual national accounts published by DANE.

shows that the reduction of the investment rate was particularly noticeable in the private sector (households and firms), while the public sector (government and not-for-profit entities) did not share significantly in this adjustment. Estimates done by the technical team at *Banco de la República* show that, in the first case, the real rate of investment went from 25.5% in 2014 to 23.6% in 2016, while for the public sector this rate varied from 4.3% to 4.1% in the same period (Graph B1.14).

On the other hand, when the annual information available up to 2016 is broken down by the economic sectors where the investment was made, it is clear that, as expected, the sector of mining and quarrying was the most affected as a result of the direct impact of the TT shock on its economic activity (Graph B1.15). The effects of this shock have also been registered in the industrial, transportation, warehousing and communications as well as the social, community and business services sectors since 2015 (Graph B1.16).

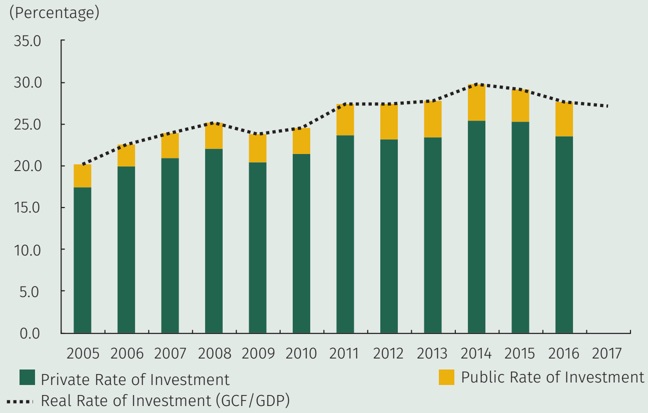
With regard to the investment made in the construction sector, for both public works and buildings, the estimates show the fact that it took longer for the drop in the TT to affect these areas. As has already been mentioned, the investment made in these pursuits was stimulated by the allocation of public funds associated with the development of different infrastructure projects and the programs to subsidize the interest rate for housing purchases.

The investment trends described throughout this box have partially reflected the characteristics of the shock to the TT registered during the second half of 2014, one which was not anticipated, was considerable in magnitude, and persisted over time (Toro et al., 2015). This external disruption took place in a context of high TT levels that unleashed effects of specific magnitudes and patterns on the investment. In order to measure this last characteristic of the shock, a non-linear model of autoregressive vectors by thresholds (TVAR) was implemented that makes it possible to differentiate the asymmetric effects on the investment caused by the decline in the TT when this occurs in either a scenario of high or low TTs.

Graph B1.17 shows the responses of the available national income (panel A), the real exchange rate (panel B), the real interest rate (panel C), and the rates of tradable and non-tradable investment (panels D and E) with respect to a temporary drop in the TT.[3] The results of this exercise suggest that a negative temporary shock to the TT generates a reduction in the national revenue and a depreciation of the currency. This, when the channels previously described are taken into account, brings about a cutback in both the tradable and non-tradable investment rates. This response becomes much more persistent when said

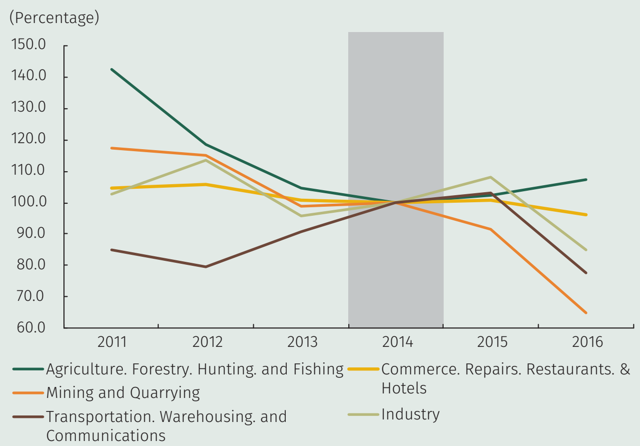
3 These series were included without taking their trend into account. The sample has quarterly data for the1996-2017 period.

Graph B1.14
Real Investment Rate (GCF/GDP) by institutional sector: public and private



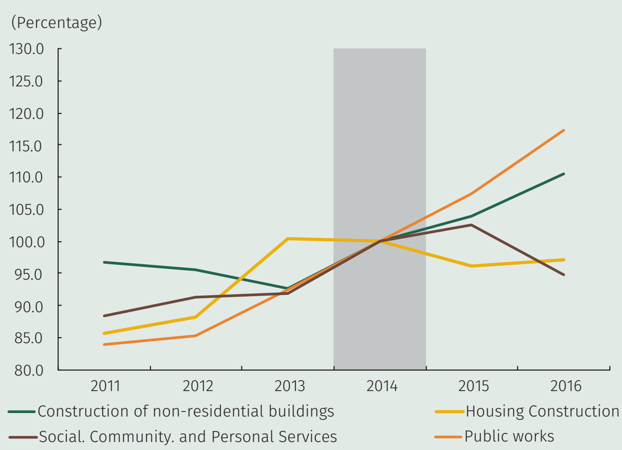
Source: DANE, calculations by *Banco de la República.*

Graph B1.15
Adjustment of Investment Rates for Productive Sectors of Tradable Goods and Services: Real Investment Rate by Sector (GFCF/GDP, base 2014 = 100)



Source: DANE, calculations by *Banco de la República.*

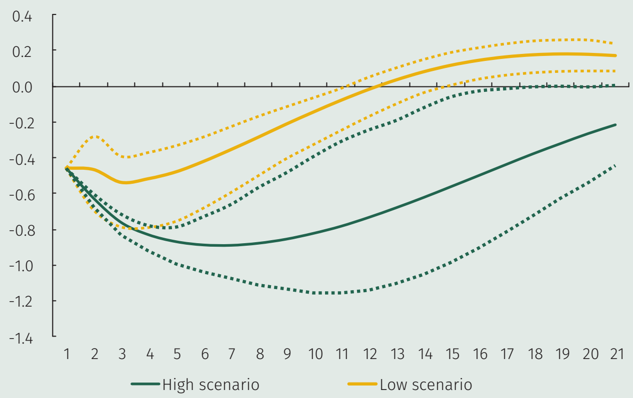
Graph B1.16
Adjustment of Investment Rates for Productive Sectors of Non-tradable Goods and Services: Real Investment Rate by Sector (GFCF/GDP, base 2014 = 100)



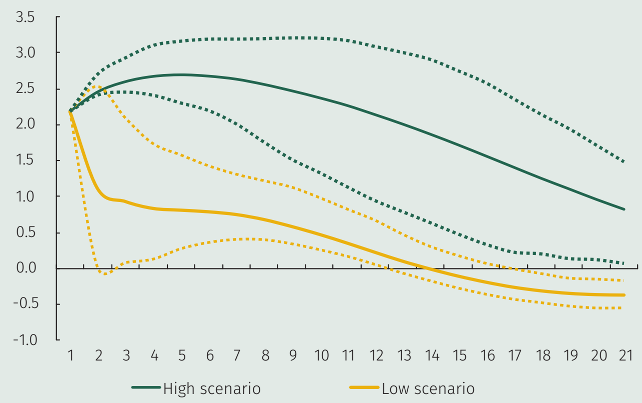
Source: DANE, calculations by *Banco de la República.*

Graph B1.17
Generalized Impulse-Response of each Variable with Respect to a Negative Shock to the Terms of Trade

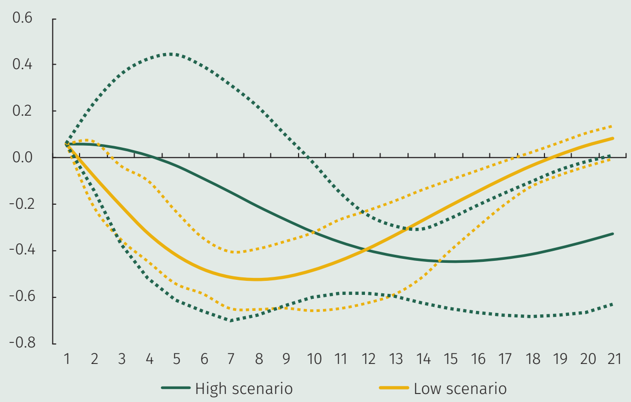
A. Response of the Gross National Disposable Income



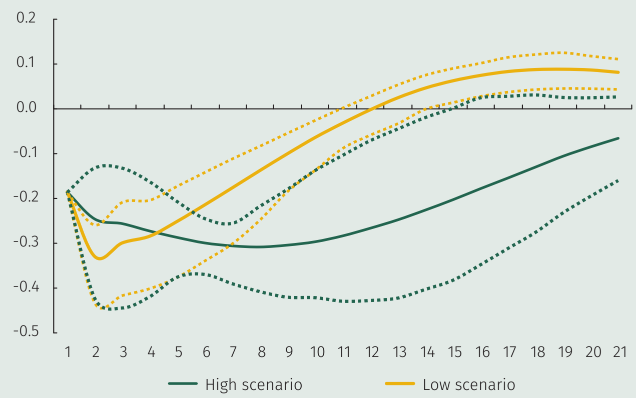
B. Response of the Real Exchange Rate



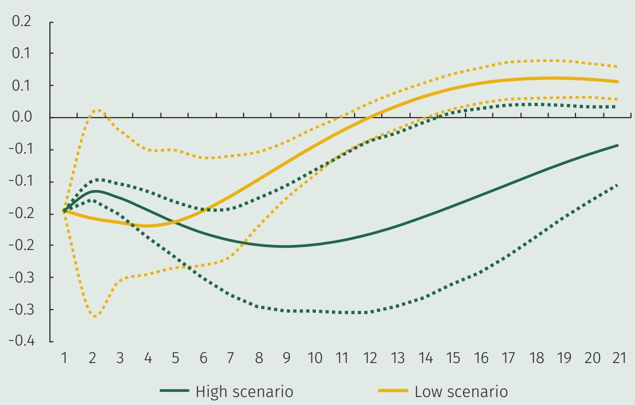
C. Response of the Real Interest Rate



D. Response of the Rate of Investment in Tradable Capital Goods



E. Response of the Rate of Investment in Non-tradable Capital Goods



Source: estimates by *Banco de la República*.

shock occurs at a time of high TT levels than when it occurs in a scenario of low TT levels. In the same context, the monetary policy response is initially contractionary to control the effects of the shock on inflation but after that, it is followed by a decrease in the real interest rate in line with a monetary policy stance that seeks to boost the growth of the economy.

It should be noted that the results derived from using the non-linear model of autoregressive vectors reveal the adjustment of the economy in the presence of a shock to the TT that is transitory rather than permanent as was the actual case since mid-2014. This shock, as it became more persistent over time, would imply slower adjustments in the future and the possibility that the main macroeconomic variables would converge at different levels in the long term.

As explained in chapter 2 of this *Report*, the results of the economic growth for 2017 suggest that the process of adjusting the economy to the sharp TT shock that occurred during the second half of 2014 may have already come to an end. Likewise, the chapter presents forecasts that imply a recovery of the economic growth rate in 2018 which, even though it will probably still be below its potential level, would mark a turning point in comparison to what was registered in previous years during the shock.

The changes expected in GCF play an important role in these forecasts. First of all, the investment in public works would again contribute to the expansion of domestic demand due to an increase in the expenditure of funds allocated for infrastructure by regional governments, positive trends in the exploration and development of the mining sector, and a greater contribution from building tertiary and 4G roads. Secondly, the areas of industrial machinery and transportation equipment will probably exhibit increases in 2018. This would be the result, to a large extent, of the tax benefits for investment included in the tax reform as well as the greater accumulation of capital goods on the part of the tradable sectors of the economy. The consolidation of this scenario and a recovery of the potential GDP through a contribution coming from the investments made during these periods are expected in the future.

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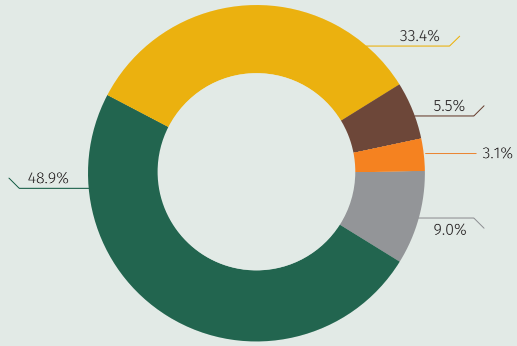
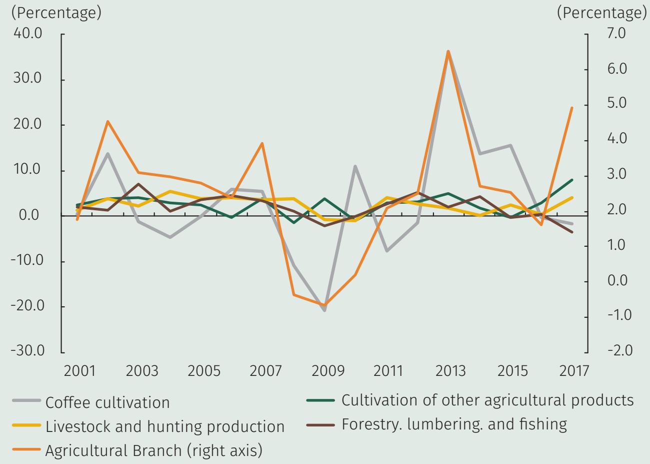
Box 2
Situation in the Colombian Agricultural Sector

Graph B2.1
Share held by Various Sub-branches in Agricultural Production, 2016[a/]



a/ Provisional values for 2016.
Source: DANE (balance between supply/use of products, classification to six digits), calculations by *Banco de la República*.

Graph B2.2
Annual Growth of the Real Agricultural GDP and its Components (seasonally adjusted)



Source: DANE, estimates by *Banco de la República*.

The agricultural sector accounted for 6.3% of the national gross domestic product (GDP) in 2017. The cycles of growth and contraction of the GDP for this sector are largely determined by the performance in the production of coffee, which contributes 9% of the total value of the agricultural aggregate. The production of sugarcane is 3.0% of that aggregate1[1] while the rest of the agricultural production provides 49% and has shown an average growth of 2.6% since the year 2000. The performance of the agricultural sector was outstanding in 2017 when it registered an annual increase of 8.1%. Livestock operations, in turn, contributed 33% to the total production of this sector. This sub-sector has grown at 2.5% on average since the year 2000 and in 2017, it grew at 4.1% (Graphs B2.1 and B2.2).

Agricultural subsector

The recent growth in agricultural production may be the result of increases in either the area cultivated or the crop productivity. Likewise, the way in which new volumes of production are traded on the domestic and international markets is a fundamental determiner of their profitability and the sustainability of their growth in the long term. The recent trends in both the acreage cultivated and the crop yields as well as the share that the agricultural production coming from different regions of the country has in the domestic and foreign markets is shown below.

Of the total acreage of perennial crops planted in Colombia, 32.5% is concentrated in the Central region2[2] followed by 28.2% in the Eastern region, and 21.8% in the Pacific region. There has been a continuing increase in the acreage of perennial crops planted in every region of the country since 2015. The departments in the Atlantic and Eastern regions as well as other departments had the highest growth rates between 2015 and 2017. In the Atlantic region, this growth was driven by an expansion in the acreage of oil palm in 2016 and fruit trees in 2017. In the Eastern region, the increase in the acreage of plantains, sugar cane, and rubber, and in other departments, the acreages sown with oil palm (Casanare and Vichada) and cocoa (Arauca and Vichada) were significant (Table B2.1).3[3]

In terms of total acreage cultivated nationally, there was an expansion in the acreage of fruit trees and cocoa

1 Only includes the production of sugar cane. It does not include the production cost of refined sugar.

2 For the analysis that follows, the departments were classified into the following regions: Atlantic: Atlantico, Bolivar, Cesar, Cordoba, La Guajira, Magdalena, and Sucre. Eastern: Boyaca, Cundinamarca, Meta, Norte de Santander, and Santander. Central: Antioquia, Caldas, Caqueta, Huila, Quindio, Risaralda, and Tolima. Pacific: Cauca, Choco, Nariño, and Valle del Cauca. Other departments: Amazonas, Arauca, Casanare, Guainia, Guaviare, Putumayo, San Andres and Providencia, Vaupes and Vichada.

3 The analysis of acreage cultivated and production presented in this box uses the results of the municipal agricultural evaluations (EVA in Spanish) as a primary source. These collect information through the consensus of agricultural technical assistance units (Umata in Spanish), associations, and other important stakeholders in the municipalities.

planted which, in spite of having a relatively low share of the total area of perennial crops, showed high growth rates in all of the regions. In 2017 the acreage sown with these products grew 7.6%. This trend was mainly driven by the expansion of the acreages of avocado, pineapple, mango and passion flowers. The sustained growth of the acreage of avocado and pineapple plantings since 2010 was especially noteworthy.

The Atlantic and Eastern regions account for 52% of the acreage sown with annual crops in the country. As was the case with the perennial crops, the amount of area with annual crop plantings rose in every region and for most of the crops during 2017. The expansion of the acreage cultivated with grains other than rice and with vegetables, legumes, and tubers in all regions of the country was also significant (Table B2.2).

During the first and second half of 2015, there was a decrease in the number of fields with annual crops in the Atlantic region. It is possible that this trend reflects a pre-emptive response on the part of the farmers to the negative effects that El Niño has on crop yields. In 2016, the acreage planted in this region rebounded and reached levels higher than those registered in 2014. This was driven by a growth of 51.1% in the acreage of rice crops cultivated and of 21.1% in the area of vegetable, legume, and tuber plantings (Table B2.2).

The increases in the volume of production derived from the expansion of the acreage planted are reflected in the larger supply of annual crops in the main domestic markets4[4] and in the higher export levels of some agricultural products. The Eastern region was the one that contributed the most to the growth of the total volume in the provision of agricultural products between the first half of 2016 and the first half of 2017, with a growth of 22.1% and a 52% share in the total supply. In addition, tubers and plantains are the types of crops for which the supply increased the most in the wholesale markets between the first half of 2016 and the first half of 2017 with an annual growth of 25.3%. There was also a significant increase in the available supply of vegetables between May and September 2016. However, this trend was reversed during the last quarter of 2016 (Graph B2.3, panels A and B).

With regards to exports of agricultural products, there has been a sustained growth in the quantity and value of avocado and pineapple exports since 2015. As mentioned, these crops have been growing in terms of area cultivated since 2010. The positive performance of the exports of these crops is expected to continue to the extent that more hectares of those planted in prior years begin to produce and yield a harvest and the commercial links with buyers from the United States become strengthened.

The volume of coffee exports, for both the beans and processed coffee, has also presented a growing trend since 2012. However, there are no significant increases in their value as a result of the deterioration in the international prices for coffee beans. Likewise, there are no increases in the quantity and value of exports of products that belong to the banana, cotton, and flower production chains (Graph B2.4, panels A and B).

The competitiveness of Colombian agricultural exports on international markets depends, along with other factors, on their yields per hectare and per worker. An expansion in the cultivated area can generate increases in the yield per hectare if this is accompanied by technological improvements. Likewise, a drop in the yield per hectare could be registered if the additional land under cultivation is of lower quality than the one initially chosen for agricultural production. Finally, if the expansion of the acreage cultivated brings about changes in the yield of perennial crops, such changes take time to materialize due to the lag between planting and harvesting.

The data for Colombia reveal increases in the agricultural GDP per hectare harvested in the Central and Pacific regions with a growth of 20% between 2012 and 2016 (Graph B2.5). In a similar fashion, according to calculations provided by the World Bank, the value added per agricultural worker in Colombia rose 17% between 2012 and 2016, which has made it possible to close the existing productivity gap between Colombia and countries such as Brazil and Chile (Graph B2. 6).

These improvements in agricultural production per hectare and per worker are still understated if the lag that Colombia has with other countries in the region and developed countries is taken into account. Based on data from the Organization for Economic Cooperation and Development and the Food and Agriculture Organization of the United Nations (OECD/FAO),5[5] between 2007 and 2015, Colombia registered a lower yield per hectare for corn and tubers than that of other countries in the region, such as Brazil and Mexico, as well as that of any of the developed countries.6[6] Furthermore, between 2007 and 2012, there was a drop in the yield per hectare for rice crops in Colombia while in other countries such as Mexico and Brazil the yield increased. For 2016, the productivity per hectare

4 Among the wholesale markets, the following are included: Mercar (Armenia), Barranquillita and Granabastos (Barranquilla), Corabastos, Paloquemao, Las Flores and Samper Mendoza (Bogotá), Centroabasto (Bucaramanga), Cavasa and Saint Helena (Cali), Bazurto (Cartagena), the nueva sexta (Cúcuta), Centro de acopio (Ipiales), CMA, José María Villa Retail Plaza (Medellín), Surabastos (Medellín), Mercasa (Pereira), Complejo de servicios del sur (Tunja), CAV (Villavicencio).

5 OCDE-FAO: *Agricultural Outlook*, 2017-2026, available at http://stats.oecd.org/index.aspx?r=945134

6 This includes Canada, the United States, the countries of the EU-28, Norway, Switzerland, Russia, Ukraine, Australia, New Zealand, Israel, Japan, Kazakhstan, and South Africa.

Table B2.1
Share and Growth of Acreage Planted with Perennial Crops by Group of Crops and Region
(percentage)

Region	Group of crops	Share, 2017	Growth[a/] (annual change)		
			2015	2016	2017
Atlantic	Total	11.6	0.9	7.1	4.3
	Oil palm	5.6	2.6	11.0	2.4
	Cacao		3.7	2.4	5.1
	Coffee	1.7	-4.8	0.5	0.5
	Fruit[b/]	1.8	3.8	2.9	7.9
	Other perennials[c/]	1.9	-1.5	8.1	10.0
Eastern	Total	28.2	5.5	5.1	4.4
	Oil palm	10.5	11.4	2.0	3.7
	Cacao	2.7	2.2	6.2	6.2
	Coffee	3.7	-0.3	-1.4	0.5
	Fruit[b/]	4.4	10.4	9.8	6.8
	Other perennials[c/]	6.9	-1.3	11.2	5.4
Central	Total	32.5	0.8	0.5	2.8
	Oil palm	0.1	8.7	-0.9	-0.1
	Cacao	1.6	3.3	5.4	8.4
	Coffee	16.0	-0.9	-1.6	0.5
	Fruit[b/]	5.3	6.3	5.6	7.6
	Other perennials[c/]	9.5	0.6	0.7	3.1
Pacific	Total	21.8	0.8	3.5	3.6
	Oil palm	0.7	5.8	8.9	14.9
	Cacao	1.0	10.4	-4.8	10.9
	Coffee	5.8	0.3	0.8	0.5
	Fruit[b/]	2.5	0.9	9.9	6.1
	Other perennials[c/]	11.9	0.0	4.1	3.5
Other departments[d/]	Total	5.9	5.0	12.7	5.8
	Oil palm	2.6	2.3	13.7	-0.1
	Cacao	0.9	12.2	34.3	7.3
	Coffee	0.1	-1.5	-4.8	0.5
	Fruit[b/]	0.4	19.3	11.6	28.6
	Other perennials[c/]	1.8	4.7	4.3	10.0

a/ The values represent the growth of the total acreage planted in a year compared the previous year.
b/ Includes the following crops: agraz, avocado, aguaje, carob, anon, cranberry, araza (strawberry guava), acai berry, bacuri, badea, baby banana, banana, borojo, breba, deciduous trees, caimo, chamba, custard apple, cholupa, chontaduro, plum, citrus fruit, coconut, cocona, copoazu, corozo, banana, passionfruit, date, peach, pineapple guava, raspberry, strawberry, granadilla, guama, soursop, guava, gulupa, fig, lime, lemon, lulo, macadamia, mamey, mamoncillo (Spanish lime), tangerine, mango, mangosteen, apple, passion fruit, cashew, blackberry, orange, medlar, noni, papaya, papayuela, pepa de pan, pear, pineapple, pitahaya (dragon fruit), rose apple, pummelo, rambutan, tamarind, tangelo, tree tomato, grapefruit, cape gooseberry, umari, grape, caimarona grape, sapodilla. c/ Plantain, sugar cane, honey cane, sisal, mulberry, green botan, caña flecha, mushroom, esparto grass, castorbean, iraca plam, jatropha, wicker, orellana, sacha inchi.
d/ Corresponds to Amazonas, Arauca, Casanare, Guainia, Guaviare, Putumayo, San Andres and Providencia, Vaupes and Vichada.
Source: Ministry of Agriculture and Rural Development (EVA), calculations by *Banco de la República*.

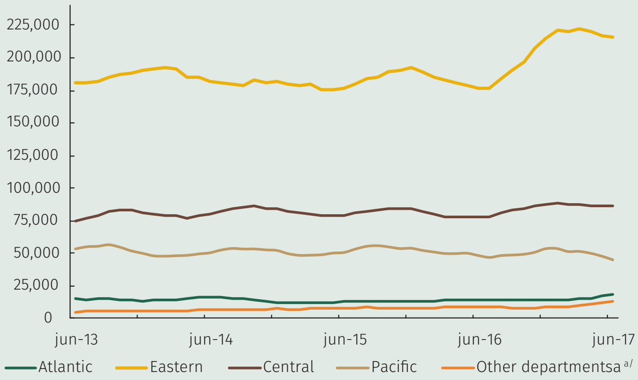
Table B2.2
Share and Growth of Acreage Planted with Annual Crops by Group of Crops
(percentage)

Region	Group of crops	Share, 2017	Growth[a/] (Annual Change)				
			2015		2016		2017
			1st six months	2nd six months	1st six months	2nd six months	1st six months
Atlantic	Total	25.0	-9.0	-10.9	17.6	12.1	13.6
	Rice	8.0	-3.1	10.3	51.1	20.3	-1.5
	Other grains[b/]	14.0	-10.6	-19.3	3.5	17.3	17.8
	Vegetables, legumes, and tubers[c/]	2.0	-10.0	1.0	21.1	30.0	48.9
	Other annual crops[d/]	1.0	-18.3	-8.8	2.4	-40.0	37.3
Eastern	Total	27.0	9.5	6.2	19.5	19.1	9.0
	Rice	8.0	38.6	55.9	27.8	16.2	8.0
	Other grains[b/]	7.0	10.1	2.8	42.3	29.7	5.5
	Vegetables, legumes, and tubers[c/]	12.0	-1.4	-2.3	5.1	15.9	12.5
	Other annual crops[d/]	1.0	-10.6	99.7	-0.1	8.4	-0.3
Central	Total	19.0	-0.1	-2.5	5.3	8.2	1.3
	Rice	8.0	14.7	6.1	5.3	8.3	0.9
	Other grains[b/]	6.0	-8.2	-8.1	12.4	4.7	3.2
	Vegetables, legumes, and tubers[c/]	4.0	-7.0	-8.2	2.5	13.5	0.8
	Other annual crops[d/]	0.0	-17.0	7.1	-35.5	-6.5	-12.7
Pacific	Total	10.0	20.6	15.4	0.7	2.5	12.1
	Rice	2.0	33.4	47.1	1.6	-4.3	2.4
	Other grains[b/]	4.0	13.0	4.1	3.0	7.7	12.6
	Vegetables, legumes, and tubers[c/]	5.0	23.8	14.1	-1.8	1.9	15.1
	Other annual crops[d/]	0.0	-29.0	26.3	32.0	2.2	10.9
Other departments[e/]	Total	19.0	37.2	56.6	22.4	-9.9	16.3
	Rice	15.0	35.5	18.7	27.8	-3.8	11.3
	Other grains[b/]	3.0	33.1	79.3	7.2	-4.6	48.0
	Vegetables, legumes, and tubers[c/]	1.0	86.3	159.0	-14.4	-39.6	11.0
	Other annual crops[d/]	0.0	141.2	11.8	2.4	-40.0	56.6

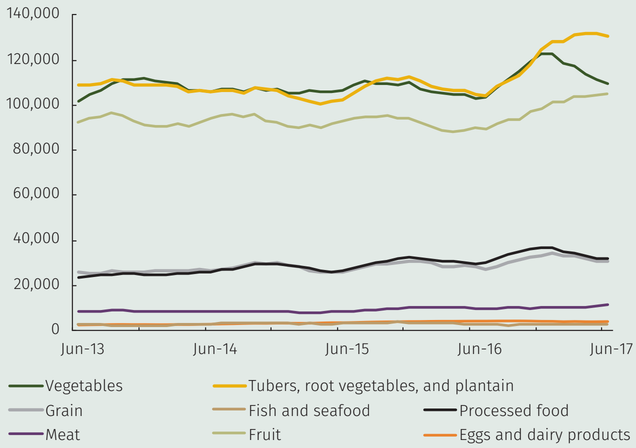
a/ The values represent the growth in the acreage cultivated during a six-month period compared to the same six-month period the previous year.
b/ Includes the following crops: Oats, barley, rye, corn, feed corn, millet, quinoa, sorghum, wheat.
c/ Acelga, squash, chili pepper, garlic, artichoke, celery, peas, eggplant, zucchini, pumpkin, onion, green onion, scallion, cilantro, collard greens, cauliflower, asparagus, spinach, kidney beans, chickpeas, guatila, broad beans, green beans, lettuce, lentils, peanuts, turnip, cucumber, bell pepper, leek, radish, beets, cabbage, soybeans, tomato, carrot, sweet potato, potato, ruba, olluco, and yota. d/ sesame seeds, and scouring sponge
e/ Corresponds to Amazonas, Arauca, Casanare, Guainia, Guaviare, Putumayo, San Andres and Providencia, Vaupes and Vichada.
Source: Ministry of Agriculture and Rural Development (EVA), calculations by *Banco de la República*.

Graph B2.3

A. Food Supply Volume by Region
(6-month moving average)



B. Volume of Supply by Food Groups
(6-month moving average)



a/ Corresponds to Amazonas, Arauca, Casanare, Guainía, Guaviare, Putumayo, San Andres and Providencia, Vaupes and Vichada.
Source: DANE and SIPSA, estimates by *Banco de la República*.

in Colombia for the three groups of products mentioned above may have been less than that of other countries in the region, such as Peru, Mexico and Brazil, and that of the developed countries. In addition, the value added per agricultural worker for all of the OECD countries between 2000 and 2016 is double that of the aggregate productivity per agricultural worker in the countries in the region. The values for Colombia only surpass those for Peru and Mexico (Graph B2.6).

The livestock sector

Livestock productivity has been contributing to the growth of the agricultural sector for seven consecutive years. In recent years, poultry and pork production, which grew 4.4% and 6.4% in 2016 and 12.4% and 2.6% in 2017 respectively, became significant. These positive results have compensated for the deterioration experienced in the area of cattle-raising since 2015 (Graph B2.7).

Based on information from Fedegan, the recent reduction in bovine production in our country has been the result of climatic shocks, the economic situation in Venezuela, and changes in the nutritional habits of consumers: Colombians' consumption of beef has decreased in favor of substitute proteins, such as eggs, chicken, and pork.7[7] At the end of 2008, the total production of beef had exceeded the domestic consumption by about 10 million kilos, mainly due to trade with Venezuela. Around mid-2009, this gap was abruptly brought to a close as a result of the political crisis in the neighboring country. Only since 2013 has there been a renewed importance of foreign markets although the levels registered at the end of 2008 have not been reached again so far (Graph B2.8).

In terms of poultry, the growing trend in egg production in the Pacific and Eastern regions that took place in 2017 is noteworthy. The processing of chicken for market showed a relatively stable trend between 2014 and 2017, with an upward trend in the Eastern region (Graph B2.9, panels A and B).

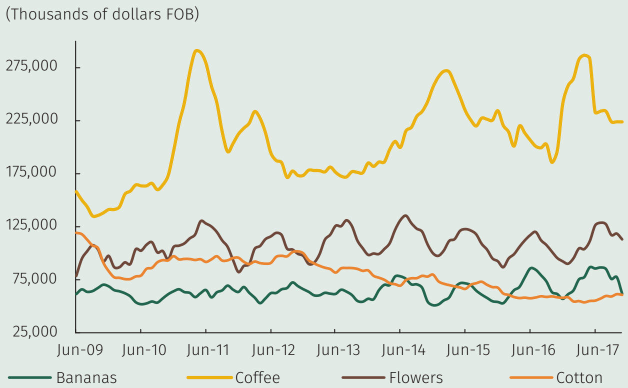
In conclusion, the agricultural and livestock business in the country has been positive in recent years. The areas where perennial and annual crops are cultivated have been growing. This trend has made it possible to increase the amount of the food supply in the main wholesale markets around the country as well as to expand the exports of non-traditional agricultural products. Also, there has been an increase in the production of eggs, chicken, and pork. Although increases have been registered in the agricultural GDP per hectare harvested in some areas of the country and in the value added per agricultural worker, these levels are still low when compared to those of other countries in the region. Policies to increase the productivity of both land and agricultural labor would make it possible to improve the competitiveness of Colombian agricultural products on international markets and enhance the potential improvements in social well-being derived from the recent expansion of the acreage cultivated.

7 See Fedegan (2017). *Document on Situation of Colombian*, consulted on 15 February 2018, at http://www.fedegan.org.co/estadisticas/documentos-de-estadistica

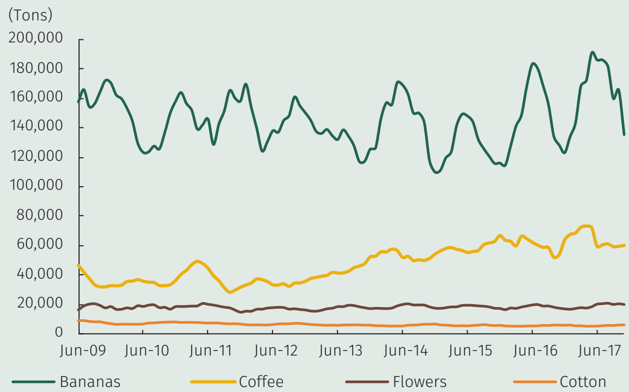
Graph B2.4

A. Main Exports Based on the Productive Chain.
(6-month moving average)

i. Value of productive chain exports[a/]

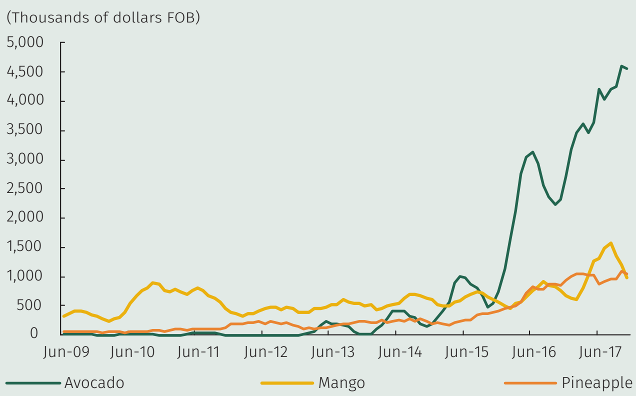


ii. Volume of productive chain exports[b/]

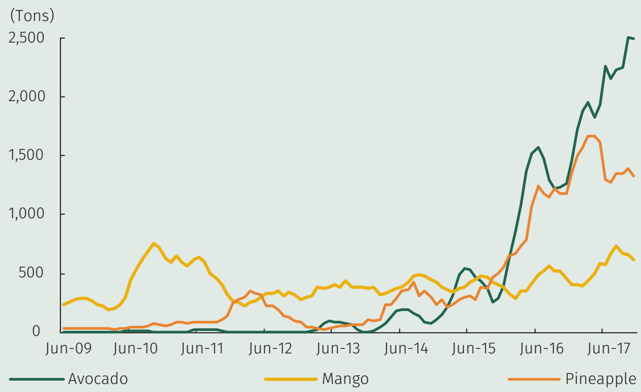


B. Other Exports Based on the Productive Chain a/
(6-month moving average)

i. Value of productive chain exports[a/]

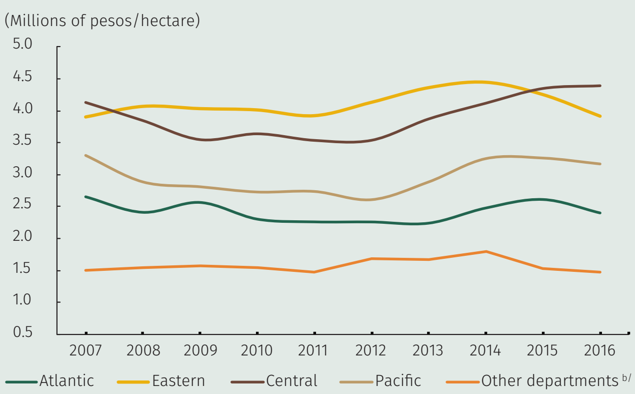


ii. Volume of productive chain exports[b/]



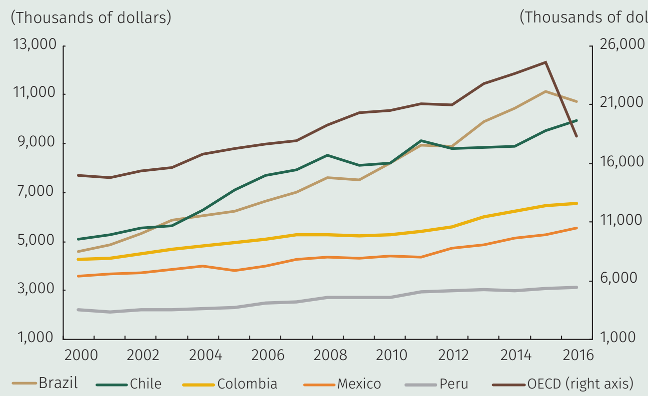
a/ Incluye el valor del producto crudo y procesado.
b/ Incluye volúmenes del producto crudo y procesado.
Sources: Ministerio de Agricultura y Desarrollo Rural y DANE (estadísticas de comercio exterior); cálculos del Banco de la República.

Graph B2.5
Agricultural GDP by Hectare Harvested Based on Region[a/]



a/ Values at constant 2005 prices.
b/ Corresponds to Amazonas, Arauca, Casanare, Guainía, Guaviare, Putumayo, San Andres and Providencia, Vaupes and Vichada.
Sources: DANE (department accounts) and Ministry of Agriculture and Rural Development (EVA), calculations by *Banco de la República*.

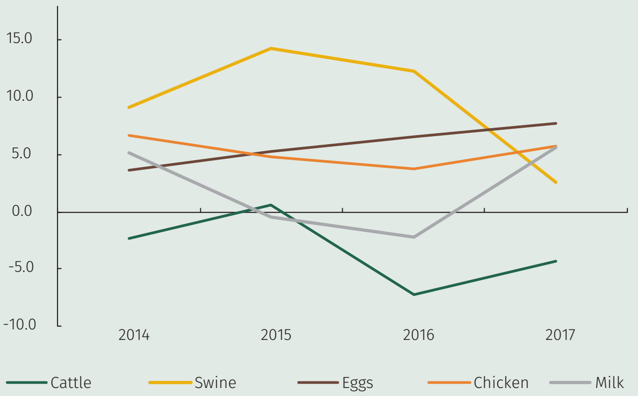
Graph B2.6
Value Added per Agricultural Worker[a/]



a/ Constant 2010 prices. The value for the OECD in 2016 is provisional and does not include the United States, Japan, Iceland, and New Zealand
Sources: World Bank, OECD, and the United Nations Agriculture and Food Organization.

Graph B2.7
Growth of Livestock Production by type[a/]

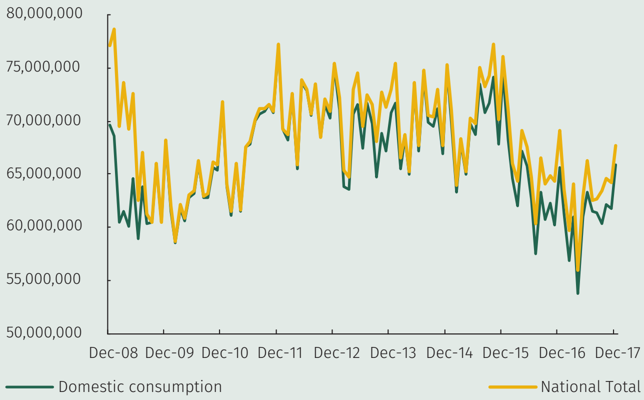
(Percentage)



a/ The measurements of growth for cattle, swine, and chickens are the weight at processing while those measurements for eggs are units.
Sources: DANE (cattle and swine), Fenavi (eggs and chicken), and MADR (milk), calculations by *Banco de la República*.

Graph B2.8
Weight of beef cattle at processing: national total and domestic consumption

(Kilograms)

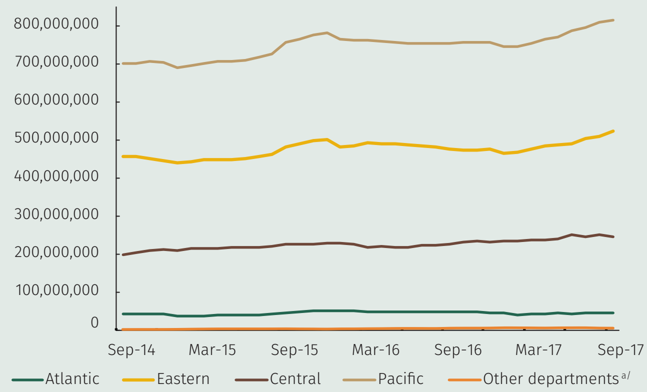


Source: DANE (survey of cattle slaughter), calculations by *Banco de la República*.

Graph B2.9

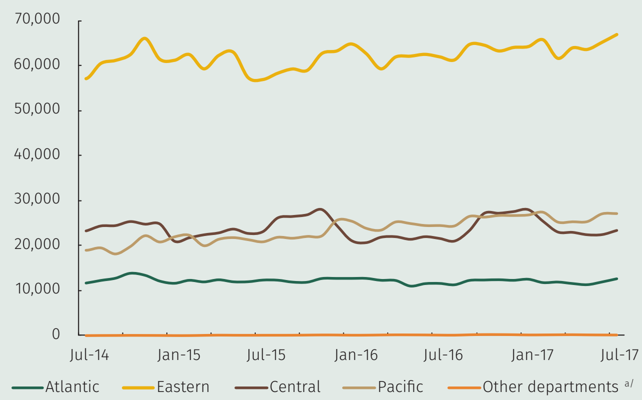
A. Egg Production by Region

(Units)



B. Chicken Processing Production by Region

(Tons)



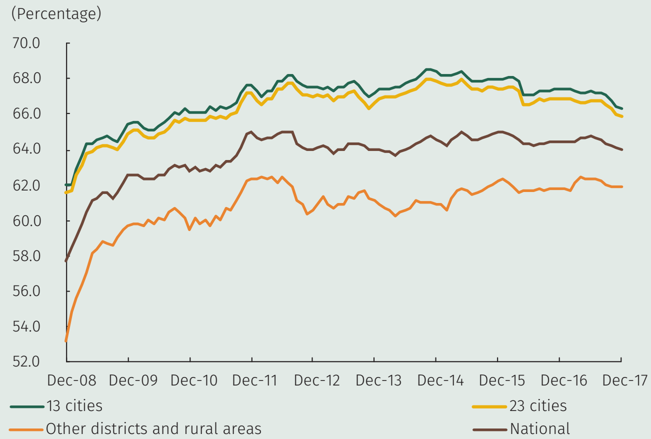
a/ Includes the following departments: Amazonas, Arauca, Casanare, Guainía, Guaviare, Putumayo, San Andres and Providencia, Vaupes and Vichada.
Source: Fenavi, calculations by *Banco de la República*.

Box 3
Recent Trends in the Labor Market: the Positive Outlook for Agricultural Employment

Over the course of 2017, and based on the lower economic growth, the Colombian labor market continued to show signs of weakening. However, the deterioration of the unemployment rate (UR) was much lower in the country as a whole than in the urban areas. This divergence was due, to a large extent, to the growth of employment in rural areas,1[1] especially in the agricultural sector. Indeed, the favorable conditions in rural areas and other districts2[2] compensated for the deterioration in the main cities during the first quarter of 2017.

Based on the lower economic activity, the overall labor participation rate (OPR)3[3] has shown a downward trend at the national level. This performance became more accentuated over the last few months of 2017 marked by drops in the OPR of the twenty-three cities and their metropolitan areas.4[4] In addition, in the case of the other municipal districts and the rural areas, there are still positive changes in participation although these are increasingly closer to zero (Graph B3.1). In spite of the above, it is important to emphasize that the current levels of labor participation are high and even similar to those seen during 2011.

Graph B3.1
Overall Participation Rate



Source: DANE, calculations by *Banco de la República*.

In terms of labor demand, there were significant declines during 2017, especially in urban areas. When the employment rate (ER)5[5] is used as a measurement of labor demand, it can be seen that the ER for the twenty-three cities showed an annual drop6[6] of 0.9 percentage points (pp), which was reflected to a small degree in a decline of the national aggregate (0.4 pp). In contrast, the strength of the employment in other districts and rural areas maintained a growth trend partially offsetting the fall in urban employment (Graph B3.2).

In spite of the lower labor participation, the poor performance of labor demand during 2017 led to a sustained increase in the UR, at both the urban and national levels. In the case of the other municipal districts and rural areas, the upswing in the UR is mainly due to an increase in labor participation. In December, the UR for the 23 cities was 10.7%; for the other municipal districts and rural areas, it was 8.2%; and in the national aggregate, it was 9.5% all of which were relatively higher levels than those that had been registered the year before (Graphic B3.3).

However, despite the deterioration registered in the labor demand, the positive trends of agricultural employment, which is mainly concentrated in the other municipal districts and rural areas (which account for 97% of the agricultural employment), stand out. When the semiannual average of employment in 2017 (July-December) is compared to what was registered for the same period the previous year, it can be seen that the agricultural sector showed the highest annual employment growth with 182,000 new employees, which included 16,000 in the other municipal districts

1 In this document, the term 'rural area' is used based on the definition for that area provided by the National Bureau of Statistics (DANE) as 'scattered rural areas and population centers'.

2 The other municipal districts correspond to those that are capitals of department and municipal districts that are not included in either the twenty-three cities or their metropolitan areas.

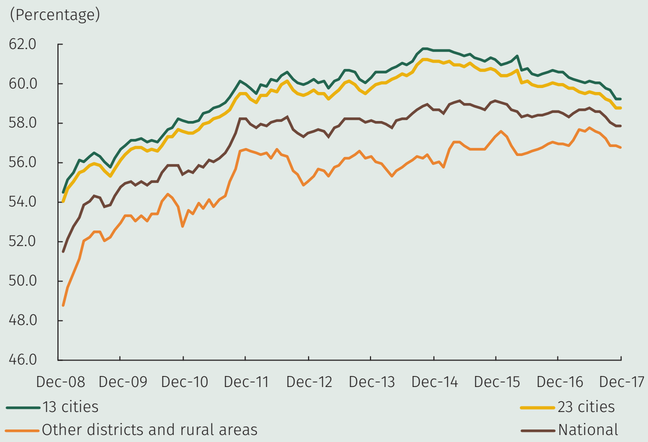
3 The OPR is calculated as the ratio of the people of working age who work or are willing to work to the total number of people of working age (WAP).

4 The twenty-three cities and their metropolitan areas are: Bogotá, Medellín (Caldas, La Estrella, Sabaneta, Itagüí, Envigado, Bello, Girardota, Copacabana, and Barbosa), Cali (Yumbo), Barranquilla (Soledad), Bucaramanga (Girón, Piedecuesta and Floridablanca), Manizales (Villa María), Pasto, Cartagena, Cúcuta (Villa del Rosario, Los Patios and El Zulia), Neiva, Pereira (Dosquebradas and La Virginia), Montería, Villavicencio, Tunja, Quibdó, Popayán, Ibagué, Valledupar, Sincelejo, Riohacha, Florencia, Santa Marta and Armenia. To summarize, when both the twenty-three cities and a specific city are referred to, it must be understood that they include their metropolitan areas as listed in this footnote.

5 The ER is the percentage ratio between the employed population and the number of people who make up the WAP.

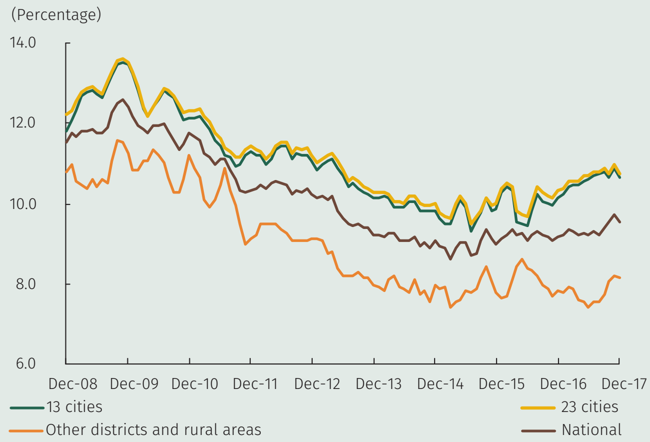
6 In this report, the term annual variation/change refers to the annual variation of the semiannual average.

Graph B3.2
Employment Rate



Source: DANE, calculations by *Banco de la República*.

Graph B3.3
Unemployment Rate



Source: DANE, calculations by *Banco de la República*.

and 164,000 in rural areas (Table B3.1).7[7] Other sectors that also showed positive increases in employment, although much more moderate, were real estate, business services, and transportation.

It should be noted that the rise in employment registered in the agricultural sector over the last year becomes more relevant when the fact that it represented 17% (3.7 million) of the total number of employed people at the national level (22.4 million jobs) is considered. With that it surpassed the industrial sector (12%) and ranked below the commercial (27%) and service (19%) sectors. Therefore, the agricultural sector was the economic branch that generated the largest number of jobs within the national total over the last year.

An interesting outcome can be seen when the performance of agricultural employment is analyzed by geographic regions. Graph B3.4 shows a growing trend in agricultural employment since mid-2015, mainly in the Atlantic and Pacific regions. Furthermore, although it has remained relatively stable over the last year, the Central region is the one that contributes the most to employment in this sector.

When agricultural employment is broken down by subsectors, the main job generators in most of the regions were

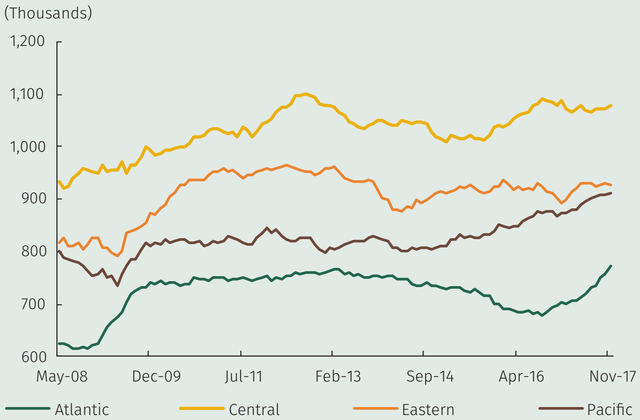
Table B3.1
Annual change in Employment by Sector
(thousands of people)

	23 cities	Other districts	Rural	National
Total	-10	64	80	134
Not reported	1	4	-1	4
Agriculture	2	16	164	182
Mining and quarrying	-1	9	-10	-2
Manufacturing Industry	-16	15	17	16
Electricity, Gas, and Water	5	-4	5	6
Construction	0	4	7	11
Commerce	-52	-38	-47	-137
Transportation	38	8	-20	26
Financial intermediation	-24	4	0	-20
Real estate	67	28	-13	82
Community services	-28	18	-23	-33

Source: DANE (household survey).

7 The remaining 2000 correspond to the people employed in the 23 cities.

Graph B3.4
Thousands of People Employed in the Agricultural Sector by Region[a/]



a/ Atlantic Region: Atlántico, Bolivar, Cesar, Cordoba, La Guajira, Magdalena, and Sucre. Eastern Region: Boyacá, Cundinamarca, Meta, Norte de Santander, Santander. Central Region: Antioquia, Caldas, Caquetá, Huila, Quindío, Risaralda, Tolima. Pacific Region: Cauca, Choco, Nariño, Valle del Cauca. Yearly moving average
Source: DANE, calculations by *Banco de la República*.

found to be the subsectors of livestock, hunting and fishing, and the subsector of agricultural and livestock services. For example, employment stability in the Central region is due to greater activity in the livestock, hunting and fishing, and agricultural and livestock service subsectors, which compensated for the recent drop in employment in the coffee sector. In the Pacific region, the subsector of agricultural and livestock services was the main player behind the positive performance of demand in this region as it has shown a growth trend since 2012 and become the largest employer in 2017. In addition, the subsector of livestock, hunting, and fishing was the main source of agricultural employment in the Atlantic region during the last year in contrast to what took place in the Eastern region where this subsector registered the worst performance. Nonetheless, this greater sluggishness in the Eastern region was offset by significant growth in the agricultural and livestock service subsector, which led to the stabilization of the agricultural employment there.

Box 4
Outlook for the Credit Markets Based on *Banco de la República* Surveys

Each quarter, the Financial Stability Department at *Banco de la República* gives a set of surveys to participants in the credit markets in order to obtain first-hand knowledge about their outlook and opinions. This exercise is crucial for the Bank's work of closely monitoring the credit scenario and the stability of the Colombian financial system. These surveys include the *Survey of the Credit Situation in Colombia, the Survey of the Microcredit Situation in Colombia, the Survey of the Perception of Financial System Risks, and the Survey on External Indebtedness and Quotas*.1[1] This box presents a combined analysis of the surveys from the last quarter of 2017 in light of the recent changes in macroeconomic conditions and to offer an analysis of the outlook for the credit market in 2018.

1. General aspects

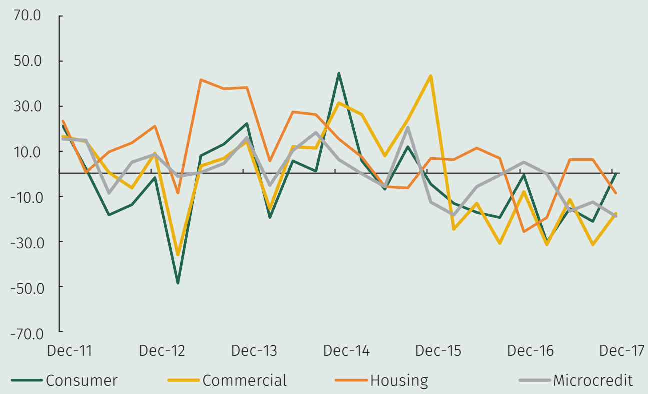
As a result of several macroeconomic shocks, the growth rate of the Colombian economy experienced a relative slowdown between 2014 and 2017. Economic theory and historical experience suggest that the performance of the financial system is closely related to the aggregate performance of the economy, which is reflected in the behavior and the outlook expressed by the agents in the surveys done by *Banco de la República*. Therefore, the analysis of these surveys makes it possible to distinguish trends that are important to the markets that are not easily discernible from the actual information in the entities' financial statements. The foregoing gains relevance as long as the performance of the Colombian financial system goes hand in hand with the recovery of economic growth, as was identified in the September 2017 *Financial Stability Report* issued by the Bank.

2. Balance of credit markets at the close of 2017

In a fashion consistent with the slowdown in the growth rate of the Colombian economy, the credit institutions surveyed in December 2017 indicated that they perceived a weak demand for all types of loans (housing, consumer, commercial, and microcredit) on the part of the economic agents. As shown in Graph B4.1, the perception of demand indicator has been in negative territory since the end of 2015 for the consumer and commercial credit markets, and since more recent dates, in the case of housing loans and microcredit.

The banks surveyed, in turn, also showed weakness in their supply of all types of loans although with less intensity than in the case of the demand and, in particular,

Graph B4.1
Indicator of Perception of Demand for Loans

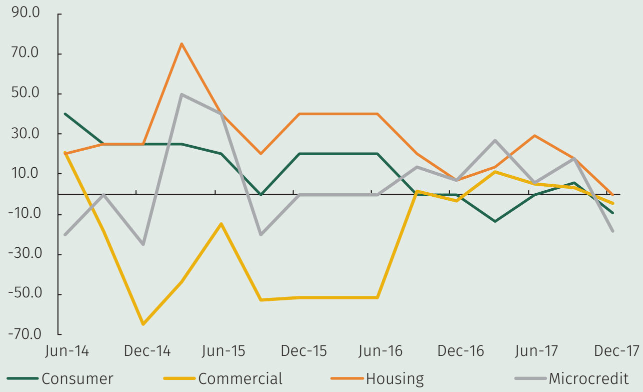


Note: to build this indicator, the credit establishments were asked how the demand for new loans has changed during the last three months (scale was: 1 = lower; 2 = slightly lower; 3 = the same; 4 = slightly higher; and 5 = higher. The indicator consists of the difference between the percentage of those surveyed who answered with 4 and 5 and the percentage of those who answered 1 and 2. A negative result in the balance is interpreted as a general perception of a decline in demand.
Source: *Banco de la República* (Report on the loan situation in Colombia), December 2017.

limited to the most recent period: based on Graph B4.2, the indicator of change in the banks' supply of each type of credit registered negative values at the end of 2017. The above does not completely apply in the case of financing companies and cooperatives as the change in their supply of credit is more heterogeneous and volatile. Fundamentally, the weak supply of loans on the part of the banks can also be seen through the greater number of requirements that these credit establishments have recently introduced for new loan applications for each of the types of credit.

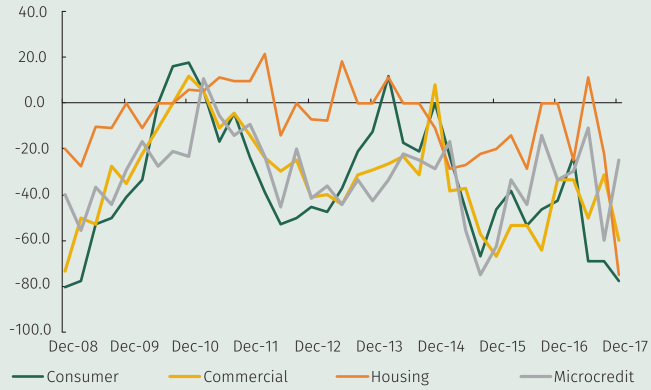
1 The results of the surveys are published quarterly in January, April, July, and October on *Banco de la República* website. The surveys are answered by different agents that include credit establishments (banks, financing companies, and cooperatives), non-banking financial institutions, business associations, and universities.

Graph B4.2
Indicator of the Change in Bank Loan Supply



Note: to build this indicator, the credit establishments were asked how the supply of new loans has changed during the last three months (scale was: 1 = lower; 2 = slightly lower; 3 = the same; 4 = slightly higher; and 5 = higher. The indicator consists of the difference between the percentage of those surveyed who answered with 4 and 5 and the percentage of those who answered 1 and 2. A negative result in the balance is interpreted as a general perception of a decline in supply.
Source: *Banco de la República* (Report on the loan situation in Colombia), December 2017.

Graph B4.3
Indicator of Change in Requirements



Note: to build this indicator, the credit establishments were asked how their requirements for granting new loans has changed during the last three months (1 = more restrictive; 2 = moderately more restrictive; 3 = have remained the same; 4 = moderately less restrictive; 5 = less restrictive) The indicator consists of the difference between the percentage of those surveyed who answered with 4 and 5 and the percentage of those who answered 1 and 2. A negative result in the balance is interpreted as a change towards greater demands.
Source: *Banco de la República* (Report on the loan situation in Colombia), December 2017.

These manifest themselves in the indicators of change based on persistently stricter requirements2[2] (Graph B4.3).

3. Outlook on risk and credit markets in 2018

During 2018, the Bank and most economic analysts agree on an outlook and a long-term trajectory of gradual recovery of economic growth. However, the entities surveyed expressed their intention of maintaining or increasing their requirements for granting loans in the short term. As shown in Graph B4.4, no bank surveyed indicated any intention of reducing its requirements during the first quarter of 2018. In the case of commercial and microcredit loans, most of the banks reported that they intended to increase the requirements.

In this context, the financial stability faces risks that must be monitored and mitigated. Based on the surveys, 48.2% of the agents stated that the main risk in this regard is a possible additional deterioration in their loan portfolio, which would be associated with weak economic growth. In this respect, the respondents surveyed agree with the September 2017 *Financial Stability Report*, which identified the risk of a weaker than expected economic recovery as the main vulnerability financial stability faces during 2018. The entities indicated that a stronger manifestation of credit risk and deterioration in Colombia's economic outlook are the contingencies that could potentially have a greater impact on the performance of the financial system. At the same time, the entities perceive these factors as the ones that have the highest probability of taking place.

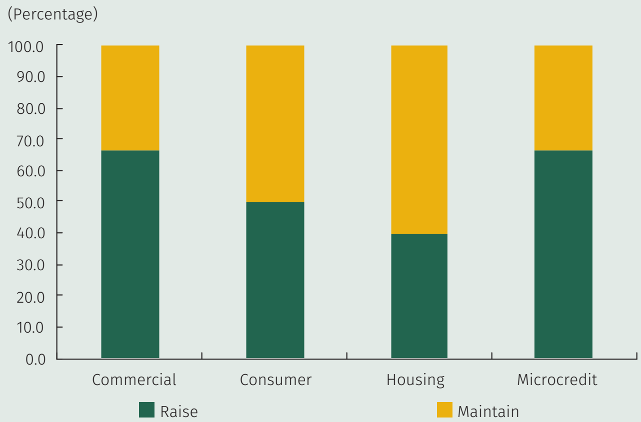
When compared with the September 2017 surveys, the percentage of entities that mentioned an additional deterioration of the portfolio as the main risk declined significantly (in September, it was 64%), which is consistent with the recent recovery of the economic growth. Simultaneously, a higher percentage of entities mentioned the political uncertainty (possibly associated with the legislative and presidential elections) and the reduction in the rating of Colombian public debt as the main risks for 2018.3[3]

In any case, according to the survey respondents, confidence in the soundness of the financial system remains high. Based on Graph B4.5, 71.1% of the respondents stated that they had a high or very high level of confidence, while only 1.2% reported having a low level of confidence, and no entity indicated a very low level of confidence.

2 In this regard, the entities have consistently stated in the surveys that the most important criterion for assessing the risk of new debtors is their credit history. That is why, it is essential to ensure that the information on credit histories stored by the credit bureaus is accurate, reliable, and timely.

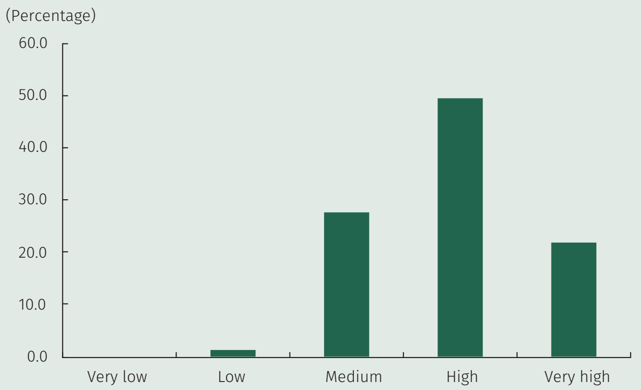
3 Considering the fact that the rating agency, Standard & Poor's, lowered the rating of short- and long-term Colombian debt denominated in foreign currency on December 11 last year, the *Survey of External Indebtedness and Quotas* for December 2017 asked the entities about the impact that this could have on their indebtedness under contract with financial institutions abroad. At that time, most of the entities claimed to have preserved the condition of indebtedness they had before that decision.

Graph B4.4
Percentage of Banks that Expect to Maintain, Raise, or Reduce their Requirements during the First Quarter of 2018



Source: *Banco de la República* (Report on the loan situation in Colombia), December 2017.

Graph B4.5
Confidence in the Stability of the Financial System in 2018 (percentage of responses)



Source: *Banco de la República* (Report on the loan situation in Colombia), December 2017.

4. Conclusions

Along with the rebound in the growth of the Colombian economy, the credit markets are expected to gradually recover their trajectory of expansion and mitigate the deterioration of the credit portfolio. The empirical evidence indicates that with respect to aggregate shocks such as those experienced by the Colombian economy, the credit variables have a lagged reaction with respect to economic growth. Thus, it is likely that the recovery of the credit markets will come at a slower pace in comparison to the better performance of the rest of the Colombian economy.

According to the respondents, the main vulnerability the stability of the financial system has remains associated, as was mentioned in the September 2017 *Financial Stability Report*, with the risk of a more pronounced economic slowdown or a weaker than expected recovery for the remainder of 2018. In this context, *Banco de la República* will seek to make those decisions that ensure a timely return to those trajectories of inflation and growth that are consistent with macroeconomic stability and long-term economic development.

03 International Reserves

As of December 2017, the net international reserves totaled USD 47.62904 b, which is USD 954.41 m higher than the balance registered in December 2016. The increase in international reserves is explained by the profitability of the reserves and by the appreciation of the currencies other than the US dollar.

In compliance with Act 31/1992, *Banco de la República* manages the international reserves in accordance with the public interest, to the benefit of the national economy, and to facilitate the country's payments abroad. Based on this, the law requires that investment of the reserve assets be done under the criteria of security, liquidity, and profitability.

Banco de la República recognizes the importance of having an appropriate level of international liquidity in order to deal with capital outflows from the country, which may be caused by factors such as a deterioration in the terms of trade, financial panics, or financial crises in neighboring countries. In this context, maintaining a suitable level of international reserves also serves to improve confidence in the country and, hence, deal with a crisis in foreign markets better. The level of the international reserves is a determining factor in the perception of the national borrowers' ability to repay a loan. The credit rating agencies and foreign lenders believe that a suitable

The level of the international reserves is a determining factor in the perception of the national borrowers' ability to repay a loan.

level of reserves allows the residents to meet their obligations such as, for example, paying for imports and servicing the foreign debt, in foreign currency at a time when the country faces difficulty in accessing foreign financing. The agents in the international capital markets use the indicators of the reserves' ability to pay as a measurement of the country's liquidity, which highlights the importance of maintaining an appropriate level of international reserves. A country with low levels of international reserves may receive less funding through direct investment from the rest of the world, have greater difficulty getting access to foreign loans, and/or pay higher interest rates on foreign debt.

Banco de la República manages the international reserves within a rigid framework of risk control in which, emphasis is placed on the measures geared towards: 1) the management of market risk so that the value of the investments is not significantly affected by changes in the international interest rates, and 2) the management of credit risk in order to have a very low probability of facing defaults on payments. Through these risk control measures, an effort is made to keep reserves at a high level of security and liquidity. This, in turn, is associated with lower profitability since the safest investments are also those that have the lowest returns. The profitability of the reserves has also been affected in the last few years by the international situation since the central banks of the developed countries have maintained very low or even negative interest rates.

As of December 2017, the net international reserves totaled USD 47.629 b, which is USD 954.41 m higher than the balance registered in December 2016. 52[52] The increase in international reserves during 2017 is explained by the profitability of the reserves and by the appreciation of the currencies other than the US dollar. The main component of the international reserves is the investment portfolio which corresponds to investments in financial instruments on the international market and to certified physical gold (94.97% and 0.91% respectively of the reserves). The breakdown of the international reserves is presented in Graph 3.1.

52 The net international reserves are equal to the total international reserves, or gross reserves, minus *Banco de la República*'s short-term foreign liabilities. The latter consist of demand obligations to non-resident agents in foreign currency. The gross international reserves came to USD 47.63723 b and the short-term foreign liabilities were USD 8.19 m.

3.1 Components of the Investment Portfolio53[53]

An explanation of the policies that guide the investment portfolio investments and some relevant definitions are provided in the Appendix. The breakdown of the portfolio as of December 2017 can be seen in Graph 3.2 when about 95% of the investment portfolio was invested in paper issued by governments, entities related to governments (quasi-sovereign) and repurchase agreements with the Fed.

Graph 3.3 shows the credit rating of the investment portfolio. The Bank uses the lowest rating granted by at least two of the three main rating agencies (S&P, Moody's, and Fitch Ratings) as a benchmark. Evidence of the high credit rating of the assets the portfolio invests in can be seen in the fact that 75.53% of it is invested in instruments with AAA ratings and 21.54% is in instruments with AA.

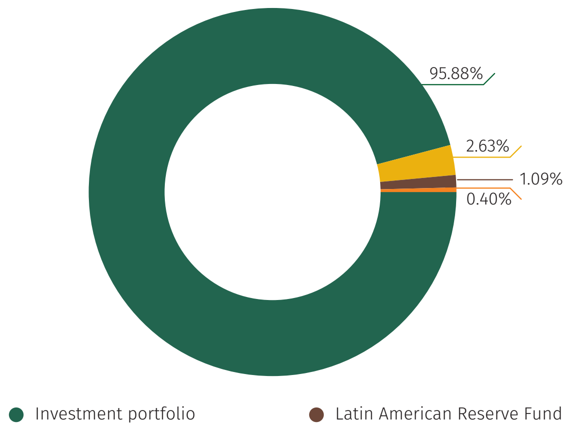
Finally, Graph 3.4 shows the breakdown of foreign exchange components in the investment portfolio as of December 31, 2017. The largest share of Colombia's international reserves is in US dollars due to the fact that a majority of the country's commercial and financial transactions with the rest of the world are carried out in this currency. Investment in the following currencies is also allowed: Canadian, Australian, New Zealand dollars; Swedish krona; the pound sterling; Swiss Frank; euros; yen; Norwegian krone; the Reminbi; Hong Kong and Singapore dollars, and Korean won. All of these currencies are characterized by high daily trading volumes and belonging to governments with high credit ratings.

3.2 Profitability of the Reserves

The decision to have a portfolio with a conservative risk profile implies receiving a lower return. The basic financial theory for portfolio management indicates that, if an investor wants to face

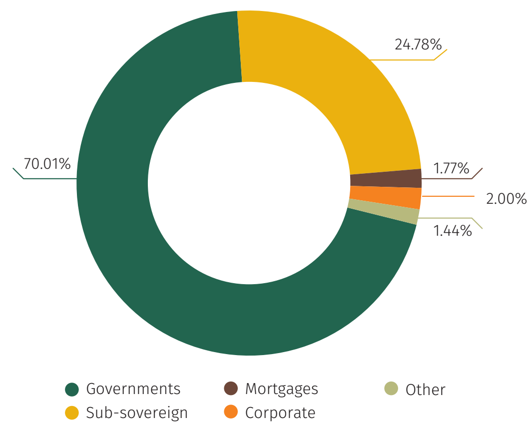
53 The graphs in this section were calculated based on the amount in the investment portfolio excluding the gold tranche.

Graph 3.1
Breakdown of Gross International Reserves
(information as of December 29, 2017)



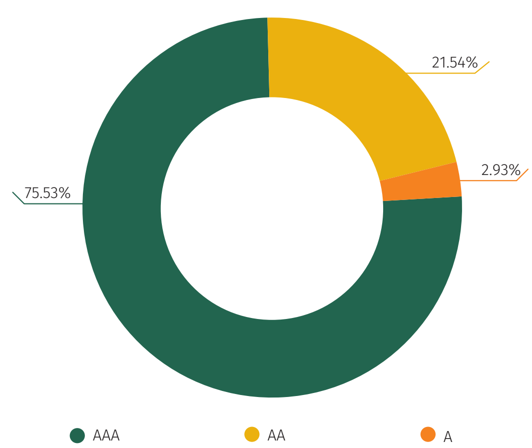
Note: gold is included in the investment portfolio. The item "Others" includes international agreements, cash on hand, and demand deposits.
Source: *Banco de la República*.

Graph 3.2
Breakdown of the Investment Portfolio by Sectors
(information as of December 29, 2017)



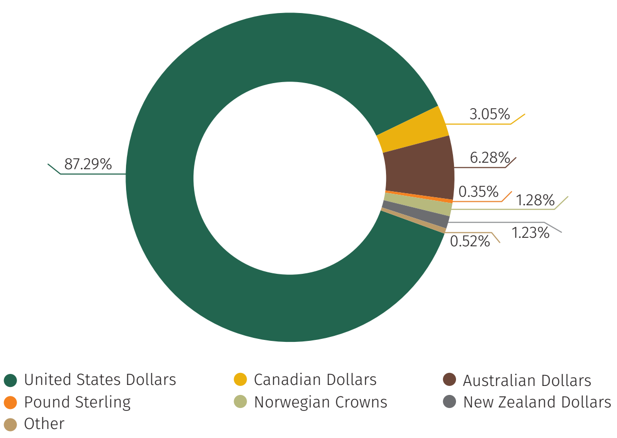
Source: *Banco de la República*.

Graph 3.3
Breakdown of the Investment Portfolio by Credit Rating
(information as of December 29, 2017)



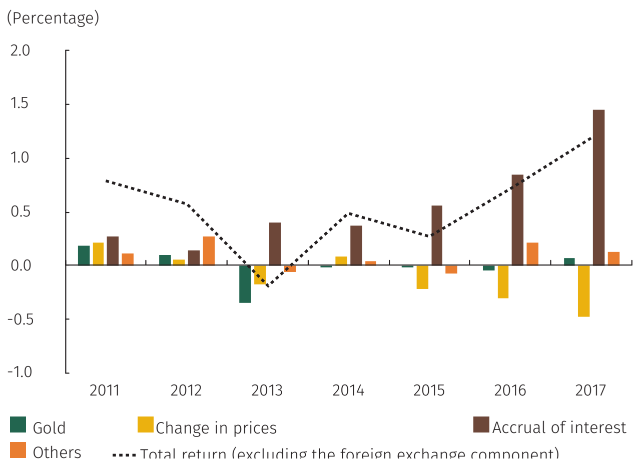
Source: *Banco de la República*.

Graph 3.4
Breakdown of the Investment Portfolio by Currency
(information as of December 31, 2017)



Source: *Banco de la República.*

Graph 3.5
Historical Profitability of International Reserves by Component



Source: *Banco de la República.*

a lower risk, his expected profitability will be lower.

In 2017, the profitability of the dollar-denominated reserves investment portfolio was 1.14%54[54] (USD 537.3 m). As can be seen in Graph 3.5, the rate of return on the international reserves has been rising gradually since 2013. The profitability of the reserves essentially depends on the interest received from the instruments in which the investment was made. Between 2009 and 2015, this yield remained low due to the expansionary monetary policy implemented by the central banks of the developed countries in response to the global financial crisis. However, the Fed has been gradually raising its monetary policy rate since 2015, which has made it possible to make the new investments at higher rates and thus offset the depreciation of the bonds.[55]

54 This rate is obtained by dividing the return in dollars by the average value of the net reserves on December 31, 2016 and on the value one year later. Since 2015, the impact of the exchange rate effect on the profitability of the reserves has been excluded.

55 There is an inverse relationship between bond prices and interest rates; that is to say, the price of the bonds declines as interest rates increase. Since the increase in the interest rates has been gradual, the accrued interest has been greater than the actual depreciation in the price of the bonds in which reserves are invested and have made it possible to get a positive return.

Box 5
Sovereign Credit Ratings

1. Credit Ratings

Credit ratings are a relative measure of the credit risk an investment has and provide investors with an idea of how safe investing in a particular asset or issuer would be. Thus, the purpose for these ratings, which are issued by entities known as rating agencies, is to show the probability that the issuer will comply with its debt obligations.

The three most prominent rating agencies that rate sovereign issuers are Standard & Poor's (S&P), Moody's and Fitch Ratings (Fitch). On the scale used by these entities, the highest long-term rating is AAA, which is assigned to issuers that have a strong ability and willingness to pay. The lowest rating is D, which corresponds to issuers that have defaulted on their payments. The notation used for each one of these three agencies can be seen in Table B5.1.

The sovereign debt ratings assigned to Colombia can be seen in Table B5.2.1[1]

The rating assigned to Colombia by the three agencies is within the investment grade range, i.e., issuers that have a BBB- rating or above. The difference in investment grade rating is highly significant since it implies that the issuers in this group are highly likely to honor their debt payments. Many investment policies and regulation criteria are linked to that difference. It must be noted that a reduction in the rating on the part of S&P that lowers it one level would take Colombia to a speculative grade rating. Furthermore, Moody's negative outlook indicates that they could revise the rating downwards in the medium term while the stable outlook of the other two rating agencies indicates that no changes in the rating on their part are to be expected in the medium term.

1 Ratings of Colombia's sovereign debt as of February 26, 2018.

Table B5.1
Credit Ratings

Clasification	Moody´s	S&P	Fitch Rating
Investment grade rating	Aaa	AAA	AAA
	Aa1, Aa2, Aa3	AA+, AA, AA-	AA+, AA, AA-
	A1, A2, A3	A+, A, A-	A+, A, A-
	Baa1, Baa2, Baa3	BBB+, BBB, BBB-	BBB+, BBB, BBB-
speculative grade	Ba1, Ba2, Ba3	BB+, BB, BB-	BB+, BB, BB-
	B1, B2, B3	B+, B, B-	B+, B, B-
	Caa1, Caa2, Caa3	CCC, CC, C	CCC, CC, C
	Caa	D	D

Sources: Moody's, S&P and Fitch.

Table B5.2
Colombia's Credit Ratings

Category	Moody´s	S&P	Fitch
Long-term rating in local currency	Baa2	BBB	BBB
Long-term rating in foreign currency	Baa2	BBB-	BBB
Outlook	Negative	Stable	Stable

Sources: Moody's, S&P y Fitch.

2. Methodology Used by the Main International Rating Agencies[2]

To determine the credit rating of a sovereign nation, the agencies have methodologies that incorporate different quantitative and qualitative factors. They use different sources of information to evaluate said factors including national statistics or those from entities such as the BIS, the IMF, and the World Bank. Generally speaking, the factors considered can be grouped into the following categories:

- *Macroeconomic performance:* for the rating agencies, the economic growth and prosperity of a country has a significant influence on their creditworthiness. In this category, the agencies assess the resilience, level of wealth, and the size and diversification of the economy including variables such as the nominal GDP, the GDP per capita, average growth, and the volatility of the real GDP. The agencies also do a qualitative analysis of the quality of the macroeconomic data that are produced in the country.

2 This section is based on the analysis done by these publications: *Sovereign Rating Methodology* (S&P Global Ratings), *Sovereign Bond Ratings* (Moody's Investors Service) and *Sovereign Rating Criteria* (Fitch Ratings).

- *Institutional strength:* in this category, mainly the effectiveness, stability, and predictability of the institutions and their decision-making process is analyzed. For the rating agencies, institutional strength has an influence on a government's ability to undertake policies that encourage economic growth and prosperity. The S&P agency, for example, does an assessment that is primarily qualitative of factors such as the level of concentration of power, the transparency of the institutions, the quality of budget management, respect for contractual and property rights, the historical handling of political, economic, and financial crises, the history of internal conflict, the level of corruption, any history of defaults on the part of the country, and the potential for geopolitical risks. Moody's and Fitch agencies use mainly the governance indices of the World Bank to measure this category.

- *Public finances:* in this category, the agencies seek to evaluate the general state of public finances using indicators of fiscal sustainability, indebtedness, and debt servicing. Among the quantitative factors considered, the debt level, the cost of the debt, the change in the level of debt, the fiscal balance, and the level of the government's liquid assets are found. They also take into account qualitative factors such as fiscal flexibility, the long-term fiscal tendencies and vulnerabilities, the structure and sustainability of public debt, the depth of the capital market and the risk of contingent liabilities materializing.

- *External Finances:* in this category, the agencies seek to evaluate the economy's transactions, assets, and liabilities with the rest of the world in order to determine the country's ability to obtain the resources that will enable it to meet its obligations in foreign currency. The importance the country's currency in foreign

Table B5.3
S&P Methodology

Category	S&P
Macroeconomic performance	* GDP per capita * Average growth of the real GDP per capita * Level of exposure to cyclical industries (percentage of GDP) * Exposure to natural disasters or adverse climatic conditions * Quality of macroeconomic data
Institutional strength	* Historical handling of political, economic, and financial crises * Opportunity to implement reforms * Predictability in policy formulation *History of internal political conflicts * Civil society and social cohesion * Existence of controls in the institutions * Level of corruption * Respect for contractual obligations and property rights * Independence of the media * Quality of national statistics * Geopolitical risks * History of defaults by the country
Public finances	* Average change in the government's net debt (percent of the GDP) * Government's net debt (percentage of the GDP) * Interest payments (percentage of income) * Level of liquid financial assets * Volatility of government revenue * Fiscal flexibility * Access to funding sources * Debt structure * Contingent liabilities
Foreign Finances	* Status of the currency * Country's foreign liquidity * Foreign indebtedness * Volatility of the terms of trade
Credibility of monetary policy	* Foreign currency exchange system * Central Bank's operational, legal, and administrative independence * Availability of monetary policy instruments * Price stability * Central Bank is the lender of last resort * Development and depth of the financial system and the capital market

Source: S&P.

investment portfolios and international transactions, external liquidity, the level and structure of debt abroad, the level of international reserves, and the volatility of the terms of trade are included among the factors evaluated by the different rating agencies along with other indicators that are specific to each agency.

- *Credibility of monetary policy:* this category seeks to measure both the ability of the monetary authorities of a country to comply with their mandate and their credibility. Although this is a characteristic that cannot be measured objectively, some factors such as, the exchange rate regime, the operational independence of the central bank, the ample availability of monetary policy instruments, the development and depth of the financial system and capital market, the ability of the central bank to act as a lender of last resort, and a history of price stability and low inflation, have an influence on the credibility of a country's monetary policy. In general, some or all of these factors are taken into account by the three credit rating agencies.

Tables B5.3, B5.4, and B5.5 show the factors that are the most important for the methodology of each one of the agencies. The names of some of the categories and the classification of the factors differ between one agency and another. However, for a better understanding of the methodologies, the factors used in each agency's evaluation have been grouped under the categories described.

Table B5.4
Moody's Methodology

Category	Moody´s
Macroeconomic performance	* GDP per capita * Nominal GDP * Average growth of the Real GDP * Volatility of real GDP growth * Global Competitiveness Index of the World Economic Forum
Institutional strength	Indices of the World Bank governance: * Government effectiveness * Rule of law * Control of corruption * Right to speak and accountability Other indicators: * History of defaults by the country * Geopolitical risks
Public finances	* Government's gross debt (percentage of the GDP) * Government debt (percentage of income) * Interest payments (percentage of income) * Interest payments (percentage of the GDP) * Average change in the government debt (percentage of the GDP) * Debt structure * Level of liquid financial assets * Contingent liabilities
Foreign Finances	* Current account balance + foreign direct investment (percentage of the GDP) * Indicator of foreign vulnerability * Net international investment position
Credibility of monetary policy	* Level of inflation * Volatility of inflation

Source: Moody's.

Table B5.5
Fitch's Methodology

Category	Fitch
Macroeconomic performance	* GDP per capita * Volatility of real GDP growth * Average growth of the real GDP * Outlook for GDP growth * Employment level and trends * Participation of the various economic sectors * Share of the country in the global GDP
Institutional strength	Indices of the World Bank governance: * Rule of law * Control of corruption * Government effectiveness * Right to speak and accountability * Regulatory quality * Political stability and absence of violence Other indicators: * History of defaults by the country * Geopolitical risks * Index of the World Bank's ease of doing business * UN Index of Human Development
Public finances	* Government's gross debt (percentage of the GDP) * Interest payments (percentage of income) * Fiscal Balance (percentage of the GDP) * Debt in foreign currency (percentage of total debt) * Fiscal flexibility * History of market access in situations of stress * Ability to issue long-term debt at sustainable rates * Level of liquid assets * Forecast of the debt trajectory * Contingent liabilities * Level of income concentration
Foreign Finances	* Status of the currency * Net foreign assets of the government (percentage of the GDP) * Dependence on commodities * Level of international reserves (months of imports) * Foreign debt servicing (percentage of income of the current account) * Current account balance + foreign direct investment (percentage of the GDP) * Access to sources of foreign financing * Foreign liquidity * Sustainability and structure of foreign debt
Credibility of monetary policy	* Average inflation * Consistency of the country's monetary and fiscal policies

Source: Fitch.

04

Financial Situation of *Banco de la República*

In 2017, *Banco de la República* had a positive result of COP 804 b for the accounting period, which is COP 302 b higher than the result seen in 2016 when this was COP 502 b.

4.1 Change in the Income Statement (L&P)

Banco de la República registered a profit for the accounting period of COP 804 b in 2017, the result of COP 3.330 t in income and COP 2.526 t in expenditures (Table 4.1). Compared to the previous year, the income presented a COP 200 b (6.4%) increase and the outlays, a COP 102 b (-3.9%) decrease.

The revenue seen in 2017 is mainly explained by both the return on the international reserves and the portfolio of Treasury bond investments (TES) as well as by the income from the liquidity transactions through expansion repos. The income from the international reserves is the result of the greater yield of the portfolio due to the higher foreign interest rates56[56] and the valuation of monetary gold.

The lower outflows, in turn, are due especially to the remuneration paid on the national government's deposits at *Banco de la República*, the maturity of the monetary control deposits, and the lower appreciation of the peso and its effect on the contributions in international agencies and entities.

56 The higher foreign interest rates had a positive effect on the L&P since the return on investment from interest was higher than the devaluation of the Bank's international reserves portfolio with respect to the increase in these rates. The above is a result of the duration of this portfolio.

Table 4.1
Banco de la República's Financial Statements for 2017
(billions of pesos)

	Implemented		Annual changes	
	2016	2017	Percentage	Absolute
I. Total Income (A+B+C)	3,130	3,330	6.4	200
A. Monetary income 2,635	2,635	2,866	8.8	231
1. Interest and returns		2,836	9.3	241
International Reserves		1,588	40.4	457
Monetary Regulation Investment Portfolio (TES)	1,007	908	-9.9	-100
Active Monetary Regulation Operations (Repos)	456	340	-25.5	-116
Other operations	0	0	87.1	0
2. Foreign exchange differences	37	27	-27.8	-10
3. Other monetary income	4	4	8.6	0
B. Face value of the coins issued	300	266	-11.5	-34
C. Corporate income	194	198	2.0	4
1. Commissions	160	172	7.5	12
Banking services	67	69	3.0	2
Fiduciary operations	93	103	10.8	10
2. Other corporate income	35	27	-23.5	-8
II. Total expenditures (A+B+C+D)	2,628	2,526	-3.9	-102
A. Monetary expenditures	1,850	1,688	-8.8	-162
1. Interest and yield	1,568	1,362	-13.2	-207
Remunerated deposits (DGCPTN)	1,427	1,355	-5.0	-71
Interest-bearing Deposits for Monetary Control	131	0	-100.0	-131
Liability Transaction Deposits for Monetary Regulation	10	6	-38.4	-4
2. Costs of Management and Management of Funds Abroad	40	44	10.0	4
3. Commitment fee for IMF flexible credit	61	86	41.0	25
4. Foreign exchange differences	180	1	-99.2	-178
5. Other monetary expenditures	1	194	25,650.7	194
B. Banknotes and coins	215	208	-3.0	-6
C. Corporate expenditures	496	548	10.5	52
1. Personnel costs	332	361	9.0	30
2. Overhead	71	77	7.7	5
3. Other Corporative	93	110	18.1	17
D. Pension payments	67	81	21.6	14
III. Operating results (I - II)	502	804	60.3	302

Source: *Banco de la República.*

The lower remuneration for the government deposits at the Bank is caused by the reduction of the policy interest rate on the part of the Board of Directors of *Banco de la República*, which has a direct and immediate impact on this remuneration.

Compared to 2016, revenue rose COP 200 b (6.4%).

The reduction in the policy interest rate during 2017 had a net positive effect on the Bank's L&P because, even though it generates a lower income from the primary liquidity expansion transactions through repos, the reduction in the remuneration for the government deposits at the Bank is greater since their average volume was higher than the average balance of repos.

The items that had the greatest influence on the income statement in 2017 are explained below:

a. The increase from the yield of the international reserves is the result of: 1) the return on the investment portfolio (COP 1.476 t, USD 486 m) that had an average dollar-denominated profitability in 2017 of 1.1% compared to 0.77% in 2016; 2) the appreciation of the gold investments (COP 84 b, USD 29 m) resulting from the rise in the international price for gold (11.9% per annum);57[57] and 3) the yields from the contributions to international entities, the agreement with the Latin American Integration Association (Aladi), and others (COP 28 b, USD 10 m) (Table 4.2 and Graph 4.1).

Table 4.2
Returns on International Reserve Investments
(billions of pesos)

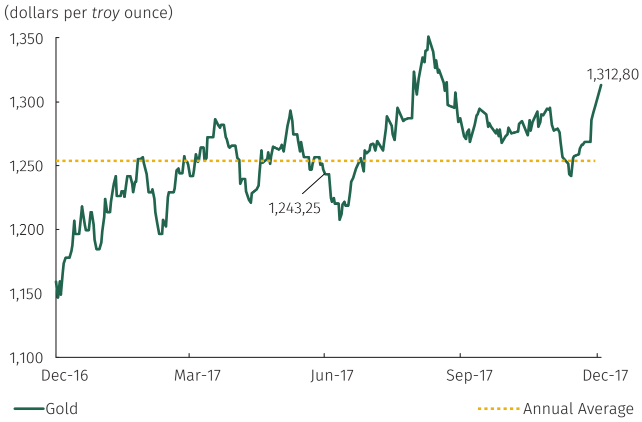
	2016	2017
International Reserves	1.131	1.588
Portfolio	1.102	1.476
International Entities, Aladi agreement, etc.	12	28
Gold	17	84

Source: *Banco de la República.*

b. The income from the returns on the TES monetary regulation investment portfolio came to COP 908 b. This result was due to the increase in the balance of the TES portfolio that went from COP 8.893 t in December 2016 to COP 11.515 t at the end of 2017. This is the product of the COP 3.899 t in net purchases made, thenet transfer of COP 1.114 t from the TES monetary portfolio to the pension liabilities portfolio, and the maturity of securities and payment of coupons coming to COP 1.071 t.

57 The international price of gold was USD 1,296.5 per *troy* ounce at the close of 2017 and USD 1,159.1 per *troy* ounce at the close of 2016.

Graph 4.1
International Price of Gold



Source: Reuters.

c. Income from liquidity transactions through expansion repos amounted to COP 340 b, which is COP 116 b lower compared to 2016. This was the result of the lower rate of remuneration due to the reduction in the policy interest rate on the part of the Board of Directors of *Banco de la República* and of the lower average daily volumes of these transactions.58[58]
d. The placement of coins into circulation (face value of the coins issued) generated COP 266 b in revenue, which is COP 34 b (-11.5%) lower than what had been seen in 2016.
e. The income received from commissions for banking services and fiduciary operations came to COP 172 b, which is COP 12 b (7.5%) higher than the amount received in 2016. The increase is explained by the earnings from the fiduciary business, which presented a growth of COP 10 b (10.8%) primarily because of the remuneration from TES management which rose COP 9 b (13.3%).
f. The net result between inflows and outflows caused by changes in the peso to dollar exchange rate for the assets and liabilities in foreign currencies other than the international reserves (exchange rate differences) was positive, coming to COP 25.1 b (COP 26.6 b in income and COP 1.4 b in expenses). This result is explained by: 1) COP 18 b in net income due to exchange rate differences in the national government's deposit accounts in foreign currency at *Banco de la República* and 2) COP 7 b in net income due to exchange rate differences for contributions and obligations to international organizations and entities. This last item was the result of the depreciation of the dollar with respect to other currencies, which had a positive effect on the exchange rate differences on the Bank's contributions to the BIS in spite of the 0.56% annual appreciation of the peso against the dollar seen at the close of December 2017.

Regarding expenditures, the following is highlighted:

a. In 2017 there were no expenditures to remunerate the monetary control deposits, since the monetary control TES expired in 2016.
b. The expenses for paying interest on the national government's deposits was COP 1.355 t, which was COP 71 b (-5.0%) lower compared to the previous year. Although there was a higher volume of

58 The average daily volumes were COP 5.920 t in 2017 and COP 6.689 t in 2016. The average rate of remuneration seen in 2017 was a real annual (r.a.) 5.91% and an r.a. of 7.06% in 2016.

Compared to 2016, outflows declined COP 102 b (-3.9).

deposits on average, the interest rate for remuneration of these deposits was lower than it was in 2016.59[59]

c. The other monetary expenditures, which incorporated the acceptance of the US$64.9 b loss in the Bank's contributions to the IDB Fund for Special Operations (FSO) as a result of the accumulated deficit in this Fund since its creation in 1959, rose COP 194 b. The above, which IDB revealed in the accounting to *Banco de la República* on December 20, 2017 in order to be able to carry out the consolidation of the IDB-FSO balance sheets, is based on a decision made in 2016 that implements the recommendations of the G20 on optimizing the balance sheets of the development banks.[60]

d. The costs of issuing and distributing monetary species were COP 208 b and registered a COP 6 b (3.0%) decline compared to 2016 due to the lower demand for coins.

e. The interest paid on the deposits for monetary-regulation liability operations came to COP 6 b, which was COP 4 b lower (-38.4%) than what had been registered in 2016.[61]

f. The corporate outlays stood at COP 548 b with an annual increase of COP 52 b (10.5%; 5.9% in real terms) as a result of:

   i. Personnel costs, COP 361 b, increased 9.0% per year (4.5% in real terms).[62] These expenditures include salaries; benefits; contributions to social security; medical services; financial aid and formal training; and contributions to family compensation funds; to the Colombian Institute for Family Welfare (ICBF in Spanish) and to the National Education Service (SENA in Spanish); continuing education; per diem; etc.

   ii. The overhead, COP 77 b, registered an annual change of 7.7% (3.2% in real terms). This group includes expenses such as utilities, surveillance services, equipment maintenance, janitorial services, services contracted for the Bank and the Luis Ángel Arango Library, improvements to the installations, transportation, fuel, supplies and stationery, surveys, special studies, etc. The annual growth of overhead in 2017 reflected the increase in inflation from the previous year, the minimum wage in 2017, and the increase in VAT, which went from 16% to 19%.

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59 The average daily balance of these deposits in *Banco de la República* was COP 22.895 t in 2017 and COP 20.367 t in 2016. The annual average rate of remuneration seen was an r.a. of 5.92% and an r.a. of 7.26% respectively.

60 Based on the accounting practices of the majority of the central banks, contributions to the trust funds such as the IDB Fund for Special Operations (FSO) that offer support for poor countries through subsidized loans or debt relief are carried on the books at the cost of acquisition. As a result of the inclusion of the FSO accumulated deficit in the transfer of FSO assets and liabilities to the ordinary capital of the IDB, the contributions account for international organizations and entities was reduced $195,523,769 thousand (USD64.8 b).

61 The average balance was COP 131 b in 2017 compared to COP 183 b in 2016; the average rate of remuneration was an r.a. of 5.03% and an r.a. 5.87% respectively.

62 Includes what is described in the collective agreement currently in effect.

iii. The other corporate expenses, COP 110 b presented an annual increase of 18.1% (13.2% in real terms). This variation is explained mainly by the greater expense for loan-loss provisioning, depreciation, and debt repayment.

g. Last of all, costs for those on pensions, COP 81 b, presented an annual change of 21.6% (16.6% in real terms). This expenditure is the result of the financial cost63[63] and of the refund of pension recognized on the part of Colpensiones.

4.2. Reserve Accumulation and Profit Distribution

According to the Bank's legal framework contained in the Constitution, Act 31/1992, and the Bank's by-laws, once the net investment in goods for cultural activity is discounted and the statutory reserves are appropriated, the remainder of the profits will belong to the nation. As a result, taking the profits for 2017 as a base, *Banco de la República* transferred COP 761 b to the national government at the end of March 2018 in accordance with the approval of the Board of Directors of the Bank (Table 4.3).

Table 4.3
Distribution of Profits
(billions of pesos)

	2017
A. Fiscal year result	804,2
B. Plus use of reserves	0,0
C. Minus constituting the reserves and other deductions	43,2
Debt with the Comptroller General of the Republic or the Comptroller General's Debt	1,7
Loss due to implementation of IFRS	0,0
Net Investment in Cultural Activity Goods	41,5
Net Result in favor (+) or charged to the NCG (-): A + B – C	761,0

Source: Banco de la República.

4.2.1 Financial Position of *Banco de la República* (balance sheet)

The changes in *Banco de la República's* main assets, liabilities, and equity as of December 31, 2017 in comparison to the balances registered at the close of the previous year are explained below (Table 4.4).64[64]

63 This financial cost is calculated on the basis of the pension liabilities, which includes pensions, medical service, and educational aid for pensioners of *Banco de la República*.

64 Starting in 2015, the Bank has reported its financial statements under a new accounting framework based on IFRS.

Table 4.4
Financial Position of *Banco de la República* classified by Economic Criteria
(billions of pesos)

Accounts	December, 2016		December, 2017		Variation	
	Balance	Percentage share	Balance	Percentage share	Absolute	Percentage share
Assets	167,289	100.0	169,746	100.0	2,458	1.5
Gross International Reserves	140,082	83.7	142,149	83.7	2,068	1.5
Contributions to international entities and organizations	10,109	6.0	9,450	5.6	-659	-6.5
Investments	8,893	5.3	11,515	6.8	2,622	29.5
Public sector monetary control	8,893	5.3	11,515	6.8	2,622	29.5
Loan portfolio	0	0.0	0	0.0	0	0.0
Other loans	1	0.0	1	0.0	0	0.2
Deterioration	-1	-0.0	-1	-0.0	-0	0.2
Resale agreements: transitory liquidity support	5,813	3.5	4,174	2.5	-1,640	-28.2
Accounts receivable	53	0.0	53	0.0	-0	-0.4
Other net assets	2,339	1.4	2,406	1.4	67	2.9
Liabilities and equity	167,289	100.0	169,746	100.0	2,458	1.5
Liabilities	110,428	66.0	112,352	66.2	1,924	1.7
Foreign-currency liabilities that affect international reserves	24	0.0	24	0.0	-0	-0.3
Monetary Base	84,598	50.6	88,811	52.3	4,213	5.0
Cash	55,427	33.1	59,498	35.1	4,071	7.3
Reserve	29,172	17.4	29,313	17.3	142	0.5
Non-reserve interest-bearing deposits	83	0.0	278	0.2	195	234.4
Other deposits	70	0.0	108	0.1	38	55.2
National Government: National Treasury Office L/C	14,589	8.7	13,666	8.1	-923	-6.3
National Government: National Treasury Office F/C	266	0.2	323	0.2	57	21.6
Interest-bearing Deposits for Monetary Control	0	0.0	0	0.0	0	0.0
Obligations with international organizations	11,453	6.8	11,131	6.6	-321	-2.8
Others	0	0.0	0	0.0	0	0.0
Accounts payable	82	0.0	51	0.0	-30	-37.1
Other liabilities	-737	-0.4	-2,042	-1.2	-1,305	177.1
Total equity	56,861	34.0	57,394	33.8	534	0.9
Capital	13	0.0	13	0.0	0	0.0
Surplus	56,897	34.0	57,285	33.7	388	0.7
Special foreign-exchange account settlement	521	0.3	521	0.3	0	0.0
Foreign exchange adjustment	56,199	33.6	56,523	33.3	324	0.6
Investment in assets for cultural activities and donations	177	0.1	241	0.1	64	36.1
Other overall results	-397	-0.2	-584	-0.3	-187	47.2
Results	502	0.3	804	0.5	302	60.3
Previous profits and/or losses	0	0.0	0	0.0	0	0.0
Fiscal year profits and/or losses	502	0.3	804	0.5	302	60.3
Accumulated Results Process of Convergence with IFRS	-153	-0.1	-123	-0.1	31	-20.0

Source: *Banco de la República.*

At the close of 2017, *Banco de la República*'s assets registered a balance of COP 169.746 t, which was COP 2.458 t (1.5%) higher than the balance seen the previous year.

4.2.1.1 Assets

The assets of *Banco de la República* registered a balance of COP 169.746 t at the close of December 2017.65[65] This figure is COP 2.458 t (1.5%) higher than the balance seen in December 2016 when the assets came to COP 167.289 t. The main variations in the asset accounts are explained, as follows, by:

i. National currency investment portfolio: valued at market prices, its balance was COP 11.515 t in December 2017, COP 2.622 t higher with respect to the close of the year in 2016 (29.5%). The above was the result of: 1) net purchases of COP 3.899 t in TES on the part of *Banco de la República* and 2) the COP 908 b return on this portfolio. The above was partially offset by: 1) the net transfer of COP 1.114 t in TES to autonomous equity, which backs the Bank's pension liability and 2) the COP 1.071 t in maturities of the TES portfolio held by the Bank.

ii. Gross international reserves: the balance for this valued at market prices at the close of December 2017 was COP 142.149 t (USD 47.242 b) 66[66], which is COP 2.068 t (1.5%) higher with respect to the information seen December 31, 2016. This increase was, mainly, due to: 1) the COP 1.709 t yield from accrued interest and 2) the COP 324 b adjustment in the exchange rate resulting from the changes in exchange rate for the peso/reserve currencies. The above was partly offset by the COP 121 b in negative valuation at market prices.

iii. Contributions to international entities: the balance at the end of December 2017 stood at COP 9.450 t, which is COP 659 b lower than what had been registered at the close of 2016 (-6.5%) This decline incorporates the recognition of the loss resulting from the contributions of the Bank to the FSO mentioned above.

iv. Repo transactions used to provide transitory liquidity: these presented a balance of COP 4.174 t at the end of December 2017, which meant a COP 1.640 t (28.2%) reduction compared to the close of 2016.

65 For the purposes of the Table 4.4 presentation, which records line items based on economic rather than accounting criteria, the value of the liabilities associated with purchase transactions for the reserves portfolio for which payment has not yet been made has been mostly discounted in this balance (this is registered as a higher value of the asset in the Bank's financial statements and as a requirement of the international reserves under liabilities). In this respect, this value differs from the total assets presented within the financial statements approved by the *Office of the Financial Superintendent of Colombia* in which a balance of COP 174.884 t is registered.

66 See the previous note.

At the close 2017, the liability balance was COP 112.352 t, which is COP 1.924 t (1.7%) higher than what was registered at the end of 2016.

Equity had a balance of COP 57.394 t, which is COP 534 b (0.9%) higher with respect to the figure seen the year before.

4.2.1.1 Liabilities

At the close of 2017, the liability balance was COP 112.352 t,67[67], which is COP 1.924 t (1.7%) higher than what had been registered at the end of 2016. The main sources of change are presented below:

i. Monetary base: the balance for this stood at COP 88.811 t, which was COP 4.213 t (5.0%) higher than what had been registered at the close of 2016. By component, the cash in circulation showed an increase of COP 4.071 t (7.3%) and the bank reserves, one of COP 142 b (0.5%).

ii. Obligations to international organizations: the balance was COP 11.131 t, which is COP 321 b (2.8%) lower than what had been presented at the close of 2016.

iii. The national government's deposits in pesos, set up through the General Office of Public Credit and the National Treasury at *Banco de la República*: its balance was COP 13.666 t at the close of December 2017. This amount was COP 923 b (6.3%) lower than what had been registered in December 2016.

4.2.1.2 Equity

Equity had a balance of COP 57.394 t, which is COP 534 b (0.9%) higher with respect to the figure seen in December 2016. This rise was mainly due to: 1) the positive COP 804 b result in the Bank's accounting period in 2017 and 2) the change in the adjusted exchange rate account which rose COP 324 b and was offset by an increase in pesos in the gross international reserves as was explained above. This was offset, in part, by the transfer of COP 407 b in profits to the National Government.

4.3 Income and Expense Budget for 2018

The budget for 2018 was approved by the Board of Directors of *Banco de la República* (BDBR) in December 2017 with the prior approval of the Fiscal Policy Board (Consejo Superior de Política Fiscal) (Confis) with regard to the implications of the budget for the public finances.

Banco de la República's budget has two main components: monetary and corporative. The former includes the results of responsibilities

67 As was mentioned in note 65, in the presentation of *Banco de la República*'s financial figures based on economic criteria, the liabilities associated with purchase transactions for the reserves portfolio, for which payment has not yet been made, are discounted from the value of the assets. Furthermore, within the liabilities, coins in circulation which, are not part of *Banco de la República*'s liabilities in accordance with Act 31/1992, are included in this table. This explains the difference between the total liabilities presented in Table 4.4 (COP 112.352 t) and the value of the liabilities on the Bank's financial statements approved by the *Office of the Financial Superintendent of Colombia* (COP 117.490 t).

such as monetary, foreign exchange and credit authority; manager of the international reserves; banker and lender of last resort for credit institutions; and issuing bank. The results of monetary performance depend on variables that are not under the control of the Bank such as, for example, foreign interest rates and fluctuations in market prices. The corporate results include the administrative management of the Bank such as, for example, income from commissions, personnel costs, operating expenses and pensioner expenses (Box 6).

A net profit of COP 1.232 t is projected for the 2018 accounting period, as a result of COP 3.420 t in income and COP 2.188 t in expenditures.

An accounting period profit of COP 1.232 t is estimated for 2018 as a result of COP 3.420 t in income and COP 2.188 t in expenditures (Table 4.5).

The revenue budget for 2018 envisions an annual rise of 34.8% compared to what had been budgeted for 2017. The main items are as follows:

The revenue budget for 2018 envisions an annual rise of 34.8% compared to what had been budgeted for 2017.

a. Income from the net return on the international reserves is projected to be COP 1.871 t in comparison to the COP 1.037 t estimated for 2017. The average profitability of the international reserves for 2018 is estimated at 1.3% in dollars. The budget assumes no variation in the international price of gold.
b. The estimated income from the valuation of the TES held by *Banco de la República* is COP 844 b compared to the COP 569 b estimated for 2017. The budget for 2018 includes the portfolio that serves as the basis for the forecast, the coupon interest rates, and the purchase of these securities by *Banco de la República* and their corresponding maturities. No definitive purchase or sale transactions of TES are planned for the projected period.
c. The estimated income from expansion repo liquidity transactions (active monetary regulation transactions) is projected to be COP 288 b compared to the COP 276 b included in the 2017 budget.68[68] This change is explained by the higher average volumes of these transactions although a lower policy interest rate is being considered for 2018.
d. The estimate of how much revenue will be generated by the placement of coins into circulation is COP 202 b69[69] with a 39.0% annual decrease compared to what had been budgeted in 2017. The above is result of the estimate for placing 636 million coins into circulation compared to 902 million coins in 2017.

68 The 2018 budget assumes a nominal annual growth of 7.24% for the monetary base. The average daily volumes for expansion repos projected for 2018 are COP 5.901 t and the average interest rate for remuneration is based on the benchmark interest rate (5.0% r.a.), in effect at the time the budget was drawn up. In 2017, average daily repo transactions were budgeted at COP 3.702 t and an average interest rate was budgeted at 7.75% r.a.

69 According to the Bank's statutes, this income corresponds to the face value of the coins placed in circulation.

Table 4.5
Budget of *Banco de la República*, 2018
(billions of pesos)

	Approved Budget		
	2017 a/ (A)	2018 (B)	Relative (B) / (A)
I. Total Income (A+B+C)	2.537	3.420	34.8
A. Monetary income	2,022	3,033	50.0
1. Interest and returns	1,882	3,003	59.5
International Reserves	1,037	1,871	80.4
Monetary Regulation Investment Portfolio (TES)	569	844	48.3
Active Monetary Regulation Operations (repos)		288	4.2
Other operations	0	0	-58.3
2. Foreign exchange differences	137	28	-79.6
3. Other monetary income	3	2	-18.9
B. Coins issued	331	202	-39.0
C. Corporate income	184	185	0.7
1. Commissions	161	166	2.9
Banking services	64	58	-8.7
Fiduciary operations	97	107	10.5
2. Other corporate income	23	20	-14.6
II. Total expenditures (A+B+C+D)	2,680	2,188	-18.4
A. Monetary expenditures	1,805	1,187	-34.2
1. Interest and returns	1,379	1,017	-26.3
Remunerated deposits (DGCPTN)	1,372	1,001	-27.1
Deposits for monetary-contraction operating liabilities	6	16	143.3
2. Costs of Management and Handling of Funds Abroad	49	37	-24.8
3. Commitment fee for IMF flexible credit	91	88	-3.5
4. Foreign exchange differences	85	45	-47.1
5. Other monetary expenditures	201	1	-99.6
B. Banknotes and coins	211	227	7.6
C. Corporate expenditures	583	661	13.4
1. Personnel costs	366	394	7.5
2. Overhead	84	89	5.4
3. Other Corporative	132	179	35.1
D. Pension payments	81	112	38.1
III. Fiscal year result (I - II)		1,232	

Note: the other corporate expenses include: taxes, insurance, depreciation, loan-loss provisions, debt repayment, cultural expenses, contributions, and affiliations, etc. a/ The 2017 budget includes the additions of COP 221 b and COP 75 b to the monetary budget approved in October and December 2017 respectively.
Source: *Banco de la República*.

e. The net income estimated based on the exchange rate adjustment is a result of COP 28 b in income and COP 45 b in expenditures due to the effect of the peso to dollar variation on the assets and liabilities in foreign currency other than international reserves.
f. The commissions received by the Bank for banking services and fiduciary operations are estimated to be COP 166 b, which is 2.9% higher in comparison to the ones budgeted a year ago, mainly because of the higher estimated income from the management of trust securities, especially TES.
g. Other corporate income is estimated at COP 20 b, 14.6% lower than what was included in the 2017 budget.

Regarding expenditures, COP 2.188 t is projected for 2018 with a decline of 18.4% compared to what was budgeted for 2017, thus:

Expenditures will probably decrease 18.4% in the 2018 budget compared to the 2017 budget.

a. The increase in the remuneration for the national government's deposits at the Bank is expected to be COP 1.001 t with a 27.1% decrease compared to what had been projected in 2017 due to the lower interest rate paid for these deposits and their lower average balance.70[70]
b. The expense for the commitment fee paid on the Flexible Line of Credit (FLC) approved by the International Monetary Fund (IMF) is expected to be COP 88 b, which is COP 3 b lower than what was budgeted in 2017. This is due to a lower average exchange rate for 2018 since the same quota of SDR 8.18 b (approximately USD 11.5 b) approved in June 2016 in favor of Colombia is assumed.
c. Expenses for administration and management of funds abroad are estimated at COP 37 b for 2018 compared to the COP 49 b for 2017.71[71]
d. The costs of issuing and distributing monetary specie are calculated at COP 227 b, which is 7.6% higher than the estimates from a year ago. This item does not include associated costs that *Banco de la República* would incur as a result of the possible adoption of the New Peso Law.
e. Corporate outlays are projected to be COP 661 b with a variation of 13.4% yearly (9.8% in real terms) compared to the 2017

70 The average daily volume of national government deposits in the Bank that was initially estimated for 2017 was COP 15.421 t with a rate of 7.75% r.a. Based on the higher volumes of these deposits in the Bank during 2017, greater expenditures were generated due to which it was necessary to make an addition to the budget of COP 221 b in October based on a deposit average of COP 25.677 t and a 5.25% r.a. rate of return for the September-December 2017 period. The 2018 budget envisions average daily volumes of COP 20.513 t and an interest rate of 5.0% r.a., which was in effect at the time the budget was drawn up.

71 The value of the management expenditures decreases mainly because the amount administered directly by *Banco de la República* increases for 2018.

budget. Of this, COP 394 b corresponds to personnel costs, COP 89 b to overhead, and COP 179 b to other expenses.

i. Annual growth of personnel costs is estimated at 4.1% in real terms as a result of the agreed upon wage increases in the collective agreement in effect and the start of the programs contained in the Strategy Plan approved by the Board of Directors of *Banco de la República*.

ii. An increase in overhead of 2.1% in real terms is estimated. These expenditures include utilities, surveillance services, maintenance of equipment, janitorial services, services contracted for the Bank and the Luis Ángel Arango Library, improvements to the installations, transportation, fuel, supplies and stationery, surveys, special studies, etc. These expenses are affected by the increase in the minimum wage and by the exchange rate. Furthermore, the growth forecast for 2018 incorporates, along with other things, the effect of the increase in the VAT and the higher expenditures on maintenance of the Bank's equipment for which the warranties have expired due to the length of time they have been used.

iii. Other corporate expenses such as taxes, insurance, depreciation, deterioration (provisions), and debt repayments, contributions and affiliations, cultural expenses and scholarships for people other than employees are estimated with an annual increase of 30.8% in real terms. This growth was mainly due to items related to legal proceedings and judgments. Specifically, provisions were estimated for a process that dated from the financial crisis at the end of the 90s and related to temporary liquidity support (Bank Selfin S.A.) and the expenses for the process to be carried out for two insurance companies with respect to safeguards for the global banking policy were budgeted for as a result of the mortgage crisis also at the end of the 90s.72[72]

f. Last of all, outlays for pensioners were budgeted to come to COP 112 b based on actuarial calculations and statistics that include different variables (gender, age, life expectancy, interest rates, etc.). However, it is important to mention that subsequent to the approval of the budget for 2018, the Bank decided to authorize a total funding of the pension liability. Because of that as was mentioned above, a transfer of TES securities in the monetary portfolio to the pension liability portfolio was carried out and, due to that, a re-evaluation of the cost of pensioners will probably show a null value for 2018.

72 If these extraordinary expenses were excluded, the nominal growth of the other corporate expenditures would be zero.

Box 6
Banco de la República's Framework for Medium-term Expenditures (operations and investment), 2018-2022

Decree 1739/October 25, 2017, by means of which the by-laws of *Banco de la República* were amended, established the Board of Directors' (BDBR) obligation to adopt a strategy plan and a framework for medium-term expenditure in the following terms:

> The Board of Directors shall adopt a medium-term expenditure framework (operations and investment) annually that will be in effect for the next five (5) years. Moreover, every four (4) years the Board shall adopt a strategy plan to be in effect for the next four (4) years and this shall be reviewed on an annual basis.
>
> The annual budget, the medium-term expenditure framework (operations and investment), and the strategy plan require the pro votes of at least five (5) members of the Board of Directors in order to be adopted.

In accordance with the above, the five-year budget for 2018-2022 was established in accordance with the plans outlined in the *Strategy Plan* approved by the BDBR. In Table B6.1 an estimate for the total operational costs is presented. These include the corporate expenses and costs of the production and distribution of monetary species put into circulation. These expenses are estimated at COP4,488.243 billion (b) for the 2018-2022 period.

As can be seen in Graph B6.1, the item with the largest share corresponds to personnel (64%). This is followed by "other corporate expenses," which include outlays for depreciation, debt repayment, deterioration, and loan-loss provisions (22%), etc. Finally, overhead costs (14%) include, along with other things, maintenance and improvements of the Bank's assets and the Bank's normal operating expenses (utilities, surveillance, janitorial services, etc.).

As was mentioned in section 4.4: "Income and Expense Budget for 2018," the corporate expenditures will probably present a real annual growth of 9.8% in 2018 (Graph B6.2), which may decline in 2019 and hold steady at 2.4% starting in 2020.

By component:

a. A real annual growth of 4.1% in personnel expenses is projected for 2018 which includes the agreed upon wage increases in the collective agreement in effect and the start of the programs contained in the *Strategy Plan* approved by the Board of Directors. It is notable that towards the end of the 2018-2022 five-year period, the growth of personnel expenditures is not likely to exceed a real annual 3%.

b. With respect to overhead costs, a real annual growth of 2.1% is projected in 2018 and of 1.1%, on average, for the 2018-2022 period. The growth forecast for 2018

Table B6.1
Operating Budget of *Banco de la República*: 2018 - 2022
(millions of pesos at 2018 prices)

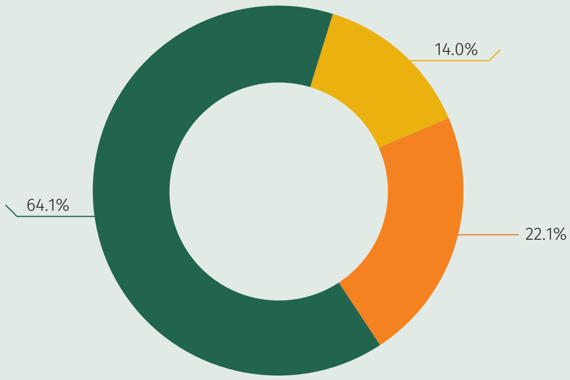
	2018 - 2022	2018	2019	2020	2021	2022	Average annual real growth (percentage)
Corporate expenditures	3,268,052	661,228	628,655	643,755	659,361	675,054	2.4
Personnel	2,093,062	393,566	406,495	418,455	430,868	443,678	3.2
Overhead	451,329	89,017	88,641	90,222	91,286	92,163	1.1
Others	723,661	178,645	133,519	135,078	137,206	139,213	2.0
Banknotes and coins[a/]	1,220,191	226,708	236,583	243,956	252,229	260,715	3.7
Total	4,488,243	887,936	865,238	887,711	911,590	935,769	2.7

a/ Production and distribution costs of monetary species put into circulation.
Source: *Banco de la República.*

incorporates, along with other things, the effect of the increase in the VAT and the higher expenditures on maintenance of the Bank's equipment for which the warranties have expired due to the length of time they have been used.

c. A real, annual growth of 30.8% is projected for 2018 in the case of the "other corporate expenses" item. As was mentioned in section 4.4, this growth was mainly due to items related to legal proceedings and judgments. Specifically, provisions were estimated for a process that dated from the financial crisis at the end of the 90s related to temporary liquidity support (Bank Selfin S.A.) and the expenses for the process to be carried out for two insurance companies with respect to safeguards for the global banking policy were budgeted for as a result of the mortgage crisis also at the end of the 90s.1[1] These extraordinary expenses

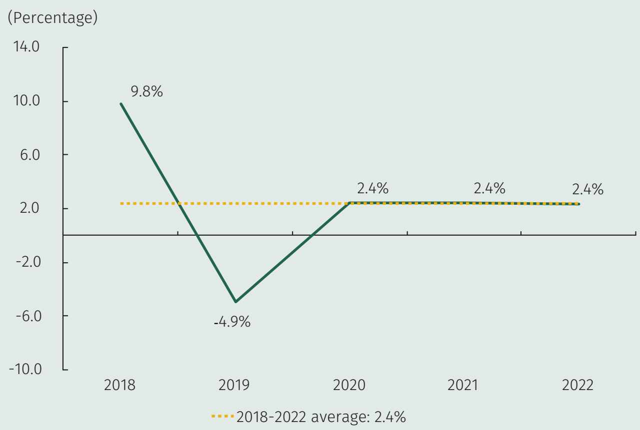
Graph B6.1
Share of Corporate Expense Components 2018-2022a/



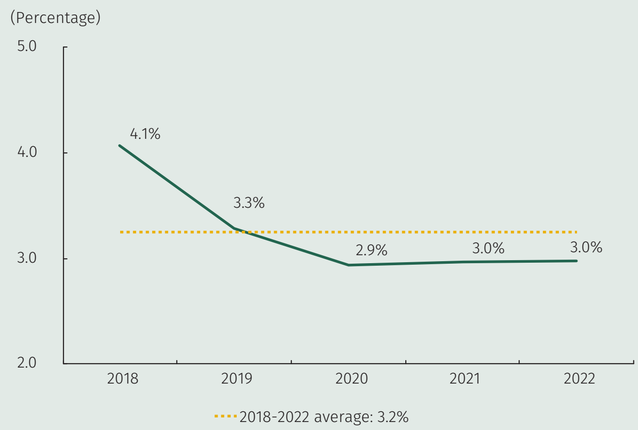
a/ Calculated as the annual average between 2018 and 2022
Source: *Banco de la República.*

Graph B6.2
Expenditure forecast, 2018-2022

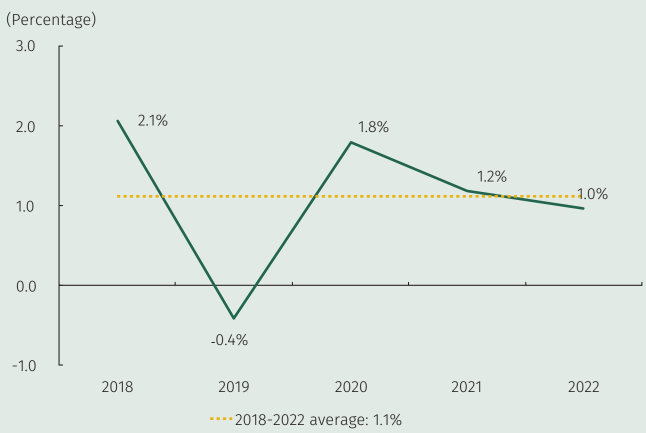
A. Total corporate expenditures (real annual percentage change)a/



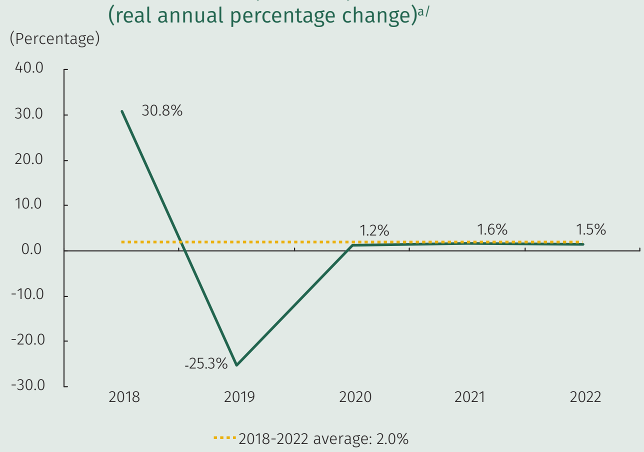
B. Total personnel costs (real annual percentage change)a/



C. Total overhead (real annual percentage change)a/



D. Total other corporate expenses (real annual percentage change)a/



a/ Growth for 2018 is calculated on the basis of the budget approved for 2017.
Source: *Banco de la República.*

1 If these extraordinary expenditures were excluded, the nominal growth of the other corporate expenses would be zero.

are not likely to be repeated starting in 2019 and that explains the sharp drop in this item projected for that year (-25.3%). Starting in 2020, a real annual growth that will be below 2.0% is estimated.

Furthermore, the outlays for the costs of the production and distribution of the banknotes and coins put into circulation, both as to level and real annual change, are shown in Graph B6.3. A real, annual growth of 4.2% is projected for 2018, and starting in 2019, the change in expenditures is consistent with the projected economic growth (between 3.2% and 3.6% annually), which constitutes a major determinant of the demand for money.

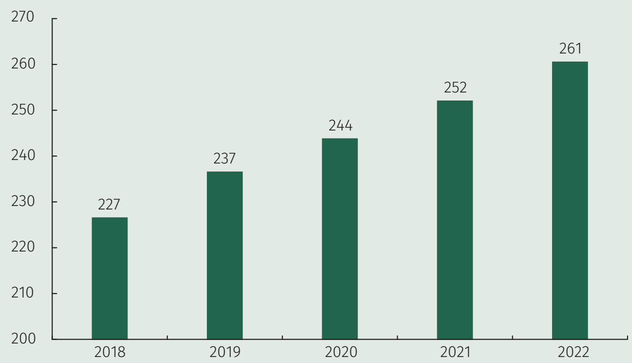
It should be noted that this forecast does not consider the costs associated with the "New Peso" bill law.

During the five-year period, in turn, a real growth of 7.8% is projected for the investment.2[2] Table B6.2 presents the average real annual growth by items.

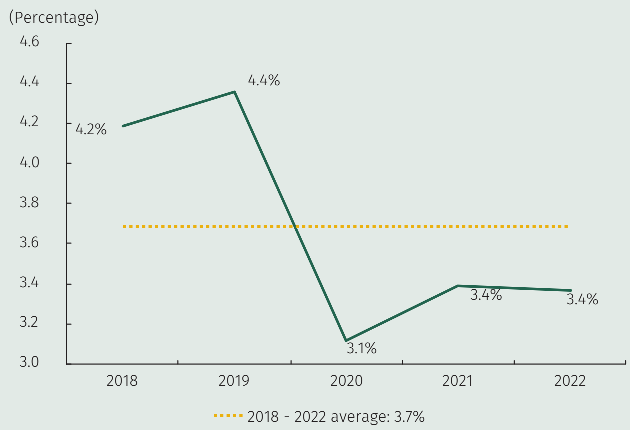
This growth is the result of the projects included for the technology and industrial areas, which follow the guidelines approved in the Bank's *Strategic Plan* for the 2017-2021 period. The above includes whatever is related to "efficiency" as one of its pillars. This means including investment projects to renovate the equipment and *software* which will guarantee the availability of services in areas such as the System of Foreign Exchange Statistics, the Central Securities Depository, and everything related to machinery and equipment for the Banknote Printing Office and the Mint, etc. In addition, investment projects required for the maintenance of the Bank's buildings were included.

Graph B6.3
Outlays for Issuance and Circulation of Monetary Species, 2018-2022

A. Billions of 2018 Pesos



B. Real annual percentage variation a/



a/ Growth for 2018 is calculated on the basis of the budget approved for 2017.
Source: *Banco de la República.*

Table B6.2
Annual Average Real Growth of the Investment of *Banco de la República*, 2018-2022

Total	7.8
Infrastructure	5.8
Technology	5.7
Industrial	35.7
Cultural	0.9
Others	37.9

Source: *Banco de la República.*

2 This growth was calculated based on the data on investments made during 2017 and not on the approved budget. The above was due to the low implementation of investment in 2017, which required the inclusion of projects for 2018 and beyond in order to keep the Bank's buildings in good operating condition and to enable the replacement of equipment in the industrial area. This included in addition, the replacement of armored vehicles for transportation of monetary species that must be done. The investment in these is presented under "other."

Share of the Bank for International Settlements held by *Banco de la República*

Act 1484/December 12, 2011 authorized *Banco de la República* to participate as a shareholder of the Bank for International Settlements (BIS). Based on the authorization conferred on it, the Bank acquired 3,000 shares of the BIS for a price of 65,712,000 in special drawing rights (SDR), which is equivalent to USD 100,978,710 that are registered on the books at their acquisition cost in SDR under "contributions to international organizations and entities." On June 29, 2017, the Bank received USD 1,244,985.48 in dividends that corresponded to the BIS accounting year that ended in March 2017 (April 2016 to March 2017), and which are equivalent to an annual return of 1.3%.1[1]

The membership of *Banco de la República* in the BIS has allowed it to participate in periodic meetings in which recent events and the outlook for the global economy and the financial markets are examined. These meetings represent a discussion forum where points of view and experiences with issues of particular relevance to central banks are exchanged, which contributes to a better understanding of the challenges affecting various countries and to implementing appropriate policy measures. The Bank also takes part in a number of consultation groups coordinated by the BIS such as the Consultative Council for the Americas (CCA) that foster international cooperation and research on issues related to central bank policies and other topics that impinge on macroeconomic and financial stability.

Within the framework of activities coordinated by the CCA, which is made up of the governors of the central banks on the American continent that are members of the BIS,2[2] the Bank actively participates in research projects and conferences on various areas relevant to central banks. Among them is the Scientific Committee (which includes the head economists of the respective central banks), which organizes the annual research network and which, in 2017, chose the effects of monetary policy, interest rates, inflation, and capital flows as its focus.3[3] In 2018, this conference, which will be held in Rio de Janeiro, will address the issue of the use of microdata for economic research at the central banks. Along the line of this same Committee, the research network on the transfer of variations in the exchange rate (pass through) to inflation and commerce using company-based data, which was started in 2017, continued this year.4[4]

In 2017 Bogotá hosted the annual meeting of the CCA Advisory Committee of Financial Stability Directors. At the meeting, those in charge of the area of financial stability for the different central banks discussed recent aspects of the international situation and the progress on the research topics applied to the analysis of the financial stability of this group's member countries. Also, the progress of the working groups associated with this committee was reviewed at this meeting. One of the things mentioned here was the completion of the work done by the research network which was evaluating macroprudential policies using data from the credit registries5[5] (information on loans at the individual level) in 2017 with the publication of the contributions of the central banks in the region to the document series, BIS Working Papers.6[6] Some of the documents from this network will be published in a special issue of the *Journal of Financial Intermediation,* which is an internationally highly recognized academic journal. In the framework of this group and working again with credit registry data, a network was started in 2017 to evaluate the effect of the change in the business models for commercial banks on the monetary policy

1 The BIS General Assembly approved the payment of one dividend of 300 SDR per share. The profitability corresponds to the ratio between the dividend received and the purchase price per share (21,904 SDR).

2 Argentina, Brazil, Canada, Chile, Colombia, the United States, Mexico, and Peru.

3 The schedule and documents are available at: http://www.bis.org/events/ccaconf2017/agenda.htm

4 The description of the project can be found at: https://www.bis.org/am_office/rsn/erkdeit.htm

5 The description of the project and the studies published are available at: https://www.bis.org/am_office/wgfinstab/teompatiwmp.htm

6 The description of the project as well as the published documents are available at: https://www.bis.org/am_office/wgfinstab/teompatiwmp.htm

credit channel.7[7] In addition to that, a working group was set up, also during the past year, to share experiences between central banks and improve the tests that make it possible to evaluate the resistance of the financial system to different shocks (stress testing). This group is evaluating the possibility of carrying out a joint exercise between the countries.

The Bank participated in the annual meetings of deputy governors of the central banks of emerging countries which are members of the BIS that, in 2017, was focused on the implementation of macroprudential policies and their relationship with other instruments. As part of this, they prepared a document on the Colombian experience with the use of macroprudential policies and their institutional framework as well as their main challenges that was published in the BIS Papers8[8] in December 2017.

Moreover, the Bank is member of the Consultative Group of Directors of Operations (CGDO), a network of representatives of the central banks who are responsible for the central bank operations. The working group that had responsibility for studying the liquidity in the foreign exchange market of the countries in the region completed its work in 2017, and their results were published in the series of BIS Papers.9[9]

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7 The description of the project can be found at https://www.bis.org/am_office/wgfinstab/cbbm.htm

8 BIS paper No. 94 "Macroprudential Frameworks, Implementation and Relationship with Other Policies." The contribution of *Banco de la República* is available at: https://www.bis.org/publ/bppdf/bispap94i.pdf

9 The document that summarizes the results of this network is available at: http://www.bis.org/publ/bppdf/bispap90.htm

Appendix 1
Management Policy for the International Reserve Investment Portfolio

According to the best practices' recommendations, the management of reserves should endeavor to: 1) have enough liquidity in foreign currency, 2) have strict policies regarding the management of the different risks that the transactions face, and 3) generate reasonable, risk-adjusted returns subject to liquidity and other risk restrictions.[1] How these criteria are applied in the management of Colombia's international reserves is explained below.

1. Risk Management Policy

Banco de la República has a framework for risk management that identifies and assesses the risks to which their transactions are exposed in order to keep them low. Some of the main policies for risk management are as follows:

Liquidity risk: investing in financial assets that are permanently in demand on the secondary market in order to have the ability to turn reserve assets into cash quickly and at low cost. The portfolio is also divided into tranches so that some of them can be liquidated more rapidly.

Market risk: classes of eligible assets and strict limits on investment are used to lower the sensitivity of the value of the portfolio to interest rate movements in the market.

Credit risk: investments are only made in assets with high credit ratings by major rating agencies given that these investments have a low probability of defaulting on their payments. The minimum credit rating for governments and entities related to governments is A-. With respect to private issuers, the minimum rating is A+ for exposure to individual issuers and BBB- (investment grade) when the investment is done through funds. Historically the percentage of issuers with these ratings that have defaulted on their payments the year after is close to 0%. If the rating of an issuer in which the portfolio is directly invested drops below the minimum allowed, the exposure is liquidated within a short period of time. Moreover, the maximum exposures are limited by sector and issuer in order to limit the impact of credit events on the value of the portfolio.

Exchange rate risk: Act 31/1992, article 14 emphasizes that the reserve investments will be made "in assets denominated in freely convertible reserve currency or in gold." *Banco de la República*, like the majority of the central banks around the world, has currencies other than the US dollar as part of their currency components in order to cover the country's payments abroad since these are made in many currencies.

Counterpart risk: In order to reduce the exposure to counterparties, transactions are settled by payment upon delivery mechanisms.

1 One example of good practice in this respect can be found in the document "Guidelines for the Management of International Reserves," produced by the International Monetary Fund, which can be consulted at http://www.imf.org/external/np/sec/pr/2013/pr13138.htm.

The purpose for these mechanisms is to make the exchange of papers for cash or exchange of payments in a foreign exchange transaction a simultaneous one in order to eliminate the possibility of a default by one of the parties to the trade. In addition, counterparties in fixed income trading are required to be market makers and the counterparties in currency trading are required to have high credit ratings. The foreign currency exchange counterparties must have a minimum credit rating of A- if they have an ISDA framework contract.2[2] If they do not have said contract, the minimum rating is A+.

2. Tranche of the Investment Portfolio

The investment portfolio is made up of three tranches: the short-term tranche, the medium-term tranche, and the gold tranche.

The purpose of the *short-term tranche* is to cover potential liquidity needs within twelve months from the reserves. Currently, this tranche consists of *working capital* and a debt portfolio. The *working capital* is the portfolio into which the funds that come from intervention in the exchange market are placed, and their investments are concentrated in very short-term assets denominated in dollars. Given that the objective of this tranche is to provide immediate liquidity for intervention in the foreign exchange market, the working capital is concentrated in deposits and investments that can be liquidated in one day at a very low cost. The *debt portfolio* is the main component in the short-term tranche. This portfolio is characterized by its investment in a larger number of instruments and having a time limit and profile of expected profitability that are greater than the working capital portfolio. It seeks to ensure that the expected return on the portfolio, excluding the foreign exchange component, will be positive in 12 months with a confidence level of 95%. The *debt portfolio* is invested in multiple currencies in order to duplicate the behavior of the outlays in the country's balance of payments and seeks a return similar to that of the benchmark index.3[3] As of December 2017, the value of the short-term tranche was USD 28.997,68 b, of which USD 926.33 b corresponded to working capital and USD 28.071,35 b to the debt portfolio.

The *medium-term tranche* is implemented with a time limit and a profile of expected profitability that is higher than the short-term tranche. The goal of the medium-term tranche is to maximize the risk-adjusted return in US dollars, the currency in which the international reserves are valued, for the portion of the portfolio that is less likely to be used within a twelve month period. When there is a medium-term tranche, an effort is made to raise the expected profitability of the international reserves in the long term while maintaining a conservative portfolio. This tranche seeks to provide a positive expected return in US dollars with a 95% probability over a horizon of three years. Currently, the majority of the medium-term tranche consists of actively managed portfolios that seek to generate a return that is higher than the benchmark index.4[4] As of December 2017, the value of the medium-term tranche came to USD 16.243,74 b.

The last tranche corresponds to the international reserve investments in certified physical gold that can be easily traded on international markets. Gold makes it possible to diversify the investment portfolio since its price behaves differently than the prices of the securities which the short- and medium-term tranches are invested in. As of December 2017, the market value of the gold in the reserves came to USD 432 m.

The securities in the investment portfolio are deposited in financial institutions known as

2 The purpose of the framework contract established by the International Swaps and Derivatives Association (ISDA) is to establish the terms and conditions that govern over-the-counter derivatives traded between entities.

3 The concept and components of the benchmark index will be explained in the next section.

4 The fact that one of the seven active portfolios is managed directly by *Banco de la República* and the rest by external managers is explained in the section, "External Management Program." An explanation on how this program functions can also be found there.

trustees.5[5] The entities that provide custody service for the securities in the international reserves are the New York Federal Reserve, Euroclear, JP Morgan Chase, and State Street. The investments in physical gold are in the custody of the Bank of England.

3. Benchmark indices

To manage the reserve investment portfolio, *Banco de la República* has defined theoretical portfolios or benchmark indices.6[6] Different indices are built for the short-term and for the medium-term tranches in order to reflect each of their investment goals. The indices serve as a frame of reference to measure the management of each one of the portfolios. The way the two benchmark indices are built is explained below.

The first step in building the index of the short-term tranche7[7] is to define a target foreign exchange composition that seeks to duplicate the behavior of the country's balance of payment expenditures.8[8] The goal is for the currencies other than the US dollar to appreciate during periods in which the dollar value of the country's payments abroad increases, which would mean that the value of these foreign currencies could decline with respect to the US dollar during periods in which the dollar value of the foreign payments decreases. As of December 31, 2017, the foreign exchange components of the short-term tranche index was 82% US dollars, 9% Australian dollars, 5% Canadian dollars, 2% New Zealand dollars, and 2% Norwegian krone. Once the currency components have been defined, the restriction of having positive returns in a 12-month horizon with 95% confidence is included apart from the exchange rate effect. Based on the foreign exchange component restriction and the restriction of positive returns in 12 months, a portfolio is sought that maximizes profitability adjusted for risk9[9].

In order to build the index of the medium-term tranche, a similar procedure is followed with two basic differences: first of all, no currency exchange component restriction is imposed given that the goal of this tranche is to maximize the risk-adjusted return in US dollars. Secondly, the restriction of having positive returns at a 95% confidence level is defined for a longer horizon (three years) in order to reflect the lower probability of using the funds in this tranche in the short term. When building a portfolio that maximizes risk-adjusted profitability in dollars, investments in currencies other than the dollar are allowed.

Graph A shows the benchmark indices for the short- and medium-term tranches.10[10] The level of the market risk for the two portfolios is low. The modified duration of the short-term tranche index is 1.73 and the one for the medium-term tranche is 2.59.11[11]

5 Currently, the minimum credit rating for the trustees is A-.

6 In the capital markets, a benchmark index is a basket of assets with predetermined weights in accordance with certain rules that define their composition. In general, an index tries to comprehensively duplicate the trend of a financial asset market and serves as an indicator of the performance of other investment portfolios in the same market. For example, some of the best-known benchmark indices on the stock markets are the ColCap in Colombia, or the S&P500 and the Dow Jones in the United States (the Bank uses fixed income market indices only).

7 This benchmark index does not apply to working capital since there are no benchmark portfolios that make it possible to measure the instruments allowed in this portfolio properly.

8 See Box "International-reserve Portfolio's New Foreign Exchange Components" in the Board of Directors' March 2012 Report to the Congress of the Republic for a detailed explanation of the methodology for the foreign exchange components of the reserves, pgs. 127-130.

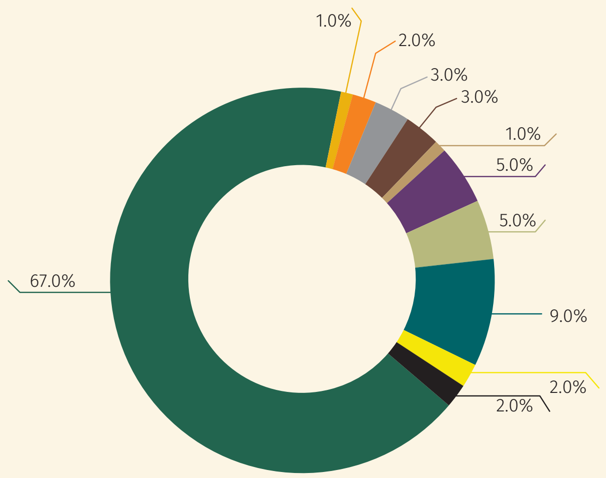
9 The detailed description of the methodology for building the benchmark index is located in the Box titled, "Technical Explanation of the Methodology for Building the Benchmark Index," in the March 2013 *Management of the International Reserves* Report on pgs. 31-32.

10 The indices published by Merrill Lynch are used for the different sectors the benchmark index consists of.

11 The modified duration is defined as a percentage decrease (increase) in the value of the portfolio with respect to a 1% increase (decrease) in all of the interest rates.

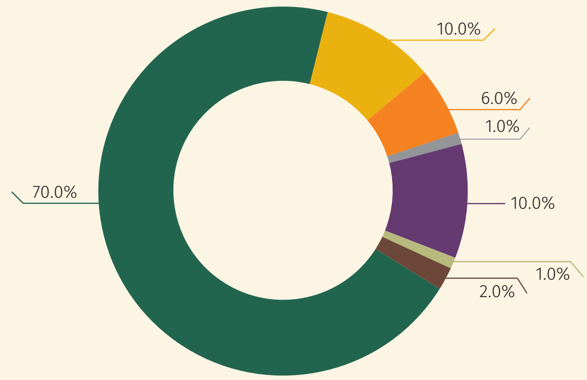
GraphA
Breakdown of the Benchmark Index
(information as of December 31, 2017)

1. Short-term tranche



- United States Government 0-1 year bonds.
- United States Government 1-5 year bonds.
- United States Government 5-10 year bonds.
- United States Government 10+ year bonds.
- United States Government 1-10 year inflation-indexed bonds.
- United States Government 10+ year inflation-indexed bonds.
- AAA and AA bonds from supranational entities and governments

2. Medium-term tranche



- United States Government 0-3 year bonds.
- United States Government 3-5 year bonds.
- United States Government 5+ year bonds.
- United States Agency mortgage-backed securities
- AAA-AA bond from supranational entities and governments
- The Government Bond Index of United Kingdom

Note: Merril Lynch, along with others, builds indices that make it possible to measure the performance of different sectors of the fixed income market. The government bond indices include all of the instruments that comply with the minimum conditions of size and liquidity. Their rules are a matter of public record
Source: *Banco de la República.*

4. External Management Program

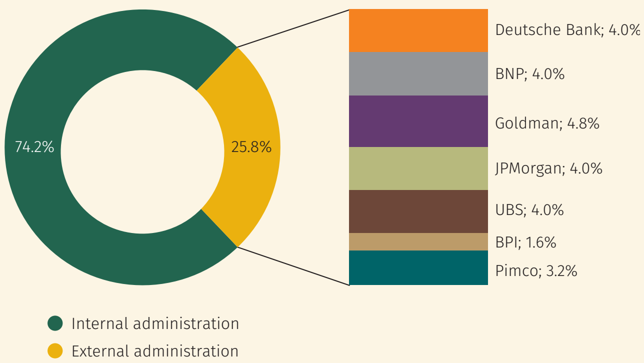
Banco de la República manages the short-term tranche, a portion of the medium-term tranche, and the gold tranche directly (USD 33.905,38 b or 74.23% of the investment portfolio). The remaining medium-term tranche funds are managed by external portfolio managers.

At the end of December 2017, the external management program came to USD11.768,09 b (25.8% of the investment portfolio). The reason for using external managers is to generate returns that are better than the benchmark index and train Bank officials in the management of international investments. The firms chosen to participate in the program are highly capable in the analysis of financial markets and have a sophisticated infrastructure that can be taken advantage of to define investment strategies.

The private companies that currently participate in the external management program are: Deutsche Asset Management International GmbH, BNP Paribas Asset Management USA, Inc., Goldman Sachs Asset Management, L.P., J.P. Morgan Asset Management (UK) Limited, Pacific

Investment Management Company LLC, and UBS Asset Management (Americas) Inc, (GraphB). The private firms that participate in the program are chosen through a competitive bidding process and continuously evaluated. The funds that these entities manage are in *Banco de la República's* custody accounts and the administrators' contracts can be canceled whenever considered necessary. Based on the results each administrator obtains beginning with the starting date of their contract, the amount managed will be modified or their continuing to participate in the program will be reviewed. The investments in funds managed by the Bank for International Settlements BIS are also considered part of the external management program. Only central banks and multilateral entities have access to these funds and the purpose for them is to invest in the assets that are appropriate for global international reserves in an effort by different countries to work cooperatively.12[12]

GraphB
Breakdown of the Investment Portfolio
(information as of December 31, 2017)



Note: Approximate values due to rounding
Source: *Banco de la República.*

12 At present, the investments are made in a fund of inflation-indexed securities issued by the Treasury of the United States (USD 109.23 m), a fund of securities issued by the government of China (USD 255.01 m) and a fund of securities issued by the government of Korea (USD 108.56 m) and a fund of securities issued by non-financial corporations (USD249.46 m).

Translated by Cecile Mary Dunn.
Coordinated, edited and designed by the Publishing Section of the Administrative Services Department at *Banco de la República*, with font type Fira Sans, 10.5.

April 2018

BANCO DE LA REPÚBLICA
COLOMBIA