BANCO DE MÉXICO

# Quarterly Report

## October – December 2015

*BOARD OF GOVERNORS*

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AGUSTÍN GUILLERMO CARSTENS CARSTENS

**Deputy Governors**

ROBERTO DEL CUETO LEGASPI

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# QUARTERLY REPORT

This report analyzes recent developments in economic activity, inflation, and different economic indicators of Mexico, as well as the monetary policy implementation in the quarter October – December 2015 and, in general, the activities of Banco de México over the referred period, in the context of the Mexican and international economic environment, in compliance with Article 51, section II of Banco de México's Law.

## *FOREWARNING*

*This text is provided for reader's convenience only. Discrepancies may possibly arise between the original document and its translation to English. The original and unabridged Quarterly Report in Spanish is the only official document.*

*Unless otherwise stated, this document has been prepared using data available as of March 1, 2016. Figures are preliminary and subject to changes.*

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# 1. Introduction

In line with its constitutional mandate, the monetary policy conducted by Banco de México aims at procuring the stability of the national currency's purchasing power, seeking to achieve this mandate at the lowest cost to society in terms of economic activity. The efforts undertaken by this Central Institute to attain an environment of low and stable inflation in Mexico contributed to the convergence of headline inflation to the permanent 3 percent target in the first months of 2015, and since May 2015 it located below the referred target, closing 2015 at 2.13 percent, a historic low since the CPI has been measured.

The favorable evolution of inflation has taken place in a highly complex juncture. During 2015 and in early 2016, the domestic economy predominantly kept growing at a moderate pace, without registering aggregate demand-related pressures on prices and with inflation expectations that were well-anchored. Still, the international environment faced by the Mexican economy has been characterized by a noticeably weak expansion rate of the world economy for several years, generating continuous downward adjustments in growth expectations. Likewise, in 2015 recurrent episodes of volatility in financial markets were registered, a persistent downward trend in oil prices was observed, as well as a high degree of uncertainty regarding the moment and the pace at which the U.S. monetary policy stance will normalize. This was in contrast to the expectations of a greater monetary stimulus from most of the rest of advanced economies. The referred adverse environment further intensified over the first weeks of 2016. Indeed, despite the first adjustment to the target for the federal funds rate in December 2015, which temporarily dissipated an element of uncertainty in financial markets, in early 2016 the downward trend in the international oil price strengthened, while at the same time there were clear signs of doubt regarding the growth outlook and the efficiency of the economic policies adopted in China. Likewise, the expectation of a pronounced divergence among advanced economies' monetary policy stances prevailed, despite the anticipation that the U.S. monetary policy normalization process would be more gradual, which kept raising the value of the U.S. dollar against other currencies, especially those of emerging economies.

All of the above further increased the levels of risk aversion and volatility in international financial markets, leading to generalized depreciations of emerging economies' currencies, as well as a deterioration in their sovereign risk indicators. The latter, in part, reflected signs of vulnerability in some important emerging economies, such as China, Brazil and Russia. The referred volatility soared in the first half of February, while the international environment faced by the Mexican economy kept deteriorating. In this context, the national currency continued depreciating, not only as a response to factors triggering the depreciation of the real exchange rate, such as the drop in oil prices, but also as a result of the presence of operating mechanisms in financial markets that tended to amplify the negative response of the national currency to the prevailing environment. Thus, in the first weeks of 2016 the Mexican peso depreciated considerably as compared to the depreciation that had already been registered in the fourth quarter of 2015, despite the fact that the Federal Reserve maintained the federal funds rate unchanged in its January meeting.

In this context, in each monetary policy decision the Board of Governors procured to carefully weigh the possible influence of both internal and external factors on

inflation and its expectations, so as to prevent the previously mentioned events from jeopardizing the attainment of the Central Bank target. Thus, during much of 2015 Banco de México maintained the monetary policy reference rate unchanged at 3 percent, its historic low. However, following the first increment in the federal funds rate by the Federal Reserve, in its December monetary policy meeting Banco de México's Board of Governors decided to make an upward adjustment of 25 basis points to the target for the reference interest rate. Thus, considering the integration and openness of the commercial and financial sectors in Mexico to its foreign partners, particularly, the U.S., the Central Institute sought to prevent the risk-adjusted spread of U.S. interest rates from compressing. In turn, in its meeting on February 4, 2016, just like the Federal Reserve and considering that the central scenario of the inflation evolution in the short and medium term would remain congruent with the convergence of inflation to its permanent target, it decided to maintain this target unchanged. Still, following this monetary policy meeting, volatility in international financial markets aggravated and the international environment faced by the Mexican economy kept deteriorating. This further adversely affected the quote of the national currency, hence increasing the probability of inflation expectations deviating from the consolidation path to the permanent 3 percent target. In view of that, in an extraordinary meeting, on February 17, 2016 the Board of Governors decided to increase the target for the reference interest rate by 50 basis points to a level of 3.75 percent. This adjustment was part of a series of measures announced in coordination with the Ministry of Finance and the Foreign Exchange Commission seeking to contribute to strengthening the country's economic fundamentals and to help anchor the value of the national currency. In particular, the Foreign Exchange Commission decided to suspend the daily auctions of the foreign currency, at the same time announcing that in exceptional cases it may discretionally intervene in the exchange market, ratifying that the key factor to procure the anchoring of the national currency would be upholding sound macroeconomic fundamentals. It is in this context that the increase in the reference interest rate target and the spending cuts of MXN 132.3 billion announced by the Ministry of Finance should be evaluated.

As regards domestic conditions that affected the monetary policy decisions, in the fourth quarter of 2015 the Mexican economy kept registering a sustained expansion of private consumption. On the other hand, manufacturing exports remained stagnant as a reflection of both weakness in the U.S. industrial activity and of a lower demand for Mexican goods in the rest of the world, while the dynamism of gross fixed investment diminished. As a result, in the fourth quarter of 2015, GDP grew less than in the previous quarter. In annual terms, productive activity in Mexico expanded 2.5 percent during 2015. In this context, slack conditions persisted in the economy, even though some indicators suggest that these seem to be gradually fading. Thus, no aggregate demand-related pressures on prices have been perceived.

For 2016 and 2017, the outlook for the external environment faced by the Mexican economy has become more complex. In particular, a lower impulse of external demand is anticipated, as compared to the estimation in the previous Quarterly Report, given a lower expected dynamism of the U.S. industrial activity and a greater weakness of demand in other countries. Thus, the interval for the GDP growth rate anticipated for 2016 is adjusted downwards from one between 2.5 and 3.5 percent in the last Quarterly Report to one of 2.0 to 3.0 percent in the current

one. For 2017, GDP is expected to expand between 2.5 to 3.5 percent, which is below the estimation of 3.0 to 4.0 percent in the previous Report.

The favorable evolution of inflation observed in 2015 occurred despite the depreciation of the national currency, which so far has only been reflected in the prices of some merchandise that increased pausefully and gradually, without generating second round effects on the price formation process in the economy. This has been contributed to, besides the adequate monetary policy stance, by the environment of slack conditions prevailing in the economy, as well as the direct and indirect effects on inflation generated by reductions in the prices of widely used inputs, such as commodities, energy products and telecommunication services, the latter two largely as a result of the implementation of structural reforms. It should be noted that in January 2016 annual headline inflation rebounded, which was mainly related to the expected arithmetic effects derived from the lower prices of phone services that took place in January 2015 and a temporary increment in the prices of some vegetables. The energy pricing policy for 2016 partially offset the above mentioned factors, which allowed annual headline inflation to lie at 2.61 percent. Subsequently, in the first fortnight of February, the referred indicator located at 2.94 percent, due to the additional rise in the non-core inflation, in particular, the subindex of fruit and vegetables.

In 2016 annual headline inflation is anticipated to increase. It is also estimated that, as a result of modifications in the gasoline pricing mechanism by the Ministry of Finance and considering the seasonality of its international prices -which can imply higher gasoline prices in the second and third quarters, and lower gasoline prices in the first and the fourth quarters of the year- it may temporarily reach levels slightly above 3 percent, concluding the year around that level. Annual core inflation is expected to gradually go up throughout the year, consequent on the adjustment in the relative prices of merchandise with respect to services prices, derived from the exchange rate depreciation, to conclude 2016 at levels close to 3 percent. For 2017, both headline and core inflation are estimated to stabilize around the permanent inflation target. This projected inflation path considers the fading of favorable supply shocks that occurred in early 2015, as well as adjustments in the referred relative prices.

In the described context, on February 17, the Board of Governors clarified that the increment in the reference rate target to 3.75 percent does not initiate the cycle of monetary contraction. It reassured, however, that in the future it will remain alert to the performance of all inflation determinants and its expectations for the medium and long term, especially the exchange rate and its possible pass-through onto consumer prices. Likewise, it maintained that it would continue monitoring the monetary stance of Mexico relative to that of the U.S., without overlooking the evolution of the output gap. All this in order to be able to take measures in a flexible manner and whenever conditions demand it, so as to consolidate the efficient convergence of inflation to the 3 percent target.

# 2. Recent Development of Inflation

## 2.1. Inflation

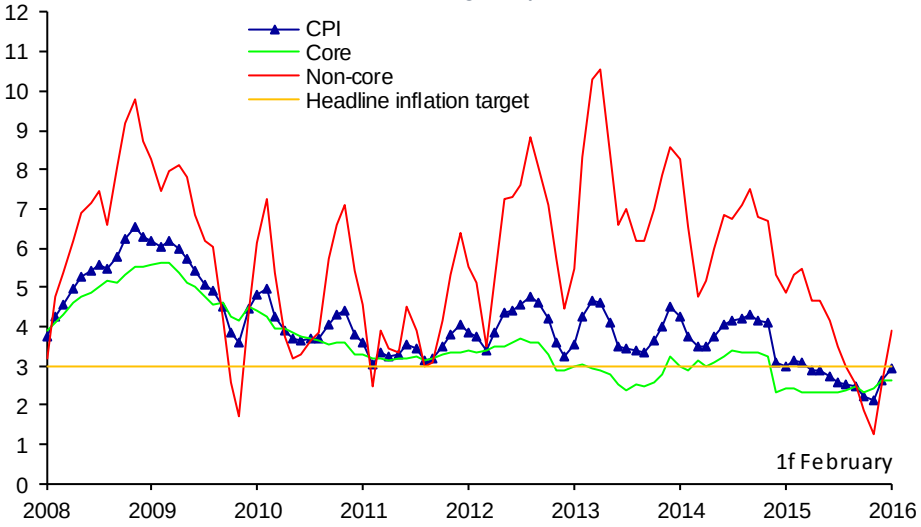
In the fourth quarter of 2015, annual headline inflation exhibited further reductions in addition to those observed since the beginning of the second quarter of the year. Indeed, since May annual headline inflation lied below the 3 percent target, consecutively registering historic lows over the following months, and closing 2015 with an annual change of 2.13 percent. This is the lowest figure since the CPI has been published. In addition to the adequate monetary policy stance, in a framework of slack economic conditions and absence of demand-related pressures onto prices, the favorable performance of inflation was also associated with lower prices of widely used inputs, such as the energy products and telecommunications services, which, in a number of cases, stemmed from the implementation of structural reforms, as well as the commodity price decline. These reductions affected the recent inflation evolution both directly (through more moderate increments in consumer prices) and indirectly (by contributing to lower costs for firms). This took place in a context in which the pass-through of exchange rate depreciation onto prices has been limited and was mainly reflected in the durable goods' prices, with no evidence of second round effects on the price setting process in the economy. In this regard, it should be noted that the change in relative prices, derived from the depreciation of the national currency was pauseful and gradual (Table 1 and Chart 1).

**Table 1**
**Consumer Price Index, Main Components and Trimmed Mean Indicators**
Annual change in percent

| | 2014 | | 2015 | | | | 2016 | |
|---|---|---|---|---|---|---|---|---|
| | III | IV | I | II | III | IV | January | 1f February |
| **CPI** | **4.15** | **4.18** | **3.07** | **2.94** | **2.61** | **2.27** | **2.61** | **2.94** |
| **Core** | **3.32** | **3.30** | **2.39** | **2.32** | **2.33** | **2.40** | **2.64** | **2.62** |
| **Merchandise** | **3.46** | **3.57** | **2.56** | **2.52** | **2.46** | **2.78** | **2.86** | **2.94** |
| Food, beverages and tobacco | 5.32 | 5.35 | 3.15 | 2.56 | 2.20 | 2.55 | 2.59 | 2.73 |
| Non-food merchandise | 1.96 | 2.13 | 2.07 | 2.49 | 2.67 | 2.98 | 3.09 | 3.11 |
| **Services** | **3.21** | **3.08** | **2.26** | **2.15** | **2.22** | **2.09** | **2.46** | **2.36** |
| Housing | 2.11 | 2.14 | 2.10 | 2.09 | 2.06 | 2.00 | 2.06 | 2.09 |
| Education (tuitions) | 4.29 | 4.30 | 4.36 | 4.35 | 4.37 | 4.28 | 4.32 | 4.19 |
| Other services | 4.06 | 3.72 | 1.80 | 1.57 | 1.75 | 1.52 | 2.32 | 2.09 |
| **Non-core** | **6.89** | **6.99** | **5.17** | **4.92** | **3.53** | **1.87** | **2.52** | **3.89** |
| **Agriculture** | **6.53** | **8.04** | **8.39** | **8.34** | **5.33** | **2.76** | **5.27** | **8.46** |
| Fruit and vegetables | 1.48 | -0.73 | -1.39 | 7.43 | 7.91 | 6.33 | 19.36 | 28.58 |
| Livestock | 9.33 | 13.43 | 14.15 | 8.81 | 4.00 | 0.84 | -2.05 | -1.61 |
| **Energy and government approved fares** | **7.11** | **6.35** | **3.30** | **2.87** | **2.42** | **1.33** | **0.84** | **1.09** |
| Energy | 7.92 | 7.12 | 3.82 | 3.21 | 2.43 | 0.52 | -0.44 | -0.15 |
| Government approved fares | 5.71 | 4.93 | 2.32 | 2.26 | 2.39 | 2.86 | 3.27 | 3.45 |
| **Trimmed Mean Indicator** [1/] | | | | | | | | |
| CPI | 3.70 | 3.79 | 3.12 | 2.87 | 2.67 | 2.52 | 2.47 | 2.52 |
| Core | 3.11 | 3.15 | 2.78 | 2.71 | 2.70 | 2.77 | 2.80 | 2.81 |

1/ Prepared by Banco de México with data from INEGI.
Source: INEGI.

**Chart 1**
**Consumer Price Index**
Annual change in percent




Source: Banco de México and INEGI.

Average annual headline inflation decreased from 2.61 to 2.27 percent between the third and the fourth quarters of 2015. In January 2016 it located at 2.61 percent. This rebound was largely related to the arithmetic effect, which was expected to occur as a consequence of the elimination of the national long-distance telephone charge, lowering the international long-distance charge and reducing fixed telephone tariffs that took place in early 2015, as well as climatic conditions that affected some vegetables' prices. The evolution of headline inflation also partially reflected the change in relative prices as a result of the depreciation of the national currency, which affected some merchandise' prices. However, these effects were offset, to a certain extent, by the reductions in some energy prices, such as electricity and gasoline prices, that in part reflected the decreases in the international prices of the said goods. Subsequently, in the first fortnight of February, annual headline inflation was 2.94 percent, an increment that is explained by the performance of non-core inflation, while core inflation slightly declined with respect to the previous month (Table 1).

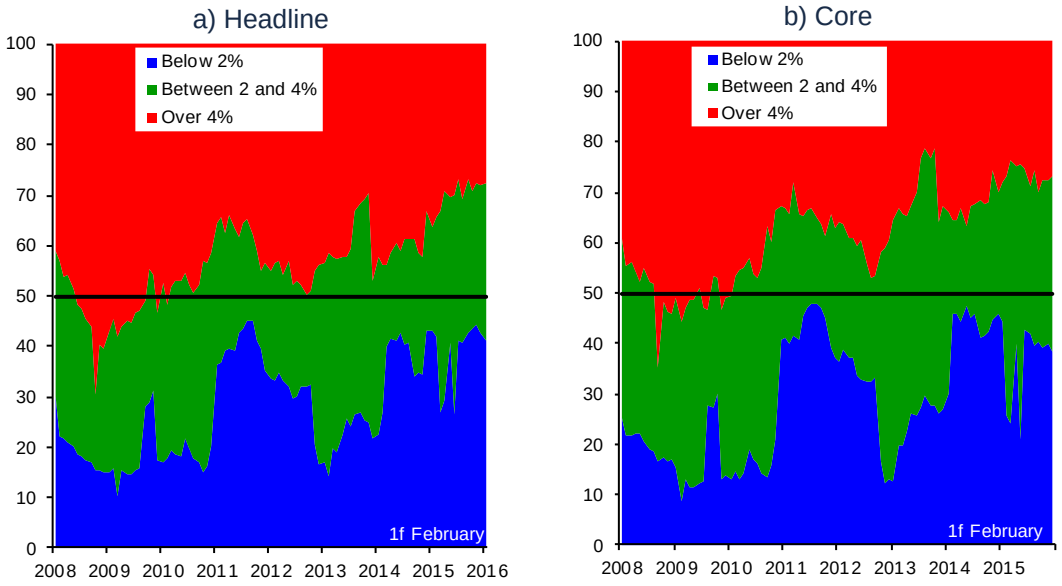
Throughout the reported quarter, both core and non-core inflation lied well below 3 percent. The former indicator remained at low levels and shifted from an average annual change of 2.33 percent in the third quarter to 2.40 percent in the fourth one, while the latter dropped from 3.53 to 1.87 percent, in the same time frame. In January 2016, these indicators' annual changes were 2.64 and 2.52 percent, respectively, while in the first fortnight of February they lied at 2.62 and 3.89 percent, in the same order (Table 1).

The downward path of headline inflation in the last quarter of 2015 reflects the favorable evolution of the prices of most goods and services. As mentioned before, the increment in January 2016 is principally explained by the anticipated effects due to the comparison base, as well as some targeted and temporary price increases of some goods and services. In particular, the upward trend of core inflation in the reference quarter was largely due to the impact of the exchange rate depreciation on some merchandise prices, in particular, durable goods. In turn, in January 2016 this indicator's increment was associated to the price reduction in telephone

services in early 2015, which did not repeat in 2016. In the first fortnight of February, annual headline inflation went up, due to the additional rebound in some vegetables' prices.

The described inflation dynamics is reflected in the evolution of some indicators associated to the differentiated price behavior in terms of their change level, as well as in the measures of headline and core inflation trends. In the first place, it is relevant to visualize the basket of goods and services of the headline and core index, which is grouped into three categories according to their annual price change: items with an annual price change below 2 percent, between 2 and 4 percent, and over 4 percent. In this sense, it turns out that a high percentage of both baskets exhibits price increments of less than 4 percent (blue and green areas, Chart 2). In particular, the share of goods and services of the CPI basket of the headline and core index with increases below 4 percent was 72 percent in the fourth quarter of 2015 (as compared to the shares of 60 and 68 percent for these indicators in the fourth quarter of 2014).

**Chart 2**
**Percentage of the CPI Basket according to Intervals of Annual Increments**
Percent

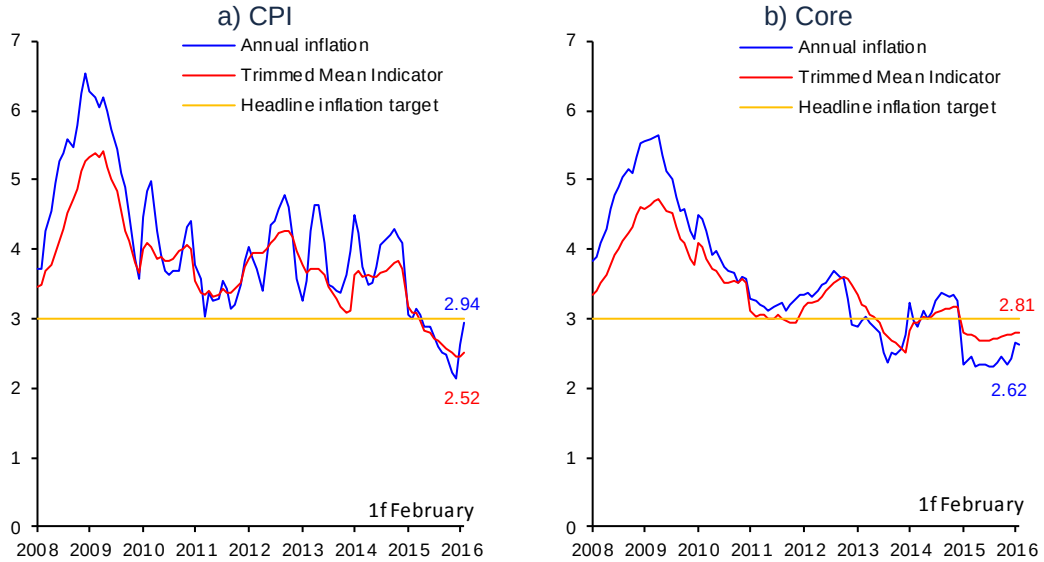



Source: Banco de México and INEGI.

The medium-term inflation trend, represented by the Trimmed Mean Indicator, points to a relatively widespread decrease in the price growth rate in the reference quarter. Thus, between the third and the fourth quarters of 2015, the Trimmed Mean Indicator for headline inflation shifted from 2.67 to 2.52 percent, a figure that, given this indicator's stability, coincides with that obtained in the first fortnight of February 2016. As regards core inflation, the referred indicator went up from 2.70 to 2.77 percent in the said quarters, and remained relatively stable in the first fortnight of February, registering 2.81 percent. Thus, the Trimmed Mean Indicator for both baskets shows that the observed rebound in annual headline and core inflation

between the end of 2015 and the first fortnight of February 2016 was due to price increments in a reduced set of goods and services (Chart 3 and Table 1).[1]

**Chart 3**
**Price Indices and Trimmed Mean Indicators** 1/
Annual change in percent

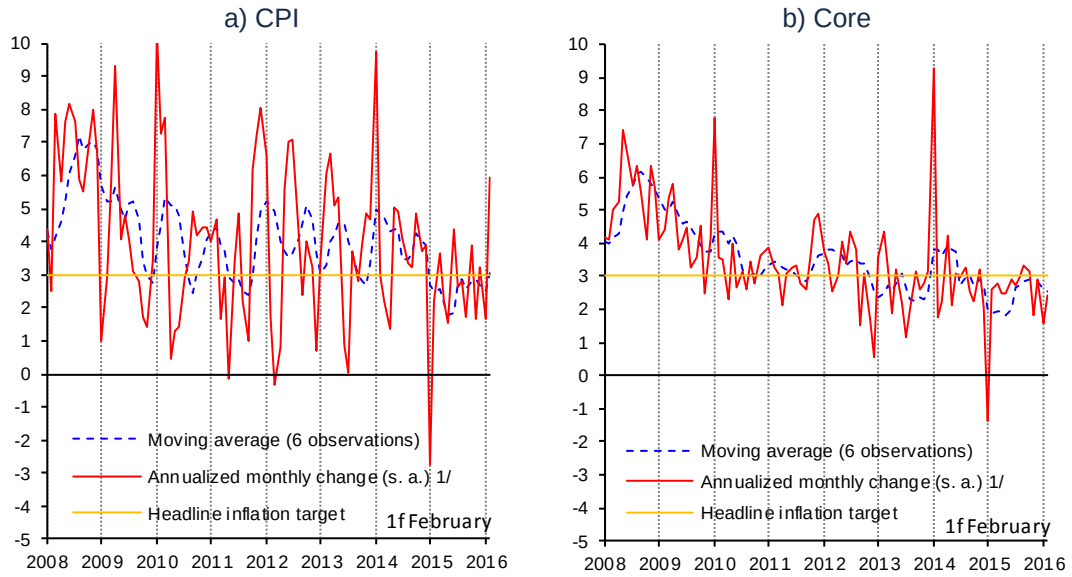



1/ The Trimmed Mean Indicator excludes the contribution of extreme variations in the prices of some generic items from the inflation of a price index. To eliminate the effect of these changes, the following is done: i) the monthly seasonally adjusted changes of the generic items of the price index are arranged from the smallest to the largest value; ii) generic items with the biggest and the smallest variation are excluded, considering in each distribution tail up to 10 percent of the price index basket, respectively; and iii) using the remaining generic items, which by construction lie in the center of the distribution, the Trimmed Mean Indicator is calculated.
Source: Prepared by Banco de México with own data and data from INEGI.

The trend of the annualized monthly (seasonally adjusted) inflation indicates that, at the margin, headline inflation seems to be locating slightly below 3 percent. On the other hand, core inflation trend has persisted a bit below 3 percent. Hence, both measures present levels congruent with the permanent target (Chart 4). It is worth recalling that this indicator, since it is based on the monthly change of the price index, is not affected by comparison base effects, unlike annual inflation, and, therefore, yields information on the most recent inflation dynamics.

[1] It should be pointed out that the Trimmed Mean Indicator is obtained by excluding the generic items whose prices present extreme variations (both hightest and lowest) from the calculation of headline inflation. This prevents the changes in relative prices of some goods or services from affecting its trend indicator, reason for which its evolution is primarily due to generalized price changes.

**Chart 4**
**Annualized Seasonally Adjusted Monthly Change and Trend**
Percent




s. a. / Seasonally adjusted data.
1/ The annualized biweekly change is used for the last observation.
Source: Seasonal adjustment prepared by Banco de México with own data and data from INEGI.

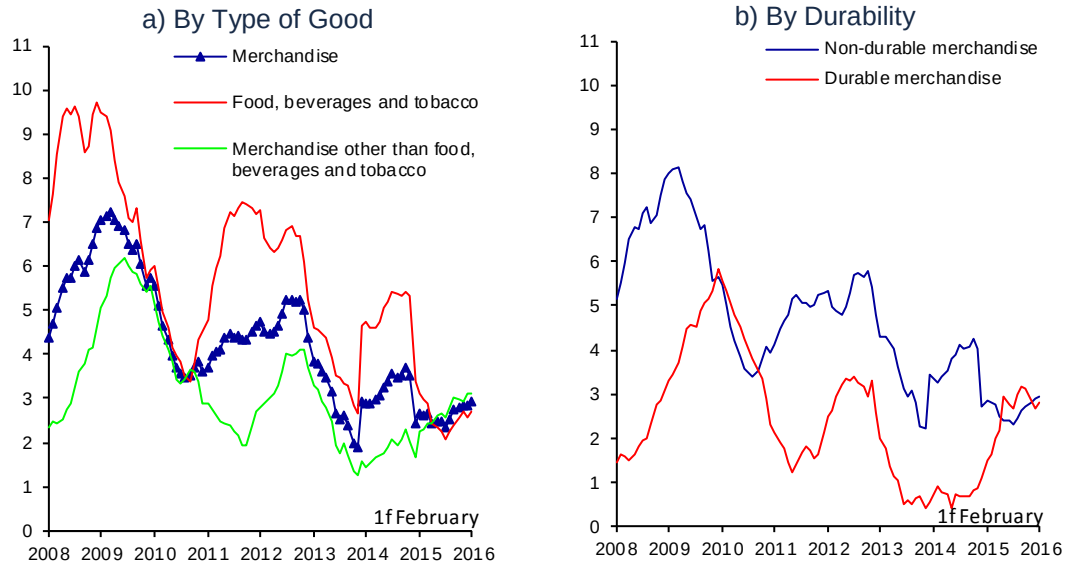
As mentioned above, although annual core inflation persists at low levels, its increment in the fourth quarter of 2015 was largely triggered by the changes in relative prices of merchandise with respect to those of services, as a result of the exchange rate depreciation. The increase in this indicator in January 2016 resulted from lower prices of telephone services, which had occurred in early 2015, and, as indicated above, did not take place this year. Furthermore, in the first fortnight of February, annual core inflation declined slightly.

- Between the third and fourth quarters of 2015, the merchandise price subindex increased its average annual change from 2.46 to 2.78 percent, locating at 2.86 and 2.94 percent in January and in the first fortnight of February, respectively (Chart 5a). This was caused by a greater growth rate of the prices of this subindex' two components, even though its annual changes remain at moderate levels. On the one hand, durable goods' prices continued reflecting the effects of the exchange rate depreciation (Chart 5a), which was manifested in the average annual change of non-food merchandise' prices, that shifted from 2.67 to 2.98 percent between the third and the fourth quarters of 2015, registering 3.09 percent in January 2016 and 3.11 percent in the first fortnight of February. On the other hand, some food merchandise' prices have also recently increased, reason for which the average annual change of this item went up from 2.20 to 2.55 percent in the same quarters, reaching 2.59 percent in January 2016 and 2.73 percent in the first fortnight of February.

- The increase of the services price subindex remained at relatively low levels, which partially offset the effect of the merchandise price increments on the CPI growth. In particular, the average annual change of services declined from 2.22 to 2.09 percent between the third and the

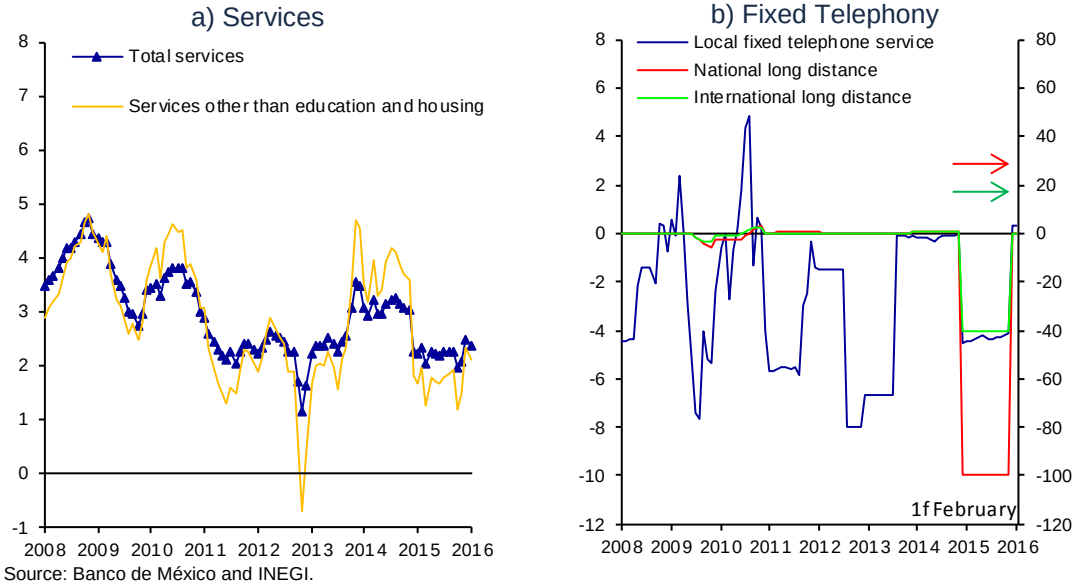
fourth quarters. In January 2016, the annual change of this subindex lied at 2.46 percent, while in the first fortnight of February its annual change was 2.36 percent. Thus, the described dynamics was mainly due to the performance of the services other than education and housing, as their average annual changes went down from 1.75 to 1.52 percent in the referred quarters, reaching 2.32 percent in January 2016 and going down to 2.09 percent in the first quarter of February (Chart 6).

**Chart 5**
**Core Price Index: Merchandise**
Annual change in percent




Source: Banco de México and INEGI.

**Chart 6**
**Core Price Index**
Annual change in percent




Source: Banco de México and INEGI.

In the last quarter of 2015, the average annual growth rate of the non-core price index continued decelerating. This was mainly due to the performance of the prices of agricultural products and energy (Table 1). Thus, in the reference period, the contribution of non-core inflation to annual headline inflation diminished, thus offsetting a greater contribution of core inflation (Chart 7). In January 2016, the annual change of the non-core price index, as mentioned, rebounded, which was related to higher prices of some vegetables that persisted in the first fortnight of February. The following stands out within the non-core index' components:

- Throughout the reference quarter, the annual growth rates of the agricultural products' price subindex continued decelerating. Thus, the average annual change of this subindex plunged from 5.33 to 2.76 percent between the third and the fourth quarters of 2015, highlighting lower growth rates in the prices of livestock products. In January 2016, the annual change of this subindex was 5.27 percent, while in the first fortnight of February it reached 8.46 percent, reflecting annual price increments in goods, such as tomato (120.18 percent) and onion (115.97 percent).

- Between the third and the fourth quarters of 2015, average annual changes of energy prices and government approved fares diminished from 2.42 to 1.33 percent, registering 0.84 percent in January 2016 and 1.09 percent in the first fortnight of February. The annual variations of energy prices continued decelerating in the reference quarter, so that the average annual growth of these prices plunged from 2.43 to 0.52 percent, observing -0.44 percent in January 2016 and subsequently -0.15 percent in the first fortnight of February. Lower prices of various energy products, that took place in early 2016, were especially relevant for the above. In particular:

    - The gasoline price setting mechanism established by the Ministry of Finance for the country (with the exception of the Northern border region) consists in defining a range of maximum and minimum values in 2016, specifying the maximum price for each gasoline type, which would be set on a monthly basis, and that considers a variation of up to plus/minus 3 percent in relation to these fuels' price in late 2015. It is important to emphasize that this policy refers solely to setting a maximum price, so that any firm that considers it as suitable to charge a lower price, could do it. Therefore, in principle, it would even be possible to observe a lower quote than the minimum value of the defined range for the maximum price. Based on this rule, in early 2016 a 3 percent decrease in the maximum low octane gasoline price and a 2.81 percent drop in the maximum high octane gasoline price were registered. After that, in February, low octane gasoline did not present variations in its maximum price, while high octane gasoline further decreased by 0.21 percent, attaining a 3 percent reduction with respect to the price that prevailed in 2015. The variations observed in gasoline prices in January and the first fortnight of February matched those registered for maximum prices.

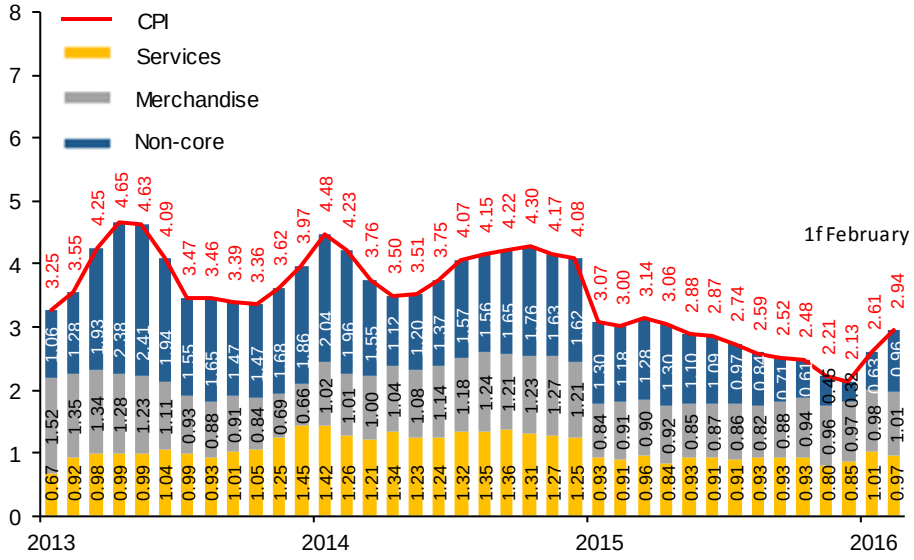
In this regard, on February 22, the President of Mexico brought forward the date of the beginning of gasoline and diesel imports, setting it on April 1, 2016, rather than January 1, 2017. This measure is expected to enhance competition in the national fuel market, and in the medium term it should bring down their prices, promoting a better inflationary environment.

- Low electricity consumption tariffs declined 2 percent and remained fixed for the rest of the year.

- L.P. gas price increased 2.74 percent at the beginning of the year and remained unchanged in February, while the price of natural gas presented a monthly increment of 2.30 percent in January 2016 and a decrease of 0.07 percent in the first fortnight of February, as it is associated to its international counterpart.

- The average annual change of the group of government approved fares shifted from 2.39 to 2.86 percent between the third and the fourth quarters of 2015, locating at 3.27 percent in January 2016. This variation was mainly a result of the increment in public transport prices that occurred in different cities of Mexico in early 2016, among which Guadalajara and Ciudad Juarez stand out. In the first fortnight of February, their annual change was 3.45 percent.

**Chart 7**
**Consumer Price Index**
Annual contribution in percentage points 1/



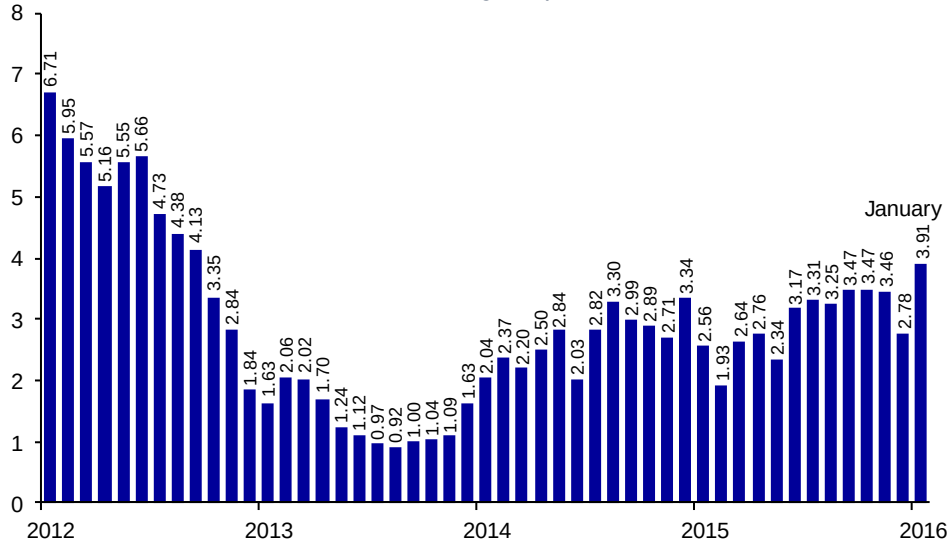

1/ In some cases, the sum of respective components can differ due to rounding.
Source: Prepared by Banco de México with data from INEGI.

## 2.2. Producer Price Index

In the fourth quarter of 2015, the Producer Price Index (PPI) of total production, excluding oil, registered an average annual change rate of 3.23 percent, while in

the previous quarter it was 3.34 percent. In January 2016, this indicator's annual change rate was 3.91 percent (Chart 8). A lower variation rate in the fourth quarter of 2015, as compared to the previous one, is accounted for by a lower contribution of final merchandise and services prices, in particular, agricultural products' prices, as well as the services for the mining and construction industries. On the other hand, intermediate use goods and services exhibited lower annual change rates than those of final merchandise and services, with the negative annual rates of oil-derived products, industrial electricity fares and telecommunication services standing out. The increment in the annual change rate of the PPI registered in January mainly stemmed from the increase in the prices in MXN of some exports' merchandise that are quoted in U.S. dollars. Thus, the referred increments would not necessarily imply pressures on the CPI over the following months, insofar as it has to do with higher prices of some export goods, which do not directly affect consumer prices in Mexico since they are destined to markets other than Mexico.

**Chart 8**
**Producer Price Index [1/]**
Annual change in percent




1/ Total Producer Price Index, excluding oil.
Source: Banco de México and INEGI.

# 3. Economic and Financial Environment

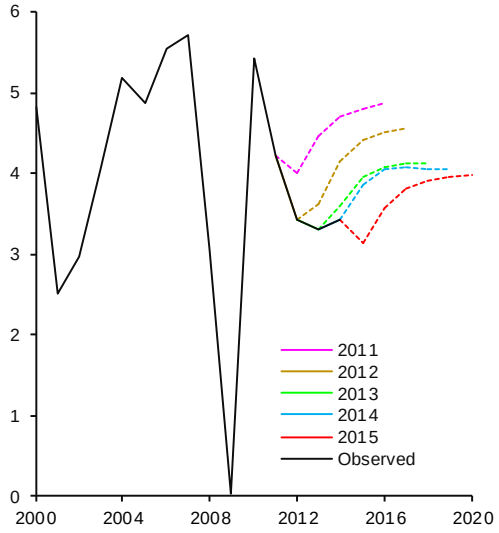
## 3.1. External Conditions

Since the onset of the global financial crisis, the world economy has expanded at a weak pace, reflecting structural factors, the persistence of macroeconomic imbalances and a weak international financial system. Consequently, the medium-term world economic outlook has been adjusted downwards and the international trade volume has slowed down at the margin (Chart 9a and Chart 9b).

During the fourth quarter of 2015, this tendency became more pronounced, as world economic growth substantially moderated, derived from the sluggish conditions of advanced economies and the persistent deceleration of emerging ones. In early 2016, the world outlook was further affected by greater vulnerabilities of some of these economies, such as China, Brazil and Russia, the renewed drop in international commodity prices, particularly oil prices, and a greater expected divergence in the monetary policies of the main advanced economies' central banks. In the first half of February, investors' perception of global growth prospects and the financial systems' ability to tackle the increasingly more complex international environment became significantly more negative. This led to greater risk aversion and strong declines in the prices of financial assets. The said factors generated growing volatility in international financial markets and an increase in the risks to global growth and inflation.

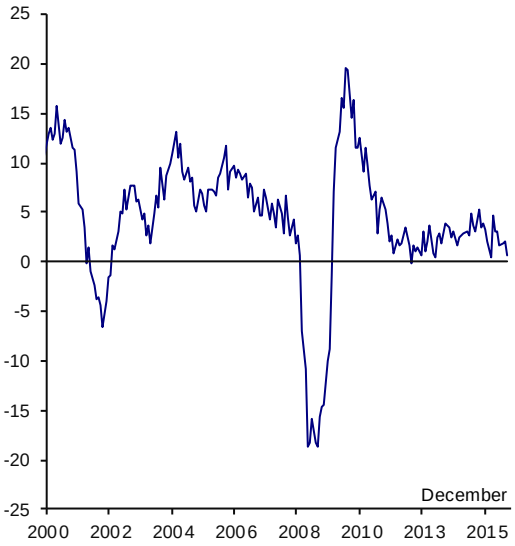
**Chart 9**
**World Economic Activity**

a) Global GDP Growth Forecast
Annual change in percent




Source: IMF, WEO autumn 2011 to 2015.

b) World Trade Volume
Annual change in percent, s. a.




s. a. / Seasonally adjusted data.
Source: CPB Netherlands.

### 3.1.1. World Economic Activity

U.S. economic growth rate decelerated from 2.0 to 1.0 percent at an annualized quarterly rate between the third and the fourth quarters of 2015. The appreciation of the U.S. dollar, low oil prices and lower external demand kept weakening the

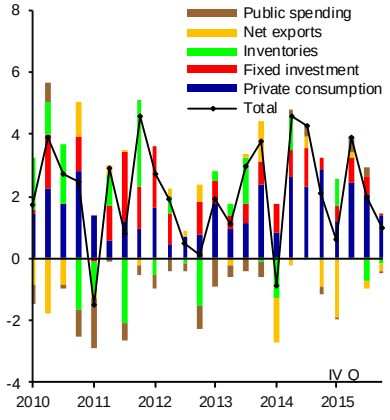
growth of exports, of industrial production, in particular manufacturing, as well as of investment in infrastructures and equipment related to the energy sector. Likewise, the dynamism of spending on private consumption was lower in this period, following high growth in the previous quarters. Moreover, temporary factors, such as the adjustment in inventories and a warmer than expected weather conditions, that brought down the demand for electricity, contributed to lower economic growth in the fourth quarter of last year. In turn, residential investment continued expanding at a solid rate during the referred period (Chart 10a).

In the fourth quarter of 2015 industrial production exhibited the worst performance since mid-2009, as it registered a drop of 3.3 percent at an annualized quarterly rate, after having grown 2.7 percent in the previous quarter. Among other factors, it reflected the contraction of activity in the energy sector, a lower demand for electricity and gas, as a result of the abovementioned climate conditions and a strong moderation in the manufacturing sector expansion, as a consequence of the low performance of its exports. Growth in the manufacturing sector declined at an annualized quarterly rate of 3.2 percent in the third quarter, to 0.1 percent in the last quarter of the year (Chart 10b). Nonetheless, in January 2016 industrial production registered a certain rebound, due to the recovery in the manufacturing sector, and to the fact that the normalization of climate conditions was reflected in greater electricity and gas production.

Weak productive activity contrasts with strong U.S. labor market. In particular, non-farm payroll expanded on average by 279 thousand jobs a month in the fourth quarter of 2015, as compared to 192 thousand jobs in the third one, even though in January this indicator only increased by 151 thousand jobs. Furthermore, the unemployment rate dropped from 5.1 percent in September 2015 to 4.9 percent in January 2016, level close to that considered as the long-term rate by the Federal Reserve. On the other hand, wage growth persisted low, although some indicators, such as the average hourly rate and unit labor costs point to an incipient acceleration (Chart 10c).

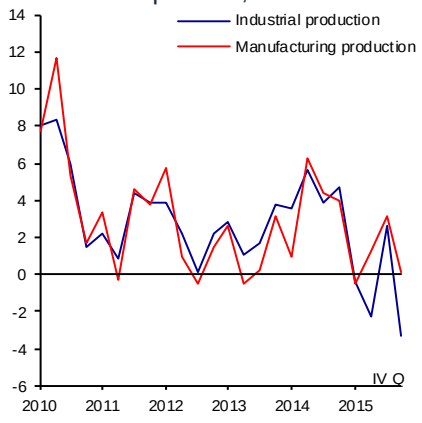
**Chart 10**
**U.S. Economic Activity**

a) Real GDP and Components
Annualized quarterly change in percent and percentage point contributions, s. a.



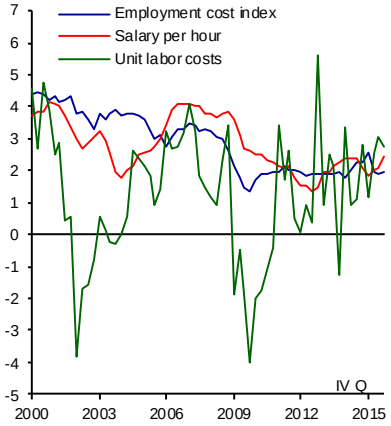

s. a. / Seasonally adjusted data.
Source: BEA.

b) Industrial and Manufacturing Production
Annualized quarterly change in percent, s. a.




s. a. / Seasonally adjusted data.
Source: Federal Reserve.

c) Wage Indicators
Annual change in percent

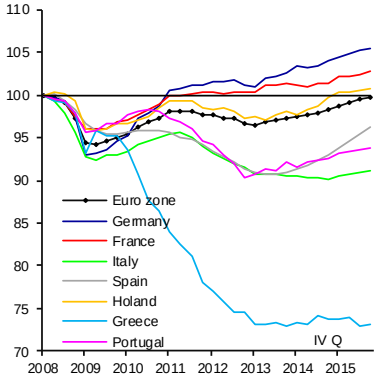



Source: BLS, Haver Analytics.

During the period covered by this Report, in the Euro zone, the economy moderately recovered, with a growth of 1.1 percent at an annualized quarterly rate, apparently accounted for by weak external demand and private investment (Chart 11a and Chart 11b). Thus, private consumption seems to have constituted the principal source of expansion, supported by personal income, given the progress in the labor market (Chart 11c) and lower energy prices. Still, the outlook for the region remains uncertain due to domestic imbalances, to the slow improvement in financial markets and the continuous deceleration of the world economy. This is in addition to a more complex geopolitical outlook that has turned more complex in light of the migratory crisis afflicting the region. In this way, downward risks to growth and inflation in the Euro zone have accentuated.

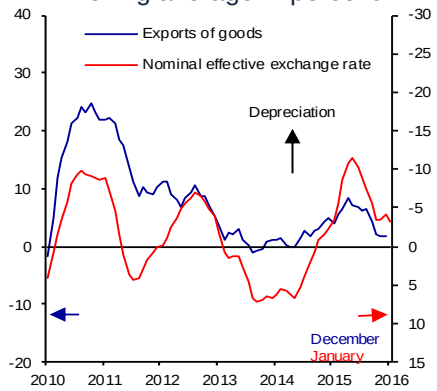
**Chart 11**
**Economic Activity in the Euro Zone**

a) Gross Domestic Product
Index 1Q-2008=100, s. a.



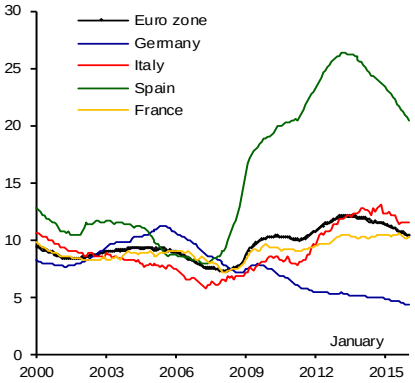

s. a. / Seasonally adjusted data.
Source: Eurostat.

b) Exchange Rate and Exports of Goods
Annual change of the 3-month moving average in percent




Source: Haver Analytics, BIS.

c) Unemployment Rate
In percent of economically active population, s. a.




s. a. / Seasonally adjusted data.
Source: Eurostat.

In Japan, economic activity shrank by 1.4 percent at an annualized quarterly rate during the last quarter of 2015, after a modest recovery of 1.3 percent in the third one. The deterioration of economic activity was mainly brought about by a considerable decrease of private consumption, in particular of durable goods. Furthermore, the change in inventories and public spending adversely contributed to growth again. On the contrary, the growth rate of fixed capital investment accelerated during the period. Finally, net exports also contributed to mitigating the drop in GDP in the fourth quarter of 2015, as a result of a strong contraction in imports.

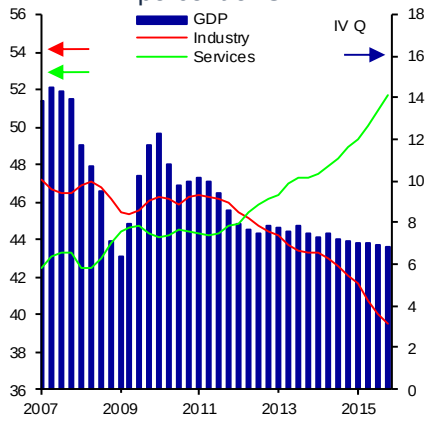
In China, the annual GDP growth rate continued moderating gradually during the fourth quarter of 2015, registering a 6.8 percent variation, its smallest expansion since the beginning of 2009. A major loss of dynamism in the industrial sector stands out, which could not be offset by a greater expansion of the services sector (Chart 12a). Besides, uncertainty increased regarding this country's growth outlook, the soundness of its financial system and the effectiveness of economic policies that had been implemented to take on these challenges.

As a reflection of the weakness of the Chinese economy, of the continuous decline in commodity prices and the stagnation of international trade, the vast majority of emerging economies kept decelerating in the last quarter of 2015. This is evident

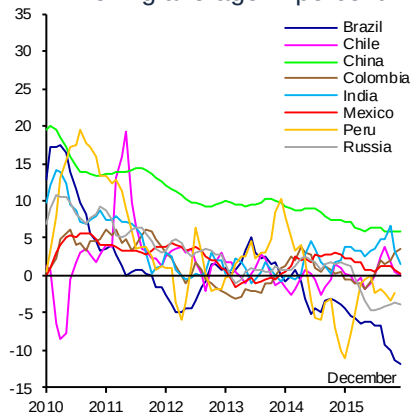
from an extended loss of dynamism of their industrial production, which in some cases registered negative growth rates, for instance in Brazil, Russia and Peru (Chart 12b), and a slump in exports, especially commodity exporting countries, such as Brazil, Russia, Chile, Colombia and Peru (Chart 12c). In the future, risks to these economies' growth remain downward, partly due to some of these economies' vulnerability in their macroeconomic fundamentals, in an environment characterized by tighter financial conditions, but also due to the weak world economic growth and its negative impact on the performance of commodity prices.

**Chart 12**
**Economic Indicators of Emerging Economies**

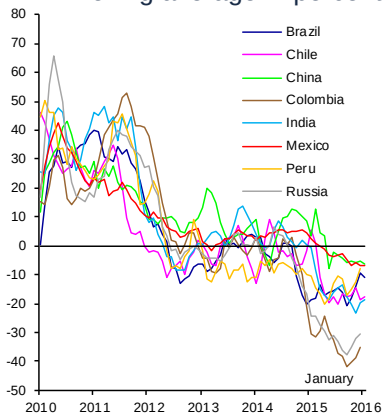
a) China: GDP by Sectors
Real annual change in percent and in percent of GDP




b) Industrial Production
Annual change of the 3-month moving average in percent




c) Exports
Annual change of the 3-month moving average in percent

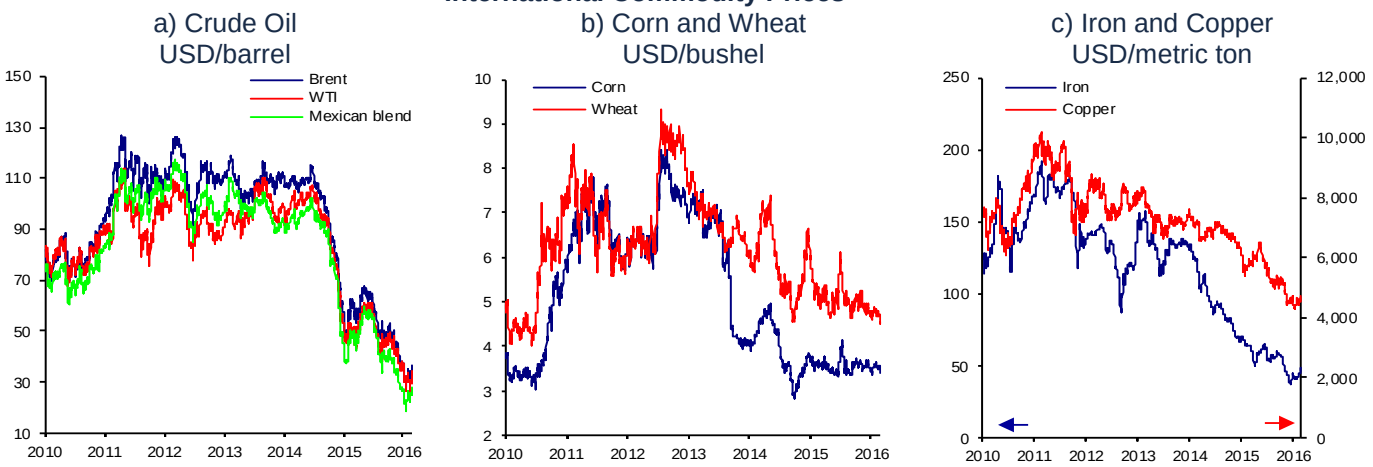



Source: Bloomberg and Haver Analytics.

### 3.1.2. Commodity Prices

International commodity prices resumed their downward trend in the early fourth quarter of 2015, following a period of relative stability in the previous one. Thus, oil prices slumped again, reflecting the persistence of a structural imbalance between supply and demand, which may worsen due to the expected increment in exports from Iran and the refusal of OPEC members to cut down their oil production (Chart 13a). The impact of the tentative agreement between Saudi Arabia and Russia to cap their oil output at January levels, in order to reduce the oversupply conditions prevailing in the world market and, hence, to stop the decline in oil prices, is still uncertain. This is due to the fact that the participation of countries such as Iran and Iraq, which have previously announced their intention to raise oil production, is required. On the other hand, grain prices remained low in the presence of favorable supply prospects and high inventories (Chart 13b). Finally, metal prices also resumed their downward trend, as a result of the surplus of global production and weakening demand, above all in emerging economies (Chart 13c).

**Chart 13**
**International Commodity Prices** [1/]




1/ Spot market.
Source: Bloomberg.

### 3.1.3. Inflation Trends Abroad

Inflation in the main advanced economies persisted far below the targets of their respective central banks, even registering decreases in some measures of inflation expectations (Chart 14a and Chart 14b). This mainly responded to lower commodity prices, in an environment of slack conditions in productive capacity. Even though in the medium term inflation is expected to converge to the central banks' targets, as a result of these factors, the referred transition may be slower than previously anticipated. Additionally, risks of downward adjustments in inflation expectations have increased.

In the U.S., downward pressures to inflation, resulted from the U.S. dollar appreciation and lower energy prices, prevailed during the quarter, although inflation in January rebounded. The annual change of the consumption deflator was 1.3 percent in January 2016, while inflation, excluding food and energy, was 1.7 percent. On the other hand, inflation measured by the general consumer price index lied at 1.4 percent in January 2016, while core inflation attained 2.2 percent in the same month.

In turn, headline inflation in the Euro zone was 0.3 percent in January 2016, while core inflation remained stable at around 1.0 percent. In accordance with the European Central Bank, the expected inflation path is significantly lower than anticipated in December, reason for which inflation rates are forecast to remain very low or even become negative over the next months.

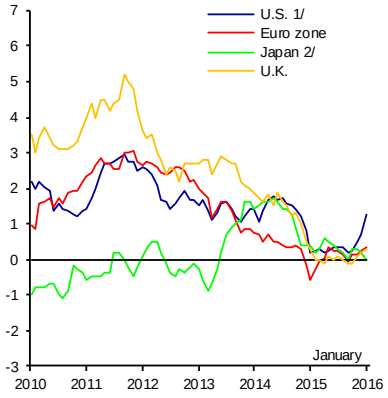
In Japan, inflation prevailed low during the quarter and in January 2016 it lied at 0.0 percent, just like inflation excluding fresh food. Likewise, the renewed weakness in oil prices is expected to affect the inflation evolution over the next months. In particular, the Bank of Japan estimates that the contribution of energy prices will remain negative throughout the 2016 fiscal year, that inflation in the said year will be lower than expected and it will take longer to attain the 2 percent target.

Emerging economies kept exhibiting a differentiated inflation outlook, reflecting the balance between weak domestic demand, together with low commodity prices, and the possible pass-through of strong depreciations observed in their exchange rates

onto prices. While in some countries, such as Mexico and China, inflation remains low, in Russia, Turkey and a number of Latin American countries, such as Brazil, Chile, Colombia and Peru, it exceeded the inflation targets (Chart 14c).

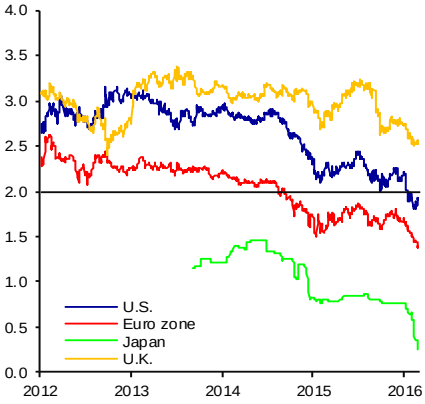
**Chart 14**
**Annual Headline Inflation and Inflation Expectations in Advanced and Emerging Economies**
In percent

a) Advanced Economies: Headline Inflation



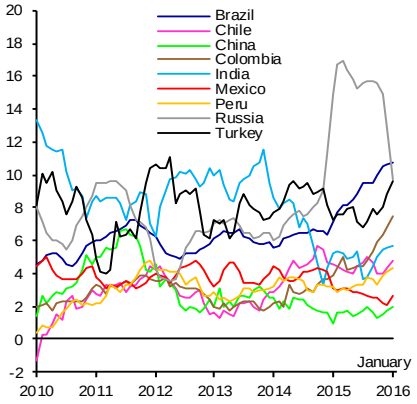

1/ It refers to consumption deflator.
2/ It excludes the direct effect of the increment in the consumption tax.
Source: BEA, Eurostat and Statistics Bureau of Japan.

b) Advanced Economies: Inflation Expectations Derived from Financial Instruments for Next 5 to 10 Years 1/




1/ Obtained from swap contracts in which one counterparty agrees to pay a fixed rate in exchange for receiving a referenced payment at an inflation rate over a specified period.
Source: JP Morgan.

c) Emerging Economies: Headline Inflation




Source: National Statistics Bureaus and Central Banks.

### 3.1.4. International Monetary Policy and Financial Markets

The described environment contributed to an increasing divergence among advanced economies' monetary policy stances, as well as among the monetary policy stances of emerging economies. In particular, in the U.S. the Federal Reserve is anticipated to continue with the normalization of its monetary policy that was initiated last December, although at a more pauseful pace than estimated some months ago. On the other hand, the Bank of Japan and the European Central Bank relaxed their monetary policies over the last months, and there is a possibility that they may shortly provide additional stimuli. Also, some emerging economies, characterized by a greater pass-through of exchange rate onto inflation, possibly due to macroeconomic vulnerabilities, raised their reference interest rates despite a lower economic dynamism.

In December 2015, the Federal Reserve considered that labor market conditions had improved considerably and that it looked quite feasible that over the next two years inflation would go up to levels close to its 2 percent target. Thus, in line with the market expectation, for the first time since late 2008 it decided to modify the target range of the federal funds rate from an interval of 0 to 0.25 percent to one of 0.25 to 0.5 percent. In the press release, it was pointed out that the Federal Reserve expected economic conditions to evolve in such a manner that increments in the reference rate would be gradual, although it was stressed that, by virtue of the low inflation level, this indicator's observed and expected progress would be carefully monitored. In January 2016, even though labor market conditions further improved, this Institute warned that the growth rate of economic activity decelerated in late 2015, and that inflation will remain low in the short term, due to additional declines

in energy prices. Furthermore, it eliminated the assessment of balanced risks to the prospects of economic activity and of the labor market. In this context, the Federal Reserve left unchanged its reference rate, pointing out that it is closely monitoring the performance of the global economy and financial markets, and it will evaluate their implications for the labor market, inflation and for the balance of risks for the U.S. outlook.

In its February meeting, the Bank of England unanimously decided to maintain its reference rate unchanged at 0.5 percent, and to preserve the balance of its security purchase program at GBP 375 billion. In its press release, it stated that the wage growth had been weaker than anticipated and that labor costs are expected to grow at a slower rate than estimated, which would contribute to a slower inflation recovery. Likewise, it indicated that the recent declines in commodity prices imply that inflation is likely to remain below 1 percent until the end of the year, with a slightly more modest inflation forecast than in December. Finally, this Institution confirmed that, given the probable persistence of adverse factors affecting the economy, the increment in the reference rate will be more gradual and it will reach a lower level than in previous cycles.

In contrast, the European Central Bank expanded the level of its monetary policy relaxation in December, given a weaker than expected inflation dynamics and downward risks for its outlook. In particular, the ECB decided to lower its deposit rate from -0.2 to -0.3 percent and to extend the asset purchase program through March 2017 (it had previously planned to end the program in September 2016). In January 2016, the ECB stated that it would be necessary to reconsider its monetary policy stance and to subsequently carry out an additional easing in its March meeting. The above, due to the increase in downward risks both to the economic activity and inflation, as a result of a greater uncertainty regarding the growth outlook of both Euro zone economies and emerging economies, volatility in the financial markets, a further decrease in commodity prices and geopolitical risks prevailing in the region. In his speech to the European Parliament, Mario Draghi, President of the ECB, added that a possible monetary policy stance revision in March depended on two factors: first, on the size and persistence of the pass-through of the decline in commodity prices and its incidence onto wages and prices; second, on the impact of the recent volatility in the financial markets on the monetary policy transmission mechanism, in particular via banks.

In its meeting of January, the Bank of Japan unexpectedly cut an interest rate that applies on a part of resources kept by banks in excess of what is required in the Central Bank of -0.1 percent.[2] Besides, it maintained the objective to increase the monetary base at an annual rate close to JPY 80 trillion, and its decision to continue purchasing government bonds and other instruments. Likewise, the Governor of the Bank of Japan announced that the required easing measures will be taken, including the increment in the asset purchase program and a further reduction in the policy interest rate, in order to reach the inflation target, and that it will continue innovating in the use of different instruments.

[2] To reduce the adverse impact of this negative interest rate on banks' profits, the Bank of Japan introduced a differentiated system of the deposit rate. Under this new scheme, banks will receive 10 basis points over the average of excess reserves maintained in the central bank in 2015, and a zero rate over the required reserves. The rate of -0.1 percent will only be applied to the deposits bigger than the sum of the two above mentioned balances.

On the other hand, there was also divergence among emerging economies' monetary policy stances. Although the People's Bank of China continued providing the monetary stimulus in the last quarter of 2015 to underpin the growth outlook, some central banks that had diminished their target rate during the third quarter decided to maintain it. Furthermore, a large number of emerging economies increased their monetary policy rate, particularly in Latin America, reflecting the unfavorable performance of inflation and the increment in the U.S. reference rate.

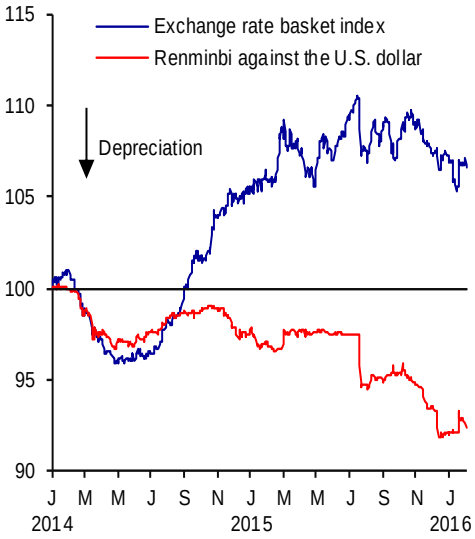
During the fourth quarter of 2015, international financial markets registered certain volatility in light of the uncertainty regarding the moment of the first increment in the U.S. federal funds rate. Despite the moderate response of the markets to the announcement of the first raise in the reference interest rate of the referred country in mid-December, volatility in financial markets increased again in early 2016. The renewed fall in commodity prices, in particular oil prices, uncertainty as to the soundness of the economic growth of China, concern over the world economic growth and the greater divergence among the outlooks for the main advanced economies' central banks' monetary policies translated in a further increased risk aversion. Volatility in the financial markets accentuated in February, as oil prices kept falling and investors' perception of the world economic growth outlook continued worsening. In particular, concern about the soundness of financial systems in an environment of lower growth and higher risks increased. These two factors stemmed from a high exposure to the sectors associated with commodities and in general emerging economies, in a context of lower interest spreads. In China, financial markets presented a considerable turbulence at the beginning of 2016, which affected other countries. Specifically, China's stock market indices experienced major losses as a result of the expiration of some stabilization measures, the announcement of new measures at the beginning of the year that aim at limiting stock sales, and the authorities' inability to reestablish investors' confidence, as a result of which the capital outflow intensified (Chart 15a). Derived from the above, the exchange rate depreciated against the U.S. dollar and the official basket of currencies used as a reference by the People's Bank of China (Chart 15b). Thus, this Institution was forced to intervene in the exchange market, with an important decline in its international reserves.

During the reported period, advanced economies' stock market indices and riskier assets' prices declined (Chart 16a). Furthermore, U.S. dollar observed a generalized appreciation against advanced and emerging countries' currencies, and financial conditions in the U.S. tightened (Chart 16b). On the other hand, long-term government bond interest rates in this group of countries dropped (Chart 16c). Among other reasons, this evolution was attributed to a higher demand for low-risk assets given the recent generalized deterioration in investors' perception of the world expansion outlook, the Bank of Japan unexpected decision to reduce the interest paid on some banks' deposits to negative rates, and, in general, due to greater expectations that a number of advanced economies' central banks will uphold a highly accommodative stance.

**Chart 15**
**China Financial Indicators**
Index January 2014=100

a) Stock Markets

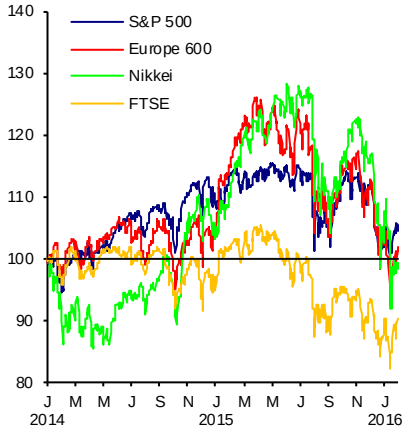

b) Exchange Rate of Renminbi against the USD and Main Trading Partners




Source: Bloomberg.

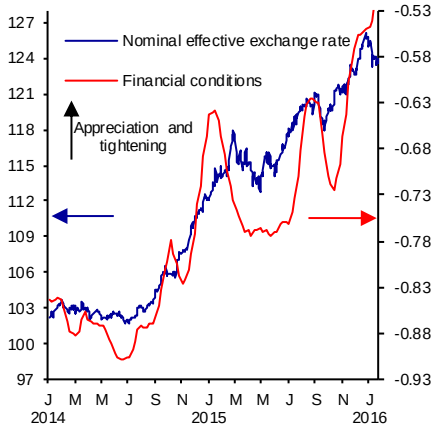
**Chart 16**
**Financial Indicators of Selected Advanced Economies**

a) Stock Markets
Index 01/01/2014=100



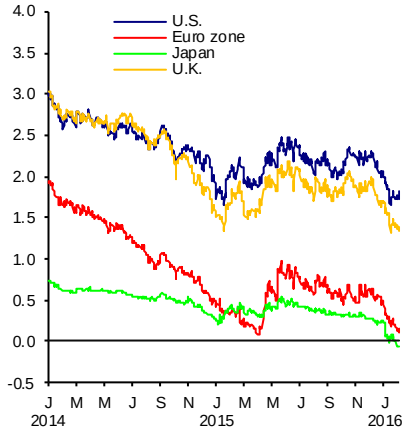

Source: Bloomberg.

b) U.S.: Nominal Effective Exchange Rate and Financial Conditions
Index January 1997=100 and standard deviations




Source: Federal Reserve Bank of Chicago and the U.S. Federal Reserve System.

c) 10-year Bond Yield
In percent



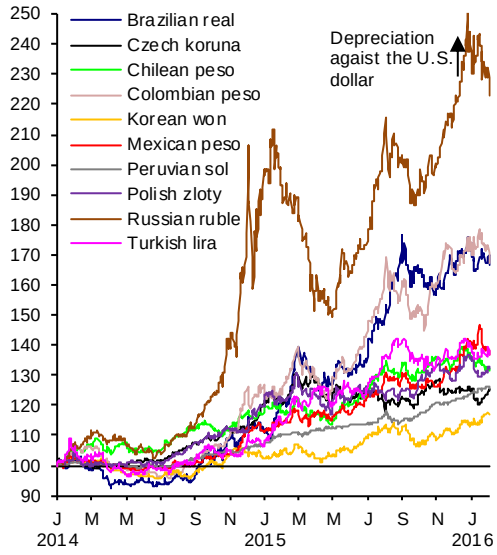

Source: Bloomberg.

Meanwhile, during the first weeks of 2016, in general, emerging economies' exchange rates strongly depreciated, the stock market indices and the sovereign risk indicators deteriorated, and there were capital outflows (Chart 17). Among the factors that contributed to the deterioration in these economies' financial markets, the following should be highlighted: concern over the debt sustainability of some countries, particularly those with high levels of liabilities in the foreign currency; the impact of lower commodity prices, in particular oil prices, and, in general, slack

conditions in the global economy. Besides, the modifications in the international banking regulation, that consider higher capital requirements over positions in debt instruments that these could maintain, together with specific norms in some countries, such as the U.S., that explicitly confine them to preserving positions in these instruments, have propitiated a reduction in the holdings of the mentioned global banks' securities for the trading book in these economies. The above affected the depth and liquidity of financial markets in the countries, in which global banks play an important role, which also influenced these countries' financial market conditions and aggravated their financial variables' responses to different shocks.

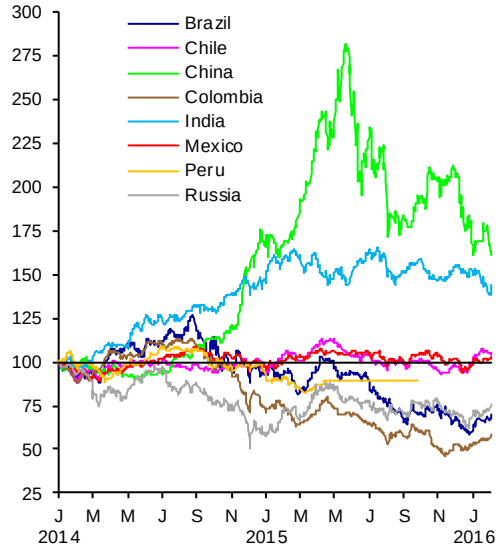
**Chart 17**
**Financial Indicators of Emerging Economies**

a) Exchange Rate
Index 01/01/2014=100



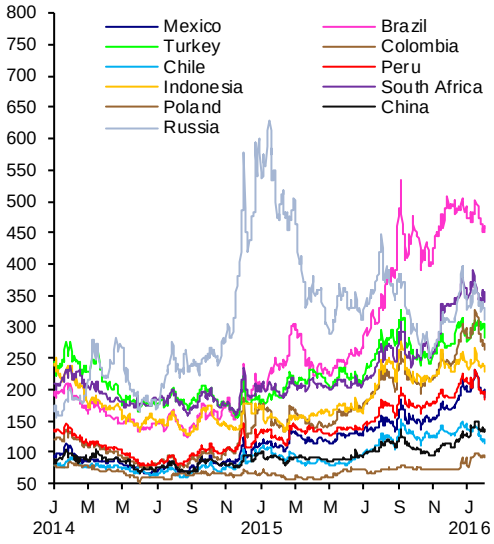

Source: Bloomberg.

b) Stock Markets
Index 01/01/2014=100



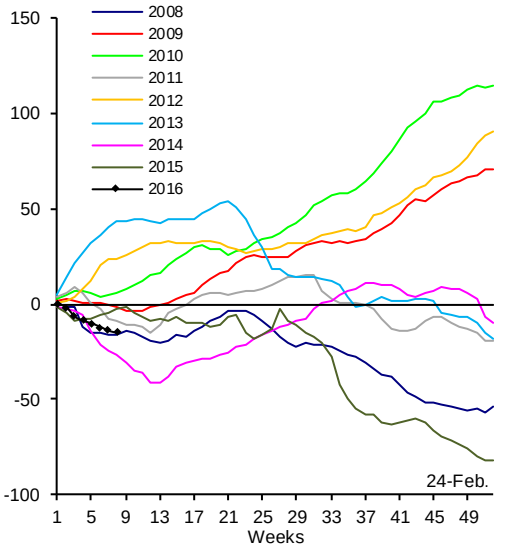

Source: Bloomberg.

c) Sovereign Credit Risk Market Indicators (CDS)
In basis points




Source: Bloomberg.

d) Total Capital Flows to Emerging Economies (Debt and Stock) [1/]




1/ The sample includes funds used for emerging economies' stock and bond transactions, registered in advanced economies. The flows exclude the performance of the portfolio and exchange rate movements.
Source: Emerging Portfolio Fund Research.

## 3.2. Evolution of the Mexican Economy

### 3.2.1. Economic Activity

In the fourth quarter of 2015, economic activity in Mexico continued growing supported by the performance of private consumption, while manufacturing exports remained stagnant, as a reflection of weak U.S. industrial activity and a lower demand in other countries, while gross fixed investment reduced its dynamism. As a consequence, in the fourth quarter, productive activity expanded less than in the previous one.

Indeed, with respect to the evolution of domestic demand, private consumption indicators point to a relatively high growth rate in the fourth quarter. In particular:

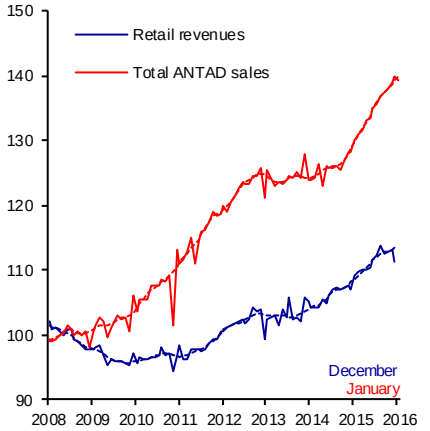
i. ANTAD sales maintained an upward trajectory in the fourth quarter of 2015. Likewise, commercial enterprises' revenues from the sale of goods and services kept growing in October and November, even though they decreased in December 2015 (Chart 18a). In turn, with data as of January 2016, domestic light vehicle sales maintained a strong dynamism and are at especially high levels (Chart 18b). Finally, the monthly indicator of domestic private consumption, which is a broader measure of private consumption, in the period of October-November 2015 maintained a growing trend (Chart 18c). Its performance was contributed to not only by the expansion in the consumption of goods, but also by the dynamism of spending on services.

ii. This performance has partly reflected the positive evolution of the labor market and of low inflation, which generated increments in the real wage bill (Chart 19a). Likewise, in the fourth quarter of 2015 and early 2016,

income from remittances kept growing and for 2015 as a whole it exhibited levels close to those prior to the onset of the global financial crisis (Chart 19b). Additionally, the consumer confidence indicator somewhat improved with respect to its weak performance in the first quarters of 2015, which is more evident in the component that measures the perception of the current feasibility of buying durable goods (Chart 19c). For its part, commercial bank credit for consumption presented a greater growth rate as compared to the third quarter of 2015 (see Section 3.2.3).

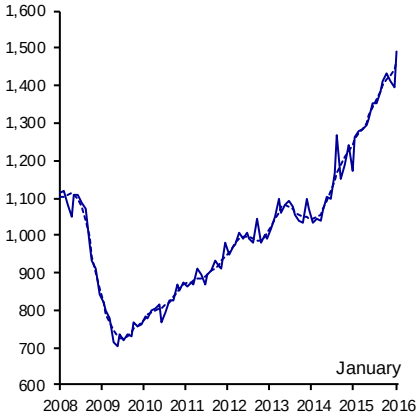
**Chart 18**
**Consumption Indicators**

a) Commercial Retail Business Revenues and Total ANTAD Sales
Index 2008=100, s. a.



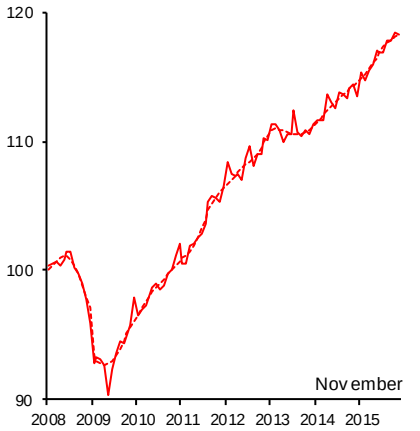

s. a. / Seasonally adjusted and trend data. The former is represented by a solid line, the latter by a dotted line.
Source: Monthly Business Survey, INEGI; prepared by Banco de México with ANTAD data.

b) Domestic Light Vehicle Retail Sales
Thousands of units, annualized, s. a.




s. a. / Seasonally adjusted and trend data. The former is represented by a solid line, the latter by a dotted line.
Source: Prepared by Banco de México with data from the Mexican Automotive Industry Association (AMIA).

c) Monthly Indicator of Domestic Private Consumption
Index 2008=100, s. a.

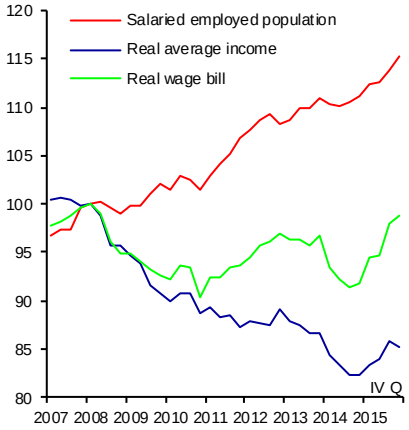



s. a. / Seasonally adjusted and trend data. The former is represented by a solid line, the latter by a dotted line.
Source: INEGI.

In contrast, at the end of 2015 gross fixed investment signaled a possible unfavorable trend change (Chart 20a). This performance is consequent on the fact that the declining trend registered in the investment in construction since early 2015, in particular in the item of non-residential construction (Chart 20b), has recently been joined by deceleration of investment in machinery and equipment. Indeed, imports of capital goods contracted in the fourth quarter of 2015, following a positive trend over the first three quarters of the year (Chart 20c).

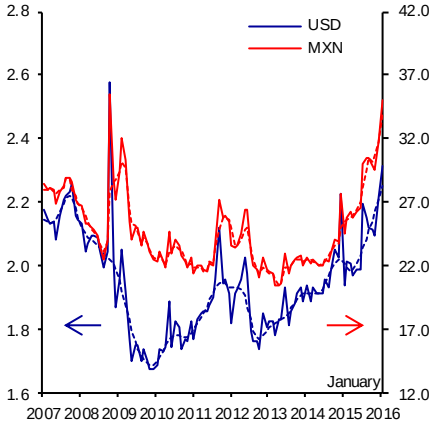
**Chart 19**
**Consumption Determinants**

a) Total Real Wage Bill
Index I-2008=100, s. a.



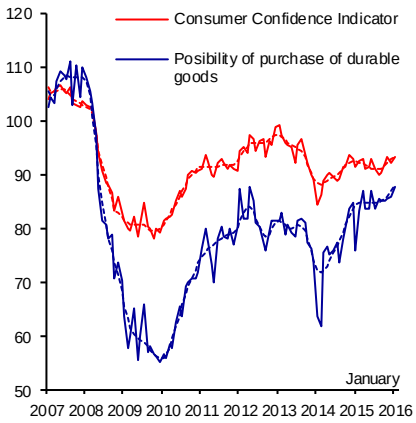

s. a. / Seasonally adjusted data.
Source: Prepared by Banco de México with data from the National Employment Survey (ENOE), INEGI.

b) Workers' Remittances
Billion, constant USD and MXN,[1/]
s. a.




s. a. / Seasonally adjusted and trend data. The former is represented by a solid line, the latter by a dotted line.
1/ Prices as of the second fortnight of December 2010.
Source: Banco de México.

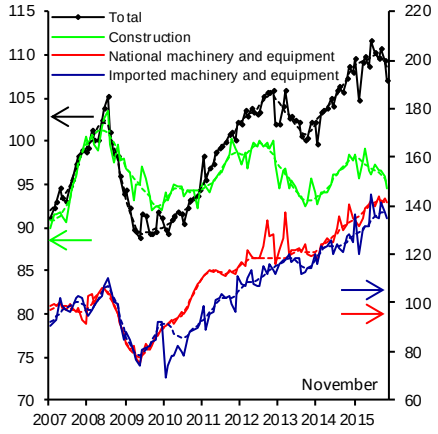
c) Consumer Confidence
Index January 2003=100, s. a.




s. a. / Seasonally adjusted and trend data. The former is represented by a solid line, the latter by a dotted line.
Source: National Consumer Confidence Survey (ENCO), INEGI and Banco de México.

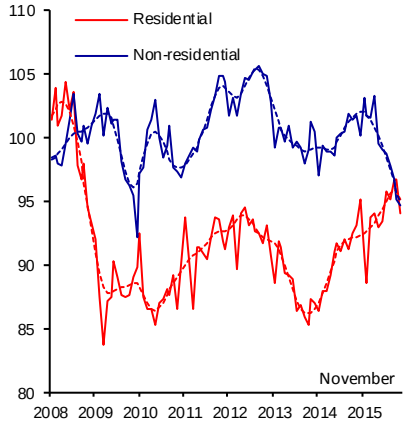
**Chart 20**
**Investment Indicators**
Index 2008=100, s. a.

a) Investment and its Components



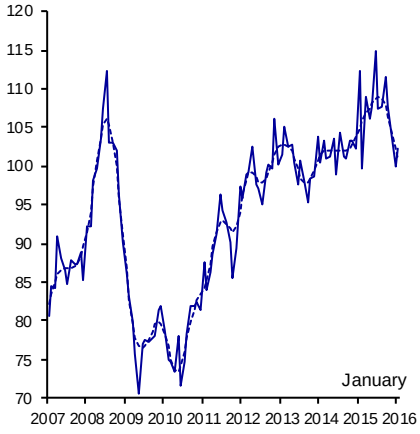

s. a. / Seasonally adjusted and trend data. The former is represented by a solid line, the latter by a dotted line.
Source: Mexico's National Accounts System, INEGI.

b) Investment in Residential and Non-residential Construction




s. a. / Seasonally adjusted and trend data. The former is represented by a solid line, the latter by a dotted line.
Source: Mexico's National Accounts System, INEGI.

c) Capital Goods' Imports



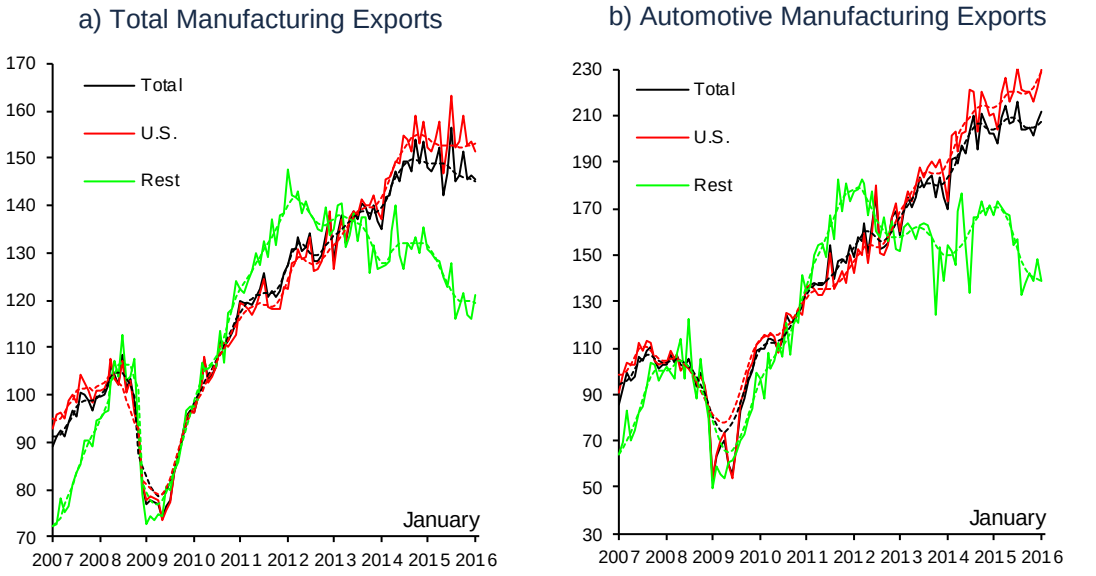

s. a. / Seasonally adjusted and trend data. The former is represented by a solid line, the latter by a dotted line.
Source: Ministry of Finance (SAT), Ministry of Economy (SE), Banco de México, INEGI. Merchandise Trade Balance. SNIEG. Information of National Interest.

As regards external demand, despite the depreciation of the real exchange rate of MXN against the U.S. dollar, manufacturing exports remained stagnant in the last quarter of 2015 and in January 2016, which was congruent with the weakness of U.S. industrial activity and the deterioration of demand from the rest of the world (see Box 1) (Chart 21a). Indeed, both automotive and non-automotive exports to

the U.S. presented a low dynamism, while those to the rest of the world continued exhibiting a negative trend (Chart 21b and Chart 21c). In particular, the low growth rate of automotive exports to the U.S. in late 2015 could be associated to the fact that, for the most part, they seek to meet the needs of the sedan segment of the market, which reduced its demand relative to that of passenger vans, possibly as a consequence of a lower gasoline price in the U.S.

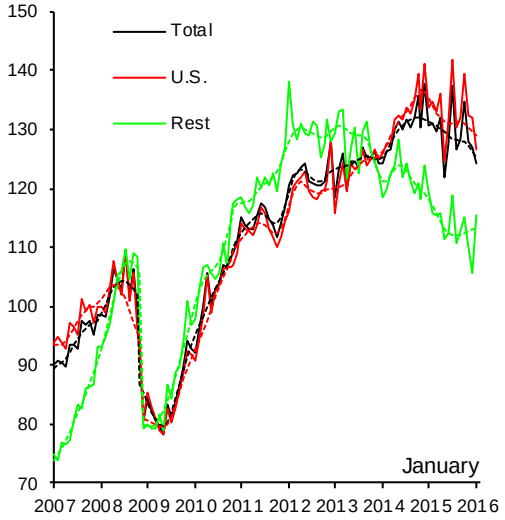
On the other hand, oil exports continued with a downward path, which in the reported period reflected both the drop in exports prices of the Mexican blend of crude oil and a smaller volume of exports (Chart 21d).

**Chart 21**
**Export Indicators**
Index 2008=100, s. a.



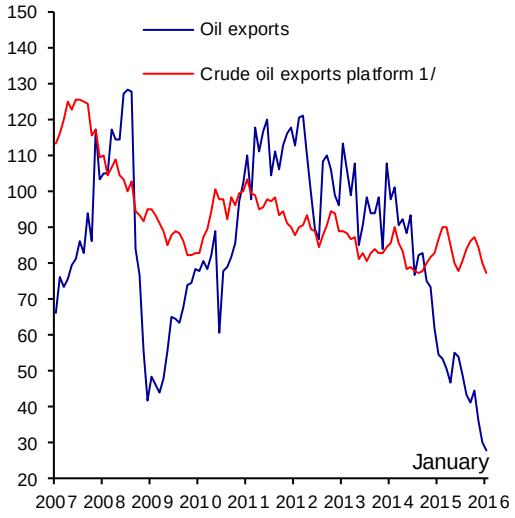

s. a. / Seasonally adjusted and trend data. The former is represented by a solid line, the latter by a dotted line.
Source: Banco de México with data from Ministry of Finance (SAT), Ministry of Economy (SE), Banco de México, INEGI. Merchandise Trade Balance. SNIEG. Information of National Interest.

c) Non-automotive Manufacturing Exports




s. a. / Seasonally adjusted and trend data. The former is represented by a solid line, the latter by a dotted line.
Source: Banco de México with data from Ministry of Finance (SAT), Ministry of Economy (SE), Banco de México, INEGI. Merchandise Trade Balance. SNIEG. Information of National Interest.

d) Oil Exports and Crude Oil Export Platform




s. a. / Seasonally adjusted data.
1/ 3-month moving average of daily barrels.
Source: Ministry of Finance (SAT), Ministry of Economy (SE), Banco de México, INEGI. Merchandise Trade Balance. SNIEG. Information of National Interest, and Banco de México with data from *PMI Comercio Internacional*, S.A. de C.V.

## Box 1
## Analysis of the Recent Evolution of Mexican Manufacturing Exports to the U.S.

### 1. Introduction

Mexican manufacturing exports stagnated during 2015, at the same time as U.S. industrial production and world demand markedly decelerated. However, this performance could seem atypical given a sharp depreciation of the real exchange rate shown by the national currency.

The slowdown of the world trade following the global financial crisis, in an environment in which different currencies depreciated against the U.S. dollar, generated a renewed interest in the analysis of the sensitivity of a country's exports to the shocks in the real exchange rate.[1] It has been argued that the higher prevalence of global value chains could account for a part of this apparent lower response. Indeed, when countries share production chains, a depreciation of one of these countries' currencies not only implies that its exports can be sold cheaper, but also that the cost of its inputs increases, thus lowering the favorable effect of depreciation, as compared to the scenario in which all inputs are produced locally. Furthermore, in the integration of production chains, changes in the demand for exports by the country at the end of the production chain affect the country producing intermediate goods, as opposed to a situation where only final goods are exported, case in which only the direct demand of a purchasing country would be relevant. Thus, the effect of a lower demand for intermediate inputs by a purchasing country can offset part of the positive impact of the real exchange rate depreciation on the selling country's exports.

For a number of decades, Mexico has shared production chains with the U.S., particularly after the implementation of NAFTA, to a degree in which the two countries' economic cycles synchronized.[2] Thus, given the existence of productive chains between the manufacturing sectors of Mexico and the U.S., the factors affecting the performance of the U.S. manufacturing sector impact, in turn, production and exports of the Mexican manufacturing sector. In this sense, the referred factors, for example a drop in U.S. exports, could even be more significant for understanding the evolution of Mexican exports than the changes in the real exchange rate of the Mexican peso against the U.S. dollar, at least in the short term. Indeed, although a depreciation could boost Mexican exports, its full effect may take time to realize, given that firms take time in adjusting their production and investment decisions, since they need to modify their allocation of productive resources. On the other hand, if U.S. exports decline, its effect on the imports of Mexican inputs is more immediate.

This Box presents evidence that manufacturing exports of Mexico to the U.S. are relatively more sensitive to changes in the level of external demand, measured via the U.S. manufacturing production, as compared to the shocks in the real exchange rate. Moreover, the analysis also suggests that the response to the variations in the U.S. manufacturing production is more immediate. These results are in line with the expected direction, considering Mexico's integration in the U.S. production chains.

Related to the previous point, the Box also presents evidence of a recent slump in U.S. import demand for intermediate goods. This reduction could, in turn, be associated with a lower volume of U.S. exports, as a result of both the generalized appreciation of the U.S. dollar and a lower global expansion. Mexico's exports of this type of products also deceased, consistent with a lower U.S. demand. From a lower frequency perspective, smaller U.S. exports and imports of manufacturing goods could be due to the technological change in the U.S. that induced a reallocation of labor-intensive manufacturing to other regions of the world.

### 2. Relation between Mexican manufacturing exports to the U.S. and the U.S. manufacturing production and the real exchange rate of the Mexican peso against the U.S. dollar

Chart 1 shows the correlation between Mexican manufacturing exports and U.S. manufacturing production illustrating the deceleration in the growth of the U.S. manufacturing production between 2014 and 2015, which was also observed in Mexican manufacturing exports to this country in the same period. In contrast, the correlation between Mexican manufacturing exports and the real exchange rate of the Mexican peso against the U.S. dollar is less evident (Chart 1).

On the other hand, the real exchange rate of the U.S. dollar seems to show a closer correlation with this country's manufacturing production (Chart 2). Thus, the generalized appreciation of its currency seems to be one of the factors that triggered the deceleration of its manufacturing production, apart from the decrease in international trade and a lower world economic growth. In this way, the generalized appreciation of the U.S. dollar and its negative impact on U.S. exports seem to have, in turn, affected Mexican exports.

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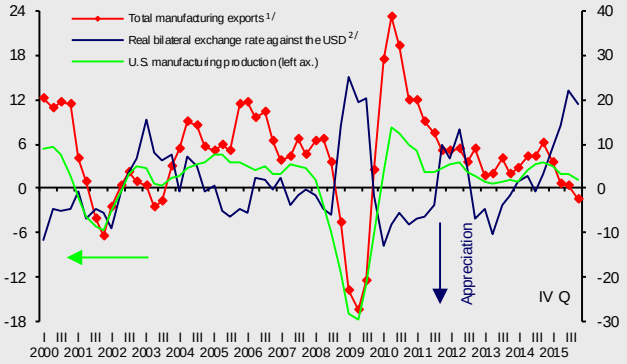
[1] See the documents Haltmaier Jane (2015), "The slowdown in global trade," FRB IFDP Notes; IMF (2015), "Exchange rates and trade flows: disconnected?," Chapter 3 of the World Economic Outlook, October; and Ahmed et al. (2015), "Depreciations without exports? Global value chains and the exchange rate elasticity of exports," World Bank policy research working paper.

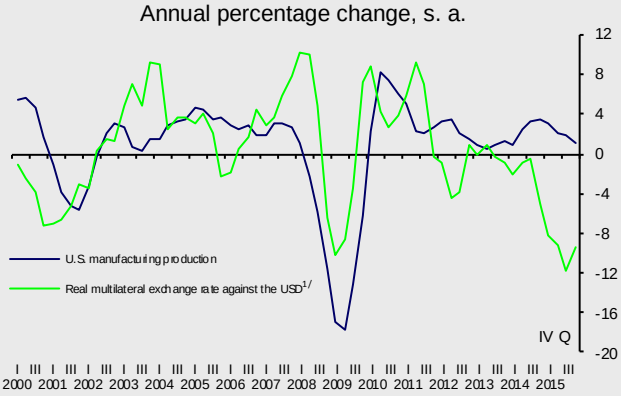
[2] See Chiquiar, Daniel and Manuel Ramos-Francia (2005), "Trade and business-cycle synchronization: evidence from Mexican and U.S. manufacturing industries," The North American Journal of Economics and Finance and the corresponding boxes of the Quarterly Reports January - March 2014 and April - June 2015.

**Chart 1**
**Mexican Manufacturing Exports, Real Bilateral Exchange Rate against the U.S. dollar, and U.S. Manufacturing Production**
Annual percentage change, s. a.




s. a. / Seasonally adjusted data.
1/ From figures expressed in millions of current U.S. dollars.
2/ Data without seasonal adjustment.
Source: Banco de México and U.S. Federal Reserve.

**Chart 2**
**Real Exchange Rate and U.S. Manufacturing Production**
Annual percentage change, s. a.




s. a. / Seasonally adjusted data.
1/ Data without seasonal adjustment.
Note: A depreciation of the real multilateral exchange rate against the U.S. dollar is reflected in positive percentage changes.
Source: U.S. Federal Reserve.

The impact of the changes in the U.S. manufacturing production and the real bilateral exchange rate between Mexico and the U.S. onto Mexican exports is estimated formally, using an error correction model (ECM) relating those variables. The estimation was carried out using the quarterly seasonally adjusted figures from the first quarter of 1994 to the fourth one of 2015.

The identified long-term relation is the following:

$$X_t = \underset{(0.34)}{1.40}\, Y_t^{U.S.} + \underset{(0.21)}{0.44}\, RER_t + EC_t$$

Likewise, the following specification of the short-term dynamics was obtained:

$$\Delta X_t = -\underset{(0.20)}{0.30} - \underset{(0.03)}{0.09}\, EC_{t-1} - \underset{(0.04)}{0.11}\, \Delta X_{t-3} + \underset{(0.11)}{1.90}\, \Delta Y_t^{U.S.} - \underset{(0.11)}{0.31}\, \Delta Y_{t-8}^{U.S.} - \underset{(0.03)}{0.12}\, \Delta RER_{t-1} + \underset{(0.02)}{0.05}\, \Delta RER_{t-2} + \underset{(0.02)}{0.13}\, \Delta RER_{t-4}$$

Where:

X = Manufacturing exports to the U.S. in constant U.S. dollars, seasonally adjusted and deflated with the U.S. consumer price index.

$Y^{U.S.}$ = Index of the seasonally adjusted volume of the U.S. manufacturing production.

RER = Real bilateral exchange rate with consumer prices.

EC = Error correction term.

It can be observed that sensitivity of exports to the evolution of the U.S. manufacturing production is greater than that referring to the real exchange rate, which can be appreciated in the magnitude of the estimated coefficients. This is evident both in the long-term relation and in the short-term dynamics. It should be stressed that the short-term response of Mexican exports to the real exchange rate fluctuations is very limited, although statistically it is indeed different from zero. However, long-term elasticity is greater. This result suggests that exporting firms take some time to react to real exchange rate fluctuations. A simulation of the model in which the exchange rate increases exogenously in the first quarter of the year suggests that the greatest effect will be observed throughout the year following the shock. That is, positive effects of a real exchange rate depreciation on exports are clearly observed between 5 and 8 quarters after the said depreciation.

The estimated model allows calculating to what extent the deceleration of the U.S. industrial production led to a lower growth of Mexican manufacturing exports to this country. In particular, in a contrafactual scenario in which the U.S. manufacturing sector would have grown 2.8 percent in 2015 (at an average rate observed over the last six years), rather than 2.0 percent registered during the year, Mexican manufacturing exports to this country would have grown at a rate of 4.5 percent, as compared to the registered 2.5 percent.

On the other hand, even though the effects of the real exchange rate depreciation are moderate in the short term, long-term elasticity estimated in the model suggests that the increment in the real exchange rate of the Mexican peso against the U.S. dollar, as the one registered in 2015, of 16.2 percent, could imply that exports located 7.1 percent above the figure that could have been observed in the absence of such a depreciation, once all the effect takes place. Thus, even though the sensitivity to the U.S. industrial production is greater than to that to the real exchange rate, the magnitude of the shock to the latter variable suggests that it could significantly boost Mexican exports over the next quarters. However, the adverse shocks to the level of U.S. manufacturing production could be offsetting the said impulse.

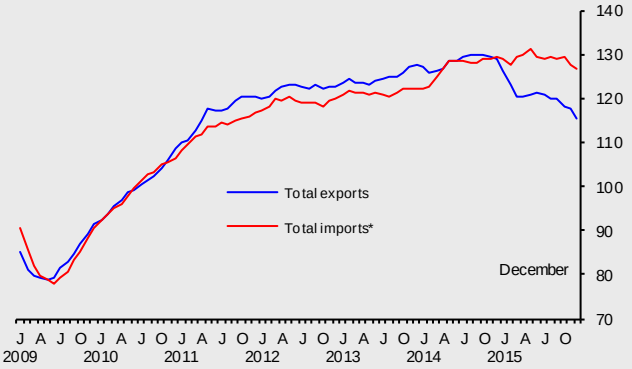
### 3. Imports of U.S. intermediate inputs

As mentioned above, the results reported in this Box, in particular the considerable effect of the U.S. manufacturing production on Mexican exports, which is even bigger than that of the real exchange rate, could be partly due to the fact that Mexico and the U.S. share production chains of manufactured goods. In this sense, the fall in the U.S. external demand generated important adverse consequences on Mexican exports. Indeed, U.S. exports decelerated significantly, in light of a lower global growth and the generalized U.S. dollar appreciation. In connection to that, its imports have also stagnated (Chart 3). This decline in imports is largely due to the drop in imports of materials and industrial supplies (Chart 4). In particular, the referred imports observed a sharp contraction of 27.6 percent in the period from March 2014 to December 2015.

Congruent with lower U.S. demand for intermediate goods, imports of this type of goods from Mexico are the ones that contracted the most (Chart 5).[3] Thus, a lower demand for intermediate goods affected the evolution of manufacturing exports of Mexico.[4] It should be pointed out that Mexico has not lost its share in the U.S. imports of intermediate goods, which suggests that weakness in this type of exports has been consequent on lower demand, and not on lower competitiveness of the country (Chart 6).

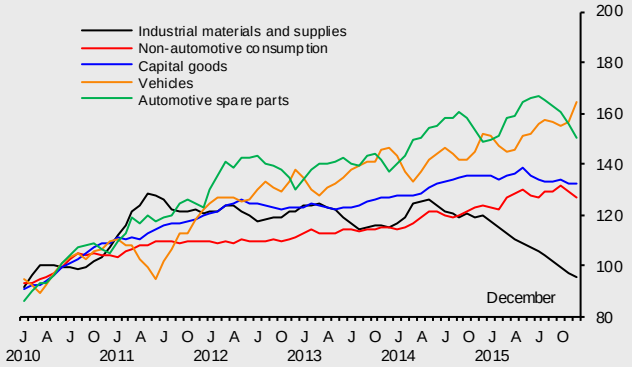
The information presented hereby also allows us to note that, in contrast, U.S. exports of final goods, such as the non-automotive consumer goods and vehicles, presented a positive trend. The above was possibly a consequence of the fact that U.S. demand for these goods maintained a more favorable dynamism as compared to the external sector. Hence, Mexican imports of this type of goods also increased, even though a recomposition in automotive imports coming from Mexico has been observed, from finished vehicles to automotive spare parts.

**Chart 3**
**U.S. Exports and Imports***
Indices 2010=100, 3-month moving average, s. a.



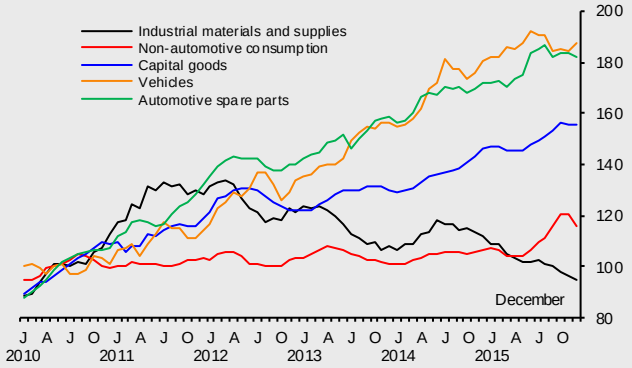

s. a. / Seasonally adjusted data.
* Excluding crude oil.
Source: U.S. Department of Commerce.

**Chart 4**
**Total U.S. Imports, excluding Crude Oil, by Good's Final Use**
Indices 2010=100, 3-month moving average, s. a.




s. a. / Seasonally adjusted data.
Source: Prepared by Banco de México with data from the U.S. Department of Commerce.

**Chart 5**
**U.S. Imports, excluding Crude Oil, from Mexico, by Good's Final Use**
Indices 2010=100, 3-month moving average, s. a.

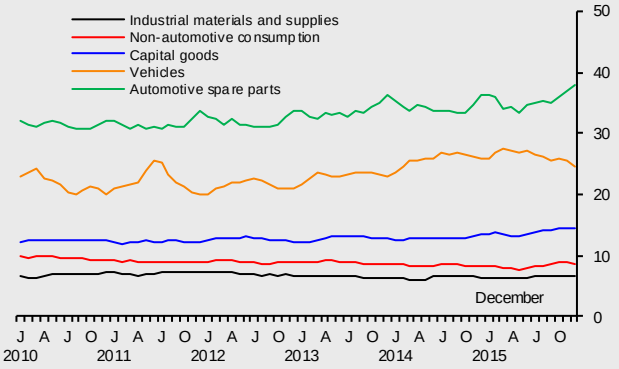



s. a. / Seasonally adjusted data.
Source: Prepared by Banco de México with data from the U.S. Department of Commerce.

[3] The U.S. Department of Commerce publishes total imports of this country by each good's end use. For the analysis presented here, this classification has a stipulation, according to which each good is classified only in one of the import types, so that, for instance, all computers are considered capital goods, and it is impossible to distinguish if some of them could be used at an intermediate stage of production. Regarding the classification of imports coming from Mexico, given that the U.S. Department of Commerce does not release this data on a monthly basis, the information from the Harmonized System of Customs Classification and the table of equivalence between this system and the goods' final use were used to estimate it.

[4] Although intermediate exports of Mexico represented around 10 percent of exports, excluding crude oil, to the U.S. in March 2014, before the recent fall in U.S. imports of this type of goods, the decrease has been so marked that it affected the evolution of total Mexican exports.

**Chart 6**
**Mexico's Share in U.S. Imports, excluding Crude Oil, by Good's Final Use**
Percent, s. a.




s. a. / Seasonally adjusted data.
Source: Prepared by Banco de México with data from the U.S. Department of Commerce.

### 4. Final remarks

Results in this Box suggest the risk that shocks to the volume of external demand could continue offsetting the possible push to Mexican exports, coming from the real exchange rate depreciation of the Mexican peso against the U.S. dollar.

In this sense, the importance of pursuing the adequate implementation of structural reforms stands out. On the one hand, these would allow generating domestic sources of growth that would support the strength of the Mexican macroeconomic framework in a more complex international environment. Furthermore, and in a manner directly related to the results of this analysis, they would allow the Mexican economy to have the required flexibility for the producers to be able to quickly and efficiently reallocate their productive resources, in a way consistent with the depreciation of the real exchange rate.

As regards production, the economic growth in the fourth quarter fundamentally reflected the dynamism of the services sector, while industrial production remained stagnant (Chart 22a).

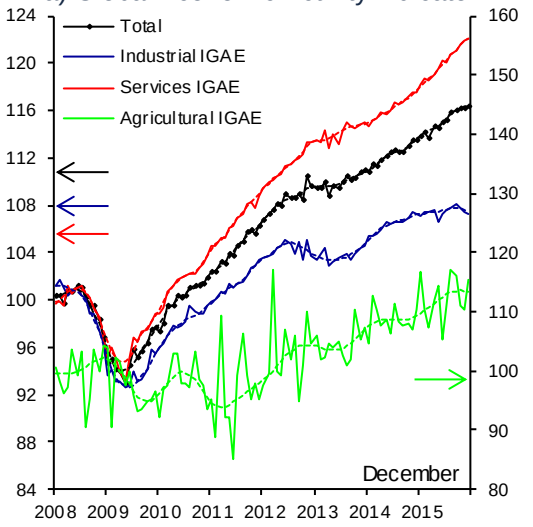
i. In particular, in the period of October – December, within industrial production the electricity sector kept expanding at a fast rate, partly as a result of the implementation of the structural reform in this sector. On the other hand, despite a positive trend, the manufacturing production decelerated significantly in light of the weak U.S. industrial activity and demand from other countries. In contrast, in the construction sector a negative trend persisted (Chart 22b). Likewise, mining continued declining, in particular consequent on decreases in the subsector related to the oil well exploration (Chart 22c).

ii. In the last quarter of 2015, a practically generalized growth of all components of the services' sector occurred (Chart 22d). However, the dynamism of some services more related to consumption, such as in the trading sector and the mass media information sector, stands out. On the contrary, corporate and businesses management services, as well as leisure, cultural and recreational services contracted.

iii. In the fourth quarter of 2015, primary activities decreased, derived from a smaller harvest of a number of crops of the spring-summer cycle and some perennial crops.

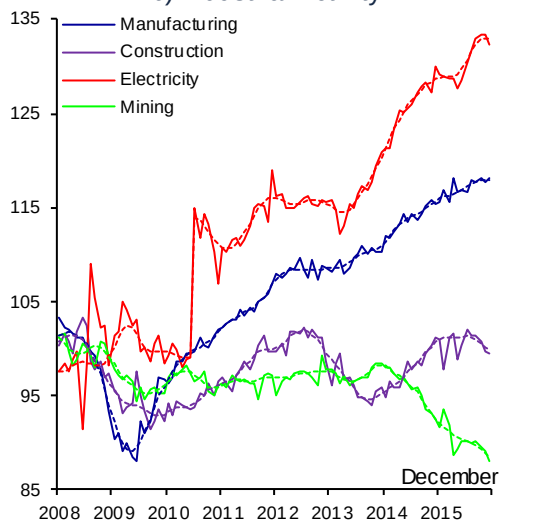
**Chart 22**
**Production Indicators**
Index 2008=100, s. a.

a) Global Economic Activity Indicator



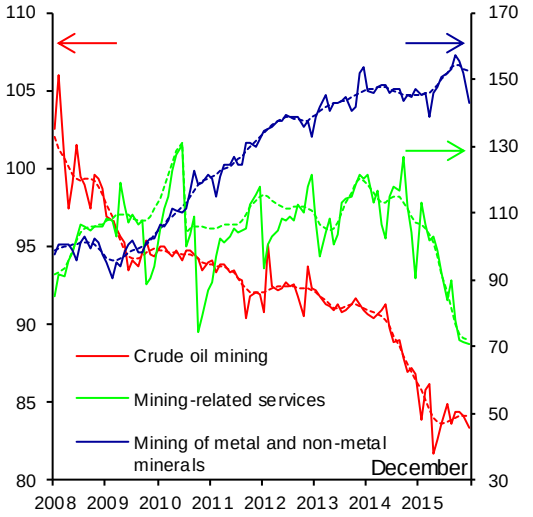

s. e. / Seasonally adjusted and trend data. The former is represented by a solid line, the latter by a dotted line.
Source: Mexico's National Accounts System, INEGI.

b) Industrial Activity



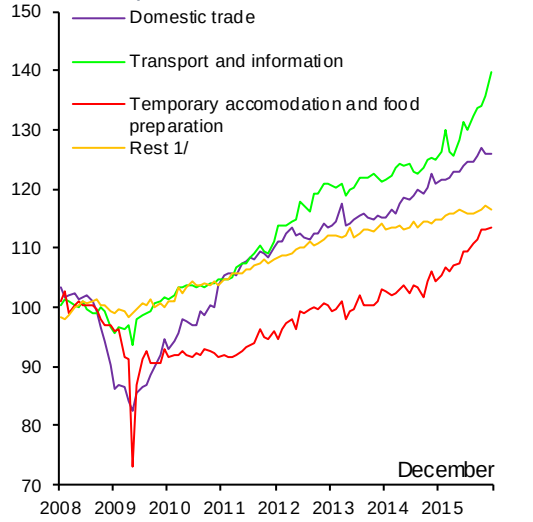

s. a. / Seasonally adjusted and trend data. The former is represented by a solid line, the latter by a dotted line.
Source: Monthly Industrial Activity Indicator, Mexico's National Accounts System, INEGI.

c) Mining Sector




s. a. / Seasonally adjusted and trend data. The former is represented by a solid line, the latter by a dotted line.
Source: Monthly Industrial Activity Indicator, Mexico's National Accounts System, INEGI.

d)Services' Sector IGAE



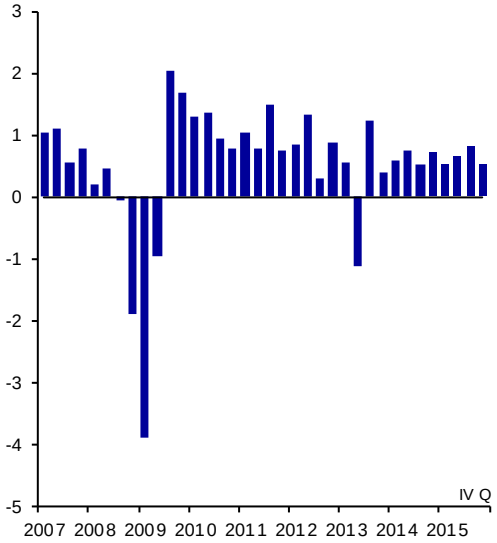

s. a. / Seasonally adjusted data.
1/ Includes the rest of the services' sectors.
Source: Prepared by Banco de México with data from Mexico's National Accounts System, INEGI.

As a result of the above, economic activity showed a seasonally adjusted quarterly growth of 0.5 percent in the fourth quarter of 2015, which is compared to the growth rate of 0.8 percent in the previous one (Chart 23a). Both seasonally adjusted data and data without seasonal adjustment indicate that the Mexican economy presented an annual increase of 2.5 percent in the reference quarter, compared to 2.7 percent in the third quarter with seasonally adjusted data, and to 2.8 percent of original data (Chart 23b). Based on this result, GDP growth in Mexico in 2015 was

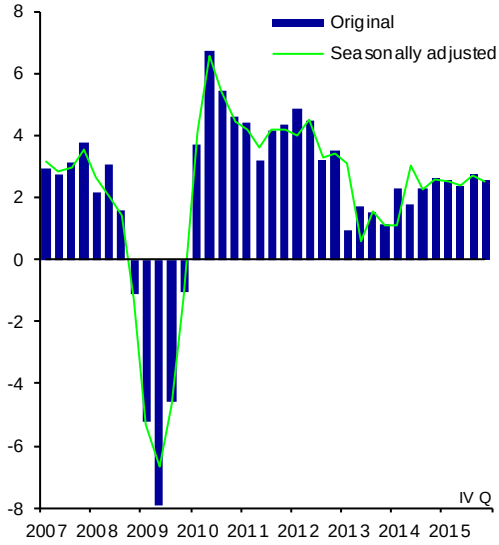
2.5 percent, slightly above 2.3 percent registered in 2014, and that estimated by Banco de México.

**Chart 23**
**Gross Domestic Product**

a) Quarterly Change
Percent, s. a.




b) Annual change
Percent




s. a. / Seasonally adjusted data.
Source: Mexico's National Accounts System, INEGI.

In the fourth quarter of 2015, Mexico's trade balance showed a deficit of USD 3,939 million (Chart 24a), while for the year as a whole it presented a negative balance of USD 14,460 million, which is compared to a balance of USD 2,849 million observed in 2014. The said change mainly reflected the decrease in the oil trade balance, which shifted from a surplus of USD 1,097 million in 2014 to a deficit of USD 9,855 million in 2015. On the other hand, non-oil trade balance rose from USD 3,945 million to USD 4,605 million, in the same time frame. The deterioration in the oil trade balance in 2015 was due to the decline in the terms of oil trade, to the fact that the crude oil exports' platform did not show clear signs of recovery and to the increment in the volumes of imports of oil-derived products (see Box 2).

Finally, in the last quarter of 2015, the current account registered a deficit similar to those registered in the first three quarters of 2015 (Chart 24b). It should be emphasized that, despite a reduction in the holdings of government securities by non-residents, the rest of the items of the financial account, including direct foreign investment, received sufficient resources to finance the current account deficit.

## Box 2
## Recent Performance of the Global Oil Market and its Effects on the Oil Trade Balance of Mexico

### 1. Introduction

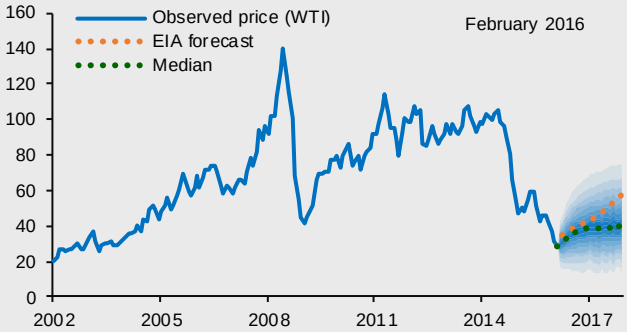
From 2014 onwards, the international crude oil price has decreased significantly, hence adversely affecting the oil trade balance of Mexico. This Box analyzes the performance of the world crude oil market and explains that the reduction in the crude oil price is consequent on both supply and demand factors. Furthermore, for the case of Mexico, it is shown that the decline in the price of the Mexican exports blend led to a deterioration in the terms of trade of oil-derived products, which, together with a significant increment in the volume of imports and a relatively stable platform of crude oil exports, led to a shift in the crude oil balance of Mexico from a surplus of USD 1,097 million in 2014 to a deficit of USD 9,855 million in 2015.

### 2. Evolution and outlook of the world oil market

Oil prices have plunged since mid-2014, from USD 107 per barrel in June 2015 to less than USD 30 per barrel in mid-January 2016, attaining a minimum level of USD 26.2 per barrel on February 11, according to the quote of the West Texas Intermediate (WTI) (Chart 1). This evolution in the crude oil price generated important macroeconomic effects in petroleum exporting countries.

Over the previous years, crude oil prices increased due to a growing demand from emerging economies, in particular China. This increment triggered a significant expansion in oil production.

**Chart 1**
**Oil Price and its Outlook**
USD/barrel

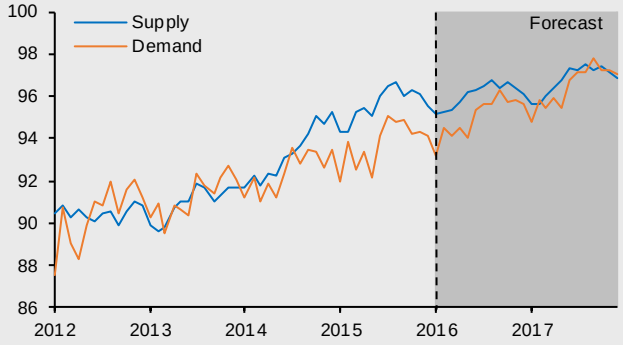



Note: 95% confidence interval and the median are estimated based on the probability distribution extracted from option prices on crude oil prices (WTI) as of February 5, 2016.
Source: Prepared by Banco de México with data from EIA and Bloomberg.

However, derived from this environment, suppliers of this fuel took certain measures that generated an imbalance between the supply and demand in the global oil market, as well as a plunge in oil prices (Chart 2). In particular, the following factors should be highlighted:

- Continued efforts undertaken by non-OPEC countries to increase their productive capacity, with the case of the U.S. standing out. In particular, the development of new technologies with lower requirements of investment and shorter production horizons, as is the case of shale oil in the U.S., boosted production and increased competitive pressures in this market.
- A drastic change regarding the OPEC response, as it decided to maintain its production levels, despite a slump in crude oil prices and a spike in the inventory levels.
- Further increments expected in the global crude oil supply, as a result of the recent elimination of economic sanctions against Iran, and, to a lower extent, the recent decision of the U.S. to repeal ban on exports of crude oil.

**Chart 2**
**World Supply and Demand of Crude Oil**
Million barrel a day




Source: EIA.

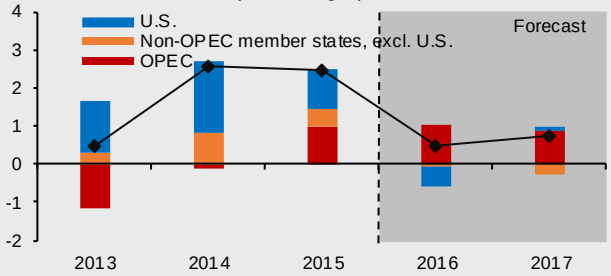
Additionally, some demand-related factors, such as the persisting deterioration in the world economic outlook, weak industrial activity at the global level, and, a warmer winter in the Northern hemisphere, as an occasional factor, negatively affected the recent evolution of the crude oil price.

The reaction of the world supply to low crude oil prices turned out to be more moderate than expected. In particular, U.S. oil production remained more solid than expected, despite the significant reductions in investment in the sector and in the number of operating oil fields (Chart 3).[1]

[1] This country's producers responded to low crude oil prices by reducing costs and boosting productivity, concentrating their production in the most efficient fields, which attenuated the decline in production.

On the other hand, in its meeting of December 2015, OPEC ratified its stance to maintain unchanged its production levels, which are expected to persist high in the future. Additionally, the production of Iran is estimated to spike.[2] In this environment, recently some of the main oil producing countries, in particular Russia and Saudi Arabia, reached a tentative agreement to maintain their production at the January levels, in order to enhance price stability. Still, the impact of this agreement onto prices is still uncertain, since it does not encompass such important oil producing countries, as Iran and Iraq.

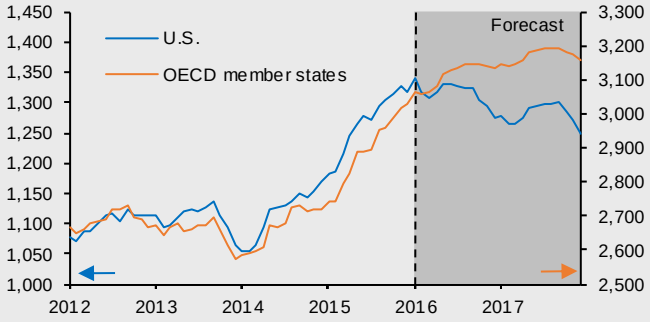
**Chart 3**
**World Oil Supply**
Annual change in percent and shares in percentage points




Source: EIA.

In these conditions of excess of supply, crude oil inventories are anticipated to remain at historically high levels at least for the next two years. According to the projections of the U.S. Energy Information Administration, inventories accumulation is estimated towards the first half of 2017 (Chart 4).

**Chart 4**
**Oil Inventories**
Million barrels




Source: EIA.

Thus, the world oil market will maintain a significant structural imbalance between supply and demand. As a result, depressed prices and high volatility are expected to persist in the medium term. In addition, the balance of risks for these prices still has a downward bias, derived from the possibility that crude oil exports from Iran will be higher than expected, that U.S. shale oil production will be stronger than anticipated and that the world growth outlook will deteriorate even further, thus decreasing crude oil demand.

[2] U.S. EIA estimates that the production of Iran may shift from an average of 2.8 million barrels a day in 2015 to 3.1 million barrels a day in 2016, and to almost 3.6 million barrels a day in 2017.

## 3. Recent performance of the Mexican oil balance

Shocks in the world crude oil market affected the Mexican economy, and, in particular, the oil trade balance. Indeed, this balance has been deteriorating in recent years, which accentuated in 2015. As specified in this section, the referred deterioration reflected both a decrease in terms of oil trade and an increment in the volume of imports of oil-derived goods, in a context in which the crude oil volume exported by Mexico remained stagnant.

### 3.1 Effects of lower terms of trade

Consistent with the negative evolution of oil prices at the world level, the price of the Mexican blend for exports (PME) also plunged. Indeed, in 2015 the PME presented an annual drop of 49 percent, shifting from an average price of USD/barrel 86.00 in 2014 to USD/barrel 43.88 in 2015 (Chart 5).

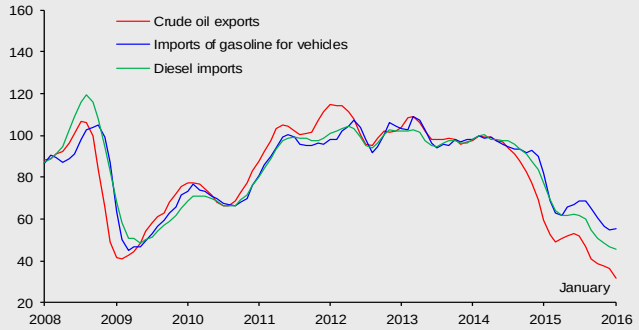
Likewise, consequent on the reduction in the international crude oil price, prices of oil-derived goods also declined. In particular, the international gasoline price reduced significantly. Specifically, the average price of gasoline imported to Mexico changed from USD 0.74 per liter in 2014 to USD 0.50 per liter in 2015, which implied an annual reduction of 31.9 percent (Chart 5). As can be appreciated, this drop was less than proportional as compared to that of the crude oil drop, which could be due to the fact that gasoline is a good with a higher degree of processing. Similarly, the price of Mexican imports of diesel reduced significantly, although to a lesser degree than the PME, as well.[3]

This performance of the prices of oil exports and imports suggests that the terms of oil trade in Mexico have recently deteriorated. In this context, the referred terms of trade were estimated using two methodologies. Both methods face the difficulty to obtain adequate information regarding the unit values of exports and imports, which is the information required for the estimation.[4]

[3] In 2015, imports of gasoline for vehicles amounted to 38.9 percent of total gasoline imports and imports of diesel totaled 13.2 percent.

[4] Foreign trade information validates the values of imports and exports, rather than the volume of goods. This exercise implied the verification of data consistency, to the extent possible.

**Chart 5**
**Unit Value of Crude Oil Exports and Imports**
Indices February 2014=100, 3-month moving average, s. a.




s. a. / Seasonally adjusted data.
Source: Prepared by Banco de México with data from Ministry of Finance (SAT), Ministry of Economy (SE), Banco de México, INEGI. Merchandise Trade Balance of Mexico. SNIEG. Data of national interest.

In the first methodology, constructing the unit value of imported oil-derived products required the manual validation of data consistency regarding these goods' volumes. Subsequently, the unit value index of the main imported oil-derived products was calculated, weighting the indices by product with the structure of the imports value of these goods' basket as of February 2014.[5] Based on this data, the terms of trade were estimated, which were defined as the ratio of the PME index to the index of the unit value of the main imported oil-derived products.[6]

The second methodology is based on Anitori, et al. (2008).[7] In this case, to overcome the difficulties in order to obtain adequate data regarding the unit values of exported and imported goods, a statistical algorithm was used, that eliminated atypical observations in the unit values. In particular, this algorithm makes use of the assumptions regarding the distribution of unit values by product for each months, together with the data at the transaction level.[8] In this estimation, Fisher indices are calculated for the unit values of imports and exports to use them in the estimation of the terms of trade.

[5] February 2014 was chosen as a baseline, as from this month onwards oil exports presented a persisting downward trend.

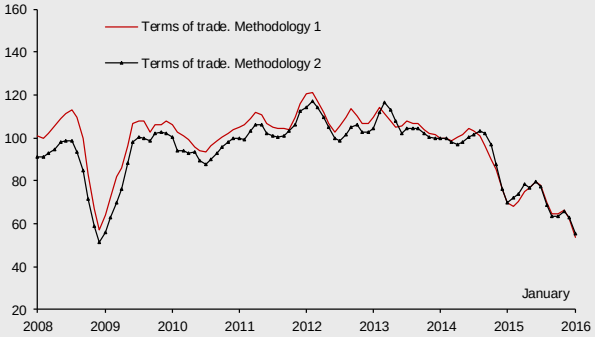
[6] Incorporating 100 percent of operations of traded oil goods was impossible, given the difficulty to validate the data. However, the index seems to be representative of the Mexican oil trade, as it included around 80 percent of the oil exports' value (corresponding to crude oil) and 85.8 percent of the value of imports in 2015 (corresponding to the main 8 products).

[7] Anitori, Paola and Maria Serena Causo (2008), "Outlier Detection and Treatment: Quality Improvements in the Italian Unit Value Indexes", ISTAT – the Italian National Institute of Statistics.

[8] The algorithm eliminates products with less than 10 transactions a month, with the exception of exported crude oil, and the imports of gasoline, diesel and natural gas. Once these products are eliminated and atypical observations are detected by the algorithm, approximately 82 percent of the value of oil exports and 79 percent of the value of oil imports in 2015 are included.

Chart 6 shows that the estimations of the terms of oil trade in Mexico, based on these two methods, yield very similar results. In particular, in both cases it is evident that the terms of oil trade have deteriorated considerably since mid-2014. As a result, the oil balance of the country experienced an important adverse impact due to this behavior.

**Chart 6**
**Terms of Oil Trade**
Indices February 2014=100, 3-month moving average

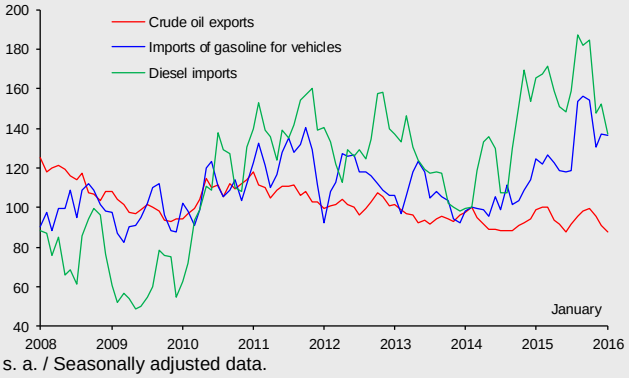



Source: Prepared by Banco de México with data from Ministry of Finance (SAT), Ministry of Economy (SE), Banco de México, INEGI. Merchandise Trade Balance of Mexico. SNIEG. Data of national interest.

### 3.2 Effects of exported and imported volumes of oil-related goods on the oil trade balance

The oil trade balance was also considerably affected by a significantly higher volume of imported oil products, while the volume of exported crude oil has not recovered (Chart 7). Indeed, while the volume of exported crude oil observed a change of only 2.65 percent in 2015, with respect to 2014, the volume of imported gasoline rose by 27.4 percent, and of diesel by 22.2 percent.

**Chart 7**
**Volume of Crude Oil Exports and Oil Imports**
Indices February 2014=100, 3-month moving average, s. a.

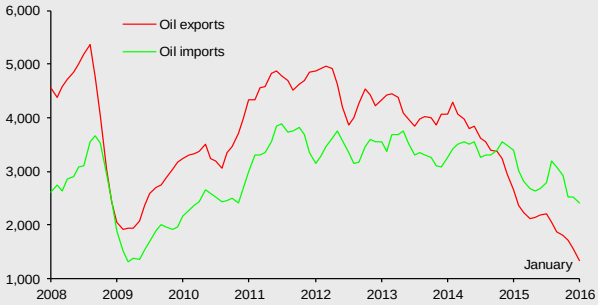



s. a. / Seasonally adjusted data.
Source: Prepared by Banco de México with data from Ministry of Finance (SAT), Ministry of Economy (SE), Banco de México, INEGI. Merchandise Trade Balance of Mexico. SNIEG. Data of national interest.

Thus, even if the terms of change had not deteriorated, the differentiated trajectory of the volume of oil imports

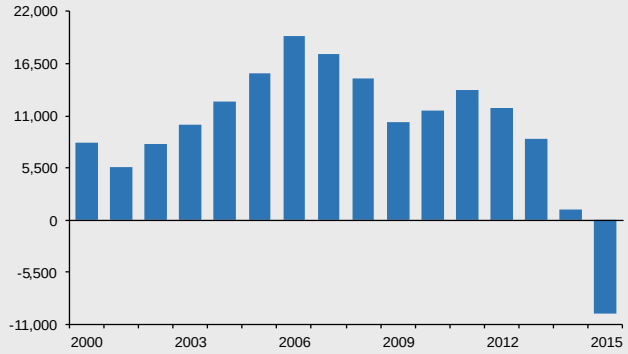
and exports would have led to a deterioration in the oil trade balance (Chart 8 and Chart 9).

**Chart 8**
**Oil Exports and Imports**
USD million, 3-month moving average, s. a.




s. a. / Seasonally adjusted data.
Source: Ministry of Finance (SAT), Ministry of Economy (SE), Banco de México, INEGI. Merchandise Trade Balance of Mexico. SNIEG. Data of national interest.

**Chart 9**
**Oil Trade Balance**
USD million




Source: Ministry of Finance (SAT), Ministry of Economy (SE), Banco de México, INEGI. Merchandise Trade Balance of Mexico. SNIEG. Data of national interest.

### 3.3 Contributions to the deterioration of the oil trade balance

To evaluate the relative importance between the changes in the prices of traded goods and changes in their volumes, it is possible to use the fact that the change in the traded volume in the product *s* can be expressed as follows:

$$\Delta Value_s = P_{s1}Q_{s1} - P_{s0}Q_{s0} = P_{s0}[Q_{s1}-Q_{s0}] + Q_{s1}[P_{s1}-P_{s0}]$$

where,

$\Delta Value_s$ = Change in the traded value of product s between 2014 and 2015.
$P_{st}$ = Price of the product s in the period t (2014 or 2015).
$Q_{st}$ = Traded volume of the product s in the period t.
$P_{s0}[Q_{s1}-Q_{s0}]$ = Effect of the variation in the traded quantity between 2015 and 2014 on the change in the traded value.
$Q_{s1}[P_{s1}-P_{s0}]$ = Effect of the variation in the price between 2015 and 2014 on the change in the traded value.

This decomposition can be calculated only for products, for which precise information regarding unit values and traded volumes is available. Thus, this disaggregation of the effects was carried out only for the products, for which it was possible to manually validate their unit values and for the remaining products the total effect was classified as "not identified". Hence, the effect of aggregated price and quantity was calculated both for exports and imports.

As can be observed in Table 1, the deterioration of USD 10,952 million in the trade balance between 2014 and 2015 was contributed to by the estimated quantity effect by 55 percent, which in turn was mainly due to the increment in the imported volume, while the exports platform did not recovery significantly. On the other hand, consistent with the deterioration in the terms of trade, the estimated price effect generated a greater impact on exports relative to imports, so that the net impact on the oil trade balance was negative.

**Table 1**
**Change in the Oil Trade Balance between 2014 and 2015: Estimation of Price and Quantity Effects**
USD million

| | Δ Exports | Δ Imports | Δ Oil trade balance |
|---|---|---|---|
| Quantity effect | 950 | 6,961 | -6,011 |
| Price effect | -18,027 | -14,229 | -3,798 |
| Not identified | -2,077 | -934 | -1,143 |
| **Total** | **-19,154** | **-8,202** | **-10,952** |

Source: Prepared by Banco de México with data from Ministry of Finance (SAT), Ministry of Economy (SE), Banco de México, INEGI. Merchandise Trade Balance of Mexico. SNIEG. Data of national interest.

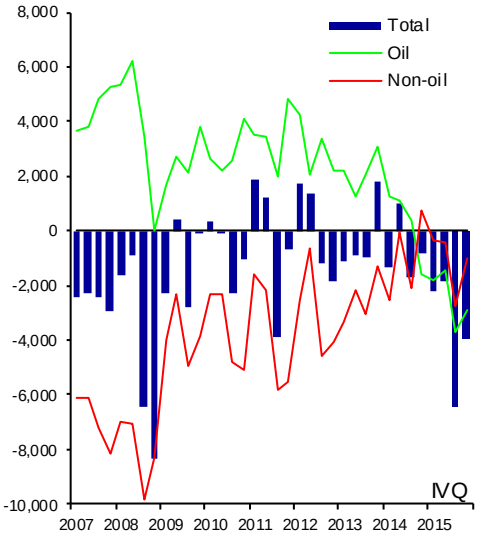
In total, the above described results point to the deterioration in the oil balance in Mexico, both due to the decrease in the terms of change, and to higher volumes of imports, in a context in which the crude oil exports platform has not recovered significantly.

## 4. Final remarks

Given a lower international crude oil price, in an international context that has become more complex, the measures of fiscal and monetary adjustment, taken by the Ministry of Finance and Banco de México, respectively, are important. In particular, these actions will allow facing the shock to the economy, derived from the deterioration in the oil trade balance, that has been observed in view of the decrease in the terms of oil trade in Mexico. Furthermore, the adjustments will contribute to strengthening the economic fundamentals of the country, so that Mexico will be in a better position to face the adverse external environment.

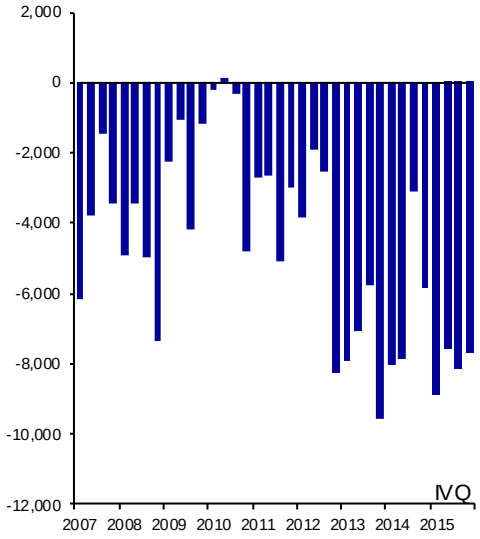
**Chart 24**
**Trade Balance and Current Account**
USD million

a) Trade Balance




Source: Ministry of Finance (SAT), Ministry of Economy (SE), Banco de México, INEGI. Merchandise Trade Balance. SNIEG. Information of National Interest.

b) Current Account




Source: Banco de México.

### 3.2.2. Labor Market

As a reflection of the moderate expansion rate of the economy, in the fourth quarter of 2015 slack conditions persisted in the labor market, although some indicators suggest that these could be gradually diminishing.

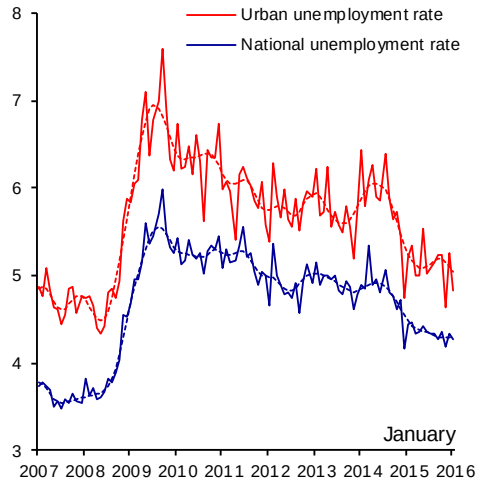
i. In the last quarter of 2015 and in January 206, the national unemployment rate presented a level similar to that in the third one, while the urban unemployment rate decreased with respect to the level of the third quarter (Chart 25a). In particular, the national unemployment rate showed an average level of 4.3 percent in seasonally adjusted terms both in the third and the fourth quarters of 2015 and in January 2016. The urban unemployment rate reduced from 5.2 percent on average in seasonally adjusted terms in the third quarter of 2015 to 5.0 percent in the fourth one and further to 4.8 percent in January 2016.

ii. This performance has been observed in a context of an increasing number of jobs in the economy, while the labor participation rate registered higher levels as compared to the first months of 2015 (Chart 25b). Indeed, the number of IMSS-adjusted employments preserved a growing trend (Chart 25c).

iii. As regards the informal sector employment, in the reference quarter and in the first month of 2016 its indicators increased incipiently relative to the third one, while they still kept locating at levels below the ones reported immediately following the global crisis (Chart 25d).

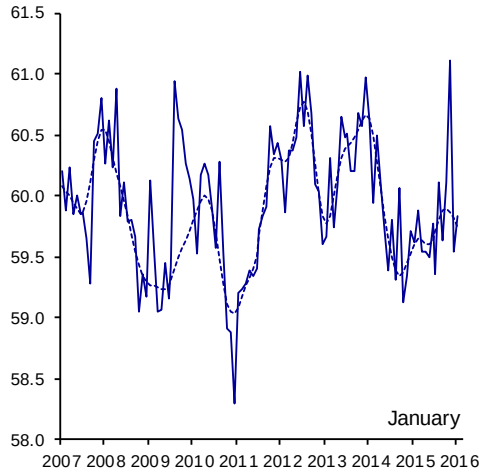
## Chart 25
## Labor Market Indicators

a) National and Urban Unemployment Rates
Percent, s. a.



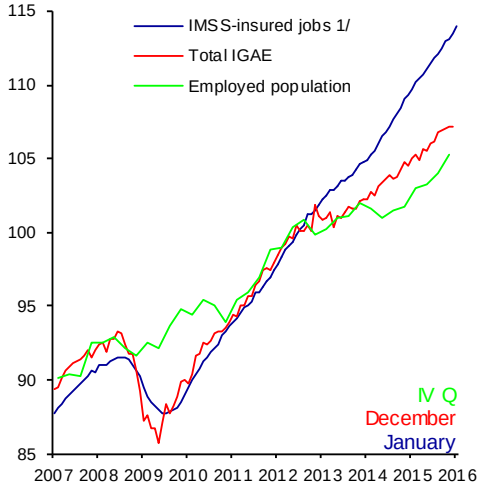

s. a. / Seasonally adjusted and trend data. The former is represented by a solid line, the latter by a dotted line.
Source: National Survey on Occupation and Employment (ENOE), INEGI.

b) Labor Participation Rate 1/
Percent, s. a.



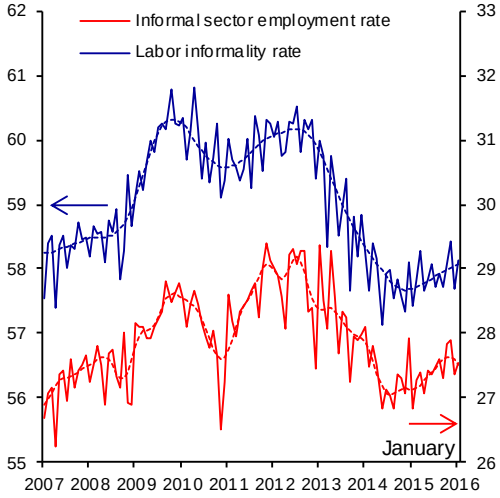

s. a. / Seasonally adjusted and trend data. The former is represented by a solid line, the latter by a dotted line.
1/ Percentage of economically active population (EAP) with respect to the population of 15 years old and older.
Source: National Survey on Occupation and Employment (ENOE), INEGI.

c) IMSS-insured Workers, Total IGAE and Working Population
Index 2012=100, s. a.




s. a. / Seasonally adjusted data.
1/ Permanent and temporary jobs in urban areas. Seasonal adjustment by Banco de México.
Source: Prepared by Banco de México with data from IMSS and INEGI (SCNM and ENOE).

d) Informal Sector Employment 1/
and Labor Informality 2/
Percent, s. a.




s. a. / Seasonally adjusted and trend data. The former is represented by a solid line, the latter by a dotted line.
1/ It refers to individuals working in non-agricultural economic units, operating with no accounting records and with households' resources.
2/ It includes workers who, besides being employed in the informal sector, work without social security protection, and whose services are used by registered economic units, and workers self-employed in subsistence agriculture.
Source: National Survey on Occupation and Employment (ENOE), INEGI.

In this context, in the last quarter of 2015 moderate wage increments persisted, although, in a context of a lower inflation, they recovered in real terms.

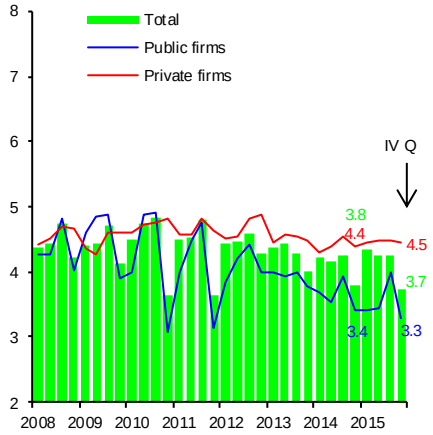
i. In the last quarter of 2015, contractual wages negotiated by firms under federal jurisdiction presented a growth rate of 3.7 percent, lower than the 3.8 percent reported in the same quarter of 2014 (Chart 26a). Likewise, in January 2016 a smaller change rate was registered as compared to 2015 (4.1 percent and 4.3 percent, respectively). In particular, while in the fourth quarter of 2015 public firms' negotiations led to a slightly lower average raise than in the same quarter of last year, private firms' negotiations resulted in a slightly higher average increment, in the same comparison. Specifically, public firms' negotiations in the last quarter of 2015 resulted in an average increment of 3.3 percent, which is below 3.4 percent in the same quarter of 2014, while private firms' negotiations derived in an average wage increment of 4.5 percent, an average above 4.4 percent reported in the fourth quarter of 2014. In January 2016, the changes were smaller both for public and private firms, and resulted in average increments of 3.2 and 4.4 percent, respectively (3.4 and 4.7 percent in January 2015, in the same order).

ii. The reference wage of IMSS-insured jobs decreased its annual growth rate, shifting from a 4.3 percent rate in the third quarter to a 4.1 percent in the fourth one (Chart 26b). In real terms, the reference wage of IMSS-insured jobs went up 1.8 percent in the fourth quarter of 2015, figure above the 1.6 percent observed in the third one.

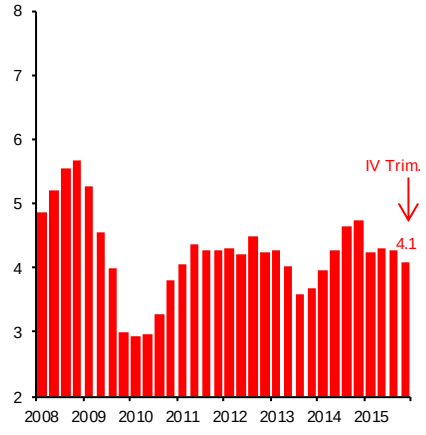
iii. In the fourth quarter of 2015, the average wage growth rate of total salaried workers in the economy (4.2 percent) presented an increment close to that observed in the third quarter (4.1 percent; Chart 26c). In real terms, this item increased 1.9 percent in the fourth quarter, after a raise of 1.4 percent in the third one.

**Chart 26**
**Wage Indicators**
Annual nominal change in percent

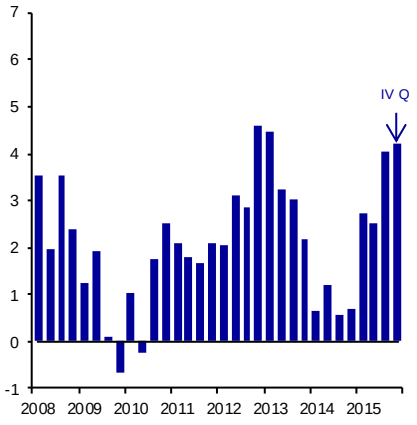
a) Contractual Wage 1/




b) IMSS Reference Wage 2/




c) Average Wage of Salaried Workers according to National Employment Survey (ENOE) 3/



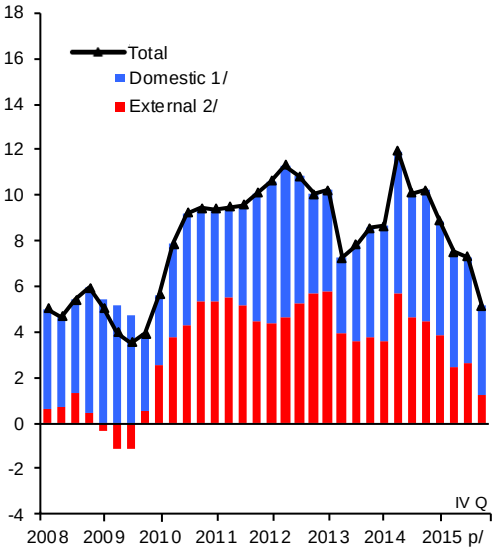

1/ The contractual wage increase is an average weighted by the number of involved workers. The number of workers in firms under federal jurisdiction that annually report their wage increases to the Secretary of Labor and Social Welfare (STPS) equals approximately 2 million.
2/ During the fourth quarter of 2015, on average 18.2 million workers registered in IMSS.
3/ To calculate average nominal wages, the lowest 1 percent and the highest 1 percent in the wage distribution were excluded. Individuals with zero income or those who did not report it are excluded.
Source: Calculated by Banco de México with data from IMSS, STPS and INEGI (ENOE).

### 3.2.3. Financial Saving and Financing in Mexico

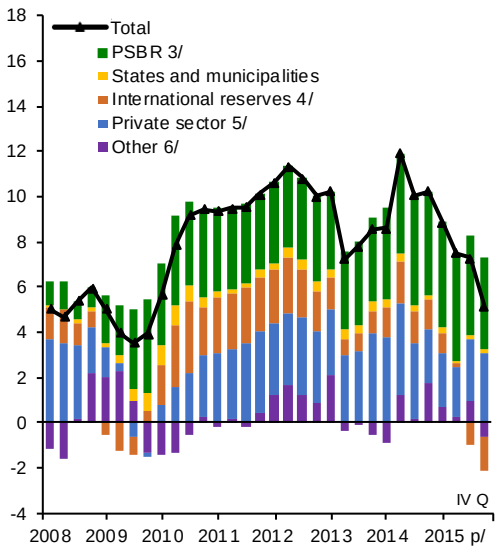
In the fourth quarter of 2015, the growth rate of the sources of financial resources in the economy continued moderating with respect to the previous quarter. It was the result of the recent slowdown in the growth rate of both domestic and external sources, which had been taking place since 2014 (Chart 27a). This derived from an environment characterized by a greater risk aversion in international financial markets. Despite the above, lower Public Sector Borrowing Requirements (PSBR), together with the decrease in international reserves, observed in the reported quarter, allowed the financing to the private sector to expand in the last three months of the year at a greater rate than in the previous quarter.

**Chart 27**
**Total Funding of the Mexican Economy (Sources and Uses)**
Accumulated flows of four quarters in percent of GDP

a) Total Sources




b) Total Uses




Note: Figures expressed in percent of the nominal average annual GDP. This information on (revalued) flows is stripped from the effect of exchange rate fluctuations.
p/ Preliminary figures.
1/ It includes the monetary aggregate M4 held by residents.
2/ It includes the monetary aggregate M4 held by non-residents, foreign financing to the federal government, public institutions and entities, commercial banks' foreign liabilities and financing to the non-financial private sector.
3/ Public Sector Borrowing Requirements (RFSP) correspond to the data published by the Ministry of Finance (SHCP).
4/ As defined by Banco de México's Law.
5/ Total portfolio of financial intermediaries, of the National Housing Fund (*Instituto del Fondo Nacional de la Vivienda para los Trabajadores*, Infonavit), and of the ISSSTE Housing Fund (*Fondo de la Vivienda del ISSSTE*, Fovissste), the issuance of domestic debt and foreign financing. It includes restructuring programs.
6/ It includes commercial banks' foreign assets, as well as capital accounts and results and other assets and liabilities of commercial and development banks, Banco de México, non-bank financial intermediaries and the National Housing Fund, non-monetary liabilities from the Institute for the Protection of Bank Savings (*Instituto de Protección del Ahorro Bancario*, IPAB), as well as the effect of the change in the valuation of public debt instruments, among other concepts.
Source: Banco de México.

With respect to the domestic sources of financial resources, the growth of the stock of domestic financial saving—defined as the monetary aggregate M4 held by residents minus the stock of currency held by the public—moderated with respect to the previous quarter. In particular, its growth rate declined from 5.5 to 3.9 percent, on average, between the third and the fourth quarters of 2015 (Chart 28a). Regarding the evolution of its components, the stock of compulsory financial saving grew at a lower rate with respect to that registered in the third quarter of 2015, as a

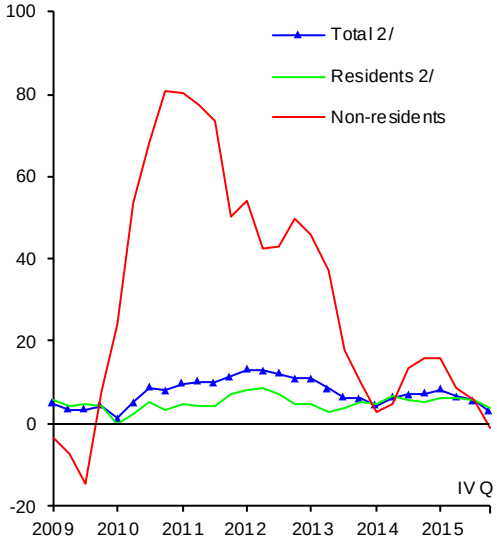
reflection of the lower valuation of the portfolio of government debt securities associated to the higher medium- and long-term interest rates (Chart 28b). Likewise, the stock of voluntary financial saving registered a lower growth rate—the reduction in the holdings of medium- and long-term financial instruments being the most notable development within this component. In this regard, derived from the environment of historically low interest rates, the demand by households and businesses for liquid financial instruments went up, which contributed to a decline in the long-term component of the voluntary M4 and to a rise of this aggregate's liquid component (Chart 28c). This also helps to explain the relatively high growth rate of the monetary base in the reported quarter. It should be noted that the monetary base expansion was also explained by the higher demand for cash related to continuing effects of the Tax Reform and some changes in the use of means of payment, which persisted throughout 2015.[3] However, its growth moderated during the reported period, decreasing from 18.3 to 16.6 percent in real annual terms between the third and the fourth quarters of 2015.

In what concerns the external sources of resources, the stock of non-resident financial saving decreased in real annual terms by 1.0 percent in the fourth quarter of 2015, after presenting a continuous positive path since the fourth quarter of 2009 (Chart 28a). This was largely explained by lower non-resident holdings of government securities, particularly short-term debt, despite the fact that holdings of medium- and long-term debt continued to grow in real annual terms (Chart 28d). With respect to the financial resources from foreign sources channeled to the financing of the private sector, they contracted 1.7 percent at an annual rate in the fourth quarter in a global environment characterized by tighter conditions of foreign financing to corporate businesses.

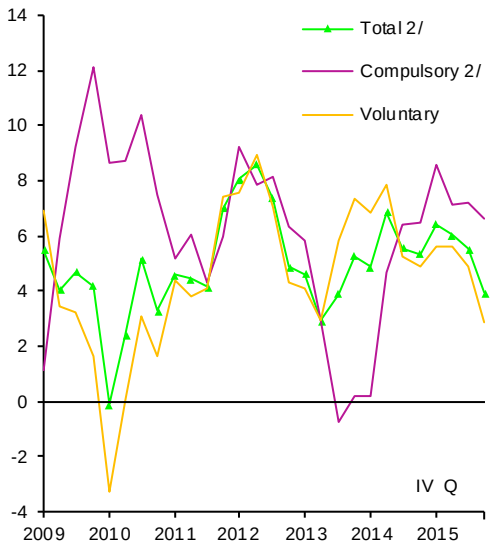
[3] See Box 2, "Recent Evolution of the Monetary Base and Means of Payment", from the Quarterly Report January – March 2015.

**Chart 28**
**Financial Saving Indicators and Monetary Aggregates**

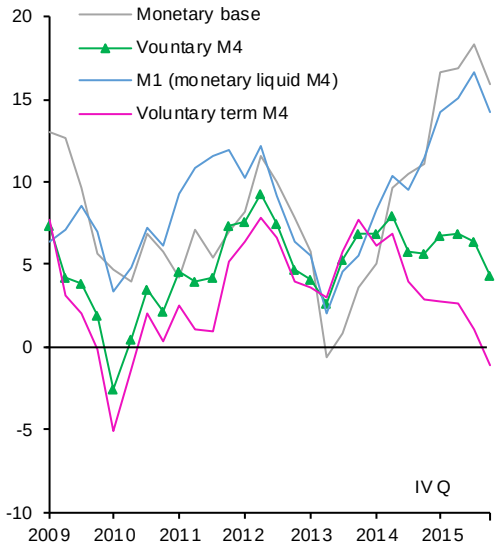
a) Total Financial Saving 1/
Quarterly average of real annual growth rates in percent



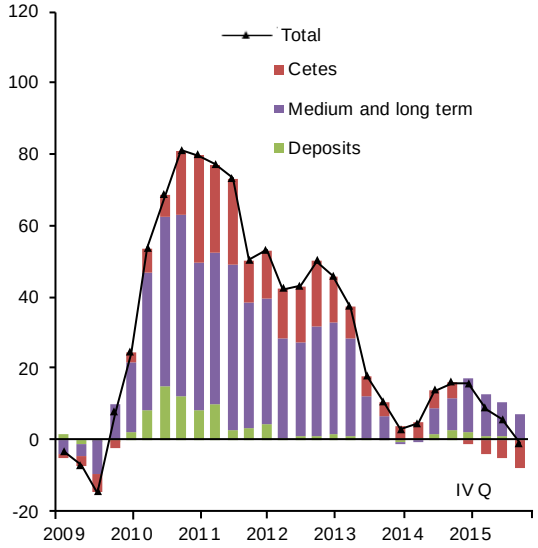

b) Resident Financial Saving
Quarterly average of real annual growth rates in percent




c) Voluntary Resident M4 and Monetary Base 3/
Quarterly average of real annual growth rates in percent




d) Non-resident Financial Saving
Contribution to the quarterly average of real annual growth rate in percent




1/ It is defined as the monetary aggregate M4 minus the stock of currency held by the public.
2/ From January to November 2009, the impact of the reform on the ISSSTE Law is excluded.
3/ Voluntary resident M4 is composed by M1 and holdings of long-term instruments.
Source: Banco de México.

As regards the use of financial resources in the economy, in the fourth quarter of 2015, the PSBR represented 4.1 percent of GDP in their annual flows, which implies a decrease as compared to the 4.4 percent registered in the third quarter of the year. Financing to states and municipalities remained around 0.2 percent of GDP (Chart 27b). Meanwhile, international reserves declined in the last quarter of the

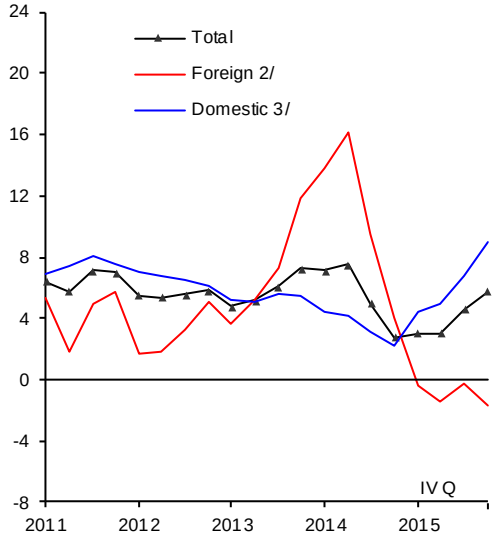
year, which derived from the sales of USD to the market in the auctions implemented by the Central Institute according to the measures set forth by the Foreign Exchange Commission to provide adequate liquidity to the foreign exchange market. The decrease in international reserves over the last four quarters amounted to 1.5 percent of GDP, which was above the 1.0 percent accumulated in the period between the fourth quarter of 2014 and the third quarter of 2015. This reduction in international reserves took place in spite of Banco de México's purchases of foreign currency from the Federal Government in December, which resulted from the exercise of its oil options.

In contrast with all of the above, financing flows to the private sector increased, totaling 3.1 percent of GDP in the fourth quarter of the year, compared to the 2.7 percent registered up to the previous quarter. Thus, in the described environment of a deceleration in the growth of sources of financial resources, the decrease in international reserves and the lower financial resources used by the public sector facilitated the expansion of financing to the private sector.

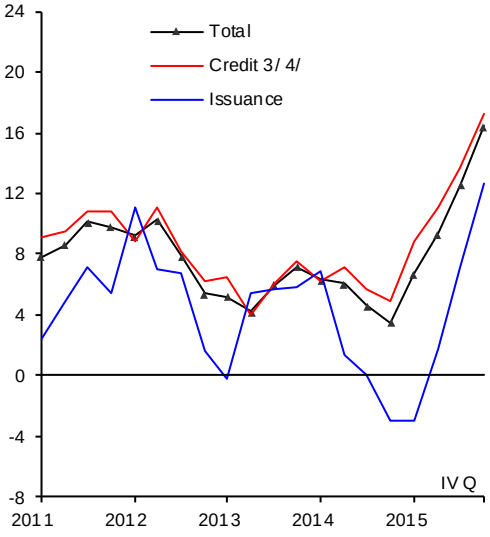
In the fourth quarter of 2015, total financing to the private sector grew faster than in the previous quarter, which reflected higher growth of both domestic financing to firms and credit to households (Chart 29a). In particular, domestic financing to firms grew at an average rate of 16.4 percent, which was above the 12.6 percent rate in the previous quarter. This greater expansion was driven by the dynamism that the domestic market for private securities observed during the year, as well as by the growth of bank credit (Chart 29b). In this respect, credit granted by commercial banks to non-financial private firms recorded a real average annual percent change of 13.4 in the fourth quarter of 2015, as compared to 11.4 percent in the third quarter. It should be pointed out that this expansion is accounted for, in part, by the effect of the national currency depreciation, given that a small share of the stock of credit corresponds to loans and credit lines in USD, which are recorded in MXN at market rates. Likewise, in the current context of volatility in international financial markets, some firms have substituted part of their external liabilities in USD with financing in the domestic market, which has also been reflected in the abovementioned contraction of external financing to the private sector. Meanwhile, direct credit by development banks expanded at an average rate similar to that in the previous quarter (Chart 30a). All this, in an environment in which interest rates continued at relatively low levels and without observing significant changes with respect to the previous quarter, while delinquency rates, especially in the commercial bank credit portfolio, continued diminishing (Chart 30b and Chart 30c).

**Chart 29**
**Financing to the Non-financial Private Sector**

a) Total Financing to the Non-financial Private Sector 1/
Real annual growth rates in percent




b) Domestic Financing to Non-financial Private Firms
Quarterly average of real annual growth rates in percent

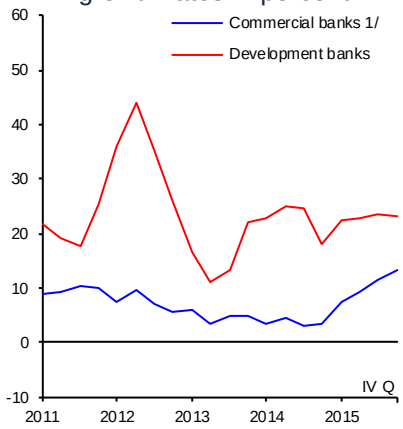



1/ Data adjusted for exchange rate effects.
2/ Data of foreign financing for the fourth quarter of 2015 are preliminary.
3/ These data can be affected by the disappearance of some non-bank financial intermediaries and their conversion to non-regulated multiple purpose financial corporations (Sofom ENR).
4/ It refers to the performing and non-performing credit portfolio, and includes credit from commercial and development banks, as well as from other non-bank financial intermediaries.
Source: Banco de México.

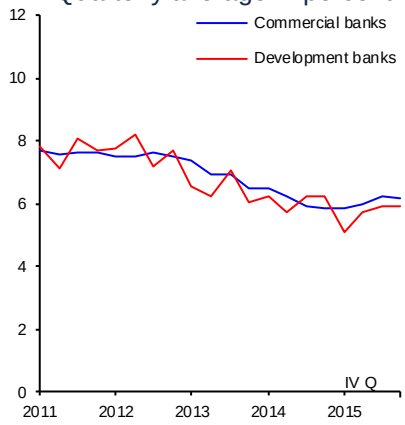
In the domestic debt market, non-financial private firms continued financing through the issuance of securities during the fourth quarter of 2015, although with a smaller dynamism with respect to the rate of placement registered in the three previous quarters. In particular, in the last quarter, net placement of medium- and long-term debt instruments was MXN 3.9 billion, which contrasts with the average net placement of MXN 17.4 billion over the last three quarters of the year (Chart 31a). Despite the above, it stands out that medium- and long-term private debt issuance –net of prepayments and amortizations– in 2015 was the highest on record, amounting to MXN 56 billion. In this context, average interest rates of non-financial firms' securities increased with respect to the last quarter, even though their levels remain close to historic lows (Chart 31b).

**Chart 30**
**Bank Credit to Non-financial Private Firms**

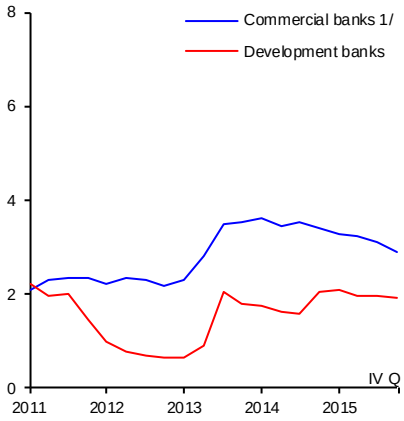
a) Performing Credit
Quarterly average of real annual growth rates in percent




b) Annual Interest Rates of New Credits 2/
Quarterly average in percent



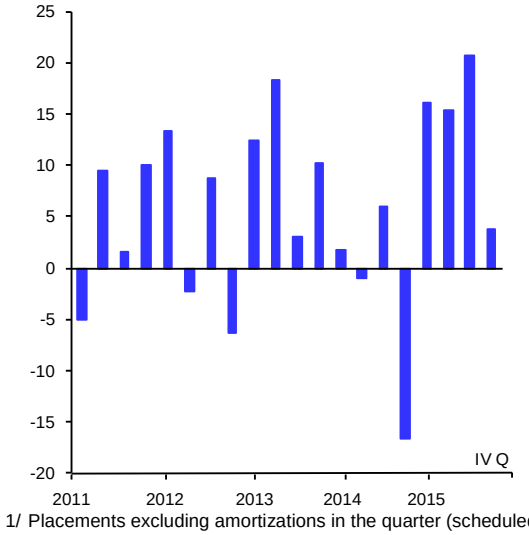

c) Delinquency Rates 3/
Quarterly average in percent



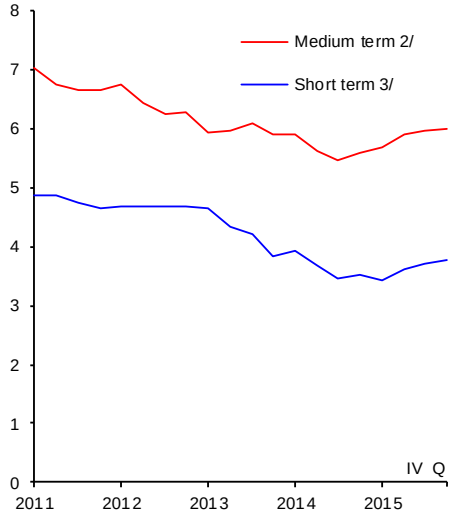

1/ It includes the Sofomes ER subsidiaries of bank institutions and financial groups.
2/ It refers to the interest rate of new bank credits to non-financial private firms, weighted by the associated stock of the performing credit and for all credit terms requested.
3/ The delinquency rate is defined as the stock of non-performing loans divided by the stock of total loans.
Source: Banco de México.

**Chart 31**
**Securities of Non-financial Private Firms in the Domestic Market**

a) Net Placement of Medium-term Securities 1/
MXN billion




b) Annual Interest Rates
Quarterly average in percent



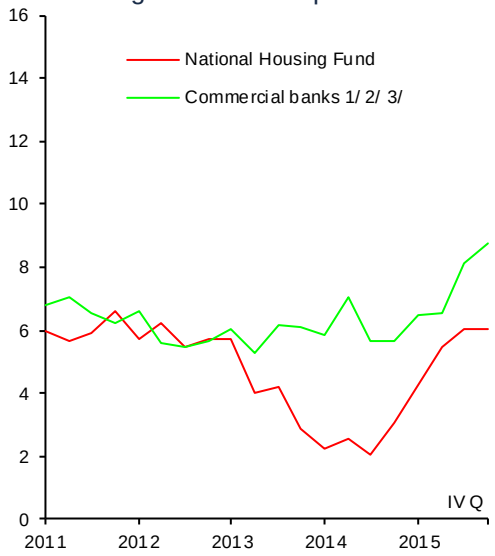

1/ Placements excluding amortizations in the quarter (scheduled redemptions and prepayments).
2/ Average weighted yield to maturity of emissions in circulation, with a term over a year, at the end of the month.
3/ Average weighted rate of private debt placements, at a rate of up to 1 year, expressed in a 28-day curve. It only includes stock exchange certificates.
Source: Banco de México, with data from Valmer and Indeval.

In the fourth quarter of 2015, credit to households expanded at an average rate of 6.7 percent, which is above 5.7 percent observed in the third quarter. Largely, it is due to the increment in the mortgage credit. In particular, commercial banks' mortgage loans portfolio increased at a real average annual rate of 8.8 percent,

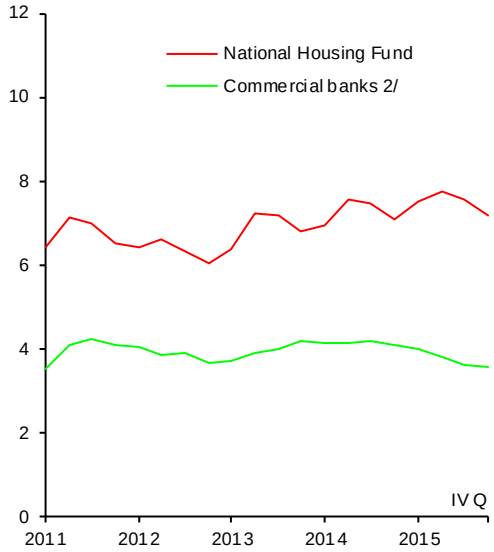
which was higher than 8.1 percent observed in the previous period.[4] On the other hand, the average growth rate of mortgage loans granted by National Housing Fund (Infonavit) was 6.0 percent, figure similar to that in the previous quarter (Chart 32a). In this environment, the interest rates of mortgage loans did not observe relevant changes with respect to the previous quarter. At the same time delinquency rates of commercial banks' mortgage portfolio did not present significant changes, and the delinquency rate of the National Housing Fund portfolio went down, although it still remains at relatively high levels (Chart 32b).

**Chart 32**
**Housing Credit**

a) Performing Credit
Quarterly average of real annual growth rates in percent




b) Delinquency Rates 4/
Quarterly average in percent



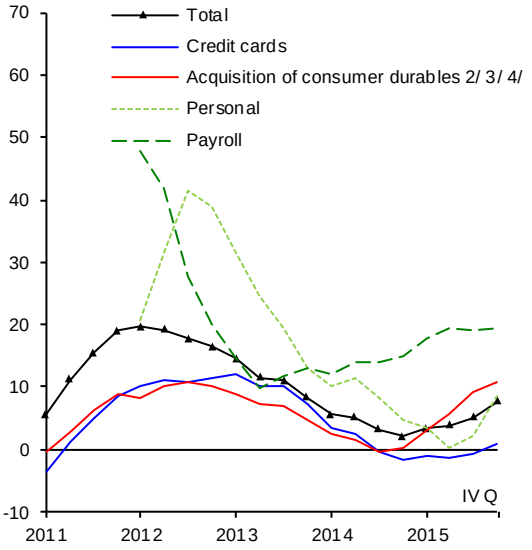

1/ Figures are adjusted in order to avoid distortions by the transfer from the UDIS trust portfolio to the commercial banks' balance sheet and by the reclassification of direct credit portfolio to ADES program.
2/ It includes sofomes owned by commercial banks.
3/ Figures are adjusted to avoid distortions due to the inclusion of some regulated sofomes to the bank credit statistics.
4/ The delinquency rate is defined as the stock of non-performing loans divided by the stock of total loans.
Source: Banco de México.

During the fourth quarter of 2015, consumer credit granted by commercial banks expanded at a greater rate relative to the third quarter, as its growth rate increased from 5.1 to 7.6 percent. This expansion was observed practically in all segments, including the segment of credit cards, which had been registering a low dynamism over the previous months (Chart 33a). It should be stressed that interest rates remained practically unchanged with respect to the previous quarter, and the quality of the portfolio continued improving, particularly in the personal loan segment (Chart 33b).

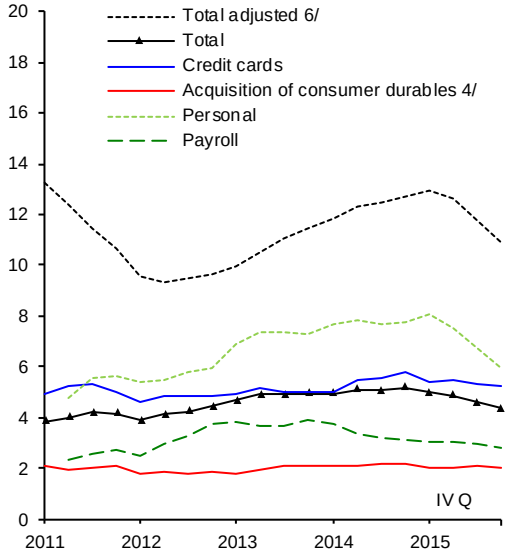
[4] Commercial banks' housing credit includes that for acquisition of new and used housing, remodeling, payment of mortgage liabilities, credit for liquidity, acquisition of land, and construction of own housing.

**Chart 33**
**Commercial Banks' Consumer Credit**

a) Performing Credit [1/]
Quarterly average of real annual growth rates in percent




b) Delinquency Rates [1/ 5/]
Quarterly average in percent




1/ It includes the Sofomes ER subsidiaries of bank institutions and financial groups.
2/ Between June 2010 and May 2011, figures are adjusted in order to avoid distortions due to the purchase of the banking institution's automobile loan portfolio.
3/ From July 2011 onwards, figures are adjusted in order to avoid distortions due to the reclassification from acquisition of consumer durables to other consumer credits by one banking institution.
4/ It includes credit for movable property acquisition and auto loans.
5/ The delinquency rate is defined as the stock of non-performing loans divided by the stock of total loans.
6/ The adjusted delinquency rate is defined as the non-performing portfolio plus debt write-offs accumulated over the last 12 months divided by the total portfolio plus debt write-offs accumulated over the last 12 months.
Source: Banco de México.

In sum, despite the environment of volatility and tight conditions in international financial markets, financing to the private sector in Mexico continued expanding, thus supporting productive activity. Moreover, stability in the lending rates, as well as the noticeable improvement in the quality of credit portfolios, suggest the absence of demand-related pressures in different segments of the loanable funds market. However, given the weak global growth and increased uncertainty that is expected to prevail abroad, there are risks that the sources of financial resources will be limited in 2016. Therefore, it is relevant to eleborate a prospective exercise of sources and uses of financial resources of the economy, illustrating the factors that may impact the evolution of financing to the private sector.

Thus, given the macroeconomic environment described in this Report –that considers tighter external financial conditions and lower oil prices as compared to the previous years-, in 2016 the annual flow of sources of financial resources is expected to again turn out lower, compared to the average observed between the years 2010 and 2014 (Table 2). In particular, the said flow is estimated to locate at 6.6 percent of GDP by the end of 2016, which is slightly above 5.2 percent estimated for 2015, but below 9.7 percent registered on average over the previous five years. The relatively low flow of financial resources to the economy in 2016 fundamentally reflects the limited availability of sources of foreign financing, given the possible increments in U.S. interest rates, greater risk aversion, that is

anticipated to persist in international financial markets, and, in general, the prospect that capital flows to emerging economies would be limited.

In relation to the use of financial resources of the public sector, based on the General Criteria of Economic Policy 2016, the volume of PSBR would amount to 3.5 percent of GDP this year, which is compared to 4.1 percent of GDP in 2015. Nonetheless, in the framework of the coordinated strategy of the economic policy among the Ministry of Finance, the Foreign Exchange Commission and Banco de México, among other measures, a preemptive adjustment to the spending of the Federal Public Administration for 2016 was announced. The adjustment, amounting to MXN 132.3 billion (0.7 percent of GDP), includes a reduction in Pemex spending of MXN 100 billion and a decrease in the Federal Government spending of MXN 32.3 billion (0.5 and 0.2 percent of GDP, respectively). The adjustment in the Pemex budget derives from an environment of low oil prices, and, consequently, this firm's lower revenues. Therefore, although this component of the adjustment would not imply a reduction in PSBR, it should represent an improvement in firm's productivity and efficiency, by means of reducing corporate and administrative expenditure, as well as the revision of its investment program to channel resources to more cost-effective projects. On the other hand, and derived from the fact that the Federal Government has oil hedging programs for the fiscal year 2016 that protect the level of the budget revenues, a further decrease of 0.2 percent of GDP in the PSBR should be anticipated for 2016, as a consequence of the modification in the Federal Government expenditure for the said amount. It should be stressed that the referred adjustment of 0.2 percent of GDP was carried out preemptively, given the expectation that in 2017 oil prices will remain depressed, which would be reflected in a lower revenue of the Federal Government, if equivalent oil hedging programs for that year are excluded. Thus, considering the fiscal adjustment announced on February 17, 2016, PSBR are expected to be 3.3 percent of GDP for 2016. Thus, considering the flow of financing to states and municipalities, the use of resources by the public sector in 2016 would be 3.5 percent of GDP. Likewise, the international reserves are estimated to register a decrease of 0.1 percent of GDP, in contrast with the reduction of 1.5 percent of GDP observed in 2015. Given the above said, the flow of financial resources channeled to the private sector is expected to be 3.0 percent of GDP during the year, figure similar to that registered in 2015 (3.1 percent of GDP).

Thus, the preemptive adjustment in the public spending recently announced by the Ministry of Finance is expected to contribute to the stabilization of the public debt to GDP ratio, thus strengthening the macroeconomic framework and prompting resources to be channeled to financing of the non-financial private sector. Indeed, given the complex external environment, the sources of resources may be smaller than expected, reason for which the lower absorption of resources by the public sector implicit in this preemptive adjustment reduces possible pressures to the loanable funds market in Mexico. In this sense, it is of fundamental importance to proceed with the fiscal consolidation process, in a way that would allow the economy to evolve in an efficient and orderly manner in an external environment of less favorable conditions. This, besides guaranteeing the public debt sustainability, would facilitate maintaining the channeling of resources to the private sector, and preserving credit markets, especially interest rates, free of pressures.

## Table 2
## Total Funding of the Mexican Economy (Sources and Uses)
Percentage of GDP

| | Annual flows | | | | | | |
|---|---|---|---|---|---|---|---|
| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 p/ | 2016 e/ |
| **Total sources** | **9.4** | **10.1** | **10.0** | **8.6** | **10.2** | **5.2** | **6.6** |
| Domestic sources | 4.1 | 5.7 | 4.4 | 4.7 | 5.8 | 3.9 | 5.2 |
| Voluntary M4 | 2.6 | 4.2 | 3.0 | 4.1 | 4.1 | 2.6 | 3.8 |
| Compulsory M4 | 1.5 | 1.5 | 1.4 | 0.7 | 1.7 | 1.3 | 1.4 |
| Foreign sources | 5.3 | 4.4 | 5.7 | 3.8 | 4.4 | 1.3 | 1.4 |
| Non-resident M4 | 2.9 | 3.0 | 4.5 | 1.3 | 2.3 | -0.2 | 0.0 |
| Foreign securities and credit 1/ | 2.5 | 1.4 | 1.2 | 2.5 | 2.2 | 1.5 | 1.4 |
| **Total uses** | **9.4** | **10.1** | **10.0** | **8.6** | **10.2** | **5.2** | **6.6** |
| International reserves 2/ | 2.2 | 2.4 | 1.8 | 1.0 | 1.3 | -1.5 | -0.1 |
| Public sector financing | 4.3 | 3.6 | 4.2 | 4.1 | 4.8 | 4.3 | 3.5 |
| Publis Sector Borrowing Requirements (PSBR) 3/ | 3.9 | 3.4 | 3.8 | 3.7 | 4.6 | 4.1 | 3.3 |
| States and municipalities | 0.4 | 0.3 | 0.5 | 0.4 | 0.2 | 0.2 | 0.2 |
| Private sector financing | 2.7 | 3.7 | 3.1 | 3.9 | 2.4 | 3.1 | 3.0 |
| Foreign | 0.7 | 0.9 | 0.8 | 1.6 | 0.8 | 0.1 | 0.1 |
| Domestic 4/ | 2.0 | 2.8 | 2.3 | 2.3 | 1.6 | 2.9 | 2.9 |
| Other concepts 5/ | 0.3 | 0.4 | 0.9 | -0.5 | 1.8 | -0.7 | 0.2 |

Note: Figures may not add up due to rounding. Figures expressed in percent of nominal average annual GDP. The information on (revalued) flows is stripped from the effect of the exchange rate fluctuation.
p/ Preliminary data.
e/ Estimated data, expressed in percent of nominal average annual GDP estimated by Banco de México.
1/ It includes the external debt of the federal government, public entities and firms, and external PIDIREGAS, external liabilities from commercial banks and financing to the non-financial private sector.
2/ As defined by Banco de México's Law.
3/ From 2010 to 2015, Public Sector Borrowing Requirements (PSBR) correspond to the data published by the Ministry of Finance (SHCP). Data for 2016 consider those published in the General Criteria of Economic Policy 2016, less the adjustment of 0.2 percent of GDP that takes into account the preemptive adjustment of MXN 32.3 billion in the Federal Government expenditure announced by the Ministry of Finance on February 17, 2016.
4/ Total portfolio of financial intermediaries, of the National Housing Fund (*Instituto del Fondo Nacional de la Vivienda para los Trabajadores*, Infonavit), and of the ISSSTE Housing Fund (*Fondo de la Vivienda del ISSSTE*, Fovissste), as well as the issuance of domestic debt.
5/ It includes capital accounts and results and other assets and liabilities of commercial and development banks, Banco de México, non-bank financial intermediaries and Infonavit, non-monetary liabilities from the Institute for the Protection of Bank Savings (*Instituto de Protección del Ahorro Bancario*, IPAB), as well as the effect of the change in the valuation of public debt instruments, among other concepts.
Source: Banco de México.

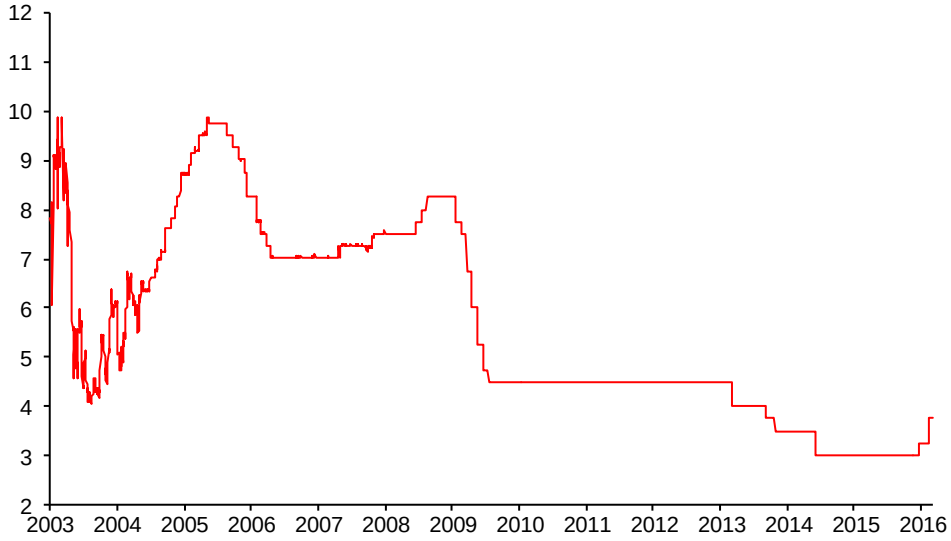
# 4. Monetary Policy and Inflation Determinants

The complex economic situation faced by Mexico in 2015 and in early 2016 induced Banco de México to carefully consider the possible effects of both domestic and external factors on the evolution of inflation and its expectations, so as to define the most appropriate monetary policy stance. Indeed, on the one hand, the domestic environment was characterized by moderate growth, absence of demand-related pressures onto prices and the anchoring of inflation expectations. On the other hand, as stated in Section 3.1, the external environment was characterized by recurrent episodes of financial volatility, as a result of which the value of the national currency registered strong pressures.

Thus, after maintaining the target for the Overnight Interbank Interest Rate unchanged at 3 percent in its October 2015 meeting, in December Banco de México's Board of Governors decided to increase the referred target by 25 basis points, to a level of 3.25 percent. This followed a 25 basis point increment in the target range for the U.S. Federal Reserve reference rate, seeking to prevent a compression of the risk-adjusted interest rate spread of Mexico against that of the U.S., which could have affected capital flows in the short term. Subsequently, in the meeting of February 4, 2016, the Board of Governors decided to maintain the level of this target unchanged, just like the Federal Reserve did, considering that the central scenario for inflation in the short and medium terms considered at the moment was still congruent with the consolidation of the convergence of inflation to its permanent 3 percent target. Despite the abovesaid, the Board of Governors warned that the additional depreciation of the national currency recorded in early 2016 and the possibility that it would persist or become accentuated, and thus likely contaminate inflation expectations, had become the main risk to inflation.

Therefore, following the increased volatility in international financial markets, the deterioration of external environment and the exchange rate depreciation that took place over the weeks following the referred meeting, the Board of Governors held an extraordinary meeting, where it was announced that it was considered appropriate to increase by 50 basis points the target for the Overnight Interbank Interest rate to 3.75 percent (Chart 34). The goal of this decision was to prevent the additional weakness in the exchange rate of the national currency from increasing the probability that inflation expectations would be affected. In this regard, the Board of Governors clarified that this increment does not initiate a cycle of monetary contraction. It should be noted that this decision was part of a set of coordinated measures by the authorities regarding economic policy. In particular, together with the described monetary policy measure, the Ministry of Finance (*Secretaría de Hacienda y Crédito Público*) announced a preemptive adjustment to the spending of the Federal Public Administration for 2016, and the Foreign Exchange Commission decided to suspend auctions of U.S. dollars, leaving open the possibility to intervene discretionally in the exchange market in exceptional cases, ratifying that the key element to procure the anchoring of the national currency would be to preserve stable macroeconomic fundamentals.

**Chart 34**
**Overnight Interbank Interest Rate Target [1/]**
Annual percent




1/ The Overnight Interbank Interest Rate is shown until January 20, 2008.
Source: Banco de México.

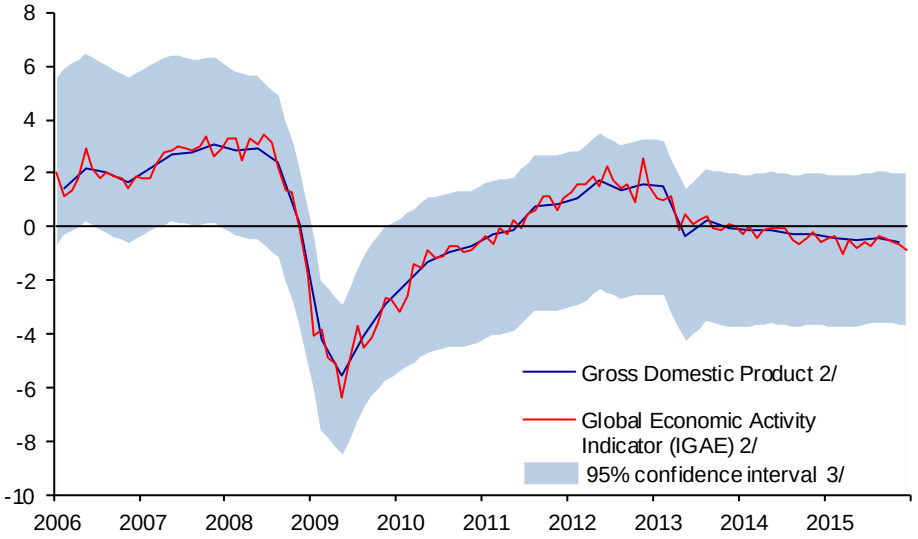
Domestic conditions taken into consideration to support the monetary policy decisions both in October and December 2015, and on February 4, 2016, were relatively similar. In contrast, external conditions gauged in each one of the referred decisions were worsening over time, even leading to an extraordinary decision on February 17, 2016. These two groups of conditions are described below.

### 4.1. Domestic Factors in Monetary Policy Decisions

a) During the period in which the monetary policy decisions described here were taken, inflation presented a favorable performance. Indeed, after converging to the 3 percent permanent target, from May 2015 onwards it continued showing a downward trend, locating below its 3 percent target, even considering its rebound in January and the first fortnight of February 2016, as a consequence of the factors indicated in Section 2. In line with the above, both headline and core inflation were anticipated to close 2015 around 2 percent. They were estimated to grow gradually in 2016, locating around 3 percent, and in 2017 both indicators were expected to stabilize around the said level.

b) In the third and fourth quarters of 2015, the Mexican economy registered a moderate growth rate, although it was considered that in the future it would face downward risks. In this context, the output gap remained negative and it is expected to remain so in the foreseeable future (Chart 35). Thus, even though some indicators suggested that slack conditions in the economy and in the labor market could be gradually diminishing, no generalized aggregate demand-related pressures onto prices were anticipated over the next semesters.

**Chart 35**
**Output Gap Estimate [1/]**
Percentage of potential output, s. a.




s. a. / Estimated with seasonally adjusted data.
1/ Estimated using the Hodrick-Prescott (HP) filter with tail correction; see Banco de México Inflation Report April-June 2009, p.69.
2/ GDP figures as of the fourth quarter of 2015. IGAE figures as of December 2015.
3/ Confidence interval of the output gap calculated with an unobserved components' method.
Source: Estimated by Banco de México with data from INEGI.

c) Headline and core inflation expectations, measured by surveys for the end of 2015, 2016 and 2017, continued decreasing, while longer-term inflation expectations continued consolidating their reduction. Likewise, inflation expectations implicit in long-term market instruments remained stable. Specifically, as regards the performance of inflation expectations derived from the survey conducted by Banco de México among private sector specialists, the following stands out:

i. Inflation for the end of 2016 reduced from 3.4 percent in the September survey to 3.1 percent in the January 2016 survey.[5] In particular, the median of core inflation expectations shifted from 3.1 to 3.0 percent in the same time period, while those corresponding to implicit non-core inflation reduced from 4.6 to 3.4 percent (Chart 36a). Subsequently, in the February survey, headline inflation expectations for the end of 2016 reached 3.4 percent. Particularly, the median of core inflation expectations remained at 3.0 percent, while that corresponding to the non-core component went up, locating at 3.6 percent.

ii. The median of inflation expectations for the end of 2017 went down from 3.4 to 3.3 percent between September 2015 and February 2016.[6] Specifically, the median of expectations for the core component remained at 3.2 percent during the analysis period, while

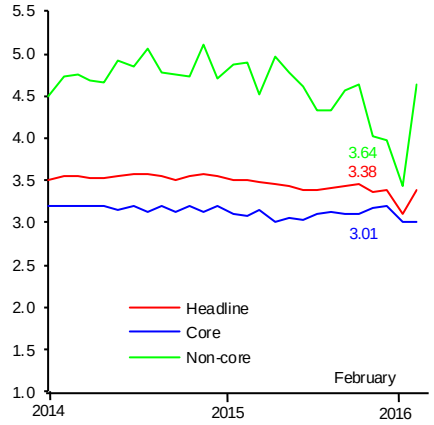
[5] The median of headline inflation expectation for the end of 2016 in the Banamex survey diminished from 3.4 to 3.1 percent between the surveys of September 22, 2015 and February 22, 2016.
[6] The median of headline inflation expectation for the end of 2017, based on the Banamex survey, lied at 3.2 percent between the surveys of January 7, 2016 and February 22, 2016.

those implicit in the non-core component decreased from 4.2 to 3.9 percent (Chart 36b).

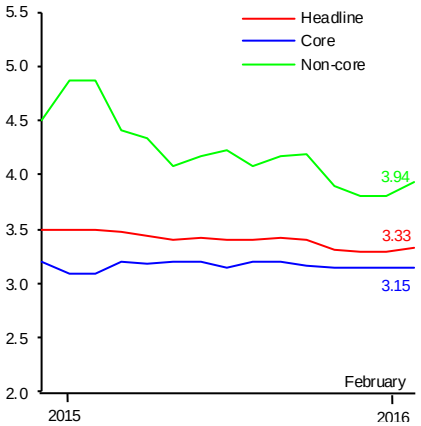
iii. Inflation expectations for longer horizons continue consolidating their reduction and are located at 3.3 percent for the first time on record (Chart 36c).[7]

**Chart 36**
**Inflation Expectations**
Percent

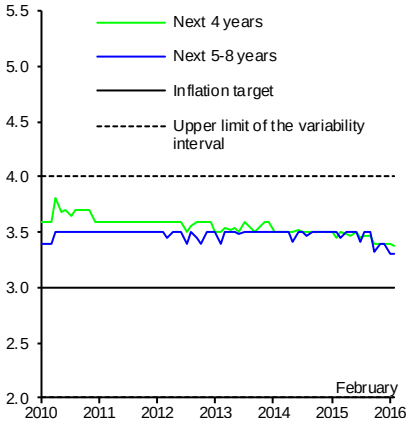
a) Medians of Headline, Core and Non-core Inflation Expectations as of End of 2016




b) Medians of Headline, Core and Non-core Inflation Expectations as of End of 2017




c) Medians of Headline Inflation Expectations for Different Terms




Source: Banco de México's Survey.

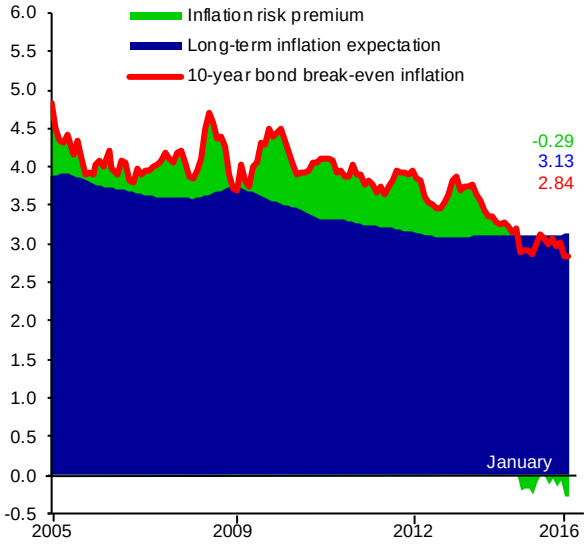
iv. Regarding the evolution of inflation expectations implicit in 10-year market instruments, they remain stable around 3.0 percent, while the inflation risk premium adjusted downwards again between September 2015 and January 2016 (Chart 37a).[8] In this way, the break-even inflation (the difference between long-term nominal and real interest rates) decreased by approximately 20 basis points during the reference period, and remained at low levels (Chart 37b), reflecting that the holders of nominal interest rate-indexed instruments keep demanding a relatively low compensation for inflation and inflation risk in Mexican government bonds.

[7] The median of long-term inflation expectations of the Banamex survey (for the following 3 to 8 years) also decreased from 3.5 to 3.3 percent between the surveys of September 22, 2015 and February 22, 2016.

[8] For a description of the estimation of long-term inflation expectations, see Box "Decomposition of Break-even Inflation" in the Quarterly Report, October-December 2013. For this report, the estimation was updated to include data as of December 2015.

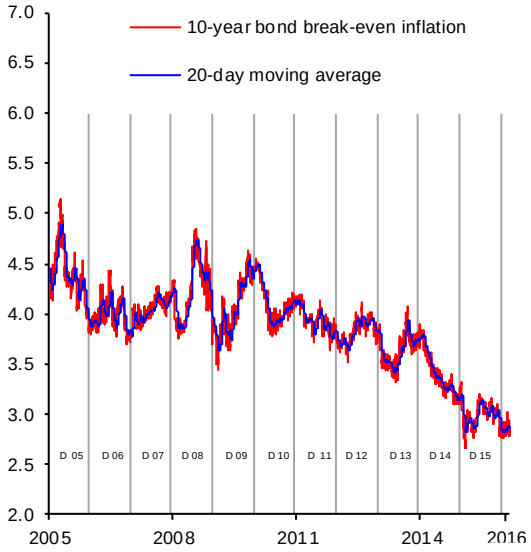
**Chart 37**
**Inflation Expectations**
Percent

a) Decomposition of Break-even Inflation and Inflation Risk




Source: Estimated by Banco de México.

b) 10-year Bond Break-even Inflation




Source: Estimated by Banco de México with data from Valmer and Bloomberg.

## 4.2. External Factors in Monetary Policy Decisions

As mentioned above, the external factors that were taken into consideration when making the monetary policy decisions were the ones that represented the most important modifications since September 2015. The implications of the change in the external environment for each monetary policy decision described in the Report are explained below:

a) In the monetary policy decision taken in October 2015, besides the above described domestic environment, it was assessed that different external factors, such as the weak global economic growth and uncertainty regarding the beginning of the normalization of the Federal Reserve monetary policy, had been generating a depreciation in the currencies of emerging economies, including Mexico. Even though the depreciation of the national currency in this period was significant, the resulted change in relative prices took place in an orderly and gradual manner. In particular, merchandise prices had increased in a pauseful and gradual way, above all as a consequence of the behaviour of durable goods' prices, while second round effects on the prices of non-tradable goods and services, derived from the adjustment in the exchange rate of the Mexican peso, were not observed. In this context, the Board of Governors maintained the target for the Overnight Interbank Interest rate unchanged at a level of 3.0 percent.

b) In the monetary policy decision of December 2015, the depreciation of the exchange rate still did not generate any second round effects on the price setting process. However, as expected, the Federal Reserve increased

the target range for the reference rate by 25 basis points and noted that the rate of future rises would be gradual and would depend on the observed and expected evolution of employment and inflation. In this context, Banco de México's Board of Governors decided to raise the target for the Overnight Interbank Interest rate by 25 basis points, to a level of 3.25 percent. By doing this, the Central Bank sought to prevent the risk-adjusted interest rate spread of Mexico relative to that of the U.S. from reducing and that, as a result, capital flows would be affected in the short term.

c) In the monetary policy decision taken on February 4, 2016, the following changes in the external environment and their implications for the national currency stood out:

   i. The Federal Reserve maintained its monetary policy rate unchanged in its January meeting and reiterated that the trajectory of the subsequent increases would be gradual and would continue depending on the observed and expected evolution of employment and inflation. Moreover, it mentioned that it would assess the global environment and its impact on the balance of risks to the economic activity and inflation. Economic analysts and financial markets interpreted this as a more gradual trajectory of future increments in the reference rate than previously expected.

   ii. Despite the above, volatility in international financial markets spiked, in an environment of low global growth and lower forecast of the said expansion, as well as a greater divergence among the monetary policy stances of various central banks of the main advanced economies and significant falls in oil prices. As a result, the Mexican peso significantly depreciated against the U.S. dollar, even though the Federal Reserve maintained its monetary policy unchanged. In particular, the observed depreciation of the national currency during 2015 was not the most considerable one among those registered in other emerging economies and some advanced oil exporting and/or basic merchandise exporting countries. This changed in early 2016, when the Mexican peso became one of the most depreciated currencies against the U.S. dollar.

In this context, given that the central scenario for the inflation evolution for the short and medium term remained congruent with the consolidation of the inflation convergence to its permanent 3 percent target, the Board of Governors decided to maintain the target for the Overnight Interbank Interest Rate unchanged at 3.25 percent. However, the Board pointed out that the balance of risks to inflation has deteriorated in the short term. It stressed that the most important upward risk to inflation was the additional depreciation of the national currency observed in 2016, and the possibility that it may persist or become accentuated, thus possibly contaminating inflation expectations and leading to an increase in the growth rate of non-tradable goods' prices.

d) Finally, as regards the monetary policy decision announced on February 17, derived from an extraordinary meeting and in the framework of an economic policy strategy, in coordination with the Ministry of Finance and the Foreign Exchange Commission, it was considered that:

i. Volatility in international financial markets continued increasing. In particular, it stood out that oil prices kept going down and had generated a new adverse impact on the quote of the Mexican peso. Pressures on the national currency increased even further, given the perception that the fiscal position was weakening, mainly via Pemex, and that the use of the Mexican peso as a risk-hedging mechanism of other emerging countries, and even of the crude oil price became more generalized, leading to a further depreciation of the currency beyond the balance adjustment that could be justified by the slump in oil prices. This increased the probability that inflation expectations incongruent with the consolidation of the permanent 3 percent target would arise.

ii. In light of the complex external environment, of high risk aversion in the markets and of the perception of threats to public finances, strengthening the macroeconomic framework of the Mexican economy was crucial.

Therefore, the Ministry of Finance and the Central Bank decided to strengthen the economic fundamentals within the purview of their responsibility. Thus, together with the 50 basis points increment in the target for the Overnight Interbank Interest Rate, the Ministry of Finance announced a preemptive adjustment to the public spending for 2016, while the Foreign Exchange Commission decided to suspend auctions of U.S. dollars, leaving open the possibility to intervene discretionally in the exchange market in exceptional cases. As regards this point, over the weeks prior to the decisions taken on February 17, it became evident that some agents participated in the foreign exchange market using high frequency automatic trading models that took advantage of the nature of the still functioning auctions mechanism. Particularly, the strategies adopted by these models took advantage of the exchange rate volatility to make profits, which in turn affected its level and drove its volatility further upwards. The above has been worsened by the recent changes in the international financial regulation regarding risk exposure, which have induced global banks to generally reduce their activity in financial markets. This led to less liquidity and less depth in the operation of practically all financial assets, particularly those characterized by greater relative risk, among which financial instruments issued by emerging economies are included.

In the press release referring to the decision of February 17, the Board of Governors indicated that, although this measure would not initiate a monetary contraction cycle, in the future it will closely monitor the evolution of all determinants of inflation and its expectations for the medium and long term, especially the exchange rate and its possible pass-through onto consumer prices. Likewise, it pointed out that it will continue monitoring the monetary position of Mexico relative to the U.S., without overlooking the output gap performance, in order to be able to take the necessary measures in a flexible manner and whenever conditions demand it, so as to consolidate the efficient convergence of inflation to the 3 percent target.

## 4.3. Domestic Financial Markets

The evolution of domestic financial markets was affected by the volatility observed in international financial markets. The foreign exchange market remained the main shock-absorber of external shocks, while the fixed income market indicators

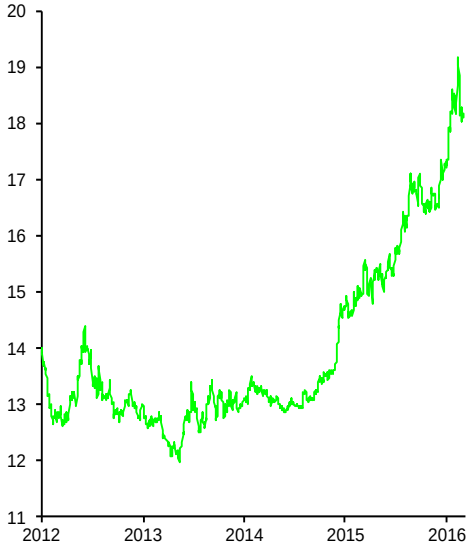
remained relatively stable, reason for which only marginal reductions in the holdings of Federal Government bonds by institutional investors, were observed.

Indeed, the Mexican peso, just like other emerging economies' currencies, depreciated against the U.S. dollar and presented high volatility during the period covered by this Report, as well as an additional depreciation so far in 2016. Hence, from September to December 2015, the exchange rate depreciated 2.4 percent – from approximately 16.86 to 17.27 MXN/USD- to later attain a level of 18.19 MXN/USD on February 4, 2016. Subsequently, it reached its maximum level of 19.42 MXN/USD on February 11, 2016. Thus, the parity accumulated a depreciation of 10.6 percent from late September 2015 to February 16, 2016 (Chart 38a and Chart 38b). Both real and financial factors contributed to this performance of the exchange rate. Among real factors the following can be named: the deterioration in the terms of trade as a result of the drop in oil prices, as well as the stagnation of demand for exports, derived from the small volume of global trade, and, in particular, of the deceleration of the U.S. industrial activity. Among factors of a financial nature, the next stand out: the use of exchange rate hedges of the Mexican peso in the adjustment strategies in other currencies' risk exposure within national and international investment portfolios, greater risk aversion among these, and considerable uncertainty as to the world economic and geopolitical environment since the beginning of 2016.

With the set of measures announced by the authorities on February 17, 2016, the exchange rate appreciated 6.6 percent since the attained maximum of 19.42 MXN/USD, returning to levels below 18 MXN/USD over the weeks following the adoption of the above referred measures.

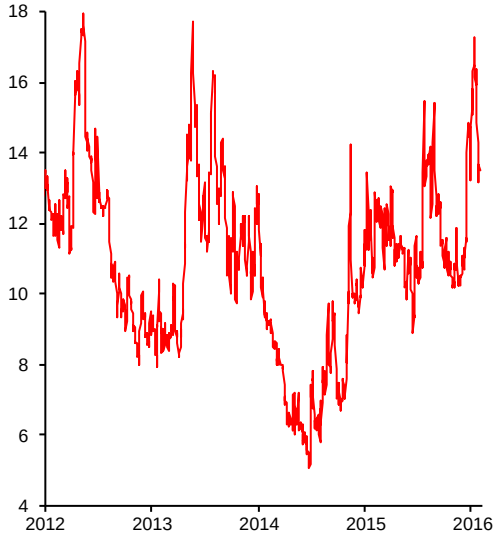
**Chart 38**
**Exchange Rate and Implied Volatility**

a) Nominal Exchange Rate 1/
MXN/USD




1/ The observed exchange rate is the daily quote of the FIX exchange rate.
Source: Banco de México.

b) Currency Option Implied Volatility 1/
Percent




1/ Currency option implied volatility refers to one-month options.
Source: Bloomberg.

In the period covered by this Report, the Foreign Exchange Commission announced sequential modifications to the intervention mechanisms in the foreign exchange market, as of November 23, 2015 halting USD 200 million in daily dollar sales at no minimum price, and extending its daily auctions with a minimum price until January 29, 2016. Besides, it launched the supplementary dollar auctions with a minimum price. In this regard, it should be noted that during the fourth quarter of 2015 and until February 16, 2016, the mechanism of ordinary dollar auctions with a minimum price was activated 18 times, while the mechanism of supplementary dollar auctions with a minimum price was activated 10 times. In sum, the total amount allocated by means of different intervention mechanisms implemented by the Foreign Exchange Commission in the reference period amounted to USD 12, 272 million.

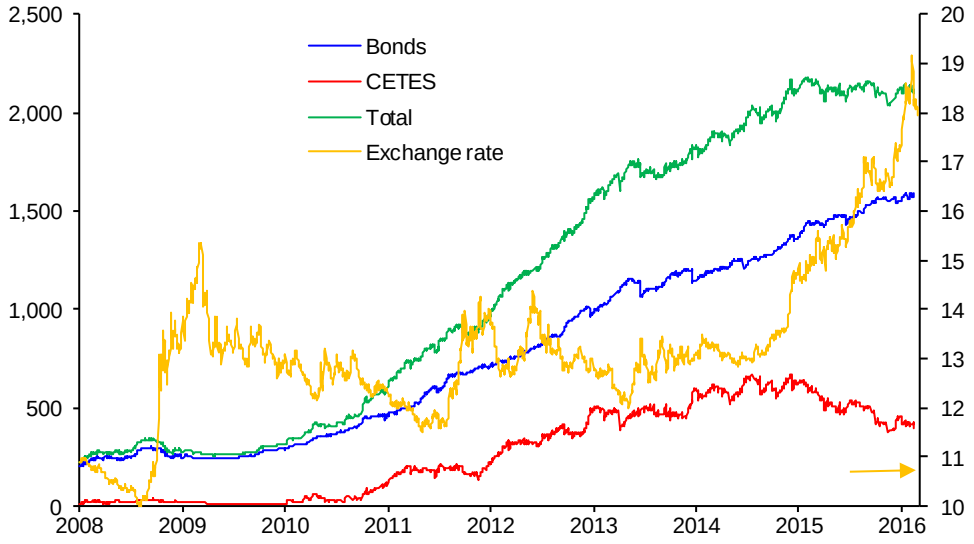
Subsequently, as a result of the deterioration in the global environment in mid-February, along with the fiscal and monetary measures announced on February 17 by the Ministry of Finance and Banco de México, the Foreign Exchange Commission decided to suspend daily auctions of dollars, on that day discretionally selling USD 2 billion, to strengthen the impact produced by the referred measures on the quote of the national currency, given the degree of its misalignment. In this sense, the possibility to discretionally intervene in the exchange rate market was established, if exceptional conditions arise. In this regard, it should be noted that the goal of the Foreign Exchange Commission intervention in the use of international reserves in Banco de México is to continue preserving order and liquidity in the market, reason for which the said Commission stressed that it would only intervene in exceptional circumstances of low liquidity in the market or in case

of other disruptions. The anchoring of the national currency's value will be primarily procured by means of preserving solid economic fundamentals.[9]

On the other hand, it is noteworthy that as a result of the annual review of the Flexible Credit Line granted to Mexico, on November 24, the IMF reaffirmed that Mexico continues qualifying to access, if necessary and under no condition, the FCL resources of approximately USD 65 billion.

With respect to the performance of the fixed-income market, in the described context and despite the volatility in the financial markets, interest rates in Mexico performed favorably. As regards government securities' holdings by non-residents, marginal reductions in holdings of Federal Government titles by institutional investors were observed. In this regard, it should be pointed out that investors' holdings of short-term instruments decreased, while those of medium- and long-term instruments increased slightly (Chart 39).

**Chart 39**
**Government Securities' Holdings by Foreign Investors and Exchange Rate** 1/
MXN billion and MXN/USD



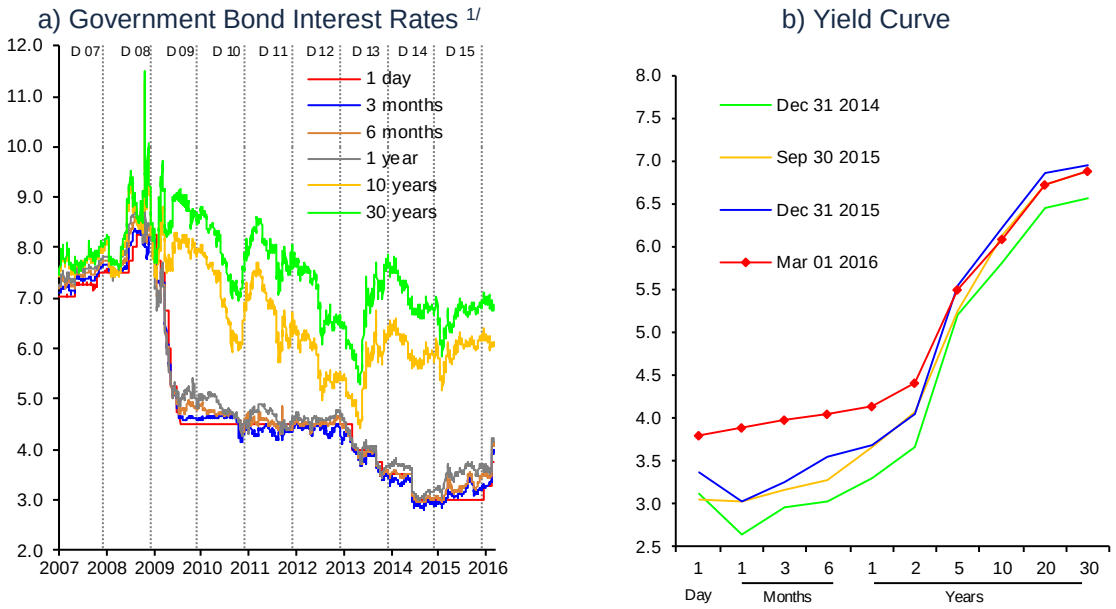

1/ The total includes CETES, bonds, udibonos, bondes and bondes D.
Source: Banco de México.

Thus, short-term interest rates in Mexico reflected the increases in the reference interest rate derived from the monetary policy actions during the period covered by this Report and so far in 2016. In contrast, those for long-term horizons remained stable. In particular, the 3-month sovereign bonds rate shifted from 3.2 to 3.3 percent in the fourth quarter of 2015, following the increment in the reference rate in December 2015, to later rise to 4.0 percent in the days following the 50 basis points increase in the reference rate on February 17, 2016. In turn, the 2-year bond interest rate declined from 4.1 to 4.0 percent in the reference period, level at which it remained until early February, to later attain 4.4 percent in the last days. On the other hand, despite increments in short-term rates, the 10-year bond interest rates shifted from 6.2 to 6.3 percent during the reference period, to later decrease to 6.1 percent from early February onwards (Chart 40a). Thus, the slope of the yield curve

[9] See the press releases of the Foreign Exchange Commission as of November 19, 2015, January 28 and February 17, 2016.

(the difference between 10-year and 3-month rate) persisted around 300 basis points, to late plunge to 210 basis points over the days following the decision of February 17, 2016 (Chart 40b).

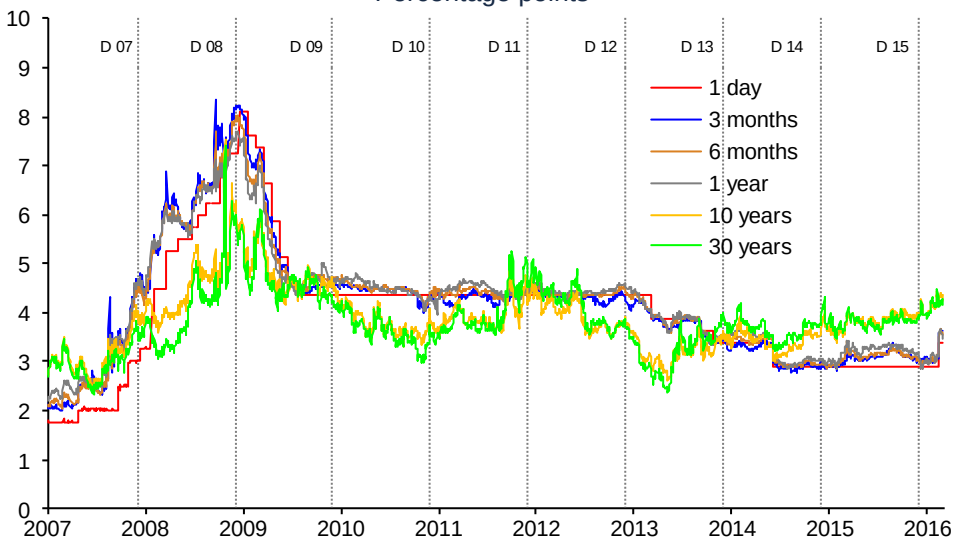
**Chart 40**
**Interest Rates in Mexico**
Percent




1/ Since January 21, 2008, the one-day (overnight) interest rate corresponds to the target for the Overnight Interbank Interest Rate.
Source: *Proveedor Integral de Precios* (PiP).

Despite the above said, the spreads between Mexican and U.S. long-term interest rates registered some increments, given a further decline in the U.S. rates. Thus, the 10-year interest rate spread remained around 400 basis points in the period covered by this Report, to later go up to 430 basis points over the days following February 17 (Chart 41).

**Chart 41**
**Spreads between Mexican and U.S. Interest Rates [1/]**
Percentage points




1/ For the U.S. target rate, an average interval considered by the Federal Reserve is considered.
Source: *Proveedor Integral de Precios* (PiP) and U.S. Department of the Treasury.

As indicated by Banco de México in different press releases during the analyzed period, there was a high risk that volatility in international financial markets will remain high or will even go further up. As a result of the above, as well as the prospect that oil prices will remain depressed for a relatively long horizon and the possibility of a disorderly decompression of the term premia in international financial markets given the expected normalization of the U.S. monetary policy, it was fundamental to maintain a solid macroeconomic framework in our country. In view that some of the above referred risks actually took place, it was necessary to carry out a set of coordinated fiscal, monetary and exchange rate policy measures seeking to strengthen the economic fundamentals of the country. These measures are anticipated to enhance confidence in Mexico and to contribute to the persistence of the sovereign risk component in interest rates, as well as other risk premia, at low levels. In the future, in light of the current external environment, in which financial conditions are tightening, and of greater risk aversion, it will be crucial to continue monitoring the macroeconomic framework of the country and to adjust it, if necessary, so that the Mexican economy would continue distinguishing itself among the rest of emerging economies.

## 5. Inflation Forecasts and Balance of Risks

This section describes the macroeconomic scenario foreseen for the Mexican economy for 2016 and 2017, which considers both the external and domestic conditions presented in this Report. In particular, it takes into account the recent deterioration in the international environment, as well as the adjustments of the monetary and fiscal policy made by the authorities to tackle that deterioration, which were announced on February 17, 2016.

**GDP Growth:** According to the data published in the previous and the current Quarterly Reports, the Mexican economy performed slightly better than what could be previously appreciated. In particular, the quarterly seasonally adjusted growth rates of the first half of 2015 were adjusted upwards. Moreover, in the third quarter, GDP expanded more than it was suggested by the timely estimation published by INEGI. In turn, in the fourth quarter, the economy expanded less than in the third one, but more than estimated in the previous Report. Thus, GDP of 2015 as a whole expanded 2.5 percent, slightly above the upper limit of the forecast interval published in the last Quarterly Report.

Despite the above, for 2016 and 2017 a more complex external environment, and, particularly, greater downward risks for the growth of the Mexican economy are anticipated. In particular, a lower dynamism of external demand is expected with respect to the previous estimation, mainly because of the downward adjustment in the forecast for the U.S. industrial activity and the slowdown in the world economy.[10] At the same time, adjustments in the U.S. industrial activity forecast could be associated to the widespread appreciation of the U.S. dollar, in an environment of weak global economic activity, volatility in international financial markets and a reduction in the world trade. Furthermore, the forecast of a low oil price for an extended time period also seems to have deteriorated the growth outlook for the U.S. industrial sector, due to its adverse impact on the energy sector.

Considering the elements mentioned before, the forecast interval for GDP growth in Mexico in 2016 is reduced with respect to the previous Report, from one between 2.5 to 3.5 percent, to one between 2.0 to 3.0 percent (Chart 42a). Similarly, for 2017 the GDP growth outlook is estimated to be between 2.5 and 3.5 percent as compared to the interval of 3.0 to 4.0 percent published in the last Quarterly Report.

In this context, the forecast considers that the monetary adjustment, together with the announced cuts in public expenditure, will contribute to strengthening the country's economic fundamentals. Thus, the moderate effect of these measures on the economic activity in the short term will tend to be offset by generating an environment more conducive to growth. Particularly, the adjustments announced on February 17 will contribute to enhancing investors' confidence regarding Mexico's commitment to maintaining a solid macroeconomic framework and its ability to duly act, given the difficulties in the external environment, and thus distinguishing itself favorably among other emerging countries as an investment

[10] Expectations for the U.S. economy are based on the consensus of analysts surveyed by Blue Chip in February 2016. For 2016, U.S. industrial production is expected to expand 0.8 percent, as compared to the expansion rate of 2.3 percent estimated in the last Quarterly Report. For 2017, growth of 2.4 percent is foreseen, with respect to 2.8 percent reported in the previous Quarterly Report.

destination. Additionally, a more favorable environment for domestic sources of growth will be created, while preventing a deterioration in inflation expectations and fostering a more orderly adjustment in domestic financial markets.

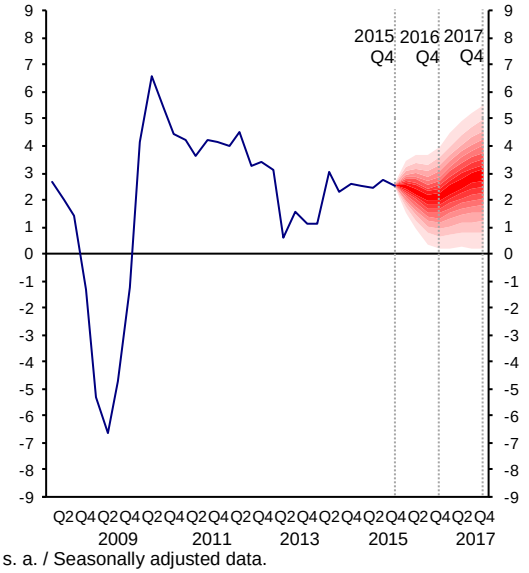
**Employment:** Consistent with the adjustment in the economic outlook, the forecast of an increase in the number of IMSS-affiliated jobs is revised downwards. For 2016, an increment of between 610 and 710 thousand IMSS-insured jobs is expected (an increase of between 630 and 730 thousand jobs in the previous Quarterly Report). For 2017, an increment of between 650 to 750 thousand IMSS-affiliated jobs is estimated (an interval of 660 to 760 thousand jobs in the last Report).

**Current Account:** In 2015, the trade balance registered a deficit of USD 14.5 billion (1.3 percent of GDP). In this context, the current account deficit amounted to USD 32.4 billion (2.8 percent of GDP), as compared to USD 24.8 billion (1.9 percent of GDP) in 2014. This change in the current account balance between 2014 and 2015 is mainly accounted for by the deterioration in the oil production balance. Indeed, the current account excluding the oil production balance presented a deficit of 2.0 percent of GDP in 2014, figure similar to that observed in 2015. For 2016, trade balance and current account deficits of USD 12.0 and 30.3 billion are expected, respectively (1.2 and 2.9 percent of GDP, in the same order). For 2017, trade balance and current account deficits of USD 13.1 and 33.5 billion, respectively, are projected (1.2 and 2.9 percent, in the same order).

In line with the economic growth forecast, no aggregate demand-related pressures on inflation or external account are projected. In particular, the output gap is expected to remain negative in the forecast horizon (Chart 42b).

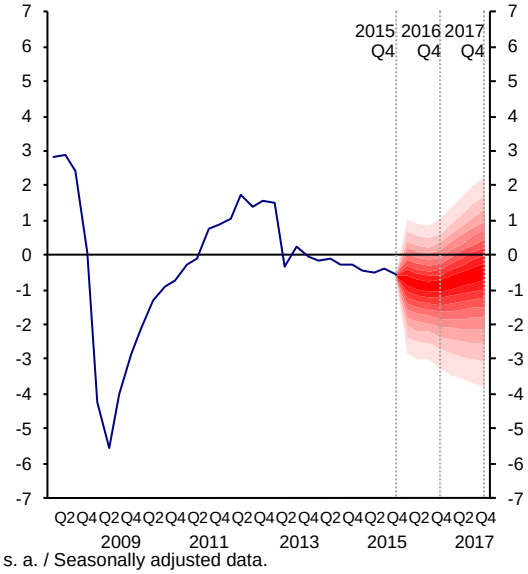
**Chart 42**
**Fan Charts: GDP Growth and Output Gap**

a) GDP Growth, s. a.
Annual percent




s. a. / Seasonally adjusted data.
Source: INEGI and Banco de México.

b) Output Gap Estimate, s. a.
Percentage of potential output




s. a. / Seasonally adjusted data.
Source: Banco de México.

The GDP growth outlook for Mexico presented in this Report is subject to different risks. Among downward risks to this outlook, the following are noteworthy:

i. An even lower than expected dynamism of the U.S. industrial activity. This could occur, for instance, if the U.S. dollar keeps appreciating, given a greater weakness of world demand or as a consequence of a greater deterioration of energy prices.

ii. That oil prices will not recover. In the short term, this could lead to a lower domestic expenditure.

iii. That volatility in the financial markets will further intensify, consequent on events associated, for instance, with an economic environment in China or given uncertainty related to the possible rate of the U.S. monetary stimulus withdrawal. As in the previous case, this volatility could lead to disorderly adjustments in the exchange rate, which could trigger a deterioration in the confidence levels, and, therefore, in consumers' and investors' spending.

On the other hand, among upward risks the next stand out:

i. A better than expected U.S. industrial activity, which, together with a more orderly adjustment of the real exchange rate, may lead to a considerable increase in Mexican non-oil exports.

ii. That the implementation of structural reforms may produce more favorable and faster effects on investment.

**Inflation:** The projected inflation path considers the fading of favorable supply shocks that occurred in early 2015, adjustments in relative prices derived from the exchange rate depreciation, as well as the change in the gasoline pricing mechanism, and, as a consequence, the change in its seasonal nature, which would imply higher gasoline prices in the second and third quarters, and lower prices of this fuel in the first and the fourth ones of the year. Hence, annual headline inflation is anticipated to increase in 2016, and, derived from the above referred seasonality, to temporarily reach levels slightly above 3 percent between the second and the third quarters, to later close the year around this level. Annual core inflation is expected to gradually go up throughout the year, as a result of the mentioned adjustment in relative prices, to also conclude 2016 at levels close to 3 percent. For 2017, both annual and core inflation are estimated to stabilize around the permanent inflation target. It should be noted that this outlook does not imply a generalized deterioration in the price formation process, but rather reflects the anticipated effect produced by the above mentioned factors onto inflation (Chart 43 and Chart 44).

The forecast of the inflation trajectory could be affected by certain risks. Among upward risks the following should be specified:

i. In light of the consequences of the international environment on the performance of the exchange rate, that the depreciation of the national currency occurs again, which could contaminate inflation expectations

and generate higher prices of non-tradable goods. Nonetheless, it should be pointed out that the measures taken by Banco de Mexico in its last monetary policy decisions, in particular upward adjustments of 25 basis points in the target for the Overnight Interbank Interest Rate on December 17, 2015 and of 50 basis points on February 17, 2016, show this Central Institute's commitment to maintaining inflation expectations well-anchored.

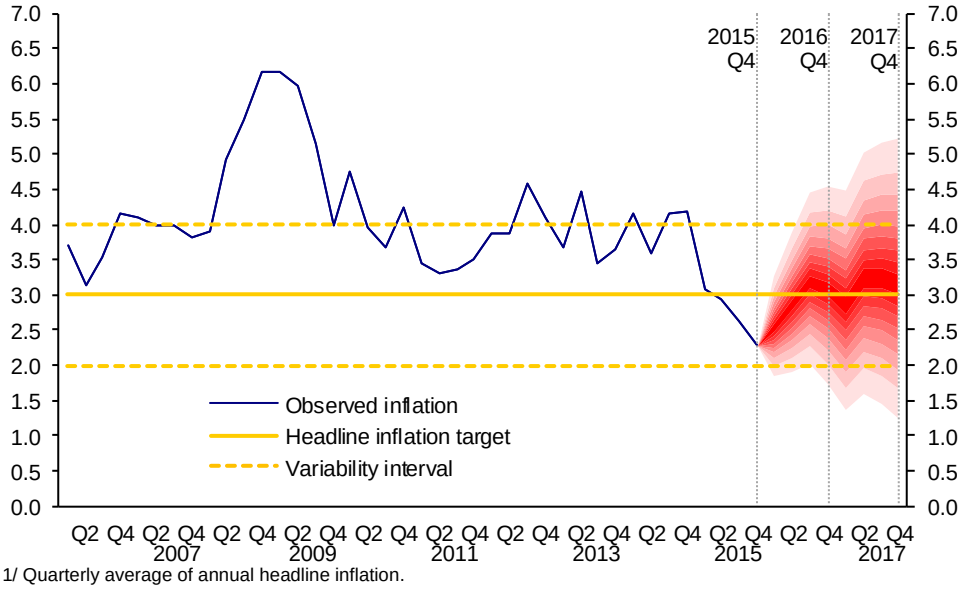
ii. A greater than anticipated dynamism of economic activity, which could lead to a faster than expected closing of the output gap. Still, this risk is estimated to take place gradually.

On the other hand, among downward risks the following can be highlighted:

i. That as a result of structural reforms, prices of some widely used inputs, such as telecommunication services and energy products, would further diminish.

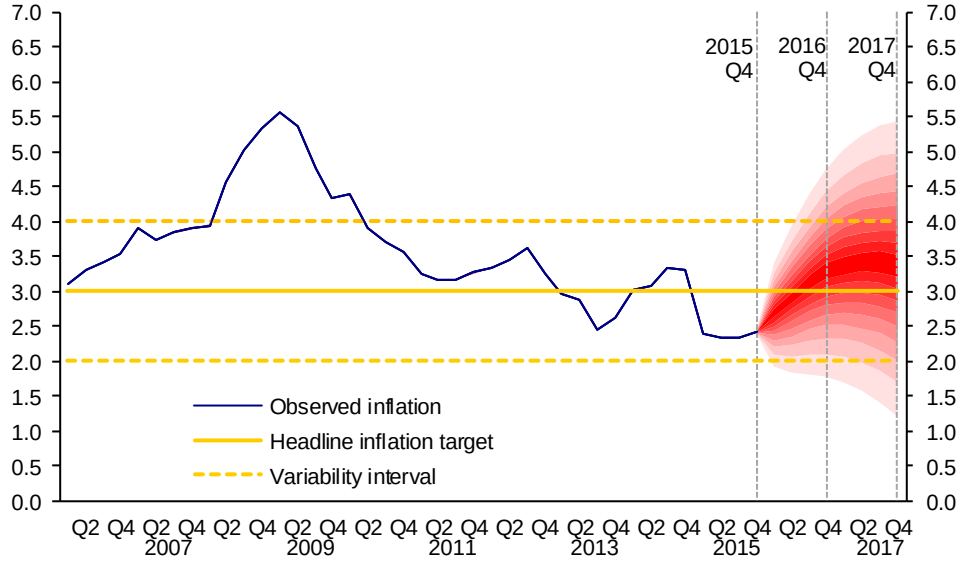
ii. That at least a part of the recent depreciation of the national currency may revert, as it has been happening already.

**Chart 43**
**Fan Chart: Annual Headline Inflation [1/]**
Percent




1/ Quarterly average of annual headline inflation.
Source: Banco de México and INEGI.

**Chart 44**
**Fan Chart: Annual Core Inflation [1/]**
Percent




1/ Quarterly average of annual core inflation.
Source: Banco de México and INEGI.

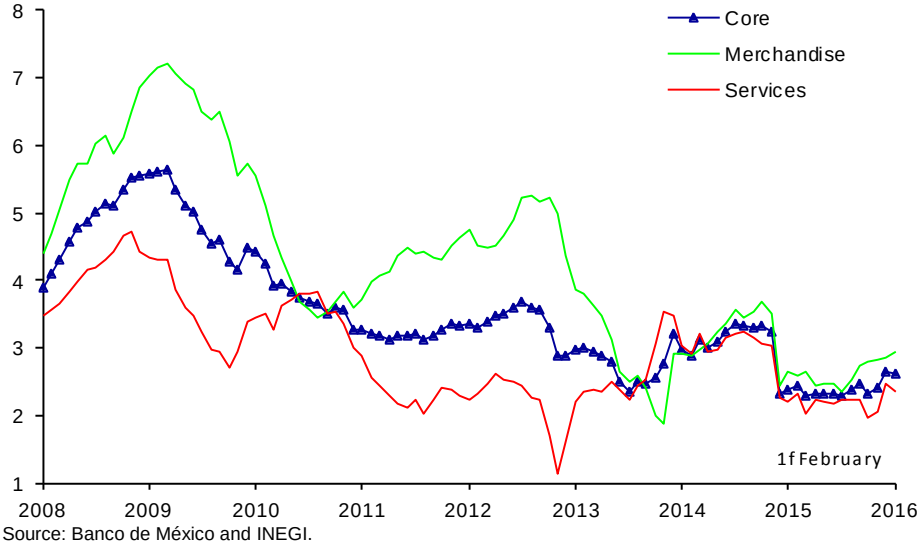
Considering the facts stated in this Report, on February 17, the Board of Governors clarified that, although its latest monetary policy decision does not initiate the cycle of monetary tightening, in the future it will remain alert to the performance of all inflation determinants and its expectations for the medium and long term, especially the exchange rate and its possible pass-through onto consumer prices. Likewise, it maintained that it would continue monitoring the monetary stance of Mexico relative to the U.S., without overlooking the evolution of the output gap. All this in order to be able to take measures in a flexible manner and whenever conditions demand it, so as to consolidate the efficient convergence of inflation to the 3 percent target.

In view of increased volatility in international financial markets and the deterioration in the external environment faced by the Mexican economy, on February 17, 2016 the Mexican authorities acted in a timely and coordinated manner, so as to implement a series of adjustment measures that would contribute to strengthening the country's macroeconomic fundamentals. Indeed, as stated in this Quarterly Report, as part of a comprehensive package of measures, in an extraordinary meeting, Banco de México decided to increase the reference interest rate. At the same time, the Federal Government announced a preemptive spending cut in the Federal Public Administration, which would allow facing the shock to government revenue, represented by a decrease and the deterioration in the future outlook for oil prices. An adjustment to the Pemex budget was also announced, besides the intention to accelerate the implementation of the hydrocarbon reform so as to enhance productivity and efficiency of the sector. Meanwhile, the Foreign Exchange Commission suspended dollar auctions, leaving the possibility of intervening discretionally in the exchange market in exceptional cases. The fast response of authorities, in light of more unfavorable conditions and the coordinated action among different institutions of the Mexican state will allow the measures to be more effective so as to simultaneously guarantee the country's financial stability and generate an environment more favorable for greater economic growth.

Furthermore, the importance of having domestic sources of growth is underlined, particularly in a context of a weak world economy and a low volume of world trade. If the structural reforms are adequately implemented, apart from directly benefitting the welfare of the Mexican population, they would allow to distinguish the Mexican economy among other emerging countries even more and to consolidate a greater growth rate in the medium term. In connection with the above, and as stated in previous Quarterly Reports, it is necessary to strengthen the rule of law and guarantee legal certainty. This would allow to enhance the effect of structural reforms onto the economic growth, besides directly attracting greater investment to the country.

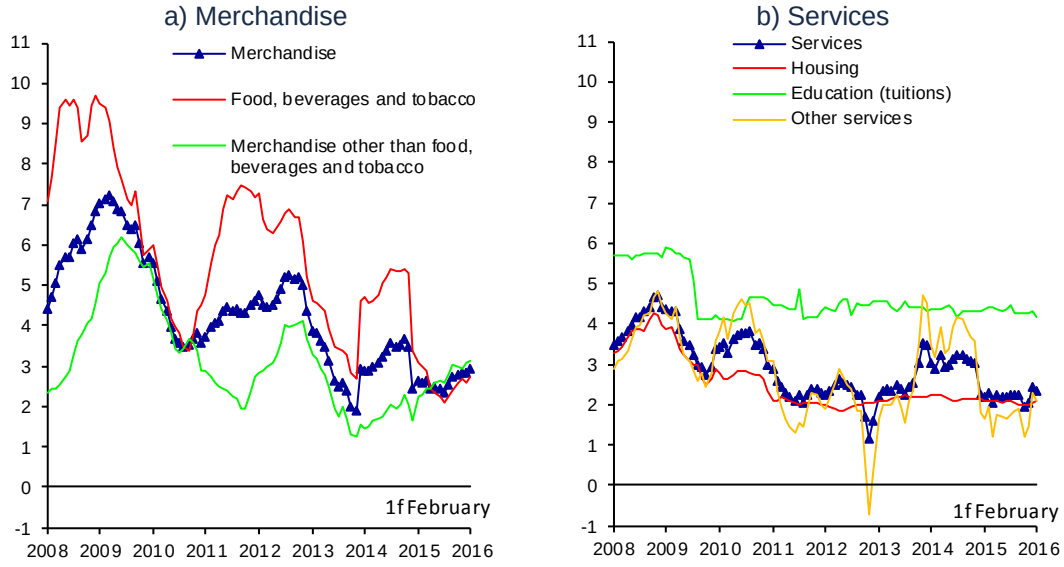
# Annex 1: Complementary Charts of the Recent Development of Inflation

**Chart A1**
**Core Price Index**
Annual change in percent



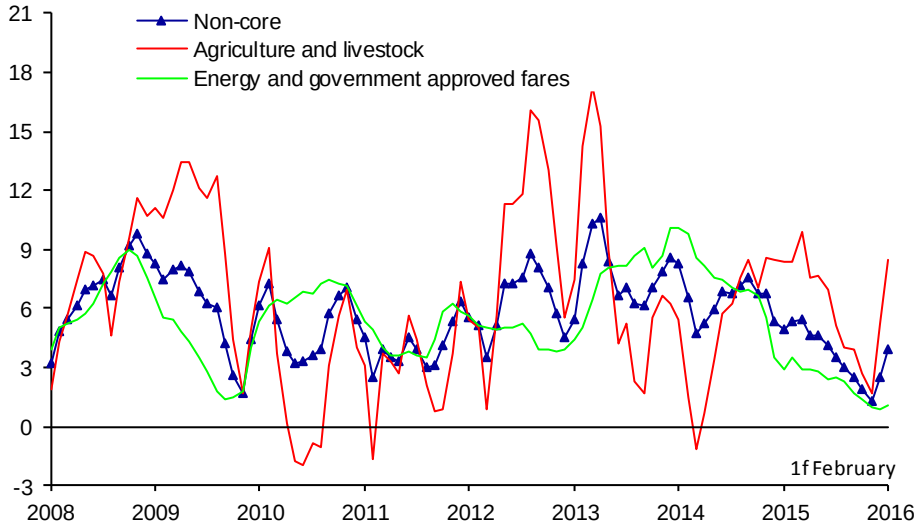

Source: Banco de México and INEGI.

**Chart A2**
**Core Price Index: Merchandise and Services**
Annual change in percent




Source: Banco de México and INEGI.

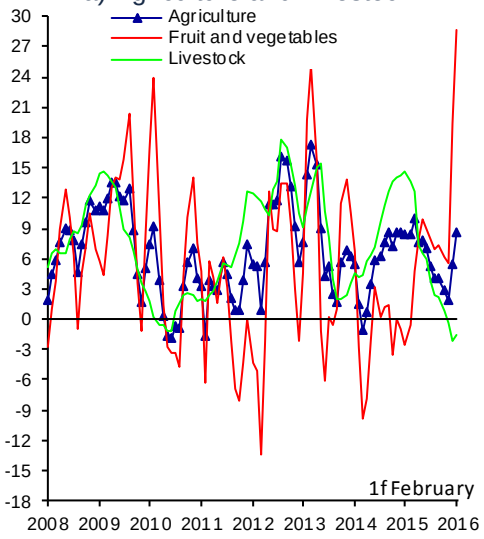
**Chart A3**
**Non-core Price Index**
Annual change in percent



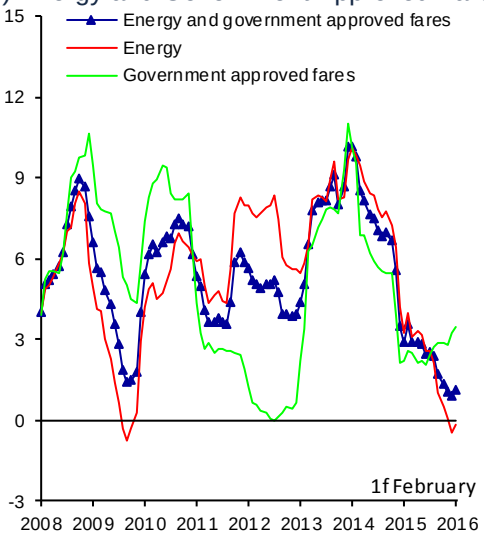

Source: Banco de México and INEGI.

**Chart A4**
**Non-core Price Index**
Annual change in percent

a) Agriculture and Livestock

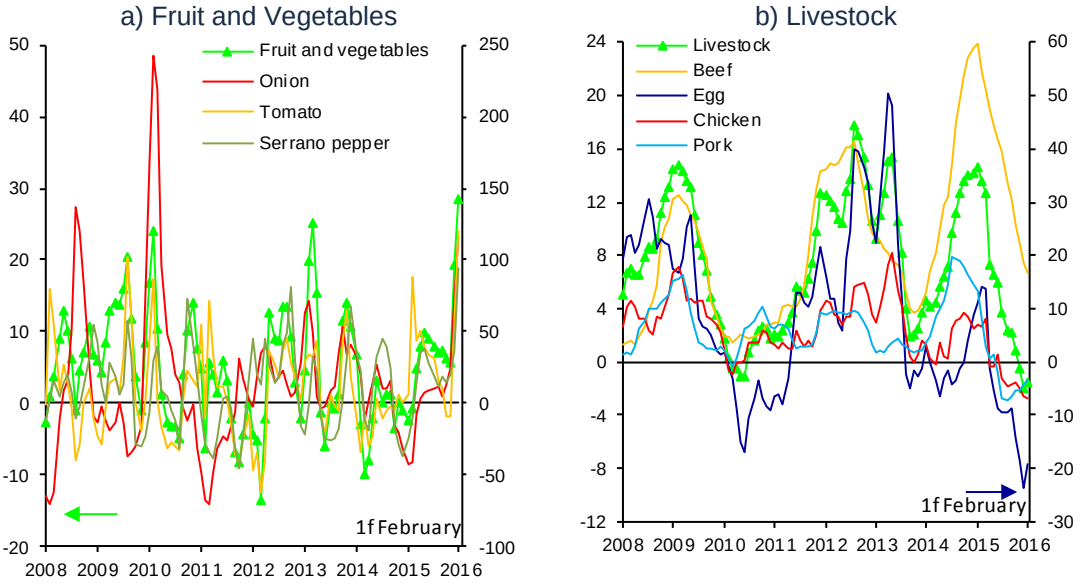



b) Energy and Government Approved Fares



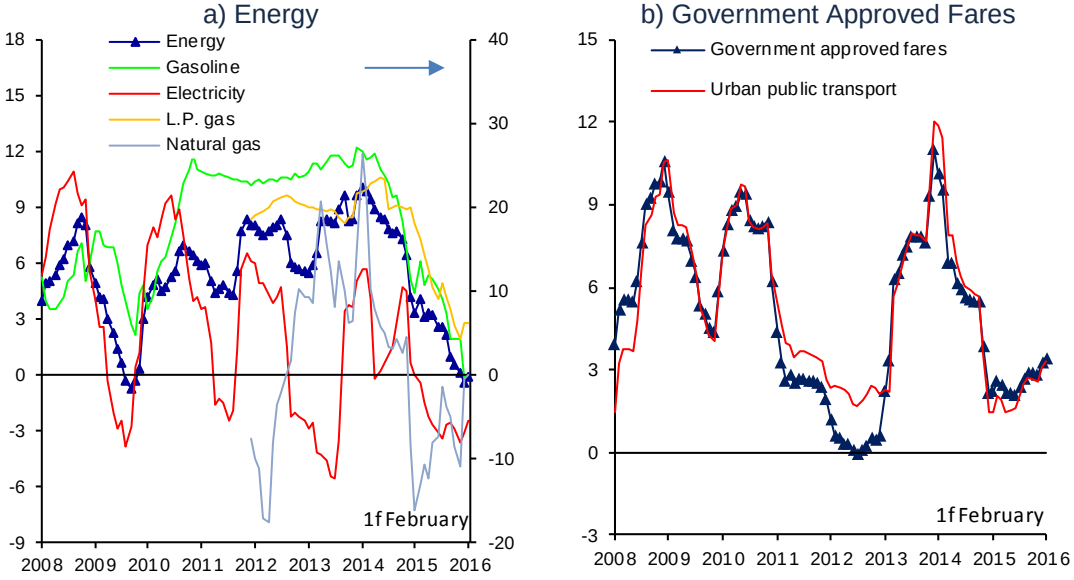

Source: Banco de México and INEGI.

**Chart A5**
**Agriculture and Livestock Price Index**
Annual change in percent




Source: Banco de México and INEGI.

**Chart A6**
**Energy and Government Approved Fares Price Index**
Annual change in percent




Source: Banco de México and INEGI.

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