BANCO DE MÉXICO

Compilation of Quarterly Reports
Released in 2016

PRESENTATION

This document is a compilation of four Quarterly Reports of 2016, released in line with Article 51 of Banco de México's Law and in accordance with the calendar published in advance by this Central Institute.

These Quarterly Reports address inflation, the evolution of economic activity and the performance of other economic indicators of Mexico over the referred period. Likewise, the monetary policy conduction in the reference year, as well as other activities of Banco de México in each respective period are discussed.

In addition, this document includes a statistical appendix with relevant annual data of the Mexican economy and an annex reporting the relation between Mexico and some international bodies and forums.

We trust that this compilation will provide the public with an easier access to the relative data of the reference year, by bringing this information together in a single document.

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Section I: Quarterly Report January - March 2016

1.   Introduction

The monetary policy conduction of Banco de México has focused on procuring the stability of the national currency's purchasing power, so that it is achieved at the lowest cost to society in terms of economic activity. Through the inflation targeting regime, this Central Institute has set out to reach the annual inflation rate of 3 percent, with a variability interval of plus/minus one percentage point. Efforts undertaken in the field of monetary policy have yielded an important result: the consolidation of an environment of low and stable inflation in Mexico. Among the outcomes achieved through the above referred regime, the following stand out: i) a permanent reduction in the inflation levels, its volatility and persistence; ii) a decrease in risk premia, particularly inflation risk premium; iii) a solid anchoring of inflation expectations at levels close to the permanent target, as well as their smaller dispersion; and iv) a reduction in the pass-through of changes in relative prices and, particularly, of exchange rate fluctuations, to the prices of goods and services. These achievements have become evident in the current juncture. Indeed, recent exchange rate fluctuations have not affected the price formation process of the economy, while inflation has persisted below the permanent target for the last 12 months, and inflation expectations in the medium and long term remain well-anchored. Thus, the exchange rate has functioned as a shock absorber for the Mexican economy in light of a highly complex external environment, without generating disproportionate pressures on inflation. The consolidation of an environment of low and stable inflation has allowed, along with other factors, a recovery of the purchasing power of wages.

This favorable performance of inflation has taken place in an especially challenging environment, which compelled Banco de México to carefully weigh the possible effects of both domestic and external factors on the evolution of inflation and its expectations, in order to define the most appropriate monetary policy stance at each point of time. Indeed, on the one hand, in the period analyzed in this Report, domestic economic environment was characterized by moderate growth, no aggregate demand-related pressures on prices and a solid anchoring of inflation expectations. On the other hand, low growth in global economic activity and world trade were observed along with different episodes of financial volatility, which notably pressured the value of the national currency. Thus, in its decision on February 4, 2016, considering that the central scenario of the inflation evolution for the short and medium term at the time was congruent with the consolidation of its convergence to the permanent 3 percent target, the Board of Governors decided to maintain the level of the target for the Overnight Interbank Interest Rate unchanged at 3.25 percent. Despite this, a warning was issued about the risk to inflation and its expectations, arising from the possibility that the depreciation of the national currency may further persist or become more pronounced. In this context, following the surge of volatility in international financial markets, the deterioration of the external environment and strong exchange rate fluctuations that occurred in the weeks following the referred decision, the Board of Governors deemed it appropriate to hold an extraordinary session and on February 17, 2016 announced a 50-basis-point increment in the target for the Overnight Interbank Interest Rate,

to 3.75 percent. In this regard, the Board of Governors clarified that the said increment would not initiate a cycle of monetary contraction.

It should be noted that this decision was part of a coordinated set of actions taken along with other authorities. In particular, together with the described monetary policy measure, the Ministry of Finance announced a preemptive adjustment to the expenditure of the Federal Public Administration for 2016, and the Foreign Exchange Commission decided to suspend the auction of dollars' mechanisms, leaving open the possibility to discretionally intervene in the exchange market, should exceptional circumstances occur.

The implemented measures produced the expected result. Indeed, at the moment of the announcement the national currency appreciated considerably, a tendency that persisted for several weeks. Likewise, short-term interest rates went up in line with the increase in the reference interest rate, while those corresponding to longer terms went down, resulting in a significant flattening of the yield curve, just as it was intended. These results, together with the fact that the balance of risks to inflation was considered neutral, and, in particular, that the central scenario of its performance was congruent with the 3 percent permanent target, taking into account the adjustment realized on February 17, 2016, led to the Board of Governors deciding to maintain unchanged the target for the Overnight Interbank Interest Rate at the monetary policy meetings of March 18 and May 5.

Delving into the factors that motivated the above mentioned decisions, the international environment faced by the Mexican economy in the period covered by this Report remained adverse. In particular, the global growth expectations continued their downward revision and world trade stagnated, in a context in which the expansion of most advanced and some large emerging economies was slower than anticipated. Likewise, in the first half of the analyzed quarter, volatility in international financial markets increased considerably, largely driven by growing doubts regarding global economic recovery and uncertainty regarding the policy course of the main advanced and emerging economies, in particular China. Subsequently, in the second half of the quarter, financial markets observed lower volatility and a certain recovery in some emerging economies' asset prices, driven by the monetary policy actions of some central banks, the expectation of a more gradual normalization process of the U.S. monetary policy, an improvement in the economic activity indicators of China, and a certain increase in commodity prices. Nonetheless, the accommodative monetary policy implemented by the main central banks of advanced economies seems to be increasingly less effective in supporting the economic recovery, while generating significant risks to the stability of the international financial system. Thus, the balance of risks to the growth of the world economy and international financial markets remains downward, mainly as a reflection of lower investment and productivity levels in the main advanced economies, high vulnerabilities of the sovereign and corporate debt of some emerging economies, potentially negative effects generated by the extended monetary stimulus on the stability of financial markets, uncertainty persisting in relation to the speed of the normalization process of the U.S. monetary policy and its possible consequences, and the existence of diverse geopolitical risks in different regions.

At the domestic level, Mexico's economic activity grew more in the first quarter of 2016 than in the previous quarter. This growth was based on the dynamism of consumption, which was favored by improvements in the labor market, low inflation,

credit expansion and more favorable conditions the structural reforms generated for the domestic demand's expansion. Conversely, external demand performed unfavorably and gross fixed investment remained weak. Indeed, the sluggish performance in the U.S. industrial sector persisted, partly as a consequence of the slowdown in world trade, USD appreciation and low crude oil prices, which translated into a lower export level of and lower investment in machinery and equipment in Mexico. In this context, slackness prevails in the economy and in the labor market, although different indicators of the latter suggest that the referred slack conditions are gradually decreasing. Thus, no aggregate demand-related pressures on prices have been registered.

Hence, despite the weak international environment, the Mexican economy has managed to continue growing moderately. In this sense, the resilience that persisted in the economy in light of the adverse international environment, which resulted into a higher than expected GDP increase in the first quarter, suggests modestly better prospects for growth in 2016, although they still do not warrant any revision of the forecasts published in the previous Report. In particular, for 2016 GDP is expected to grow between 2.0 and 3.0 percent. For 2017, given the adverse international environment, in light of the decrease in growth expectations of the U.S. industrial production, the forecast interval of GDP growth is moderately adjusted from 2.5 to 3.5 percent in the previous Report to 2.3 to 3.3 percent in the current one. These forecasts consider the expectation that the structural reforms' implementation will gradually induce a greater impulse to domestic expenditure.

Inflationary conditions in the economy remain favorable. Annual headline inflation persisted below the permanent 3 percent target for 12 consecutive months. This arose from the credibility of the adopted monetary policy actions, the absence of pressures onto prices generated by the expansion of aggregate demand, direct and indirect effects of lower prices of some generalized-use inputs, such as energy and telecommunication services on inflation, which largely resulted from the implementation of structural reforms, and from low international commodity prices. A low pass-through of the exchange rate depreciation observed since late 2014 onto inflation in 2015 and in 2016 should be noted, which, in part, has also resulted from the above mentioned factors, but which, above all, reflects a structural change over the past years, regarding a more effective anchoring of inflation expectations. Thus, despite a transitory, largely expected, rebound, in the first quarter of 2016, headline inflation remained at low levels in the period analyzed in this Report. In particular, in the first weeks of May it located at 2.53 percent, while core inflation kept a moderate upward trend, reflecting the 2.92 percent change in the relative prices of merchandise with respect to services, in the same quarter.

In the described juncture, inflationary conditions are anticipated to remain favorable, with inflation still fluctuating around the permanent target, and medium and long-term inflation expectations locating at levels congruent with the said target. In particular, headline inflation is estimated to persist below 3 percent during the following months. Although at the end of the year it may moderately exceed this figure, as a consequence of some temporary factors, it is estimated to lie on average at 3 percent for the year as a whole. Annual core inflation is forecast to increase gradually, concluding 2016 at levels close to 3 percent. For 2017, both headline and core inflation are anticipated to lie around the permanent target.

Despite an improvement in international financial conditions starting from the second half of the first quarter, new episodes of volatility cannot be ruled out, mainly

in view of the prevailing uncertainty over the global economic growth outlook and a possible impact on the global financial stability generated by the divergent monetary policies among the main advanced economies. Furthermore, there is a possibility of a disorderly process of term premia decompression in financial markets, in light of the expected normalization of the U.S. monetary policy. In this sense, it is especially crucial to continue strengthening both the macroeconomic framework and domestic sources of growth in the country, in order to contribute to a differentiation of Mexico from other emerging economies.

Considering the above factors, in the future the Board of Governors will continue to closely monitor the evolution of all inflation determinants and its medium- and long-term expectations, particularly the exchange rate and its potential pass-through onto consumer prices. Moreover, it will monitor the monetary policy 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 the necessary measures in a flexible manner and whenever conditions demand it, so as to consolidate the efficient convergence of inflation to its 3 percent target.

2.   Recent Development of Inflation

2.1.   Inflation

The adequate and timely monetary policy stance adopted by this Central Institute, together with the environment of a certain slack in the economy, both direct and indirect effects on inflation generated by lower prices of some generalized-use inputs, largely derived from the implementation of structural reforms, and an environment of low international prices in most commodities, have been crucial in achieving a favorable result in terms of inflation, despite a complex world environment faced by the economy. This result has been evident through the following: i) that inflation remained below the referred inflation target for 12 consecutive months; ii) that exchange rate fluctuations had a low pass-through onto prices, which allowed the exchange rate to function as an efficient shock-absorber of external shocks faced by the Mexican economy, without affecting its price formation process; and iii) that inflation expectations, especially medium- and long-term ones, presented a solid anchoring at levels close to the permanent inflation target set by this Central Bank.

In this context, after annual headline inflation dropped to a historic low in the last month of 2015, inflationary conditions of the economy remained favorable in the reported period. Indeed, although in the first quarter of 2016 annual headline inflation increased slightly, derived from some factors that temporarily pushed it upwards and that, in several cases, had been anticipated, it remained below the permanent target. Thus, average annual headline inflation went up from 2.27 percent in the fourth quarter of 2015 to 2.69 percent in the first one of 2016. In January an arithmetic effect was registered, which was generated by lower prices of fixed telephone services in January 2015, which did not occur this year. Moreover, in January and February, some vegetables' prices increased considerably, brought about by weather factors. Core inflation maintained a moderate upward trend, derived from the adjustments in the relative prices of merchandise, with respect to services. In accordance with the adopted monetary policy, no second round effects on the price formation process of the economy were observed. Therefore, as a result of the combination of these factors, annual headline inflation went down to 2.53 percent in the first fortnight of May (Table 1 and Chart 1).

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

	2014	2015				2016	
	IV	I	II	III	IV	I	1f May
CPI	**4.18**	**3.07**	**2.94**	**2.61**	**2.27**	**2.69**	**2.53**
Core	**3.30**	**2.39**	**2.32**	**2.33**	**2.40**	**2.69**	**2.92**
Merchandise	**3.57**	**2.56**	**2.52**	**2.46**	**2.78**	**3.04**	**3.53**
Food, beverages and tobacco	5.35	3.15	2.56	2.20	2.55	2.88	3.72
Non-food merchandise	2.13	2.07	2.49	2.67	2.98	3.17	3.37
Services	**3.08**	**2.26**	**2.15**	**2.22**	**2.09**	**2.40**	**2.40**
Housing	2.14	2.10	2.09	2.06	2.00	2.11	2.22
Education (tuitions)	4.30	4.36	4.35	4.37	4.28	4.21	4.11
Other services	3.72	1.80	1.57	1.75	1.52	2.15	2.07
Non-core	**6.99**	**5.17**	**4.92**	**3.53**	**1.87**	**2.71**	**1.32**
Agriculture	**8.04**	**8.39**	**8.34**	**5.33**	**2.76**	**6.51**	**4.54**
Fruit and vegetables	-0.73	-1.39	7.43	7.91	6.33	22.45	12.26
Livestock	13.43	14.15	8.81	4.00	0.84	-1.60	0.62
Energy and government approved fares	**6.35**	**3.30**	**2.87**	**2.42**	**1.33**	**0.39**	**-0.73**
Energy	7.12	3.82	3.21	2.43	0.52	-1.10	-1.84
Government approved fares	4.93	2.32	2.26	2.39	2.86	3.23	1.20
Trimmed Mean Indicator [1]							
CPI	3.78	3.08	2.84	2.64	2.48	2.47	2.59
Core	3.16	2.78	2.71	2.69	2.76	2.85	3.03

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

Chart 1
Consumer Price Index
Annual change in percent
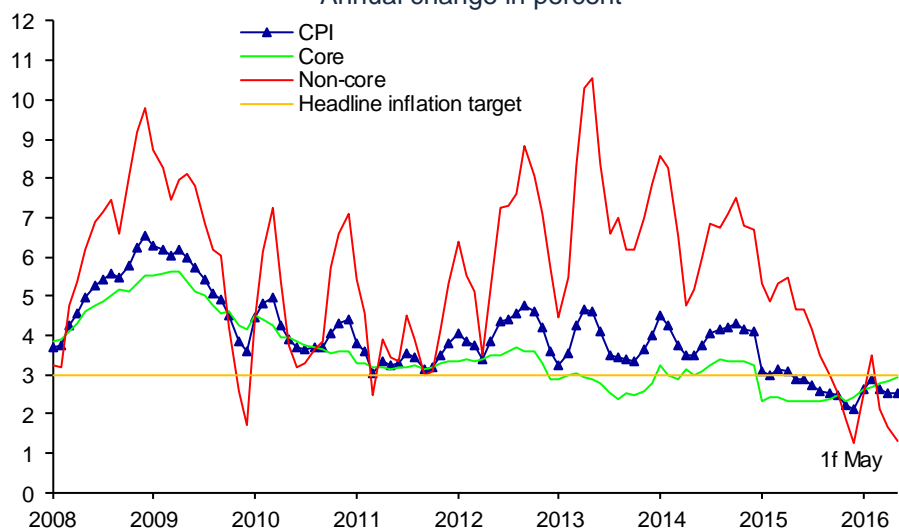
Source: Banco de México and INEGI.

The dynamics of headline and core inflation are reflected in greater detail in the analysis of some indicators that in some cases illustrate their tendency and in others their performance at the margin. In the first place, the share of the CPI basket that presents annual price changes in three groups is analyzed: i) items with an annual price change below 2 percent; ii) between 2 and 4 percent; and iii) over 4 percent. This indicates that a high percentage of the basket, both of headline and core inflation, observes price changes lower than 4 percent (blue and green areas, Chart

2). Furthermore, it is notable that the share of the CPI goods and services' basket with price increments below 4 percent increased from 65 to 72 percent between the first quarter of 2015 and the first quarter of 2016. In the case of core inflation this proportion remained stable, shifting from 72 to 73 percent in the same time period (Chart 2).

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

a) Headline

b) Core

Source: Banco de México and INEGI.
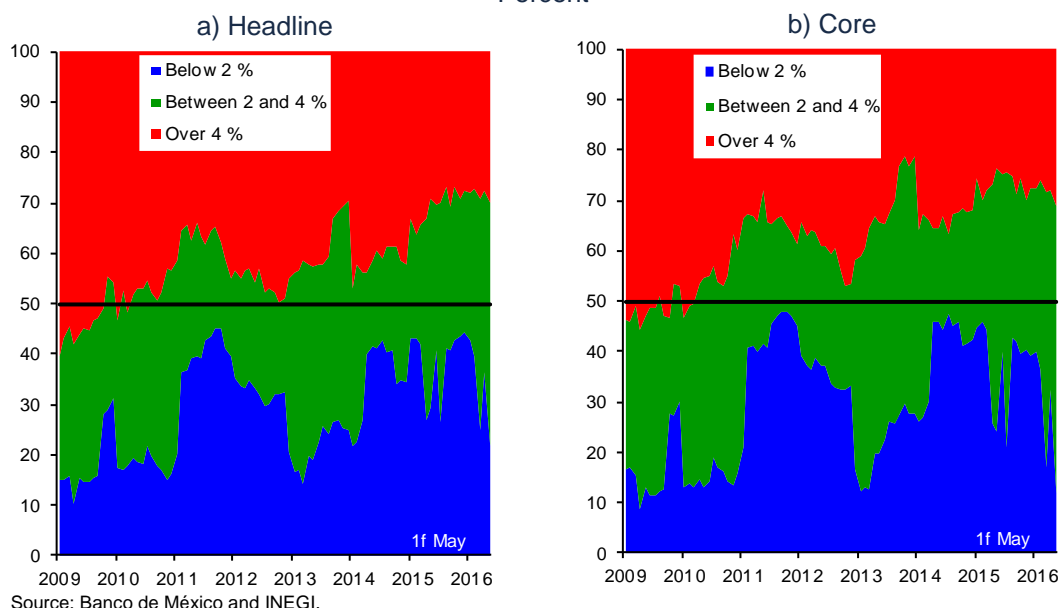
The medium-term inflation trend, represented by the Trimmed Mean Indicator, shows that the inflation rebound in the reference quarter resulted from a greater growth rate of some goods' prices, rather than from a generalized performance of prices. Specifically, the Trimmed Mean Indicator for headline inflation remained stable around 2.50 percent between the fourth quarter of 2015 and the first quarter of 2016, and it reached 2.59 percent in the first fortnight of May. Core inflation presented a gradual and pauseful increment in the growth rate, shifting from 2.76 to 2.85 percent in the referred quarters, to finally locate at 3.03 percent in the first fortnight of May (Chart 3 and Table 1).

On the other hand, the evolution of the annualized monthly (seasonally adjusted) inflation indicates that, at the margin, both headline and core inflation maintain levels congruent with the 3 percent inflation target, once the arithmetic effects and the comparison base effects are discounted. Furthermore, the moving average of the former indicator's six observations presents a decrease in its tendency in 2016 so far, while that corresponding to the latter practically shows a horizontal behavior in the same period (Chart 4).

Chart 3
Price Indices and Trimmed Mean Indicators [1]
Annual change in percent

a) CPI

b) Core

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.

Chart 4
Annualized Seasonally Adjusted Monthly Change
Percent
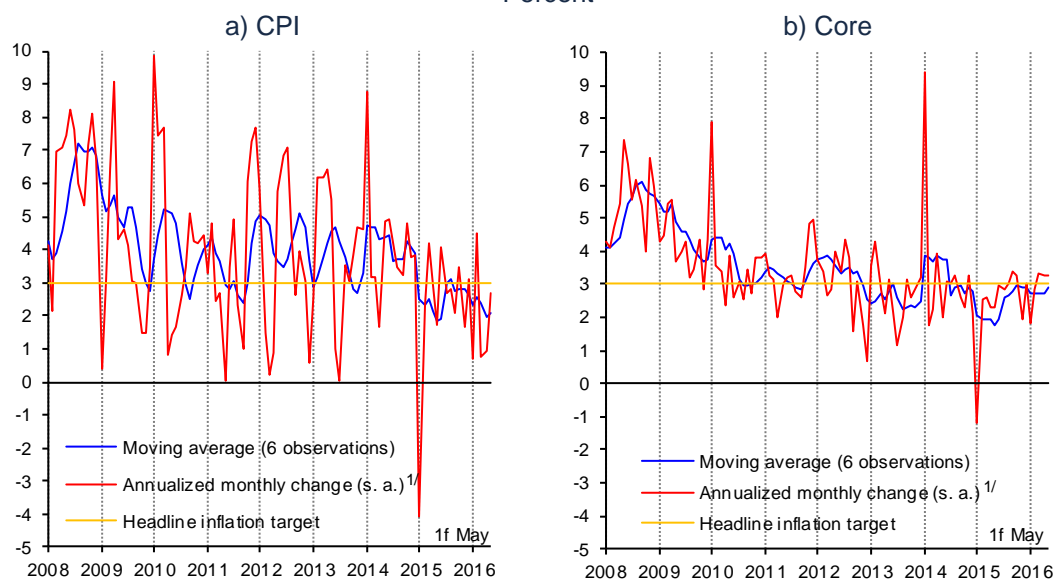
a) CPI

b) Core

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.

The following should be mentioned with respect to core inflation, whose average annual change shifted from 2.40 to 2.69 percent between the fourth quarter of 2015 and the first one of 2016, and subsequently went up to 2.92 percent in the first fortnight of May:

i.   The annual change rate of the merchandise price subindex continued reflecting the adjustment in its price relative to that of services, derived from the depreciation of the real exchange rate since late 2014. In particular, between the fourth quarter of 2015 and the first one of 2016, the average annual change of this subindex adjusted from 2.78 to 3.04 percent. Inside this index, the annual change rate of non-food merchandise' prices went up from 2.98 to 3.17 percent in the referred quarters, while the average annual change rate of the food merchandise' prices shifted from 2.55 to 2.88 percent between the fourth quarter of 2015 and the first one of 2016 (Chart 5a).

ii.   As a reflection of the degree of slackness prevailing in the economy and the effect of the structural reform on telecommunication services, relatively low growth rates of the services' prices persisted. Thus, its average annual change rate moved from 2.09 percent in the fourth quarter of 2015 to 2.40 percent in the first one of 2016 (Chart 5b).

Chart 5
Core Price Index
Annual change in percent

a) Merchandise

b) Merchandise and Services

Source: Banco de México and INEGI.
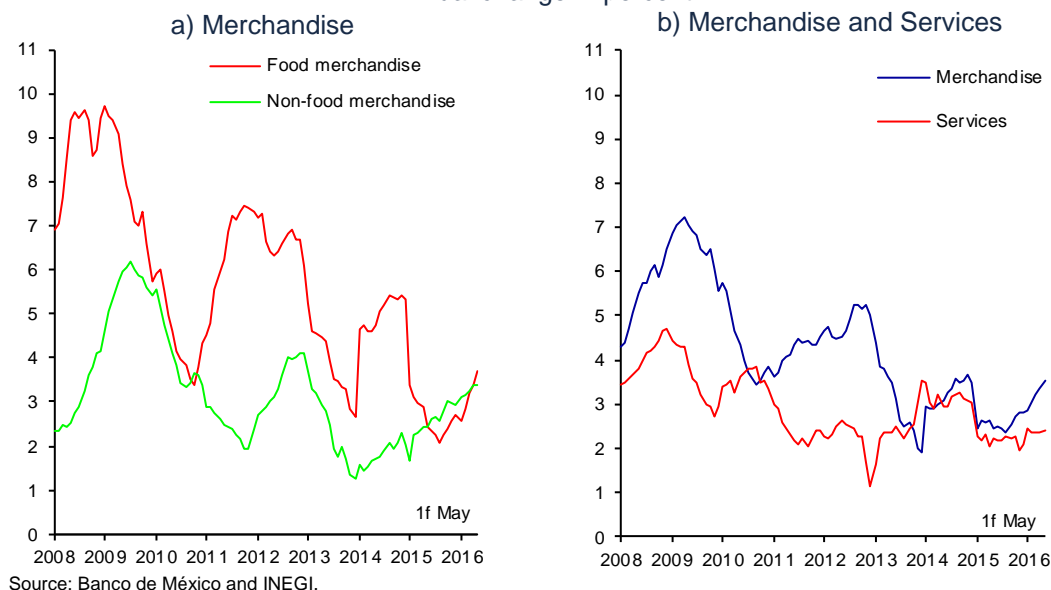
The average annual growth rate of the non-core price index increased from 1.87 to 2.71 percent between the fourth quarter of 2015 and the first one of 2016. This result was largely associated to the increment in some vegetables' prices during January and February. It was partially offset by lower annual growth rates of energy prices. It should be noted that the more favorable evolution observed since 2015 continued reducing the contribution of non-core inflation to headline inflation (Chart 6 and Table 1). Delving in the abovementioned factors, the following should be pointed out:

i.   The average annual growth rate of agricultural products' prices went up from 2.76 to 6.51 percent between the last quarter of 2015 and the first one of 2016. Inside this subindex, greater changes in the prices of fruit and vegetables stood out, to a large extent, as a reflection of higher prices of some vegetables that were affected by weather conditions at the beginning of the year. Despite this, from March onwards the prices of several of the said vegetables dropped significantly, once their supply conditions normalized.

ii.   During the first quarter of 2016, the annual change rate of the subindex of energy prices and government approved fares diminished. Thus, the average annual change of this subindex shifted from 1.33 to 0.39 percent between the last quarter of 2015 and the first one of 2016. This was consequent on the negative annual change rates, that were observed in the group of energy prices during the first three months of 2016, moving from 0.52 percent in the last quarter of 2015 to -1.10 percent in the first one of 2016. In this respect, reductions in low consumption electricity tariffs and in gasoline prices in Mexico (excluding the Northern border region) were noteworthy, which decreased 2 and 3 percent at the beginning of the year, respectively, as a result of these fuels' price setting policies, derived from which domestic prices, particularly gasoline prices, will increasingly more often reflect the prices of their international counterparts.

- In particular, between the last quarter of 2015 and the first one of 2016, the average annual change of low octane gasoline prices decreased from 1.85 to -1.78 percent, while high octane gasoline prices went down from 2.71 to -1.36 percent. As a result of the dynamics of gasoline prices in the Northern border cities, on average in the country lower gasoline price reductions were observed, relative to the reductions in the prices that exclude the referred localities. It should be noted that on April 29, 2016 the Ministry of Finance (SHCP) published in Mexico's Official Gazette (*Diario Oficial de la Federación*) that from May 2016 onwards the methodology used to establish maximum gasoline prices will be modified.[1] In particular, the formula to estimate domestic prices was updated to be based on this fuel's international counterparts. Therefore, the maximum price of low octane gasoline remained in May at the same level as in April, while high octane gasoline price reduced by 2 cents. This change in the methodology to calculate maximum gasoline prices tries to partially offset the effect generated by volatility in international gasoline prices on this fuel's domestic prices.

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[1] As mentioned in the Quarterly Report October – December 2015, and published in the Official Gazette on December 24, 2015, the gasoline price setting mechanism established by the Ministry of Finance for Mexico (with the exception of the Northern border region) consists in defining a range of values for 2016, specifying a 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' prices in late 2015. It is important to emphasize that the variation of the maximum price in the referred interval seeks to reflect, in a smoother way, the changes in international prices of gasoline (once they have been expressed in the national currency) in the domestic prices of gasoline in the country.

- The average annual change of electricity tariffs changed from -3.08 to -2.61 percent between the fourth quarter of 2015 and the first one of 2016. This resulted from the dynamics of high electricity consumption tariffs.

- The average annual change of L.P. gas price shifted from 2.68 to 2.74 percent, while that of the natural gas price changed from -8.15 to 0.85 percent. It should be noted that the L.P. gas price has remained constant since January, while that of the natural gas has been affected by the dynamics of its international reference.

Chart 6
Consumer Price Index
Annual contribution in percentage points [1]
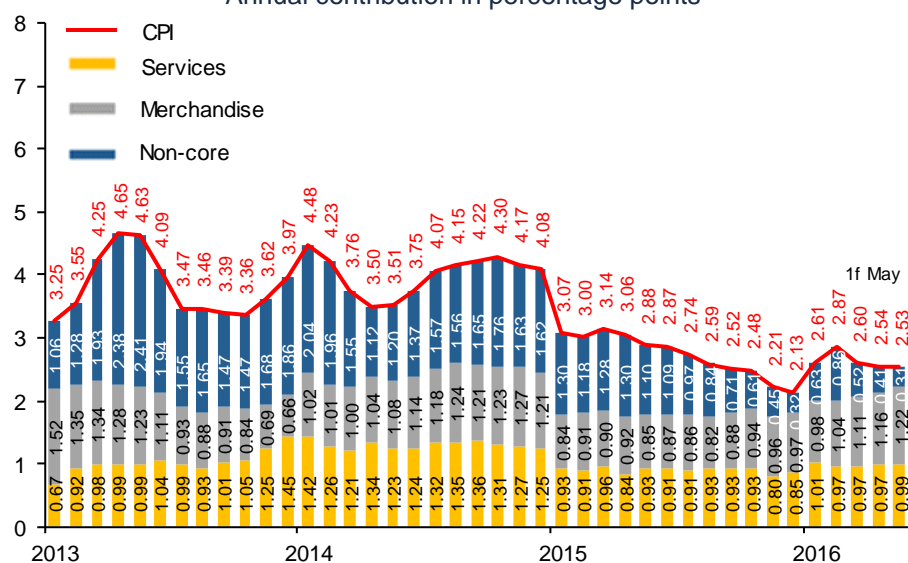
1/ In some cases, the sum of respective components can differ due to rounding.
Source: Prepared by Banco de México with data from INEGI.

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 first quarter of 2016 its annual change was 4.23 percent, and later in April it was 4.13 percent (Chart 7). It should be highlighted that the PPI subindex that presented the highest annual change rates is that of the prices of merchandise destined to exports, which includes goods quoted in USD, a factor that distinguishes this index from the CPI.

Chart 7
Producer Price Index [1/]
Annual change in percent
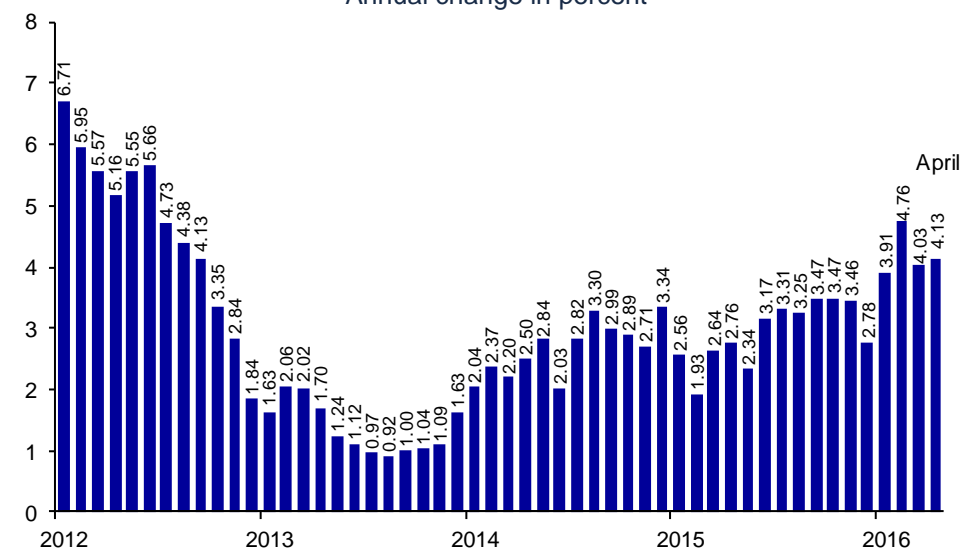
1/ Total Producer Price Index, excluding oil.
Source: Banco de México and INEGI.

3.   Economic and Financial Environment

3.1.   External Conditions

Global economic growth expectations continued adjusting downwards and the stagnation of the world trade persisted during the first quarter of 2016, which indicates that most advanced and some emerging economies are recovering less than anticipated (Chart 8a and Chart 8b). Moreover, there are still important risks to the activity in both groups of economies. In advanced economies, they refer to the possibility that in the medium term an environment of low expansion, investment and productivity will prevail, as well as very low inflation levels and that deflationary processes may even be observed. In emerging ones, vulnerability to the volatility of capital flows and lower commodity prices persists, which could lead to a further deterioration of macroeconomic fundamentals and their currencies' value, aggravating sovereign and corporate risks of some of these economies.

On the other hand, in the first weeks of the first quarter volatility in international financial markets spiked, and, starting from mid-first quarter, it went down. This was partially caused by the expectation of a more gradual normalization process of the U.S. monetary policy by the Federal Reserve and by additional easing measures in the Euro zone and Japan, as well as by signs of improvement in the economic activity of China and the recovery of commodity prices. Nevertheless, the monetary policy implemented by some central banks seems to be having lower effectiveness in supporting the recovery of their respective economies and could be generating important risks to stability of the international financial system. Besides, the scenario of global recovery and financial stability is facing diverse geopolitical risks in different regions, such as a possible U.K. exit from the European Union, economic and political instability in some emerging countries, the refugee crisis in Europe and the growing protectionist rhetoric in some advanced economies.

Chart 8
World Economic Activity

a) Global GDP Growth Forecast
Annual change in percent

b) World Trade of Goods [1/]
Annual change in percent, s. a.

Source: IMF, WEO spring 2011 to 2016.

s. a. / Seasonally adjusted data.
1/ It refers to the sum of exports and imports.
Source: CPB Netherlands.
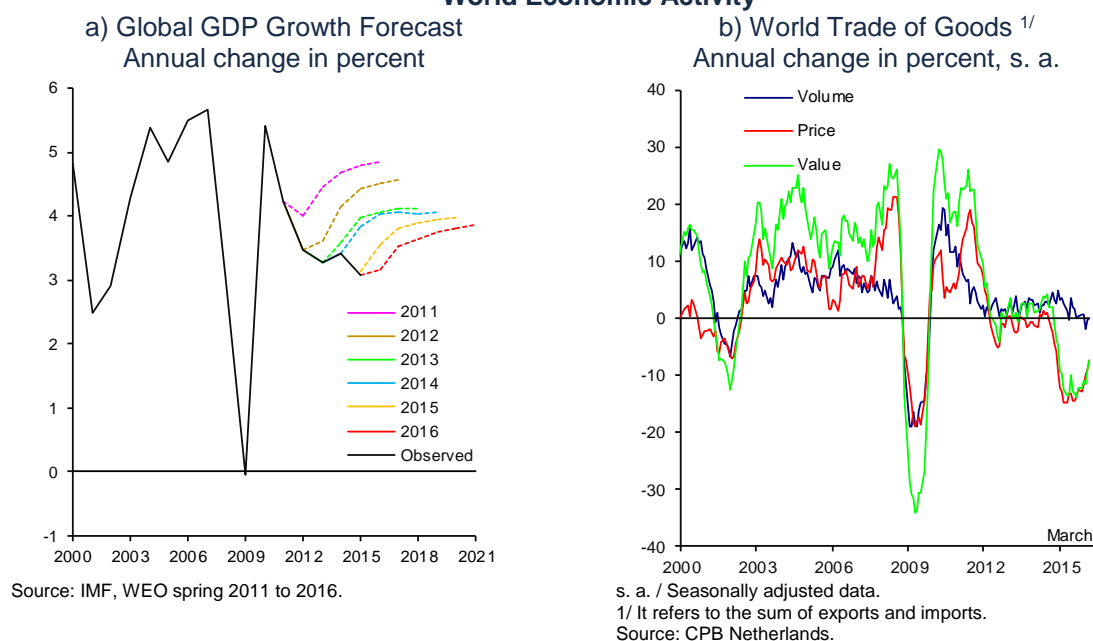
3.1.1.　World Economic Activity

In the U.S., GDP growth decelerated significantly during the first quarter of 2016, expanding only 0.5 percent at an annualized quarterly rate, which was lower than expected, and below the 1.4 percent observed in t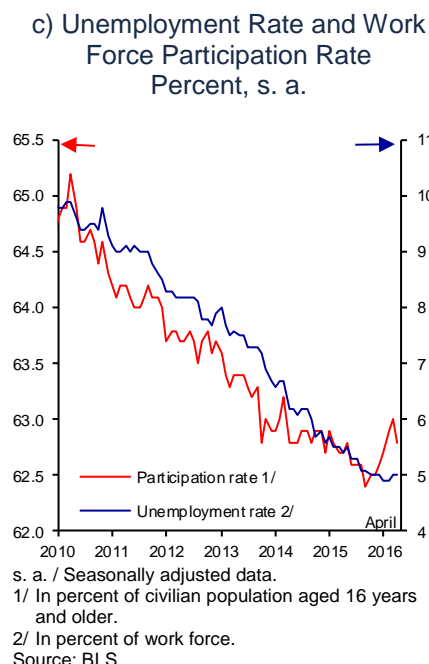he fourth quarter of 2015. Private consumption grew more moderately as compared to the previous quarter, despite favorable credit conditions, high confidence levels and strong employment. Investment in equipment and infrastructure continued contracting, reflecting the weakness in orders and shipments of capital goods and lower activity of oil and gas extraction. Besides, net exports kept diminishing, as a consequence of lagged effects of the U.S. dollar appreciation and the slow expansion of external demand (Chart 9a).

U.S. industrial activity contracted 1.6 percent at an annualized quarterly rate. This evolution is partly explained by the decrease in mining (-18.3 percent), mainly reflecting the persistent decline in exploration and extraction of oil and gas (-65.5 percent), by a further contraction of the electricity and gas sector (-0.7 percent) and by the stagnation observed in the manufacturing production, excluding vehicles and spare car parts (0.1 percent). In April, industrial production grew 0.7 percent at a monthly rate. This, to a large extent, resulted from the rebound in the electricity and gas sector, given a greater demand for heating after unusually warm weather conditions prevailing over the previous months. It should be clarified that the recent historical revision of data revealed that the performance of industrial production was considerably weaker than previously estimated, especially from 2014 onwards. Hence, the volume of production, based on the new data, remains below its maximum level prior to the crisis (Chart 9b).

Labor conditions continued improving in the period covered by this Report. Non-farm payroll expanded on average by 203 thousand jobs a month during the first quarter of 2016, although its growth moderated and shifted to 160 thousand jobs in April. Meanwhile, the labor participation rate went up from 62.6 to 62.8 percent between December 2015 and April 2016, and the employment-to-population ratio increased from 59.5 to 59.7 percent over the same period. In this context, the unemployment rate persisted around 5.0 percent, a figure close to the median of Federal Reserve long-term forecasts (4.8 percent; Chart 9c). Nonetheless, wage growth is still moderate, which suggests the presence of certain slack conditions in the labor market.

Chart 9
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 Production
Index 2012=100, s. a.

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

c) Unemployment Rate and Work
Force Participation Rate
Percent, s. a.

s. a. / Seasonally adjusted data.
1/ In percent of civilian population aged 16 years
and older.
2/ In percent of work force.
Source: BLS.
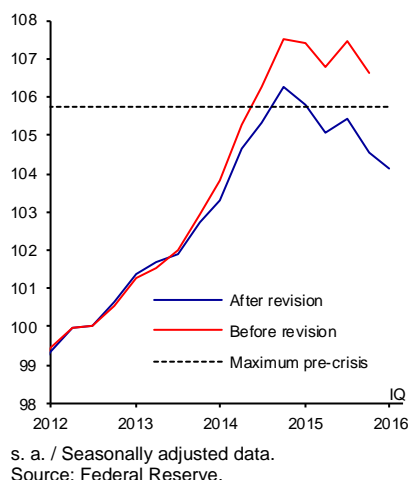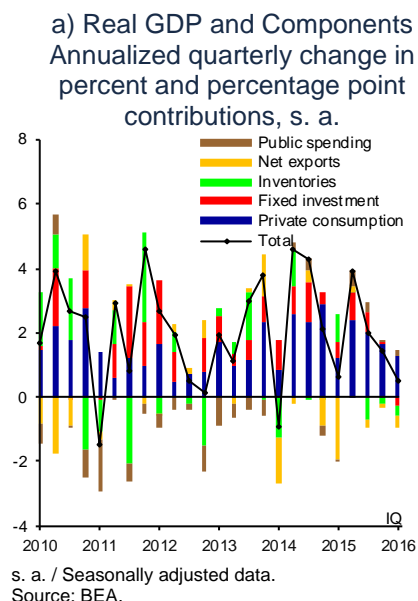
In the Euro zone, economic recovery remained moderate during the first quarter of 2016, despite an unfavorable international environment. GDP expanded at an annualized quarterly rate of 2.1 percent, as compared to 1.3 percent in the fourth quarter of 2015. Domestic demand remained supported by the greater monetary stimulus and the corresponding easing in credit conditions, a slightly expansionary fiscal stance, a lower demand in the labor market and low energy prices (Chart 10a). However, the recovery is still weak, and risks related to domestic imbalances, the precarious fiscal situation in Greece and the refugee crisis in the region persist.

As a result of turbulence in international financial markets and greater concern over the soundness of banks in the Euro zone in early 2016, equity and bond prices of European banks dropped. Despite this, credit conditions continued easing in the region, housing credit and credit to firms kept recovering and interest rates of consumer credits and credits to firms resumed their downward trend, following a slight rebound in January (Chart 10b). Even though the additional stimulus seems to be having a favorable effect on credit volumes, most banks reported a negative impact on their net revenue from interests and credit spreads due to the implementation of the negative interest rate in the deposit facility of the European Central Bank (ECB; Chart 10c).[2]

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[2] As of June 2014, the European Central Bank remunerates with a negative interest rate the bank reserves that are maintained in its deposit facility, and that exceed the amount required by the central bank.

Chart 10
Economic Activity in the Euro Zone

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

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

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

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

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

s. a. / Seasonally adjusted data.
Source: Eurostat.
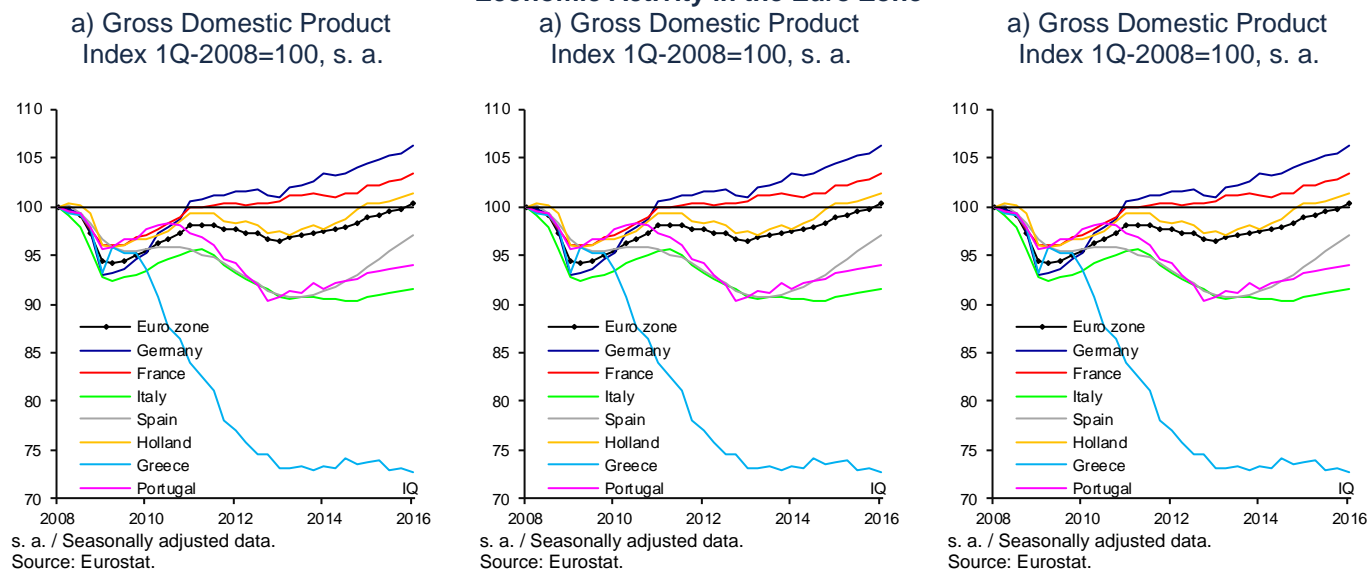
Economic activity in Japan expanded 1.7 percent at an annualized quarterly rate in the first quarter, following a contraction of 1.7 percent in the fourth quarter of 2015. During the first three months of 2016, domestic demand remained weak, in light of a contraction of private investment and the fact that consumption only recovered after the drop in late 2015. In this context, the expansion observed in the reference quarter was supported by government expenditure and net exports. Besides the possible effects of the Kumamoto earthquakes onto economic activity in the second quarter, the economy of Japan keeps registering downward risks stemming from the continuous JPY appreciation and a weak demand from emerging economies.

There are differences in the economic evolution of different emerging economies, although in general the outlook has been adjusted downwards, above all due to the performance of some large economies, such as Brazil and Russia, which are still going through recession. Although industrial production in some of these economies somewhat improved during the quarter, in most of them it is practically stagnated (Chart 11a). On the other hand, even though commodity prices slightly recovered, exports continued decreasing in a generalized manner (Chart 11b). GDP in Latin America is anticipated to contract again this year, principally as a consequence of the expected especially unfavorable performance of the economy of Brazil. Additionally, there is the announcement of the fiscal cuts in different countries to adjust to lower revenues due to lower commodity prices and the limited margin of maneuver for the monetary policy, given that inflation lies above the respective targets in most economies of the region.

In China, economic growth stabilized in the first quarter of the year, as GDP expanded 6.7 percent at an annual rate, as compared to 6.8 percent in the fourth quarter of 2015. The indicators of economic activity at the end of the first quarter suggest a gradual improvement, as a consequence of the monetary and fiscal stimulus implemented in this country, which was reflected in a greater participation of state-owned companies in investment projects and in an increase in credit. However, at the beginning of the second quarter some of these indicators moderated more than it was expected, even though the real estate sector

maintained high growth rates (Chart 11c). Furthermore, there are doubts regarding the sustainability of the recovery, since a greater indebtedness could intensify the deterioration in the indicators of banks' portfolio quality.

Chart 11
Economic Indicators of Emerging Economies

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

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

c) China: Indicators of
Economic Activity
Annual change in percent

Source: Haver Analytics.

Source: Bloomberg and INEGI.

1/ Corresponds to the annual change accumulated in percent.
Source: Haver Analytics.
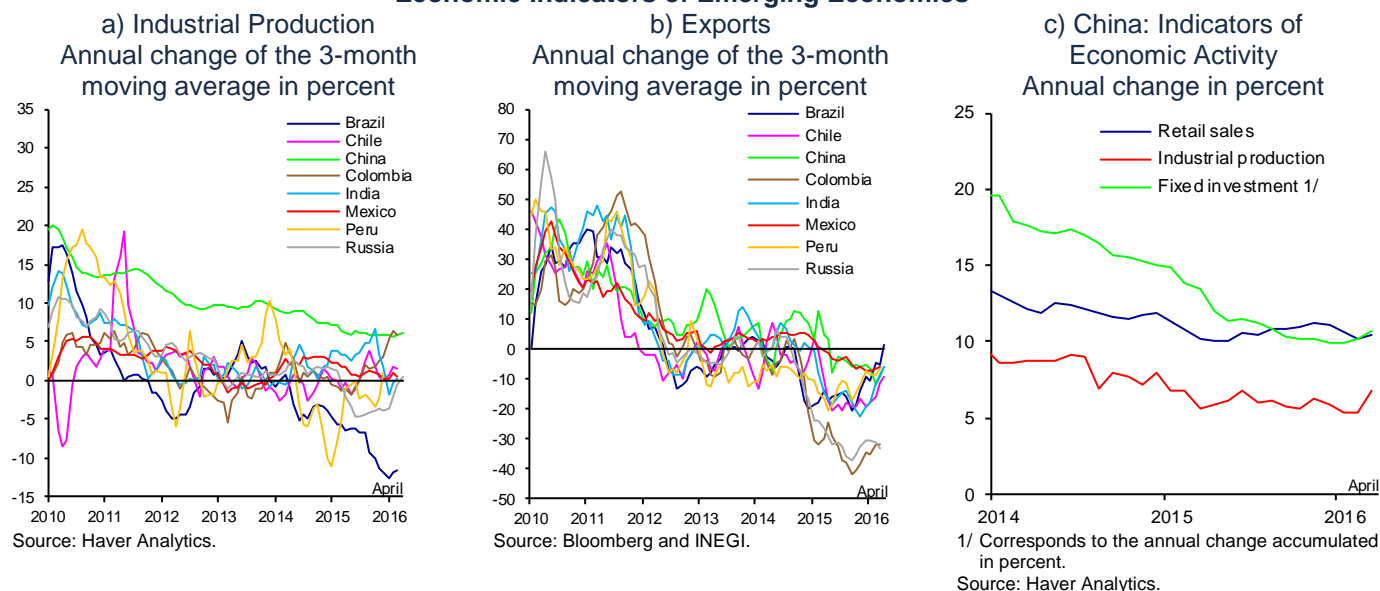
3.1.2.   Commodity Prices

Following the drop in the first weeks of the first quarter of 2016, commodity prices recovered slightly, although they still remain at low levels. In the case of oil prices, progress was due to an improved outlook of the supply – demand balance, fundamentally derived from lower levels of production in different countries, in particular in the U.S., and from a slower than expected return of Iran to oil markets, in a context in which the growth of demand for crude oil remained weak.[3] Furthermore, expectations of a possible agreement to cut down crude oil production among OPEC member and non-member states also contributed to the recovery of prices. However, as this agreement did not take place, prices declined slightly (Chart 12a). On the other hand, metal prices recovered, after reaching minimum levels in seven years, due to the strengthening of the manufacturing and construction sectors in China, as well as a widespread depreciation of the U.S. dollar (Chart 12b). Finally, grain prices did not change significantly throughout the quarter, as the expectations of inventories accumulation for this year persisted (Chart 12c).

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[3] The greater growth in demand for oil from the countries such as India was offset by a drop in demand in such countries as China, U.S. and Japan.

Chart 12
International Commodity Prices [1/]

| a) Crude Oil | b) Iron and Copper | c) Corn and Wheat |
| USD/barrel | USD/metric ton | USD/bushel |
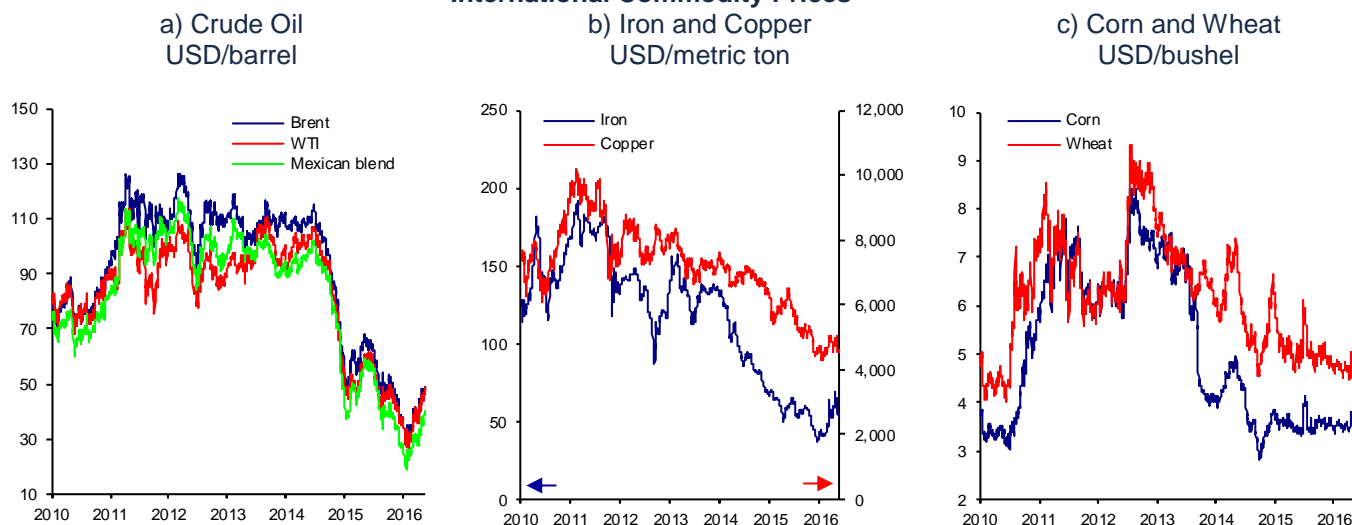
1/ Spot market.
Source: Bloomberg.

3.1.3.   Inflation Trends Abroad

Inflation and its expectations in the main advanced economies remained low during the period covered by this Report, despite a certain recovery in commodity prices (Chart 13a and Chart 13b). Although inflation is expected to converge to the targets of the respective central banks in the medium term, there is still concern regarding a possible deflation in some of these economies.

In the U.S., headline and core inflation slightly increased during the quarter, partly induced by transitory factors that led to a temporary increment in the prices of a reduced group of goods. However, inflation measured as the consumption deflator remains below the 2 percent target and is still affected by the previous drops in energy prices and non-energy imports. This is despite the recent depreciation of the U.S. dollar and higher crude oil prices. In particular, the annual change of the consumption deflator went up from 0.7 percent in December 2015 to 0.8 percent in March 2016, while inflation excluding food and energy shifted from 1.4 to 1.6 percent in the same time frame. On the other hand, inflation measured by the consumer price index increased from 0.7 percent in late 2015 to 1.1 percent in April, while the annual change of core inflation persisted at 2.1 percent. Even though different measures of inflation expectations have modestly increased since mid-February, they are still at low levels.

Headline inflation in the Euro zone continued fluctuating at levels close to 0 percent in the period analyzed by this Report, in view of a considerable contraction of energy prices. Weak domestic pressures on inflation in the Euro zone are attributed to the modest growth of economic activity and wages, which prevented core inflation from rebounding. In April, annual inflation was -0.2 percent, while inflation excluding food and energy lied at 0.7 percent. Long-term inflation expectations, derived from the market instruments' prices, stabilized at low levels, considerably below the survey-derived expectations.

In Japan, inflation and its expectations continued decreasing during the first quarter of 2016, thus aggravating the fear of deflation in this country. Annual inflation

concluded the first quarter at -0.1 percent, which compares to 0.2 percent in December 2015. Along the same lines, inflation excluding fresh food went down from 0.1 percent at the end of last year to -0.3 percent in March. In response to a decline in the outlook of GDP and the evolution of wages, the Bank of Japan decreased its inflation forecasts.

In turn, a differentiated inflation outlook was observed in emerging economies in the first quarter. In some countries, principally of Asia and Europe, inflation remains low and deflation concerns persist, consequent on a weak domestic demand and low commodity prices. On the contrary, in one part of Latin America, as well as other countries, such as Russia and Turkey, inflation persisted above the central banks' targets, partly as a consequence of the depreciations of these countries' currencies. It should be noted that among emerging economies, Mexico presented one of the lowest inflation rates in the reported period (Chart 13c).

Chart 13
Annual Headline Inflation and Inflation Expectations in Advanced and Emerging Economies
In percent

a) Advanced Economies: Headline Inflation, s. a.

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

c) Emerging Economies: Headline Inflation

s. a. / Seasonally adjusted figures.
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.

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.
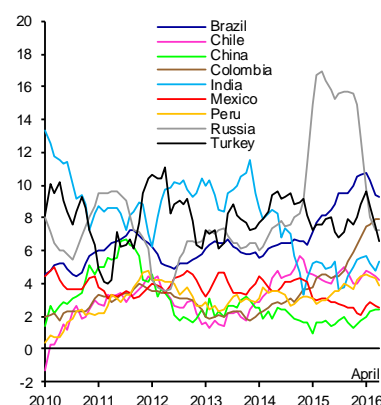
Source: National Statistics Bureaus and Central Banks.

3.1.4.   International Monetary Policy and Financial Markets

During the reported quarter, monetary policy in the main advanced economies registered a trend towards a greater easing, mainly due to the poor economic growth and very low inflation in these countries, a situation that in some cases could lead to deflation. It needs to be stressed that although the monetary stimuli have been an important factor in supporting an incipient recovery, their effectiveness seems to be declining, thus enhancing the need to complement them with fiscal policies and structural reforms.
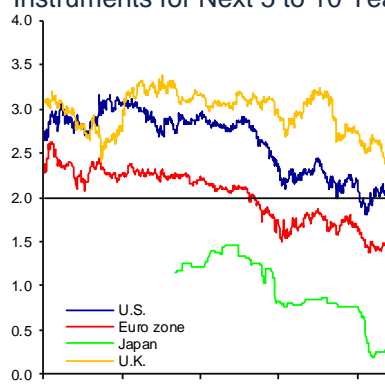
Following the 25-basis-point increment in the target range of the federal funds rate in December, the Federal Reserve refrained from further increments in its meetings of January, March and April, maintaining the said target range of 0.25 to 0.50 percent. This is derived from the perception of risks stemming from the volatility in global financial conditions and, in particular, from the risk that the deterioration in the outlook for the global economy would imply to the U.S. economy. Thus, in March, the Federal Reserve adopted a more cautious stance on the expected increment in the monetary policy target rate, as the median of the forecasts of the Federal Open Market Committee members was adjusted downwards, over the federal funds rate for the next years. In its press release of April, the Committee replaced the reference to the risks generated by global economic and financial events to the U.S. economy by an affirmation that it will continue monitoring the global environment. The Federal Reserve highlighted a further improvement in labor market conditions, and also emphasized that the economic activity kept moderating. Finally, it noted that inflation remains under its 2 percent target, although it is expected to converge to it. Similarly, it reiterated that inflation expectations remain low.

In its meeting of March, the European Central Bank (ECB) decided to expand the easing of the monetary policy stance in light of a deterioration in the growth outlook

and inflation, which is attributed to a greater deceleration of world demand and a further drop in commodity prices. The announced measures include a reduction in all monetary policy rates, particularly in the interest rates of credit spreads (from -0.3 to -0.4 percent); an expansion of the asset purchase program; and the expansion of the set of instruments eligible for investment-grade Euro-denominated corporate bonds; and starting from June 2016, a new series of four long-term targeted financing operations (TLTRO II), with a four-year maturity and an interest rate that can be as low as the deposit rate. In April, the ECB maintained unchanged its monetary policy stance and confirmed its orientation regarding the possible forward guidance, emphasizing that it expects interest rates to remain at current or lower levels for an extended time period. This institution highlighted that the announcements of the measures in March supported an improvement in funding conditions and a rebound in lending growth, and that for the moment it will focus on its implementation.

After lowering the deposit interest rate that applies to a part of the reserves banks kept in the central bank, the Bank of Japan refrained from providing further easing in its meetings of March and April. This was done despite the fact that, in the latter meeting, it significantly adjusted downwards its outlook for economic growth and inflation, while recognizing a reduction in inflation expectations, and it extended the possible period to achieve its 2 percent target from approximately the first half of the fiscal year 2017 (April to September 2017) to the fiscal year 2017 (from April 2017 to March 2018). Thus, this Institute maintained unchanged its deposit rate at -0.1 percent, the goal to increase the monetary base at an annual rate of around JPY 80 trillion and the purchase of government bonds and other instruments. At the same time, it reiterated that, if it is deemed necessary, additional easing measures will be implemented to achieve the 2 percent inflation target, including reductions in the reserve deposit rate.

The monetary policy stance and its outlook remained differentiated across emerging economies. Thus, in most emerging European and Asian countries, the policy rates remained unchanged and in some cases even diminished, in an effort to boost growth and decrease downward pressures on inflation. In particular, China kept easing its monetary policy by means of additional cuts in commercial banks' reserve requirements. In contrast, some Latin American countries increased their reference interest rates during the period analyzed by this Report, in response to the effects of their currencies' depreciation and the consequent raise in inflation and its expectations.

International financial markets presented strong movements in the period analyzed in this Report. In early 2016, higher risk asset prices plunged, at the same time as emerging markets witnessed strong capital outflows, due to the higher risk aversion, to fear regarding the European banks' solvency, to the worsening of the outlook for corporate sector profits and to doubts over the effectiveness of the monetary policy implemented in the main advanced economies to support economic recovery. Thus, stock markets exhibited strong falls and observed an increment in the credit risk assessment, once increases in the margins of high-yield corporate bonds were registered (Chart 14a and Chart 14b). This situation was particularly noticeable for the Euro zone financial institutions.

Nonetheless, markets started to exhibit greater stability and financial conditions began improving starting from mid-February, following China's efforts to boost growth and to stabilize its exchange rate, and the above mentioned responses of

the main central banks. Consequently, long-term government bond rates of the main advanced economies declined, supporting other assets' prices, such as securities, and the reduction of the credit margins to the corporate sector (Chart 14c). Furthermore, the downward trajectory in the future trend of the federal funds rate implicit in curve of the OIS futures market in the U.S. contributed to the U.S. dollar depreciation. In emerging economies, the improvement of financial conditions starting from the second half of the first quarter was reflected in a decrease of credit and sovereign risk margins and in greater capital inflows in different countries (Chart 15).

Chart 14
Financial Indicators of Selected Advanced Economies

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

Source: Bloomberg.

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

Source: Bloomberg.

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

Source: Bloomberg.
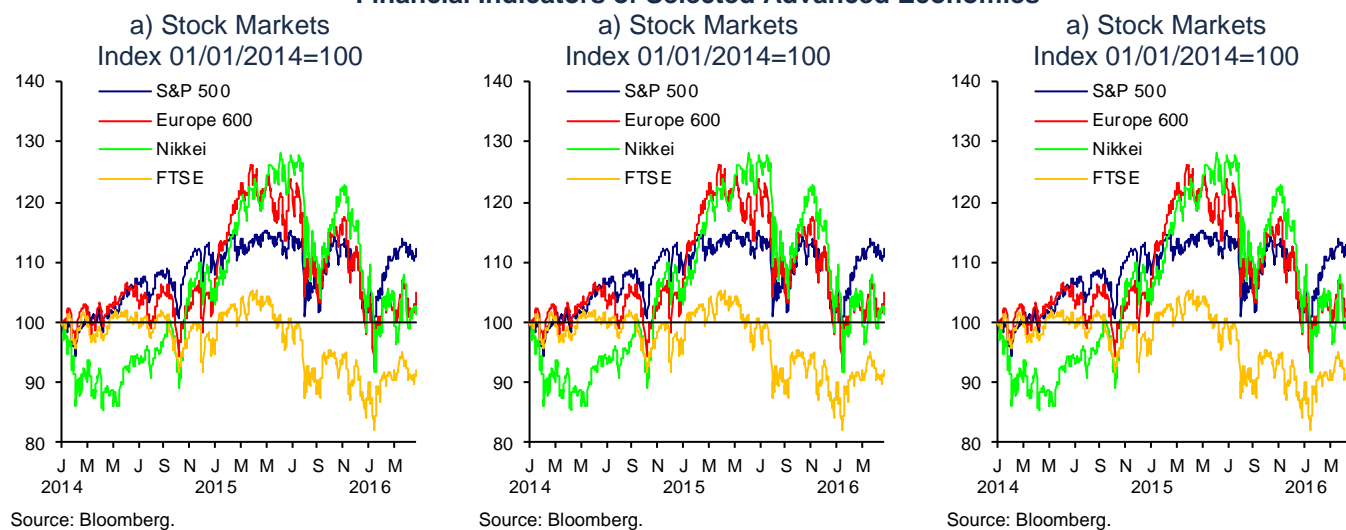
In mid-May, volatility in international financial markets increased, and in the future new episodes of volatility caused by different factors cannot be ruled out. In the first place, uncertainty regarding the world economic growth outlook persists, as a result of the moderation of the economic activity in advanced economies, and the fact that the apparent improvement in the economic activity of China could end up unsustainable. Similarly, a risk of an abrupt increment in long-term interest rates remains, given an unexpected increase in the normalization rate of the U.S. monetary policy. Finally, there are still doubts over the undesirable effects that a greater monetary stimulus of advanced economies could generate on the soundness of the banking system and on financial stability, in particular on the distortions that negative interest rates observed in various advanced economies could have on the profitability of financial institutions, as well as on the incentives for savings and investment.

Chart 15
Financial Indicators of Emerging Economies

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

Source: Bloomberg.

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

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

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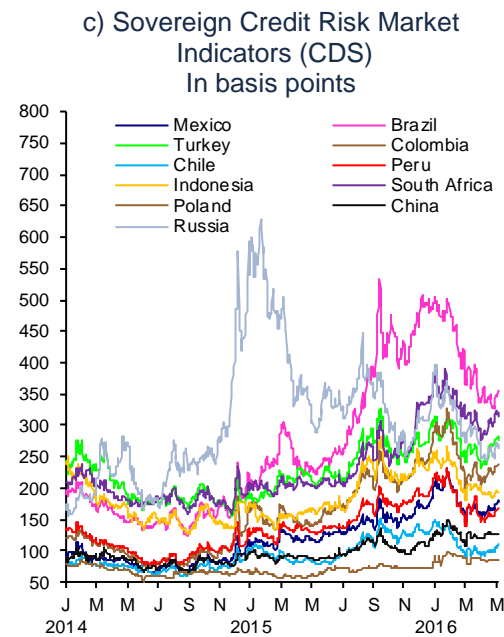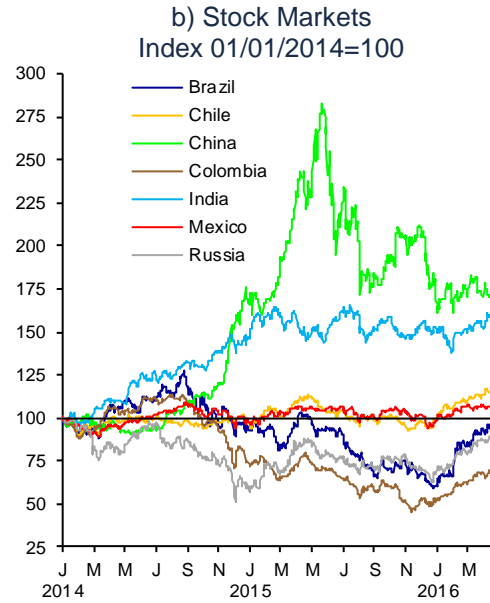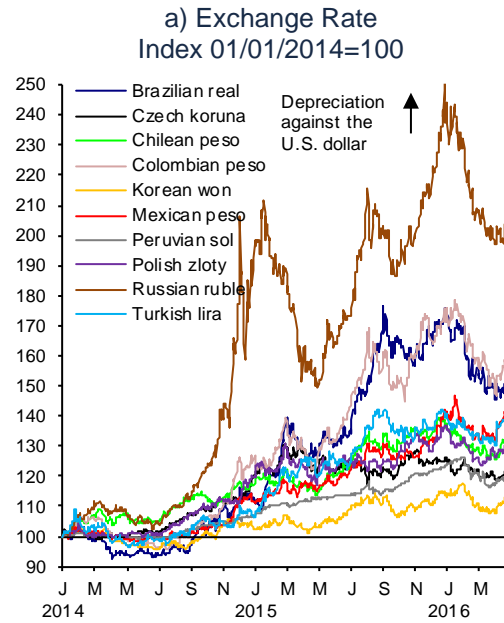
d) Total Capital Flows to Emerging Economies
(Debt and Stock) [1/]

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
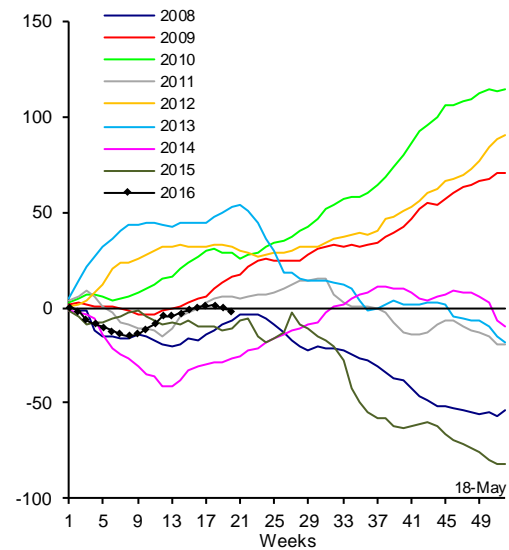
3.2.1.   Economic Activity

In the first quarter of 2016, the Mexican economy expanded more than in the previous quarter. This was mainly the result of the consumption's dynamism, while investment remained stagnated and the external demand continued registering an unfavorable behavior.

Indeed, in the first three months of 2016 manufacturing exports maintained a negative trend, in a context of a world trade slowdown (Chart 16a). In particular, both automotive and non-automotive exports presented a decreasing trajectory (Chart 16b and Chart 16c). Although the decline was more apparent in the latter case, the former strongly contracted in March, partly as a consequence of the temporary closure of some assembly plants in Mexico, which were adjusting their production lines. According to their classification by intended destination, manufacturing exports to the U.S. as well as to the rest of the world performed unfavorably. In this sense, the positive impact that the real exchange rate depreciation could have on manufacturing exports has been offset by the weakness of the U.S. industrial production and the global demand.

Regarding oil exports, the average price of the Mexican blend during the first quarter remained below its observed price in the previous quarter, despite a slight recovery in March. In addition, the exporting platform of crude oil has remained at low levels. Both factors have contributed to the decline in the oil exports' trend (Chart 16d). In this context, it should be noted that the terms of oil trade in Mexico remained at low levels.[4] Thus, although the terms of trade of non-oil goods somewhat improved, the terms of total trade of goods in Mexico have slightly deteriorated (see Box 1).

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[4] See Box 2 of the Quarterly Report October – December 2015 "Recent Performance of the Global Oil Market and its Effects on the Oil Trade Balance of Mexico".

Box 1
Recent Evolution of the Terms of Trade in Mexico

1. Introduction

Following a certain recovery after the initial impact of the 2009 global crisis, world trade weakened again between 2012 and 2014, and even more recently has contracted. This decline is partly due to the low levels of economic growth worldwide. In this context, the lower global demand seems to have induced a stagnation in trade volumes and a decrease in the prices of goods traded internationally (Chart 1).

Chart 1
World Trade in Goods [1]
Annual change in percent, s. a.
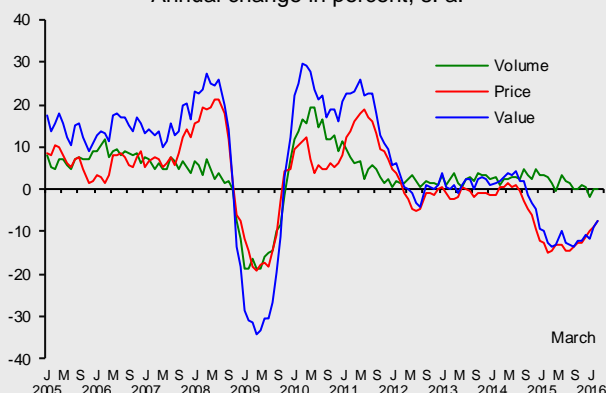
1/ It refers to total imports and exports.
s. a. / Seasonally adjusted data.
Source: CPB Netherlands.

In this environment, this Box shows that the prices of Mexican non-oil imports (that are mostly intermediate goods) have declined notoriously. In contrast, the prices of Mexican non-oil exports have remained relatively stable. This performance seems to reflect that the demand for final goods in the U.S. has been relatively more dynamic than the demand for intermediate goods, so the relative price of intermediate goods with respect to final goods has declined.

The structure of Mexico's non-oil foreign trade, where a high degree of intermediate goods is imported in order to export final goods, has induced an improvement in this country's non-oil terms of trade. However, has been offset by a pronounced fall in the oil terms of trade, as a result of the plunge in oil prices since the end of 2014, as it was indicated in Box 2 of the previous Quarterly Report.[1]

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[1] "Recent Performance of the Global Oil Market and its Effects on the Oil Trade Balance of Mexico", Box 2 of the Quarterly Report October – December 2015.

Hence, despite the improvement in the non-oil terms of trade, the terms of trade of total trade in Mexico have somewhat deteriorated.

2. Unit Values of Non-oil Exports and Imports

Box 2 in the previous Quarterly Report described the behavior of the unit values of Mexican oil exports and imports and stated that the oil terms of trade in Mexico have significantly deteriorated since the end of 2014. Following the methodology described in that Box, based on Anitori et al. (2008), this Box estimates the unit values of Mexican non-oil exports and imports.[2]

As it can be observed in Chart 2, the estimated unit values for Mexican non-oil exports have shown an incipient positive trend, while estimated unit values for the non-oil imports have strongly contracted.

The performance of the unit values of Mexico's non-oil exports possibly responds to the dynamism of the U.S. domestic demand, which is the principal destination of Mexican exports. Indeed, as stated in Box 1 of the previous Quarterly Report, U.S. imports of final goods have continued growing.[3] In contrast, the intermediate goods' imports have shown a significant fall, which could be associated to the downward trend of the U.S. exports, due to the weak global demand and its currency appreciation. In line with this performance, while U.S. imports' prices of final goods have recently registered a moderate setback, the prices of materials and supplies' imports have dropped considerably (Chart 3). In this context, the contraction of the unit values of Mexican non-oil imports is in line with the fact that a big portion of Mexican imports is intermediate goods. This type of goods is the one that has recently registered a great decrease in international prices, taking as a reference the performance of U.S. imports' prices.

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[2] Anitori, Paola and Maria Serena Causo (2008), "Outlier Detection and Treatment: Quality Improvements in the Italian Unit Value Indexes", ISTAT – National Institute of Statistics, Italy. The methodology consists in using a statistical algorithm that, based on the assumption of the distributions of the unit values by product by month with observations at the level of transaction, eliminates atypical observations in the unit values. 2005 was used as a basis year for estimations.

[3] "Analysis of the Recent Evolution of Mexican Manufacturing Exports to the U.S.", Box 1 of the Quarterly Report October - December 2015.

Chart 2
Indices of the Unit Value of Non-oil Exports and Imports
3-month moving average
Index 10/2014=100
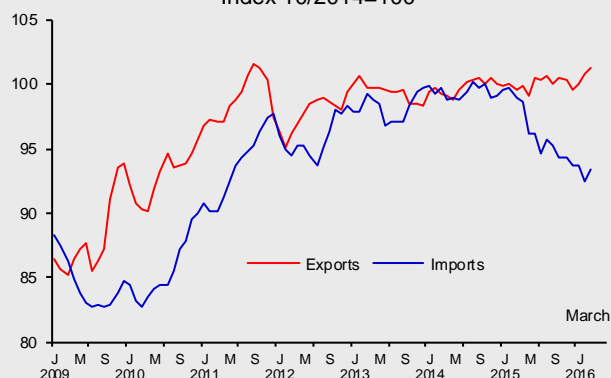
Source: Prepared by Banco de México with data from SAT, SE, Banco de México, INEGI. Merchandise trade balance of Mexico. SNIEG. Information of National Interest.

Chart 3
Indices of U.S. Imports' Prices
Index 2010=100
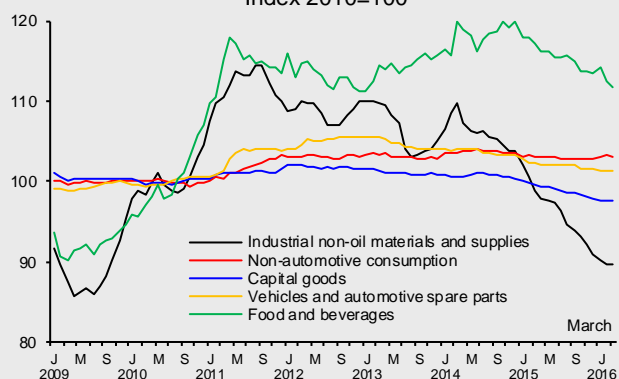
Source: Prepared by Banco de México with data from the U.S. Bureau of Labor Statistics.

3. Estimation of the Terms of Trade

The estimation of the unit values of Mexico's non-oil exports and imports suggests that the non-oil terms of trade of the country, defined as the ratio of the former to the latter, slightly improved since late 2014. However, as shown in Box 2 of the previous Report, the oil terms of trade indeed decreased noticeably. When both results are added, it can be observed that the country's terms of trade have deteriorated, as a result of the drop in crude oil prices by the end of 2014 (Chart 4).

Chart 4
Terms of Trade
3-month moving average
Index 10/2014=100
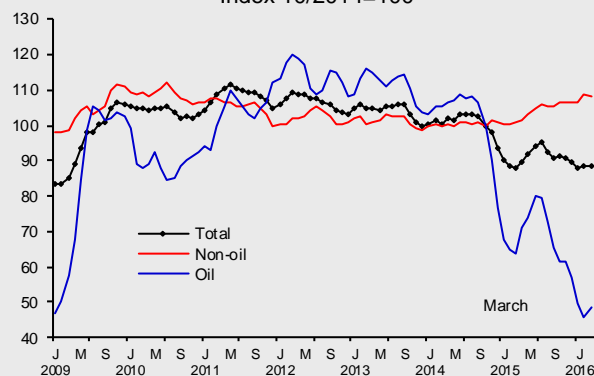
Source: Prepared by Banco de México with data from SAT, SE, Banco de México, INEGI. Merchandise trade balance of Mexico. SNIEG. Information of National Interest.

4. Final Remarks

The global demand's sluggishness keeps presenting risks to the Mexican external sector. Nonetheless, imported final goods by the U.S. seem to have maintained a relative dynamism, reason for which their prices have not dropped considerably. In this context, it is important for Mexico to continue reallocating its resources, as it has already been done, to the production sectors that have been more demanded by the U.S. The structural reforms could contribute to this more efficient allocation and also to boost productivity. Moreover, their implementation will also help generating domestic sources of growth, which is becoming more relevant in light of the prevailing adverse international environment.

Chart 16
Export Indicators
Index 2008=100, s. a.

a) Total Manufacturing Exports

b) Automotive Manufacturing Exports

s. a. / Seasonally adjusted and trend data based on information in nominal dollars. The former is represented by a solid line, the latter by a dotted line.

Source: Banco de México with data from SAT, SE, Banco de México, INEGI. Merchandise Trade Balance. SNIEG. Information of National Interest.

c) Non-automotive Manufacturing Exports

d) Oil Exports and Crude Oil Export Platform

s. a. / Seasonally adjusted and trend data based on information in nominal dollars. The former is represented by a solid line, the latter by a dotted line.

Source: Banco de México with data from SAT, SE, Banco de México, INEGI. Merchandise Trade Balance. SNIEG. Information of National Interest.

s. a. / Seasonally adjusted data based on information in nominal dollars.

1/ 3-month moving average of daily barrels of the seasonally adjusted series.

Source: SAT, 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.

As regards the domestic demand, most private consumption indicators suggest that it continued exhibiting a favorable trend in the first quarter of 2016.

i.   Indeed, in the first months of the year light vehicles' sales maintained a strong dynamism (Chart 17a), while revenues from the retail supply of goods and services and ANTAD's sales continued expanding (Chart 17b). Likewise, in the period from January to February 2016, the monthly

indicator of domestic private consumption, which is a broader measure of private consumption, maintained a growing trend (Chart 17c).

ii.   Different factors have contributed to the favorable performance of consumption. In particular, the real wage bill has remained at higher levels than those observed in late 2014 (Chart 18a), due to the improvement in the labor market and to low inflation levels. In this sense, private consumption has also benefitted from the implementation of structural reforms, as they have induced decreases in the prices of different goods and services, such as energy and telecommunications, which, besides the direct effect on these products, could also have freed up resources for households' spending on other types of goods and services. Similarly, figures on consumer credit indicate that in the first months of 2016 it continued the recovery it had exhibited at the end of 2015 (see Section 3.2.2). Furthermore, income from family remittances kept expanding and registered levels close to those observed before the 2008 crisis (Chart 18b). In contrast, the consumer confidence indicator slightly deteriorated at the margin. This reflects the negative trend registered by some components related with the perception of the current and future juncture of the country, while other components, such as the one associated to the current possibility of acquiring durable goods, remain at relatively high levels (Chart 18c).

Chart 17
Consumption Indicators

a) Domestic Light Vehicle Retail Sales Thousands of units, annualized, s. a.	b) Commercial Retail Business Revenues and Total ANTAD Sales Index 2008=100, s. a.	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: Prepared by Banco de México with data from the Mexican Automotive Industry Association (AMIA).
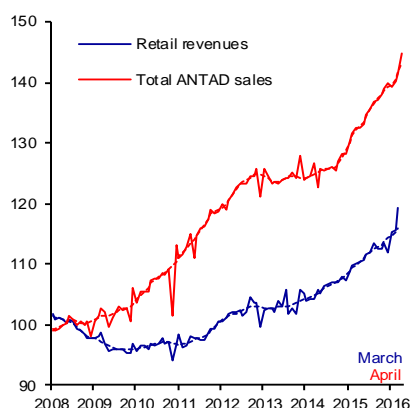
s. a. / Seasonally adjusted and trend data. The former is represented by a solid line, the latter by a dotted line.
Source: Monthly Business Survey, INEGI; prepared by Banco de México with ANTAD data.

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

Chart 18
Consumption Determinants

a) Total Real Wage Bill	b) Workers' Remittances	c) Consumer Confidence
Index I-2008=100, s. a.	Billion, constant USD and MXN,[1] s. a.	Index January 2003=100, s. a.

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

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.

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.

The performance of gross fixed investment remained weak in the reported quarter (Chart 19a). In line with the deterioration of the global growth outlook and a lower dynamism of the external demand, investment in machinery and equipment maintained a negative trend, as a reflection of a strong decline in imports (Chart 19b). Still, the dynamism prevailing in Mexico's domestic demand could boost a greater expenditure on investment in the future. In fact, despite being incipient, this momentum can already be seen in the positive figures registered by the investment in construction during the quarter (Chart 19c).

Chart 19
Investment Indicators
Index 2008=100, s. a.

a) Investment and its Components

b) Capital Goods' Imports

c) 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.

s. a. / Seasonally adjusted and trend data based on information in nominal dollars. The former is represented by a solid line, the latter by a dotted line.
Source: SAT, SE, Banco de México, INEGI. Merchandise Trade Balance. SNIEG. Information of National Interest.

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.

As regards production, in early 2016 a relatively high growth of services persisted, while industrial production remained stagnated (Chart 20a).

i.   Within the industrial activity, in the first quarter of the current year manufacturing production maintained a low expansion rate, as a result of an unfavorable performance of manufacturing exports, although this effect was partially offset by the dynamism of domestic demand for manufacturing (Chart 20b). The electricity sector stagnated, while mining continued presenting a negative trend, in a context in which the oil production platform kept deteriorating (Chart 20c). On the other hand, as mentioned above, the construction sector somewhat improved with respect to the weak performance reported in the second half of 2015.

ii.   Tertiary activities continued expanding in the first three months of 2016. In particular, the growth of financial services, real estate and leasing services, and professional and firm management services is noteworthy. Likewise, it should be noted that transportation and mass media information services remained at high levels, possibly as a consequence of the impact generated by the telecommunication reform on these services' consumption. In contrast, services related to government activities, trade and temporary lodging services, and food and beverage-related services decelerated (Chart 20d).

iii.   In the first quarter of 2016, primary activities expanded, derived from the growth of harvests of different crops of the spring-summer cycle and of some perennial crops, as well as a greater livestock production.

Chart 20
Production Indicators
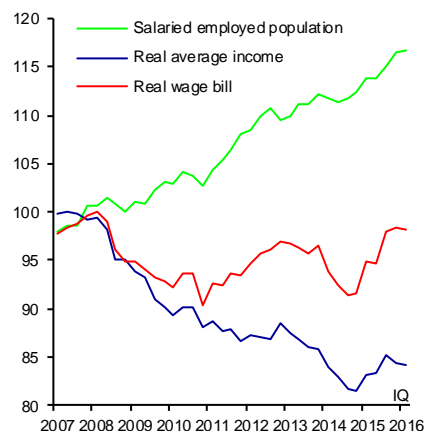Index 2008=100, s. a.

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.
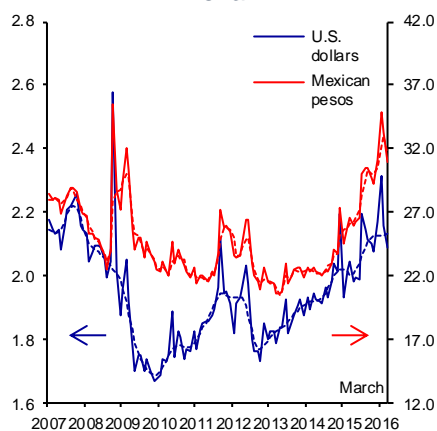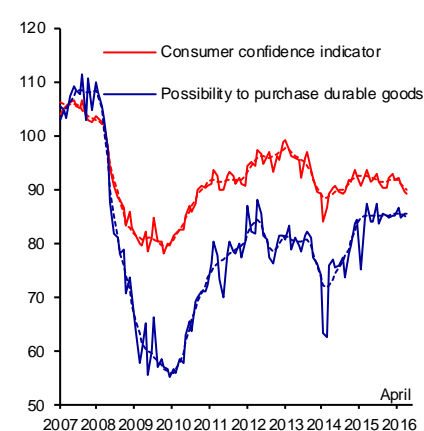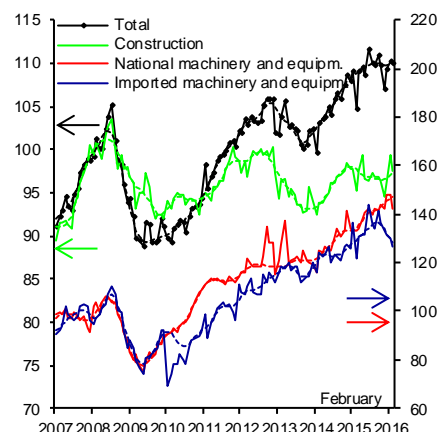Source: Monthly Industrial Activity Indicator, Mexico's National Accounts System, INEGI.

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.

Derived from the previously described dynamics, the GDP registered a quarterly seasonally adjusted growth of 0.8 percent in the first quarter of 2016, a figure above the 0.5 percent observed in the previous quarter (Chart 21a). Based on seasonally adjusted data, economic activity presented an annual growth of 2.8 percent in this quarter, following a change of 2.4 percent in the previous one. Based on data without seasonal adjustment, an annual GDP growth of 2.6 percent was registered in the first quarter, a figure that was adjusted downwards by the fact that the Holy Week took place in March in 2016, while in 2015 it was in April (Chart 21b). A greater dynamism of GDP in the first quarter of 2016 suggests a certain

improvement in the growth outlook of this year, although it is still not significant enough to imply a revision of the forecast interval of the GDP growth rate that was announced in the previous Quarterly Report.

Chart 21
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.
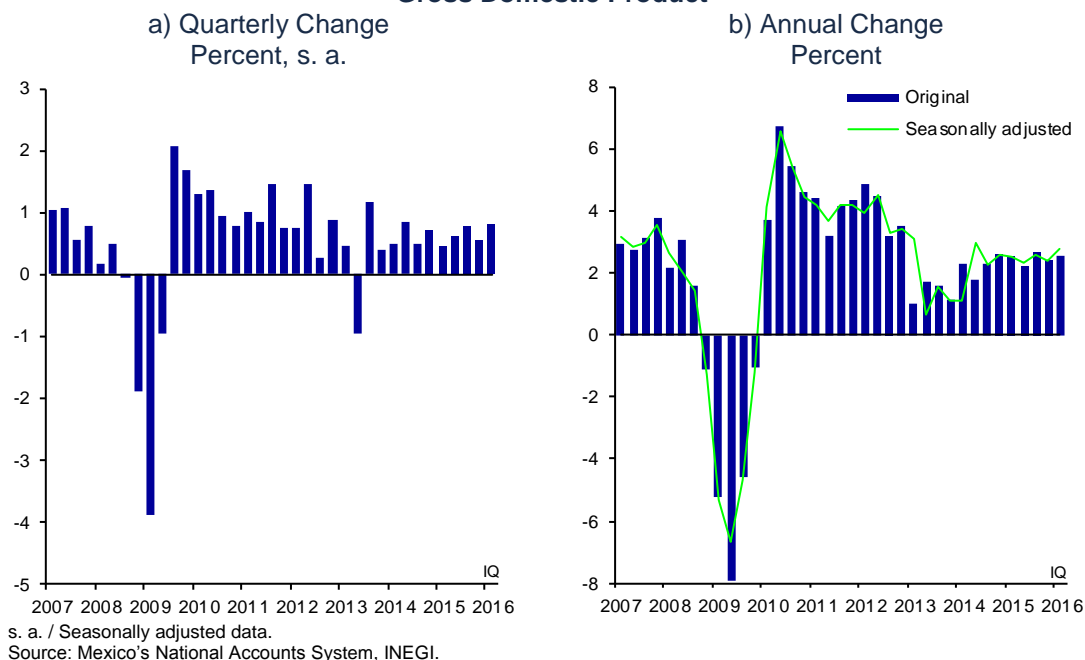
In the first quarter of 2016, the trade balance registered a deficit of USD 4,011 million (Chart 22a), as compared to USD 2,201 million observed in the same period of 2015. This change reflected both the increments in the oil balance deficit and in the non-oil balance deficit. In particular, the oil balance changed from being a negative balance of USD 1,841 million in the first three months of 2015 to one of USD 2,541 million in the first quarter of 2016. On the other hand, the non-oil balance increased from a deficit of USD 360 million to a balance of USD 1,469 million, in the same comparison. In this context, in the first quarter of 2016, the current account is estimated to have registered a deficit of approximately USD 7 billion (2.7 percent of GDP; Chart 22b), which is compared to that of USD 7.7 billion in the previous quarter.

Chart 22
Trade Balance and Current Account
USD million

a) Trade Balance

b) Current Account

Source: SAT, SE, Banco de México, INEGI. Merchandise Trade
Balance. SNIEG. Information of National Interest.

e/ Estimated by Banco de México.
Source: Banco de México.
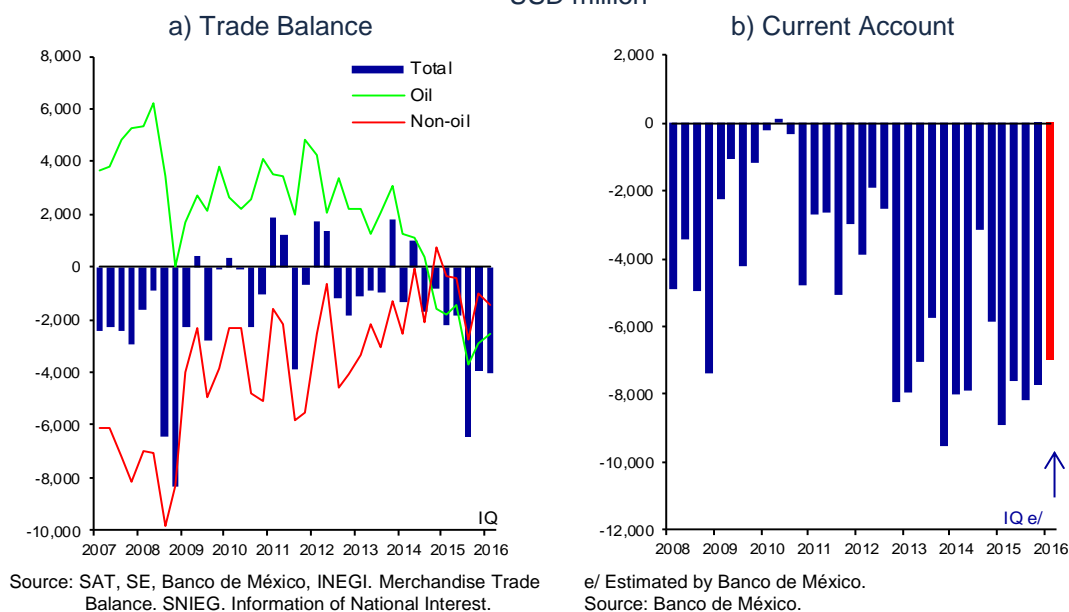
3.2.2.   Labor Market

Even though most indicators in the labor market improved, certain slack conditions still prevail.

i.   In the first quarter of 2016, national and urban unemployment rates continued to decrease gradually, although they still lie above the observed pre-crisis levels (Chart 23a).

ii.   Similarly, the number of IMSS-insured employments kept going up, despite the slowdown in its growth rate (Chart 23b).

iii.   Nonetheless, unlike in the previous quarter, in the first three months of 2016 the labor participation rate decreased and located at levels close to those registered in early 2015 (Chart 23c).

iv.   As to the labor informality indicators, in the first quarter of 2016 both the labor informality rate and the informal sector employment rate decreased with respect to the average rates achieved in the period of October – December 2015 (Chart 23d).

Chart 23
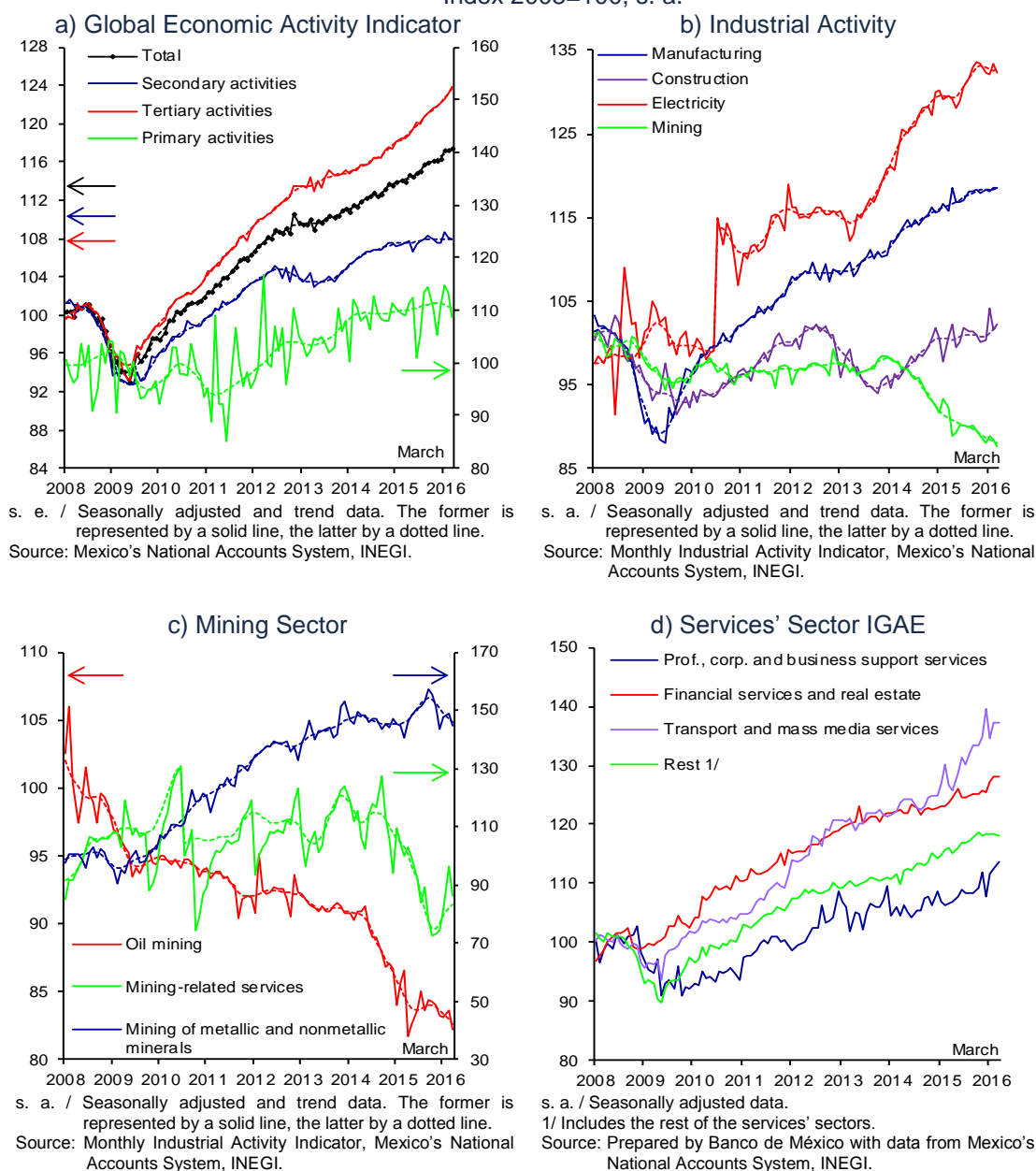**Labor Market Indicators**

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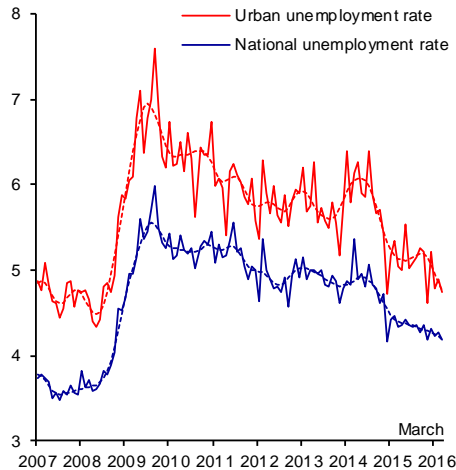
s. a. / Seasonally adjusted and trend data. The former is
represented by a solid line, the latter by a dotted line.
Source: National Survey on Occupation and Employment
(ENOE), INEGI.

b) IMSS-insured Workers, Total IGAE and
Working Population
Index 2012=100, s. a.
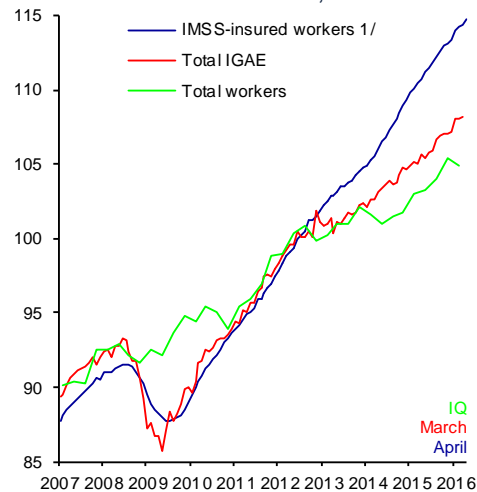
s. a. / Seasonally adjusted data.
1/ Permanent and temporary jobs in urban areas. Seasonal
adjustment by Banco de México.
Source: Prepared by Banco de México with data from IMSS and
INEGI (SCNM and ENOE).

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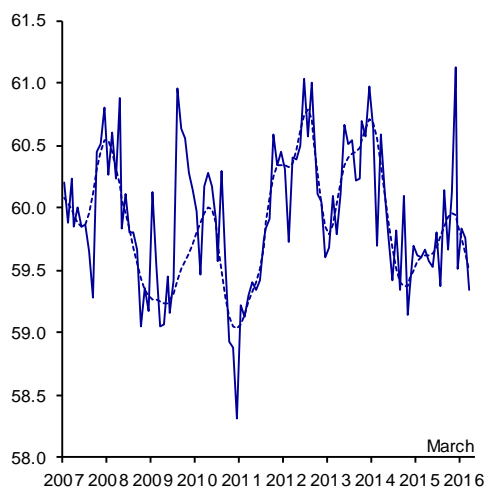
s. a. / Seasonally adjusted and trend data. The former is
represented by a solid line, the latter by a dotted line.
1/ Percentage of economically active population (EAP) with
respect to the population of 15 years old and older.
Source: National Survey on Occupation and Employment
(ENOE), INEGI.

d) Informal Sector Employment [1]
and Labor Informality [2]
Percent, s. a.
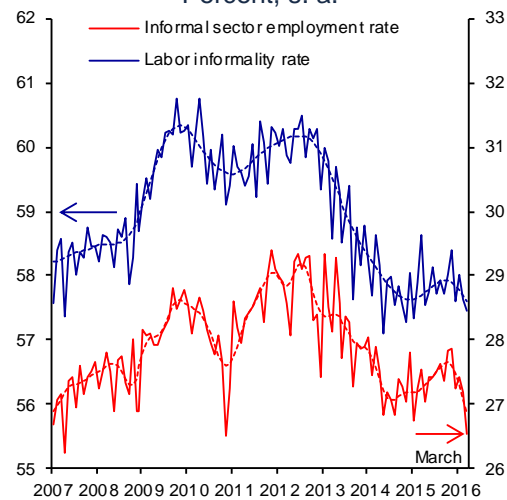
s. a. / Seasonally adjusted and trend data. The former is
represented by a solid line, the latter by a dotted line.
1/ It refers to individuals working in non-agricultural economic
units, operating with no accounting records and with
households' resources.
2/ It includes workers who, besides being employed 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 first months of 2016, moderate wage increases persisted, which, given the low inflation level, implied a gradual recovery of the purchasing power of wages.

i.   In the first quarter of 2016, the growth rate of contractual wages negotiated by firms under federal jurisdiction moderately decreased, with respect to that reported in the same quarter of 2015 (Chart 24a). This resulted from public firms' negotiations that, on average, led to slightly smaller increments in the first quarter of 2016, as compared to 2015, given that private firms exhibited the same average in the referred periods. In April 2016, the growth rate of wages negotiated by firms under federal jurisdiction was higher than that in the same month of 2015, which derived from a greater average growth in the private sector, even though it was concentrated in a small number of firms, while the average increases in public firms was smaller.

ii.   The wage of IMSS-insured workers reduced its annual growth rate in the first three months of 2016, with respect to that registered in the fourth quarter of 2015, both in nominal and real terms (Chart 24b).

iii.   In the first quarter of 2016, the growth rate of the average wage of total salaried workers in the economy (3.7 percent) located slightly below that reported in the fourth quarter of 2015 (4.2 percent; Chart 24c). As a result of low inflation levels, as of the third quarter of 2015, these wages have increased in real terms, relative to the levels observed in the same quarters of 2015.

Chart 24
Wage Indicators
Annual change in percent

a) Nominal Contractual Wage [1]   b) Daily Wage of IMSS-insured Workers [2]   c) Average Wage of Salaried Workers according to National Employment Survey (ENOE) [3]
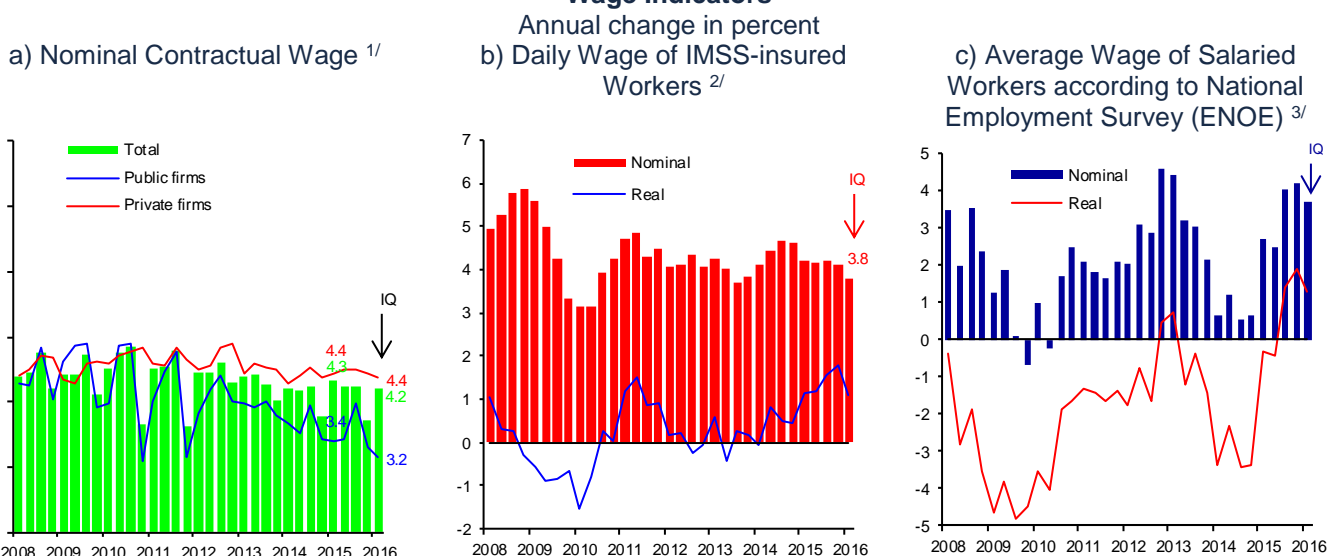
1/ The contractual wage increase is an average weighted by the number of involved workers. The number of workers in firms under federal jurisdiction that annually report their wage increases to the Secretary of Labor and Social Welfare (STPS) equals approximately 2 million.
2/ During the first quarter of 2016, on average 18.1 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 first quarter of 2016, the sources of financial resources of the economy increased at a greater rate as compared to the previous quarter, their annual real change shifting from 7.5 to 8.0 percent. This revealed an increase in external sources of financing, partly as a reflection of improved financial conditions in international markets in the second half of the first quarter, while domestic sources maintained a similar growth rate to that observed at the end of the previous quarter (Chart 25). As a result of this, as well as a lower use of resources by the public sector, financing to the private sector continued expanding at a high rate. This result stands out in a context of the increment in the monetary policy reference rate that took place during the reported quarter. Indeed, even though this increase induced higher costs of short-term financing, they remained low, while long-term financing costs were not significantly affected. Thus, despite this monetary policy action, financing conditions of the private sector remained favorable.

Chart 25
Sources of Financial Resources of the Economy
Real annual change in percent
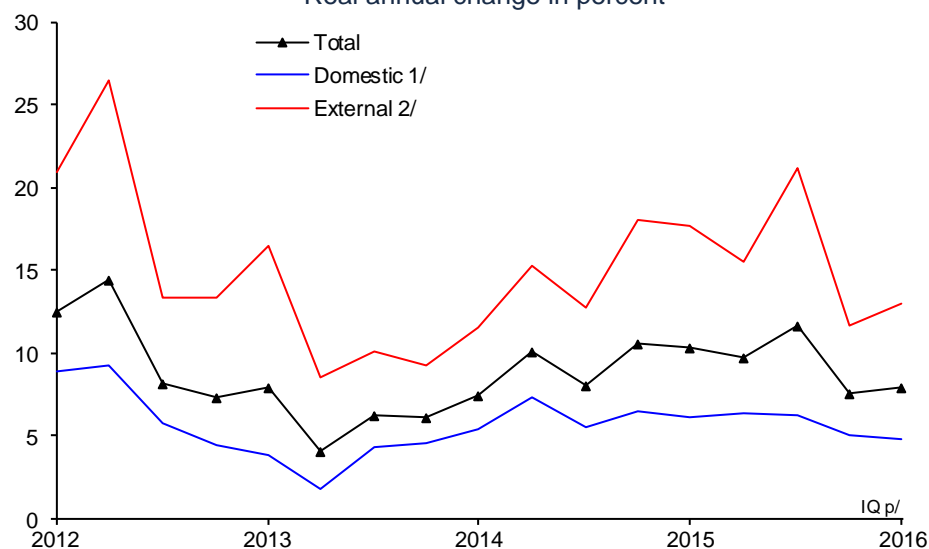
p/ Preliminary figures.
1/ It includes the monetary aggregate M4 held by residents.
2/ It includes the monetary aggregate M4 held by non-residents, foreign financing for the federal government, public
   institutions and enterprises, commercial banks' foreign liabilities and financing to the non-financial private sector.
Source: Banco de México.

The external sources of financial resources increased in the analyzed quarter, as a result of the reactivation in March of the issuance of debt securities by some private firms in international markets. In contrast, the stock of non-resident financial saving contracted for the second consecutive quarter (its real annual change shifted from -2.6 to -3.7 percent), which resulted from the reduction of the stock of short-term public securities held by foreigners (Chart 26a and Chart 26b).[5] Despite this, foreigners' holdings of medium- and long-term securities kept increasing, even though at a slower rate than observed in the fourth quarter of 2015.

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[5] The stock of financial saving is defined as the monetary aggregate M4 minus the stock of currency held by the public.

The dynamism of domestic sources of financing was similar to that exhibited at the previous quarter, following a slowdown in 2015. In this sense, the stock of domestic financial saving presented a similar growth rate to that observed at the end of the previous quarter –its real annual change shifted from 4.1 to 4.3 percent-, both in the voluntary and compulsory component (Chart 26a and Chart 26c). In contrast, the monetary base registered a smaller average growth in the reference quarter, its annual growth in real terms decreasing from 16.6 to 14.3 percent between the last quarter of 2015 and the first one of 2016, which reflects a gradual fading of the Tax Reform impact on money demand (Chart 26d).

As regards the use of financial resources of the economy, financing to the public sector –Public Sector Borrowing Requirements (PSBR) and financing to states and municipalities– decreased in terms of annual flows as a percentage of GDP, sliding from 4.3 to 4.1 percent between the fourth quarter of 2015 and the reference quarter. The accumulation of international reserves increased by USD 952 million in the first quarter of 2016, which contrasts with the drops observed in each one of the three previous quarters (USD -2.6 billion, USD -12.1 billion and USD -3.7 billion, respectively). It should be noted that the increase in international reserves was partly due to the sales of U.S. dollars by the Federal Government and Pemex to Banco de México, as well as the suspension of the daily auction of dollars' mechanism to the market, which was determined by the Foreign Exchange Commission on February 17.[6] Thus, despite a slight increment in international reserves in the quarter, greater sources of resources and the decrease in PSBR with respect to the previous quarter facilitated the channeling of the resources to the private sector financing.

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[6] See the Press Release of the Foreign Exchange Commission of February 17, 2016.

Chart 26
Financial Saving and Monetary Base Indicators

a) Total Financial Saving [1/]
Real annual change in percent

b) Non-resident Financial Saving
Contribution to the real annual
change in percent

c) Resident Financial Saving
Real annual change in percent

d) Monetary Base
Real annual change in percent
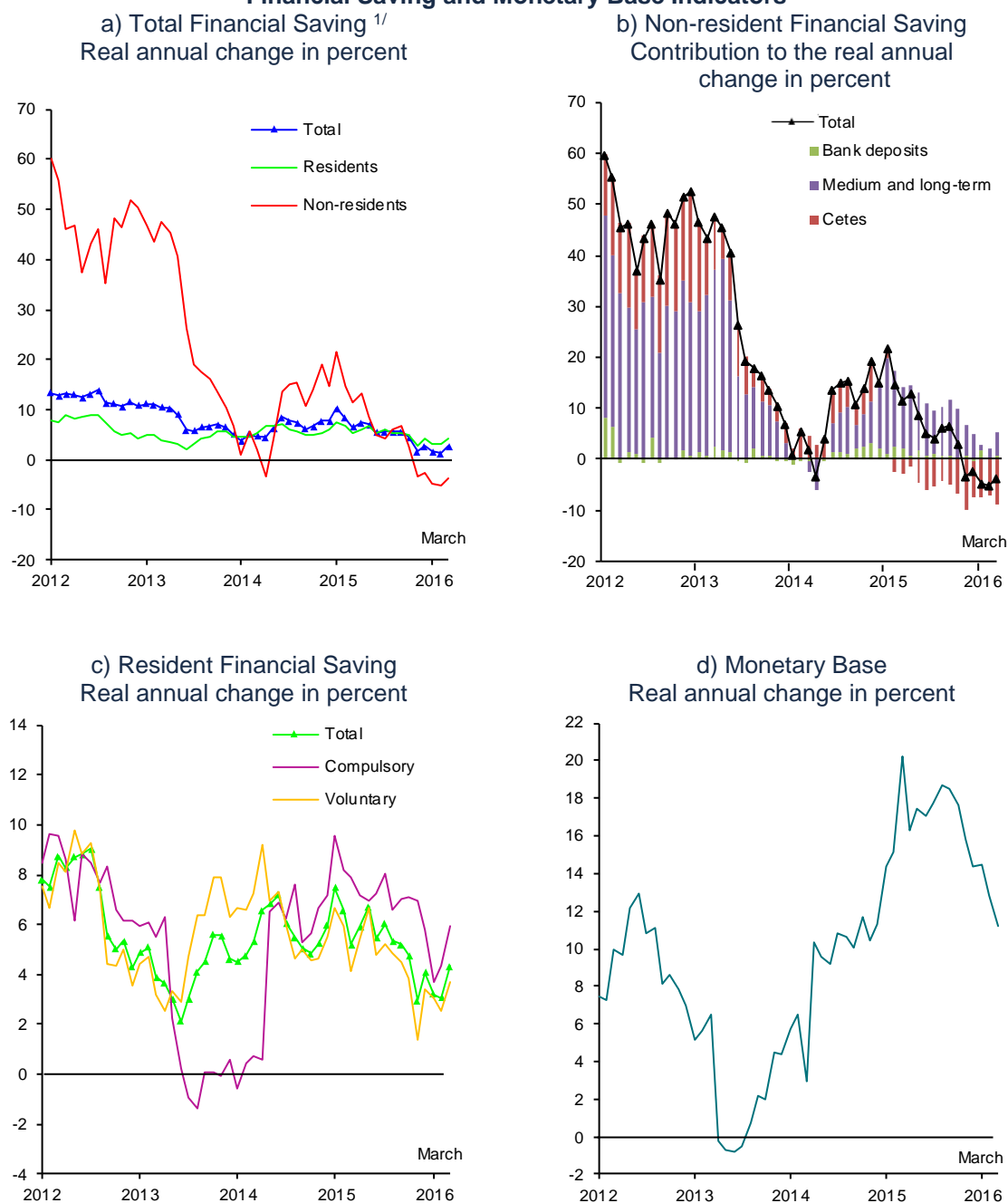
1/ It is defined as the monetary aggregate M4 minus the stock of currency held by the public.
Source: Banco de México.

Delving in the evolution of the financing to the non-financial private sector, in the first quarter of 2016 it kept expanding at high rates, even presenting a certain acceleration in its real annual change with respect to the previous quarter (Chart 27a). As it was previously mentioned, it resulted from the reactivation in the issuance of external private debt, in a context of lower volatility and an improvement in international financial markets during the second half of the first quarter. This

reactivation took place after a period of a year and a half in which foreign financing to the private sector observed a practically uninterrupted shrinking trajectory in real annual terms and adjusting for the exchange rate effect. Thus, at the end of the first quarter of 2016, a net amount of placements of USD 2.0 billion was registered, which resulted from the issuance of USD 4.0 billion (the highest number for a first quarter since 2010) and amortizations for USD 2.0 billion (Chart 27b). The resources obtained by firms issuing debt abroad were used to pay part of their internal liabilities, which contributed to the moderation of the domestic financing growth rate during the quarter.

Chart 27
Financing to the Non-financial Private Sector

a) Total Financing to the
Non-financial Private Sector [1]
Real annual change in percent

b) Net Placements of Securities
in the External Market [5]
USD billion
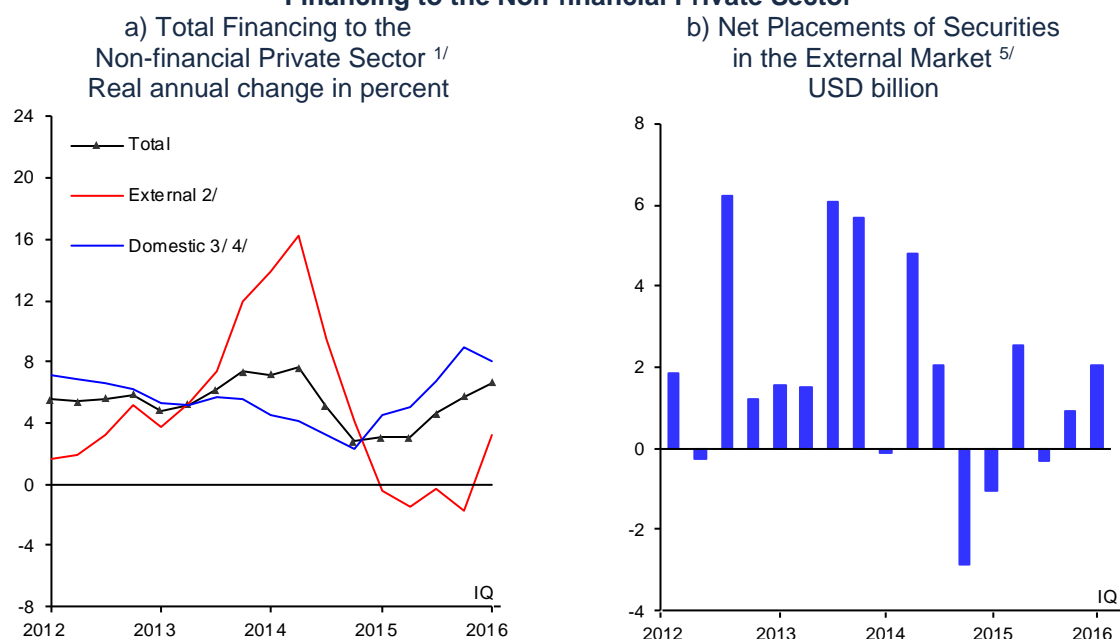
1/ Data adjusted for exchange rate effects.
2/ Data of foreign financing for the first quarter of 2016 are preliminary.
3/ These data can be affected by the disappearance of some non-bank financial intermediaries and their conversion to non-regulated multiple purpose financial corporations (Sofom ENR).
4/ These figures are adjusted due to the withdrawal from and incorporation of some financial intermediaries to the credit statistics.
5/ It refers to gross placements minus scheduled redemptions, amortizations and reopenings.
Source: Banco de México.

With respect to the latter, following a significant recovery of domestic financing to firms throughout 2015 –reaching its highest annual growth rate of that year in December-, during subsequent months its growth rate moderated (Chart 28a). Indeed, between the fourth quarter of 2015 and the first quarter of 2016, the expansion of domestic financing to firms shifted from 11.1 to 9.6 percent in real annual terms and adjusting for the exchange rate effect. This moderation was a reflection of both a lower dynamism in the domestic debt market, and of a deceleration in the expansion rate of bank credit. In this context, in line with the recent increments in the banks' funding rate, the interest rates of financing to firms increased in the reference quarter, although they persist at low levels (Chart 28b). This increment, to a large extent, derives from the fact that a significant share of the bank credit portfolio and of the stock of private securities in circulation is referenced to short-term domestic interest rates (58 and 36 percent, respectively). In the case of the latter, the rise in financing costs was particularly reflected for shorter-term

securities, while the yields of long-term debt instruments did not change significantly. As a result, a flattening of the corporate securities' yield curve was observed, in congruence with the recent performance of government securities' yield curve (see Section 4 and Chart 28c). In turn, the delinquency rates of the bank credit portfolio remained at low levels (Chart 28b).

Chart 28
Domestic Financing to Non-financial Private Firms
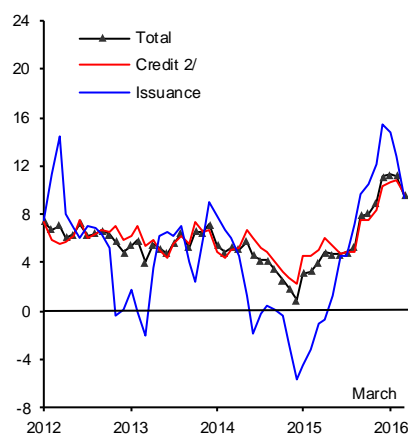
a) Domestic Financing to Non-financial Private Firms [1]/ Real annual change in percent	b) Annual Interest Rate of New Credits and Commercial Banks' Delinquency Rate In percent	c) Yield Curve of Medium-term Private Securities [5]/ Annual percent
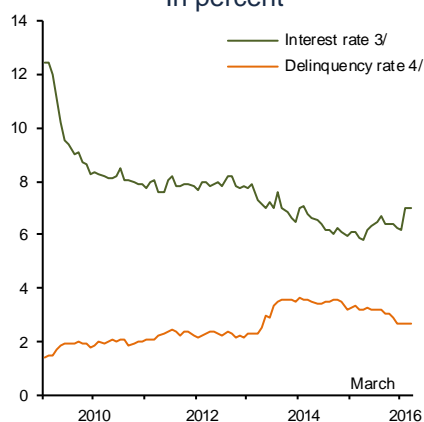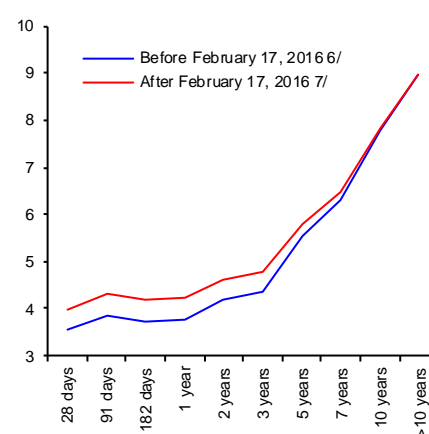
1/ Data adjusted for exchange rate effects.
2/ These data are adjusted due to the withdrawal from and the incorporation of some financial intermediaries to the credit statistics.
3/ It refers to the interest rate of new bank credits to non-financial private firms, weighted by the associated stock of the performing credit and for all credit terms requested.
4/ The delinquency rate is defined as the stock of non-performing loans divided by the stock of total loans.
5/ It includes bonds placed by non-financial private firms in MXN and with an AAA rating.
6/ A simple average of data observed on February 15 and 16, 2016.
7/ A simple average of data observed on February 17 and 18, 2016.
Source: Banco de México and Indeval.

On the other hand, in line with the dynamism of private consumption and the improvement observed in some labor market indicators, credit to households also continued growing at high rates, even though they were more moderate than in the previous quarter. In particular, between the last quarter of 2015 and the first one of 2016, the real annual change rate of the credit to households went from 7.3 to 6.7 percent (Chart 29a). This moderation reflected the slowdown of the housing credit –both from the National Housing Fund (Infonavit) and from commercial banks-, the expansion of which in real annual terms slid from 6.8 to 5.8 percent between the fourth quarter of 2015 and the first one of 2016 (Chart 29b).[7] In this environment, the interest rates and delinquency rates of mortgage loans remained without relevant changes with respect to the previous quarter (Chart 29c).

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[7] 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 29
Credit to Households

a) Total Credit [1/]
Real annual change in percent
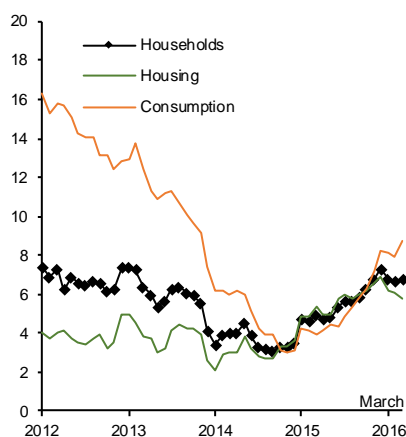
b) Performing Credit to Housing
Real annual change in percent

c) Annual Interest Rate of New
Credits and Delinquency Rate of the
Housing Credit
In percent

1/ These data are adjusted due to the withdrawal from and the incorporation of some financial intermediaries to the credit statistics.
2/ It includes the Sofomes ER subsidiaries of bank institutions and financial groups.
3/ Figures are adjusted in order to avoid distortions by the transfer and the reclassification of direct credit portfolio, 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.
4/ The interest rate of new housing credits from commercial banks, weighted by stock associated to the performing credit. It includes credit for acquisition of new and used housing.
5/ The delinquency rate is defined as the stock of non-performing loans divided by the stock of total loans.
Source: Banco de México.

In turn, consumer credit accelerated in the reference period, its real annual change shifting from 8.2 to 8.8 percent. The rebound in the growth of the credit cards' segment stood out, following a period of two years of practically zero growth (Chart 30a). It should be pointed out that during the reported quarter, the interest rates for consumer credit did not observe relevant changes, while delinquency rates kept going down, especially in the personal loans' segment (Chart 30b).

In sum, despite the environment of volatility and the persisting tight conditions in international financial markets –particularly during the first half of the first quarter of 2016-, financing to the private sector in Mexico kept expanding, thus supporting productive activity. Furthermore, although in some segments of financing to the private sector interest rates went up –especially, short-term ones-, they are still at levels close to historic lows. At the same time, credit quality remained adequate and did not present signs of deterioration, which suggests the absence of demand-related pressures on the loanable funds' market. However, given that slackness in the global growth and increased uncertainty in the financial markets are expected to persist, there are still risks that in the future the sources of financial resources will be relatively limited.

Chart 30
Commercial Banks' Consumer Credit
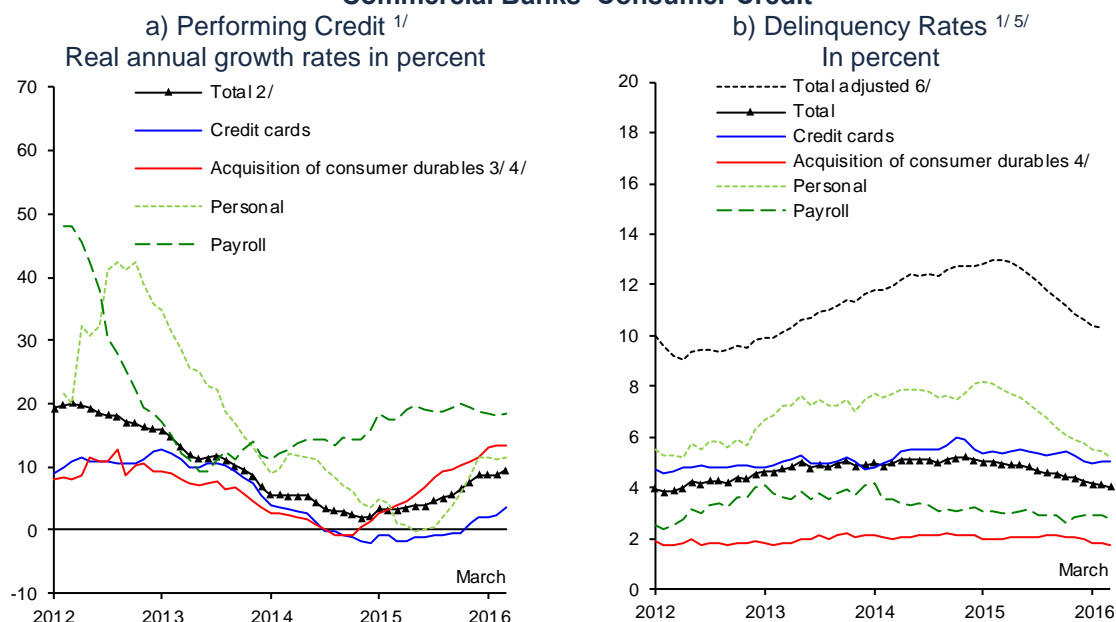
a) Performing Credit [1/]
Real annual growth rates in percent

b) Delinquency Rates [1/ 5/]
In percent

1/ It includes the Sofomes ER subsidiaries of bank institutions and financial groups.
2/ It includes credit for payable leasing operations and other consumer credits.
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. For this Report, the data are up to February 2016.
Source: Banco de México.

In this context, and in light of the recent announcements affecting the PSBR outlook in 2016, it is advisable to update the prospective exercise of sources and uses of financial resources of the economy presented in the Quarterly Report, October – December 2015, illustrating their possible impact on the evolution of financing to the private sector. In particular, in April 2016 the Ministry of Finance (SHCP) released the document on the compliance with the provision in Article 42, Section I, of the Federal Budget and Fiscal Responsibility Law (*Pre-Criterios*), which estimates that the PSBR will locate at 3.5 percent of GDP at the end of 2016. Furthermore, following the said announcement, Banco de México determined the operational surplus of the 2015 fiscal year that, in accordance with Article 55 of Banco de México's Law was delivered to the Federal Government and that, in accordance with the Federal Budget and Fiscal Responsibility Law, will have to be destined to lowering debt levels and to improving its financial position.

With respect to the sources of financial resources, the outlook for 2016 foreseen in the previous Report remains. In particular, given the persistence of the macroeconomic environment characterized by tighter external financial conditions and lower oil prices as compared to previous years, the annual flow of sources of financial resources is expected to be 6.9 percent of GDP, which, just like in 2015, will be lower than the average of 9.7 percent observed between 2010 and 2014 (Table 2). This would fundamentally reflect 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.

However, in 2016 the sources of financial resources of the economy are estimated to be higher than in 2015. Regarding external sources, this would reflect the aforesaid reactivation of the private debt issuance in international markets. With respect to domestic sources, the private sector is expected to channel more resources to the accumulation of domestic financial instruments. This reflects the forecast that, unlike in 2015, this year the private sector will face a lower need to settle internal instruments to acquire foreign currency, as it has lower programmed payments abroad, and also that part of the demand will be settled by a greater than anticipated external financing to the private sector.

As to the use of financial resources, PSBR are expected to go down from 4.1 to 3.0 percent of GDP in 2016. This expected decrease in public sector's financing requirements of 1.1 percent of GDP can be divided into three parts:

i.   As mentioned above, a reduction in PSBR as a percentage of output from 4.1 percent in 2015 to 3.5 percent in 2016, in line with the fiscal consolidation target set in General Criteria of Economic Policy 2016 and ratified in the Income Law for 2016.

ii.   A further adjustment of 0.9 percent of GDP in PSBR, as a result of the application, in line with the Federal Budget and Fiscal Responsibility Law, of the resources stemming from Banco de México's operation surplus. With that, PSBR in 2016 will shift from 3.5 to 2.6 percent of GDP. Indeed, Banco de México's operation surplus of the 2015 fiscal year delivered to the Federal Government in April amounted to MXN 239.1 billion (1.2 percent of GDP). Based on the Article 19a of the Federal Budget and Fiscal Responsibility Law, the Federal Government announced that it would destine 70 percent of the referred surplus to decrease the amount of placements programmed for 2016 and to carry out repurchases of government securities. Both operations imply lower net indebtedness or public sector financing requirements corresponding to the said amount. The remaining 30 percent will be destined to capital expenditures, as stipulated in the same Article of the Federal Budget and Fiscal Responsibility Law.

iii.   A possible upward adjustment in public sector financing requirements amounts to 0.4 percent of GDP, as a result of the Federal Government support of MXN 73.5 billion, that will be given to PEMEX in 2016. Indeed, as PEMEX will spend these resources to diminish its current liabilities, in the absence of the surplus income from other sources to cover the Federal Government transfer to the Productive State Company, a greater financing to the public sector would be provoked. Thus, PSBR will go up from 2.6 to 3.0 percent of GDP.

Hence, by adding up public sector financial requirements of 3.0 percent of GDP estimated for 2016 and the expected flow of financing to states and municipalities of 0.2 percent of GDP, the use of resources by the public sector in 2016 is estimated to amount to 3.2 percent of GDP. On the other hand, given the environment of tight conditions in the financial markets and low crude oil prices, no accumulation of international reserves is estimated for 2016. Given that, the flow of financial resources destined to the private sector is expected to be 2.9 percent of GDP during the year, which is lower than 3.1 percent registered in 2015.

For 2017, the Ministry of Finance has reaffirmed its commitment to continuing with the fiscal consolidation process, while announcing its intention to cut down the programmable expenditures by MXN 175 billion. Thus, it is expected that expenditure containment measures in 2016 and 2017, as well as the Federal Government's use of resources stemming from Banco de México's operational surplus, in line with the Federal Budget and Fiscal Responsibility Law, will lead to the stabilization of the public debt to GDP ratio, thus strengthening the macroeconomic framework. This is especially relevant, given the complex external environment where the possibility persists that the sources of resources will be limited, reason for which the lower absorption of resources by the public sector alleviates possible pressures on the loanable funds markets in Mexico. Besides guaranteeing the public debt sustainability, this would facilitate that in the future the channeling of resources to the private sector will persist and that credit markets – especially interest rates- will not be pressured.

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

	Annual flows						
	2010	**2011**	**2012**	**2013**	**2014**	**2015**	**2016** [e]
Total sources	**9.4**	**10.1**	**10.0**	**8.6**	**10.2**	**5.2**	**6.9**
Domestic sources	4.1	5.7	4.4	4.7	5.8	3.9	5.3
Voluntary M4	2.6	4.2	3.0	4.1	4.1	2.6	3.9
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	1.6
Non-resident M4	2.9	3.0	4.5	1.3	2.3	-0.2	0.0
Securities and foreign credit [1]	2.5	1.4	1.2	2.5	2.2	1.5	1.6
Total uses	**9.4**	**10.1**	**10.0**	**8.6**	**10.2**	**5.2**	**6.9**
International reserves [2]	2.2	2.4	1.8	1.0	1.3	-1.5	0.0
Public sector financing	4.3	3.6	4.2	4.1	4.8	4.3	2.8
Public Sector Borrowing Requirements (PSBR) [3]	3.9	3.4	3.8	3.7	4.6	4.1	2.6
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	3.3
Foreign	0.7	0.9	0.8	1.6	0.8	0.1	0.3
Domestic [4]	2.0	2.8	2.3	2.3	1.6	2.9	3.0
Other [5]	0.3	0.4	0.9	-0.5	1.8	-0.7	0.8

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.
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). The data of 2016 correspond to those published in GCEP 2016 and consider the impact of the use of Banco de México's operational surplus, as well as the Federal Government support to Pemex.
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

In order to define its monetary policy stance, Banco de México at all times evaluates the possible impact of domestic and external factors on the performance of inflation and its expectations, in order to comply with the constitutional mandate of maintaining low and stable inflation. Monetary policy actions aim at preserving and enhancing the advances in terms of inflation that have been made over the last years, among which the following stand out: i) a reduction in the levels, volatility and persistence of inflation; ii) a decrease in risk premia, particularly, in inflation risk premium; iii) the solid anchoring of inflation expectations at levels congruent with the inflation permanent target; and iv) a reduction in the pass-through of changes in relative prices, in particular, of exchange rate fluctuations onto consumer prices.

The achievements made have led, among other things, to a better functioning of national financial markets. In particular, the reduction in the inflationary risk premium has contributed to the downward trend in interest rates. Likewise, the certainty related to price stability has allowed an extension of the time horizon of the yield curve and of the average maturity of government bonds. In total, in a context of low and stable inflation, the financial sector deepened, which, in turn, contributed to reactivating the levels of credit granted to different economic agents, and the purchasing power of wages increased.

This progress resulted from the continuous effort by the monetary authority to provide a nominal anchor to the economy, reaffirming the public's perception that the Central Bank will act at all times adjusting its monetary policy if it is required, to achieve the set inflation target. The timeliness in monetary policy decisions has also helped the exchange rate to become an efficient adjustment variable of shocks from abroad, while its adjustments did not negatively affect the price determination process of the economy.

It should be noted that the process by which the monetary policy actions affect inflation is neither direct nor immediate, but rather it takes place through various transmission channels and with certain lags. In fact, this transmission mechanism has been evolving throughout the years, reflecting the above mentioned achievements in inflation dynamics and in financial and credit markets, as well as a greater credibility of the Central Bank's commitment to the attainment of the permanent inflation target. All of these provided a greater degree of maneuver to the conduction of monetary policy (see Box 2).

Box 2
Recent Changes in the Transmission Mechanism of Monetary Policy in Mexico

1. Introduction

In the conduction of monetary policy, the central bank considers that its actions affect the price formation process via different channels and with certain lags. These channels, as a whole, constitute the transmission mechanism of monetary policy (TMMP) and their relative importance can vary across time. Therefore, studying them on a regular basis is of vital importance, in order to detect possible changes that may arise in their functioning. This is especially relevant in the case of Mexico, in light of a positive feedback among the monetary policy conduction, the environment of low and stable inflation, and the anchoring of inflation expectations registered in recent years.

Thus, this Box briefly describes the TMMP channels and documents evidence suggesting that their relative importance has recently changed. To do so, the results of a small scale macroeconomic model estimated for the Mexican economy for the samples of 2001-2006 and 2001-2015 were compared.[1] Specifically, the results of the estimations of the two samples are contrasted and the changes in the dynamics of the model's variables, such as inflation, the output gap, the exchange rate and the interest rate between both samples given: i) an expansive shock of aggregate demand, and ii) a shock that depreciates the nominal exchange rate are illustrated. It is shown that, in general, macroeconomic variables have lower persistence than in the past. In particular, inflation shows lower inertia, reason for which it returns to its initial condition faster, and there is a lower pass-through of exchange rate changes to prices, so, in principle, a less aggressive monetary policy response is required if an adjustment is needed to offset deviations of inflation from its target. Based on this, it can be concluded that the TMMP in Mexico may have presented changes that led to a higher effectiveness of monetary policy actions onto inflation, mainly due to the strengthening of the expectations' channel.

2. Channels of the Transmission Mechanism of Monetary Policy

Banco de México, like many monetary authorities, uses a target for the overnight interbank interest rate as its main monetary policy instrument. Thus, the Central Institute modifies the conditions under which it provides liquidity to the money market, so as the interest rate in the interbank market lies at its targeted level. This affects aggregate demand and supply, and, at the same time, inflation through different channels (see Diagram 1):[2, 3]

Diagram 1
Transmission Mechanism of Monetary Policy
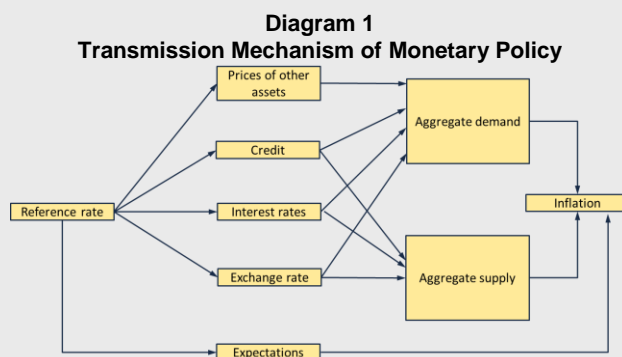
Source: Banco de México.

Interest Rate Channel: Short-term interest rates tend to vary in the same direction in which the Central Bank modifies the reference rate. Similarly, albeit to a lesser extent, medium- and long-term rates also tend to be affected. Thus, changes in the monetary policy stance can generate an impact throughout the full length of the yield curve. Given that different segments of aggregate expenditure depend on expected real interest rates, insofar as the changes in nominal interest rates affected by monetary policy actions are reflected in changes in real interest rates, the intertemporal allocation of expenditure on consumption and investment will be affected, influencing the observed levels of the said expenditure at each point of time. In particular, the said changes will modify the opportunity cost of consumption and the cost of capital to finance new projects, and, therefore, will affect economic agents' expenditure incentives. All this affects aggregate demand and eventually inflation. With respect to this channel, it should be mentioned that its effect is small in Mexico, although it has been gaining strength recently.

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[1] The first sample is chosen based on Sidaoui and Ramos-Francia (2008). This sample begins in 2001, reflecting the empirical evidence indicating that from that year onwards there was a structural change in inflation dynamics in Mexico, which was possibly associated with the adoption of the inflation targeting regime by Banco de México (see Chiquiar, Noriega and Ramos-Francia (2010)). This sample finishes prior to the onset of the global financial crisis. The second sample covers the full period from 2001 to 2015, instead of exclusively comprising the span from 2007 to 2015. This is due to the fact that, although there are no qualitative changes in the results, including only the second part of the sample leads to a certain lack of precision and to instability in the estimates, as a result of the fact that the data associated to the crisis tend to dominate the results. It should be noted that the results of a third sample (that only spans from 2010 to 2015, and therefore eliminates a significant part of the crisis) are similar to those reported herein, although they are also affected by the small size of the sample.

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[2] It should be noted that, for simplicity, the analysis that is presented hereby does not explicitly incorporate the different mechanisms through which the financial system interacts with the real sector (i.e. the credit channel and the asset price channel).

[3] For further detail, see the Monetary Program 2013.

Credit Channel: Monetary policy can contribute to modifying credit growth in the economy by affecting the availability and the terms at which credits are granted, which amplifies the effects of the interest rate channel. In particular, in an environment of higher interest rates, banks can decide to restrict the granting of financing insofar as a greater degree of risk related to investment projects is perceived. Likewise, the financial position of firms can be affected, reducing their ability to cope with financial commitments, and consequently increasing their risk. This channel also reflects the effect of changes in interest rates on the households' willingness to substitute current consumption for future consumption.

Asset Price Channel: Changes in interest rates, in turn, modify the price of different assets, such as public and private debt securities, stocks and real estate, as they directly affect the net present value of their future expected yields. This impacts households and firms' expenditures, due to the wealth effect that is derived from changes in the assets' valuation. To the extent that the economy has more developed financial markets, this channel is more important.

Exchange Rate Channel: In line with the uncovered interest rate parity, the increment in domestic interest rates with respect to external ones makes domestic financial assets relatively more attractive.[4] This, in a context of a small open economy, characterized by free capital mobility, will tend to appreciate the exchange rate, due to the relative increase in the demand for financial assets denominated in Mexican pesos relative to those denominated in foreign currency. In turn, these exchange rate adjustments have at least two effects: on the one hand, they affect aggregate demand via a price effect on net exports and, on the other hand, they affect aggregate supply by means of their impact on the cost of imported inputs used in the production of national goods (exchange rate pass-through). The above, ultimately, moderates inflation pressures.

Expectations Channel: An increment in the reference interest rate can be interpreted as an action that reinforces the Central Bank's commitment to achieving a goal of low and stable inflation, reason for which it can contribute to the moderation of inflation expectations.

Thus, lower expectations of future inflation can affect current inflation, as the adjustments in prices and wages carried out by economic agents depend, to a large extent, on the inflation that they expect will prevail in the future. It should be noted that the effectiveness of this channel primarily depends on the credibility of the monetary authority regarding its commitment to price stability.

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[4] While maintaining everything else constant and, in particular, assuming that risk premia incorporated in domestic interest rates are fixed.

3. Recent Performance of Some Macroeconomic Variables

In recent years, Banco de México has documented different stylized facts with respect to the performance of some macroeconomic variables that could imply the presence of changes in the relative importance of the afore mentioned transmission channels of monetary policy. Among them, the structural changes in the dynamics of inflation and its expectations, and in the price formation process are noteworthy:

a) A significant and permanent reduction in the level, volatility and persistence of inflation, based on the adoption of the inflation targeting regime and given the perception of the absence of fiscal dominance in the economy.[5]

b) A lower coefficient of the pass-through of shocks to the nominal exchange rate onto inflation, which consolidated the exchange rate as an efficient adjustment variable upon external shocks to the economy.[6]

c) Presence of temporary effects on inflation, given the adjustments in certain goods' relative prices (e.g., agricultural products).[7]

d) A reduction in the dispersion of inflation expectations and evidence that the effect of inflation deviations from its target on the latter has declined over time.[8]

e) A gradual decrease in inflation expectations implicit in the long-term price quotes of market instruments and in the associated inflation risk premium.[9]

f) Evidence of an inflationary process determined to a greater degree by prospective effects, as compared to retrospective ones.[10]

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[5] See the Technical Chapter "Change in the Nominal System of the Mexican Economy in the Early 2000s" in the Inflation Report October - December 2010, based on Chiquiar, Noriega and Ramos-Francia (2010).
[6] See Box "Estimating the Effect of the Exchange Rate Adjustment onto Inflation" in the Inflation Report July – September 2012 and the references cited therein, based on Cortés (2013), as well as Box "Pass-through of Exchange Rate Movements onto Prices in Latin American Economies" in the Quarterly Report July - September 2015, for a comparison among Mexico and other economies of the region.
[7] See Box "Relative Price Changes and Inflation Convergence towards the 3 Percent Target" in the Inflation Report April - June 2013.
[8] See Box "Anchoring of Medium- and Long-term Inflation Expectations in light of Adverse Supply Shocks" in the Inflation Report January – March 2013, based on Aguilar-Argaez, et. al. (2014).
[9] Estimates are carried out based on zero coupon rates. See Box "Decomposition of the Break-even Inflation" in the Quarterly Report October - December 2013 based on Aguilar-Argaez, Elizondo and Roldán-Peña (2016).
[10] To identify this type of channel, the theoretical framework of the model estimated in this section is a New Phillips Curve microfounded in a Calvo price-setting mechanism; see Ramírez and Torres (2016) and references cited therein.

4. A Small Scale Macroeconomic Model for the Mexican Economy

The implications of the above mentioned facts on the dynamics of the economy, and, in particular, on the conduction of the monetary policy can be analyzed within a macroeconomic model for a small open economy, like Mexico.[11] In this way, it is possible to characterize the economic performance within a general equilibrium framework, in which the interaction among the main macroeconomic variables can be studied in response to different types of shocks.

An advantage of this type of models is that each of its variables is affected, among other things, by agents' expectations regarding the future performance of the said variables. The above, together with the assumption that agents' expectations are rational, allows the model's outlook regarding the future performance of macroeconomic variables to be congruent with the equilibrium dynamics of the model (that is, expectations are endogenous to the model). In that way, the expectations channel of monetary policy can be taken into account.

However, these models are not without limitations. One of them is that their structure tends to include a reduced number of variables, so they are a simplified representation of how the economy operates. Moreover, given that they describe the performance of the economy through linear approximations of agents' optimal behavior around a stationary state, to the extent that the shocks faced by the economy are of important magnitude, the model's representation becomes less accurate.[12] Still, these models' results tend to be similar to those derived from time series models, such as autoregressive vectors, which impose fewer restrictions on the performance of macroeconomic variables across time.

The structure of the model is characterized by the following equations:

a) Phillips Curve. It describes the performance of core inflation, π^{core}, in terms of its leads and lags, as well as inflationary pressures generated by economic activity (represented by the output gap, x) and the price of imported inputs (determined by the changes in the nominal exchange rate, ΔNER, and external inflation, $\pi^{U.S.}$):

$$\pi_t^{core} = a_1 E_t \pi_{t+1}^{core} + a_2 \pi_{t-1}^{core} + a_3 x_{t-1} + a_4 [\Delta NER_{t-1} + \pi_{t-1}^{U.S.}] + \varepsilon_{1t}$$

b) IS Curve. It describes the performance of the output gap, x, in terms of its lags and leads, of the effects generated by monetary policy actions that, in turn, affect the real interest rate, r, as well as of the effects of changes in external demand, measured by means of the U.S. output gap, $x^{U.S.}$, and in the real exchange rate, q:[13]

$$x_t = b_1 E_t x_{t+1} + b_2 x_{t-1} + b_3 r_{t-1} + b_4 x_t^{U.S.} + b_5 q_t + \varepsilon_{2t}$$

c) Uncovered Real Interest Rates Parity. It describes the performance of the real exchange rate. Besides, it includes its lag, which induces gradual adjustments in its variations:

$$q_t = c_1 (E_t q_{t+1} + [r_t^{U.S.} - r_t]) + c_2 q_{t-1} + \varepsilon_{3t}$$

d) Nominal Exchange Rate. It is defined based on the real exchange rate and the inflation spread between the U.S. and Mexico:

$$\Delta NER_t = \Delta q_t + (\pi_t - \pi_t^{U.S.})$$

e) Monetary Policy Rule. It is defined based on a standard Taylor rule (where π^* stands for the inflation target):

$$i_t = (1 - d_3)\{d_1(\pi_t^{head} - \pi^*) + d_2 x_t\} + d_3 i_{t-1} + \varepsilon_{4t}$$

f) Headline Inflation, π^{head}:

$$\pi_t^{head} = w^s \pi_t^{core} + w^{non-core} \pi_t^{non-core}$$

g) Non-core Inflation, π^{ns}:

$$\pi_t^{non-core} = \Phi_1 \pi_{t-1}^{non-core} + \varepsilon_{5t}$$

with error terms associated to each equation, given by ε_{it} for i=1,…,5.[14]

In order to capture possible changes in the TMMP in Mexico over the last years, the coefficients of the above described model are estimated for the periods 2001-2006 and 2001-2015.[15,16] When comparing the set of coefficients that result from estimating the model for the above defined samples (see Table 1), the following stands out:

a) The prospective components of the Phillips Curve, the IS Curve and the equation describing the performance of the real exchange rate (a_1, b_1 and c_1) in general have become more relevant with respect to their retrospective counterparts (a_2, b_2 y c_2), which implies that when determining these variables, economic

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agents' decision are currently more affected by the expectation of their future performance than by their historic behavior, as compared to what occurred at the beginning of the analysis period.[17] This change in the model's coefficients is crucial, given that it suggests that the expectations channel of the TMMP has strengthened and that the inertia of the variables incorporated in it has reduced.

b)   The coefficient that measures the pass-through of the exchange rate on the Phillips Curve (a_4) decreased both in magnitude and in statistical significance. Thus, exchange rate variations now affect inflation to a lesser extent.

c)   The effect of the interest rate onto the output gap (b_3) increased, which implies a greater ability of monetary policy to affect the performance of aggregate demand.

Thus, the above described changes suggest a relative strengthening of the expectations and interest rate channels of the TMMP in Mexico, as well as a lower pass-through from variations in the exchange rate onto inflation.

To illustrate these changes and their implications to the conduction of the monetary policy, below we analyze the dynamics of the economy given: *i)* an expansionary shock to aggregate demand, and *ii)* a shock that depreciates the exchange rate.

Expansionary Shock to Aggregate Demand. It causes the output gap to become positive, which, in turn, generates upward aggregate demand-related pressures on inflation. That is, when aggregate expenditure increases and rises above the potential of the economy (positive output gap), excess aggregate demand is generated, causing an upward adjustment in the growth rate of prices for a broad group of goods and services. The monetary policy response to these reactions is an upward adjustment in the reference rate, which also pushes up the real interest rate. This leads to an appreciation of the exchange rate (through the interest rate spread against the U.S.) which, together with the increment in the interest rate, reverts the initial increase in the output gap. As a result of this, and the exchange rate appreciation, inflationary pressures go down. Thus, due to the monetary policy response, macroeconomic variables go back to their initial pre-shock levels.

Chart 1 compares the above described dynamics for each sample. When including the most recent years (red lines), it can be noted that a shock of the same magnitude to aggregate demand (Chart 1a) generates lower and less-lasting inflationary pressures, due to the decrease in the persistence of both headline (continuous line) and core inflation (dotted line; Chart 1b). As a result, the reference rate (continuous line) reacts in less magnitude and for a shorter time period, which translates into a similar reaction of the real interest rate (dotted line; Chart 1c). Given this, the output gap returns to its equilibrium level slightly faster, given the greater relative importance of the prospective element in its determination, and inflation is less affected. This also implies that the rest of the macroeconomic variables are less affected by the initial shock.

Shock that Depreciates the Exchange Rate. As a result of the increment in the nominal exchange rate, prices of internationally traded goods go up, generating inflationary pressures. Thus, the monetary policy response to this shock consists in increasing the reference interest rate so as to push up the real interest rate to prevent these shocks from generating second round effects on non-traded goods. Once the TMMP operates and provided there are no additional shocks, the macroeconomic variables tend to return to their equilibrium levels after a certain lapse of time.

Chart 1
Impulse-Response Charts
Dev. in percentage points with respect to steady state
a) Output Gap

b) Quarterly Inflation [1/]

1/ The dotted line corresponds to core inflation.
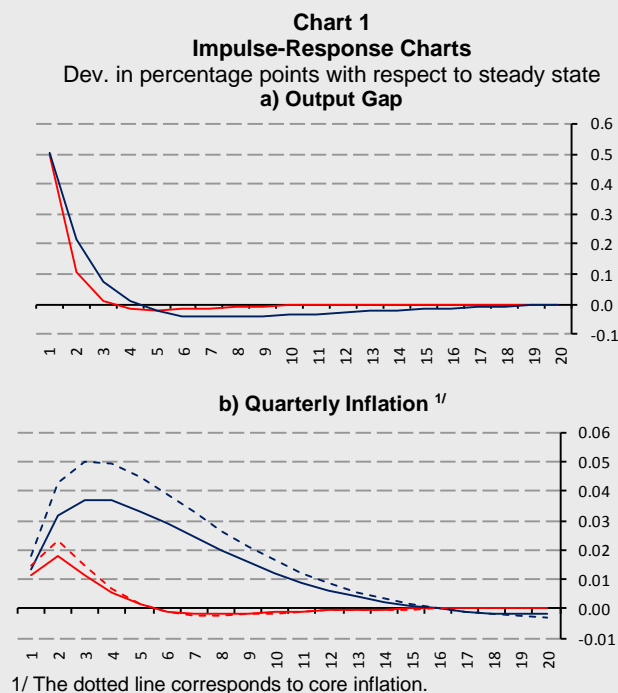
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[17] Note that despite the decrease in the coefficients of the prospective and retrospective terms of the IS Curve (b_1 and b_2, respectively) for the estimates corresponding to the 2001-2015 sample, the decline in the retrospective component (in absolute terms) is greater than that of the prospective one.

c) Interest Rate [1]

1/ The dotted line corresponds to the real rate.

——— 2001-2015   ——— 2001-2006
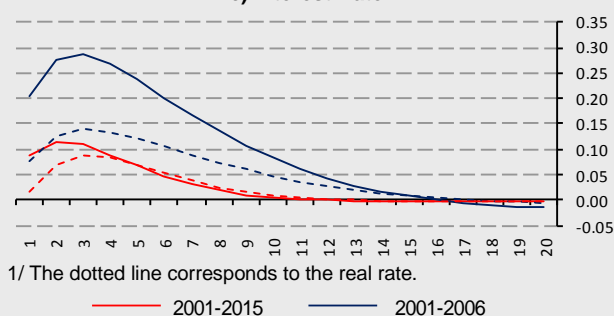
Source: Banco de México.

Chart 2 illustrates that the response of macroeconomic variables in both samples is in the same direction. However, when analyzing the sample that considers the most recent years (red lines), it can be observed that given an exchange rate shock of the same magnitude (Chart 2a), on the one hand, both headline inflation (continuous line) and core inflation (dotted line) are affected to a lesser extent from the beginning (Chart 2b), showing a lower pass-through of exchange rate changes onto inflation. On the other hand, their dynamics are swifter (lower persistence and volatility), reason for which they return to their initial levels faster. The fact that inflationary dynamics are less affected and stabilize faster requires the monetary policy reaction (continuous line), and, therefore, adjustments in the real interest rate (dotted line) to be lower in the exercise with the more recent sample than in the exercise with the previous sample (Chart 2c).

Chart 2
Impulse-Response Charts
Dev. in percentage points with respect to the steady state
a) Nominal Exchange Rate
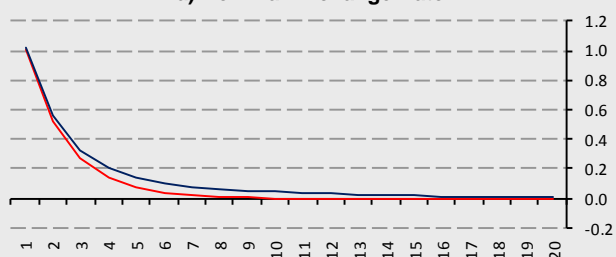
b) Quarterly Inflation [1]
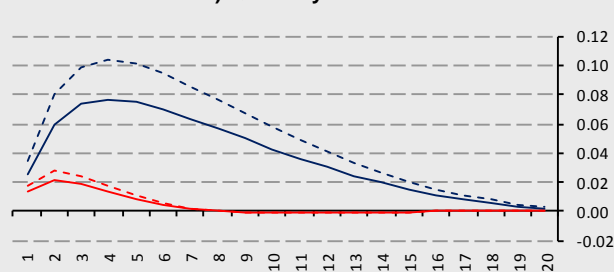
1/ The dotted line corresponds to core inflation.

c) Interest Rate [1]

1/ The dotted line corresponds to the real rate.

——— 2001-2015   ——— 2001-2006
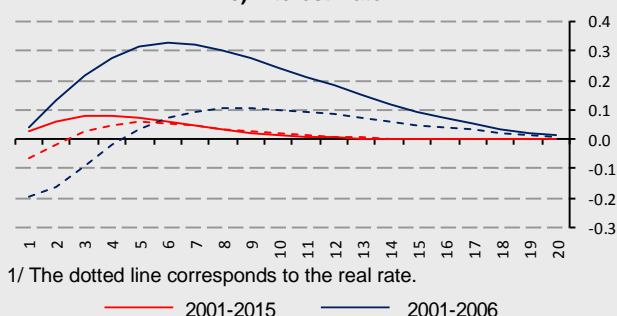
Source: Banco de México.

In sum, the results yielded by the two exercises presented show that the dynamics of macroeconomic variables have become faster, which emphasizes the strenghthening of the expectations channel. The fact that agents are better at anticipating monetary policy responses, through expectations, calls for less intense and long-lasting monetary policy responses.

5. Final Remarks

Based on the above, it can be concluded that the transmission channels, by means of which the monetary policy operates, could have presented adjustments that led to a higher effectiveness of the monetary policy actions onto inflation and the economic activity. This implies that the dynamics of macroeconomic variables have become faster over the last years, as a result of which the economy converges to its equilibrium level in a shorter time period, given the shocks it is subject to. This would suggest that, in light of shocks of the same magnitude, the monetary policy stance should respond in a less aggressive way than in the past to mitigate the effects of the said shocks, possibly due to the strengthening of the expectations channel and the credibility that the Central Bank has been gaining.

In this context, a strong anchoring of inflation expectations has played a crucial role. In this respect, it should be highlighted that, as shown in the results presented above, this anchoring has been strengthening across the years. Accordingly, Banco de México has reiterated that it will remain alert, so that any shock affecting inflation would be properly identified and timely offset with a monetary policy response, as required.

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Table 1
Coefficients of the Model

	Phillips curve				IS curve					Real exchange rate	
	a_1	a_2	a_3	a_4	b_1	b_2	b_3	b_4	b_5	c_1	c_2
2001-2006	0.420***	0.559***	0.023***	0.019***	0.453***	0.372***	-0.016**	0.137***	1.232*	0.529***	0.464***
	(0.038)	(0.066)	(0.007)	(0.007)	(0.027)	(0.018)	(0.007)	(0.035)	(0.704)	(0.090)	(0.092)
2001-2015	0.621***	0.373***	0.017**	0.006*	0.316***	0.217***	-0.090*	0.294***	2.573***	0.677***	0.305***
	(0.083)	(0.073)	(0.007)	(0.004)	(0.069)	(0.058)	(0.048)	(0.061)	(0.890)	(0.036)	(0.035)

***, **, * correspond to 1, 5 and 10% significance level, respectively.

4.1.   Monetary Policy Decisions

During the first quarter of 2016, the conduction of the monetary policy was carried out in a complex environment. Although, in general, domestic conditions were congruent with the environment of low inflation, external factors represented considerable challenges. Thus, among the elements considered to justify the monetary policy decisions in the period analyzed in the Report, the following were noteworthy:

i.   Annual inflation remained below the permanent 3 percent target, even considering its temporary rebound, as compared to its level in late 2015.

ii.   Slack conditions prevailed in the economy and in the labor market, and no aggregate demand-related pressures onto prices were observed.

iii.   Inflation expectations for different horizons remained well-anchored.

iv.   As indicated in Section 3, various factors of the external environment led to high financial volatility in the first half of the quarter January – March 2016, as a result of which the value of the Mexican currency strongly depreciated. Subsequently, in the second half of the quarter, international financial volatility went down considerably. This, together with the economic policy measures adopted internally led to an appreciation of the Mexican peso.

v.   Nonetheless, there has been a reduced pass-through of exchange rate adjustments onto inflation and no second round effects on the price setting of the economy have been observed.

In this context, in its decision of February 4, 2016 the Board of Governors decided to maintain unchanged the target level for the Overnight Interbank Interest Rate at 3.25 percent (Chart 31). This, considering that at the moment the central scenario regarding the evolution of inflation for the short and medium term was still congruent with the consolidation of its convergence to the permanent 3 percent target. Despite this, the Board warned that the additional depreciation of the exchange rate registered in early 2016 and the possibility that it would persist or accelerate, possibly contaminating inflation expectations, had become the main risks to inflation.

Chart 31
Overnight Interbank Interest Rate Target [1]
Annual percent
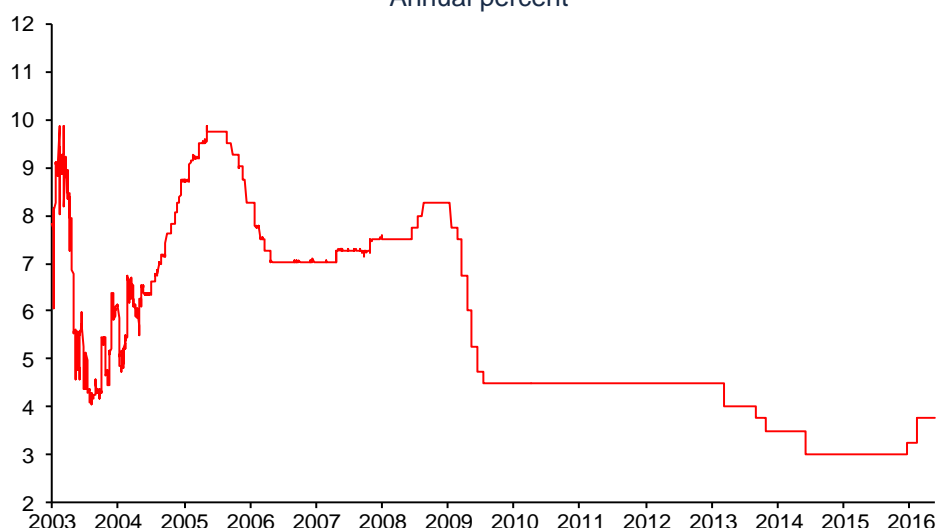
1/ The Overnight Interbank Interest Rate is shown until January 20, 2008.
Source: Banco de México.

After volatility in international financial markets and the deterioration in the external environment indeed became worse in the first two weeks of February, the Mexican peso further depreciated in a disorderly manner. Thus, in order to prevent the probability of inflation destabilization from increasing, on February 17, 2016 the Board of Governors announced that, at an extraordinary session it was considered appropriate to increase the target for the Overnight Interbank Interest Rate by 50 basis points to a level of 3.75 percent (Chart 31). In this regard, it was specified that the said increment did not initiate a cycle of monetary contraction.

It should be stressed that this decision was part of a coordinated set of measures taken by the Ministry of Finance (*Secretaria de Hacienda y Crédito Público*), that announced a preemptive adjustment to expenditure of 2016, fundamentally given the deterioration of the outlook of oil revenues; and the Foreign Exchange Commission, that declared the suspension of U.S. dollars sales' mechanisms based on rules. With respect to this announcement, the Foreign Exchange Commission pointed out that it would leave open the possibility to intervene discretionally in the exchange market in exceptional cases, ratifying that the key to procure the anchoring of the national currency would be the preservation of healthy macroeconomic fundamentals. These actions, as well as the reduction in international financial volatility, broke the negative trend in the quote of the national currency.

Subsequently, in view of the effects of the measures adopted on the financial markets –described below-, and given that the balance of risks to inflation was considered neutral, considering the adjustment carried out on February 17, 2016, in its monetary policy meetings of March 18 and May 5 the Board of Governors decided to maintain unchanged the target for the Overnight Interbank Interest Rate (Chart 31). When making this decision, it was also considered that the Federal Reserve left its reference interest rate unchanged, as it had been expected, in its monetary policy decisions of March and April.

Delving in the elements the monetary authority considered for its decisions, it should be noted that during 2016 slack conditions in the economy and in the labor market have prevailed, although they have been decreasing. Therefore, no aggregate demand-related pressures onto prices have been observed. The output gap remains slightly negative (Chart 32) and the main wage indicators still register moderate increments and, in particular, unit labor costs for the economy as a whole remain at low levels (Chart 33).

Chart 32
Output Gap Estimate [1/]
Percentage of potential output, s. a.
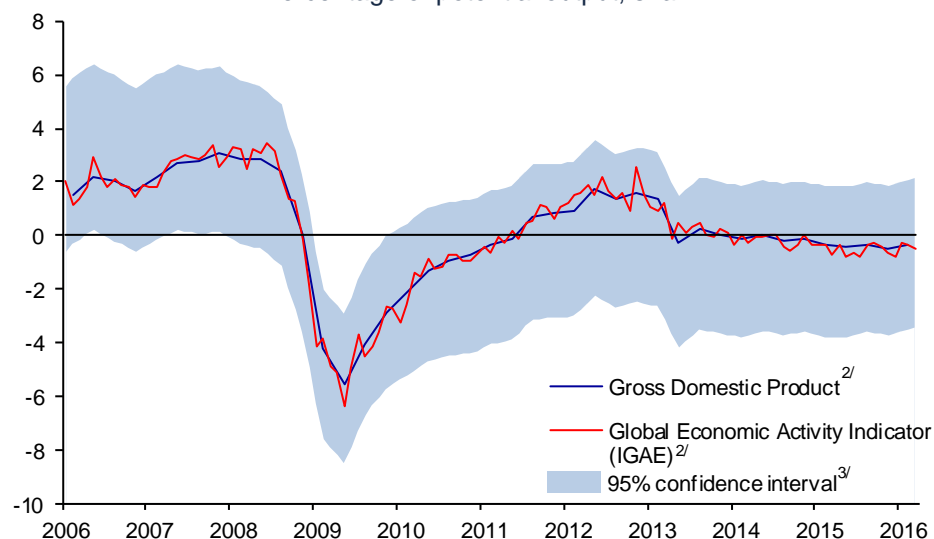
s. a. / Estimated with seasonally adjusted data.
1/ Estimated using the Hodrick-Prescott (HP) filter with tail correction; see Banco de México Inflation Report April-June 2009, p.69.
2/ GDP figures as of the first quarter of 2016. IGAE figures as of March 2016.
3/ Confidence interval of the output gap calculated with an unobserved components' method.
Source: Estimated by Banco de México with data from INEGI.

Chart 33
Productivity and Unit Labor Cost
Index 2008=100, s. a.

a) Total of the Economy

b) Manufactures

s. a. / Seasonally adjusted and trend series. The former is represented with a solid line, the latter, with a dotted line. Trends estimated by Banco de México.
Source: Unit cost prepared by Banco de México based on data from INEGI. The Global Index of Labor Productivity in the Economy (IGPLE), as released by INEGI.

s. a. / Seasonally adjusted and trend series. The former is represented with a solid line, the latter, with a dotted line.
Source: Prepared by Banco de México with seasonally adjusted data from the Monthly Manufacturing Business Survey and the Indicator of Industrial Activity of the Mexico's System of National Accounts, INEGI.

As to the performance of the median of inflation expectations based on Banco de México's survey among private sector specialists, it is noteworthy that the one corresponding to the end of 2016 decreased from 3.4 percent in the December survey to 3.2 percent in the April survey.[8] In particular, the median of core inflation expectations went down from 3.2 to 3.1 percent in the same time period, while the expectations implicit in the non-core component adjusted from 4.0 to 3.5 percent (Chart 34a). Meanwhile, the median of inflation expectations at the end of 2017 remained at 3.3 percent between December 2015 and April 2016, just like the expectations of the core and non-core components, which persisted at 3.2 and 3.7 percent, respectively (Chart 34b).[9] Finally, longer-term inflation expectations kept lying at 3.3 percent in 2016 so far (Chart 34c).[10]

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[8] The median of headline inflation expectation for the end of 2016, based on the Banamex survey, slid from 3.3 to 3.2 percent between the survey of December 16, 2015 and that of May 20, 2016.

[9] The median of headline inflation expectation for the end of 2017, based on the Banamex survey, shifted from 3.2 to 3.3 percent between the surveys of January 7, 2016 and that of May 20, 2016.

[10] The median of long-term inflation expectations, based on the Banamex survey (for the next 3 to 8 years), decreased from 3.4 to 3.3 percent between the surveys of December 16, 2015 and that of May 20, 2016.

Chart 34
Inflation Expectations
Percent

a) Medians of Headline, Core and
Non-core Inflation Expectations as
of End of 2016
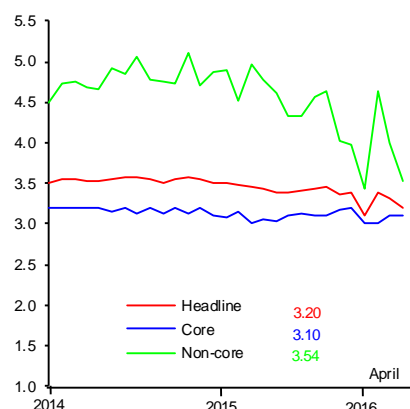
b) Medians of Headline, Core and
Non-core Inflation Expectations as of
End of 2017

c) Medians of Headline Inflation
Expectations for Different Terms

Source: Banco de México's Survey.
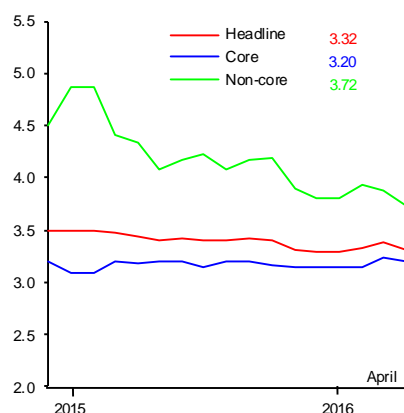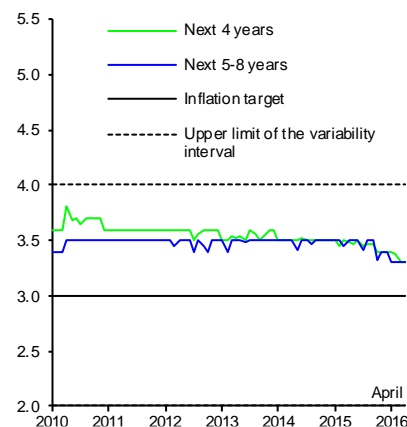
Inflation expectations implicit in 10-year market instruments remain stable around 3.0 percent, while the inflationary risk premium persists at negative levels (Chart 35a).[11] In this way, the break-even inflation (the difference between long-term nominal and real interest rates) remains close to historic lows (Chart 35b). This performance is congruent with the environment in which, given that financial markets present low risk-adjusted returns in their assets, risk premia have decreased, and in some cases even reached negative levels, due to the diversification benefits that they offer in their portfolios. Moreover, it seems to be reflecting greater credibility regarding the Central Bank's commitment to the attainment of the permanent inflation target, which decreases the premium the agents would demand in case of a risk of unexpected changes in the inflationary outlook of the country, that are currently perceived as unlikely given the said commitment. In sum, the evolution of this indicator is still showing that the holders of nominal interest rate instruments keep demanding a relatively low break-even inflation and inflation risk in Mexican government bonds.

[11] For a description of the estimation of long-term inflation expectations, see the Box "Decomposition of Break-even Inflation" in the Quarterly Report, October – December 2013. For the current Report, the estimate was updated by including data as of December 2015.

Chart 35
Inflation Expectations
Percent
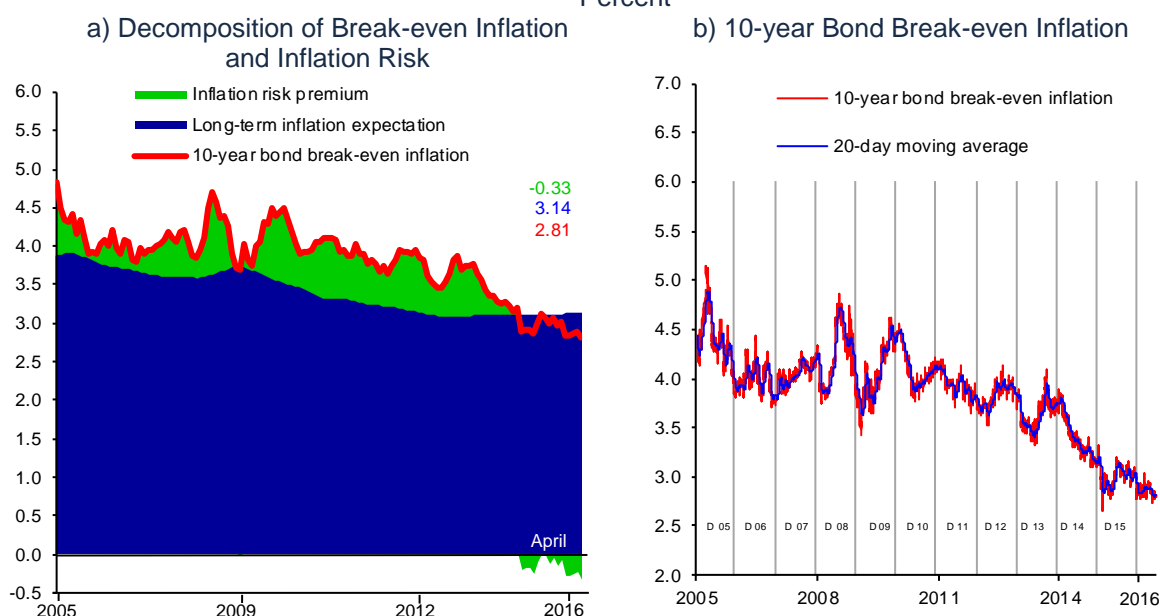
a) Decomposition of Break-even Inflation
and Inflation Risk

b) 10-year Bond Break-even Inflation

Source: Estimated by Banco de México.

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

4.2.   Domestic Financial Markets

During the reference period, the evolution of domestic financial markets was affected by economic policy actions and by the changes in volatility in international financial markets. In this context, it stands out that the foreign exchange market remained the main shock-absorber of external shocks, while fixed income market indicators remained relatively stable.

Delving in the above, in January and up to February 16, the behavior of the exchange rate was affected by both real and financial factors. The former comprise the deterioration in the terms of trade derived from the lower crude oil price and the stagnation of demand for exports, as a result of the low volume of global trade and, in particular, from the deceleration of industrial activity in the U.S. and China. Among financial factors, the following should be mentioned: the use of Mexican peso hedges in the adjustment strategies in other currencies' risk exposure within national and international investment portfolios; greater risk aversion among these; some agents' use of high frequency automatic trading models in the exchange market that benefitted from exchange rate volatility to obtain profits, which, in turn, affected its level, fed back on its volatility and reduced market's liquidity, as well as the economic and geopolitical uncertainty worldwide since the beginning of 2016.

Subsequently, as mentioned above, starting from the second half of February until now, international financial volatility reduced, even though it occurred in an environment of nervousness. This and the set of measures announced by the monetary authorities on February 17 helped the exchange rate to break its depreciation trend, shifting from levels close to MXN/USD 19.42 to levels below MXN/USD 18 in the weeks following the adoption of the referred measures, the

appreciation that persisted in the subsequent weeks, to finally locate on average at MXN/USD 17.49 in April, even though in May it rebounded to levels above MXN/USD 18 (Chart 36a and Chart 36b).

Chart 36
Exchange Rate and Implied Volatility

a) Nominal Exchange Rate [1/]
MXN/USD

b) Currency Option Implied Volatility [1/]
Percent

1/ The observed exchange rate is the daily quote of the FIX exchange rate. The black vertical line indicates January 1, 2016 and the dotted line indicates February 17, 2016.
Source: Banco de México.

1/ Currency option implied volatility refers to one-month options. The black vertical line indicates January 1, 2016 and the dotted line indicates February 17, 2016.
Source: Bloomberg.

In the period covered by this Report, the Foreign Exchange Commission announced modifications to the intervention mechanisms in the foreign exchange market that had been in force during 2015. Prior to this announcement, from January 1, 2016 to February 16, 2016 the mechanism of ordinary dollar auctions with a minimum price was activated 10 times, while the mechanism of supplementary dollar auctions with a minimum price was activated 8 times, the total amount allocated by means of different implemented intervention mechanisms being USD 3,556 million. Subsequently, on February 17, the Foreign Exchange Commission decided to suspend the referred daily auctions of dollars, on that day discretionally selling USD 2 billion, to strengthen the impact produced by the said economic policy measures on the quote of the national currency, given its degree of misalignment. The suspension decreed by the Foreign Exchange Commission of the intervention mechanisms by means of the predictable auctions was a response to the fact that they were losing their stabilizing power, when they were incorporated to the algorithms of some market participants that tried to benefit from them. In this context, this Commission stressed that it would only intervene discretionally in the market in exceptional circumstances of low liquidity in the market or other type of disruptions. Besides, it emphasized that the anchoring of the national currency's value will be procured fundamentally by preserving solid economic fundamentals.

As regards the performance of the fixed income market, short-term interest rates in Mexico reflected increments in the reference interest rate derived from the monetary

policy actions during the reference period. In contrast, long-term interest rates reduced, although at the margin they slightly improved. In this way, the slope of the yield curve decreased considerably. In particular, from January to late May, 3-month and 2-year sovereign bond rates increased from 3.3 to 4.0 percent and from 4.0 to 4.7 percent, respectively. In contrast, 10-year bond interest rate slid from 6.2 to 5.9 percent between January and April 2016, to later go up to 6.1 percent in late May (Chart 37a). Hence, the slope of the yield curve (the difference between 10-year and 3-month rates) lowered from 290 to 210 basis points in 2016 so far (Chart 37b).

The flattening of the yield curve can be interpreted as evidence of well-anchored inflation expectations, minimizing the potential negative upward effect in the reference interest rate in the investments in long-term financial instruments.

Chart 37
Interest Rates in Mexico
Percent
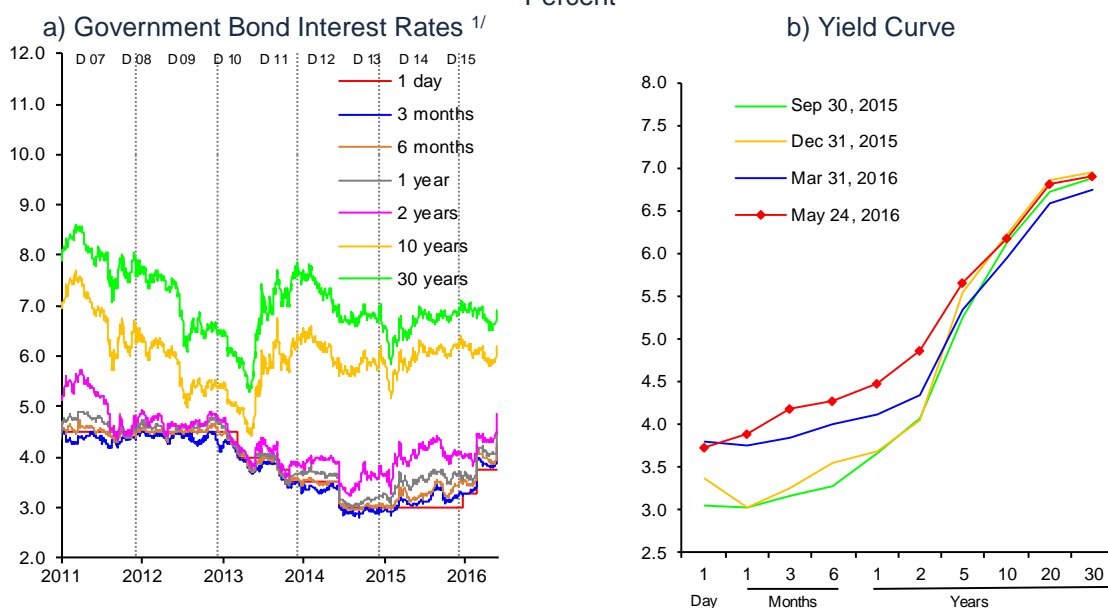
a) Government Bond Interest Rates [1]

b) Yield Curve

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).

Meanwhile, even though the spreads between Mexican and U.S. long-term interest rates registered a certain increment between January 1 and February 16, 2016, starting from February 17 they gradually went down to their level at the beginning of the year. Thus, the 10-year interest rate spread went up from 400 to 440 basis points in the first period mentioned above, to later go down to 430 basis points in late May (Chart 38).

Chart 38
Spreads between Mexican and U.S. Interest Rates [1]
Percentage points
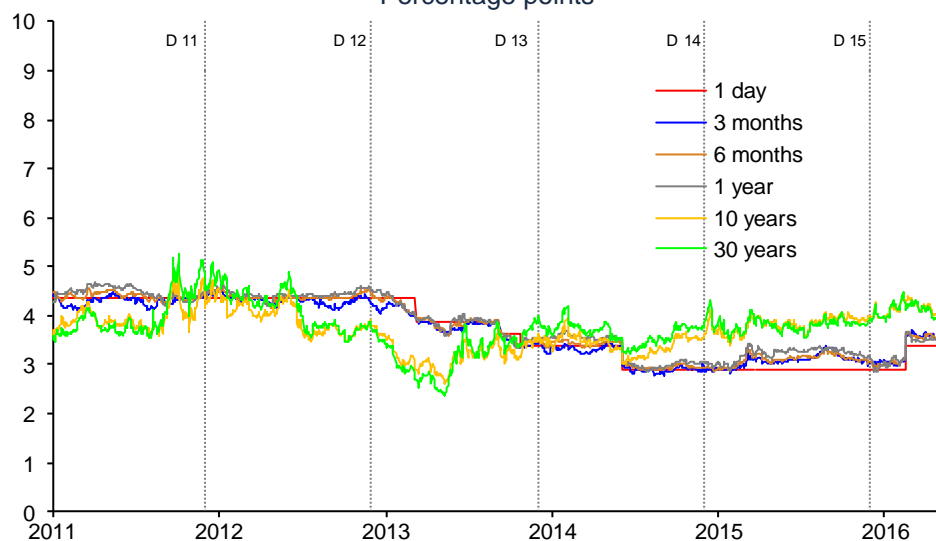
1/ For the U.S. target rate, an average interval considered by the Federal Reserve is considered.
Source: *Proveedor Integral de Precios* (PiP) and U.S. Department of the Treasury.

Foreign investors' holdings of government bonds slightly reduced between January and the end of May 2016. As regards their composition, it should be noted that investors' holdings of short-term instruments reduced considerably. However, this decrease was partially offset by the increment in medium- and long-term instruments holdings (Chart 39).

Chart 39
Government Securities' Holdings by Foreign Investors and Exchange Rate [1]
MXN billion and MXN/USD
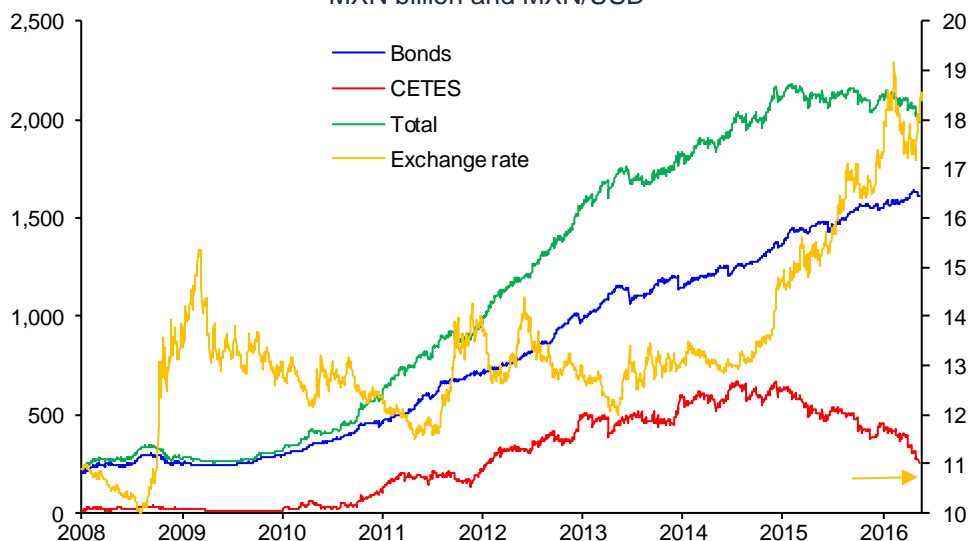
1/ The total includes CETES, bonds, udibonos, bondes and bondes D.
Source: Banco de México.

More recently, international financial volatility began increasing again, which was reflected in the currency depreciation. In particular, even though crude oil prices recovered, there is still a possibility of a disorderly decompression of term premia in international financial markets, given the expected normalization of the U.S. monetary policy. Furthermore, different sources of risks to the stability of international financial markets persist. Among them, the next can be noted: difficulties to stimulate growth and inflation in the Euro zone and Japan, the rising concern over the financial stability of China, as well as other geopolitical phenomena. Therefore, it is still relevant for the authorities to remain on alert regarding the macroeconomic fundamentals of the country.

In this sense, the announcement of April 1, 2016 by the Ministry of Finance (*Secretaría de Haienda y Crédito Público*) regarding the consolidation measures to be carried out in 2017, additional to those already announced for 2016, is especially pertinent. In particular, a reduction in the programmable expenditure for 2017 with respect to that of 2016 was suggested, apart from the commitment to the adjustment that was estimated for that year. In turn, on April 11, 2016 Banco de México stated that it would hand over the 2015 fiscal year operational surplus to the Federal Government, which amounts to MXN 239.1 billion. In line with the Federal Law on Budget and Fiscal Responsibility, establishing that at least 70 percent of the said amount should be destined to the amortization of the Federal Government's public debt or to the reduction of the amount of funding required to cover the approved deficit, on April 11, the Ministry of Finance announced that, from the referred resources, it would allocate at least MXN 64 billion to reduce the program of government securities' auctions and up to MXN 103 billion to repurchase public debt. Indeed, up until now, the amount of MXN 17.4 billion was already channeled to decrease the amount of government securities' placements corresponding to the second quarter of 2016. Likewise, on May 4, the Ministry of Finance allocated almost MXN 98 billion to repurchase fixed rate bonds and Udibonos with maturities between 2016 and 2018, pointing out that with this transaction the program of repurchases of government securities is concluded. As a total, these measures strengthen the fiscal position of the Federal Government and the macroeconomic framework of the country.

5.   Inflation Forecasts and Balance of Risks

GDP Growth: As forecast in the previous Quarterly Report, the complex external environment faced by the Mexican economy has persisted. Indeed, given the weak global economic activity, volatility in international financial markets and the reduction in global trade, industrial activity in the U.S. has not yet recovered.[12] Hence, Mexican external demand is still expected to register a relatively low dynamism for the following years, although it is anticipated to gradually resume a greater expansion rate.

Despite the slack in global demand, Mexico's domestic demand continued to expand at a considerable rate and, in this context, it can be anticipated to continue supporting economic activity over the next quarters. The low inflation rate leading to a recovery in the real wage bill, the improvement in the labor market and the implementation of structural reforms are promoting an environment more conducive to growth in domestic expenditure. In particular, structural reforms are anticipated to continue gradually boosting economic growth by generating favorable conditions for a sustainable increase in the consumption of different goods and services, along with promoting investment projects.

Thus, the domestic demand dynamism has managed to partially offset the aforementioned weakness of the external sector (and is expected to keep doing so), so that a moderate growth rate is still expected in the country. Similarly, a greater dynamism in economic activity during the first quarter of 2016 implies a certain improvement in the growth outlook for this year, although an adjustment of the forecast interval remains unjustified. Thus, GDP in Mexico is still estimated to grow between 2.0 and 3.0 percent in 2016. For 2017, due to the adverse international environment, and in particular to the downward revision of the growth expectations for the U.S. industrial production, the interval for GDP growth has been slightly adjusted from 2.5 to 3.5 percent in the last Report to 2.3 to 3.3 percent in the current one (Chart 40a).

Employment: Even though the number of IMSS-insured jobs maintained a positive trend, recently it has somewhat decelerated. Therefore, the outlook for this indicator's growth is slightly adjusted downwards. Thus, for 2016 an increment of 590 to 690 thousand jobs is expected, as compared to 610 to 710 thousand employments published in the previous Report. For 2017, an increase of 630 to 730 thousand jobs is expected, which is smaller than the anticipated 650 to 750 thousand employments announced in the previous Report.

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[12] In particular, based on the consensus of analysts surveyed by Blue Chip in May 2016, for this year U.S. industrial production is expected to shrink 0.4 percent, as compared to the expansion rate of 0.8 percent expected in the previous Report. For 2017, the forecast is adjusted from 2.4 percent in the previous Report to 2.3 percent in the current one. Despite a considerable modification in these expectations, the adjustment for 2016 is largely due to the fact that in the first quarter of the year the performance was a lot more unfavorable than estimated by analysts surveyed by Blue Chip, although the growth outlook for the following quarters of 2016 and 2017 was also modified. Furthermore, the decrease in the U.S. industrial activity in the first quarter of this year reflects the adverse performance of mining, while manufacturing presented a more favorable evolution than in the previous quarter. Thus, the revision of the outlook for the U.S. economic growth does not imply such high modifications for those corresponding to the Mexican economy in 2016. In turn, the revision of expectations regarding the U.S. industrial production growth trend in the forecast horizon has a negative effect on the Mexican GDP growth outlook for 2017, which is manifested in the revision of the forecast interval for this growth in that year.

Current Account: For 2016, a trade balance deficit and a current account deficit of USD 15.4 and 34.4 billion are anticipated, respectively (1.4 and 3.1 percent of GDP, in the same order). For 2017, deficits in the trade balance and the current account are expected to amount to USD 15.1 and 36.7 billion, respectively (1.3 and 3.1 percent of GDP, in the same order).

The economic growth outlook does not indicate the presence of any aggregate demand-related pressures on either inflation or external accounts. In particular, the output gap is anticipated to remain negative in the forecast horizon (Chart 40b).

Chart 40
Fan Charts: GDP Growth and Output Gap

a) GDP Growth, s. a.
Annual percent

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

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

s. a. / Seasonally adjusted data.
Source: Banco de México.
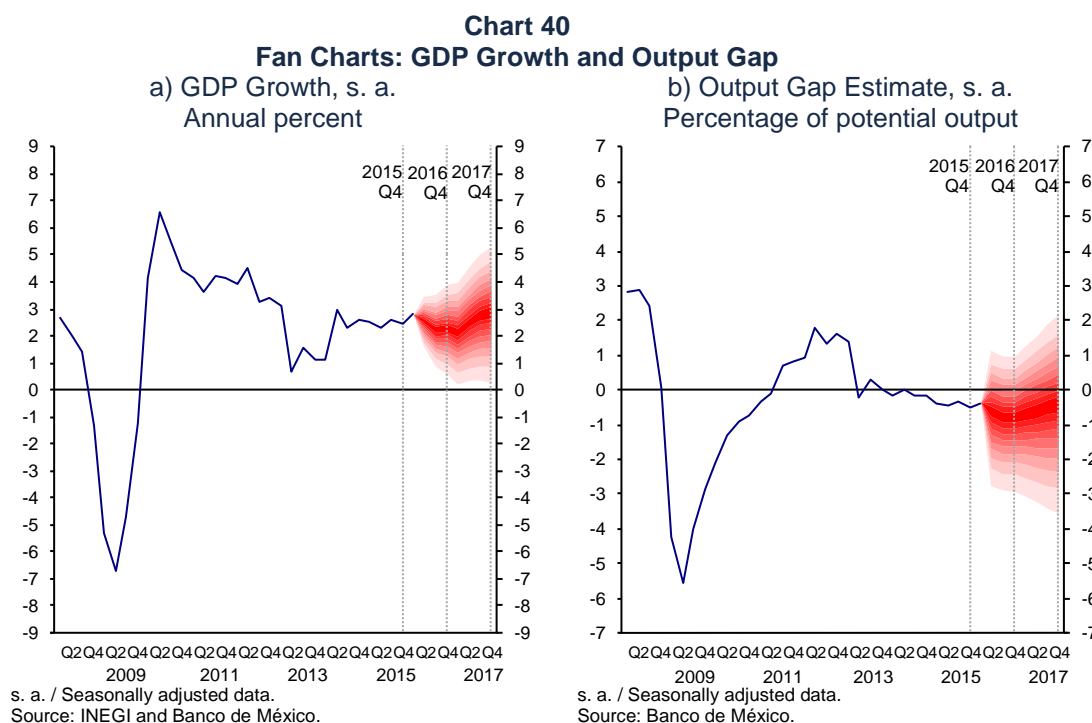
The downward risks to the economic growth in Mexico, associated with the described scenario, are the following:

i.   The possibility of a more pronounced slowdown of the world economic growth and, in particular, of the U.S. industrial activity.

ii.   That, in light of a more complex international environment, financing conditions in the economy might become tighter, negatively affecting investment plans and, consequently, economic growth.

Among the upward risks, the next should be listed:

i.   That the improvement in the labor market and credit expansion, as well as greater access of households to credit could lead to an even greater dynamism of private consumption over the next quarters.

ii.   That the implementation of the structural reforms could produce more favorable and faster effects than anticipated. In particular, that a greater

impulse to investment in the energy sector could be observed, above all in view of the recent announcements on gasoline and gas imports, or that the dynamism generated by Mexico's Telecom reform could persist.

Inflation: Inflationary conditions in the economy are anticipated to remain favorable, so that inflation keeps fluctuating around its permanent target and medium- and long-term inflation expectations remaining anchored to the said target over the rest of 2016 and in 2017. In particular, annual headline inflation is expected to persist under 3 percent over the next months, although in the last months of the year it is anticipated to temporarily exceed this figure. In any event, for the year as a whole, average annual inflation is forecast to be practically at 3 percent. This trajectory is primarily a consequence of the recent update in the formula used by the Ministry of Finance to set maximum gasoline prices and of the expected evolution of this fuel's international counterparts. This update intends to smooth the effect of volatility in international gasoline prices on the national prices of this fuel, which, in turn, alters its seasonality. Core inflation is anticipated to gradually increase in annual terms, concluding 2016 at levels close to 3 percent. For 2017 both headline and core inflation are estimated to persist around the permanent inflation target (Chart 41 and Chart 42)

The indicated forecast of the inflation trajectory is not risk-free. Among its upward risks, the following should be mentioned:

i.   That a deterioration in the international environment would generate a disorderly depreciation of the exchange rate, possibly affecting, to a greater degree, headline inflation.

ii.   Additionally, increments in the agricultural products' prices cannot be ruled out, although their impact on inflation would tend to be transitory.

As to downward risks, the next should be listed:

i.   That as a result of structural reforms, prices of some generalized-use inputs would continue decreasing, such as telecommunication services and energy prices.

ii.   That Mexican and global economic activity may have a lower than expected dynamism, which would defer aggregate demand-related pressures on inflation.

Chart 41
Fan Chart: Annual Headline Inflation [1]
Percent
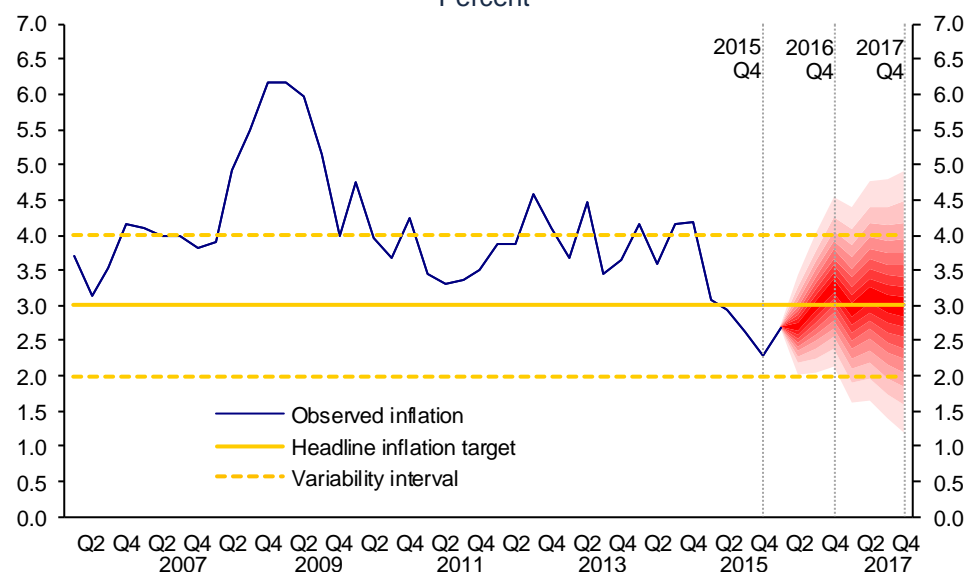
1/ Quarterly average of annual headline inflation.
Source: Banco de México and INEGI.

Chart 42
Fan Chart: Annual Core Inflation [1]
Percent
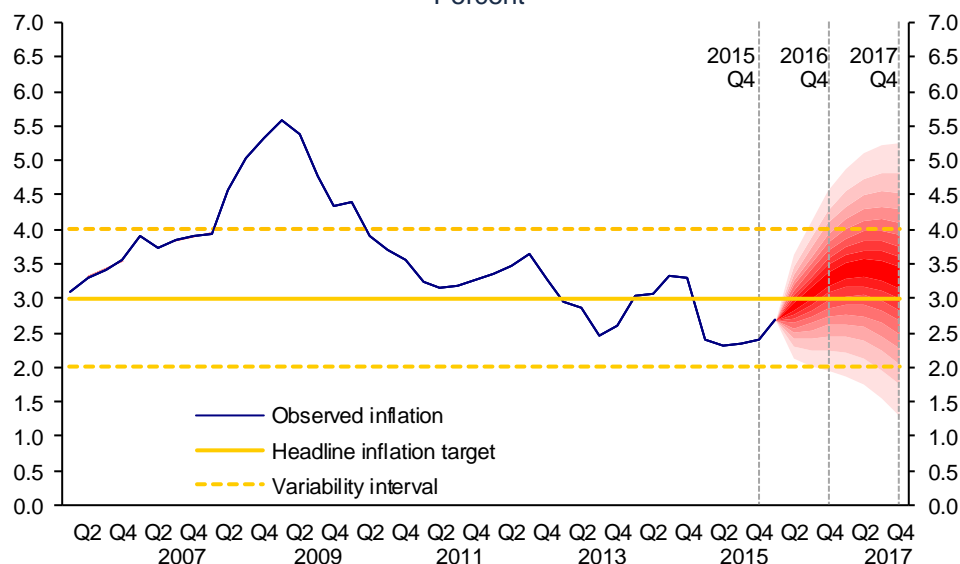
1/ Quarterly average of annual core inflation.
Source: Banco de México and INEGI.

In this context, and considering the data presented in this Report, in the future the Board of Governors will continue closely monitoring the evolution of all inflation determinants and its medium- and long-term expectations, especially the exchange rate and its possible pass-through onto consumer prices. Moreover, it will monitor the monetary policy 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 the necessary measures in a flexible manner and whenever conditions should demand it, so as to consolidate the efficient convergence of inflation to the 3 percent target.

Finally, it should be kept in mind that the Mexican economy is still facing an adverse international environment. In this context, it should be noted that the Mexican authorities in a timely manner implemented a set of measures aimed at strengthening macroeconomic fundamentals. These actions contributed to guaranteeing the macroeconomic stability of the country and to generating an environment more conducive to growth. In particular, the adjustment of public expenditure, along with Banco de México's operational surplus to improve the Federal Government financial position and to decrease public indebtedness, by means of repurchasing the existing Federal Government debt and reducing the amount of placements in 2016, will contribute to sound public finances in the country. Nonetheless, it is necessary to continue encouraging domestic sources of growth, so that both the slack in global demand is offset, and higher economic growth rates are achieved in a sustained manner. On the one hand, it is necessary to proceed with the appropriate and prompt implementation of structural reforms, as they will contribute to boost productivity and generate greater economic competition, with a consequent favorable effect on the welfare of the population. On the other hand, the rule of law should be strengthened and legal certainty should be guaranteed. As stated in previous Reports, this would allow achieving greater economic growth, while broadening the scope of structural reforms and attracting greater investment to the country.

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Section II: Quarterly Report April - June 2016

1.   Introduction

The primary goal of this Central Institute is to procure the stability of the general price level, which represents the best contribution Banco de México can make to promote economic growth. In recent years, the conduct of monetary policy under an inflation targeting regime, along with some important results of the structural reforms, have contributed to achieve an environment of low and stable inflation, to anchor inflation expectations at levels congruent with Banco de México's target, to lower risk premia, particularly the inflation risk premium and to reduce the pass-through of exchange rate fluctuations onto goods and services' prices, all of which have positively affected the economy as a whole. However, this progress cannot be taken for granted, especially given the complex international environment currently faced by Mexico and the expectations that this context could prevail in the future. Indeed, future external and/or domestic adverse events that could affect the economy and inflation cannot be ruled out, whereby it is crucial to underpin the strength of the macroeconomic framework of the country through appropriate monetary and fiscal policies.

Considering this, in the period covered by this Report, Banco de México responded with total flexibility and at the moment the conditions demanded so, in order to consolidate the efficient convergence of inflation to the 3 percent target, and, thus, contribute to maintain an adequate macroeconomic framework. Hence, even though in the monetary policy decision of May the Board of Governors maintained the target for the Overnight Interbank Interest Rate unchanged, in its decision of June it increased this rate by 50 basis points to 4.25 percent. This was fundamentally because the external conditions were deteriorating, leading to a considerable depreciation of the exchange rate that could jeopardize the anchoring of inflation expectations in Mexico and, eventually, negatively affect the inflation performance. Given that with the referred adjustment to the monetary policy stance, the balance of risks to inflation was deemed neutral, in its decision of August 2016 the Central Institute maintained the reference interest rate unchanged at 4.25 percent.

During the reported period, the Mexican economy continued coping with an adverse international environment, characterized by an additional decrease in the world economic growth projections and by diverse events that generated episodes of high financial volatility. The downward revision of world economic prospects resulted from the expected negative effect on the United Kingdom, which derived from its decision to leave the European Union, as well as from a lower than estimated growth of other advanced economies. The global economy is also facing structural challenges, such as: i) low growth of productivity and the labor force; ii) the contraction of international trade, which could intensify, given the risks of a broader implementation of protectionist measures in different countries, and further negatively affect global production chains, investment and productivity; and iii) insufficient levels of investment, in a context of greater global savings, chiefly in advanced economies, in response to demographic factors, among others.

Meanwhile, volatility in international financial markets spiked in late June, as an immediate consequence of the referendum outcome in the U.K. Nevertheless, financial stability was restored thanks to the prompt response of the Bank of England and other advanced economies' central banks that provided liquidity, the

perception that the U.K. exit from the European Union would mainly affect that country, as well as the expectation of a gradual normalization process of the U.S. monetary policy and the adoption of greater monetary stimuli by other advanced economies. Nonetheless, looking ahead, new volatility episodes cannot be ruled out, given the persisting risks related to different economic and geopolitical factors. The negative impact of the deterioration in the external environment on the Mexican financial markets not only was perceived on the exchange rate evolution, but also on the performance of government securities' interest rates, which increased for most terms. In view of the monetary policy adjustment carried out in the decision of June, a flattening of the yield curve was expected, as this measure would induce an increment in the cost of money in the short term, while maintaining inflation expectations well-anchored. This is exactly what happened.

In this environment, after the growth observed in the previous quarter, the Mexican economy contracted in the second quarter of the year. Indeed, different indicators suggest that private consumption decelerated, while the external demand and investment remained weak. This performance contributed to the fact that stagnation, which had already been perceived in the industrial sector since early 2015, was joined by a slower dynamism of the services. In this context, the output gap seemed to have remained negative. Nonetheless, in 2016 so far the current account deficit as a percentage of GDP increased with respect to 2014 and 2015.

The drop in the economic activity in the reported quarter, along with a more adverse external environment, call for a revision of the growth forecast intervals published in the previous Report. In particular, for 2016, GDP in Mexico is anticipated to grow between 1.7 and 2.5 percent, which compares to the expected growth of 2.0 to 3.0 percent published in the last Report. Likewise, the growth forecast interval expected for 2017 has been modified from 2.3 to 3.3 percent to 2.0 to 3.0 percent.

In the analyzed period, inflation remained at levels under the permanent 3 percent target, as of the first fortnight of August accumulating 15 consecutive months below that figure. This was due to the conduct of monetary policy, and the absence of aggregate demand-related pressures on prices. The good performance of both its core and non-core components contributed to the favorable evolution of inflation. Although the former, just as expected, exhibited a gradual upward trend, reflecting the effect of the exchange rate depreciation on the relative prices of merchandise with respect to services, as of the first fortnight of August it remained under 3 percent. So far, no second round effects on the price-setting process of the economy have been observed. In the same fortnight, non-core inflation lied at levels close to 2 percent, mainly consequent on the moderate growth of agricultural products' prices and lower prices of some energy products, which were registered at the beginning of the year, although in July and August gasoline prices went up.

Over the following months, annual headline inflation is estimated to gradually go up, locating very close to 3 percent at the end of 2016 and with an average below this figure for the year as a whole. This forecast contemplates the formula used by the Ministry of Finance to set maximum gasoline prices, as well as the evolution of this fuel's international references. The effect of the above will be partially offset by the favorable impact on inflation produced by the reduction in the L.P. gas prices announced by the same Ministry on August 14, 2016. Meanwhile, annual core inflation is expected to increase gradually throughout 2016, closing the year at levels near 3 percent. For 2017, both headline and core inflation are anticipated to lie around the permanent inflation target.

To address external risks, different economic policy measures have been implemented. In particular, this year there have been adjustments in the fiscal and monetary policy stances seeking to bolster the macroeconomic framework of the country. To complement this, on May 27, 2016 the IMF Board approved the petition by the Foreign Exchange Commission to renew in advance the Flexible Credit Line for Mexico and on that date to increase it from USD 67 to 88 billion.[13] In addition to contingent resources it grants, this contributes to strengthen the macroeconomic stability, as it generates significant incentives to maintain sound fundamentals of the economy, which is required to preserve the access to the said credit line.

Nonetheless, in the future, challenges may arise calling for further strengthening the macroeconomic framework of the country. In particular, additional depreciations of the national currency cannot be rules out, in light of the uncertainty derived from the outcome of the U.S. presidential elections and its implications, the possibility of weak oil prices, a further deterioration of the current account deficit and the expected normalization of the Federal Reserve monetary stance. In view of these risks and the performance of the Public Sector Borrowing Requirements in recent years, additional measures of public finances' consolidation, such as achieving a primary surplus starting from 2017, as put forward by the Ministry of Finance, have become indispensable. This kind of steps would allow absorbing external shocks in a more efficient way and facilitate more adequate current account balances. Meanwhile, just as it has been the case until now, the Board of Governors will closely monitor the evolution of all inflation determinants and its medium- and long-term expectations, especially the exchange rate and its possible pass-through onto consumer prices. In this context, it will be watchful of the monetary position of Mexico relative to the U.S., without overlooking the evolution of the output gap. This will be done in order to be able to continue taking the necessary measures to consolidate the efficient convergence of inflation to the 3 percent target, with all flexibility, regarding the amount and the opportunity of adjustment, as conditions may demand.

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[13] The Flexible Credit Line increased from SDR (Special Drawing Rights) 47.3 to 62.4 billion. See the Foreign Exchange Commission press release as of May 27, 2016.

2. Recent Development of Inflation

2.1. Inflation

The recent evolution of annual headline inflation has remained favorable. Indeed, between the first and the second quarters of 2016, the average annual change of the Consumer Price Index (CPI) went down from 2.69 to 2.56 percent. Subsequently, as of the first fortnight of August, this indicator's annual change marked 2.80 percent, thus accumulating over 15 consecutive months below the permanent 3 percent target. On the one hand, this performance is the result of the monetary policy conduct, which prevented the deterioration in the external environment, that influenced the national currency's value, from adversely affecting the anchoring of inflation expectations, and, thus, leading to higher and more widespread price adjustments. Similarly, during the reported period no aggregate demand-related pressures on prices were observed. On the other hand, this performance was also contributed to by the low level of international prices of most commodities, which resulted from the weak dynamism of their demand at the global level, the lower growth of agricultural products' prices in the second quarter of 2016, as well as lower prices of some energy products at the beginning of the year, which keeps favoring the level of the annual change of the non-core price index.

In particular, the low level of annual headline inflation resulted from the good performance of both the core and non-core subindices. Although, as anticipated, the annual core inflation presented a gradual upward trend, it is still located below 3 percent. Indeed, it shifted from an average annual change of 2.69 percent in the first quarter to 2.91 percent in the second one, registering 2.97 percent in the first fortnight of August. This performance was affected by the impact of the exchange rate depreciation onto the relative prices of merchandise in relation to services. Despite an acceleration of the annual growth of merchandise prices, the change rate of services' prices remained low and stable. It should be noted that, so far, no second round effects were observed on the price formation process of the economy. Meanwhile, annual non-core inflation lowered from an average annual change of 2.71 to 1.46 percent in the referred quarters. As mentioned above, this mainly resulted from the low growth rates in agricultural products' prices, combined with the decreases in some energy products' prices. Meanwhile, in the first fortnight of August, the annual change of the non-core component was 2.26 percent, which reflects the effect of gasoline price increments in July and August (Table 3 and Chart 43).

Table 3
Consumer Price Index, Main Components and Trimmed Mean Indicators
Annual change in percent

	2015				2016		
	I	II	III	IV	I	II	1f August
CPI	**3.07**	**2.94**	**2.61**	**2.27**	**2.69**	**2.56**	**2.80**
Core	**2.39**	**2.32**	**2.33**	**2.40**	**2.69**	**2.91**	**2.97**
Merchandise	**2.56**	**2.52**	**2.46**	**2.78**	**3.04**	**3.51**	**3.73**
Food, beverages and tobacco	3.15	2.56	2.20	2.55	2.88	3.69	3.73
Non-food merchandise	2.07	2.49	2.67	2.98	3.17	3.36	3.73
Services	**2.26**	**2.15**	**2.22**	**2.09**	**2.40**	**2.41**	**2.33**
Housing	2.10	2.09	2.06	2.00	2.11	2.21	2.31
Education (tuitions)	4.36	4.35	4.37	4.28	4.21	4.13	4.04
Other services	1.80	1.57	1.75	1.52	2.15	2.09	1.82
Non-core	**5.17**	**4.92**	**3.53**	**1.87**	**2.71**	**1.46**	**2.26**
Agriculture	**8.39**	**8.34**	**5.33**	**2.76**	**6.51**	**4.48**	**2.71**
Fruit and vegetables	-1.39	7.43	7.91	6.33	22.45	13.30	6.54
Livestock	14.15	8.81	4.00	0.84	-1.60	-0.01	0.69
Energy and government approved fares	**3.30**	**2.87**	**2.42**	**1.33**	**0.39**	**-0.45**	**1.97**
Energy	3.82	3.21	2.43	0.52	-1.10	-1.49	1.47
Government approved fares	2.32	2.26	2.39	2.86	3.23	1.41	2.85
Trimmed Mean Indicator [1]							
CPI	3.08	2.84	2.61	2.45	2.45	2.60	2.83
Core	2.79	2.71	2.68	2.76	2.84	3.04	3.18

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

Chart 43
Consumer Price Index
Annual change in percent

Source: Banco de México and INEGI.
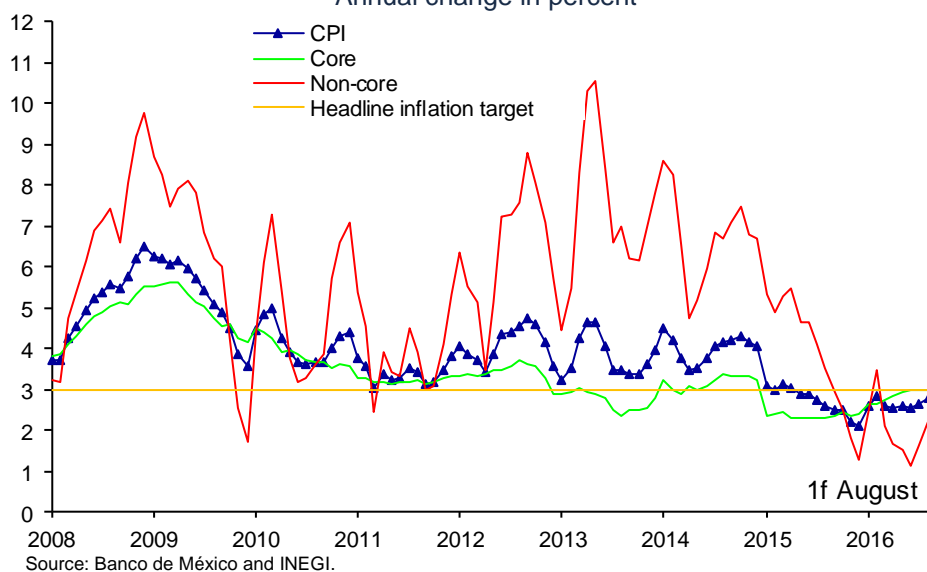
To analyze both the performance at the margin and the recent development of the inflation process, first of all, the proportion of the CPI basket is estimated, which presents annual price changes at certain intervals. To do this, generic items of the headline and core index are grouped into three categories, depending on the annual growth rate of their price: i) items with an annual price change below 2 percent; ii) between 2 and 4 percent; and iii) over 4 percent. This analysis shows that a high

percentage of both baskets presents price increments of less than 4 percent, although at the margin this percentage has been decreasing (blue and green areas, Chart 44). Specifically, in the second quarter of 2016, the share of the CPI goods and services' basket with price increments below 4 percent was, on average, 71 percent for the headline index, while in the first quarter the share was 72 percent. In the case of core inflation, the proportion was 70 percent in the second quarter of 2016 and 73 percent in the first one.

Chart 44
Percentage of CPI Basket according to Intervals of Annual Increments
Percent

a) Headline

b) Core
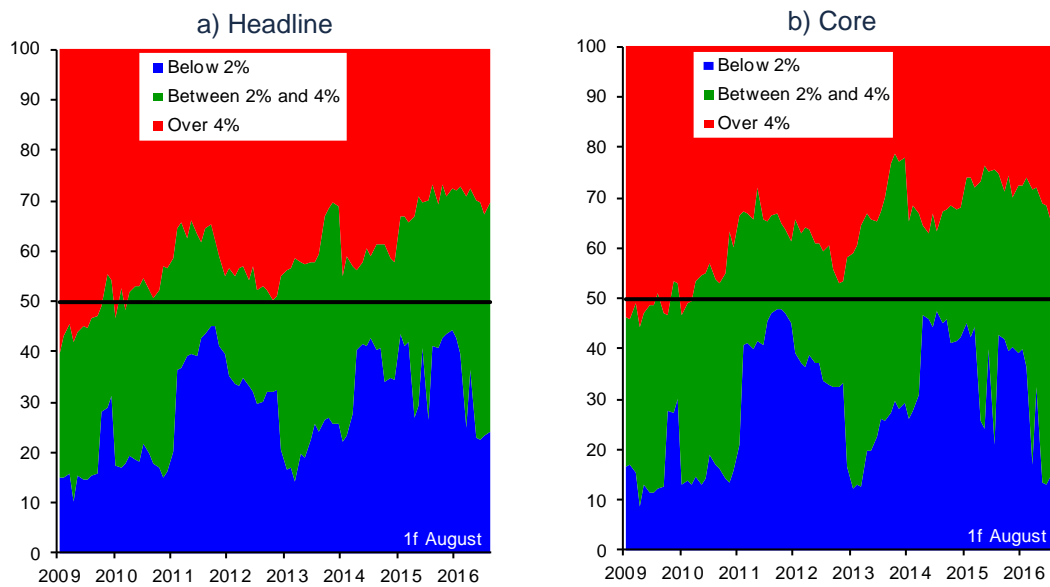
Source: Banco de México and INEGI.

Secondly, the Trimmed Mean Indicator is illustrated, which lies for both headline and core inflation at levels around 3 percent. Indeed, the Trimmed Mean Indicator for headline inflation shifted from 2.45 to 2.60 percent between the first and the second quarters of 2016, reaching 2.83 percent in the first fortnight of August. The fact that the Trimmed Mean Indicator for headline inflation lied close to the level of the observed CPI growth suggests that, generally, the favorable performance of inflation resulted from the evolution of most generic items.

Meanwhile, the Trimmed Mean Indicator for core inflation went up from 2.84 to 3.04 percent between the first and the second quarters of 2016, and marked 3.18 percent in the first fortnight of August (Chart 44 and Table 3). This figure is slightly higher than the registered core inflation, which reflects the favorable effect generated fundamentally by the drops in some services' prices, especially cellular phone prices.

Thirdly, the evolution of annualized monthly (seasonally adjusted) inflation is analyzed (Chart 45). As can be appreciated, at the margin, once the comparison base effects are discounted, both headline and core inflation trends, as well as the levels of the latter remain congruent with the permanent 3 percent inflation target. It should be noted that the rebound in the annualized monthly (seasonally adjusted) inflation of the headline indicator largely reflects upward adjustments in gasoline

prices that took place in July and August, the effects of which will dissipate over the next months, given the forecast trajectory for gasoline prices.

Chart 45
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.

Chart 46
Annualized Seasonally Adjusted Monthly Change and Trend
Percent
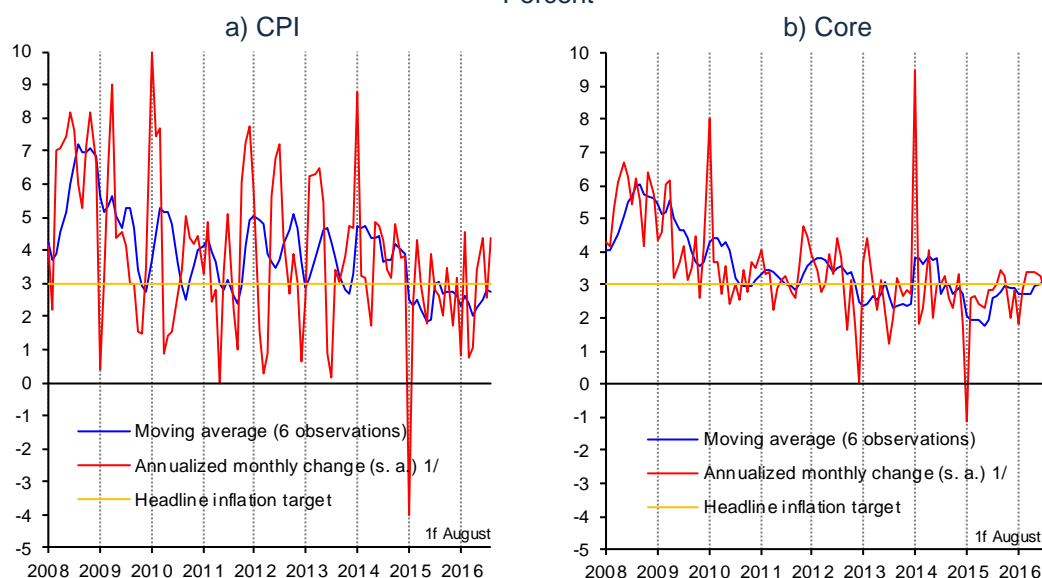
s. a. / Seasonally adjusted data.
1/ The annualized biweekly change is used for the last observation.
Source: Seasonal adjustment prepared by Banco de México with own data and data from INEGI.

Delving in the performance of core inflation, it was mainly consequent on the adjustment in the relative prices of merchandise in relation to services. In particular:

i.   Between the first and the second quarters of 2016, the average annual change rate of the merchandise price subindex shifted from 3.04 to 3.51 percent, and reached 3.73 percent in the first fortnight of August (Chart 46a). Both components of this subindex registered increments in the annual change rates of their prices. Indeed, the average annual growth of non-food merchandise prices changed from 3.17 to 3.36 percent in the referred quarters, reaching 3.73 percent in the first quarter of August. On the other hand, the growth rate of food merchandise prices went up from an average annual change of 2.88 to 3.69 percent over the same quarters, marking 3.73 percent in the first fortnight of August (Chart 46b).

ii.   In contrast, the average annual change of the services' index remained at low levels, specifically at 2.40 percent in the first quarter of 2016 and at 2.41 percent in the second one, dropping to 2.33 percent in the first fortnight of August. In particular, the annual change rate of the price subindex of services other than housing and education has been going down from 2.15 to 2.09 percent over the referred quarters, locating at 1.82 percent in the first fortnight of August. This indicator's evolution has been affected by drops in telecom services' prices, which resulted from the structural reform in the said sector, reason why its impact on inflation is expected to be lasting. The annual change of the subindex of the rest of services other than housing and education, excluding telecommunication services, increased from 4.11 to 4.34 percent between the first and the second quarters of 2016, and marked 4.32 percent in the first fortnight of August (Chart 47a).

Chart 47
Core Price Index
Annual change in percent

a) Merchandise and Services

b) Merchandise

Source: Banco de México and INEGI.
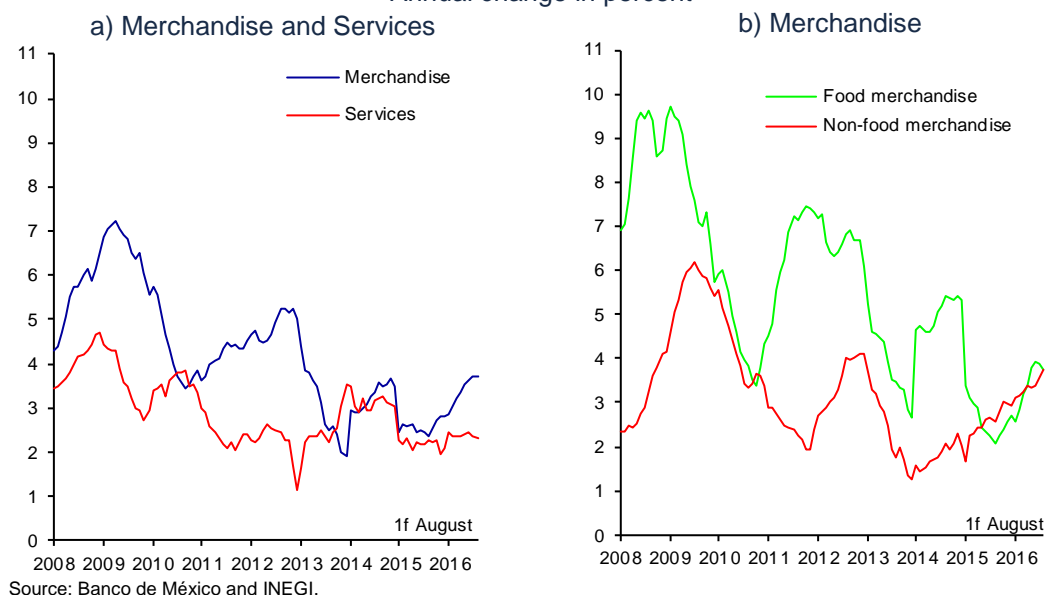
The performance of the non-core component reflects a decrease in the growth rate of agricultural products' prices in the second quarter of 2016, while negative annual change rates of energy products (that had been registered since the previous quarter) accentuated, largely as a result of the reductions in gasoline prices and low consumption electricity tariffs at the beginning of the year (Table 3). Nonetheless, in July and August, based on the formula used by the Ministry of Finance to set maximum gasoline prices and based on the evolution of the international references of these energy products, there were increments in this fuel's domestic prices, just as anticipated. On the other hand, higher prices of some inputs required for electricity generation triggered upward adjustments in high consumption tariffs. Hence, within the non-core index, the following stands out:

i. In the second quarter of 2016, the average annual change of the agricultural products' subindex dropped to 4.48 percent, which compares to 6.51 percent in the previous quarter, and located at 2.71 percent in the first fortnight of August. In this respect, reductions in tomato prices, as well as lower growth rates of onion prices were noteworthy, as their supply conditions recovered after experiencing adverse weather conditions at the beginning of the year. Similarly, lower prices of chicken and egg were notable.

ii. During the second quarter of 2016, the subindex of energy prices and government approved fares presented negative annual growth rates. In particular, in the second quarter of 2016 the average annual change of the said subindex was -0.45 percent, while in the first quarter it was 0.39 percent. In the first fortnight of August, this subindex registered an annual growth of 1.97 percent, which mainly reflects increments in gasoline prices, as well as the conclusion of the period of free-of-charge public transport in Mexico City, which had been in force since April. Specifically, the average annual change of energy prices was -1.49 percent in the second quarter, while in the first one it marked -1.10 percent. In that regard, ordinary electricity tariffs went down 2 percent at the beginning of the year and have remained unchanged since then, while domestic tariffs of high consumption somewhat fluctuated. In July, when gasoline prices and high consumption electricity tariffs were adjusted upwards, the subindex of energy prices registered an annual change of -0.55 percent, while in the first fortnight of August it was 1.47 percent, mainly as a result of an additional increment in gasoline prices in this period. In particular:

• The average annual change of low octane gasoline prices shifted from -1.78 percent in the first quarter 2016 to -3.16 percent in the second one, while that of high octane gasoline prices changed from -1.36 to -2.44 percent. As mentioned above, this performance reflects this fuel's price drops at the beginning of the year, as well as its relative stability during the first part of the year associated to the formula used by the Ministry of Finance to determine maximum gasoline prices, based on this fuel's international references. Congruent with this formula, in July domestic gasoline prices went up. In that month, the price of low octane gasoline increased by 24 cents, which was the first increment registered this year, while the price of high octane gasoline went up by 34 cents. In August, low

and high octane gasoline prices went up by 56 and 44 cents, respectively. Thus, the annual change of these fuels was 1.47 and 2.30 percent, respectively, in the first fortnight of August. It should be pointed out that, in accordance with the used methodology to determine domestic gasoline prices, the high octane gasoline price can no longer increase in the remainder of the year, while the low octane gasoline price will go up by 2 cents more in September, just as it was announced.

- The average annual change of electricity tariffs shifted from -2.61 to -1.58 percent between the first and the second quarters of 2016, and reached -1.27 percent in July and -0.79 percent in the first fortnight of August. This performance is largely due to the dynamics of high consumption electricity tariffs, which have adjusted upwards as a result of price increments of some inputs used for electricity generation.

- The average annual change of the L.P. gas price persisted at 2.74 percent in the first and in the second quarters of 2016, dropping to 2.07 percent in the first fortnight of August. Nonetheless, on August 14, 2016, the Ministry of Finance announced that starting from August 17 maximum L.P. gas prices would decrease, on average, by 10 percent. On the other hand, natural gas, whose price is affected by the dynamics of its international reference, registered average annual growth rates of 0.85 and 3.83 percent in the reference quarters, locating at 11.50 percent in the first fortnight of August.

2.2.   Producer Price Index

In the first and the second quarters of 2016, the Producer Price Index of total production, excluding oil, registered average annual change rates of 4.23 and 4.93 percent, respectively, and subsequently located at 5.52 percent in July (Chart 48). The PPI subindex that presented higher annual growth rates is that of the prices of merchandise destined to exports, which includes goods quoted in USD (10.43 and 10.69 percent in the first and the second quarters of 2016, while in July it lied at 11.75 percent). In contrast, the price subindex of finished goods for domestic consumption presented more moderate change rates (3.75 and 5.18 percent in the first and the second quarters of 2016, while in July it reached 4.82 percent). This takes on special relevance as this last indicator is the subindex that is more closely related to the changes in the merchandise consumer prices (see Box 3).

Chart 48
Producer Price Index [1]
Annual change in percent
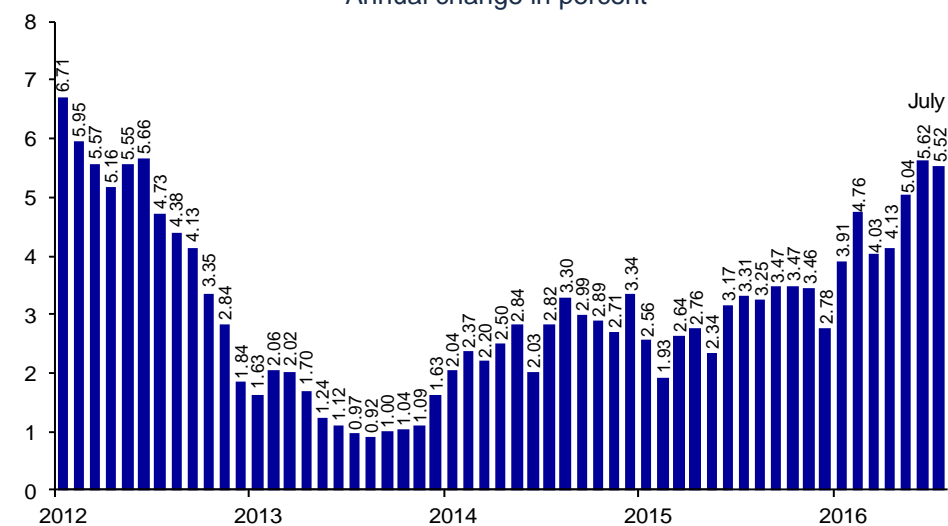
1/ Total Producer Price Index, excluding oil.
Source: Banco de México and INEGI.

Box 3
Can Inflationary Pressures be Identified when Measured with CPI by means of the Performance of PPI Merchandise Subindices?

1. Introduction

Since 2015, the annual change rate of the Producer Price Index of total production excluding oil (PPI) has accelerated, reaching levels above 5 percent in recent months.[1] In contrast, the annual change rate of the Consumer Price Index (CPI) has remained at low levels, accumulating 15 consecutive months below 3 percent (Chart 1). In light of this performance, it is relevant to evaluate if producer prices have certain predictive power on consumer prices, since the former are determined at an earlier stage of the productive chain. Likewise, it is important to identify if the recent performance of the PPI implies future inflationary pressures that may be reflected in the CPI.

Chart 1
CPI and PPI
Annual change in percent
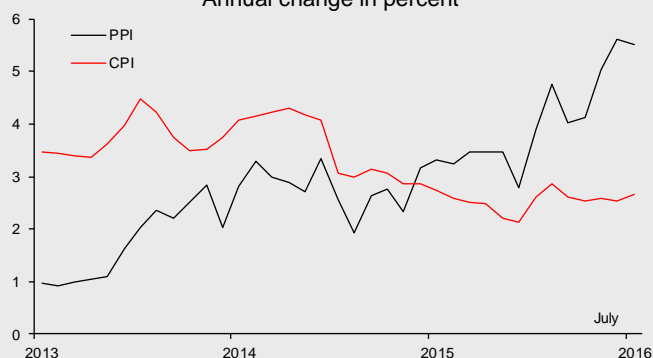
Source: INEGI.

This Box analyzes the predictive power of the PPI merchandise prices on the corresponding prices of the core CPI, as well as the long-term equilibrium relation between these variables. The goal is to establish if the information contained in producer prices can be useful to anticipate inflationary pressures that would eventually be reflected in consumer prices.

The results point to the evidence of Granger causality between some PPI merchandise subinidices and the CPI core merchandise subindex, reason why, in principle, a shock to the PPI can induce a response from the CPI. However, it is shown that the producer price subindex that has a greater predictive power on the performance of the core prices of consumer mechandise is the subindex of finished goods for domestic use, which presented moderate annual change rates, more similar

to those of the merchandise prices of the CPI core index. In contrast, the price subindices of the investment and exports merchandise presented higher growth rates and it is shown that they have a lower predictive power on the inflation of the core index merchandise. Furthermore, the results indicate that currently the prices of consumer merchandise are not very far from their long-term relation with producer prices, and that their low growth in relative terms of the PPI is congruent with a convergence of consumer prices to their long-term equilibrium relation. In this sense, empirical evidence suggests that currently there seem to be no inflationary pressures on consumer prices of the merchandise core index stemming from the evolution of producer prices.

2. Recent Evolution of PPI

The PPI of total production is composed of the price indices of finished goods and services, as well as of intermediate goods and services produced in the country. In this context, it is relevant to distinguish between the price index of finished goods and services and that of intermediate goods and services, as the CPI only includes finished goods and services. Moreover, as can be seen in Chart 2, despite an acceleration in recent months, the annual change rate of the PPI of intermediate goods and services has remained below that of finished goods and services. On the other hand, it should also be noted that the quotes of the services of the PPI of finished goods and services are equivalent to those of the CPI in most cases. In light of these two factors, in the analysis below only the PPI of finished goods is studied. That is, both price indices of intermediate goods and services and those of finished services are excluded from the analysis.

Chart 2
Price Dynamics: PPI [1]
Annual change in percent
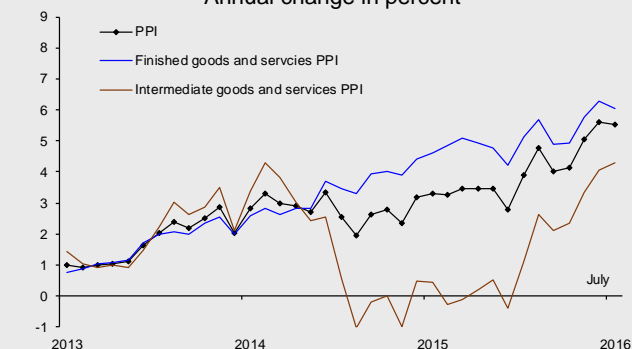
1/ It excludes oil.
Source: INEGI.

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[1] It refers to the Producer Price Index (PPI) that considers goods and services, both finished and intermediate, excluding oil.

The PPI of finished merchandise is composed of the price subindices of merchandise for consumption, for investment and for exports (Chart 3). The item of the merchandise intended for exports presented the highest growth rates in its price, as it includes goods quotes in U.S. dolalrs.[2] The price subindex of investment goods also registered high growth rates in its prices, although to a lower extent. On the other hand, increments in the prices of the consumption item were more moderate, even though they were higher than those of the core merchandise CPI. Thus, by delimiting the analysis to the prices of comparable goods, a more similar dynamic between the PPI and the CPI is obtained.

Chart 3
Price Dynamics: Merchandise PPI and CPI
Annual change in percent
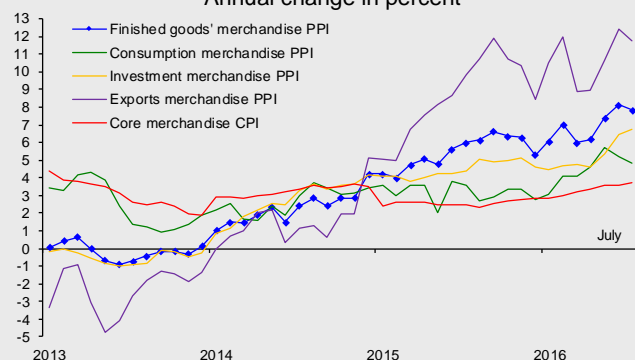
Source: INEGI.

3. Long-term Relation between PPI and CPI

This section analyses the joint dynamics and possible long-term equilibrium relations between the prices of consumer merchandise of the CPI core index and different subindices of the PPI, by means of an estimation of the autorregresive vector models with vectors of error correction (VEC). The subindices of the PPI finished merchandise that are included in the estimates are: i) the PPI of finished merchandise, ii) the PPI of domestic consumption and, iii) a weighted average of investment and exports subindices.[3,4] The recent dynamics of the mentioned price subindices are shown in Chart 4.

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[2] Given the possible existence of the pricing to market elements, the increments in the prices of export goods do not necessarily translate in increases of the same proportion in the prices of equivalent goods sold in the domestic market.

[3] To construct the second series, the prices of goods for domestic consumption of the PPI are included, that are also quoted in the core CPI of merchandise, but that are located at an earlier stage of the distribution chain.

[4] The weights are obtained based on the relative importance of each subindex in the PPI of finished merchandise.

Chart 4
Price Dynamics: Merchandise PPI and CPI
Annual change in percent
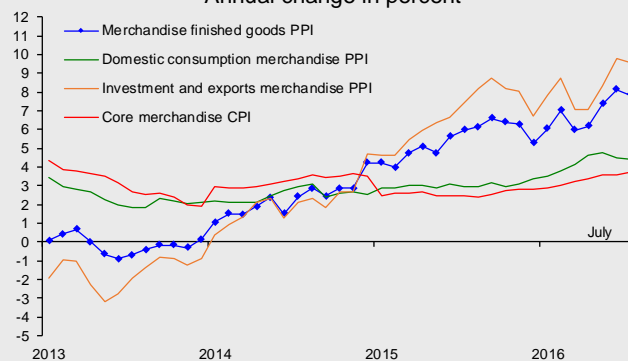
Source: Prepared by Banco de México with data from INEGI.

The equations corresponding to VEC in each estimation are the next:

(1) $\quad \pi_t^{CPI} = \mu_0 + \gamma_1(z_{t-1}) + \sum_{j=1}^{p} \alpha_j \pi_{t-j}^{CPI} + \sum_{j=1}^{q} \beta_j \pi_{t-j}^{PPI} + \eta_t$

(2) $\quad \pi_t^{PPI} = \sigma_0 + \gamma_2(z_{t-1}) + \sum_{j=1}^{r} \lambda_j \pi_{t-j}^{CPI} + \sum_{j=1}^{s} \delta_j \pi_{t-j}^{PPI} + \zeta_t$

(3) $\quad z_{t-1} = p_{t-1}^{CPI} - \varphi_0 - \varphi_1 p_{t-1}^{PPI}$

where η_t and ζ_t are white noise, z_{t-1} is the error correction term and φ_1 is the cointegration coefficient. The models also include dichotomous seasonal variables, considering the months of January 2010 and January 2014, to capture the impact of fiscal adjustments. The optimal number of lags was determined based on the Schwarz's Bayesian information criterion.

The main results of the VEC estimation for the period from January 2004 to July 2016 are exhibited in Table 1. It is found that cointegration coefficients (φ_1) in each model are statistically significant and slightly below 1, which implies that in the long term the pass-through of fluctuations in producer prices onto consumer prices is close to but below one.

The error correction term of the equation of the CPI merchandise (γ_1) is statistically significant in all models. However, the error correction term of the corresponding equation of the PPI merchandise (γ_2) is not statistically different from zero in the VEC for none of the subindices, suggesting that the variable that adjusts to different shocks is the CPI merchandise subindex to reestablish long-term relation.[5]

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[5] In addition to the previous analysis, Granger short-term causality tests were carried out, yielding results that also indicate that causality moves in the direction from the PPI to the CPI and not in the opposite direction. Previous evidence of the same kind was presented in Sidaoui, J., C. Capistrán, D. Chiquiar and M. Ramos-Francia (2009).

Table 1 **Selected Coefficients of the VEC**			
Coefficients	φ_1	γ_1	γ_2
Finished goods	0.9351 **	-0.0342 **	0.0124
merchandise	(0.0167)	(0.0052)	(0.0222)
Domestic consumption	0.8990 **	-0.0469 **	-0.0342
merchandise	(0.0126)	(0.0098)	(0.0192)
Investment and exports	0.9490 **	-0.0251 **	0.0353
merchandise	(0.0231)	(0.0037)	(0.0250)

**/ Statistically significant at 5%.

Finally, Chart 5 presents each model's error correction terms; that is, the deviation of the consumer price index of core merchandise with respect to its long-term relation with each producer price subindex of the analyzed merchandise. In the case of the producer price subindices of finished merchandise and of investment and exports merchandise, in recent months the price subindex of CPI merchandise has located slightly below its long-term equilibrium relation. On the other hand, when the model with the producer price subindex of merchandise for domestic consumption is considered, it can be appreciated that during various periods the price index of consumer merchandise lied slightly above its long-term equilibrium relation, which implies that over the following months it will tend to present a lower change as compared to the PPI consumption merchandise to converge to its long-term relation.

Thus, the results suggest that the merchandise prices of the CPI core index will tend to gradually adjust over time to reestablish their long-term relation with the PPI merchandise prices. This convergence process will depend both on the current deviation and on the estimated adjustment speed parameter. The following section presents certain evidence of the possible direction in the adjustment of consumer prices of the core index of the merchandise based on the relative predictive power of different PPI subindices.

Chart 5
CPI Deviation with respect to its Long-term Relation with PPI
Data in percent
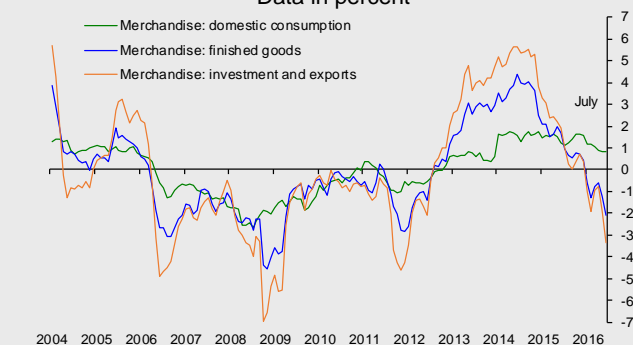
Source: Estimated by Banco de México with data from INEGI.

4. Predictive Power of PPI Merchandise Subindices

In this section, first we analyze which price subindex of the PPI finished merchandise is a better predictor of the future performance of the merchandise of the core CPI. In order to analyze the predictive power of each producer price index of the core merchandise CPI, a monthly change of the CPI merchandise prices is forecast for different time horizons. Specifically, an enhanced autoregressive model is estimated with information of each PPI subindex independently, which includes the current levels both of the price subindex of consumer merchandise and the respective PPI subindex, as well as their lagged monthly changes. In particular, the following equation for each forecast horizon is estimated:

$$(4) \quad \pi_{t+h}^{CPI,h} = \mu + \sum_{j=0}^{p} \phi_j \pi_{t-j}^{CPI} + \sum_{j=0}^{p} \gamma_j \pi_{t-j}^{PPI} + \lambda_1 p_t^{CPI} + \lambda_2 p_t^{PPI} + \xi_{t+h},$$

The models are estimated with ordinary least squares, using 6-year moving windows. The forecasts are generated for the period from January 2012 to July 2016. Subsequently, for horizons from 1 to 24 months the Root Mean Square Error of Prediction (RMSEP) is calculated for each model and forecast horizon. The results are presented in Tables 2a and 2b in terms of RMSEP for different estimated models. In order to compare the predictive power of the model that includes producer prices of the merchandise for domestic consumption with respect to the models that include other PPI subindices, Tables 2a and 2b also show the quotient of the RMSEP with a numeric value that corresponds to the model of merchandise for domestic consumption in the numerator, reason why a number lower than one suggests that this model would be better to forecast CPI merchandise prices. Additionally, p values of the Diebold-Mariano test statistic are included, in order to prove the statistical significance of the difference in the forecasts. In particular, consistent with the null hypothesis, there is no difference in the predictive capacity of each model.

Table 2a
Assessment of the Out-of-sample Forecast
Merchandise: finished goods

Forecast horizon (months)	1	6	12	18	24
RMSEP Merchandise for domestic consumption (A)	0.2112	0.0852	0.0614	0.0506	0.0441
RMSEP Merchandise: finished goods (B)	0.2114	0.0872	0.0628	0.0531	0.0454
RMSEP quotient (A/B)	0.9987	0.9769	0.9778	0.9534	0.9697
P-value Diebold-Mariano	0.2556	0.2716	0.3828	0.0057*	0.0033*

*/ Statistically significant.

Table 2b
Assessment of the Out-of-sample Forecast
Merchandise: investment and exports

Forecast horizon (months)	1	6	12	18	24
RMSEP Merchandise: for domestic consumption (A)	0.2112	0.0852	0.0614	0.0506	0.0441
RMSEP Merchandise: investment and exports (B)	0.2121	0.0872	0.0621	0.0520	0.0443
RMSEP quotient (A/B)	0.9956	0.9771	0.9895	0.9741	0.9941
P-value Diebold-Mariano	0.1992	0.7663	0.0065*	0.0043*	0.0031*

*/ Statistically significant.

The results show that the producer price subindex with greater predictive power on the prices of consumer merchandise of the core index if that of finished merchandise for domestic consumption, since it generates forecasts with the smallest RMSEP.

This difference is statistically significant starting from the forecast horizon of one year, when the comparison is with the price subindex of investment and exports, and starting from 18 months when the comparison is with that of finished merchandise. The above suggests that producer prices of finished merchandise for domestic consumption provide a better signal among different PPI subindices regarding the expected trajectory of consumer merchandise price changes. Therefore, this PPI subindex seems to be the most useful to anticipate possible inflation pressures on the merchandise prices of the CPI core index.[6]

In view of this, it seems to be that among the analyzed models, the long-term equilibrium deviation that is relevant is that of the core merchandise subindex of the CPI with respect to the merchandise subindex for domestic consumption of the PPI. In this context, the fact that the error correction term of this model remains positive is, in fact, what can explain lower change rates of the core merchandise prices of the CPI with respect to those of the PPI for domestic consumption, insofar as the former converges to its long-term relation with respect to the latter. Thus, the recent evolution of the merchandise subindex for domestic consumption of the PPI does not

seem to indicate inflationary pressures on consumer prices in the future.[7]

5. Final Remarks

This Box analyzed the purchasing power of different merchandise subindices of the PPI with respect to the core merchandise subindex of the CPI, in order to evaluate the hypothesis that producer prices are useful for identifying possible inflationary pressures on the merchandise consumer prices.

The results of the estimations indicate that there is a long-term equilibrium relation between producer merchandise prices and the corresponding consumer prices, and that the latter adjust in response to different shocks that induce deviations in this relation. Additionally, it is shown that the producer price subindex that has a greater predictive power on the consumer price changes of core merchandise is that of finished merchandise for domestic consumption.

Finally, it was shown that the core price index of consumer merchandise has lied slightly above its long-term equilibrium relation with the subindex of domestic consumption of the PPI in recent months. This is congruent with the dynamics present in both indicators, in particular, with the fact that consumer prices observed lower growth rates as compared to producer prices, as they were converging to their long-term relation. This evidence seems to suggest that currently there are no inflationary pressures on consumer prices stemming from producer prices of merchandise.

References
Sidaoui, J., C. Capistrán, D. Chiquiar and M. Ramos-Francia, (2009). "A Note on the Predictive Content of PPI over CPI Inflation: The Case of Mexico". Banco de México, Working Paper, No. 2009-14, pp. 1-19.

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[6] Even though the prices of intermediate goods of the PPI were excluded from this analysis, it was established that they also have a lower predictive power on the prices of consumer merchandise of the core subindex as compared to the subindex of merchandise for domestic consumption of the PPI.

[7] It should be noted that even if it is assumed that other PPI subindices provide an adequate signal of the future trajectory of merchandise price changes of the CPI, its impact would be limited, based on the current reduced deviation with respect to its long-term relation. In particular, it is estimated that this correction would produce an approximate impact of only 5 basis points on the annual inflation of merchandise of the core CPI for 12 months

3.   Economic and Financial Environment

3.1.   External Conditions

The global economy kept showing a weak expansion rate during the second quarter of the year, while its growth outlook continued adjusting downwards, partly reflecting the expected effect generated by the U.K. leaving the European Union, as well as a lower-than-estimated growth of other advanced economies, such as the U.S. and Japan (Chart 49a and Chart 49b). In this context, the world economy is also coping with structural challenges, among them, low productivity growth and the decrease in the labor force growth rate. Alongside this, there is the fact that the contraction of international trade could deepen in view of the risk of expansion of the policies that hamper trade and flows of productive investment (Chart 49c). This tendency would accentuate the weakening of economic activity, given the negative impact that it would have on global production chains, investment and total factor productivity. Low investment levels also contributed to low global growth, in a context of high savings' rates in a considerable number of advanced economies. Thus, the world growth outlook remains depressed, which, in turn, contributed to lower crude oil prices. Furthermore, other factors persist that could negatively affect financing terms and growth, among which are those related to geopolitical risks, possible consequences of the U.S. electoral process, the expected normalization of the Federal Reserve monetary stance, as well as higher vulnerability of the European banking system.

At first, the announcement of the result of the referendum in the U.K. caused a volatility spike in international financial markets, given the fear that some current vulnerabilities in the world economy may aggravate. Nonetheless, stability in financial markets was restored in view of the response of the Bank of England and other central banks that supplied more liquidity, the perception that the impact of the exit of the U.K. from the European Union will be constrained mainly to the said country and the expectation of a gradual normalization process of the U.S. monetary policy and of more accommodative monetary policies in other advanced economies.

Chart 49
World Economic Activity

a) Global GDP Growth Forecast
Annual change in percent

b) Growth Forecast of Selected
Economies
Annual change in percent

c) World Trade Volume of Goods [1/]
Annual change in percent, s. a.

Source: IMF, WEO 2012 to 2016.

E. A. / Euro area.
U. K. / The United Kingdom.
Source: IMF, WEO April 2016 and July 2016.

1/ It refers to the sum of exports and imports.
s. a. / Seasonally adjusted data.
Source: CPB Netherlands.

3.1.1.   World Economic Activity

In the U.S., GDP grew less than expected during the second quarter, registering 1.1 percent at an annualized quarterly rate, which compares to an average growth of 0.9 percent over the two previous quarters. The slow activity growth is explained by a decline in private fixed investment, a significant downward adjustment in inventories accumulation and the contraction in public expenditure. In contrast, private consumption rebounded strongly, which was supported by the strength of its main determinants, while net exports had an incipient improvement, after various quarters over which they had been declining (Chart 50a).

In the second quarter, U.S. industrial production kept contracting, as a result of the weakness of the mining and manufacturing sectors. In particular, industrial activity fell by 0.8 percent at an annualized quarterly rate, after a drop of 1.7 percent in the previous quarter (Chart 50b). The persisting effects of low oil prices affected the mining sector, which plunged by 14.9 percent at an annualized quarterly rate. Moreover, the USD appreciation, high inventories and low external demand limited manufacturing production, which registered an annualized quarterly drop of 1.0 percent. This happened despite the strong growth in some sectors, such as those of high technology and the automotive and car parts (Chart 50c). In contrast, electricity and gas generation expanded by 13.9 percent at an annualized quarterly rate in the second quarter, after a fall of 2.1 percent in the first one, when a warmer-than-usual weather conditions were registered. It is noteworthy, however, that industrial production increased in July, reflecting an improvement in the manufacturing and mining activity, and a continuous expansion of electricity and gas generation.

Chart 50
U.S. Economic Activity

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

b) Industrial Production and
Components
Index 1Q-2012=100, s. a.

c) Manufacturing Production and
Components
Index 1Q-2012=100, s. a.
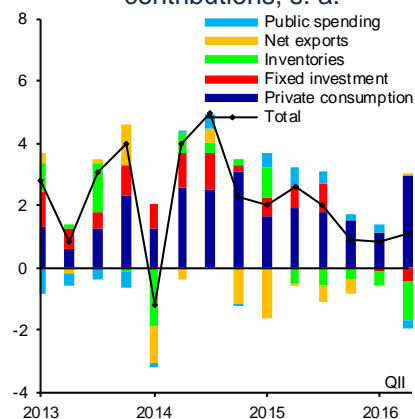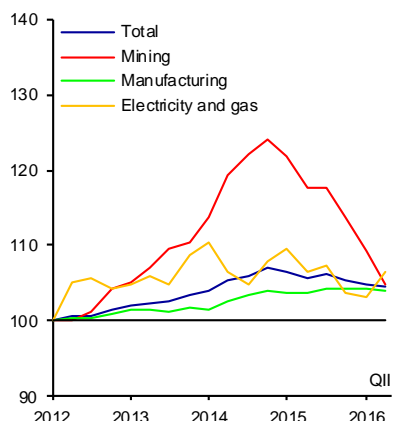
s. a. / Seasonally adjusted data.
Source: BEA.

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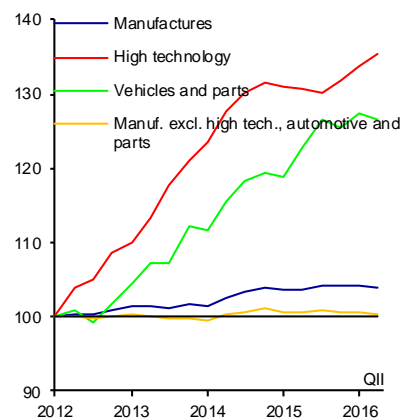
s. a. / Seasonally adjusted data.
Source: Federal Reserve.

Meanwhile concerns regarding the evolution of the labor market wore off. In particular, in June and July an average monthly increment of 274 thousand jobs in the non-farm payroll was observed, after only 24 thousand jobs were created in May (Chart 51a). The expansion of employment still stemmed from the services' sector, while the creation of job positions in the manufacturing, construction and mining sectors remained weak (Chart 51b). Even though the growth rate of the non-farm payroll moderated this year so far, it was sufficient for the unemployment rate to mark 4.9 percent, the level close to that considered by the Federal Reserve as its long-term equilibrium. This occurred despite the increment in the labor participation rate in the same time frame. Other indicators, such as the employment-to-population ratio of the working age population and the rate of vacancies' openings, also point to a favorable evolution of the labor market. In this context, salaries were gradually recovering in the economy.

Chart 51
U.S. Labor Market

a) Non-farm Payroll and Unemployment Rate
Monthly change in thousands of jobs and in
percent of labor force, s. a.
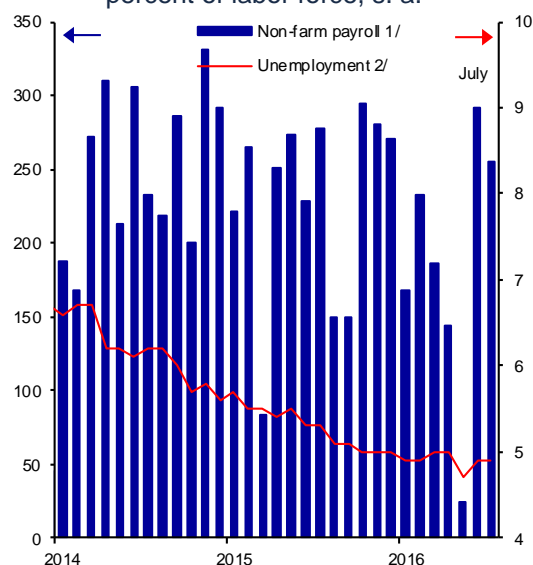
b) Components of Private Payroll
Index December 2007=100, s. a.

s. a. / Seasonally adjusted data.
1/ In thousands of jobs.
2/ In percent of labor force.
Source: BLS.
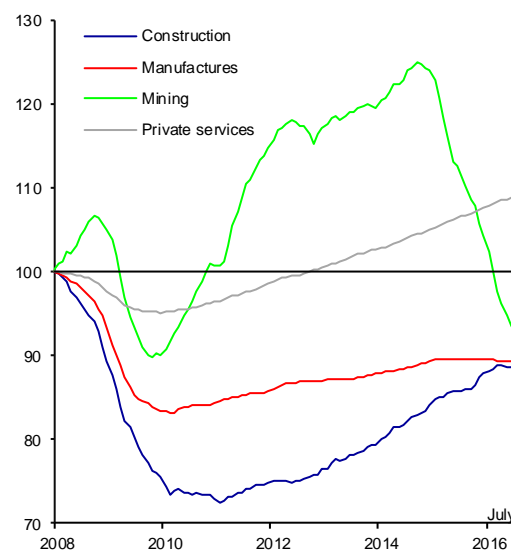
s. a. / Seasonally adjusted data.
Source: BLS.

In the Euro zone, the economy expanded 1.1 percent at an annualized quarterly rate during the second quarter, as compared to 2.2 percent in the first one, and its growth outlook deteriorated as a consequence of possible effects of the U.K. exit from the European Union, as well as of other geopolitical risks (Chart 52a). Despite this, so far the impact of this decision on the Euro zone has been moderate. Specifically, credit conditions remain eased and consumer confidence and business confidence indicators are still consistent with modest growth in the area (Chart 52b).[14] However, there is concern that, in view of this event, the vulnerabilities prevailing in the banking system of some countries of this region may aggravate. In particular, some banks are facing low profitability, a high level of delinquency in their portfolios and insufficient capital, which can negatively affect granting credit to the private sector (Chart 52c).

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[14] The announcement and the subsequent implementation of long-term targeted financing operations (TLTRO II) and the purchase of non-bank corporate bonds contributed to the fact that credit terms and conditions kept easing and corporate margins decreased.

Chart 52
Economic Activity in the Euro Area

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

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

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

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

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

s. a. / Seasonally adjusted data.
Source: Eurostat.
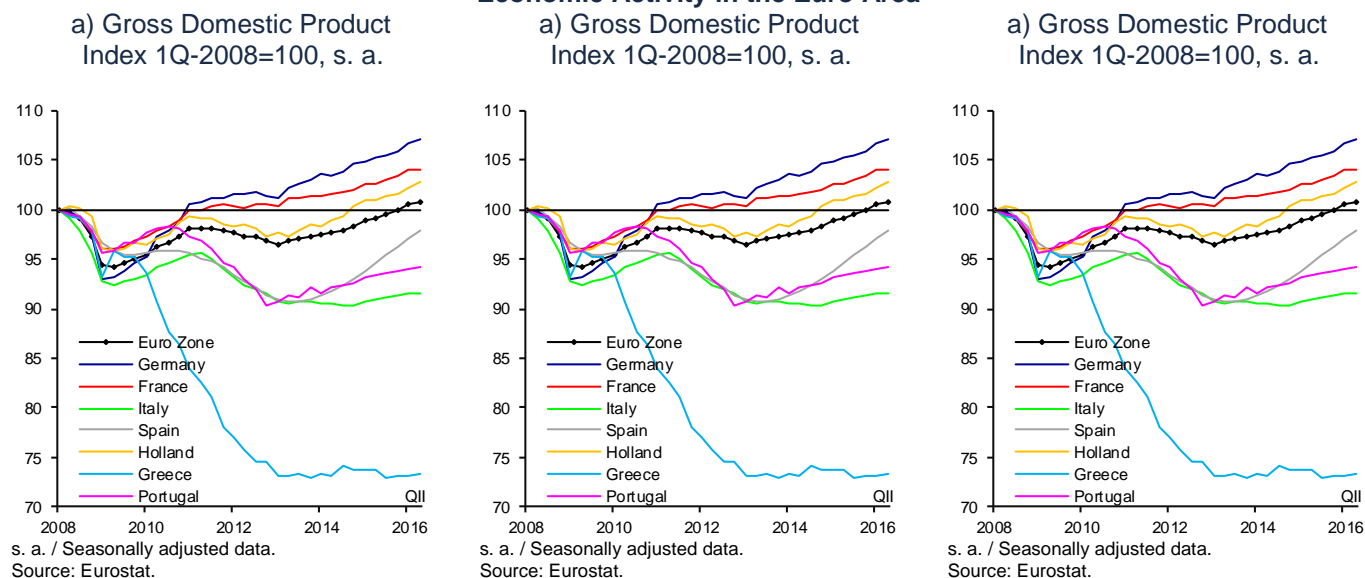
In the U.K., GDP expanded at an annualized quarterly rate of 2.4 percent in the second quarter, which was above the 1.8 percent observed in the first one. Still, following the decision to exit the European Union, the growth expectations significantly adjusted downwards. Indeed, the strong deterioration in the confidence indices of households and the services, manufacturing and construction sectors, along with the downward adjustment in investment plans are estimated to be reflected in a strong moderation of both consumption and investment, although the GBP depreciation could support exports, and, thus, partially offset the effect of the aforementioned hindrances on economic activity levels.

During the second quarter, the performance of economic activity in Japan was weaker than expected, with an annualized quarterly growth of 0.2 percent, which was lower than 2.0 percent registered in the previous quarter. This derived from the weakness of the external sector and from the lower growth of consumption, which partly reflected reduced wage increments. Non-residential investment continued contracting during the quarter, while residential investment rebounded. In response to uncertainty over the recovery of the economy and world trade, as well as the JPY appreciation, the Japanese authorities postponed the programmed raise in the consumption tax rate from April 2017 until October 2019, and announced new monetary stimulus measures, along with a fiscal stimuli package equivalent to 5.6 percent of GDP

In emerging economies, economic activity persisted at relatively low levels during the period covered by this Report, although there were signs of improvement in some systemically important economies. On the one hand, in Brazil and Russia GDP contracted less than expected, while the rate of decline of other indicators, such as the industrial production and goods' exports, moderated (Chart 53a and Chart 53b). On the other hand, in China GDP growth remained at an annual rate of 6.7 percent, supported by a greater fiscal stimulus and credit expansion. However, some timely indicators point to a certain weakness at the beginning of the third quarter. Moreover, risks to the financial stability of that country increased, as a result of the high level of business indebtedness. Furthermore, by virtue of some

industries' excessive idle capacity, public support to boost investment in infrastructure has not been sufficient to halt the loss of momentum observed in fixed investment (Chart 53c). Finally, given an environment of low growth and greater uncertainty, emerging economies are especially vulnerable to sudden changes in international financial conditions.

Chart 53
Economic Indicators of Emerging Economies

a) Industrial Production Annual change of the 3-month moving average in percent	b) Exports Annual change of the 3-month moving average in percent	c) China: Indicators of Economic Activity Annual change in percent

Source: Haver Analytics.

Source: Bloomberg and INEGI.

1/ It corresponds to the annual change accumulated in percent.
Source: Haver Analytics.
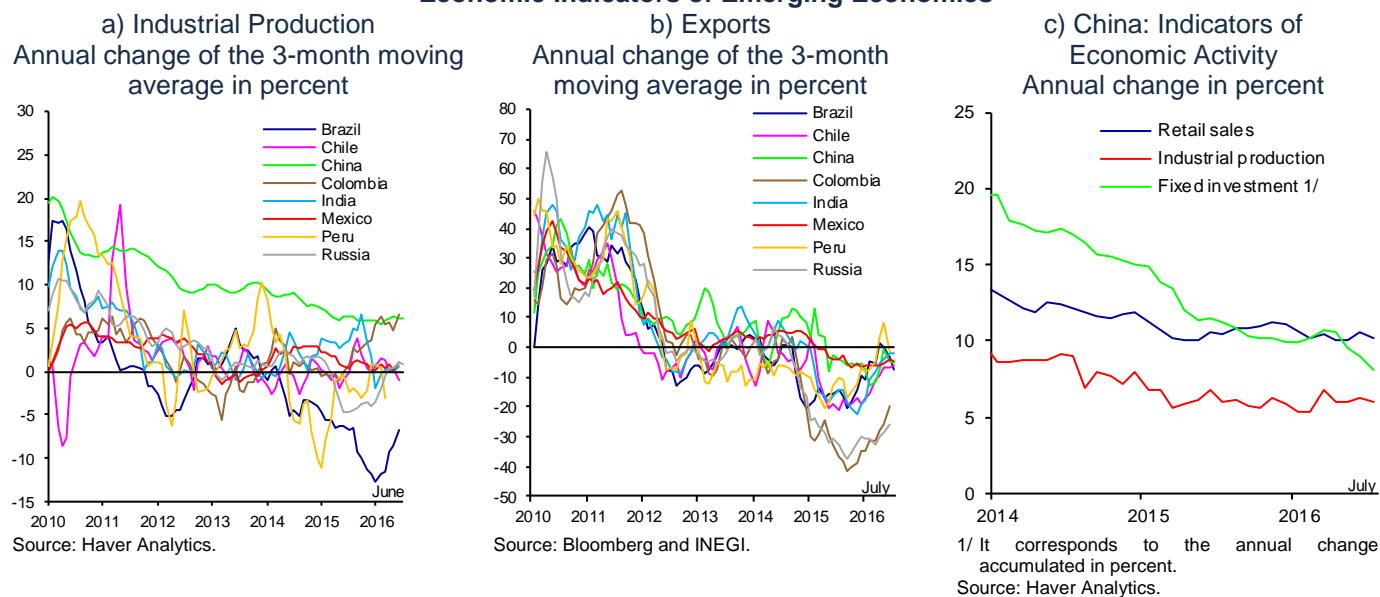
3.1.2.   Commodity Prices

There was a change in the trend of international commodity prices in the second quarter of the year. In particular, oil prices went up during most of the period covered by this Report, in light of lower production levels in such countries as the U.S., Canada and Nigeria, and a moderate recovery of demand. Nonetheless, by the end of the quarter this trend reversed, as a result of the production recovery and a deterioration in the world growth outlook. This, along with the growing perception that oil stocks and their derivatives are still at high levels, drove prices down again (Chart 54a). Likewise, grain prices presented a similar evolution to that of energy prices (Chart 54b). On the other hand, even though metal prices remained low, they somewhat recovered, partly due to cuts in production and to an increment in demand in China (Chart 54c).

Chart 54
International Commodity Prices [1/]

a) Crude Oil	b) Corn and Wheat	c) Metals
USD/barrel	USD/bushel	Index 01/01/2013=100

1/ Spot market.
Source: Bloomberg.
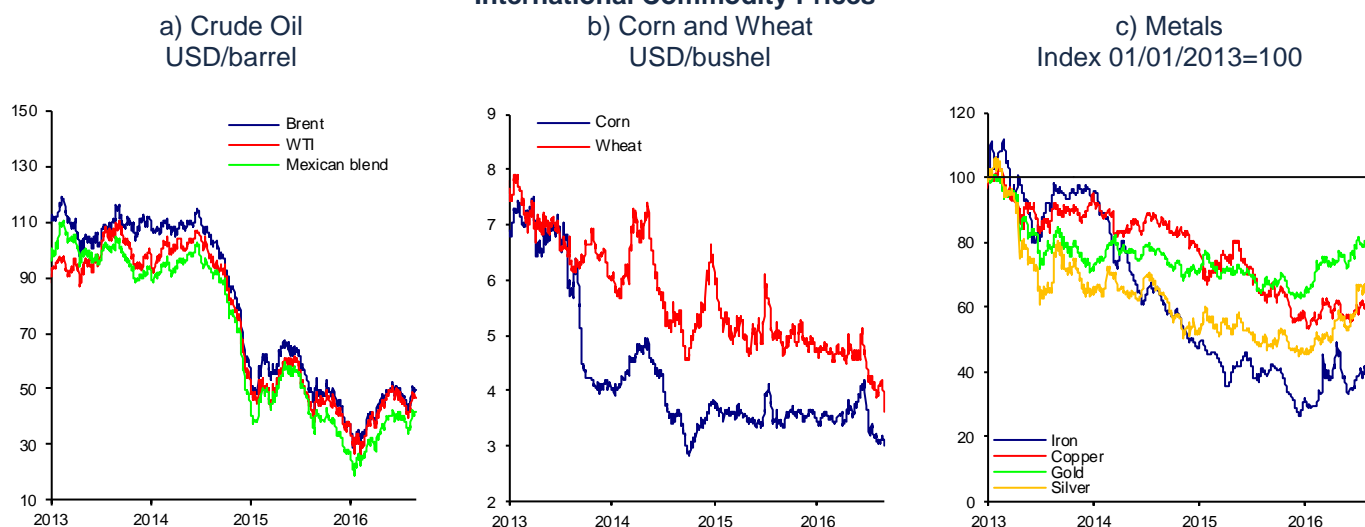
3.1.3.   Inflation Trends Abroad

Inflation in most advanced economies remained below the respective targets of their central banks during the reported quarter. Furthermore, consistent with the lower growth outlook, inflation and its expectations could persist low for a longer period (Chart 55a and Chart 55b). In this sense, concerns regarding the deflation in Japan and the Euro zone continue.

In the U.S., inflation measured as the consumption deflator somewhat stabilized at still low levels during the second quarter. Headline inflation was close to 1.0 percent during the quarter and registered 0.8 percent in July, thus reflecting the impact of drops in energy prices and non-energy imports. Meanwhile, the core deflator persisted at 1.6 percent during most of the year, as higher inflation in the services sector was counteracted by a drop in goods' prices. The evolution of inflation of consumer prices was similar to that of the consumption deflator, marking 0.8 percent in July. However, core inflation was 2.2 percent in the same month.

Headline inflation in the Euro zone kept fluctuating at levels close to zero percent in the reported quarter, still reflecting the significant negative impact of the energy component. Core inflation remained below 1.0 percent (0.9 percent in July), as a slight increment in the services' inflation was offset by the stagnation in goods' prices. It is noteworthy that, in view of the U.K. decision to leave the European Union, the level of uncertainty over inflation and its expectations went up. On the other hand, in the U.K., inflation slightly increased to 0.6 percent in July and is expected to rebound promptly, principally as a consequence of the GBP depreciation that was observed following the announcement of the referendum results. In this way, the Bank of England estimates that inflation will shift from a figure of 1.3 percent (adjusted upwards in the fourth quarter of 2016) to 2.4 percent at the end of 2018, locating above its 2 percent inflation target

In Japan, inflation turned more negative, observing -0.4 percent in July. In the same vein, the growth rate of inflation excluding food, alcoholic beverages and energy products went down and located at 0.3 percent in the same month; and further

downward pressures stemming from the JPY appreciation are expected this year. Inflation expectations implicit in market instruments remained at very low levels and did not display any clear signs of a rebound.

The inflationary outlook in emerging economies in general improved in the analyzed period. Indeed, in some Latin American economies, such as Brazil, Chile and Peru, inflation pressures started to wear off, although in Colombia they kept growing. On the other hand, in some emerging economies of Asia and Europe, such as Korea, Thailand, Poland and Hungary, inflation remains low (Chart 55c).

Chart 55
Annual Headline Inflation and Inflation Expectations in Advanced and Emerging Economies
Percent

a) Advanced Economies: Headline Inflation

b) Advanced Economies: Long-term Inflation Expectations Derived from Financial Instruments [1]

c) Emerging Economies: Headline Inflation

1/ It refers to consumption deflator. Seasonally adjusted data.
Source: Haver Analytics.

1/ Inflation expectation in a 5-year period for the following 5 years. Expectations 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.

Source: Haver Analytics.

3.1.4.   International Monetary Policy and Financial Markets

In this context of the lower growth outlook and low inflation, monetary policy in the main advanced economies is expected to remain highly accommodative for an extended time period. In particular, a gradual normalization of the U.S. monetary policy is anticipated and some central banks of other advanced economies are estimated to adopt an even more expansive monetary stance. In the U.K., this stance would derive from an expected decline in domestic demand, while in the Euro zone and Japan, from the deterioration in their inflation outlook.

In its meeting of July, the Federal Reserve maintained the target range of the federal funds rate of 0.25 to 0.5 percent unchanged. Nonetheless, this Institute expressed more optimism than in its meeting of June regarding labor market conditions, inflation expectations and short-term risks to the economic outlook. On the other hand, various members of the Open Market Committee expressed concern over the possibility that the neutral interest rate would lie below the estimate, partly due to the structural factors, such as a lower growth rate of labor force and of

productivity. Consequently, a gradual upward adjustment in federal funds' rate is still foreseen for this year and the next one.

During the period covered by this Report, the European Central Bank (ECB) maintained its monetary policy rates unchanged and confirmed its orientation regarding the possible forward guidance, emphasizing that it expects interest rates to remain at current or lower levels for an extended time period. In its meeting of July, following the announcement of the U.K. referendum results, the ECB stressed the importance of the steps taken recently to contain the rising volatility and uncertainty. Furthermore, it pointed out that over the following months it will assess its monetary policy to determine if adjustments are required, in virtue of the new information available.

In its meeting of August, the Bank of England adopted a new monetary stimulus package consisting in 25-basis-point cuts in its reference rate to locate it at 0.25 percent, alongside the expansion of its government bond purchase program by GBP 60 billion, the introduction of a corporate bond purchase program of GBP 10 billion, and setting up a new scheme of funding for banks. At the same time, it pointed out that there is a margin to take additional stimulus measures and that most members expect an additional cut in the reference rate to the level close to zero in the remainder of the year. The Bank of England considers that, given the anticipated weakness of demand, it is appropriate to grant a greater monetary stimulus, despite a temporary increment in inflation above its 2 percent target.

In its meeting of July, the Bank of Japan announced an expansion of its purchase program of the exchange traded funds and of its special facility of financing in U.S. dollars, while it left unchanged the growth rate of the monetary base, the purchases of government bonds and other instruments, as well as the interest rate on bank reserves at -0.1 percent. Besides, this central institute indicated that it would carry out a comprehensive evaluation of its monetary stance in its next meeting in late September, stressing the growing uncertainty in the international environment and regarding the evolution of inflation, as well as its intention to reach the 2 percent target as soon as possible. In the same vein, it highlighted the synergies implied for the economy by the new fiscal package and the announced measures of the monetary stimulus. The minutes of the said meeting revealed that the majority of the members of the Monetary Policy Committee expressed great uncertainty over the achievement of the inflation target in the 2017 fiscal year. It is noteworthy that the measures announced at that moment did not meet the market's expectations, reason why they did not manage to revert the appreciation of the Japanese yen.

As regards emerging economies' central banks, in some countries of Asia and Europe the monetary policy has become more accommodative, as a response to low inflation levels and weak economic activity. In Latin America, while some central banks did not modify the reference interest rate, other increased it in an effort to prevent a spike in inflation and its expectations.

After a period of relative stability throughout the quarter, there was a surge in volatility in international financial markets at the end of June, in the aftermath of the U.K. decision to exit the European Union. The initial reaction to this event was considerable, characterized by strong fluctuations in capital flows, in exchange rates and significant drops in stock markets, particularly in the prices of bank shares in the Euro zone periphery (Chart 56a and Chart 57a). Flights to safety led to a strong depreciation of the pound sterling and of emerging economies' currencies, as well as an appreciation of the U.S. dollar and the Japanese yen (Chart 56b and

Chart 57b). At the same time, a drop in long-term interest rates of sovereign bonds in advanced economies accentuated (Chart 56c).

As stated above, stability in the financial markets was swiftly restored. As a consequence, market indicators that measure sovereign credit risk in emerging economies proceeded with their downward trend, while capital flows to emerging economies strengthened, in light of the expected low interest rates in advanced economies for a more extended period (Chart 57c and Chart 57d). Moreover, it should be noted that long-term rates in the U.S., the Euro zone, Japan, the U.K. located below the levels registered at the beginning of the quarter and prior to the referendum. This contributed to a greater easing of financial conditions in these economies.

Despite this, further increments in volatility in international financial markets cannot be ruled out in the future, which would negatively affect the world economic growth outlook and the prices of different financial assets. Among possible causes of new spikes in volatility, the following should be mentioned: the worsening of geopolitical risks, a complex and prolonged negotiation of new economic and trade relations between the U.K. and the European Union, the expected normalization of the Federal Reserve monetary policy and an increment in economic and financial problems in China and other emerging economies.

Chart 56
Financial Indicators of Selected Advanced Economies

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

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

c) 10-Year Bond Yield
In percent

Source: Bloomberg.
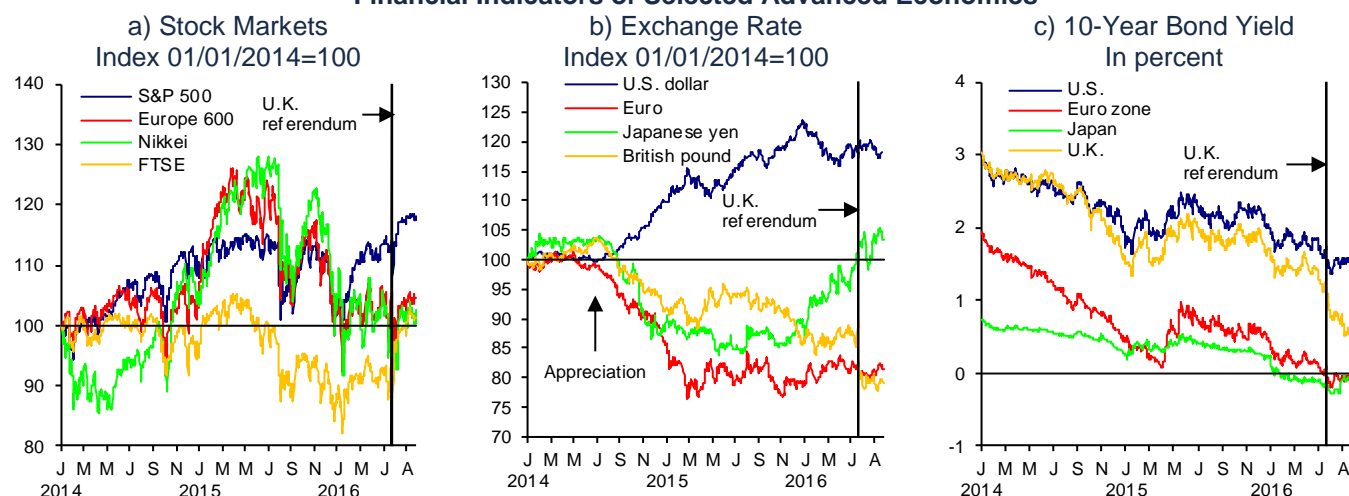
Chart 57
Financial Indicators of Emerging Economies

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

Source: Bloomberg.

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

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

Source: Bloomberg.
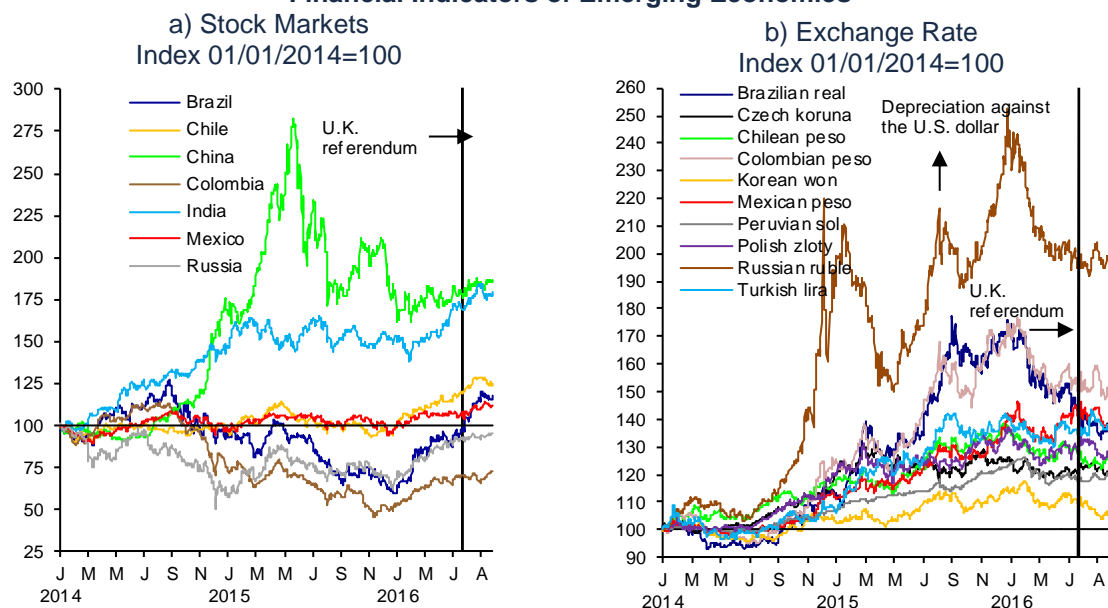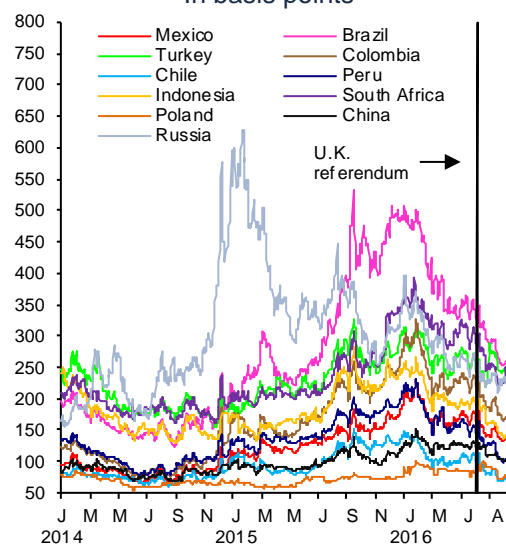
d) Weekly Capital Flows to Emerging
Economies (Debt and Stock) [1]
In USD billion
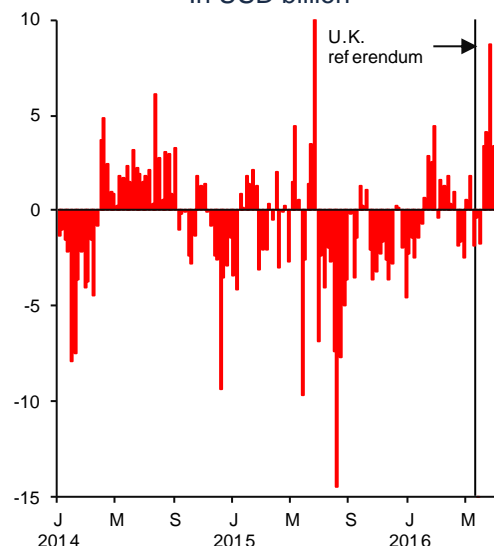
1/ The sample includes funds used for emerging economies'
stock and bond transactions, registered in advanced
economies. The flows exclude the performance of the portfolio
and exchange rate movements.
Source: Emerging Portfolio Fund Research.

3.2.   Evolution of the Mexican Economy

3.2.1.   Economic Activity

In the second quarter of 2016, Mexico's GDP contracted, following the expansion registered in the previous quarter. This performance reflected weak external demand and investment, while consumption decelerated as compared to the dynamism it had been presenting over the previous quarters.

Indeed, in an environment of weak world trade, of stagnated U.S. manufacturing production and low global growth rates, in the reported quarter manufacturing exports both to the U.S. and to the rest of the world continued performing poorly, despite a certain recovery by the end of the quarter, which became more evident in July (Chart 58a).

In particular, there is evidence that during the second quarter non-automotive exports to the U.S. continued to be affected by the sluggish export sector of that country, which, in turn, could be associated both to the appreciation of the U.S. dollar since mid-2014, and to the low global economic growth, that affected the external demand of the said country (see Chart 58b and Box 4). Similarly, automotive exports to the U.S. presented a decreasing trajectory in the period, partly as a result of temporary closures of some assembly plants and of the slowdown in light vehicles' sales in the U.S. market (Chart 58c). Nevertheless, based on data from July, exports to the U.S. somewhat improved, which could be associated to a gradual reversal of some factors that had been affecting them.

Meanwhile, manufacturing exports to the rest of the world increased, following a period of five consecutive quarters over which they had been going down (Chart 58aThis incipient improvement was observed both in the automotive exports and in the non-automotive exports, although both of these still persist at low levels.

In the period of April – July 2016, oil exports slightly recovered, despite remaining at notably low levels. The improvement derived from an increment in the average price of the Mexican oil export mix with respect to the average price of the first quarter, once the crude exports platform remained stagnated (Chart 58d).

Chart 58
Exports in Mexico
Index 2008=100, s. a.

a) Total Manufacturing Exports

b) Non-Automotive Manufacturing Exports

s. a. / Seasonally adjusted and trend data based on information in nominal dollars. The former is represented by a solid line, the latter by a dotted line.
Source: Banco de México with data from SAT, SE, Banco de México, INEGI. Merchandise Trade Balance. SNIEG. Information of National Interest.

c) Automotive Manufacturing Exports

d) Oil Exports and Crude Oil Export Platform

s. a. / Seasonally adjusted and trend data based on information in nominal dollars. The former is represented by a solid line, the latter by a dotted line.
Source: Banco de México with data from SAT, SE, Banco de México, INEGI. Merchandise Trade Balance. SNIEG. Information of National Interest.

s. a. / Seasonally adjusted data based on information in nominal dollars.
1/ 3-month moving average of daily barrels of the seasonally adjusted series.
Source: SAT, 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 4
The Importance of the Performance of the U.S. Export Sector as a Determinant of
Mexican Non-automotive Manufacturing Exports to the U.S.

1. Introduction

Low world economic growth seems to be negatively affecting Mexican exports not only directly, as a result of a subdued demand from the U.S. and the rest of countries, but also indirectly, as a consequence of a lower U.S. demand for imports of Mexican inputs that are used by that country to export to the rest of the world. In previous Reports it has been argued that the weakness of the U.S. external demand seems to negatively affect the evolution of Mexican exports to that country. In particular, in Box 1 of the Quarterly Report October – December 2015 it was argued that a lower demand from abroad experienced by the U.S. export sector led to a drop in that country's demand for imported intermediate inputs, as a result of which Mexican exports to the U.S. of this type of goods also performed unfavorably.

In the outlined context, this Box presents econometric evidence indicating that, to explain the negative performance of the Mexican non-automotive manufacturing exports to the U.S. since early 2015, it is necessary to explicitly consider the evolution of the U.S. non-automotive exports, rather than solely that country's manufacturing production and the real exchange rate of Mexico relative to the U.S. Traditionally, the last two variables would have been sufficient to adequately model Mexican exports to the U.S., given that the dynamics of the U.S. non-automotive exports did not differ significantly from that country's manufacturing production. On the contrary, over the last 2 years a certain dissociation between these two variables has been observed (Chart 1), which could possibly derive from the fact that, while the U.S. domestic demand has maintained a relatively favorable growth rate, its external demand has been influenced both by a low world economic growth and by the strong appreciation of the U.S. dollar since mid-2014.

The analysis presented here suggests that the strong relationship between Mexican manufacturing production and the U.S. export sector production sharing schemes is intensifying the transmission of weak economic conditions in the rest of the world to the Mexican exports. This could negatively affect economic growth in Mexico in the medium run. In the same vein, it is possible that the real exchange rate of Mexico relative to that of the U.S. has tended to adjust more significantly than otherwise suggested by the direct channel of the weakness of the U.S. demand, because it has also had to adjust to a lower demand from the rest of the world, both directly and indirectly.

Chart 1
U.S.: Multilateral Real Exchange Rate,
Manufacturing Production and Non-automotive Exports
Annual percentage changes
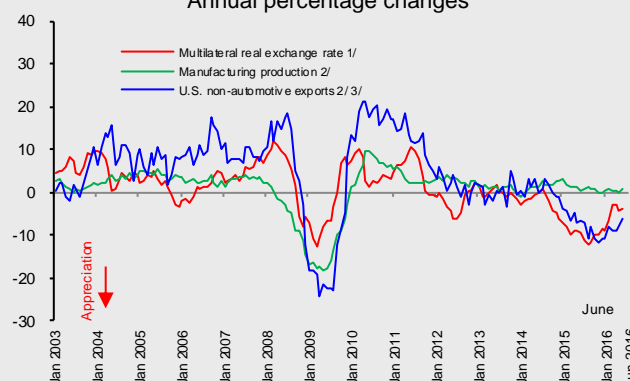
1/ A decrease implies an appreciation.
2/ Seasonally adjusted figures.
3/ Data in real terms.
Source: Banco de México with data from the Federal Reserve, the U.S. Census Bureau and BLS.

2. A Traditional Model to Explain the Performance of the Mexican Non-automotive Manufacturing Exports to the U.S.

To explain the performance of Mexico's non-automotive manufacturing exports to the U.S., a relatively parsimonious econometric model including U.S. manufacturing production and the real exchange rate between Mexico and the U.S. as independent variables would have to be traditionally used. The inclusion of these two variables used to be sufficient to obtain an adequate model, as the former variable used to capture the income effect (the dynamism of the demand from the U.S.), while the latter, the price effect (the relative "competitiveness" of Mexican exports to the U.S.).[1] Nevertheless, this model has lost its predictive power. Indeed, considering data since the beginning of 2015, the drop in the referred exports could not have been explained using as determinants only the U.S. manufacturing production, which has remained stagnant, and the bilateral real exchange rate, which has depreciated considerably (Chart 2).

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[1] Given that Mexico and the U.S. have shared production chains for several years, particularly after the NAFTA implementation, it is natural to consider the U.S. manufacturing production as a fundamental variable to explain the external demand for Mexican exports to that country.

Chart 2
Mexico-U.S. Bilateral Real Exchange Rate, Mexican Non-automotive Manufacturing Exports to the U.S. and U.S. Manufacturing Production
Annual percentage changes
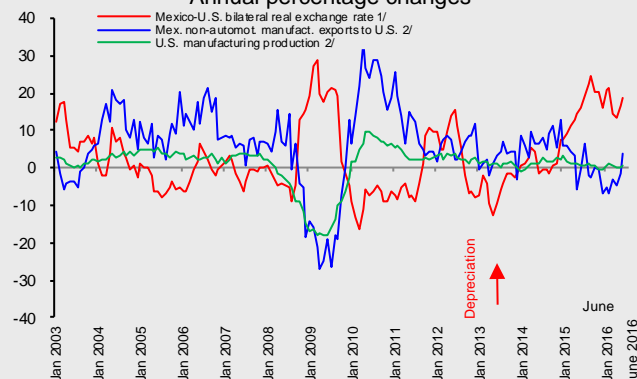
1/ An increase implies a depreciation.
2/ Seasonally adjusted data.
Source: Banco de México with data from the Federal Reserve, the U.S. Census Bureau, BLS and SAT, SE, Banco de México, INEGI Merchandise trade balance of Mexico. SNIEG. Information of National Interest.

To formalize the argument that the econometric model that only includes the U.S. manufacturing production and the bilateral real exchange rate as independent variables cannot appropriately explain the most recent performance of Mexican non-automotive manufacturing exports to the U.S., error correction models were estimated. The corresponding identified long-term relationships look as follows:

$$X_t = \alpha\, Y_t^{U.S.} + \beta\, RER_t + EC_t \ (1)$$

Where:

X = Mexican non-automotive manufacturing exports to the U.S., seasonally adjusted and deflated with U.S. consumer prices.

$Y^{U.S}$ = Seasonally adjusted index of the volume of U.S. manufacturing production.

RER = Bilateral real exchange rate computed using U.S. and Mexican consumer prices.

EC = Error Correction Term.

Long-term elasticities estimated for a sample that ends in the last quarter of 2014 and for a sample that finishes in the second quarter of 2016 are reported in Table 1.[2] It can be appreciated that both the coefficient corresponding to U.S. manufacturing production and that of the real exchange rate decrease in the latter sample as compared to the former. This result could initially be interpreted as suggesting a recent structural change, which implied that a reduction in the response of Mexican exports to changes

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[2] The models were estimated with seasonally adjusted quarterly data in logarithms for a sample starting in the first quarter of 1994. The Johansen's trace test suggests that the cointegration relationship between the variables is significant at conventional levels of significance. This applies both to the estimation with the short sample and with the complete sample. The equations that describe short-term dynamics comply with traditional specification and diagnostic tests at conventional levels of significance and include different lags of the explanatory variables.

In the U.S. manufacturing production and the real exchange rate. However, in light of what is explained below and in the following section, a better interpretation of the reduction in the coefficients would seem to be that the model based on the said variables no longer explains as accurately as it used to the performance of these Mexican exports, since it omits a variable, that has gained relevance and that differs from the included variables.

Indeed, Chart 3 shows the dynamic simulation of Mexican non-automotive manufacturing exports to the U.S., which is based on Model 1. It can be observed that from 1994 to 2012, this model adequately explains the evolution of these exports. However, from that moment onwards, these two variables seem to turn insufficient to explain the performance of the referred exports. In particular, the model would have predicted a moderate increasing trend, rather than a more notable increment, followed by a contraction in 2015.

Table 1
Long-term Elasticities Estimated with Model 1

End of sample*	Relative to:	
	$Y^{U.S.}$	RER
2014-IV	3.36	1.46
	(0.39)	(0.55)
2016-II	2.92	0.78
	(0.35)	(0.42)

*/ The beginning of the sample is 1994-I, which is the same in all cases.
Note: Standard error of the corresponding coefficient is shown in parenthesis.

Chart 3
Mexican Non-automotive Manufacturing Exports to the U.S.
Indices in real terms 1993-IV = 100 [1]

1/ Seasonally adjusted data, deflated with the U.S. consumer price index.
Source: Banco de México with data from SAT, SE, Banco de México, INEGI. Merchandise Trade Balance of Mexico. SNIEG. Information of National Interest.

3. Augmented Model to Explain the Performance of Mexican Non-automotive Manufacturing Exports to the U.S.

The model presented in the previous section was expanded to incorporate U.S. non-automotive exports as an explanatory variable of Mexican non-automotive manufacturing exports to the U.S. Thus, the estimated long-term relation is as follows:[3]

$$X_t = \alpha\, Y_t^{U.S.} + \beta\, X_t^{U.S.} + \gamma\, RER_t + EC_t \quad (2)$$

Where:

X = Mexican non-automotive manufacturing exports to the U.S., seasonally adjusted and deflated with U.S. consumer prices.

$Y^{U.S.}$ = Seasonally adjusted index of the volume of U.S. manufacturing production.

$X^{U.S.}$ = U.S. non-automotive exports, seasonally adjusted and deflated with U.S. consumer prices.

RER = Bilateral real exchange rate computed using U.S. and Mexican consumer prices.

EC = Error Correction Term.

As can be seen in Table 2, when comparing the estimates for the full sample and the sample ending in 2014, the long-term elasticities calculated with the augmented model are more stable than in the model of the previous section. This result indicates that, rather than a delinkage from the U.S. manufacturing production or a lower response to changes in the real exchange rate, Mexican non-automotive manufacturing exports to the U.S. are affected by the performance of the U.S. export sector, reason why explicitly excluding it from the econometric model generates an omitted-variable problem, and, therefore, leads to instability in the parameters.

The dynamic simulation based on the augmented equation is shown in Chart 4. As can be observed, adding the U.S. non-automotive manufacturing exports to the set of independent variables significantly improves the model's ability to explain the recent evolution of the analyzed Mexican exports. Even though Chart 4 is very illustrative, to formalize the argument the forecast's mean squared error (MSE) for each of the two models was calculated for the last six quarters of the sample. The calculation of the MSE reveals that Model 2 has a better predictive power than Model 1.

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[3] The models were estimated with seasonally adjusted quarterly data in logarithms for a sample starting in the first quarter of 1994. The Johansen's trace test suggests that the cointegration relationship between the variables is significant at conventional levels of significance. This applies both to the estimation with the short sample and with the complete sample. The equations that describe short-term dynamics comply with traditional specification and diagnostic tests at conventional levels of significance and include different lags of explanatory variables.

Table 2
Long-term Elasticities Estimated with Model 2

End of sample*	Relative to:		
	$Y^{U.S.}$	$X^{U.S.}$	RER
2014-IV	1.72	0.70	0.73
	(0.32)	(0.13)	(0.36)
2016-II	1.62	0.72	0.54
	(0.33)	(0.13)	(0.33)

*/ The beginning of the sample is 1994-I, which is the same in all cases.
Note: Standard error of the corresponding coefficient is shown in parenthesis.

Chart 4
Mexican Non-automotive Manufacturing Exports to the U.S.
Indices in real terms 1993-IV = 100 [1/]
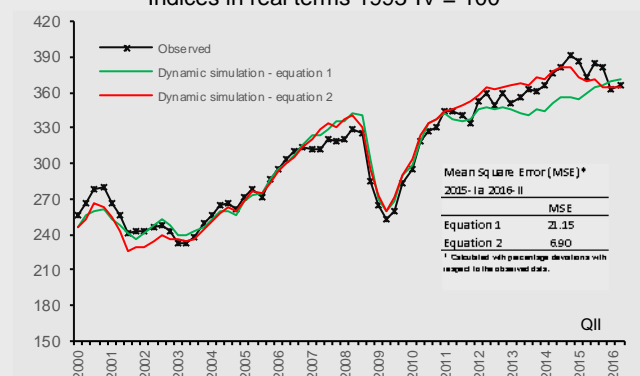
1/ Seasonally adjusted data, deflated with the U.S. consumer price index.
Source: Banco de México with data from SAT, SE, Banco de México, INEGI. Merchandise Trade Balance of Mexico. SNIEG. Information of National Interest.

For the purpose of stressing that the performance of the U.S. manufacturing production and that of the real exchange rate are not sufficient to explain the recent evolution of the Mexican non-automotive manufacturing exports to the U.S., and that therefore it is necessary to explicitly consider the U.S. external demand for this type of exports, an additional exercise was made. In particular, Chart 5 presents the dynamic simulation that results from both Model 1 and Model 2, for the period from the first quarter of 2015 to the second quarter of 2016. Consistent with Model 1, during the simulation period, the analyzed Mexican exports should have registered a positive trend, which contrasts with the observed negative trajectory. In contrast, Model 2, which considers the performance of U.S. non-automotive manufacturing exports, adequately captures the drop that the same type of exports has registered in Mexico since early 2015.

Chart 5
Mexican Non-automotive Manufacturing Exports to the U.S.
Indices in real terms 1993-IV = 100 [1]

Observed
Dynamic simulation - equation 1
Dynamic simulation - equation 2
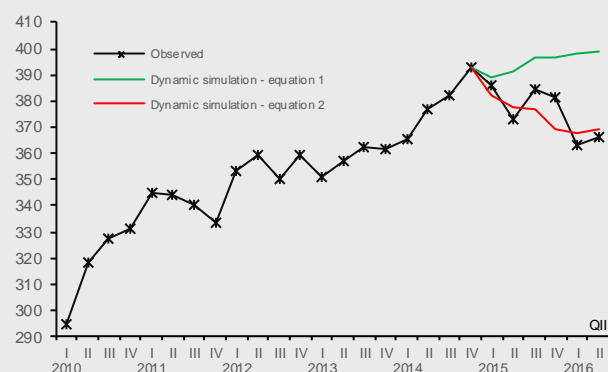
1/ Seasonally adjusted data, deflated with the U.S. consumer price index.
Source: Prepared by Banco de México based on data from BLS and SAT, SE, Banco de México, INEGI. Merchandise trade balance of Mexico. SNIEG. Information of National Interest.

4. Final Remarks

The analysis presented in this Box suggests that the weakness of the economic activity observed in countries other than the U.S. has negatively affected Mexico's export sector not just directly, but also indirectly, by means of its effect on U.S. exports and the purchase of intermediate goods by that country. An additional channel that has also negatively affected U.S. exports, and, thus, the performance of Mexican exports to that country is the U.S. dollar appreciation. In particular, on the one hand, the low growth in countries other than the U.S. translated in smaller Mexican exports to these economies. On the other hand, it has also implied a lower dynamism of the Mexican exports to the U.S., given the result presented in this Box regarding the importance of that economy's external demand as a determinant of the evolution of Mexican non-automotive manufacturing exports to the Northern neighbor country. In a related manner, it is possible that the fact that the weakness of the global economic activity transfers both directly and indirectly to the Mexican exports implied that the adjustment in the real exchange rate over the last two years to accommodate lower external demand had to be of greater magnitude as compared to a situation in which its impact would be limited solely to the direct effect stemming from a lower U.S. domestic demand.

After the dynamism registered by the private consumption in 2015 and in early 2016, different indicators suggest that its growth rate decreased in the reported period.

i.   Indeed, both the monthly indicator of the domestic private consumption and that of the revenues from the retail supply of goods and services decelerated over the first months of the second quarter (Chart 59a and Chart 59b). This occurred despite the fact that some lower coverage indicators, such as light vehicles' sales and ANTAD sales, maintained a high growth rate (Chart 59b and Chart 59c).

Chart 59
Consumption Indicators

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

b) Commercial Retail Business Revenues and Total ANTAD Sales
Index 2008=100, s. a.
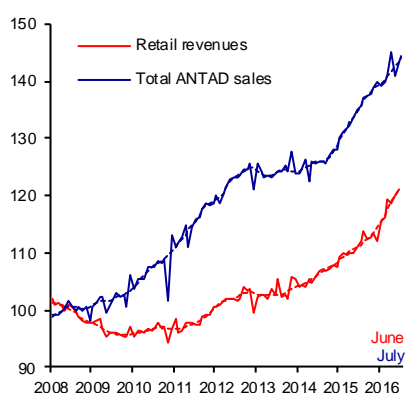
c) Domestic Light Vehicle Retail Sales
Thousands of units, annualized, s. a.

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

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.

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).

ii.   The slowdown of broader indicators of private consumption could be partly the result of a loss of dynamism of the total wage bill of the economy in 2016 (see Chart 60a and Section 3.2.2). Likewise, consumer confidence tended to deteriorate in this period. In particular, the consumer confidence index declined in the period analyzed in this Report, as it is accounted for by a more negative perception of the economic climate of the country, while the consumers' perception of the possibility to purchase durable goods increased (Chart 60b). On the contrary, the remittance flows remained particularly high in the second quarter, so that its trend even locates at levels similar to those observed prior to the 2009 global financial crisis (Chart 60c). On the other hand, growth rates of consumer credit remained high (see Section 3.2.3).

Chart 60
Consumption Determinants
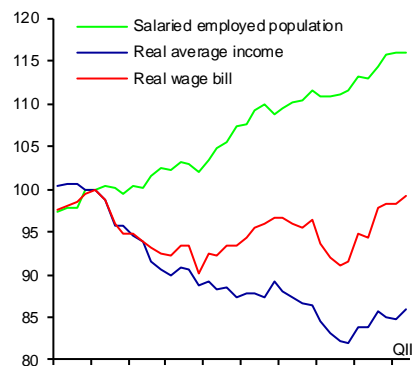
a) Total Real Wage Bill
Index I-2008=100, s. a.

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

b) Consumer Confidence
Index January 2003=100, s. a.
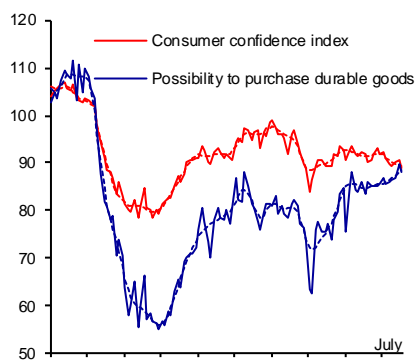
s. a. / Seasonally adjusted and trend data. The
        former is represented by a solid line, the
        latter by a dotted line.
Source: National Consumer Confidence Survey
        (ENCO), INEGI and Banco de México.

c) Workers' Remittances
Billion, constant USD and MXN,[1/]
s. a.
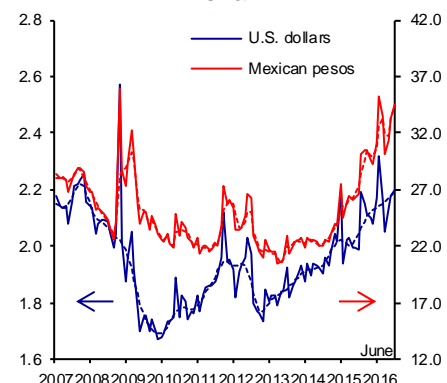
s. a. / Seasonally adjusted and trend data. The
        former is represented by a solid line, the latter
        by a dotted line.
1/ Prices as of the second fortnight of December
   2010.
Source: Banco de México.

At the beginning of the second quarter of 2016, gross fixed investment presented a certain decreasing trend (Chart 61a). This performance was a reflection of the persisting relative stagnation of the investment in construction, along with the negative evolution of the investment in machinery and equipment. The stagnation in the construction sector was caused by the fact that the growth observed in the residential component was offset by a negative trend in the non-residential one, which partly resulted from a lower performance of oil wells (Chart 61b). Even though the national component of the investment in machinery and equipment kept expanding, a decrease in its imported component was dominant, although it seems to exhibit a favorable change in its trend starting May, which can be confirmed with data from June and July, on capital goods' imports (Chart 61c).

Chart 61
Investment Indicators
Index 2008=100, s. a.
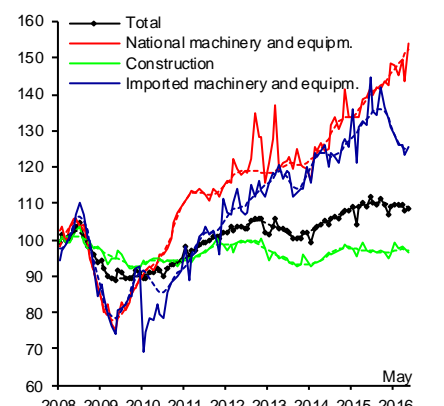
a) Investment and its Components

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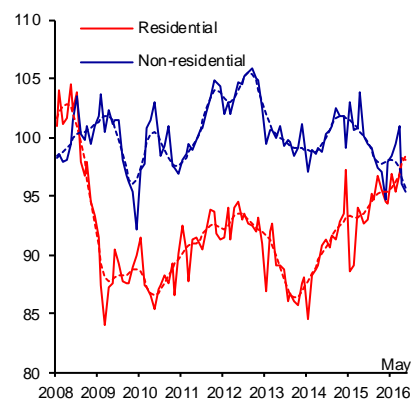
s. a. / Seasonally adjusted and trend data. The former is represented by a solid line, the latter by a dotted line.
Source: Mexico's National Accounts System, INEGI.

c) Capital Goods' Imports
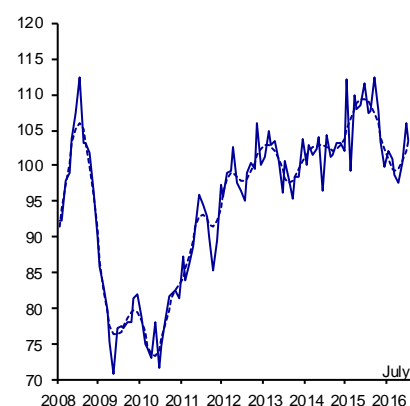
s. a. / Seasonally adjusted and trend data based on information in nominal dollars. The former is represented by a solid line, the latter by a dotted line.
Source: SAT, SE, Banco de México, INEGI. Merchandise Trade Balance. SNIEG. Information of National Interest.

As regards production, the deterioration on the productive activity during the second quarter of the year derives from the fact that, besides the stagnation observed in the secondary activities since mid-2014, services practically stopped expanding in the reported quarter (Chart 62a). This partly reflects the gradual transmission of the weakness in the international environment onto some services more closely related to the manufacturing activity, as well as the lower dynamism of the domestic expenditure and its consequences on certain activities more directed to supply the domestic market.

i.   In the period April – June 2016, within the industrial activity, mining maintained a decreasing trend, in a context in which the crude oil production platform kept declining, alongside the mining-related services (Chart 62b and Chart 62c). In a like manner, manufacturing production contracted, which reflected weak external demand and the lower growth rate of domestic expenditure. Additionally, its transport equipment component was also affected by the temporary closure of some automotive plants, even though by the end of the quarter this indicator mildly improved, as a result of the reestablishment of operations in the said plants (Chart 63a). In this sense, it should be noted that in July car production recovered more notably, as a consequence of both the regularization of activities in the sector and the launch of activities in a new plant (Chart 63b).

ii.   On the contrary, the aggregate of the production in the construction industry –that, unlike that reported in the classification of investment in aggregate demand, excludes oil well drilling, which has been declining– somewhat improved with respect to the stagnation perceived in 2015. Similarly, the electricity sector recovered, following the loss of dynamism in late 2015 and in the first months of 2016 (Chart 62b).

iii.　In this context, the weakness of the manufacturing sector, and more recently of the domestic expenditure led to a deceleration of most services. Indeed, both trade and transport services, which are highly correlated with manufacturing production, have reduced their rhythm of expansion as manufacturing has started to lose its dynamism (Chart 64a). In the same line, the evolution of the services more related to domestic demand also weakened, which is consistent with the slowdown in private consumption. This is the case of the temporary lodging services and food preparation services; financial services, real estate and leasing services; and mass media services, which possibly were also affected by the fading impulse derived from the analog switch-off (Chart 64b).

iv.　In the second quarter of 2016, primary activities slightly fell, as a result of a smaller cultivated area in the spring – autumn cycle and of a lower production of some perennial crops.

Chart 62
Production Indicators
Index 2008=100, s. a.
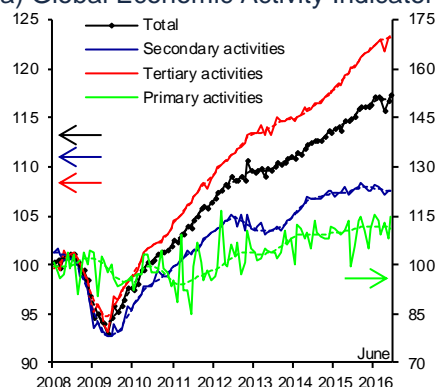
a) Global Economic Activity Indicator

b) Industrial Activity

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: Mexico's National Accounts System, INEGI.

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.

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.

Chart 63
Manufacturing and Automotive Production

a) Manufacturing Production
Index 2008=100, s. a.
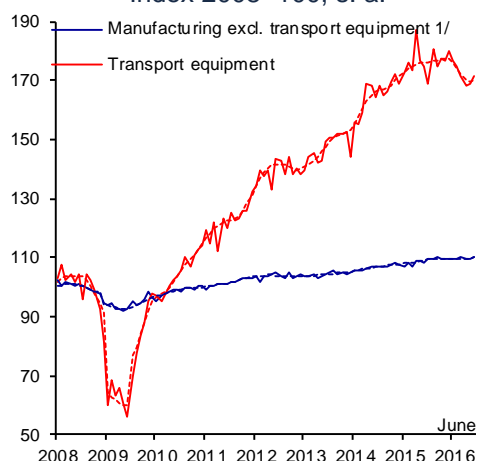
b) Automotive Production
Thousands of units, s. a.

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

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

Chart 64
Global Economic Activity Indicator of Services and Manufacturing

a) Manufacturing and Services
Annual percentage change, s. a.

b) Services
Index 2008=100, s. a.
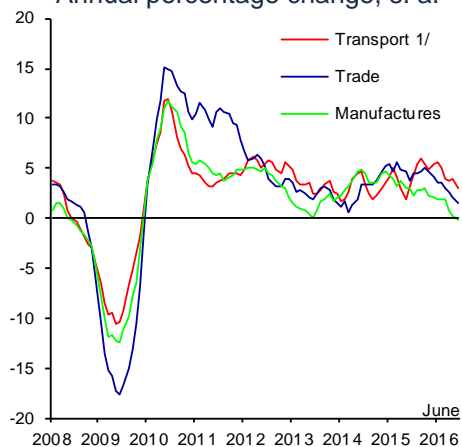
s. a. / 3-month moving average of the seasonally adjusted series.
1/ Prepared by Banco de México with data from SCNM.
Source: Mexico's National Accounts System, INEGI.
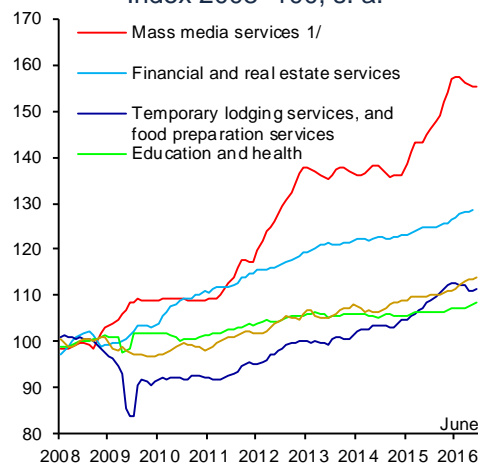
s. a. / 3-month moving average of the seasonally adjusted series.
1/ Estimated by Banco de México with data from SCNM.
2/ The rest includes government activities, professional and corporate services, business support services, recreational services and other services.
Source: Mexico's National Accounts System, INEGI.

Derived from the previously described dynamics, the Mexican economy registered a quarterly seasonally adjusted contraction of 0.2 percent in the second quarter of 2016, which compares to the 0.5 percent growth in the first one (Chart 65a). Based on seasonally adjusted data, in line with this estimation, economic activity expanded 1.5 percent in the period of April – June 2016, following a growth of 2.5 percent in the previous quarter. Based on data without seasonal adjustment, an annual GDP

growth of 2.5 percent was registered in the second quarter, a figure that was affected by the fact that the Holy Week took place in March in 2016, while in 2015 it was in April (Chart 65b).

Chart 65
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.
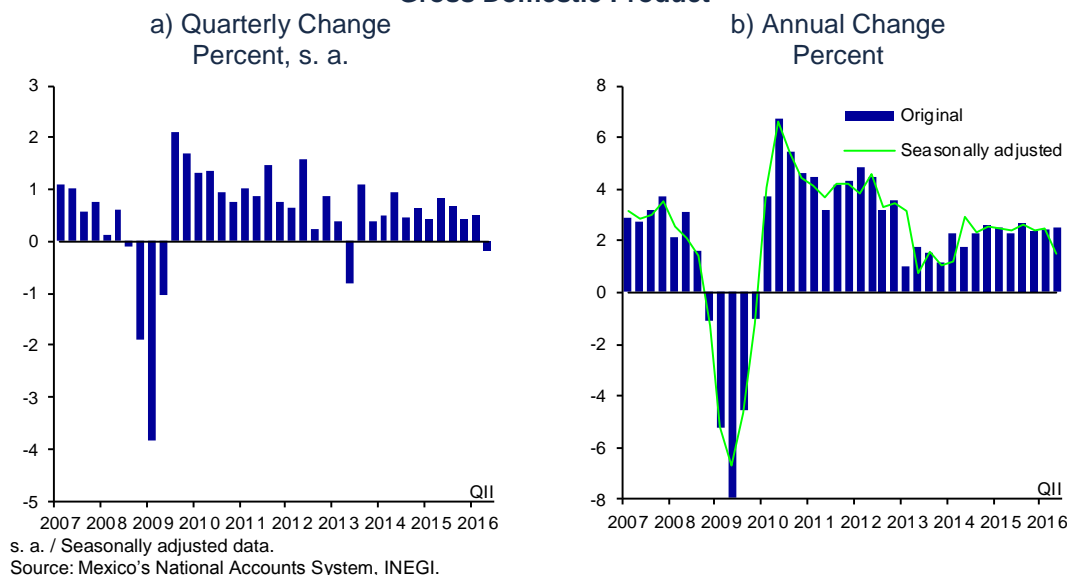
In the second quarter of 2016, the trade balance registered a deficit of USD 3,131 million, integrated both by an oil balance deficit of USD 2,850 million and of a non-oil balance deficit of USD 281 million (Chart 66a). In this context, in the reference period the current account presented a deficit of USD 7.9 billion (Chart 66b), a figure above that observed in the previous two quarters, although it is not outside the range of the registered deficits since late 2012. However, in terms of GDP, the current account deficit has been growing since 2013, so the one corresponding to the second quarter of 2016 was equal to 3.0 percent of GDP (see Box 5).

Chart 66
Trade Balance and Current Account
USD million

a) Trade Balance

b) Current Account

Source: SAT, SE, Banco de México, INEGI. Merchandise Trade Balance. SNIEG. Information of National Interest.

Source: Banco de México.
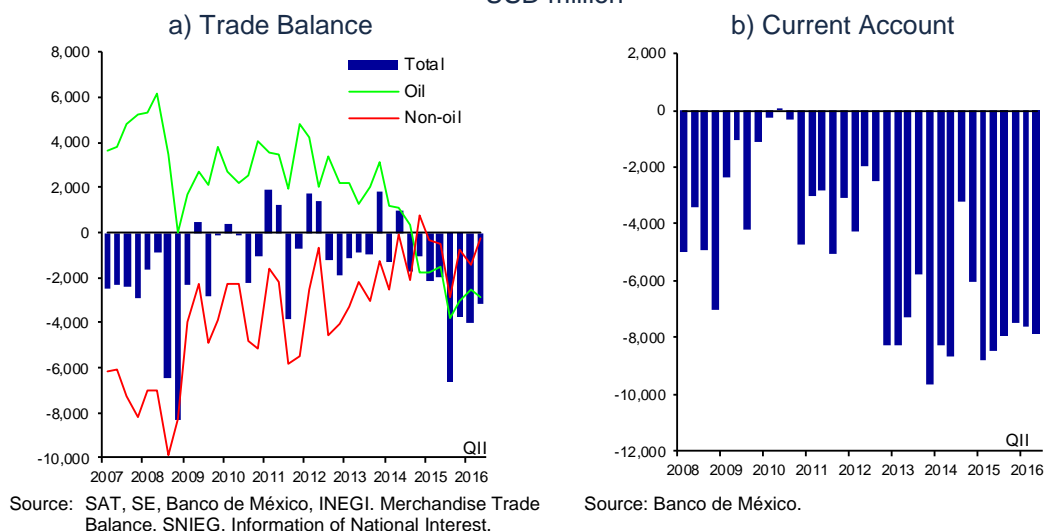
Box 5
Recent Evolution of the Current Account

1. Introduction

This Box presents some thoughts on the determination of the current account of the balance of payments. In particular, it gives a theoretical interpretation of what a current account deficit implies and describes the recent evolution of the Mexico's current account. It will be shown that in recent years the current account deficit in Mexico, measured in U.S. dollars, has remained relatively stable at levels similar to those observed in late 2012. However, as a proportion of GDP, this deficit has tended to grow since 2013, most notably between 2014 and 2015. From a point of view of the analysis of its components' evolution, this tendency can be fundamentally explained by a deterioration in the oil trade balance, given that, despite the prevailing negative external environment, in 2014 and 2015 the deficit corresponding to the other items of the current account (i.e., the current account excluding the oil trade balance) remained below the levels observed in previous years. In this context, it is argued that an adjustment in the macroeconomic policy that contributes to mitigate pressures on the current account deficit might be required; otherwise, the endogenous adjustment would occur entirely via a greater depreciation of the real exchange rate, which might jeopardize the evolution of prices in the economy. In particular, a more efficient policy response would be through a fiscal adjustment, since, on the one hand, the oil shock directly affects public revenues, and, on the other hand, a reduction in public expenditure has a greater direct effect on domestic absorption, compared to those derived from the potential impact of a monetary policy response. In this sense, it is favorable that during the first half of the year the public sector has already made an effort to reduce expenditures in order to tackle the current environment, alongside the intentions drafted by the Ministry of Finance in the 2017 Economic Package, which is to be released in September 2016.

2. The Current Account in the Framework of National Accounts

The current account keeps record of economic transactions –the exchange of goods and services, collection and payment of investment income and current transfers– among residents of a given country and residents of other countries, during a set period. The current account can be expressed as the sum of its components:

$$CC = (X - M) + S + R + Tr , \qquad (1)$$

where CC is the current account balance, $(X\text{-}M)$ is the trade balance (the difference between exports and imports of goods), S is the balance on services, R is the balance on income (interests, dividends and any payment to production factors), and Tr is the balance on current transfers (net income from transfers, as for example, remittances and donations).

The identities of the national accounts provide a useful framework for the economic interpretation of the current account. In this framework, the natural starting point is the identity that expresses income as a function of its uses:

$$Y = C + I + G + (X - M) + S , \qquad (2)$$

where Y is the gross domestic product, C is private consumption, I is investment, both private and public, G is the government's current expenditure, $(X\text{-}M)$ are net exports of goods and S are net exports of services.

Substituting (2) into (1), gives the following:

$$\underbrace{CC}_{\substack{External \\ financing}} = \underbrace{(Y\text{+}R\text{+}Tr)}_{\substack{National \\ income}} - \underbrace{(C\text{+}I\text{+}G)}_{Absorption} \qquad (3)$$

In this way, the current account can be expressed as the difference between national revenue –that is the revenue obtained after adding up all sources of income of the country and after subtracting all income payments that the country pays to the rest of the world– and absorption – defined as total domestic spending–. Thus, when national income is greater than absorption, the current account is in surplus and represents a net saving of the economy with respect to the rest of the world. On the contrary, when absorption is greater than national income, the current account is in deficit, which represents foreign indebtedness. Likewise, an increase in the current account deficit indicates that domestic spending is growing faster than national income. The difference is financed through a higher foreign indebtedness.

If NI represents the national income $(Y\text{+}R\text{+}Tr)$, the previous equation can also be expressed in the following way:

$$\underbrace{CC}_{\substack{External \\ financing}} = \underbrace{(NI\text{–}C\text{–}G)}_{\substack{Domestic \\ saving}} - \underbrace{I}_{Investment} \qquad (4)$$

This expression presents the current account as the difference between domestic saving and investment.

When domestic saving is higher than investment (a current account in surplus), the country has available resources to finance investment in the rest of the world. On the contrary, a current account in deficit signals that domestic saving is insufficient to finance domestic investment and that the difference is funded by means of the external savings of other countries.

By adding and subtracting the taxes levied by the government (*T)* from the previous expression, the current account can be rewritten so that external financing is a function of private savings, the public deficit and investment.

$$\underbrace{CC}_{\substack{External \\ financing}} = \underbrace{(NI\!-\!T\!-\!C)}_{\substack{Private \\ saving}} - \underbrace{(G\!-\!T)}_{\substack{Public \\ deficit}} - \underbrace{I}_{Investment} \quad (5)$$

From that point of view, the current account balance deteriorates when, everything else constant, private savings of the economy decrease, when the public deficit increases or when investment expands. Hence, to prevent a greater public deficit from causing a deterioration in the current account balance, domestic variables would have to adjust to finance it, either by means of greater private savings or though lower investment.

External indebtedness, which manifests itself as a deficit in the current account, allows to smooth the consumption and investment decisions of the economy in response to a temporary negative shock. That is, in the presence of a temporary reduction in national income, domestic expenditure does not need to fall in the same proportion as income, because the economy can use international financial markets to cushion the consequences of said shock on expenditure. Nevertheless, when the adverse shock is permanent, the adequate response is that the absorption of the economy would be reduced in the same proportion as income, since higher current account deficits over extended time periods would become unsustainable given the lower future income. Indeed, in the long run, the current account deficit is subject to the inter-temporal constraint, which indicates that the current value of absorption should be equal to the current value of the national income. This restriction is equivalent to the condition that the current value of the current account balance should de equal to zero, so that a current account deficit in the present should be covered by a future current account surplus. Thus, for current account deficits to be financed in the long run, they should be compatible with the economy's ability to generate sufficient future saving to repay them.

Furthermore, as can be appreciated in expression (5), a current account deficit makes it possible for investment to be greater than domestic savings. When domestic saving is insufficient to cover the needs of investment needed for greater economic development, external indebtedness can provide the necessary resources to finance these needs. Therefore, when external financing is devoted to investment, it is possible to generate future income above the amount necessary to pay the incurred debt. Thus, a current account deficit could be reflecting an increase in the country's productive capacity, as it moves to a higher level of development.

In this context, it should be stressed that for domestic spending to be higher than national income, international financial markets should be willing to finance the country's external indebtedness. If foreign investors perceived a deterioration of the country's economic fundamentals that would put in jeopardy its payment capacity, capital flows to the country could become insufficient to finance the current account deficit. Furthermore, tighter conditions in the world economy could lead to a lower availability of capital flows to finance the current account deficit. If pressures on the current account reflect a lower external willingness to finance domestic spending, it is necessary to lower the absorption of the economy by means of a lower private or public consumption, so that domestic spending is congruent with the country's income level and so that the country's capacity to meet its payment obligations are not put into doubt.

When the current account deficit increases and the sources for its funding are limited, the endogenous adjustment of the economy to reduce the deficit is by means of a depreciation of the real exchange rate, so that imports become expensive enough and exports cheaper enough to reach a new equilibrium. However, this depreciation could pressure prices in the economy, possibly affecting inflation expectations, and, ultimately, causing inflation. An alternative way to show that an endogenous adjustment of the economy would imply pressures onto prices is to use the fact that, under certain assumptions, the real exchange rate can be expressed as the ratio of the price of tradable goods to the price of non-tradable goods. Thus, to address the current account deficit, a rise in the price of tradable goods with respect to non-tradable goods is required. This would lead to a lower spending on tradable goods and a higher production of these goods. In the absence of a reduction in the absorption, which could release pressures on the prices of non-tradable goods, a more marked increment in the prices of tradable goods would be required, possibly leading to a higher general price index. In this context, it is of the utmost importance for the Central Bank to monitor

the evolution of the current account, as pressures on the deficit could pose risks to the fulfillment of its mandate.

In light of a possible excess of absorption relative to its sources of financing, it is important to adopt the necessary economic policy actions to achieve an orderly adjustment of the economy and, in this way, mitigate the effect of the depreciation of the real exchange rate on prices. In this sense, there could be a trade-off as to what economic policy –fiscal or monetary- is more adequate. This trade-off should be resolved based on the nature of the source of imbalances. Further below, in Section 4, we discuss the appropriateness of carrying out the macroeconomic adjustment via fiscal policy in the current case of Mexico.

3. Recent Evolution of the Current Account

As can be seen in Chart 24 of the main body of this Report, the current account deficit measured in U.S. dollars has recently remained at levels similar to those observed since late 2012. However, when measured as a percentage of GDP, since 2013 the current account deficit has gradually expanded, most noticeably between 2014 and 2015. The measurement of the current account deficit in terms of GDP is particularly relevant because it scales the financing obtained from abroad in relation to the economy's income. In this respect, it should be noted that the Mexican GDP measured in U.S. dollars has been negatively affected by the depreciation of the exchange rate. This has partially contributed to the performance of the current account as a share of GDP.

Considering the evolution of its different components, the increment in this period mainly reflected the deterioration in the oil trade balance, while the rest of the current account components in the aggregate remained, in the aggregate, below the levels observed in previous years (Chart 1a). In particular, the increase in the current account deficit between 2014 and 2015 of 0.84 percentage points of GDP was the combined result of a deterioration in its oil component of 0.95 percentage points of GDP and a decrease in the rest of the components of 0.11 percentage points of GDP. As shown in Box 2 of the Quarterly Report October – December 2015, the oil trade balance shifted from a surplus to a substantial deficit, as a result of both an important deterioration in the oil terms of trade, and an increase in the volume of imported oil goods, in a context in which crude oil exports have been declining for several years (Chart 1b). The energy reform will contribute to solve the latter problem in the medium and long terms.

On the other hand, the slight improvement in the non-oil current account balance as a share of GDP between 2014 and 2015 reflected a decrease in the deficit of the balance on services (Chart 1c) and an increase in the surplus of the balance on current transfers –which consists fundamentally of remittances– (Chart 1e). This was partially offset by the increase in the deficit of the balance on income –which includes the payment of interest abroad– (Chart 1d) and a moderate rise in the deficit of the non-oil trade balance, which had been declining over previous years (Chart 1b).

Chart 1
Components of the Current Account
Percent of GDP

a) Current Account [1/]

b) Trade Balance [2/]

c) Services Balance

d) Revenue Balance

e) Transfer Balance
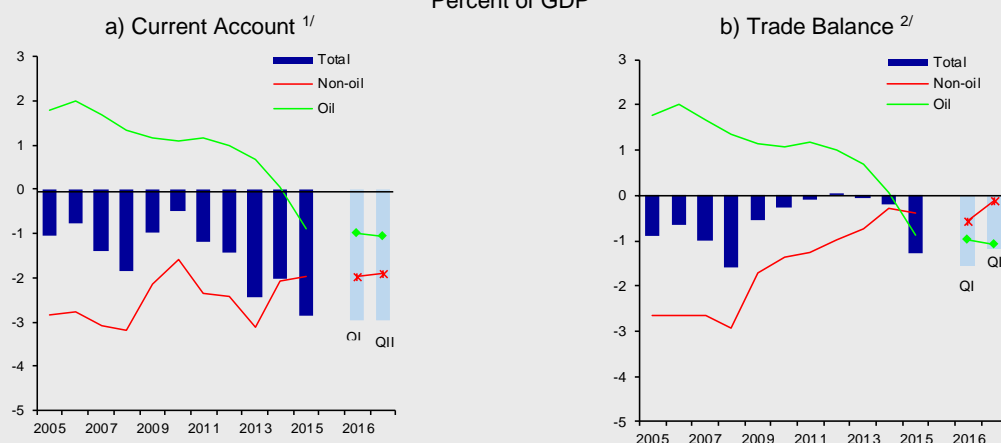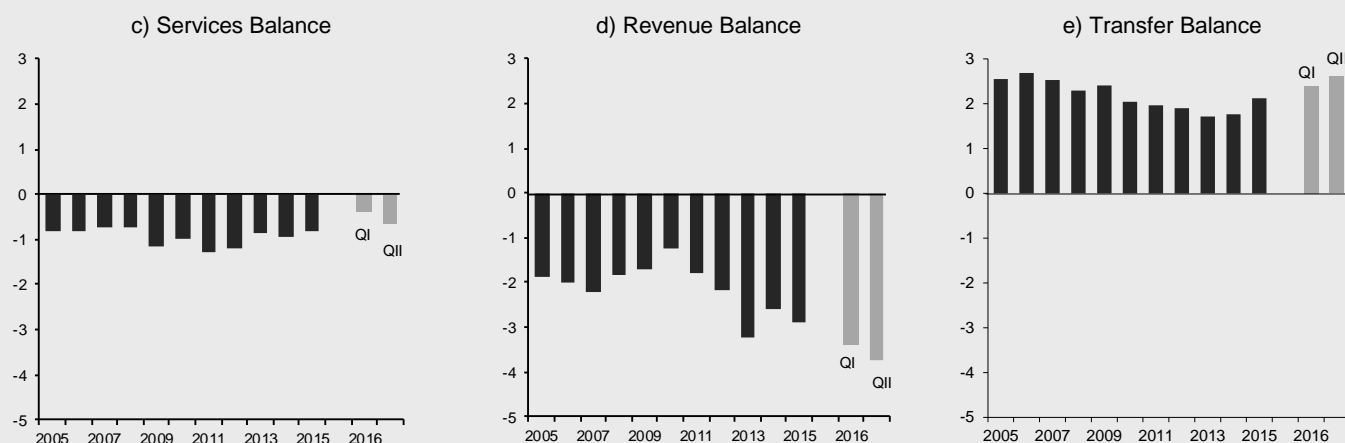
1/ The oil current account refers to the oil trade balance, whereas the non-oil current account corresponds to the current account excluding the oil trade balance.
2/ It includes the balance of goods acquired in ports.
Source: Prepared by Banco de México with data from INEGI and own data.

4. Considerations on the Recent Increment in the Deficit of the Current Account

The increase in the current account deficit that has been described could generate certain concerns if the nature of the shocks affecting it and the prevailing domestic and external economic environment are taken into account. In the first place, the drop in the oil price, which led to a strong deterioration in the oil terms of trade faced by Mexico, does not appear to be transitory. Even though a certain recovery in oil prices is foreseen, they are not anticipated to regain the levels observed in mid-2014. Secondly, the composition of domestic absorption seems to be biased towards a greater spending on consumption relative to investment. Indeed, in an environment of low growth and stagnant investment, a strong dynamism of consumption has been observed, although it was lessened in the second quarter. Thirdly, external financing conditions have become tighter, and given the complex international environment, access to external financing is anticipated to remain difficult.

These considerations suggest that an adjustment in domestic absorption is necessary, even though this does not imply that the current account is currently at unsustainable levels. In this sense, there is a need to adopt macroeconomic adjustment measures, either fiscal or monetary, that would foster adequate balances of the current account. The context in which an increase in the current account deficit as a share of GDP has occurred suggests that fiscal policy would be more effective than monetary policy. Indeed, even though the recent adjustments in the target interest rate are expected to contribute to mitigate pressures on the current account, it would be costly for the economy for most of the adjustment to rely on the monetary policy.

In that case, the imbalances would be corrected with a less efficient tool, as it would induce a reduction in domestic spending through changes in the interest rate, rather than doing it directly through lower public spending. The use of monetary policy, by reducing absorption in a context of tight external financing conditions, would imply both lower non-tradable and tradable goods' prices, so that to correct the external imbalances the required effect on the prices of non-tradable goods (and, therefore, on private spending) would have to be greater than what would be needed under fiscal policy, considering that the latter could directly release pressures on the prices of non-tradable goods relative to tradable goods. Additionally, from the point of view of its implementation, fiscal policy is also more efficient, as the decisions of the reduction in spending fall on only one agent, the public sector. This is opposed to what happens with private consumers, whose decisions are fragmented, and can therefore react in a less orderly manner in response to a monetary policy adjustment.

In other words, given the nature of the shocks that have caused the increase in the current account deficit and, in particular, considering the fact that the main reason for its recent deterioration is a decrease in public revenue, it would seem to be more efficient if the correction was made mainly by means of a fiscal adjustment. Furthermore, an adjustment in public spending would have a more direct effect on the absorption of resources than the impact that would be derived from a monetary policy action. Therefore, it can be concluded that fiscal policy constitutes a relatively more efficient tool to carry out the adjustment that seems desirable to foster adequate current account balances.

3.2.2.   Labor Market

The main indicators of the labor market in the second quarter of 2016 display mixed signals regarding its evolution, even though, in general, the conditions in that market seemed to have continued improving gradually. Indeed, while unemployment and informality rates kept decreasing, a certain deceleration in employment and wage indicators was observed.

In particular, in the period of April – July, both national and urban unemployment rates continued decreasing (Chart 67a). Likewise, the employed population registered a moderate expansion in the period (Chart 67c), in a context in which the labor participation rate stopped decreasing (Chart 67b). In addition, most employments were created in the formal sector. Indeed, the number of IMSS-insured jobs maintained a positive trend (Chart 67c). In this way, the labor informality rate kept falling and lies at levels below those observed prior to the 2009 global financial crisis (Chart 67d).

Chart 67
Labor Market Indicators

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

b) National 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.
Source: National Survey on Occupation and Employment (ENOE), INEGI.

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.

d) Informal Sector Employment [1]
and Labor Informality [2]
Percent, 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).

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.

Wage indicators suggest that, in general, wage increments have moderated in 2016:

i.   Indeed, in the period April – June, the growth rate of salaried workers' average was 3.7 percent, which was equal to that registered in the previous quarter (Chart 68a). In view of low inflation levels, these results continued to reflect yearly increases in real terms.

ii.   Likewise, in the reported quarter the daily wage of IMSS-insured workers presented a yearly growth rate similar to that observed in the previous quarter, both in nominal and in real terms (Chart 68b), although in July these changes somewhat moderated.

iii.   In the reference quarter, the growth rate of contractual wages negotiated by firms under federal jurisdiction was slightly above that in the same quarter of 2015 (Chart 68c). This increment is accounted for by a slightly higher average increase in wages negotiated by private firms as compared to last year, while increments negotiated by public firms led to a slightly lower rise in the growth rate as compared to the second quarter of 2015. In contrast, in July 2016, the growth rate of contractual wages negotiated by firms under federal jurisdiction was lower than that observed in the same month of 2015.

Finally, as mentioned above, the total wage bill of the economy has lost its dynamism in 2016. This performance was due to the fact that after observing a growing trend in most of 2015, both the employed salaried population and its average income displayed a certain stagnation in the first half of 2016.

Chart 68
Wage Indicators
Annual change in percent

a) Average Wage of Salaried Workers according to National Employment Survey (ENOE) [1]

b) Daily Wage of IMSS-insured Workers [2]

c) Nominal Contractual Wage [3]
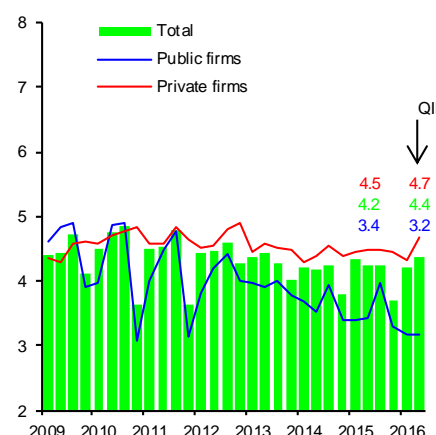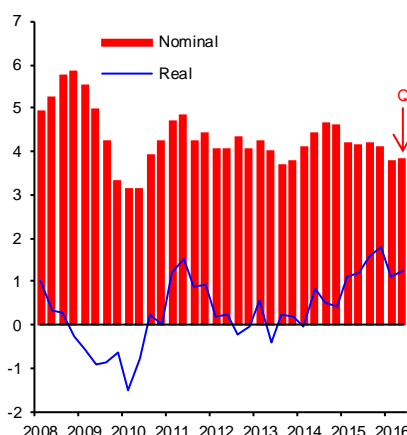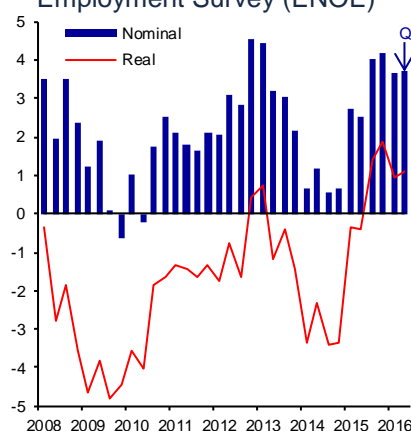
1/ To calculate average nominal wages, the lowest 1 percent and the highest 1 percent in the wage distribution were excluded. Individuals with zero income or those who did not report it are excluded.
2/ During the second quarter of 2016, on average 18.3 million workers were registered in IMSS.
3/ The 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.
Source: Calculated by Banco de México with data from IMSS, STPS and INEGI (ENOE).

3.2.3.   Financial Saving and Financing in Mexico

As a result of the environment prevailing in international financial markets, the sources of financial resources of the economy moderated their growth rate with respect to the first quarter of 2016. In particular, the lower growth of sources of financial resources derived from a deceleration in external sources of financing, while domestic ones presented a slightly higher growth rate as compared to the previous quarter. Despite the moderation in the availability of resources, financing to the private sector kept expanding at relatively high rates, which was partly due to a decrease in the public sector's use of resources. This evolution was also observed in the total flows corresponding to the last four quarters (Chart 69a and Chart 69b).

Chart 69
Total Funding of the Mexican Economy (Sources and Uses)
Accumulated flows of four quarters, in percent of GDP

a) Total Sources   b) Total Uses
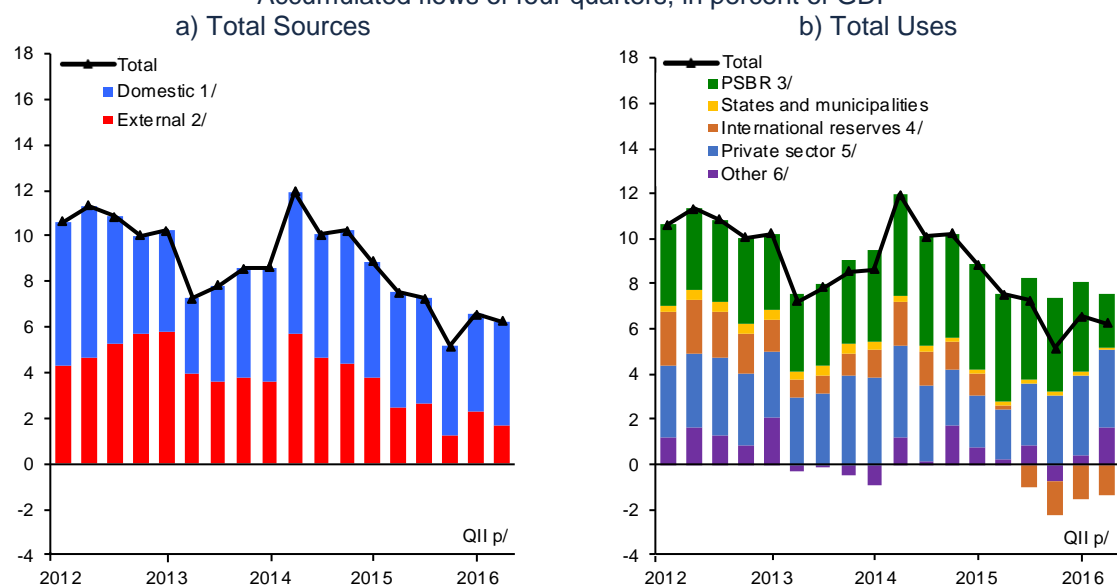
Note: Figures expressed in percent of nominal average annual GDP. The information on (revalued) flows is stripped from the effect of the exchange rate fluctuations.
p/ Preliminary data.
1/ It includes the monetary aggregate M4 held by residents.
2/ It includes the monetary aggregate M4 held by non-residents, foreign financing for the federal government, public institutions and enterprises, commercial banks' foreign liabilities and external financing to the non-financial private sector.
3/ Public Sector Borrowing Requirements (PSBR), as reported by the Ministry of Finance.
4/ It is made up by currencies and gold reserves of Banco de México, free of any security rights and the availability of which is not subject to any type of restriction; the position in favor of Mexico with the IMF derived from contributions to the said entity; currency obtained from financing to realize foreign exchange regulation of the IMF and other entities of international financial cooperation or groups of centrals banks, of central banks and other foreign legal entities who act as financial authorities. Currencies pending to be received for sales transactions against the national currency are not considered, and Banco de México's liabilities in currency and gold are deducted, except for those that are for a term longer than 6 months at the moment of reserves' estimation, and those corresponding to financing obtained to carry out the above mentioned foreign exchange regulation. See Article 19 of Banco de México's Law.
5/ It includes the 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 external financing. It includes restructuring programs.
6/ It includes external assets of commercial banks, 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 (IPAB), and the effect of the change in the valuation of public debt instruments, among other concepts.
Source: Banco de México.

Concerning the sources of financial resources, the deceleration in the external sources largely derived from the fact that the stock of non-resident financial saving kept contracting, as its real annual change was -8.4 percent at the end of the second quarter (Chart 70a).[15] This resulted from a lower foreign demand for assets in MXN, particularly Cetes, which in part could explain the depreciation of the national currency during the quarter (Chart 70b). It should be noted that positions of the external sector in Cetes are usually from investors who exploit temporary arbitrage opportunities in the markets to generate profits in the short term, while long-term positions –which have grown this year–, reflect foreign investors' confidence in the potential and stability of the Mexican economy in the long term

In contrast, the stock of domestic financial saving expanded at a slightly higher rate than in the previous quarter, as its growth rate increased from 4.4 to 4.9 percent

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[15] The stock of financial saving is defined as the monetary aggregate M4 minus the stock of currency held by the public.

between the first and the second quarters of 2016 (Chart 70a). This performance reflected a greater expansion of both the voluntary and compulsory components (Chart 70c). On the other hand, the monetary base maintained its average growth rate over the last three months with respect to the previous period –its real annual change shifted from 12.9 percent in the first quarter to 13.0 percent in the second quarter of the year-, even though it remains at relatively high levels.

As regards the use of financial resources of the economy, financing to the public sector reduced as compared to the previous quarter, which derived from the fact that for the second consecutive quarter Public Sector Borrowing Requirements (PSBR) as a proportion of GDP decreased (Chart 69b). In particular, between the first and the second quarters of 2016, PSBR dropped from 3.9 to 2.5 percent of GDP in terms of their annual flows. This principally reflected the inflow of extraordinary income to the Federal Government stemming from the delivery of Banco de México's operational surplus of the 2015 fiscal year.[16] It was also contributed to by the increment in tax revenues and a lower public spending, consistent with the goals of fiscal consolidation and preemptive adjustments to the programmable expenditure announced by the Ministry of Finance. Congruent with this reduction in PSBR, on August 22, the Ministry of Finance announced that, based on the expected evolution of revenues and public spending, PSBR will close this year at 3.0 percent of GDP, which is below the estimate of 3.5 percent of GDP presented in General Criteria of Economic Policy 2016.[17] This will imply that in 2016 there will be a lower public sector's use of financial resources, with respect to the 4.1 percent of GDP registered in 2015. Meanwhile, international reserves reduced slightly, by USD 279 million in the second quarter of 2016, after an increment of USD 952 million registered in the previous quarter.

Total financing to the non-financial private sector continued expanding at a relatively high rate, even though it was more moderate than in the previous quarter. Indeed, adjusting for the exchange rate effect, its growth rate in real annual terms shifted from 6.8 to 6.0 percent between the first and the second quarters of the year (Chart 71a). This moderation derived from a deceleration of external financing –as a reflection of the negative environment faced by international financial markets in the reference quarter–, while domestic financing expanded at a greater rate than in the previous quarter.

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[16] See the Press Release of Banco de México as of April 11, 2016.
[17] See the Press Release of the Ministry of Finance as of August 22, 2016.

Chart 70
Financial Saving Indicators

a) Total Financial Saving [1]
Real annual change in percent

b) Government Securities' Holdings
by Foreign Investors and
Exchange Rate [2]
MXN billion and MXN/USD
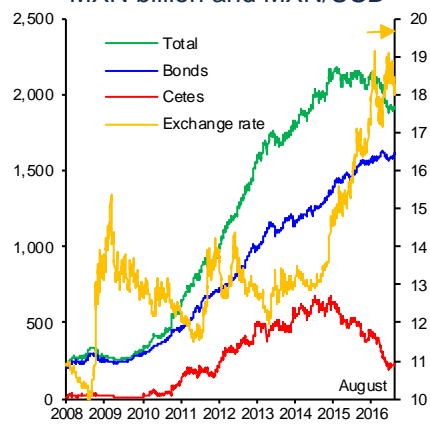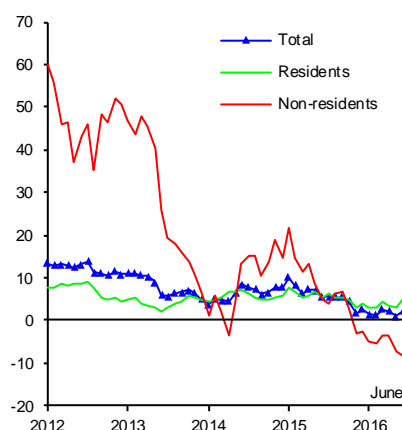
c) Resident Financial Saving
Real annual change in percent
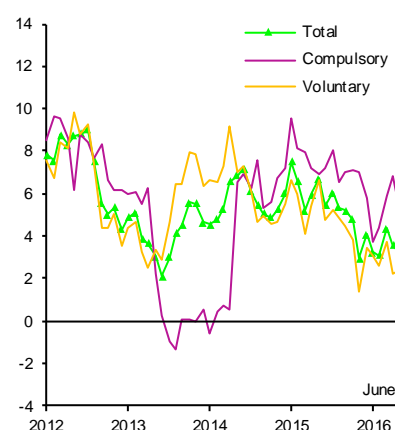
1/ It is defined as the monetary aggregate M4 minus the stock of currency held by the public.
2/ The total includes CETES, bonds, udibonos, bondes and bondes D.
Source: Banco de México.

Domestic financing to non-financial firms presented a real annual growth, adjusted for the exchange rate effect, of 9.1 percent as of the end of the reported quarter, rebounding in June, after four months of deceleration. This derived from the expansion of the banking credit, given that the domestic debt market has shown low activity levels during the year (Chart 71b and Chart 72a). Indeed, at the end of the second quarter of the year, commercial and development banks' performing credit portfolios to non-financial private firms registered increments close to 10 percent in real annual terms and adjusting for the exchange rate effect (Chart 72b). Particularly for the case of commercial banks, even though these growth rates had not been observed since 2011, they are still significantly below those registered prior to the onset of the international financial crisis. In this context, although the interest rates of financing to firms tended to reflect increments in the banks' funding rate, they are still close to historical minimum levels (Chart 73a and Chart 73b). Likewise, the respective delinquency rates also generally remained at relatively low levels, despite the fact that the quality of development banks' credit portfolio somewhat deteriorated in the reference quarter (Chart 73c).

Chart 71
Financing to the Non-financial Private Sector
Real annual change in percent

a) Total Financing to the
Non-financial Private Sector [1]

b) Domestic Financing to
Non-financial Private Firms
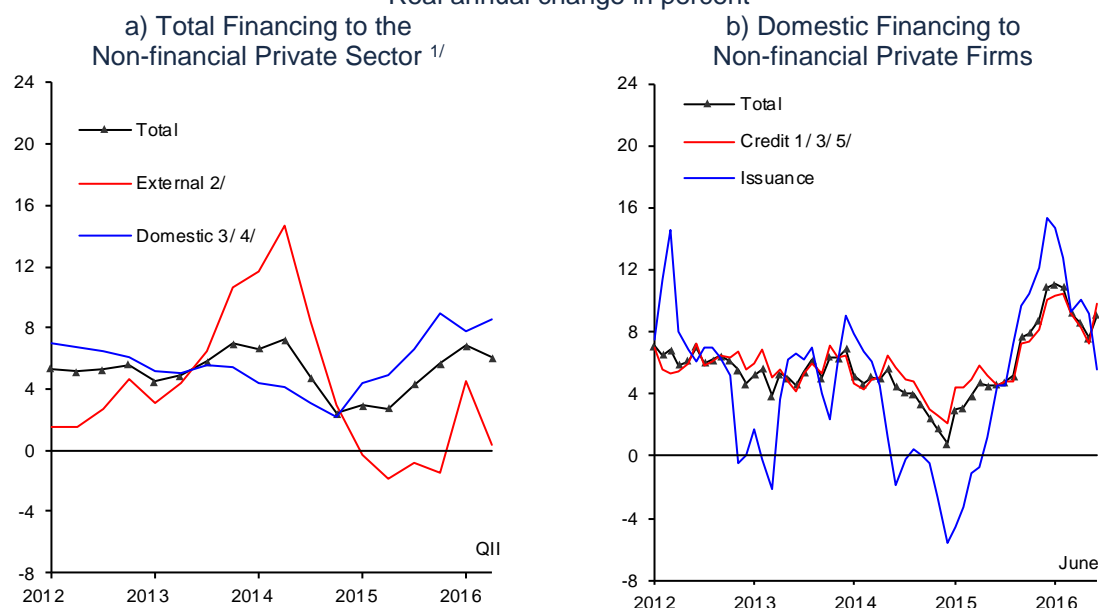
1/ Data adjusted for exchange rate effects.
2/ Data of foreign financing for the second quarter of 2016 are preliminary.
3/ These data can be affected by the disappearance of some non-bank financial intermediaries and their conversion to non-regulated
multiple purpose financial corporations (Sofom ENR).
4/ These figures are adjusted due to the withdrawal from and incorporation of some financial intermediaries to the credit statistics.
5/ It refers to the performing and non-performing portfolio, and includes credit from commercial and development banks, as well as other
non-bank financial intermediaries.
Source: Banco de México.

Chart 72
Domestic Financing to Non-financial Private Firms

a) Securities in Circulation
Stocks in MXN billion as of June 2016
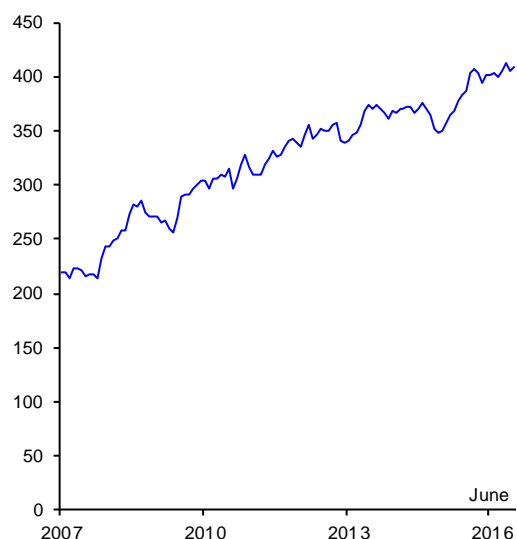
b) Performing Credit [1]
Real annual change in percent
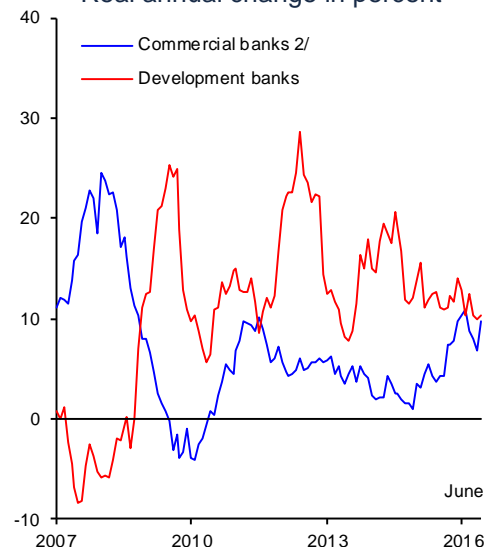
1/ Data adjusted for exchange rate effects.
2/ It includes the Sofomes ER subsidiaries of bank institutions and financial groups. Data are adjusted so as not to be affected by the
transfer of bridge loans.
Source: Banco de México.

Chart 73
Annual Interest Rates and Delinquency Rates of Non-financial Private Firms

a) Annual Interest Rates of Private Securities Quarterly average in percent	b) Annual Interest Rates of New Credits [3/] Annual percent	c) Delinquency Rates [4/] Percent
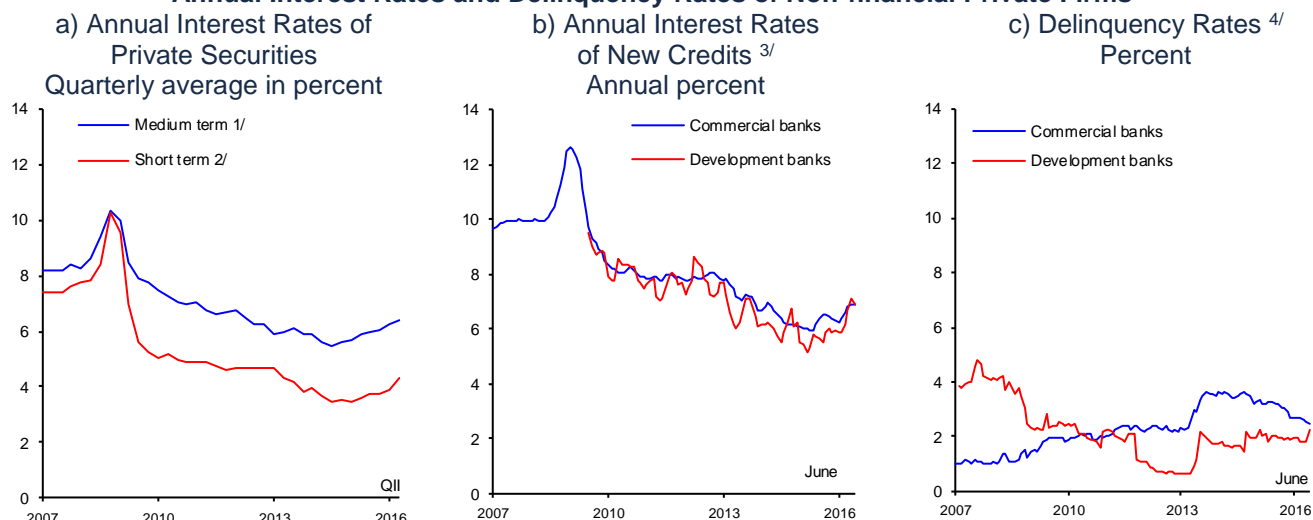
1/ Average weighted yield to maturity of emissions in circulation, with a term over 1 year, at the end of the month.
2/ Average weighted rate of private debt placements, at a rate of up to 1 year, expressed in a 28-day curve. It only includes stock exchange certificates.
3/ It refers to the interest 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. It is presented as a 3-month moving average.
4/ The delinquency rate is defined as the stock of non-performing loans divided by the stock of total loans.
Source: Banco de México.

Credit to households, both mortgage loans and consumer credit, kept expanding, its real annual growth rate shifting from 6.7 to 8.0 percent between the first and the second quarters of 2016 (Chart 74a). The expansion rate of the housing credit increased from 5.8 to 7.1 percent, which reflected a greater granting of credit both by the National Housing Fund (Infonavit) and by commercial banks (Chart 74a and Chart 74b).[18] The interest rates persisted at historically low levels and the delinquency rate of mortgage loans granted by commercial banks remained low and stable. However, the quality of the Infonavit credit portfolio slightly deteriorated, reason why it is important to continue monitoring the evolution of delinquency in this segment over the following quarters (Chart 74c).

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[18] 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 74
Credit to Households

a) Total Credit [1/]
Real annual change
in percent

b) Performing Housing Credit
Real annual change
in percent

c) Annual Interest Rate of New
Credits and Delinquency Rate
of the Housing Credit
In percent

1/ These data are adjusted due to the withdrawal from and the incorporation of some financial intermediaries to the credit statistics.
2/ It includes the Sofomes ER subsidiaries of bank institutions and financial groups.
3/ Figures are adjusted in order to avoid distortions by the transfer and the reclassification of direct credit portfolio, 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.
4/ The interest rate of new housing credits from commercial banks, weighted by stock associated to the performing credit. It includes credit for acquisition of new and used housing.
5/ The delinquency rate is defined as the stock of non-performing loans divided by the stock of total loans.
Source: Banco de México.

On the other hand, consumer credit continued expanding. In particular, the performing credit portfolio of commercial banks for consumption expanded practically in all its segments, its growth rate shifting from 9.7 to 11.0 percent between the first and the second quarters (Chart 75a). In this context, interest rates and respective delinquency rates generally did not observe any relevant changes, with the exception of the delinquency rate of the payroll credit portfolio, which slightly increased in the reference quarter, while still persisting at relatively low levels (Chart 75b).

Chart 75
Commercial Banks' Consumer Credit

a) Performing Credit [1/]
Real annual change in percent

b) Delinquency Rates [1/ 5/]
In percent

1/ It includes the Sofomes ER subsidiaries of bank institutions and financial groups.
2/ It includes credit for payable leasing operations and other consumer credits.
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 auto loans and credit for acquisition of other movable properties.
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. For this Report, the data are up to May 2016.
Source: Banco de México.

In total, despite lower sources of financial resources of the economy, financing to the private sector continued expanding, which was contributed to by the reduction in the public sector's use of resources. In the context described in this Report, and in view of the slack global growth and high uncertainty that is expected to prevail abroad, it is fundamental to continue with the fiscal consolidation process, in a way that would allow the economy to develop in an efficient and orderly manner in an external environment characterized by less favorable conditions. Likewise, Banco de México will continue monitoring that the allocation of financial resources to different sectors of the economy continues at a rate congruent with the preservation of an environment of macroeconomic stability, and, in particular, of expenditure levels compatible with the productive capacity of the economy.

4.   Monetary Policy and Inflation Determinants

During the second quarter of 2016, the conduct of monetary policy continued facing a complex environment. Although the available information suggested a central scenario for inflation for the short and medium terms congruent with the permanent 3 percent target, and no aggregate demand-related pressures onto prices were perceived, throughout the reference period external conditions deteriorated importantly. In light of its consequences for the exchange rate dynamics, this situation could eventually lead to deanchoring of inflation expectations and, hence, to higher inflation.

Consistent with the above, in its monetary policy meeting of May 5, the Board of Governors decided to maintain unchanged the target level for the Overnight Interbank Interest Rate at 3.75 percent. Nonetheless, it was stressed that it would continue to closely monitor the evolution of all inflation determinants and its medium- and long-term expectations, especially the exchange rate and its possible pass-through onto consumer prices. Subsequently, in view of higher volatility in international financial markets and the deterioration of the external environment, the quote of the national currency depreciated significantly, its volatility increased, and domestic interest rates went up for most terms, as well as their spreads with respect to U.S. interest rates. This environment threatened the anchoring of inflation expectations, and, therefore, could have led to an unfavorable inflation dynamics. Thus, considering the lag with which monetary policy affects inflation through different transmission channels, on June 30, the Board of Governors decided to increase by 50 basis points the target for the Overnight Interbank Interest Rate to 4.25 percent. On the other hand, on August 11, the Board of Governors decided to keep the reference interest rate unchanged (Chart 76). This is in accordance with the fact that, given the adjustment carried out in June, the central scenario for inflation for the short and medium term was considered to remain congruent with the permanent 3 percent target and the balance of risks was deemed neutral.

Chart 76
Overnight Interbank Interest Rate Target [1]
Annual percent
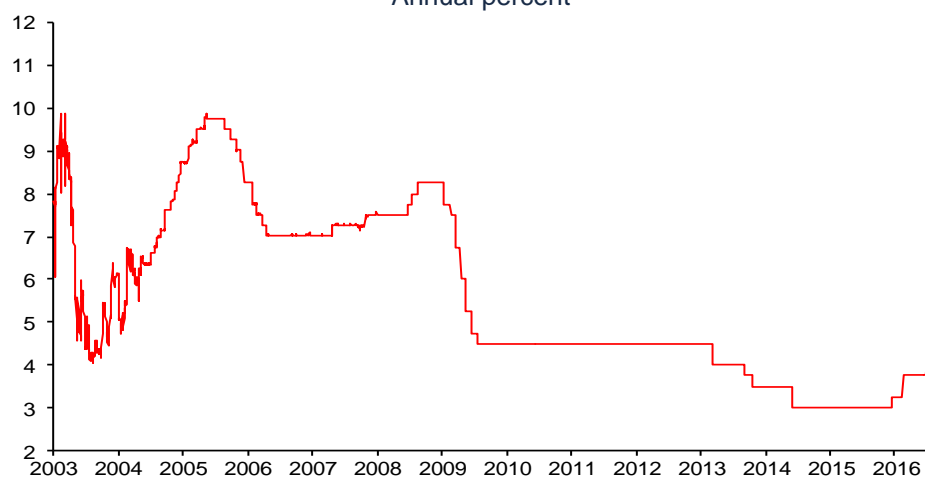
1/ The Overnight Interbank Interest Rate is shown until January 20, 2008.
Source: Banco de México

Among the elements considered to justify the monetary policy decisions made in the period analyzed in this Report, the following stood out:

i.   Even though annual inflation remained below the permanent 3 percent target, annual core inflation continued to show a gradual upward trend. This evolution mainly derives from the effect of the exchange rate depreciation on the relative prices of merchandise with respect to services.

ii.   In this sense, although during April the exchange rate remained relatively stable at an average level of MXN/USD 17.50, it depreciated by 8.6 percent between May and late June. Subsequently, from that date to the beginning of August, it fluctuated at levels close to MXN/USD 18.60, despite high volatility, to later experience a moderate appreciation to levels close to MXN/USD 18.40 during the last week (Chart 77a and Chart 77b). It is noteworthy that the dynamics of the national currency were even more affected than other emerging economies' currencies. This was contributed to by: a) a drop in the crude oil price and its effect on the real exchange rate, as a consequence of the deterioration in the terms of trade it implied; b) an increment in the current account deficit, given tighter external financing conditions in an environment in which there has been an increase in the historical balance of Public Sector Borrowing Requirements; and c) volatility in financial markets in light of different geopolitical events and risks, the consequences of which on the exchange market have been aggravated by the use of Mexican peso derivatives in risks hedging strategies and by other emerging economies' currencies denominated assets in the portfolios of international investors.

iii.   In this context, even though inflation expectations derived from surveys and from market instruments remained anchored, and although no second round effects on the price formation in the economy were registered, as a result of the impact of the exchange rate fluctuation on the prices of tradable goods, there was a risk that, in light of the described exchange rate dynamics, eventually a deanchoring of inflation expectations could occur.

vi.   Short-term and medium-term interest rates increased gradually during the period covered by this Report, while the market began to anticipate future increments in the reference interest rate. Meanwhile, despite certain volatility, longer-term interest rates remained relatively stable during the analyzed period, even recording some decreases in their longest terms.

It should be stressed that the fact that the last two adjustments in the monetary policy stance were 50-basis-point increments does not establish a behavior pattern. In particular, this Central Institute has made it clear that it will act with flexibility and opportunity, both in terms of magnitude and frequency of future adjustments, as conditions require.

Chart 77
Exchange Rate and Implied Volatility

a) Nominal Exchange Rate [1/]
MXN/USD

b) Current Option Implied Volatility [1/]
Percent

1/ The observed exchange rate is the daily quote of the FIX exchange rate. The black vertical line indicates January 1, 2016 and the dotted line indicates June 30, 2016.
Source: Banco de México.

1/ Currency option implied volatility refers to one-month options. The black vertical line indicates January 1, 2016 and the dotted line indicates June 30, 2016.
Source: Bloomberg.

Delving in the elements considered by the monetary authority in its decisions, it stands out that in the second quarter of 2016 the output gap would seem to have remained negative (Chart 78). The labor market, on the other hand, presented mixed signals regarding its evolution, as it has been previously discussed. In particular, unemployment and labor informality rates went down in the reported quarter. However, the growth rate of the wage bill notably moderated, while, with the information as of the first quarter of the year, given the moderate growth rate in wages and the behavior of labor productivity, unit labor costs for the economy, as a whole, remained at low levels (Chart 79a). Still, in the manufacturing sector, in particular, they presented a growing trend, although they continue at low levels (Chart 79b).

Chart 78
Output Gap Estimate [1]
Percentage of potential output, s. a.
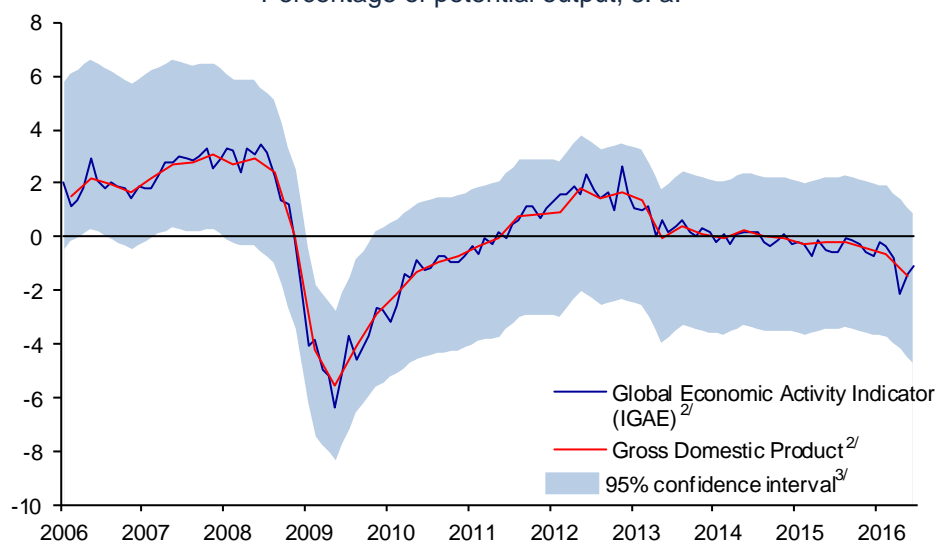
Global Economic Activity Indicator (IGAE) [2]
Gross Domestic Product [2]
95% confidence interval [3]

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 second quarter of 2016. IGAE figures as of June 2016.
3/ Confidence interval of the output gap calculated with an unobserved components' method.
Source: Estimated by Banco de México with data from INEGI.

Chart 79
Productivity and Unit Labor Cost
Index 2008=100, s. a.

a) Total of the Economy

Unit labor costs
Productivity

b) Manufactures

Unit labor costs
Productivity

s. a. / Seasonally adjusted and trend series. The former is represented with a solid line, the latter, with a dotted line. Trends estimated by Banco de México.
Source: Unit cost prepared by Banco de México based on data from INEGI. The Global Index of Labor Productivity in the Economy (IGPLE), as released by INEGI.

s. a. / Seasonally adjusted and trend series. The former is represented with a solid line, the latter, with a dotted line.
Source: Prepared by Banco de México with seasonally adjusted data from the Monthly Manufacturing Business Survey and the Indicator of Industrial Activity of the Mexico's System of National Accounts, INEGI.

As to the performance of inflation expectations based on Banco de México's survey among private sector specialists, it is noteworthy that the median corresponding to the end of 2016 decreased, shifting from 3.3 to 3.2 percent, between the surveys of March and July 2016.[19] In particular, the median of core inflation expectations went up from 3.1 to 3.2 percent and that corresponding to implicit expectations in the non-core component adjusted from 4.0 to 3.2 percent between these two surveys (Chart 80a). Meanwhile, the median of inflation expectations for the end of 2017 remained at 3.4 percent during the same period. Specifically, the median of expectations of the core component went up from 3.2 to 3.3 percent, while implicit expectations in the non-core component adjusted from 3.9 to 3.7 percent between the referred surveys (Chart 80b).[20] Finally, longer-term inflation expectations remained at 3.3 percent in 2016 (Chart 80c). [21]

Chart 80
Inflation Expectations
Percent

a) Medians of Headline, Core and Non-core Inflation Expectations as of End of 2016
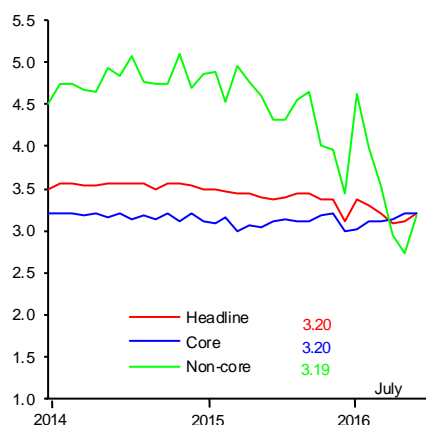
b) Medians of Headline, Core and Non-core Inflation Expectations as of End of 2017
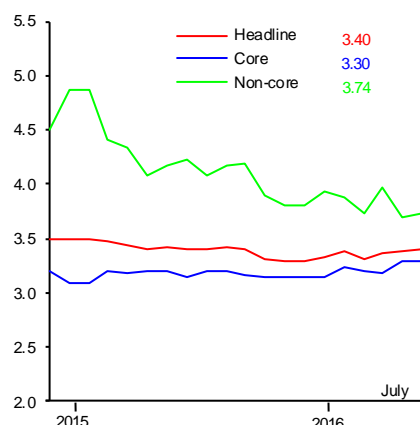
c) Medians of Headline Inflation Expectations for Different Terms
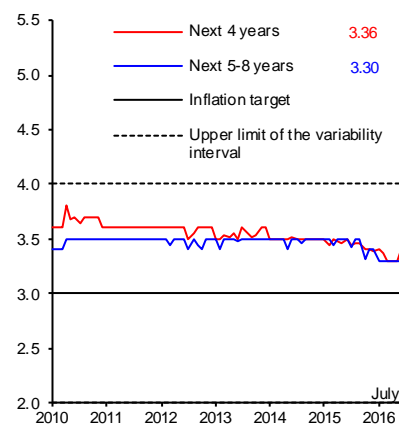
Source: Banco de México's Survey.

Inflation expectations implicit in 10-year market instruments remain stable around 3.0 percent, while the inflation risk premium slightly increased and lies around zero, after being at negative levels for a long period (Chart 81a).[22] Thus, the break-even inflation (the difference between long-term nominal and real interest rates) increased, but remains at levels close to historic lows (Chart 81b). The evolution of these indicators shows that holders of nominal interest rate instruments currently keep demanding a relatively low break-even inflation and inflation risk in Mexican government bonds.

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[19] The median of headline inflation expectation for the end of 2016, based on the Banamex survey, slid from 3.3 to 3.2 percent between the surveys of March 18 and August 22, 2016.

[20] The median of headline inflation expectation for the end of 2017, based on the Banamex survey, went up from 3.3 to 3.4 percent between the surveys of March 18 and August 22, 2016.

[21] The median of long-term inflation expectations, based on the Banamex survey (for the next 3 to 8 years) remained at 3.3 percent between the surveys of March 18 and August 22, 2016.

[22] For a description of the estimation of long-term inflation expectations, see the Box "Decomposition of the Break-even Inflation" in the Quarterly Report, October – December 2013. For the current Report, the estimate was updated by including data as of December 2015.

Chart 81
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.
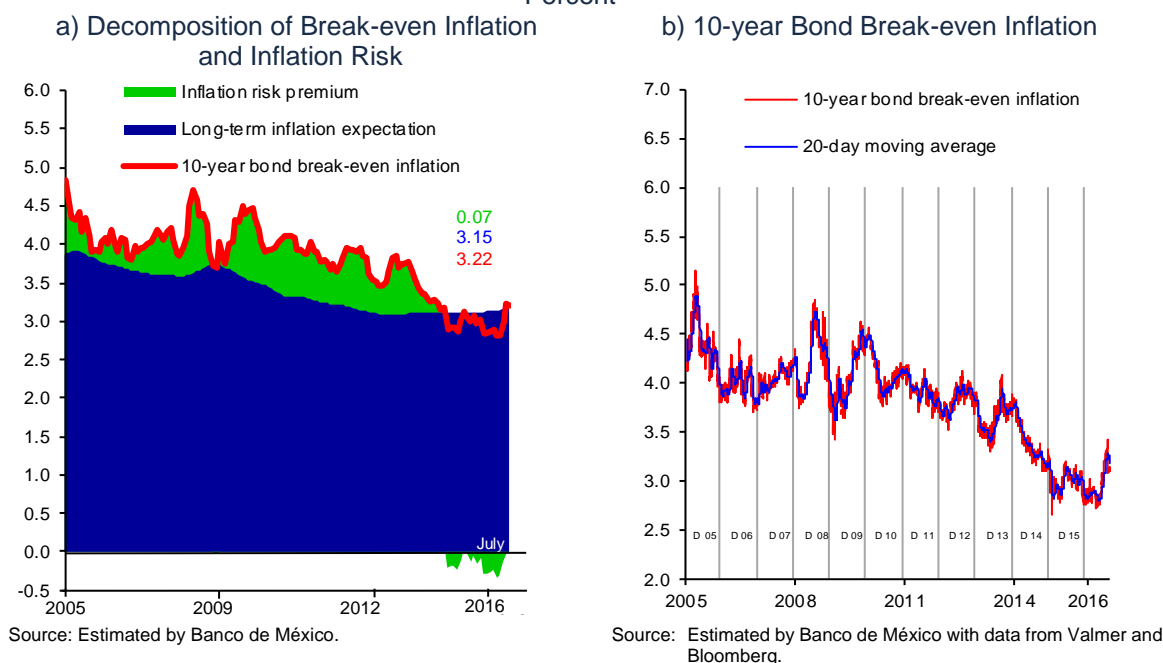
The evolution of the domestic financial markets was largely affected by the changes in volatility in international markets and by the economic policy actions taken in Mexico. In this way, the slope of the yield curve decreased considerably in the first quarter of the year, as a response to the monetary policy adjustment agreed on in an extraordinary meeting in February. Later on, as mentioned above, during May and June volatility increased in financial markets, the exchange rate depreciated and short- and medium-term interest rates increased. In this context, there was a monetary policy adjustment in June, which also led to a notable flattening of the yield curve, thus producing the desired effect. In particular, from April to mid-August, 3-month and 2-year sovereign bond rates increased by 50 and 90 basis points, from 3.9 to 4.4 percent and from 4.3 to 5.2 percent, respectively. In contrast, 10-year bond rate decreased by 10 basis points, from 6.0 to 5.9 percent, over the same period (Chart 82a). Thus, the slope of the yield curve (approximated by the difference between 10-year and 3-month rates) lowered notably, from 210 to 150 basis points in the referred period (Chart 82b). In this respect, it should be mentioned that the flattening of the yield curve can be interpreted as evidence that, despite an increment in the cost of money in the short term, inflation expectations remained well-anchored, which, as a consequence, contributes to play down the potential negative effect of the reference interest rate increase on investments in long-term financial instruments.

Chart 82
Interest Rates in Mexico
Percent
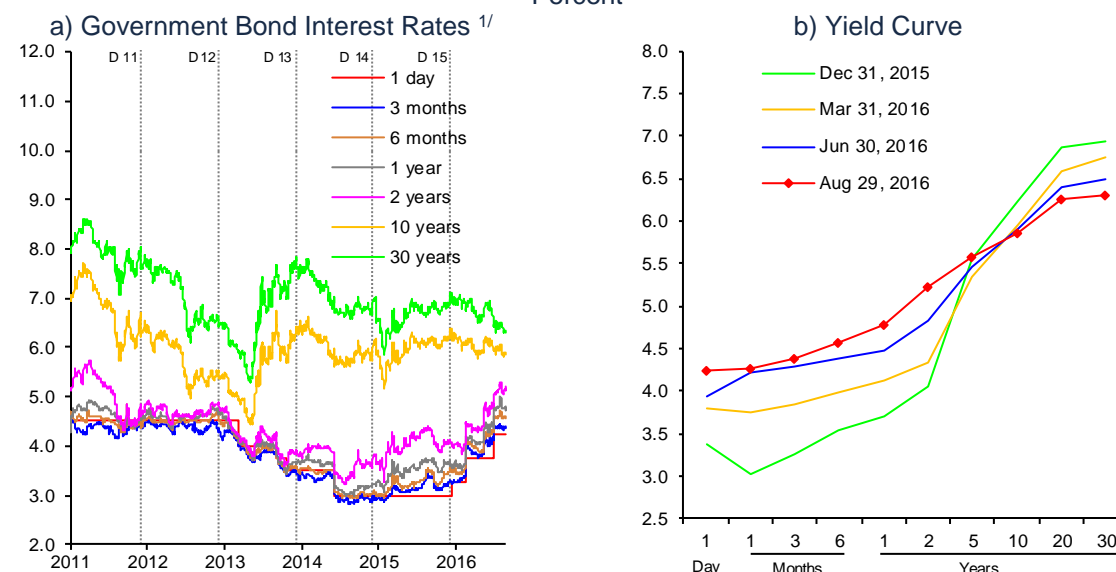
a) Government Bond Interest Rates [1/]

b) Yield Curve

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).

Meanwhile, given that U.S. interest rates registered widespread decreases, the spreads between Mexican and U.S. interest rates slightly increased. Thus, the 10-year interest rate spread went up from 420 to 430 basis points from April to mid-August (Chart 83).

Chart 83
Spreads between Mexican and U.S. Interest Rates [1/]
Percentage points
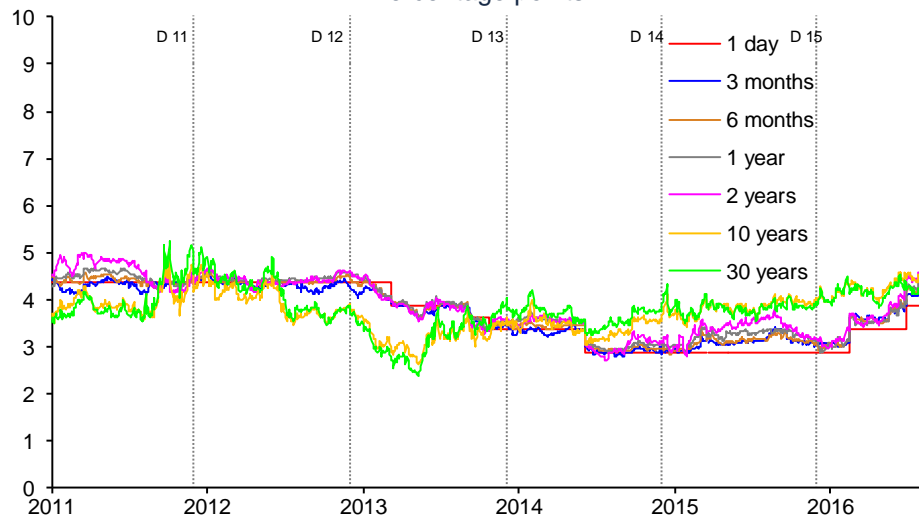
1/ For the U.S. target rate, an average interval considered by the Federal Reserve is considered.
Source: *Proveedor Integral de Precios* (PiP) and U. S. Department of the Treasury.

Given a possibility that volatility in international financial markets may exacerbate, in view of the persisting geopolitical risks, the risk of facing low oil prices given the prevailing weak global growth and the consequences of the normalization process

of the Federal Reserve monetary stance, it is crucial to continue maintaining sound macroeconomic fundamentals in Mexico. This has been significantly contributed to by adjustments in the fiscal and monetary policies implemented throughout the year, as well as the anticipated renewal and an increment in the FCL for Mexico granted by the IMF. This, not only due to the available contingent financing that this credit line implies (USD 88 billion on the day of the renewal), but also due to the incentive generated to maintain a sound macroeconomic framework.[23] In any case, given the external uncertainty and the performance of the Public Sector Borrowing Requirements in recent years, additional consolidation measures of public finances, such as reaching a primary surplus starting from 2017, as proposed by the Ministry of Finance, have become indispensable to be able to absorb shocks from abroad in a more efficient manner and to encourage adequate balances of the current account. On the other hand, if future circumstances so require, this Central Institute will adjust its monetary policy stance with opportunity, flexibility and with the magnitude needed, with the aim to maintain inflation and its expectations well-anchored, which, in turn, will lead to greater financial stability.

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[23] The Flexible Credit Line increased from SDR 47.3 to 62.4 billion. See the press release of the Foreign Exchange Commission as of May 27, 2016.

5.   Inflation Forecasts and Balance of Risks

GDP Growth Rate: The Mexican economy has continued facing a complex external environment, which, in fact, has tended to become more adverse over time. Indeed, in addition to a continued stagnation of world trade and the weakness of the U.S. industrial sector, various geopolitical developments have accentuated uncertainty regarding the world economic outlook. In this context, although the recovery of the U.S. industrial production is still expected to foster Mexican exports over the next quarters, this boost is projected to be lower than the estimate presented in the previous Report.[24]

Additionally, although an economic slowdown in the second quarter of the year was already anticipated in the previous Report, it apparently turned out to be more pronounced than previously estimated. In this way, the intervals of the economic activity growth forecasts for 2016 and 2017 should be revised downwards, given the persistence of the adverse external environment and the effects of the GDP drop in the second quarter on the average level that this aggregate will register during the year. Thus, the Mexican GDP is forecast to grow between 1.7 and 2.5 percent in 2016. This interval compares to that of 2.0 and 3.0 percent published in the previous Report and is narrower, given that more information is available. Likewise, the forecast interval for 2017 is revised from a growth of 2.3 to 3.3 percent published in the previous Report to that of 2.0 to 3.0 percent (Chart 84a). In this respect, it should be noted that the structural reforms are expected to contribute to the recovery of the private domestic expenditure and to gradually generate a more favorable environment for expansion that would lead to higher growth rates of consumption and investment.

Employment: Despite the downward revision of the GDP growth forecasts for 2016, the strong dynamism observed in the number of IMSS-affiliated jobs in recent months implies that there will be no adjustment of this indicator's forecast interval for that year with respect to the last Report. Thus, for 2016 an increment between 590 and 690 thousand IMSS-affiliated employments is still anticipated. Still, a lower economic growth foreseen for 2017 does imply a downward revision in growth expectations for the number of IMSS-insured jobs for that year. In particular, for 2017, the forecast interval is revised from 630 to 730 thousand jobs to 610 to 710 thousand employments, relative to the estimate in the previous Report.

Considering the described growth expectations, the output gap is still estimated to remain negative in the forecast horizon, and, in this context, no aggregate demand-related pressures on prices are expected (Chart 84b).

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[24] Expectations for the U.S. economy are based on the consensus of analysts surveyed by Blue Chip in August 2016. For 2016, U.S. industrial production is expected to decline by 0.9 percent, which is lower than the annual percentage change of -0.4 percent estimated in the last Quarterly Report. For 2017, growth of 2.0 percent is foreseen, with respect to 2.3 percent announced in the previous Quarterly Report.

Chart 84
Fan Charts: GDP Growth and Output Gap

a) GDP Growth, s. a.
Annual percent

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

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

s. a. / Seasonally adjusted data.
Source: Banco de México.
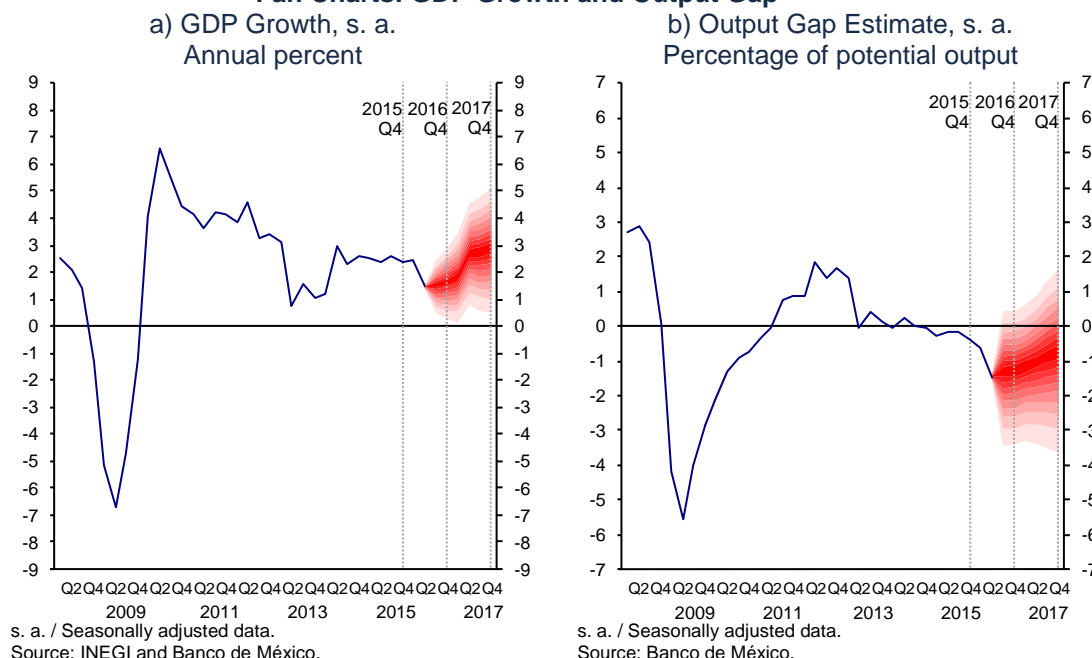
Current Account: The expected current account balance for 2016 and 2017 implies a greater deficit as a percentage of GDP, as compared to those observed in 2014 and 2015 of 2.0 and 2.9 percent, respectively. In particular, for 2016, deficits in the trade balance and the current account of USD 16.0 and 32.4 billion are anticipated, respectively (1.5 and 3.1 percent of GDP, in the same order). For 2017, deficits in the trade balance and the current account are estimated to be USD 16.0 and 35.6 billion, respectively (1.4 and 3.2 percent of GDP, in the same order).

Among downward risks associated to the growth forecast, the following stand out:

i.   The possibility that the weak performance of the Mexican exports may persist. They could be affected by a smaller than expected economic growth both of the global economy and of the U.S. In the particular case of the U.S., the impact can be generated, among other factors, by the uncertainty related to the electoral process and its implications. Besides, Mexican exports may go down due to lower crude oil prices and/or a further reduction in the oil production platform.

ii.   The political and economic landscape prevailing in the U.S. could also affect the growth of the Mexican economy, by reducing investment in our country.

Among upward risks to growth, the next should be listed:

i.   The possibility that the structural reforms may affect economic growth favorably and faster than anticipated.

ii.   That consumption will register a more pronounced and lasting sustained reactivation, which could be contributed to, among other factors, by a more notable improvement in the labor market, by a persisting dynamism of workers' remittances and the reestablishment of higher consumer confidence levels.

Inflation: Over the following months, annual headline inflation is estimated to gradually go up, locating very close to 3 percent at the end of 2016 and with an average below this figure, for the year as a whole. This forecast contemplates the formula used by the Ministry of Finance to set maximum gasoline prices, as well as the evolution of this fuel's international references. The effect of the above is partially offset by the favorable impact on inflation by the reduction in the L.P. gas prices announced by the same Ministry on August 14, 2016. Meanwhile, annual core inflation is expected to increase gradually throughout 2016, closing the year at levels near 3 percent. For 2017, both headline and core inflation are anticipated to lie around the permanent inflation target (Chart 85 and Chart 86).

Among upward risks to inflation, the following should be pointed out:

i.   That derived from uncertainty related to the outcome of the U.S. electoral process and its implications, the possibility of weaker oil prices, a deterioration of the current account deficit, and the resumption of the normalization of the Federal Reserve monetary stance, the national currency may further depreciate, which, in turn, could impact inflation expectations and its performance.

ii.   Increments in agricultural products' prices, even though their impact on inflation would tend to be transitory.

Among downward risks, the next should be listed:

i.   Further reductions in prices of some widely used inputs, such as telecommunication services, as a consequence of the structural reforms.

ii.   That in the future the dynamism of the national economy will remain lower than anticipated, which would lower the possibility of aggregate demand-related pressures on inflation.

Chart 85
Fan Chart: Annual Headline Inflation [1]
Percent
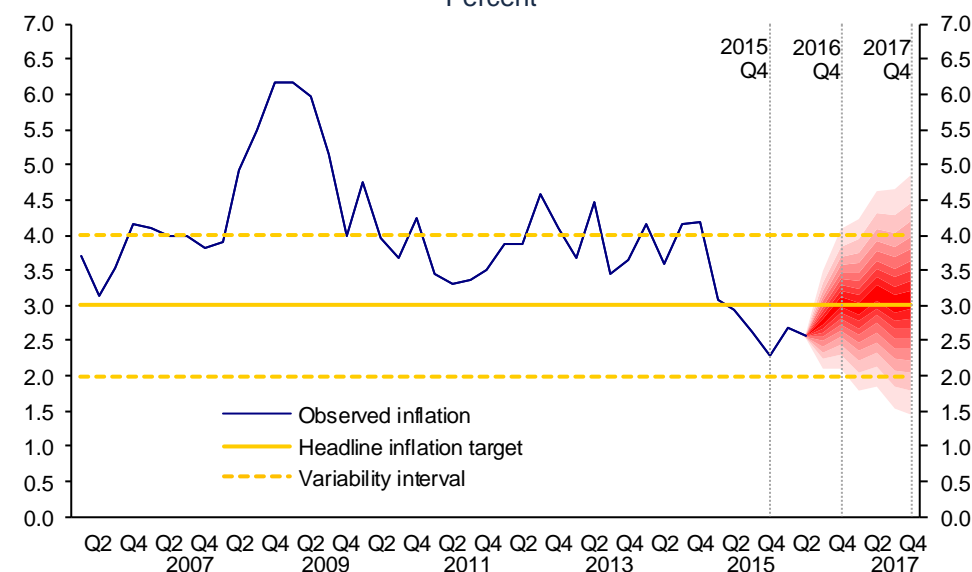
1/ Quarterly average of annual headline inflation.
Source: Banco de México and INEGI.

Chart 86
Fan Chart: Annual Core Inflation [1]
Percent
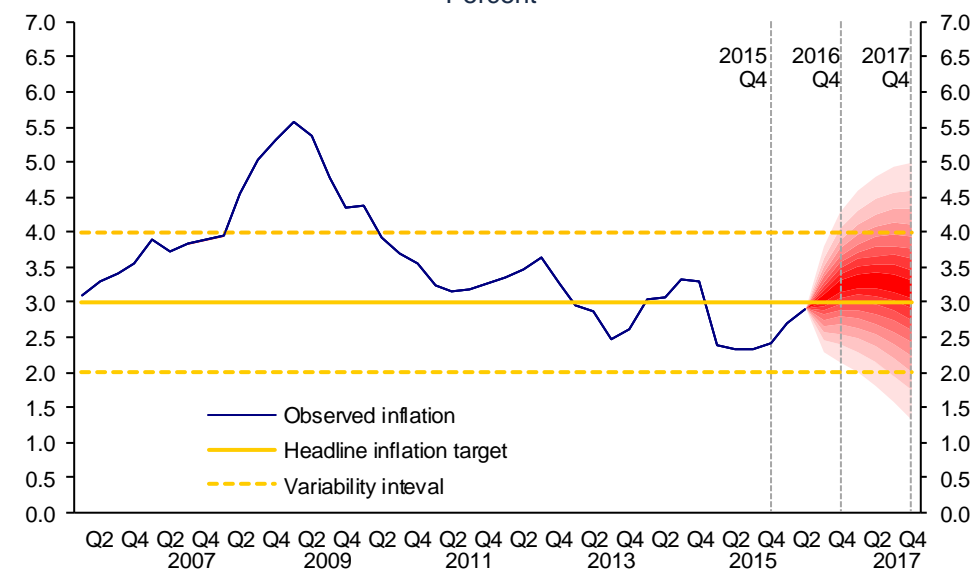
1/ Quarterly average of annual core inflation.
Source: Banco de México and INEGI.

In this context, and considering the information presented in this Report, in the future the Board of Governors will closely monitor the evolution of all inflation determinants and its medium- and long-term expectations, especially the exchange rate and its possible pass-through onto consumer prices. Likewise, it will be watchful of the monetary position of Mexico relative to the U.S., without overlooking

the evolution of the output gap. This will be done in order to be able to continue taking the necessary measures to consolidate the efficient convergence of inflation to the 3 percent target, with all flexibility, and whenever and to the extent that conditions may demand so.

In view of the complex international environment, in which some risks have already materialized, the world economic activity could further deteriorate, due to the consequences of these adverse events or due to new geopolitical developments, among which the possible outcome of the U.S. electoral process stands out. In this context, measures to strengthen and to make macroeconomic fundamentals sounder should continue to be taken. Thus, the steps announced by the Federal Government regarding the public finances are imperative, as their comprehensive implementation would not only allow having sound public finances, but would also mitigate pressures on the external accounts. Likewise, even though the adoption of measures that in the medium and long terms would strengthen the domestic sources of growth is a permanent obligation in order to improve the welfare of the population, encouraging them is indispensable given the challenges from abroad faced by Mexico. In this sense, it is crucial to continue correctly implementing the structural reforms, as they would foster greater productivity and competitiveness of the country.

Furthermore, as stated in previous Reports, it is also fundamental to have a solid rule of law and to guarantee legal certainty. Modifying the institutional framework in this direction will not only promote an environment of greater certainty that should encourage more investment in Mexico and allow the structural reforms to achieve their full potential, but will also align the incentives economic agents face so as to reduce rent-seeking behavior and boost value-creating activities.

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Section III: Quarterly Report July - September 2016

1.   Introduction

The Mexican economy is one of the most integrated with the global economy, and, in particular, with the U.S. Its trade and financial integration has offered considerable benefits, allowing to seize increased opportunities of shared trade and production, a wider diversity in terms of sources for financing its growth and a greater development of its financial system. However, as a consequence, the national economy and financial markets have become more vulnerable to external events. In this context, during the period covered by this Report, the Mexican economy faced a complex juncture. Indeed, the outlook for the world economy has become more challenging, as a consequence of the elections in the U.S. and their outcome, among other factors. The events related to the aforementioned process led to higher volatility in all regional financial markets, strongly affecting the national ones, in light of the relevance represented by the outcome of such process for Mexico. Thus, asset prices dropped and high volatility was observed. In particular, the national currency depreciated significantly and interest rates observed increments for all terms. In this context, the preemptive measures that Banco de México adopted during the year, acting with total flexibility and in line with what the conditions demanded, have prevented headline inflation and its expectations from being affected by the above referred factors. Thus, despite the challenges implied by the current juncture and its consequences for the exchange rate, the low pass-through of exchange rate fluctuations onto the prices of goods and services has allowed to maintain an environment of low inflation and relatively stable inflation expectations. The referred low pass-through is precisely one of the fundamental consequences of the conduct of monetary policy, which has focused on anchoring inflation expectations, and on preventing second round effects in view of adjustments in relative prices.

Delving in the above, in the said international environment, capital inflows to emerging economies started to revert and interest rates exhibited an upward trend both in advanced and emerging economies. These episodes of volatility affected emerging economies in a differentiated manner, with the Mexican peso showing higher volatility and depreciation with respect to other currencies. In this context, as pointed out by the national authorities, it is important to acknowledge that it is still difficult to identify the elements that will define the economic policy stance of the U.S. regarding its bilateral relation with Mexico starting from 2017. Thus, as previously announced, the Mexican authorities will continue to exercise caution, analyzing any policy announcements made by the next administration of the U.S., and guiding their decisions on the received solid information and, at all times, keeping a vision of what is more convenient for Mexico in the medium and long terms. Likewise, in the short term, authorities will remain vigilant of the evolution of the domestic financial markets, in order to take the necessary measures in a coordinated manner, so as to maintain the sound functioning of these markets.

Mexico is in a position of strength to face this new environment, as a result of achievements reached and foreseen in terms of consolidation of public finances; of applying preemptive monetary policy measures that have been adopted this year; of a solvent and well-capitalized financial system with no liquidity problems; and of an unprecedented process of structural reforms. Nevertheless, it is inevitable to continue dealing with both existing and emerging risks, by further strengthening the macroeconomic fundamentals of the country. Accordingly, Banco de México continued to respond with total flexibility and at the moment and magnitude required by conditions, in order to counteract inflation pressures and to maintain inflation expectations anchored. Thus, even though in its monetary policy decision of August the Board of Governors kept the target for the Overnight Interbank Interest Rate unchanged, in its decisions of September and November the said rate was increased by 50 basis points in each occasion, marking a level of 5.25 percent. This was done in order to counteract inflation pressures and to maintain inflation expectations anchored.

Aside from the volatility experienced by financial markets, in the third quarter of the year, world economic activity recovered moderately, supported by higher growth in the U.S. and other advanced economies, along with a continuous expansion of some of the main emerging ones. In this environment, derived from a possible implementation of a highly expansionary fiscal policy that will be carried out, in principle, by the incoming administration of the U.S., there was a spike in inflation expectations in the markets. Hence, even though the Federal Reserve is still anticipated to increase the federal funds' rate in December and to continue with its monetary stance normalization process at a gradual rate, in view of the recent events in financial markets, this rate is now estimated to possibly be faster and of a greater magnitude than previously anticipated. In turn, other central banks are expected to maintain an accommodative monetary policy stance for an extended period.

The incipient growth in global activity contributed to the moderate recovery of the Mexican economy in the third quarter of 2016, following the contraction in the second one. Indeed, Mexico's external demand improved, after the negative trend in exports during 2015 and in early 2016, while private consumption displayed a greater dynamism at the beginning of the reported period. In contrast, the weakness in gross fixed investment, registered since mid-2015, prevailed. In this context, economic activity has somewhat decelerated and no significant aggregate demand-related pressures onto the prices of the economy have been observed.

Annual headline inflation registered, until September 2016, seventeen consecutive months below 3 percent, even though in October it slightly exceeded this figure, as a result of the gradual upward trend maintained by core inflation, as well as the impact generated by the increment in gasoline prices at the Northern border. The performance of core inflation is mainly accounted for by the evolution of the merchandise price subindex, which has been responding to the depreciation of the national currency. The persistently low inflation during the reported period stemmed from the conduct of monetary policy, from the absence of significant aggregate demand-related pressures onto prices, from low international prices of most commodities and from price reductions in some widely-used inputs, which derived, in part, from the efforts of the structural reforms.

Even though the global economy is still expected to recover, the outlook for world growth and trade has continued its downward revision, suggesting that Mexico will likely face a lower external demand than previously anticipated. Furthermore, the outcome of the U.S. electoral process heightened the risk of the implementation of policies that could hamper foreign trade and foreign investment in Mexico. Domestically, the forecast for crude oil production was adjusted downwards. This suggests that GDP growth in Mexico over the following quarters could be lower than estimated in the previous Report. Still, it should be noted that the central scenario for economic growth presented in this Report assumes that, by and large, trade relations between Mexico and the U.S. will remain sound, and that the adjustment in financial markets will continue to be carried out in a relatively orderly fashion. Hence, it is forecast that Mexican GDP will grow between 1.8 and 2.3 percent in 2016 (between 1.7 and 2.5 percent in the last Report). The forecast interval for GDP growth in 2017 is adjusted to a range between 1.5 and 2.5 percent (between 2.0 and 3.0 percent in the previous Report). Nonetheless, this year and the following one, economic activity is expected to benefit from the continued implementation of structural reforms, as well as from the strengthening of macroeconomic fundamentals, foreseen in light of the announced adjustments in fiscal policy. For 2018, a more evident recovery of the U.S. industrial activity is anticipated. In this context, Mexican GDP growth rate for that year is estimated to lie between 2.2 and 3.2 percent. Note that these forecasts should be taken with caution, as, insofar as there is more available information regarding the economic policies of the incoming U.S. administration, growth previsions may need to be adjusted.

Annual headline inflation is expected to continue gradually increasing, to lie slightly above 3 percent by the end of this year. Core inflation is also forecast to close the year moderately above this level. In 2017, both headline and core inflations are estimated to exceed the inflation target, albeit lying within the variability interval, and getting closer to 3 percent by the end of 2018.

The environment currently faced by the Mexican economy is characterized by high uncertainty. In addition to the possible impact of the U.S. elections outcome on the bilateral relation with Mexico, lies the possibility of new volatility episodes related to several risks still prevailing in the international economy. Among them, the following should be listed: doubts regarding the course of trade relations between the U.K. and the European Union, high vulnerabilities faced by some of the main emerging economies and the persistent uncertainty regarding the possible consequences of the U.S. monetary policy normalization process. To face these risks, and, thus, to contribute to the strengthening of the macroeconomic framework in Mexico, the monetary policy actions were complemented by fiscal consolidation measures drafted by the Ministry of Finance in the 2017 Economic Package and approved by the Mexican Parliament. These actions, along with the recently announced PEMEX 2016-2017 business plan, which establishes the guidelines for the financial strengthening of the State-owned Production Company, will contribute to solidifying the economic fundamentals of the economy, allowing to efficiently absorb external shocks and, in turn, fostering greater financial stability.

It is important to recognize that recent international events can plausibly affect the structural relation of Mexico with its main trade partner, both in its trade and financial aspects. In this context, it is both natural and necessary to observe a real exchange rate depreciation, as it is the most efficient adjustment mechanism and shock

absorber. Given its mandate, Banco de México's main contribution during this adjustment process is to foster an orderly change in relative prices, in order to prevent inflation expectations from being significantly affected, so that no second round effects that could negatively affect the price formation process of the economy are observed.

In this context, the Board of Governors will closely monitor the evolution of all inflation determinants and its medium- and long-term expectations, especially the potential pass-through of exchange rate adjustments onto prices, without implying any established goal for this variable. Likewise, it will be watchful of the monetary position of Mexico relative to the U.S., without overlooking the evolution of the output gap. This will be done in order to be able to continue taking the necessary measures to consolidate the efficient convergence of inflation to its 3.0 percent target, with total flexibility, whenever and to the extent that conditions may demand so.

2. Recent Development of Inflation

2.1.   Inflation

Despite the complex international environment, which, among other things, was reflected in a high exchange rate depreciation, the conduct of monetary policy and the absence of aggregate demand-related price pressures allowed annual headline inflation to accumulate, as of September 2016, seventeen consecutive months below the permanent 3 percent target. Low international prices of most commodities, as well as reductions in telecommunication services' prices in Mexico, as a result of the structural reform in this sector, also contributed to such result.

Indeed, during the period analyzed in this Report, annual headline inflation continued evolving as anticipated. In particular, it exhibited a modest upward trend and rebounded above 3 percent in October. This reflected both the upward trend in core inflation and an increment in non-core inflation in recent months. The evolution of core inflation is principally explained by the performance of the merchandise price subindex, which responded to the depreciation of the national currency (see Box 6). On the other hand, higher inflation of the non-core component was largely due to increments in gasoline prices during the third quarter, which were partially offset by falls in L.P. gas prices starting from August 17. It should be stressed that despite the above, no second round effects on the price-setting process of the economy have been observed so far.

Thus, annual headline inflation shifted from an average of 2.56 to 2.78 percent between the second and the third quarters of 2016, and registered a level of 3.06 percent in October. In the same quarters, average annual core inflation went up from 2.91 to 3.00 percent, and further to 3.10 percent in October. Meanwhile, the average annual change of the non-core component increased from 1.46 to 2.10 percent over the referred quarters, and marked 2.95 percent in October (Table 4 and Chart 87).

Box 6
Long-term Relation in the Mexico – U.S. Bilateral Real Exchange Rate, and Relative Prices of Merchandise with respect to Services

1. Introduction

The real exchange rate is one of the main adjustment variables in an open economy in case shocks affecting the country's external accounts should occur. By inducing changes in the relative prices of tradable goods with respect to non-tradable goods, the structure of spending and production of the economy mitigates the effects of such shocks. For instance, if a given external shock implies a lower potential of external revenues for the economy, a real exchange rate depreciation leads to a rise in the relative price of tradable goods with respect to non-tradable ones. This results in greater production and lower relative spending on the said goods, mitigating pressures on the country's external accounts.

In a context in which prices are not immediately adjusted in the short term upon external shocks, the nominal exchange rate indeed adjusts first. In this sense, the latter variable dominates short-term adjustments of the real exchange rate, and, only after a certain lag, domestic relative prices of tradable goods with respect to non-tradable goods are adjusted to the new environment. Therefore, it is important to do a statistical analysis that would allow to pinpoint if this transmission channel is indeed present in Mexico and to measure the speed of adjustment in relative domestic prices.

This analysis is especially important in the current juncture, given the considerable depreciation of the real exchange rate, as well as higher prices of tradable goods with respect to non-tradable ones, reason why it should be analyzed if the observed performance has been congruent with the relation between these variables from a theoretical and statistical points of view. In this sense, this Box presents an analysis of how the dynamics in relative prices of tradable goods with respect to non-tradable goods responded to the performance of the Mexico - U.S. bilateral real exchange rate (Chart 1).

The adjustment in the real exchange rate took place, for the most part, via a depreciation of the nominal exchange rate, while relative prices of tradable goods with respect to non-tradable goods in Mexico adjusted more gradually (Chart 2).

Chart 1
Mexico – U.S. Bilateral Real Exchange Rate
January 1990=100
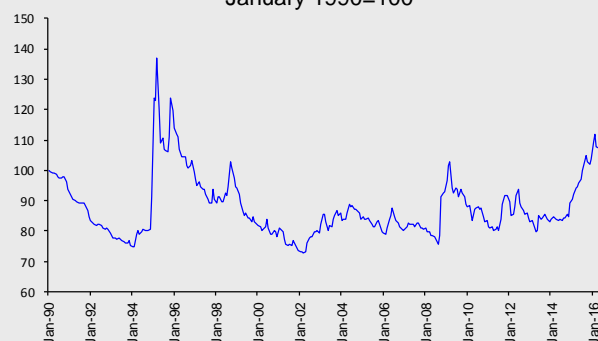
Source: Banco de México.

In this context, below we present the analysis of the joint dynamics between the real exchange rate and the relative prices of tradable goods with respect to non-tradable goods in Mexico, using a cointegration analysis. The aim is to quantify the effect of a depreciation of the real exchange rate in the long-term relation of these variables and to identify if there are potential inflation pressures derived from an adjustment required in the referred relative prices.

As shown later, the results indicate that the real exchange rate and relative prices of tradable goods with respect to non-tradable goods in Mexico are cointegrated; that is, they have a stable linear relation in the long term, and the latter variable is the one that adjusts to correct short-term imbalances relative to this long-term relation. In this sense, the observed gradual increment in the prices of tradable goods relative to non-tradable goods (in response to the observed depreciation of the real exchange rate) is natural.

In addition, the evidence suggests that these variables are currently somewhat distanced from their long-term relation. In particular, merchandise prices are still expected to growth faster than services' prices for a certain period of time, to then converge to their long-term relation with real exchange rate. However, the estimated speed of adjustment is very low, which implies a very gradual increase in relative prices of tradable goods with respect to non-tradable ones across time. That is, no considerable inflation pressures derived from this channel are anticipated.

2. Relation between the Real Exchange Rate and Relative Prices of Merchandise with respect to Services

Merchandise goods are mostly internationally traded goods, while services, with certain exceptions, are not. Hence, this analysis considers merchandise as tradable goods and services as non-tradable ones.

Considering that the nominal exchange rate tends to be the first variable to adjust upon different shocks affecting real parity, from a statistical point of view it would be expected that causality would move from the bilateral real exchange rate towards relative prices; that is, that the future performance of relative prices would respond to the changes observed in the real exchange rate.

In the case of Mexico, the adjustment in relative prices in light of the changes in the real exchange rate does not seem instantaneous, but rather is takes place over a relatively ample time frame. Additionally, changes in relative prices are smoother and seem to exclusively follow the long-term trend of the bilateral real exchange rate, without reflecting its intrinsic volatility (Chart 2).

Chart 2
Real Exchange Rate and Relative Prices of Merchandise with respect to Services
December 2010=100
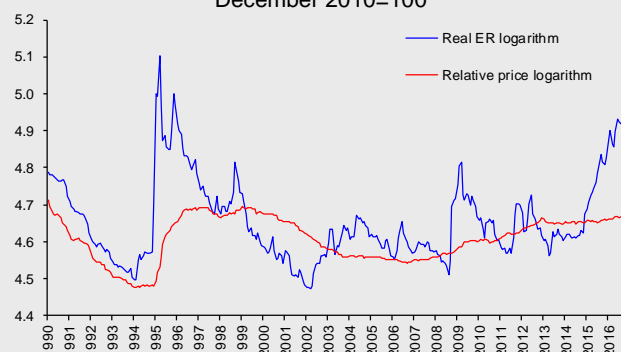
Source: Estimated by Banco de México with own data and data from INEGI.

The cointegration analysis carried out to study the above is realized using monthly data from January 1990 to September 2016. A vector autoregressive model with error correction (VEC) is calculated in order to estimate the long-term relation between the real exchange rate and the relative prices of merchandise with respect to services, as well as their adjustment speed in view of possible imbalances.[1] The equations corresponding to VEC in each estimate are the following:

$$(5) \quad \pi_t^{RP} = \gamma_1 \left(z_{t-1} \right) + \sum_{j=1}^{p} \alpha_{1,j} \pi_{t-j}^{RP} + \sum_{j=1}^{q} \beta_{1,j} \pi_{t-j}^{RER} + \eta_{1,t}$$

$$(6) \quad \pi_t^{RER} = \gamma_2 \left(z_{t-1} \right) + \sum_{j=1}^{p} \alpha_{2,j} \pi_{t-j}^{RER} + \sum_{j=1}^{q} \beta_{2,j} \pi_{t-j}^{RP} + \eta_{2,t}$$

$$(7) \quad z_{t-1} = ln(RP_{t-1}) - \varphi_1 ln(RER_{t-1})$$

where:

π_t^{RP} is the monthly percentage change of relative prices of merchandise with respect to services, π_t^{RER} is the monthly percentage change of the real exchange rate, RP_t is the relative price of merchandise with respect to services, RER_t is the real exchange rate, $\eta_{i,t}$ is white noise $i = \{1,2\}$, z_{t-1} is the error correction term and φ_1 is the cointegration coefficient. Specifically, the following tests are carried out:

Table 1
Cointegration between the Real Exchange Rate and Relative Prices of Merchandise and Services [1]

Johansen test (number of cointegration relationships)	[0]	[1]
Trace statistics	38.47 ***	3.14
Maximum Eigenvalue statistic	35.33 ***	3.14
Relative price elasticity to the real exchange rate	0.97 ***	
Adjustment speed		
Of the real exchange rate	0.02	
Of relative prices	-0.01 ***	
Granger causality test		
Of the real exchange rate to relative prices	3.43 *	
Of relative prices to the real exchange rate	0.24	

Source: Estimated by Banco de México with own data and data from INEGI.
1/ The optimal number of lags was calculated based on Wald's joint test (chi-square) consistent with the first significant lag between 1 and 12. *, **, ***, indicate rejection of the null hypothesis at 10 percent, 5 percent and 1 percent, respectively.

The evidence shown in Table 1 indeed suggests cointegration between the real exchange rate and relative prices in Mexico. Consistent with these results, any deviation that these variables may present, in any given moment, with respect to their long-term relation, would tend to be corrected across time by adjustments in at least one of the two variables. The estimated coefficients indicate that an increase in the real exchange rate is associated, in a long term, with an increment of a similar proportion in the relative prices of merchandise with respect to services.

The relative price of merchandise is a variable that is adjusted over time correcting short-term imbalances with respect to the long-term relation with the real exchange rate. Particularly, the speed of adjustment is significant from a statistical point of view for relative prices of merchandise with respect to services, while it is not statistically significant for the real exchange rate. In addition, Granger causality tests also suggest that causality moves from the real exchange rate to relative prices of merchandise, rather than vice versa. It is thus concluded that the variable that is adjusted to reestablish the balance is relative prices.

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[1] The tests and parameters have the following interpretation: a) Johansen Cointegration Test – It is a procedure to check the number of existing vectors or cointegration relations; b) Elasticity of the Pass-through of the Exchange Rate onto Relative Prices – The parameter describes the relation that variables should maintain in the long term; c) Adjustment Speed – It is a parameter that measures the percentage of the deviation (z_{t-1}) that is corrected each month; d) Granger Causality Tests – It is a procedure to establish if one variable causes another. The null hypothesis of the test is defined as absence of causality. Statistically, the procedure tests if a variable has useful information to forecast future variations of another variable.

These results are consistent with the dynamics recently presented by the relative prices of merchandise with respect to services, in light of the shocks in the real exchange rate. In particular, as a result of the depreciation of the real exchange rate (since mid-2014), the relative prices of merchandise with respect to services increased, even though this process was gradual.

Based on the estimation of the model, it is possible to calculate the deviation registered by the relative prices with respect to their long-term equilibrium relation (Chart 3). It is established that the relative prices of merchandise with respect to services are currently below their long-term equilibrium level. In this sense, given the speed of adjustment implied by the model, it suggests that for a relatively long time, in absence of other shocks, inflation of merchandise would be expected to be greater than services, just as it was observed. However, given a very low adjustment speed, this spread would not be very large. Thus, Banco de México's main contribution during this adjustment process, given its mandate, is to help make the change in relative prices orderly, seeking to prevent the adjustment from adversely affecting inflation expectations, so that no second round effects would surge, and negatively affect the price-formation process of the economy.

The previous analysis suggests that there are no changes in the relative prices of the Mexico's main trade partner. It is possible to show that, given a downside trend presented in the relative prices of merchandise with respect to services in the U.S., for the same real exchange rate, it implies even lower pressures on the adjustment in domestic relative prices, reason why, in a certain manner, it could lead to the balance in the economy with an inflation in merchandise prices with respect to services that would be relatively lower than implied in this model.

Chart 3
Percentage Deviation of Relative Prices of Merchandise and Services with respect to their Long-term Level
Data in percent
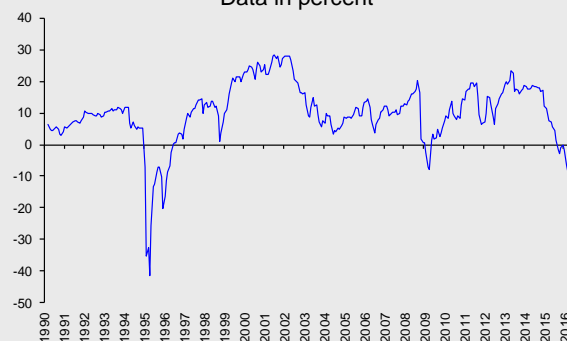
Source: Estimated with data from Banco de México and INEGI.

3. Final Remarks

This Box analyzes the impact of variations in the Mexican – U.S. bilateral real exchange rate on the dynamics of relative prices of merchandise with respect to services in Mexico. In the first place, evidence is found suggesting that there is a long-term equilibrium relation between the relative prices of merchandise with respect to services and the real exchange rate. In the second place, it is shown that relative prices are the ones that are adjusted to correct for short-term imbalances that may derive from shocks to the real exchange rate. Finally, it is shown that, in view of the depreciation of the real exchange rate, the relative prices of merchandise with respect to services are below the long-term equilibrium level, which implies that for a relatively long time period, in absence of other shocks, inflation of merchandise would be expected to be higher than that of services. However, the estimated speed of adjustment, at which this imbalance is corrected, is very low, which points that the adjustment to the level of equilibrium would be gradual.

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Table 4
Consumer Price Index, Main Components and Trimmed Mean Indicators
Annual change in percent

	2015			2016			
	II	III	IV	I	II	III	October
CPI	**2.94**	**2.61**	**2.27**	**2.69**	**2.56**	**2.78**	**3.06**
Core	**2.32**	**2.33**	**2.40**	**2.69**	**2.91**	**3.00**	**3.10**
Merchandise	**2.52**	**2.46**	**2.78**	**3.04**	**3.51**	**3.79**	**3.97**
Food, beverages and tobacco	2.56	2.20	2.55	2.88	3.69	3.89	4.17
Non-food merchandise	2.49	2.67	2.98	3.17	3.36	3.71	3.81
Services	**2.15**	**2.22**	**2.09**	**2.40**	**2.41**	**2.34**	**2.36**
Housing	2.09	2.06	2.00	2.11	2.21	2.32	2.39
Education (tuitions)	4.35	4.37	4.28	4.21	4.13	4.17	4.26
Other services	1.57	1.75	1.52	2.15	2.09	1.80	1.74
Non-core	**4.92**	**3.53**	**1.87**	**2.71**	**1.46**	**2.10**	**2.95**
Agriculture	**8.34**	**5.33**	**2.76**	**6.51**	**4.48**	**3.81**	**5.25**
Fruit and vegetables	7.43	7.91	6.33	22.45	13.30	8.58	10.76
Livestock	8.81	4.00	0.84	-1.60	-0.01	1.26	2.23
Energy and government approved fares	**2.87**	**2.42**	**1.33**	**0.39**	**-0.45**	**1.01**	**1.52**
Energy	3.21	2.43	0.52	-1.10	-1.49	-0.03	1.02
Government approved fares	2.26	2.39	2.86	3.23	1.41	2.83	2.42
Trimmed Mean Indicator [1]							
CPI	2.82	2.60	2.46	2.45	2.61	2.84	3.00
Core	2.70	2.69	2.76	2.85	3.05	3.19	3.22

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

Chart 87
Consumer Price Index
Annual change in percent

Source: Banco de México and INEGI.
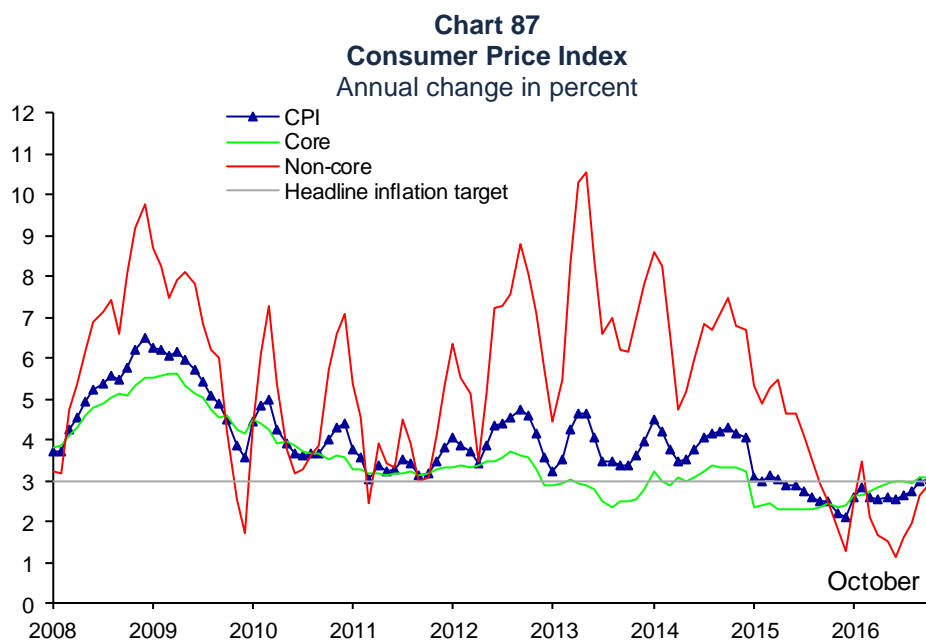
To analyze the performance at the margin and the recent development of the inflation process, first of all, the proportion of the CPI basket is estimated, which presents annual price changes at certain intervals. To do this, generic items of both headline and core inflations are grouped into three categories, depending on the annual growth rate of their price: i) items with an annual price change below 2 percent; ii) between 2 and 4 percent; and iii) over 4 percent. In the same vein, an additional statistical analysis for the CPI and the core component is presented,

which splits generic items into two categories: those with annual price changes lower or equal to 3 percent, and those with changes over 3 percent (Chart 88).

This analysis shows that a high percentage of both baskets presents price increments of less than 4 percent, although at the margin this percentage has been somewhat decreasing. In particular, in the third quarter of 2016, the share of the CPI goods and services' basket with price increments below 4 percent was, on average, 68 percent for the headline index, while in the second quarter of 2016, the share was 71 percent. In the case of core inflation, the proportions were 65 percent in the third quarter of 2016, and 70 percent in the second one. On the other hand, the percentage of the CPI basket with changes lower or equal to 3 percent decreased from 56 to 53 percent between the second and the third quarters of 2016, while in the case of the core component it shifted from 51 to 47 percent in the same time frame. This evolution has principally derived from higher annual changes in merchandise prices.

Chart 88
Percentage of CPI Basket according to Intervals of Annual Increments
Percent

a) Headline

b) Core
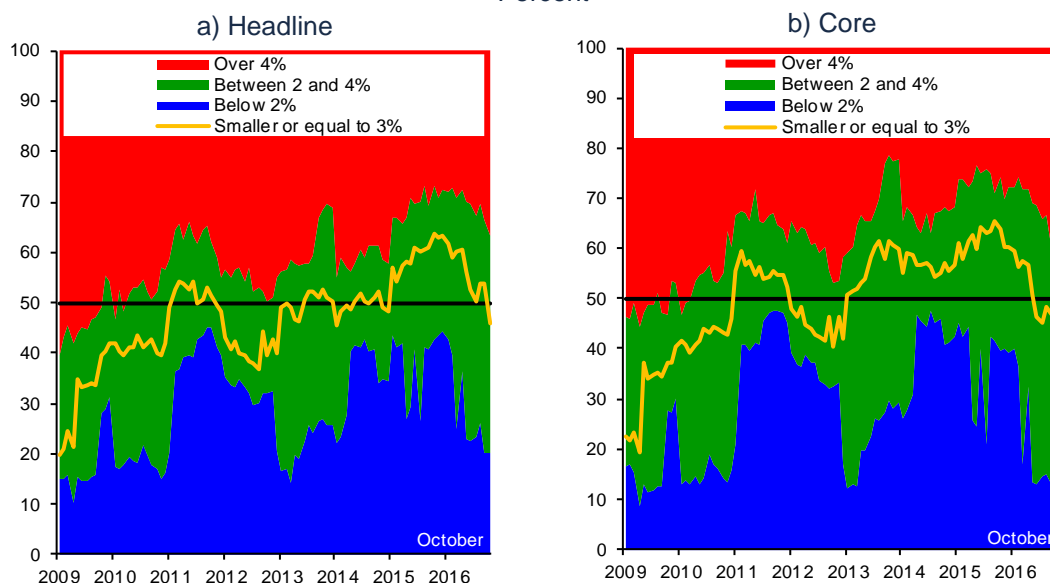
Source: Prepared by Banco de México with own data and data from INEGI.

Secondly, the Trimmed Mean Indicator for headline inflation is illustrated, which shifted from 2.61 to 2.84 percent between the second and the third quarters of 2016, locating at 3.00 percent in October. In turn, the Trimmed Mean Indicator for core inflation went up from 3.05 to 3.19 percent between the second and the third quarters of 2016, and marked 3.22 percent in October. Once again, the gradual increment in these indicators is fundamentally accounted for by the adjustment in relative prices of merchandise with respect to services. On the other hand, both the Trimmed Mean Indicator for headline inflation and that for core inflation lied above the observed inflation levels in the analyzed quarter, which reflects the favorable effect generally produced by the reductions in some particular services' prices, highlighting mobile telephone services (Chart 89).

Thirdly, the evolution of annualized monthly (seasonally adjusted) inflation is analyzed. As can be appreciated, at the margin, once the comparison base effects

are discounted, the headline inflation trend increased as a result of increments in the relative prices of merchandise and gasoline prices at the Northern border. Meanwhile, the core inflation trend gradually increased and persists at levels close to 3 percent.

Chart 89
Price Indices and Trimmed Mean Indicators [1/]
Annual change in percent

a) CPI

b) Core

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.

Chart 90
Annualized Seasonally Adjusted Monthly Change and Trend
Percent
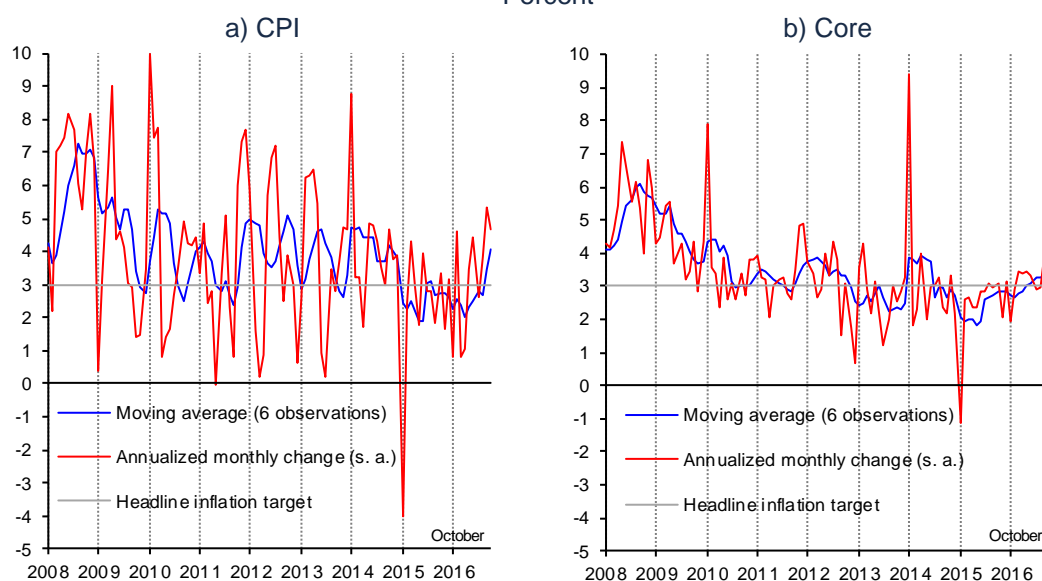
a) CPI

b) Core

s. a. / Seasonally adjusted data.
Source: Seasonal adjustment prepared by Banco de México with own data and data from INEGI.

Delving in the performance of core inflation, differentiated dynamics in the annual change of merchandise and services' price subindices were observed.

i.   The merchandise price subindex shifted from an average annual change of 3.51 percent in the second quarter of 2016 to 3.79 percent in the third one, marking 3.97 percent in October (Chart 91a). Both food and non-food merchandise prices increased their growth rate, highlighting the acceleration recently registered in the latter. The average annual change of food merchandise increased from 3.69 to 3.89 percent between the second and the third quarters of 2016, reaching 4.17 percent in October. Meanwhile, the average annual change of non-food merchandise prices went up from 3.36 to 3.71 percent in the referred quarters, marking 3.81 percent in October (Chart 91b).

ii.   In contrast, the average annual change of the services' index dropped from 2.41 to 2.34 percent between the second and the third quarters, observing 2.36 percent in October. The average annual changes of the subindices of housing and education slightly increased from 2.21 and 4.13 percent to 2.32 and 4.17 percent, respectively, over the referred quarters. On the other hand, the average annual change of services other than housing and education went down from 2.09 to 1.80 percent in the analyzed quarters. In this last subindex, drops in telecom services' prices, which resulted from the structural reform in the said sector, were noteworthy, reason why its impact on inflation is expected to be relatively lasting (Chart 91a).

Chart 91
Core Price Index
Annual change in percent

a) Merchandise and Services

b) Merchandise

Source: Banco de México and INEGI.
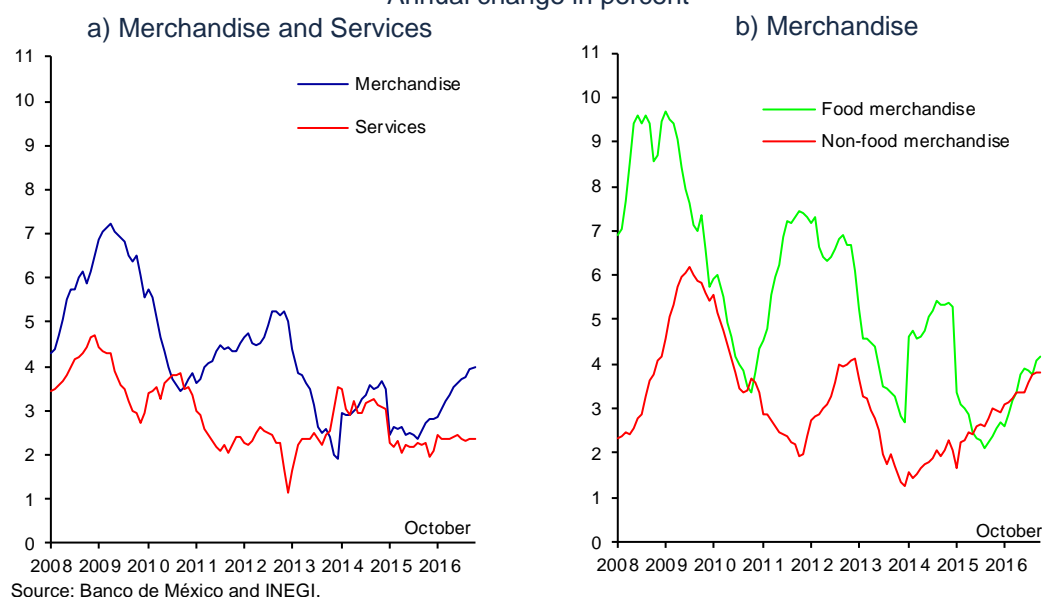
The increment in non-core inflation during the reported quarter is largely explained by estimated increases in domestic gasoline prices over the period between July and September, based on the formula used by the Ministry of Finance to set maximum gasoline prices and as a result of increments in this fuel's prices at the Northern border (Table 4). Additionally, prices of some agricultural products have grown recently, which was partly offset by the domestic L.P. gas, the prices of which dropped, on average, 10 percent starting from August 17. Thus, within the non-core index, the following stands out:

i.   Between the second and the third quarters of 2016, the average annual change of agricultural products' subindex dropped from 4.48 to 3.81 percent, even though it went up again in October and marked 5.25 percent. The average annual change rate of the fruit and vegetables price subindex decreased from 13.30 to 8.58 percent between the second and the third quarters of the year, with the reductions in lemon and onion prices being the most notable. In contrast, the average annual change rate of livestock products grew from -0.01 to 1.26 percent in the referred quarters, lower reductions in egg and chicken prices being noteworthy, as compared to the same period of last year. In October, the fruit and vegetables price index observed an annual change rate of 10.76 percent, while that of livestock products registered 2.23 percent.

ii.   The subindex of energy prices and government approved fares increased its average annual change rate from -0.45 to 1.01 percent between the second and the third quarters. In October, their annual change rate went up to 1.52 percent. The average annual change rate of the energy price subindex shifted from -1.49 to -0.03 percent, marking a level of 1.02 percent in October. Inside this price subindex, the following was observed:

- The average annual change of low octane gasoline prices increased from -3.16 to 0.51 percent between the second and the third quarters of 2016, while that of high octane gasoline prices went up from -2.44 to 1.31 percent over the same period. Subsequently, in October the annual change rate of low octane gasoline prices marked 3.87 percent, while that of high octane prices lied at a level of 3.73 percent. The evolution of gasoline prices during the third quarter of 2016 derived from increments in domestic prices, the formula used by the Ministry of Finance to determine maximum gasoline prices, as well as the increment in gasoline prices at the Northern border of the country. In October gasoline prices at the Northern border continued growing, while domestic prices remained constant, as they had reached the upper limit of this fuel's maximum price range established by the same Ministry.

- Structural reforms have contributed to a more favorable performance of domestic gas prices and electricity tariffs since early 2015. However, in the reported quarter, these products' prices observed increments in their annual changes, which was due to the performance of their international counterparts. In particular, the prices of natural gas for domestic use shifted from an average annual change rate of 3.83 to 10.48 percent between the second and the third quarters, marking 16.38 percent in October. In the same sense, high consumption electricity tariffs were adjusted upwards as a result of higher prices of some inputs used to generate electric power, while low consumption electricity tariffs remained constant. Thus, the average annual change rate of electricity tariffs shifted from -1.58 to -0.91 percent between the second and the third quarters of the year, marking -0.64 percent in October.

- The maximum prices of L.P. gas dropped on average by 10 percent starting from August 17, as a result of which its average annual change rate went from 2.74 to -2.42 percent in the reference quarters, observing -7.54 percent in October.

- The average annual change rate of government approved fares went up from 1.41 to 2.83 percent between the second and the third quarters of 2016, marking 2.42 percent in October. The increment between the second and the third quarters is mainly accounted for by the conclusion of the period of free-of-charge public transport in Mexico City.

2.2.   Producer Price Index

Between the second and the third quarters of 2016, the Producer Price Index (PPI) of total production excluding oil registered an increment in the average annual change rate from 4.92 to 5.80 percent, marking 6.70 percent in October (Chart 92). Just like in previous quarters, the subindex of the PPI that presented the highest annual change rates is that of the prices of merchandise destined to exports, which includes goods quoted in USD (10.69 and 10.96 percent in the second and the third

quarters of 2016, while in October it observed 10.86 percent). In contrast, the price subindex of finished goods and services for domestic consumption presented more moderate annual change rates (3.68 and 3.82 percent in the second and the third quarters of 2016, while in October it was 4.17 percent). In this regard, it should be recalled that the producer price subindex with the highest predictive power of the performance of core merchandise consumer prices is that of finished merchandise for domestic consumption, while the price subindex of investment and exports' goods has less predictive power of the inflation of the merchandise destined to consumers.[25]

Chart 92
Producer Price Index [1/]
Annual change in percent
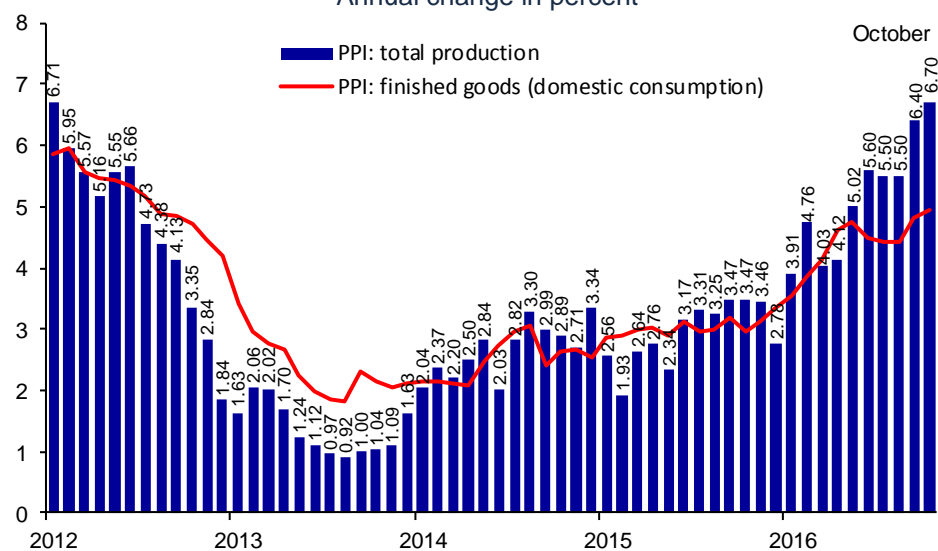
1/ Total Producer Price Index, excluding oil.
Source: Prepared by Banco de México with data from INEGI.

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[25] See Box 1 of the Quarterly Report April – June 2016 "Can Inflationary Pressures be Identified when Measured with CPI by means of the Performance of PPI Merchandise Subindices?".

3.   Economic and Financial Environment

3.1.   External Conditions

During the period analyzed in this Report, the outlook for the global economy has become more complex as a consequence of uncertainty related to the process and the outcome of the elections in the U.S. (Chart 93a). Among other factors that also contributed to this adverse international environment, the following can be listed: uncertainty regarding the course of the monetary policy and its effectiveness to stimulate growth, as well as the lack of clarity over the exit of the U.K. from the European Union and its implications for the country's future trade relations. These events caused higher volatility in international financial markets, which reverberated in widespread increments in interest rates and capital outflows from emerging economies. It should be noted that in view of the significant economic and trade links between Mexico and the U.S., national financial markets observed particularly high volatility. Despite that, world economic activity recovered moderately, which can be explained by a greater growth of the U.S. and other advanced economies, and a continuous expansion of some of the main emerging economies (Chart 93b and Chart 93c). Still, a possible implementation of measures that might hinder foreign trade and foreign investment led to a deterioration in the risk balance for global growth.

Chart 93
World Economic Activity

a) Volatility in International
Financial Markets
Index 01/01/2007=100

b) Growth Forecast of World GDP
for 2016 and 2017
Annual change in percent

c) Growth Forecast of Selected
Economies
Annual change in percent

Source: Bloomberg.

Note: The solid line refers to the October forecast and
the dotted line refers to the July forecast.
Source: IMF, WEO July and October 2016.

E. A. / Euro area.
U. K. / The United Kingdom.
Source: WEO July and October 2016.

3.1.1.   World Economic Activity

Following a deceleration in the first half of the year, GDP growth rebounded in the third quarter in the U.S. The preliminary report indicates a growth of 2.9 percent at an annualized quarterly rate, which is higher than 1.4 percent in the second one. This was in response to a positive contribution of investment in inventories, after a decrease during 5 consecutive quarters, to a lower contraction of fixed private investment and strong growth of net exports, partly explained by transitory factors,

such as an increment in soy exports in view of a plunge in this grain's production in other countries. In contrast, the growth rate of private consumption moderated, shifting from 4.3 percent in the second quarter to 2.1 percent in the third one (Chart 94a).

U.S. industrial production recovered slightly in the third quarter, backed by a rebound in the mining sectors, by a continuous strengthening in the activity of electricity and gas generation and by an incipient improvement in manufactures (Chart 94b). Thus, this indicator grew at an annualized quarterly rate of 2.0 percent in the third quarter of 2016, after having contracted for three consecutive quarters. Inside manufactures, the automotive and high technology equipment sectors expanded significantly, and some other sectors increased their exports (Chart 94c). Nonetheless, other sectors, such as machinery and equipment for mining industry, oil and gas, and primary metals remained affected by the strength of the U.S. dollar and low crude oil prices.

Chart 94
U.S. Economic Activity

a) Real GDP and Components
Annualized quarterly change in
percent and percentage point
contributions, s. a.
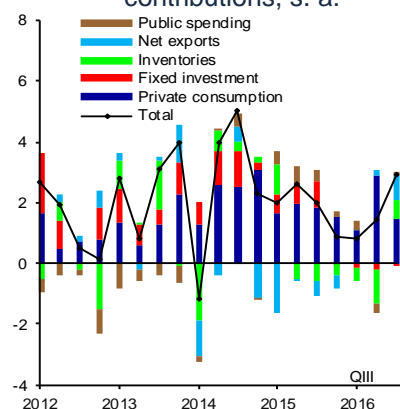
b) Industrial Production and
Components
Index 1Q-2012=100, s. a.

c) Manufacturing Production and
Components
Index 1Q-2012=100, s. a.
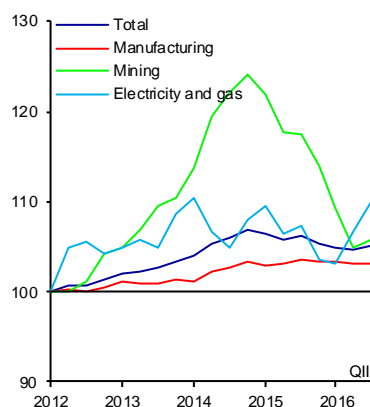
s. a. / Seasonally adjusted data.
Source: Bureau of Economic Analysis.

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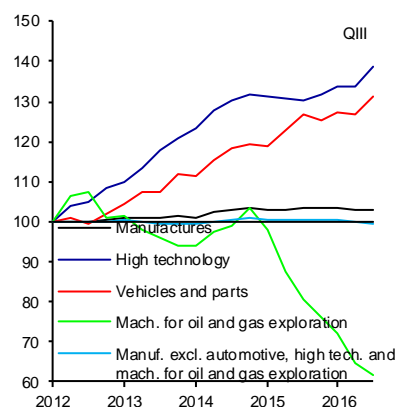
s. a. / Seasonally adjusted data.
Source: Federal Reserve.

Likewise, the U.S. labor market continued recovering gradually. Non-farm payroll kept expanding at a relatively high rate, although it was more moderate than last year. Indeed, on average, 229 thousand jobs were created in 2015 on a monthly basis, while an increment of only 181 thousand jobs was registered over the first ten months of this year (Chart 95a). It is notable that the unemployment rate fluctuated around 5 percent since the end of last year, a level close to that considered as long-term, which was despite a recovery in the labor participation rate. In this context, a moderate acceleration in wages was observed (Chart 95b).

Chart 95
U.S. Labor Market

a) Monthly Change in Non-farm Payroll
and Unemployment Rate
In thousands of jobs and in
percent of labor force, s. a.

b) Wage Indicators
Annual change in percent, s. a.
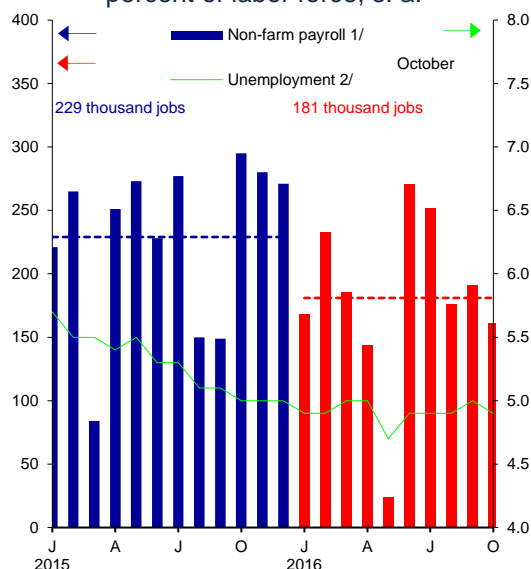
s. a. / Seasonally adjusted data.
1/ In thousands of jobs.
2/ In percent of labor force.
Source: Bureau of Labor Statistics.
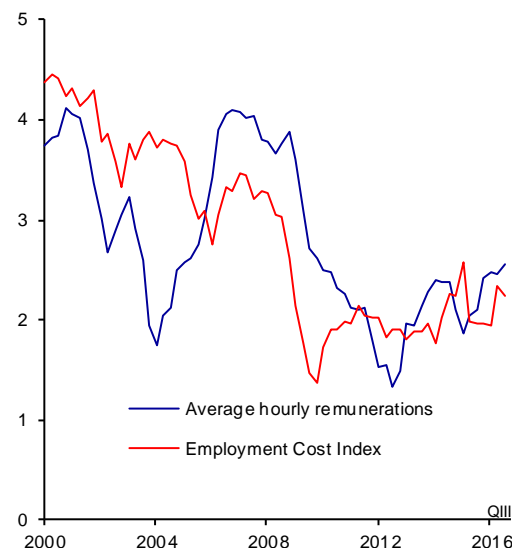
s. a. / Seasonally adjusted data.
Source: Bureau of Labor Statistics.

Although the Euro zone economy rebounded slightly with respect to the second quarter, this region is still facing high risks associated to the uncertainty due to the eventual process of negotiating the U.K. exit from the European Union. GDP in the region expanded at an annualized quarterly rate of 1.4 percent in the third quarter, which compares to 1.2 percent in the second one (Chart 96a). The prospective indicators point to a continuous recovery in the region in the fourth quarter (Chart 96). Still, in the Euro zone there are doubts regarding the soundness of the balances and profitability of the banking system, as well as regarding the possible effect of the above on the monetary policy transmission and credit recovery. Financial institutions reported an adverse impact generated by negative deposit rates on their credit spreads, which could reduce their capacity to continue expanding their loan volume.

Following the decision to exit the European Union, GDP in the U.K. moderated less than previously estimated, shifting from 2.7 percent at an annualized quarterly rate in the second quarter to 2.0 percent in the third one (Chart 96 However, in the future, the recovery of the U.K. economic activity could be affected by uncertainty regarding the course of the leaving the European Union.

Chart 96
Economic Activity in the Euro Area and the U.K.

a) Real GDP Annualized quarterly change in percent, s. a.	b) Consumer Confidence and Purchasing Managers' Index (PMI) Standardized data with respect to the period 2000 - 2007, s. a.	c) U.K.: GDP and Purchasing Managers' Index (PMI) Annualized quarterly change in percent and diffusion index, s. a.

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

s. a. / Seasonally adjusted data.
Source: The European Commission and Markit.

s. a. / Seasonally adjusted data.
Source: Office for National Statistics and Markit.

During the third quarter, the economy of Japan expanded at an annualized quarterly rate of 2.2 percent, which was higher than 0.7 percent observed in the second quarter. In this context, the improvement in consumers and businesses' confidence and the impact of the multi-annual fiscal stimulus package announced in August are expected to continue supporting the slow recovery of the Japanese economy.

The activity in emerging economies as a whole recovered during the third quarter, in part reflecting the increment in the primary products' prices this year so far, as well as better external financial conditions at the beginning of the quarter (Chart 97). This result also points to the fact that economies like China and India have maintained their expansion levels, while the growth rate of other countries, such as Brazil and Russia, contracted to a level lower than that shown during the previous quarters.

Chart 97
Economic Indicators of Emerging Economies

a) Evolution of the Growth Forecast
for 2016
Annual change in percent

b) Indicators of Economic Activity
Diffusion index (50=neutral) and
annual change in percent, the 3-
month moving average, s. a.

c) Exports
Annual change of the 3-month
moving average in percent
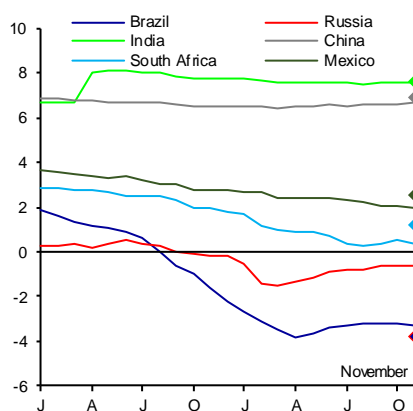
Note: Data in the diamond correspond to GDP
growth in 2015.
Source: Prepared by Banco de México with data from
Consensus Forecast.
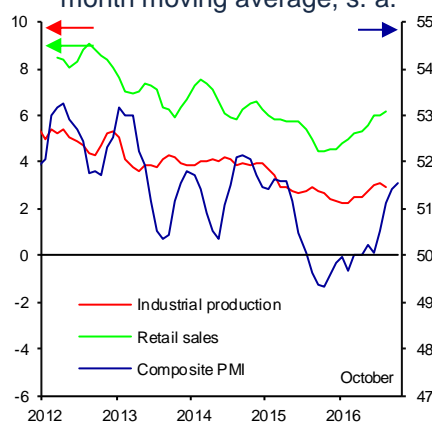
s. a. / Seasonally adjusted data.
Note: Exports, industrial production and retail sales
in volumes.
Source: Markit, CPB Netherlands, Haver Analytics
and FMI.
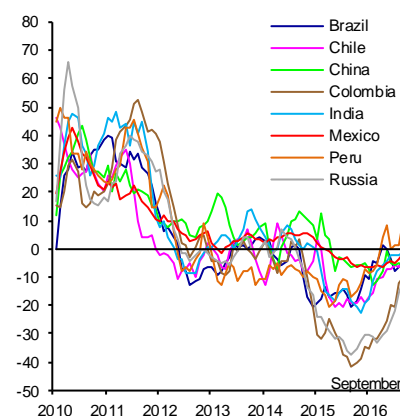
Source: Bloomberg and INEGI.

3.1.2.   Commodity Prices

International commodity prices observed a mixed performance during the period
analyzed in this Report. On the one hand, crude oil prices generally registered a
downward trend during most of the third quarter, due to the expectation of an
increment in oil production, greater inventories' accumulation in the U.S. and
concerns regarding the possible level of demand for crude oil in China. Even though
at the end of the quarter prices rebounded following the announcement of the
agreement among the OPEC countries to, in principle, cut production for the first
time in 8 years, evidence of an increment in production levels among some
members and difficulties to solidify the said agreement led to a new fall in crude oil
prices at the end of October (Chart 98a). As a result of these adjustments, in mid-
November crude oil prices marked levels close to those observed at the end of the
second quarter. On the other hand, following a rebound in the previous quarter,
grain prices resumed their downward trend, in response to the prospects of
historically high production in view of favorable weather conditions (Chart 98b).
Meanwhile, after a period of relative stability in the third quarter, industrial metal
prices have strongly rebounded recently, derived from an increment in construction
activity in China and an expectation that the incoming administration of the U.S.
would significantly boost spending on infrastructure over the next years (Chart 98c).

Chart 98
International Commodity Prices [1/]

| a) Crude Oil | b) Corn and Wheat | c) Metals |
| USD/barrel | USD/bushel | Index 01/01/2013=100 |
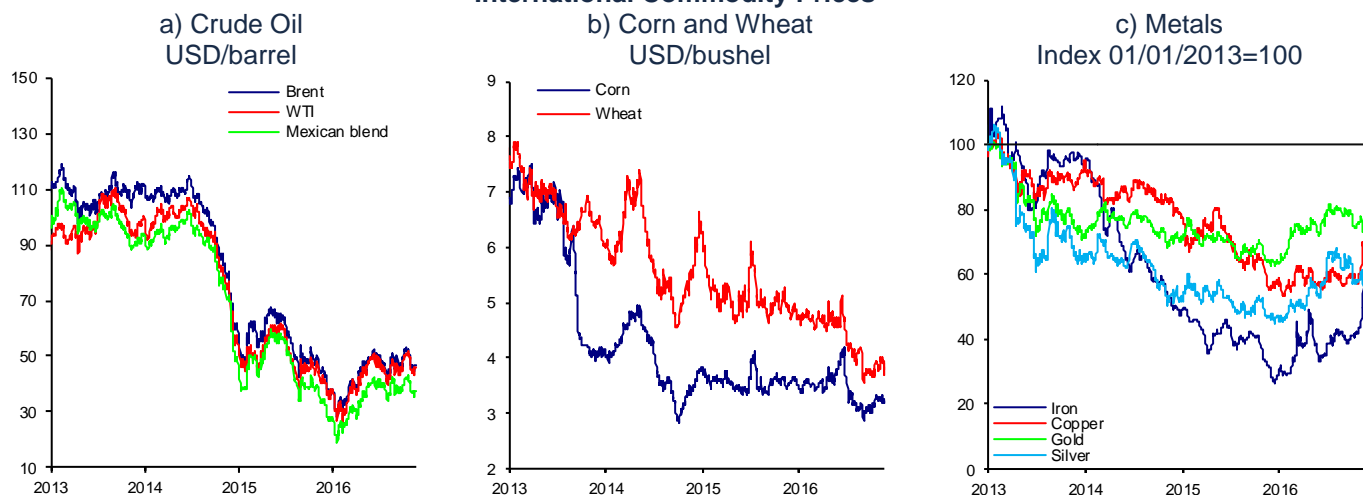
1/ Spot Market.
Source: Bloomberg.

3.1.3. Inflation Trends Abroad

In advanced economies, even though greater stability in energy prices contributed to higher headline inflation during the reported quarter, this persisted below the target of the respective central banks. Meanwhile, inflation expectations implicit in market instruments remained particularly low in Japan and in the Euro zone, although in the U.K. and the U.S. they increased strongly (Chart 99a and Chart 99b).

In the U.S., inflation measured through the consumption deflator reached 1.2 percent in September, after remaining at levels slightly below 1 percent throughout the year, reflecting greater stability in energy prices. In contrast, the core deflator has persisted stable around 1.7 percent in recent months. Inflation measured by the consumer price index has evolved similarly to the consumption deflator, presenting a 1.6 percent increment in the headline index and a stabilization of the core index at 2.1 percent in October. On the other hand, inflation expectations derived from market instruments spiked, largely as a response to an outlook of a highly expansionist fiscal policy that, in principle, will be carried out by the incoming administration of the U.S.

Headline inflation in the Euro zone went up during the quarter, although it still remains at a low level of 0.5 percent in October, supported by a lower negative contribution of the energy sector. In contrast, core inflation remained stable at levels around 0.8 percent throughout the quarter. On the other hand, although the indicators of long-term inflation expectations increased, they are still at very low levels.

The considerable depreciation of the pound sterling contributed to higher inflation in the U.K. during the quarter, which marked 1.0 percent in September, while core inflation increased to 1.5 percent. In Japan inflation maintained its downward trend, observing -0.5 percent in September. Likewise, the growth rate of inflation excluding food and energy items decreased and registered 0.0 percent in the same month, reflecting the effects of the Japanese yen appreciation this year.

In emerging economies, the inflation outlook generally improved during the period covered by this Report. Thus, in most of Latin America inflation went down, as effects of the previous exchange rate depreciations lessened, although in most countries it exceeds the inflation targets. In the case of Asia and Emerging Europe, inflation performed in a differentiated manner, although it is still generally below the central banks' targets (Chart 99c).

Chart 99
Annual Headline Inflation and Inflation Expectations in Advanced and Emerging Economies
Percent

a) Advanced Economies: Headline Inflation

b) Advanced Economies: Long-term Inflation Expectations Derived from Financial Instruments [1]

c) Emerging Economies: Headline Inflation

1/ It refers to consumption deflator. Seasonally adjusted data.
Source: Haver Analytics.

1/ Inflation expectation in a 5-year period for the following 5 years. Expectations 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: J.P. Morgan.

Source: Haver Analytics.

3.1.4. International Monetary Policy and Financial Markets

In this context of the lower growth outlook and low inflation in advanced economies, monetary policy in some of the main central banks is still estimated to remain accommodative for an extended time period. Nonetheless, during the quarter most central banks abstained from providing additional stimuli and, at the same time, there was heightened awareness of the fact that monetary policy in some countries is less effective and that the implementation of additional measures could fail to sufficiently stimulate economic growth and inflation.

In the period covered by this Report, the U.S. Federal Reserve maintained the target range of the federal funds rate of 0.25 to 0.50 percent unchanged. Nevertheless, this Institute noted that arguments for the eventual increment in the reference rate strengthened, and that an increment could be justified relatively soon if there is further evidence of progress regarding the achievement of their goals. At the same time, the Federal Reserve reiterated its expectation that the reference rate will increase gradually and will remain under its long-term levels for a while. Still, given the expected higher inflation as a result of the economic proposals of the incoming U.S. administration, the outlook of the markets points to an increment that is relatively faster and of greater magnitude than the federal funds rate.

Meanwhile, the European Central Bank maintained its reference rates unchanged in its October meeting, and confirmed its expectations that interest rates will prevail at current or lower levels for an extended time period, that will last longer than the current asset purchase program. However, it informed that the central scenario still involves facing downward risks. In this context, the ECB ratified its intention to implement the asset purchase program until late-March 2017 or longer, if necessary, until a sustained upward adjustment in the inflation trajectory can be appreciated, that would be congruent with achieving its target of a figure lower but close to 2 percent in the medium term.

On the other hand, after having adopted a package of new monetary stimuli in its August meeting, which included a 25-basis-point cut in its reference rate, the Bank of England maintained its reference rate unchanged at 0.25 percent and endorsed the continuation of its asset purchase program.[26] The Bank of England pointed out that the outlook for economic activity in the short term improved with respect to the outlook three months ago, when a further reduction in the reference rate was expected to be implemented in the near future, if the forecast available at that moment came to materialize. Still, this Institute indicated that future adjustments in the monetary policy stance could go in any direction.

The Bank of Japan maintained unchanged its deposit rate, as well as the amount of its asset purchase program in its November meeting. This came after announcing a change in implementing its monetary policy in the September meeting, with the purpose to control the government bonds' interest rate curve and, thus, to avoid the impact on banks' profitability and credit granting. This change in its monetary policy framework has two elements. First, controlling the yield curve, maintaining its short-term rate at -0.1 percent and setting the target for 10-year interest rate at a level close to the currently observed level of 0 percent. Second, the central bank's commitment to continue expanding the monetary base until it exceeds the 2 percent inflation target and remains above this level in a sustained manner. It should be noted that in its latest meeting, the Bank of Japan postponed the achievement of the 2 percent inflation target for a year, expecting to reach it in the 2018 fiscal year.

As a result of improved inflation expectations in emerging economies, the monetary stance in most central banks of the referred countries remained unchanged and in some cases even became laxer, as is the case in Brazil, India, Indonesia and Russia.

Volatility in financial markets went down over the first two months of the quarter, as price drops of a wide range of assets registered in the period around the referendum in the U.K. reverted (Chart 100). Thus, stock indices recovered throughout most of the quarter, and reached levels close to their maximum this year. Besides, interest rates in the main advanced economies persisted at lower levels as compared to the previous quarter, although they went up starting from October, indicating an improvement in inflation expectations and inflation risk premia. Nevertheless, since September volatility in international financial markets rebounded again, which was related to the elections in the U.S., and it accentuated once the results of these elections were made public. Thus, capital inflows to emerging economies started to revert starting from November, and were reflected in drops in stock indices and increments in interest rates of these economies. At the same time, currencies in the

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[26] The package also includes an expansion of the asset purchase scheme for U.K. government bonds of GBP 60 billion, taking the total stock of these asset purchases to GBP 435 billion, the purchase of up to GBP 10 billion of U.K. corporate bonds, and starting a new program of financing to banks.

referred economies depreciated, although at differentiated magnitudes, and the Mexican peso was the most affected. In contrast, stock markets in advanced economies expanded and interest rates continued with their upward trend, which had been observed since October. In particular, interest rates spiked in the U.S., as a consequence of possible effects generated by the policies of the incoming administration in the field of public finances, which are expected to lead to higher inflation in that country and to a faster rate and a greater magnitude of the process of the monetary policy normalization. In light of considerable uncertainty regarding the nature and the extent of the economic program of the U.S. incoming government, as well as its implications for the process of its monetary policy normalization, lack of certainty regarding the process of the U.K. leaving the European Union, and risks related to the process of the economic adjustment in China, in the future an upsurge of volatility in international financial markets cannot be ruled out.

Chart 100
Financial Indicators of Selected Advanced Economies

a) Stock Markets	b) Exchange Rate	c) 10-Year Bond Yield
Index 01/01/2015=100	Index 01/01/2015=100	In percent
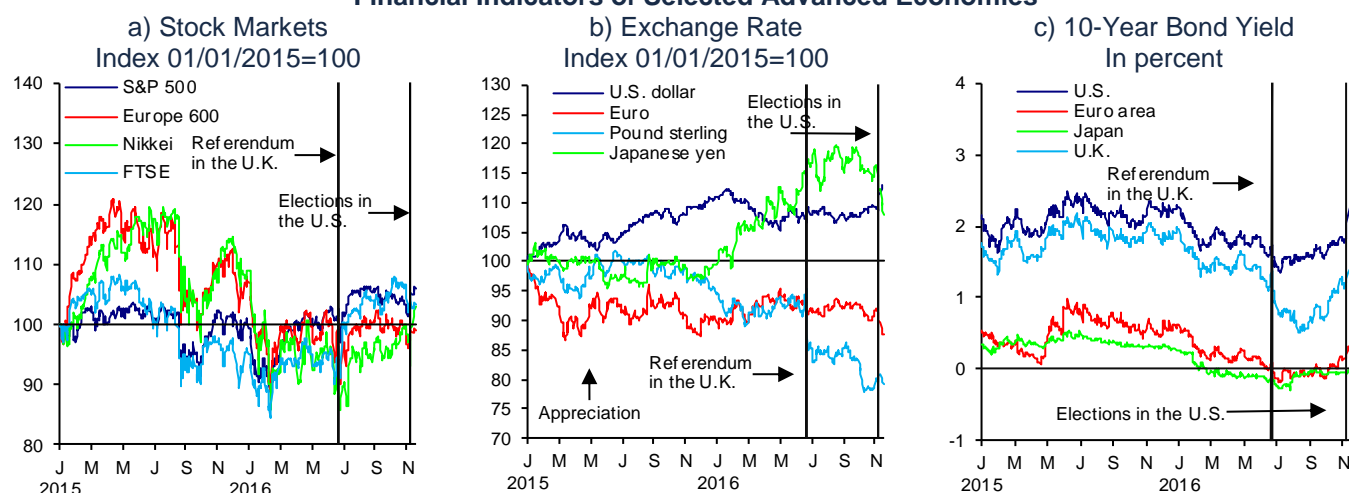
Source: Bloomberg.

Chart 101
Financial Indicators of Emerging Economies
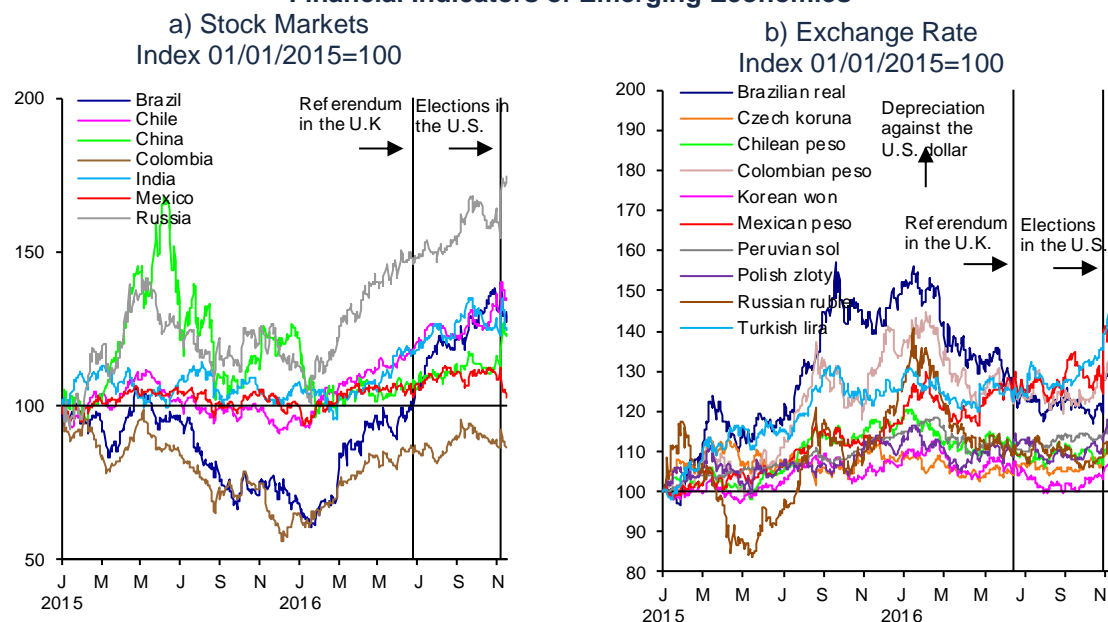
a) Stock Markets
Index 01/01/2015=100

Source: Bloomberg.

b) Exchange Rate
Index 01/01/2015=100

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

Source: Bloomberg.

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

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
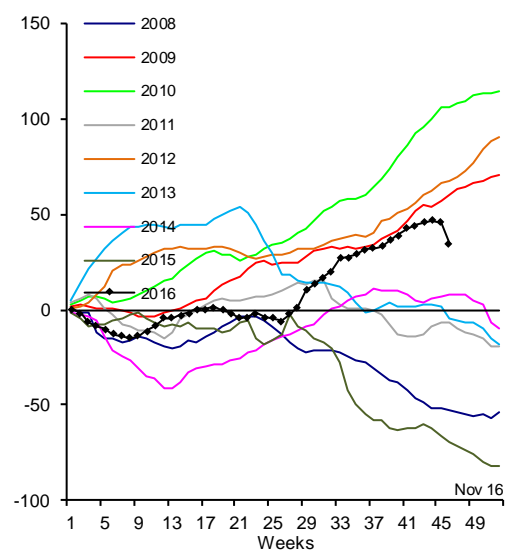
3.2.1. Economic Activity

In the third quarter of 2016, the Mexican economy moderately reactivated, following a contraction in the previous quarter. In particular, external demand improved, and private consumption increased again. In contrast, gross fixed investment maintained a weak performance.

In particular, in the period of July – September, Mexico's manufacturing exports recovered, after displaying a negative trend during 2015 and in early 2016 (Chart 102a). Indeed, both exports to the U.S. and to the rest of the world performed better. Furthermore, the recovery of exports to the U.S. derived from growth during the quarter of both automotive exports and non-automotive exports. This performance seems to be reflecting the incipient expansion of manufacturing activity and U.S. exports in the quarter, as well as a certain improvement in demand in countries other than the U.S. (Chart 102b and Chart 102c).). This result could also have been a consequence of the gradual effect generated by the real exchange rate depreciation.

Meanwhile, oil exports increased as well in the quarter being reported, due to both a higher average price of the Mexican blend of oil for export, and a greater volume of exported crude oil (Chart 102d). In particular, the larger exports volume was a consequence of a higher share of oil production being sold to the international market, despite the fact that oil production overall shrank.

Chart 102
Mexican Exports
Index 2008=100, s. a.

a) Total Manufacturing Exports   b) Non-automotive Manufacturing Exports

s. a. / Seasonally adjusted and trend data based on information in nominal dollars. The former is represented by a solid line, the latter
        by a dotted line.
Source: Banco de México with data from SAT, SE, Banco de México, INEGI. Merchandise Trade Balance. SNIEG. Information of
         National Interest.

c) Automotive Manufacturing Exports

s. a. / Seasonally adjusted and trend data based on information
         in nominal dollars. The former is represented by a solid
         line, the latter by a dotted line.
Source: Banco de México with data from SAT, 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 based on information in nominal
         dollars.
1/   3-month moving average of daily barrels of the seasonally
         adjusted series.
Source: SAT, 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.

After the contraction in April, private consumption resumed a growing trend over the following months, which led to an expansion in the third quarter, following the stagnation observed in the previous one (Chart 103a).

i.   The evolution of private consumption derived from the dynamism of national goods and services' consumption, while the imported goods component maintained its declining trend, which had been registered since mid-2015 (Chart 103b). This evolution seems to respond to the real exchange rate depreciation. However, domestic sales of imported vehicles maintained a positive trend (Chart 103), possibly as a consequence of a wider availability of financing for consumers, which also boosted sales of domestically-produced cars.

Chart 103
Consumption Indicators
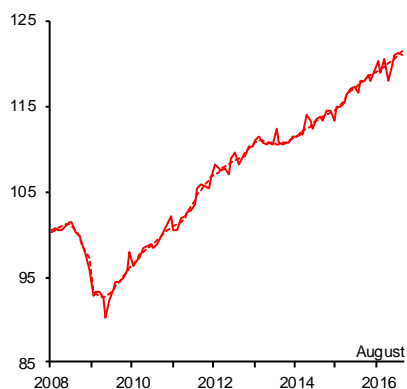
a) Monthly Indicator of Domestic Private Consumption
Index 2008=100, s. a.

b) Components of the Monthly Indicator of Domestic Private Consumption
Index 2008=100, s. a.
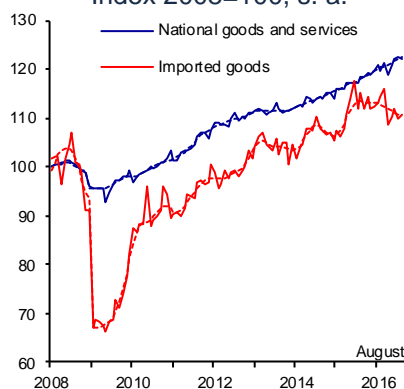
c) Domestic Light Vehicle Retail Sales by Origin
Thousands of units, s. a.
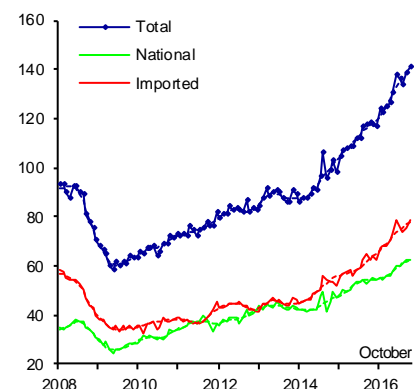
s. a. / Seasonally adjusted and trend data. The former is represented by a solid line, the latter by a dotted line.
Source: INEGI.

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

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).

ii.   The recovery of private consumption is consistent with the improvement in the real wage bill in the reported period, which marked levels similar to those observed prior to the global financial crisis (Chart 104a). Private consumption also benefitted from greater flows of workers' remittances, which attained particularly high levels, and from the fact that consumer credit kept expanding at high rates (Chart 104Chart 104 and Section 3.2.3). Conversely, the consumer confidence index, which had already been registering a negative trend, deteriorated more sharply in the period of July – October (Chart 104).

Chart 104
Consumption Determinants
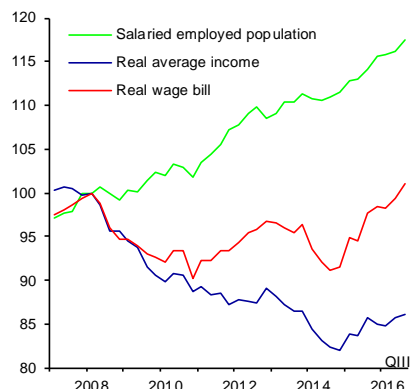
a) Total Real Wage Bill Index I-2008=100, s. a.	b) Workers' Remittances Billion, constant USD and MXN, s. a.	c) Consumer Confidence Index January 2003=100, s. a.

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

- Salaried employed population
- Real average income
- Real wage bill

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, s. a.
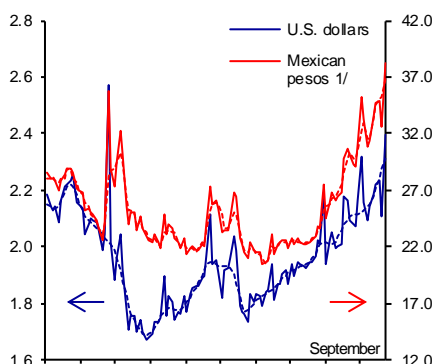
- U.S. dollars
- Mexican pesos 1/

September

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.
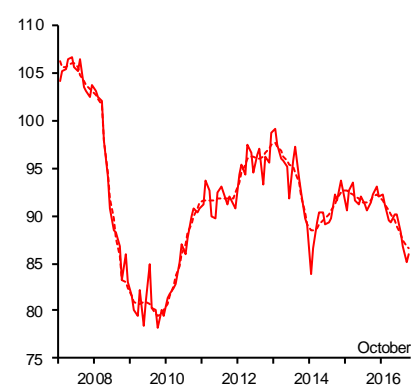
October

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.

During the quarter under analysis, gross fixed investment remained weak (Chart 105a). Spending on construction went down, driven by a lower volume of work contracted by the public sector. The private sector maintained a growing trend (Chart 105). On the other hand, investment in machinery and equipment, which to a greater degree responds to the gross formation of fixed capital of the private sector, presented a favorable trend change. In particular, the positive trend that persisted in the national component, was complemented by a marked improvement in the imported one (Chart 105). The evolution of private investment seems to be reflecting, in part, the impact of structural reforms and a relatively higher utilization of installed capacity in the manufacturing sector.

Chart 105
Investment Indicators

a) Investment and its Components
Index 2008=100, s. a.
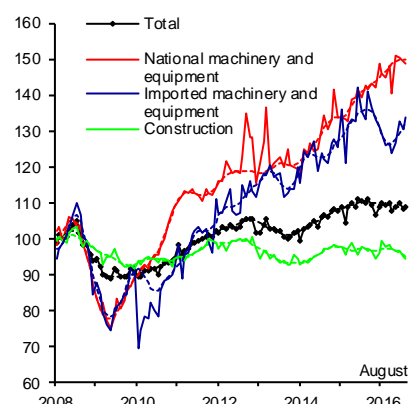
b) Real Value of Production in
Construction by Contracting
Institutional Sector [1/]
Index January 2008=100, s. a.

c) Capital Goods' Imports
Index 2008=100, s. a.
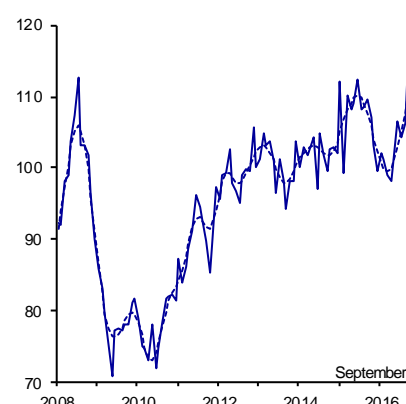
s. a. / Seasonally adjusted and trend data. The former is represented by a solid line, the latter by a dotted line.
Source: Mexico's National Accounts System, INEGI.

s. a. / Seasonally adjusted data.
1/ Seasonal adjustment by Banco de México, except for the total.
Source: Prepared by Banco de México with data from ENEC, INEGI.

s. a. / Seasonally adjusted and trend data based on information in nominal dollars. The former is represented by a solid line, the latter by a dotted line.
Source: SAT, SE, Banco de México, INEGI. Merchandise Trade Balance. SNIEG. Information of National Interest.

Regarding the performance of economic activity from the production side, there was a moderate recovery in the third quarter of 2016, as a result of the reactivation in the services sector, while industrial production as a whole remained stagnant (Chart 106).

i.   In the period of July – September 2016, within the industrial activity, mining kept a decreasing trend, which had been registered since early 2014 (Chart 106Chart 106), in an environment in which the crude oil production platform continued declining.

ii.   Additionally, mining-related services continued falling and are at particularly low levels.

iii.   Likewise, as mentioned above, as a result of a lower volume of contracted construction by the public sector, the performance of construction remained weak. On the contrary, in the third quarter the improvement in manufacturing production, which had begun at the end of the previous quarter, persisted. This recovery responded, in part, to the regularization of activities in different automotive plants, as well as the launch of activities in a newly established plant. Indeed, since May 2016 automotive production has presented a positive trend.

Chart 106
Production Indicators
Index 2008=100, s. a.
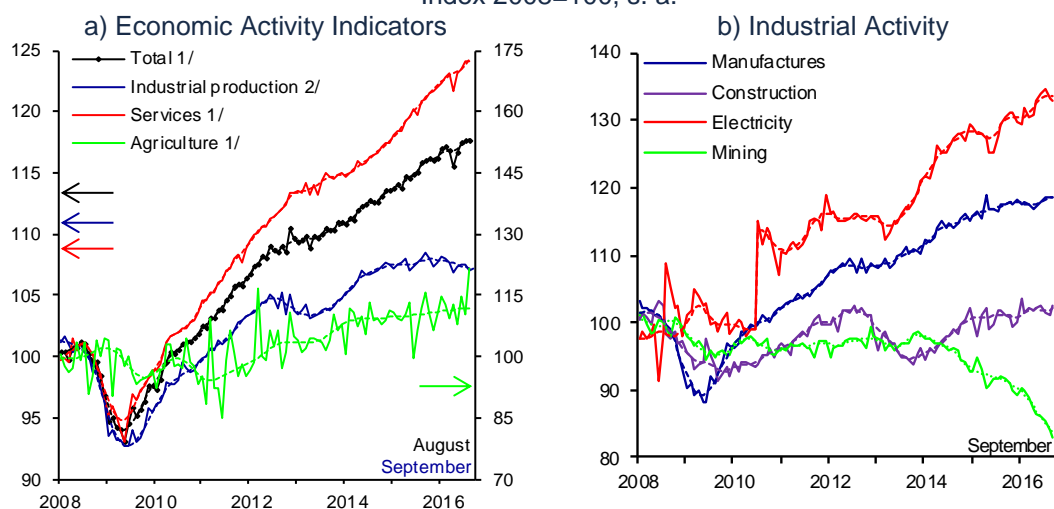
a) Economic Activity Indicators

s. a. / Seasonally adjusted and trend data. The former is represented by a solid line, the latter by a dotted line.
1/ Data as of August 2016.
2/ Data as of September 2016 from the Monthly Industrial Activity Indicator.
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.

Chart 107
Crude Oil Production Platform and Mining Sector

a) Crude Oil Production Platform
Thousands of barrels per day, s. a.
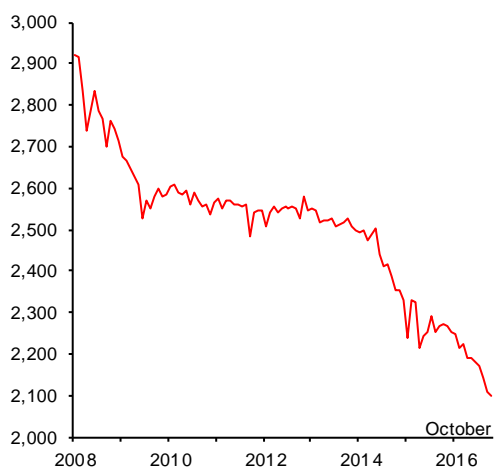
s. a. / Seasonally adjusted data.
Source: Seasonal adjustment by Banco de México with data from PEMEX Institutional Database and Weekly Report of PEMEX Exploration and Production.

b) Mining Sector
Index 2008=100, s. a.
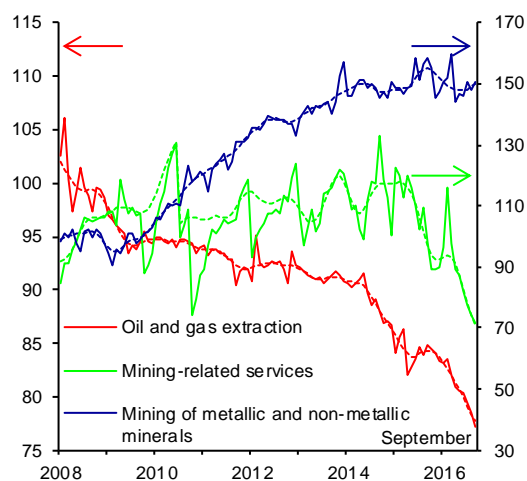
s. a. / Seasonally adjusted and trend data. The former is represented by a solid line, the latter by a dotted line.
Source: Monthly Industrial Activity Indicator, Mexico's National Accounts System, INEGI.

Chart 108
Manufacturing and Automotive Production
Index 2008=100, s. a.

a) Manufacturing Subsector of Transport Equipment and Produced Vehicles
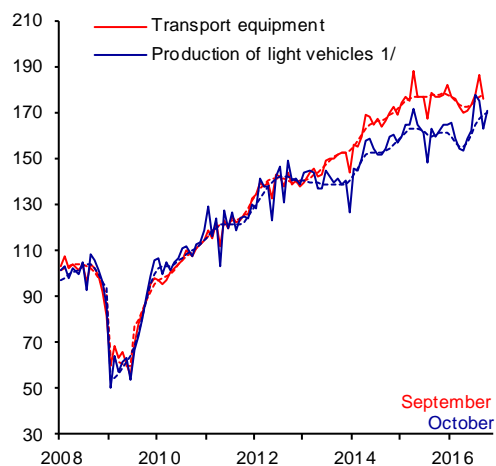
b) Manufacturing Sector Excluding Transport Equipment

s. a. / Seasonally adjusted and trend data. The former is represented by a solid line, the latter by a dotted line.
1/ Seasonal adjustment by Banco de México.
Source: Mexico's National Accounts System (SCNM), INEGI and the Mexican Automotive Industry Association (AMIA).
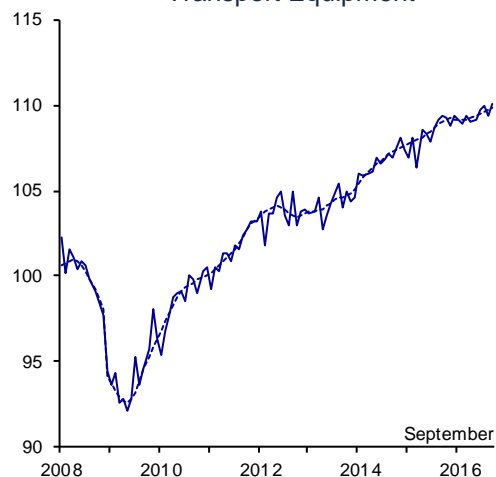
s. a. / Seasonally adjusted and trend data. The former is represented by a solid line, the latter by a dotted line.
Source: Prepared and seasonally adjusted by Banco de México with data from Mexico's National Accounts System (SCNM), INEGI.

iv.   After a strong contraction in April, tertiary activities reactivated in the period of May – August (Chart 109). In this regard, a growing trend in the items of transport services and mass media, of financial and real estate services, and of recreation and other services stands out. On the contrary, the items of trade, education and healthcare services, temporary lodging services and food preparation services decelerated.

v.   In the third quarter of 2016, primary activities expanded, to a large extent, derived from a larger cultivated area in the spring-summer cycle, as well as from an increment in the harvests of fodder, some perennial crops and greater livestock production.

Chart 109
Global Economic Activity Indicator: Services
Index 2008=100, s. a.
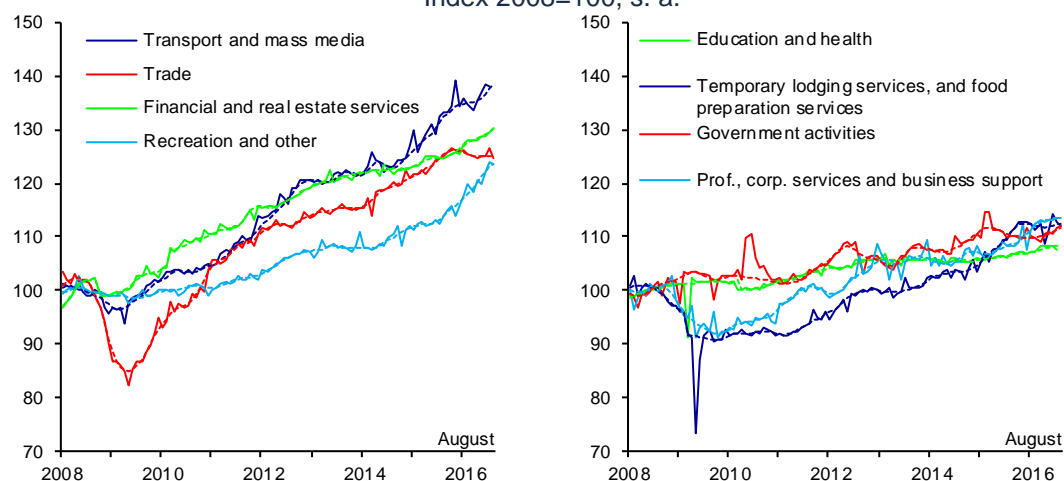
s. a. / Seasonally adjusted and trend data. The former is represented by a solid line, the latter by a dotted line.
Source: Mexico's National Accounts System, INEGI.

In this context, in accordance with the timely estimation of GDP released by INEGI, in the third quarter of 2016 economy grew 1.0 percent in seasonally adjusted terms, following a contraction of 0.2 percent observed in the second quarter (Chart 110). Based on seasonally adjusted data, in line with this estimate, economic activity registered an annual expansion of 1.9 percent in the period of July – September 2016 (compared to 1.5 percent in the previous quarter). Based on non-seasonally adjusted data, GDP in Mexico presented an annual change of 2.0 percent, which compares to the annual growth of 2.5 percent registered in the previous quarter (Chart 110). Consistent with these results, over the first three quarters of 2016 GDP grew 2.3 percent with respect to the same period of last year, a figure that is below the annual rate corresponding to the same period of 2015, of 2.5 percent.

Chart 110
Gross Domestic Product

a) Quarterly Change
Percent, s. a.

b) Annual Change
Percent
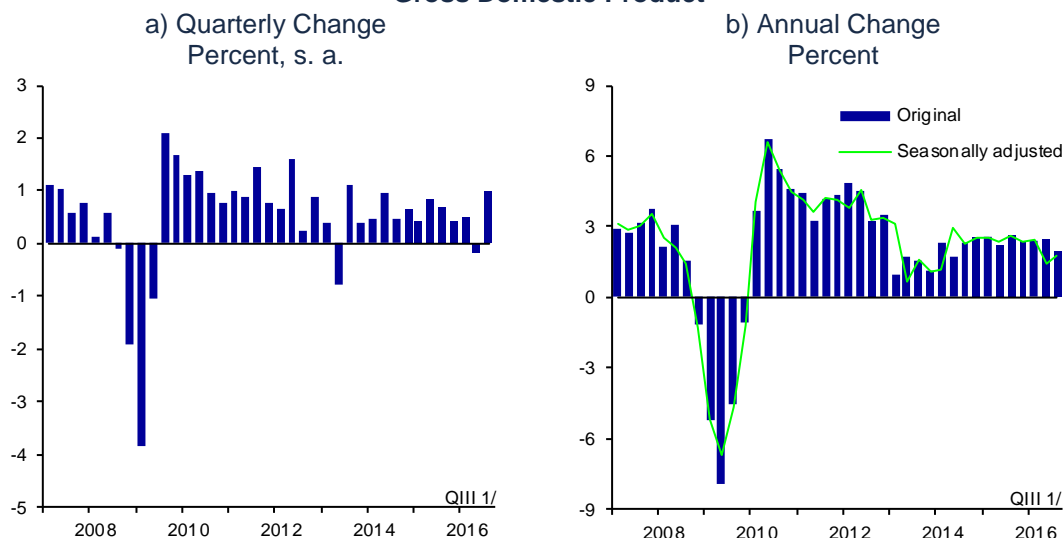
s. a. / Seasonally adjusted data.
1/ The figure corresponding to the third quarter of 2016 refers to the timely estimation of quarterly GDP released by INEGI.
Source: Mexico's National Accounts System, INEGI.

In the third quarter of 2016, the current account deficit is estimated to have lied at levels close to 2.9 percent of GDP (approximately USD 7.5 billion; Chart 111Chart 111 and Chart 111b). This result is a consequence of a trade deficit of USD 5.3 billion, which includes an oil trade balance deficit of USD 3.6 billion and a non-oil trade balance deficit of USD 1.7 billion (Chart 111). Based on these results, the non-oil trade balance seems to have started to improve, after its deficit increased in 2015 with respect to 2014. Indeed, in the total of the first three quarters of the year, the deficit of the non-oil trade balance has been the lowest since 1996.

Chart 111
Trade Balance and Current Account

a) Current Account
Share of GDP

b) Current Account
USD millions

c) Trade Balance
USD millions
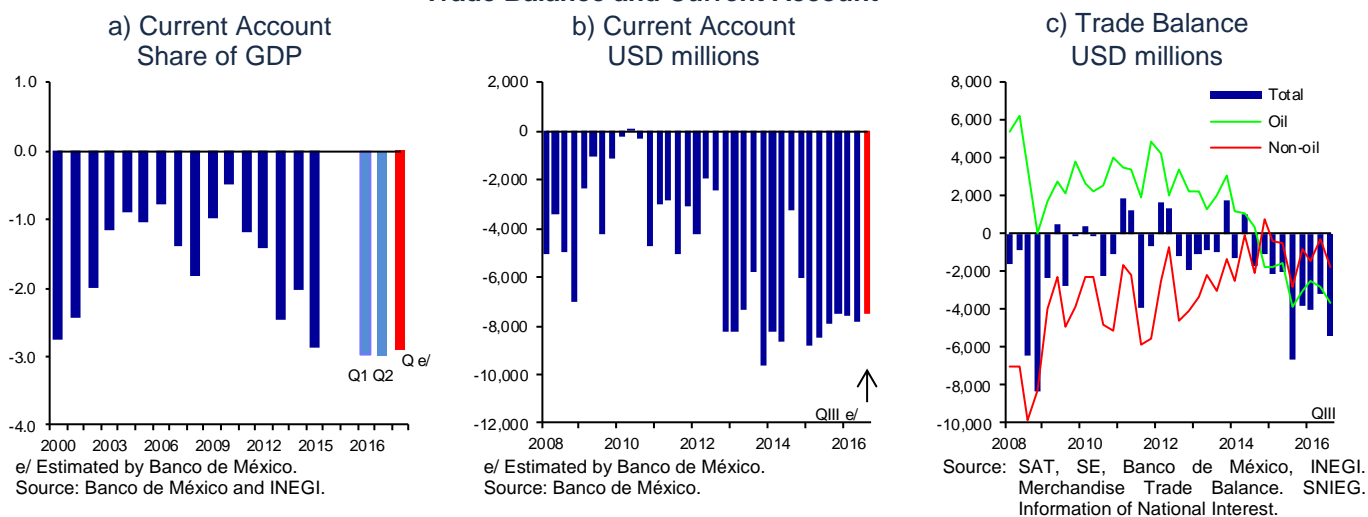
e/ Estimated by Banco de México.
Source: Banco de México and INEGI.

e/ Estimated by Banco de México.
Source: Banco de México.

Source: SAT, SE, Banco de México, INEGI. Merchandise Trade Balance. SNIEG. Information of National Interest.

3.2.2. Labor Market

During the third quarter of 2016, general labor market conditions seemed to have continued to improve gradually. In particular, the national unemployment rate kept declining, while the urban unemployment rate persisted at levels close to those observed in the previous quarter (Chart 112). Additionally, the drop in the national unemployment rate occurred in a context in which the labor participation rate increased during the quarter (Chart 112b). In a related manner, a high dynamism in the growth of the number of IMSS-insured jobs was registered (Chart 112). Similarly, the labor informality rate maintained a decreasing trend and is below the levels observed prior to the 2009 global financial crisis (Chart 112).

Chart 112
Labor Market Indicators

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

b) National 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.
Source: National Survey on Occupation and Employment (ENOE), INEGI.

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 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.
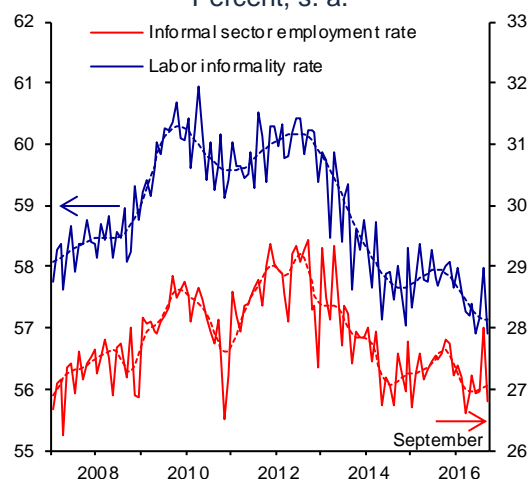
s. a. / Seasonally adjusted and trend data. The former is
  represented by a solid line, the latter by a dotted line.
1/ It refers to individuals working in non-agricultural economic
  units, operating with no accounting records and with
  households' resources.
2/ It includes workers who, besides being 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.

Congruent with the improvement in the labor market, salaries in real terms maintained their gradual recovery during the reported quarter. In particular:

i.   The annual growth rate of the average wage of salaried workers in the economy marked 3.8 percent in the period of July – September, which was slightly above the figure registered in the previous quarter (Chart 113a). In view of the low inflation that has been observed, this expansion meant that positive annual growth rates in real terms persisted.

ii.   Likewise, in the period being reported, as in October, the daily wage of IMSS-insured workers maintained positive rates of annual growth in real terms (Chart 113b).

iii.   In the reference quarter, the growth rate of contractual wages negotiated by firms under federal jurisdiction was below that registered in the same quarter of 2015 (Chart 113c). This reduction is explained by a lower average increment in wages negotiated by public firms when compared to the previous year, as the average rate of increments negotiated by private firms was the same as the one observed in the third quarter of 2015. Similarly, in October the average growth rate of contractual wages was lower than in October 2015.

Chart 113
Wage Indicators
Annual change in percent

a) Average Wage of Salaried
Workers according to National
Employment Survey [1]
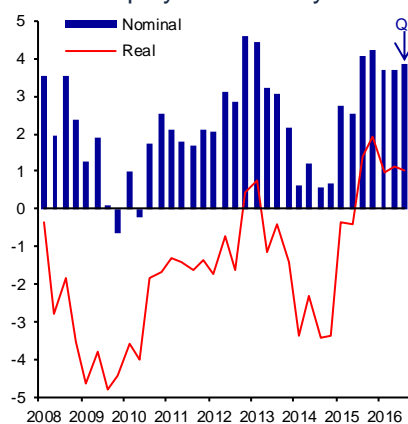
b) Daily Wage of IMSS-insured
Workers [2]
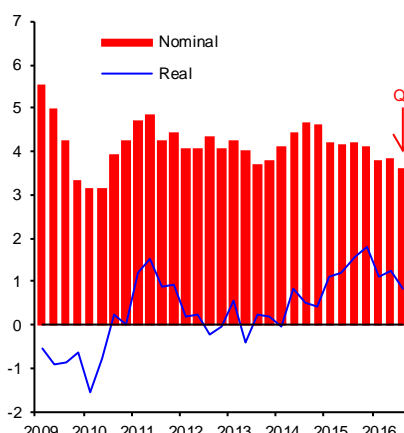
c) Nominal Contractual Wage [3]
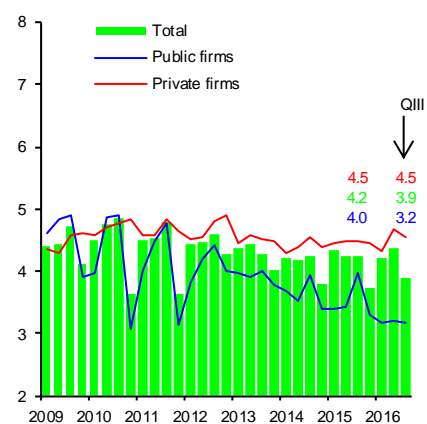
1/ To calculate average nominal wages, the bottom 1 percent and the top 1 percent in the wage distribution were excluded. Individuals with zero reported income or those who did not report it are excluded.

2/ During the third quarter of 2016, on average 18.5 million workers were registered with IMSS.

3/ The contractual wage increase is an average weighted by the number of involved workers. The number of workers in firms under federal jurisdiction that report their wage increases each year to the Secretary of Labor and Social Welfare (STPS) is approximately 2 million.

Source: Calculated by Banco de México with data from IMSS, STPS and INEGI (ENOE).

3.2.3. Financial Saving and Financing in Mexico [27]

In the environment of recurring volatility episodes prevailing in international financial markets, and as a reflection of the moderation in capital flows from abroad to emerging economies, the sources of financial resources of the Mexican economy have expanded since mid-2015 at lower rates than those registered during the previous years. In particular, their real average annual change between the third quarter of 2015 and the third quarter of 2016 was 3.8 percent, which was lower than that observed between the first quarter of 2014 and the second quarter of 2015, of 6.3 percent. In this context of more moderate growth rates, in the third quarter of 2016 there was a rebound in the sources of financial resources of the economy in relation to the previous quarter, as their real annual change shifted from 3.1 to 3.9 percent. This greater dynamism at the margin derived mainly from the acceleration of domestic sources, while the external ones kept expanding at relatively low rates (Chart 114).

As regards domestic sources, their growth rate increased from 4.8 percent in the second quarter of 2016 to 5.9 percent in the reference quarter. This derived from greater domestic financial saving and, in particular, from faster growth of its voluntary component (Chart 115). [28] Meanwhile, the monetary base maintained a relatively high growth; its real average annual growth rate stood at 13.1 percent in the third quarter, which compares to that of 13.0 percent in the previous one.

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[27] In this section, real annual changes are calculated based on balances adjusted due to exchange rate and asset price variations.

[28] Financial saving is defined as the monetary aggregate M4 minus the stock of currency held by the public.

Chart 114
Total Funding of the Mexican Economy (Sources and Uses)
Real annual change in percent [1/]

a) Total Sources

b) Total Uses

p/ Preliminary data.
1/ Real annual changes are calculated based on balances adjusted due to exchange rate and asset price variation.
2/ It includes the monetary aggregate M4 held by residents.
3/ It includes the monetary aggregate M4 held by non-residents, foreign financing for the federal government, public institutions and enterprises, commercial banks' foreign liabilities and external financing to the non-financial private sector.
4/ It is made up by currencies and gold reserves of Banco de México, free of any security rights and the availability of which is not subject to any type of restriction; the position in favor of Mexico with the IMF derived from contributions to the said entity; currency obtained from financing to realize foreign exchange regulation of the IMF and other entities of international financial cooperation or groups of centrals banks, of central banks and other foreign legal entities that act as financial authorities. Currencies pending to be received for sales transactions against the national currency are not considered, and Banco de México's liabilities in currency and gold are deducted, except for those that are for a term longer than 6 months at the moment of reserves' estimation, and those corresponding to financing obtained to carry out the above mentioned foreign exchange regulation. See Article 19 of Banco de México's Law.
5/ It refers to the 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 external financing. It includes restructuring programs.
6/ It includes financing to the federal public sector, as well as financing to states and municipalities.
Source: Banco de México.

The external sources of financial resources expanded at a rate of 1.0 percent in the reference quarter, which is similar to that registered in the previous one (Chart 114). However, this indicator's components performed differently. On the one hand, the stock of non-resident financial saving recovered due to a greater investment in short-term government securities, after having declined in three consecutive quarters. Thus, its real annual percent change went from -10.6 in the previous quarter to -6.0 in the third quarter of 2016 (Chart 115).). In contrast, the growth rates of external sources of resources destined to finance private non-financial firms decreased with respect to the previous quarter, as their real annual change went from -0.1 to -1.6 percent.

Chart 115
Financial Saving Indicators
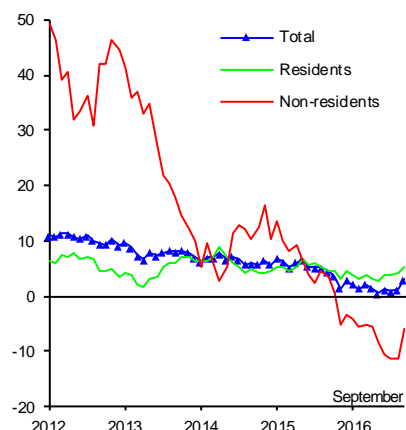
a) Total Financial Saving [1/ 2/]
Real annual change in percent

b) Resident Financial Saving [2/]
Real annual change in percent
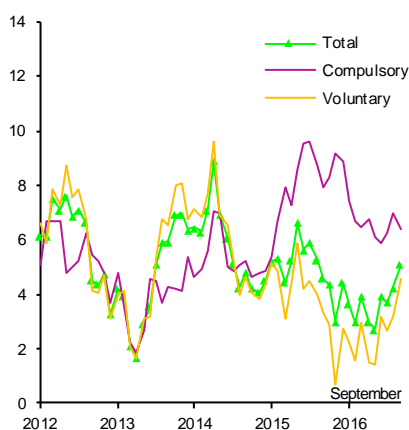
c) Non-resident Financial Saving
Contribution to real annual
change in percent
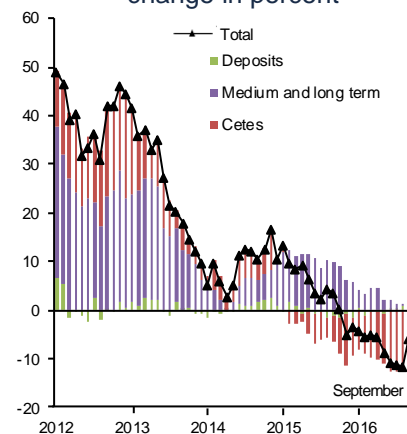
1/ It is defined as the monetary aggregate M4 minus the stock of currency held by the public.
2/ Real annual changes are calculated based on balances adjusted due to exchange rate and asset price variations.
Source: Banco de México.

As regards the use of financial resources, the growth rates of public sector financing and of the international reserves have decreased since mid-2015, which, even in the context of lower sources of financial resources described above, provided room so that financing to the private sector could continue growing at relatively high rates (Chart 114). Indeed, as it has been observed since mid-2015, in the third quarter of 2016 the growth of financing to the public sector kept moderating, in congruence with the efforts undertaken in terms of the fiscal consolidation announced by the Ministry of Finance. At the same time, the balance of international reserves continued contracting at an annual rate, although at a slower pace as compared to the previous period. Specifically, its real annual growth rate shifted from -9.5 to -5.1 percent between the second and the third quarters of 2016. Thus, financing to the private sector kept expanding at high rates in the third quarter of the year, although at a growth rate that was slightly below that in the previous quarter.

Expanding on the above, in the third quarter of 2016, total financing to the non-financial private sector observed a real annual growth rate of 5.3 percent, as compared to 6.0 percent in the second quarter (Chart 116). This performance derived, on the one hand, from a contraction of foreign financing and, on the other hand, from a certain moderation in the growth rate of domestic financing.

Chart 116
Financing to Non-financial Private Sector
Real annual change in percent
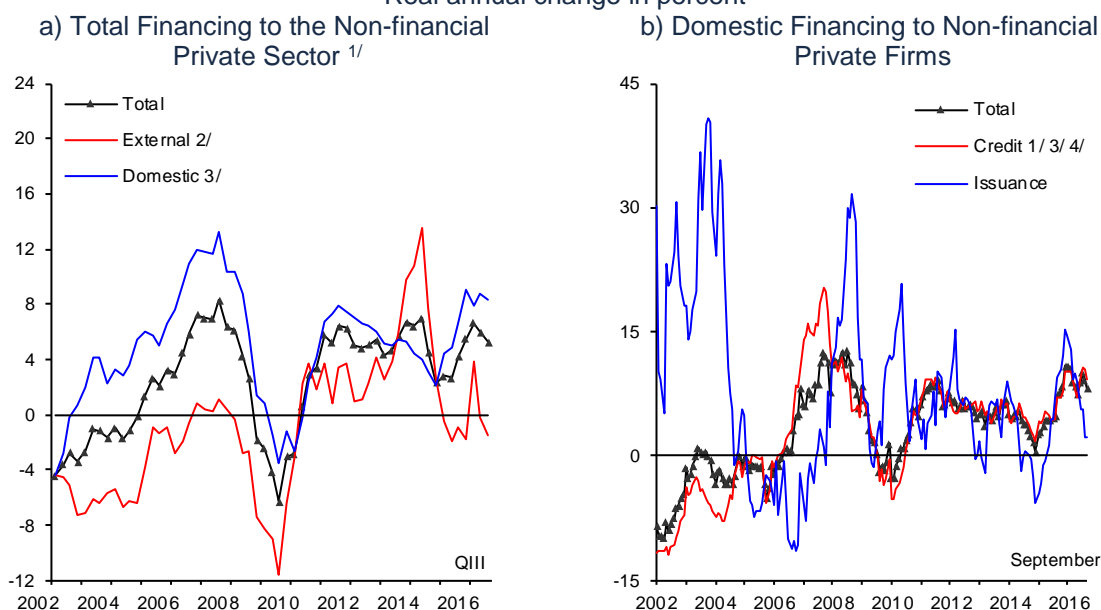
a) Total Financing to the Non-financial Private Sector [1]

b) Domestic Financing to Non-financial Private Firms

1/ Real annual changes are calculated based on balances adjusted due to exchange rate variations.
2/ Data of foreign financing for the third quarter of 2016 are preliminary.
3/ These figures are adjusted due to the withdrawal from and incorporation of some financial intermediaries to the credit statistics.
4/ It refers to the performing and non-performing portfolios, and includes credit from commercial and development banks, as well as other non-bank financial intermediaries.
Source: Banco de México.

Between the second and the third quarters of 2016, the real annual growth of domestic financing to firms shifted from 9.0 to 8.1 percent. This reflected both a lower expansion of banking credit and a lower dynamism in the domestic debt market (Chart 116). Commercial and development banks' performing credit portfolios to non-financial private firms grew at a rate of approximately 9.0 percent in real annual terms (Chart 117). In this context, financing costs to non-financial private firms kept expanding, consistent with the rise in banks' funding costs in the reference period.

Chart 117
Domestic Financing to Non-financial Private Firms

a) Securities in Circulation
Stocks in MXN billion as of September 2016
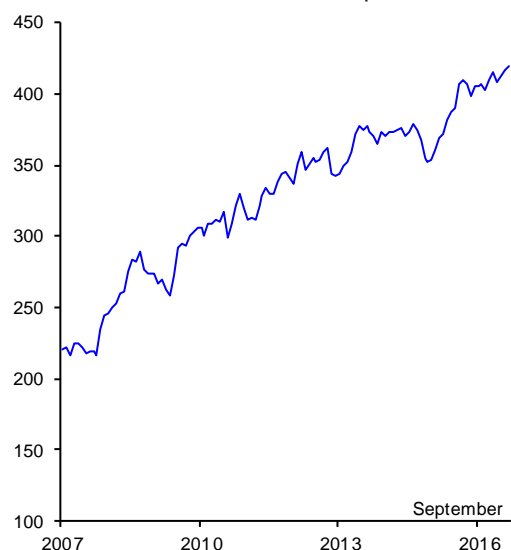
b) Performing Credit [1]
Real annual change in percent
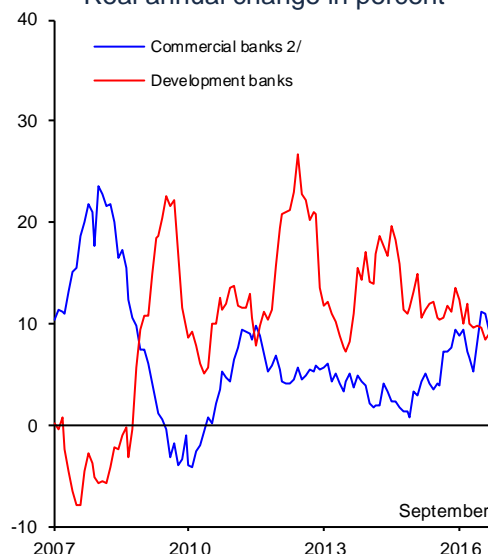
1/ Real annual changes are calculated based on balances adjusted due to exchange rate variations.
2/ It includes Sofomes ER subsidiaries of bank institutions and financial groups. Data are adjusted so as not to be affected by the transfer of bridge loans.
Source: Banco de México.

Chart 118
Annual Interest Rates and Delinquency Rates of Non-financial Private Firms

a) Annual Interest Rates of
Private Securities
Quarterly average in percent

b) Annual Interest Rates of
New Credits [3]
Annual percent

c) Delinquency Rates [4]
Percent

1/ Average weighted yield to maturity of issuances in circulation, with a term over 1 year, at the end of the month.
2/ Average weighted rate of private debt placements, at a term of up to 1 year, expressed in a 28-day curve. It only includes stock exchange certificates.
3/ 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. It is presented as a 3-month moving average.
4/ The delinquency rate is defined as the stock of non-performing loans divided by the stock of total loans.
Source: Banco de México.

Credit to households expanded at a rate similar to that of the previous quarter, which resulted from both consumer and housing loans maintaining their dynamism. In particular, in the third quarter of 2016 the growth rate of household credit stood

at 8.5 percent in real annual terms, while in the second one it had registered a real annual change of 8.6 percent (Chart 119). With respect to housing loans, both the commercial bank and the National Housing Fund (Infonavit) portfolios –which together constitute 91 percent of total credit in this segment– continued expanding at a relatively high pace (Chart 119). [29] Meanwhile, the corresponding interest rates persisted at low and stable levels, while delinquency rates did not change significantly with respect to the previous quarter (Chart 119).

Chart 119
Credit to Households

a) Total Credit [1] Real annual change in percent	b) Performing Housing Credit Real annual change in percent	c) Annual Interest Rate of New Credits and Delinquency Rate of the Housing Credit In percent

1/ These data are adjusted due to the withdrawal from and the incorporation of some financial intermediaries to the credit statistics.
2/ It includes the Sofomes ER subsidiaries of bank institutions and financial groups.
3/ Figures are adjusted in order to avoid distortions by the transfer and the reclassification of direct credit portfolio, 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.
4/ The interest rate of new housing credits from commercial banks, weighted by stock associated to the performing credit. It includes credit for acquisition of new and used housing. Data as of August.
5/ The delinquency rate is defined as the stock of non-performing loans divided by the stock of total loans.
Source: Banco de México.

Consumer credit maintained its growth rate, even though the performance of its components was heterogeneous (Chart 119). On the one hand, both payroll and personal loans grew at more moderate rates with respect to those in the previous quarter, although those stood at relatively high levels. In contrast, the expansion of consumer durables credit, just like that of credit granted via cards, maintained its upside trajectory. In this environment, the corresponding interest rates remained stable, with the exception of certain increases observed in the credit card segment. Likewise, delinquency rates in general did not show any significant variation either and remained at relatively low levels (Chart 120).

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[29] 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 120
Commercial Bank Consumer Credit

a) Performing Credit [1]
Real annual change in percent

b) Delinquency Rates [1][5]
In percent

1/ It includes the Sofomes ER subsidiaries of bank institutions and financial groups.
2/ It includes credit for payable leasing operations and other consumer credits.
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 auto loans and credit for acquisition of other movable properties.
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. For this Report, the data are up to August 2016.
Source: Banco de México.

In sum, despite the fact that in 2016 the sources of financial resources expanded at lower rates as compared to previous years, the reduction in the use of financial resources by the public sector contributed to the channeling of resources towards the private sector at a relatively high rate. In the context expected in the future, characterized by high volatility in international financial markets and limited external sources of financial resources, the efforts of fiscal consolidation by the public sector will continue helping to mitigate possible pressures on the market for loanable funds.

4.   **Monetary Policy and Inflation Determinants**

During the period covered by this Report, the conduct of monetary policy faced a difficult environment in which the outlook for the global economy has become more complex, to a large extent, due to the uncertainty related to the elections in the U.S., and, subsequently, to the outcome of the aforementioned elections. Thus, in September, volatility in international financial markets increased and worsened considerably at the end of October and the first half of November. Given that the implications for Mexico stemmed from the outcome of the U.S. elections is particularly relevant for the country, domestic financial markets were strongly affected by it, whereby asset prices declined. In particular, the value of the national currency exhibited both higher volatility and a stronger depreciation as compared to other emerging economies' currencies, additionally interest rates and different risk premia also observed considerable volatility and increases.

Taking this juncture into consideration, even though in its monetary meeting of August 11, the Board of Governors decided to maintain the target for the Overnight Interbank Interest Rate unchanged at 4.25 percent, in its decision of September the Board increased the target rate by 50 basis points to a level of 4.75 percent (Chart 121). This was done because volatility in Mexican financial markets spiked, negatively affecting the national currency dynamics, and, hence, jeopardizing the anchoring of inflation expectations. Subsequently, and in an environment of great uncertainty faced by the national economy, the Board of Governors of this Central Institute continued facing these risks, strengthening the country's macroeconomic fundamentals. Therefore, it decided to increase the referred target rate by 50 basis points to a level of 5.25 percent, in order to offset inflation pressures and maintain inflation expectations anchored.

Chart 121
Overnight Interbank Interest Rate Target [1/]
Annual percent
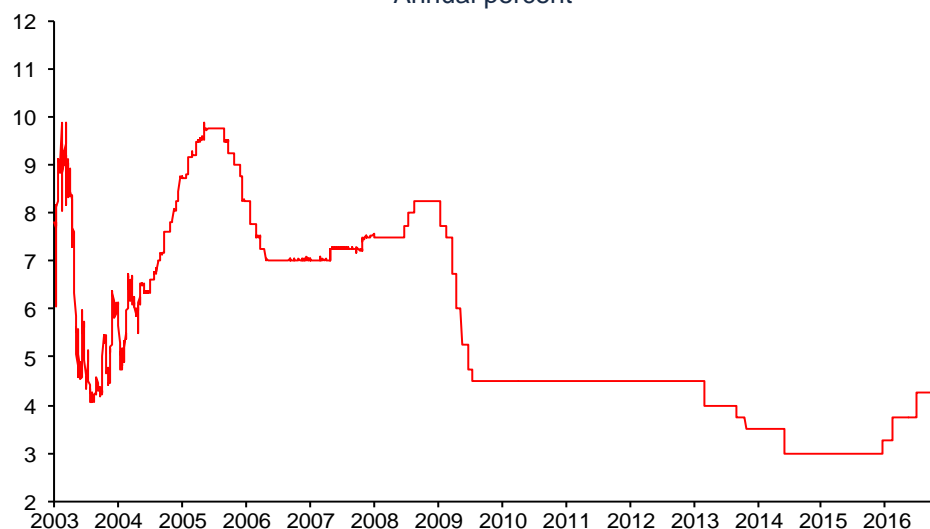
1/ The Overnight Interbank Interest Rate is shown until January 20, 2008.
Source: Banco de México.

Considering the above mentioned monetary policy decisions, it is noteworthy that this year the Central Bank has increased its reference rate by 200 basis points, acting in a preemptive manner in light of the external environment that has become

increasingly adverse. It should be pointed out that, consistent with the results of various estimates of the neutral interest rate in Mexico corresponding to short, medium and long terms, the current 5.25 percent level of the reference rate lies within the estimated interval for its short-term neutral level (which is an average range of 3.9 to 5.6 percent from 2009 up to date) and it is also within the range corresponding to the neutral interest rate that is expected to be attained in the long run (with an average range of 4.7 to 6.3 percent; see Box 7 "Considerations on the Evolution of the Neutral Interest Rate in Mexico"). In this respect, it should be noted that the neutral interest rate varies over time, due to the changes in economic factors that can affect it in a structural or transitory manner, besides the fact that its estimation is subject to high uncertainty.

Among the elements considered to justify the monetary policy decisions made in the period analyzed in this Report, the following stood out:

i.   During the period, in general, inflation performed favorably, locating very close to the Central Institute's target. However, the core component continued registering a gradual upward trend, which is mainly explained by the adjustment in merchandise relative prices with respect to the services' prices, derived from the depreciation of the national currency. Additionally, the annual growth rate of the non-core component accelerated, as a result of gasoline price increments at the northern border of Mexico, which occurred in this time frame. As a result, the annual rate of headline inflation stood slightly above the 3.0 percent target starting from the second fortnight of September, and marked 3.06 percent in October. In view of this trajectory, headline and core inflations are expected to continue growing gradually and to close the year slightly above the 3.0 percent target. As mentioned before, in 2017, both headline and core inflations are estimated to lie above the inflation target, although within the variability interval, both of these indicators reaching levels close to 3.0 percent at the end of 2018.

ii.   No significant aggregate demand-related pressures on prices in the economy were observed, nor are they anticipated in the near future.

iii.   Even though during July and August the exchange rate fluctuated around levels close to MXN/USD 18.50, as mentioned above, as of September considerable depreciation and high volatility were observed (Chart 122). In this context, even though long-term inflation expectations derived from surveys and from market instruments maintained around 3.0 percent and no second round effects on the price formation process in the economy were registered, there was a risk that, in light of inflation pressures derived from the described exchange rate dynamics, inflation expectations could deanchor eventually.

iv.   During September and until mid-November, interest rates in the national currency for all terms went up, in the first place, those for short terms and, subsequently, for longer terms. Likewise, increments in spreads between Mexican and U.S. interest rates and some indicators of risk premia somewhat deteriorated.

v.   On the other hand, as a consequence of possible relatively short-term effects of the economic program that, in principle, is expected to be implemented by the incoming U.S. administration regarding the fiscal policy on growth and inflation, financial markets anticipate the rate of the monetary policy normalization by the Federal Reserve to continue gradual, although it is expected to be more accelerated and possibly of a greater magnitude than previously anticipated. These factors exerted considerable pressure on the U.S. long-term interest rates.

Chart 122
Exchange Rate and Implied Volatility

a) Nominal Exchange Rate [1]
MXN/USD

b) Current Option Implied Volatility [1]
Percent

1/ The observed exchange rate is the daily FIX exchange rate. The black vertical line indicates January 1, 2016 and the dotted line indicates September 29, 2016.
Source: Banco de México.

1/Currency option implied volatility refers to one-month options. The black vertical line indicates January 1, 2016 and the dotted line indicates September 29, 2016.
Source: Bloomberg.
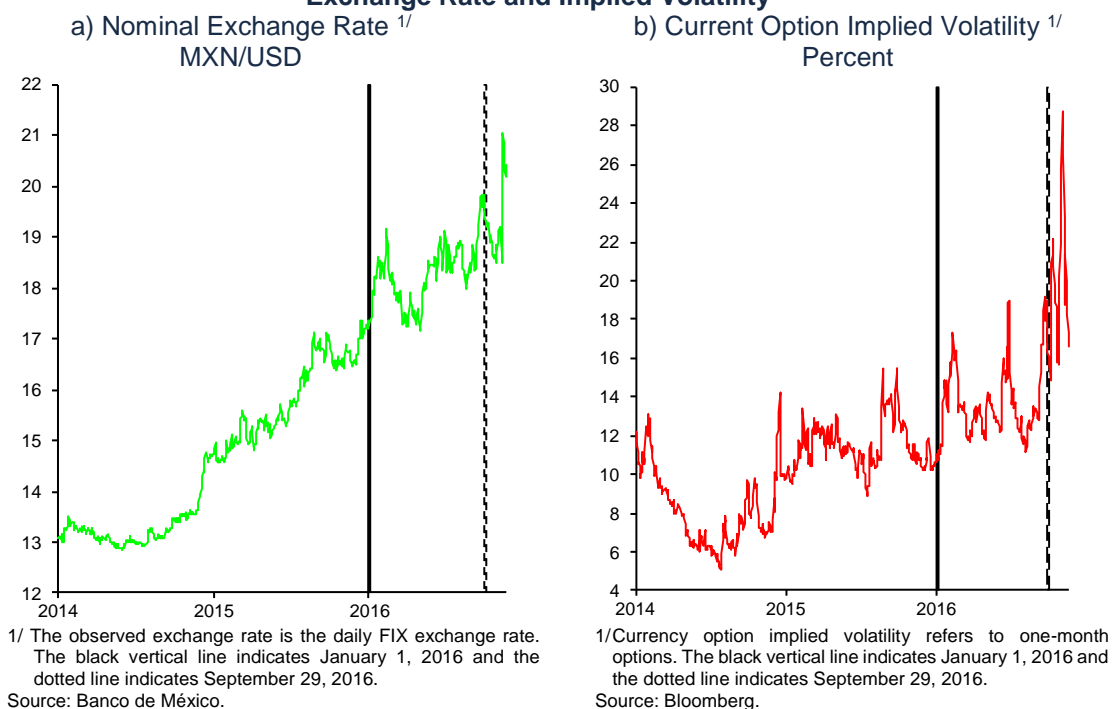
Box 7
Considerations on the Evolution of the Neutral Interest Rate in Mexico

1. Introduction

To achieve price stability, Banco de México uses the target for the Overnight Interbank Interest Rate as its main monetary policy tool. The Central Bank can set it to influence aggregate demand and credit supply and, in turn, inflation, via different channels of the monetary policy transmission mechanism. Namely, it can stimulate the economy (the accommodative stance) or contain it (the restrictive stance) in order to bring inflation closer to its target level.[1] Accordingly, the nominal neutral interest rate is a relevant concept in the implementation of the monetary policy, as it defines the level of the short-term interest rate that is congruent with an economic activity that is close to its potential level in an environment of stable inflation.[2] In other words, if the target rate matched its neutral level, the monetary authority would be neither stimulating, nor contracting the economic activity, and, therefore, would have a neutral influence on prices. Thus, if the target rate lied above (below) the neutral level, the monetary policy would be restrictive (accommodative), reason why it would gear economic activity and prices downwards (upwards).

Despite its importance, the use of the neutral rate as a reference indicator for the conduct of monetary policy is complex due to the following factors: i) this rate is not directly observable and should be inferred using quantitative methods that are subject to statistical uncertainty; and ii) the neutral rate varies across time due to changes in economic, structural and/or transitory factors.

In the described context, the Box serves two objectives: 1) to give an outlook for the evolution in the short and medium terms of the neutral rate in Mexico over the last years; and 2) to discuss the level to which the nominal neutral rate is expected to converge in the longer term, as the transitory factors affecting it disappear. Due to the uncertainty related to the measurement of the neutral rate, this Box considers different quantitative methods to obtain a more robust estimate and to be able to infer with greater certainty a possible trajectory of this variable in the short, in the medium and in the long terms.

Consistent with the results, transitory economic factors lowered the neutral interest rate in the short and medium terms in Mexico, and in nominal terms it shifted from an average interval of 6.2 to 8.4 percent in the period of 2001 – 2008 to a range of 3.9 to 5.6 percent in the period from 2009 to date, which is a period comprising the global financial crisis, with an average of 4.8 percent

for the latter period. It is notable that the studies conducted by the U.S. and other advanced economies also establish a considerable drop in this rate around the global financial crisis.[3] Meanwhile, the acquired evidence regarding the level of the nominal neutral rate in the longer term suggests that it will lie between 4.7 and 6.3 percent, which is consistent with an average range obtained with different methods, with an average point of 5.5 percent. This value is higher than the neutral rate estimated for the short term, but it is lower than the rate that was estimated to prevail in the long run prior to the financial crisis. Once again, this is a similar result to the one obtained in other economies, including the U.S.

2. Structural and Transitory Factors that Affect the Neutral Rate

The neutral interest rate is subject to structural and transitory factors. These factors affect the equilibrium level of the neutral rate in the loanable funds market, which consists of the desired net saving of the economy (supply of loanable funds) and aggregate demand for investment (demand for loanable funds).

It is generally expected that structural factors, such as demography, access to domestic and international financial markets and potential growth, will gradually change over time, reason why their influence on the neutral rate is in the longer term. For instance, the increment in households' propensity to save, favored by a demographic recomposition or by policies encouraging saving for retirement, would increase the desired saving of the country and would exert downward pressure on the neutral rate. An inflow of international capital seeking greater yield than that offered in its markets of origin would also put downward pressure on the neutral rate. On the other hand, a lower growth of productivity or labor force would discourage demand for investment and the neutral rate would tend to decrease, given that the marginal productivity of the capital and its expected yield would be lower.

On the other hand, transitory factors that affect the neutral rate can be seen as temporary macroeconomic shocks that alter the desired saving and demand for investment in the short and medium terms. For example, higher aggregate uncertainty could temporarily decrease the demand for investment and/or propitiate greater precautionary savings of households, which, in turn, would reduce aggregate demand, leading to a drop in economic activity. To avoid this scenario, the central bank could sufficiently lower its reference interest rate, for a period that is deemed necessary, in order to boost economic activity and to offset the effects of negative

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[1] For further detail, see Box 2 of the Quarterly Report January - March 2016.

[2] This is the same definition that is used by the U.S. Federal Reserve Bank. See Brainard (2015, 2016) or Yellen (2015).

[3] See Yellen (2015) and Holston et al. (2016).

shocks. It is notable that despite being temporary, these shocks can be very persistent.

Diagram 1 presents the relation of the real neutral rate r^*, which discounts inflation expectations from its nominal counterpart, in the short and long terms. It is important to point out that the level of the longest term, that r^* is expected to converge in the absence of shocks, depends on real determinants, such as productivity, demography or the market structure, reason why the influence of the monetary authority on these determinants is low.

Diagram 1
Real Neutral Rate (r^*) and its Dynamics
in the Short and Long Terms
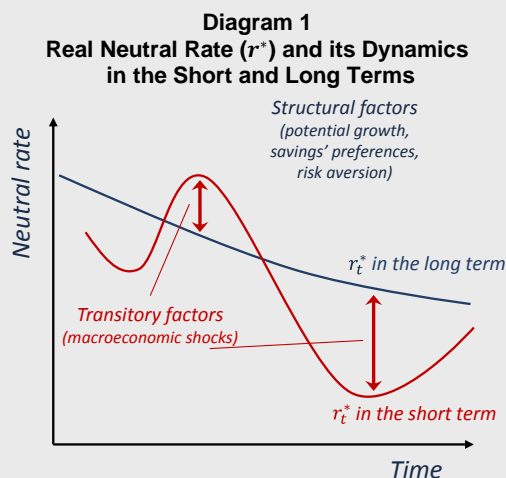
Source: Banco de México.

3. Estimates of the Neutral Rate in Mexico

To consider the uncertainty associated with different econometric methods estimating the real neutral rate r^*, below we present the results of 6 different methodologies to infer a relatively more robust trajectory of this variable for Mexico in the short and medium terms. Likewise, 3 different quantitative methods are considered to infer the level that r^* is expected to converge in the long term, in the absence of new shocks. All technical details of these tools, along with different robustness checks and complete academic references, can be found in Carrillo et al. (2016).[4]

3.1 The Neutral Rate in the Short and Medium Terms

Chart 1 exhibits the results of the point estimates of each methodology in the short and medium terms.[5] Despite differences among them, all of them suggest a considerable reduction of r^* in the short and medium terms in the onset of the global financial crisis and a certain increase in these variable as of 2014.

a) Average. A simple indicator of r^* is the average of the real ex ante rate during the business cycle. For the case of Mexico, the complete cycle comprises from 2001 to late 2008, while it is considered that the current cycle started in 2009 and has not completed yet (Chart 1, orange line).

b) Trend. By means of time-series filters the real ex ante rate breaks down into two elements: cycle and trend. The latter can be interpreted as an approximate measure of r^* in the short and medium terms (Chart 1, yellow and blue lines).[6]

c) Taylor rule. This rule is a tool used to estimate the systematic behavior of the central bank's target rate in view of deviations of inflation from its target and of the output from its potential level. Thus, when the referred deviations are zero, the real neutral rate r^* is given by the intercept of the rule less the inflation target. One way to infer the value of r^* across time is via its recursive estimate (see Chart 1, green line).

d) Affine model. The affine model of Adrian et al. (2013) uses non-arbitrage conditions in the financial market, and we use it to infer the average expectation of bond market investors regarding the ex ante real rate for different terms. This expectation is an approximation of r^* in the short and medium terms. Changes in the estimated r^* can be interpreted as investors' revisions regarding the possible trajectory that would be followed by the ex ante real rate over the following years (Chart 1, purple line).

e) Reduced macroeconomic model. The Laubach and Williams (2003) model is adapted for the Mexican economy.[7] This model consists of a system of equations that contain a representation of the aggregate demand (the IS curve), the aggregate supply (the Phillips curve) and an equation that determines the dynamics of r^* in terms of the growth of potential output (g_t) and other factors that are not modelled explicitly (z_t):

$$r_t^* = g_t + z_t. \qquad (1)$$

While g_t is a structural factor that determines the neutral rate, z_t can contain both structural and transitory factors (brown line in Chart 1). The decrease in the estimated r^* is mainly explained by a reduction in the latent variable z_t. The trajectory of variable z_t shows a high correlation with the Federal Reserve

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4 In most presented exercises, the real ex ante short–term interest rate was used, which is calculated as the difference between the nominal overnight interbank lending interest rate and the average expectation of the annual headline inflation for the next 12 months derived from Banco de México's survey among the private sector specialists. The analyzed period spans from January 2000 to September 2016.

5 Confidence intervals, which are relevant, are not shown for each methodology. The importance of uncertainty for each methodology is in line with what has been found in research papers estimating the neutral rate for other economies. For further details see, in Carrillo et al. (2016).

6 In particular, the Hodrick-Prescott filter with tail correction, and the Christiano-Fitzgerald filter are used.

7 In its implementation for Mexico, this model is extended to capture the effect of the external sector.

target rate from 2001 to 2008 and the Wu and Xia (2015) measure, which quantifies the effect of non-conventional Federal Reserve policies by means of a negative counterfactual interest rate, from 2009 to 2015.[8] Thus, z_t seems to capture the effect of conventional and non-conventional monetary policies of the Federal Reserve on r^* in the short and medium terms in Mexico.

f) VAR model with time-dependent intercepts. The estimate of r^* is obtained from a joint second order vector autoregressive model (VAR) for Mexico and the U.S.[9] This model estimates the trajectory of r^* using intercepts that vary across time, considering the joint dynamics of real and monetary variables of both countries.[10] The results of this estimate can be seen in the pink line of Chart 1. The drop in the neutral interest rate can be attributed to excess liquidity in international financial markets. That is, prior to the 2008 crisis, there was a decrease in the sovereign risk of emerging economies, Mexico among them. This fostered a capital inflow, which was reflected in the balance of payments, lower long-term interest rates and term premia. Likewise, an accelerated growth in pension funds was observed as of 2004. All of the above exercised downward pressures on interest rates of different terms.

As can be observed, all methodologies indicate that the real neutral rate r^* estimated for short and medium terms in Mexico declined around the time of the financial crisis from a level close to 3.4 percent to approximately 1 percent in real terms for the periods indicated in Table 1. This means that the neutral interest rate in nominal terms dropped approximately from 7.4 to 4.8 percent.

Chart 1
Short-, Medium- and Long-term Real Neutral Rate
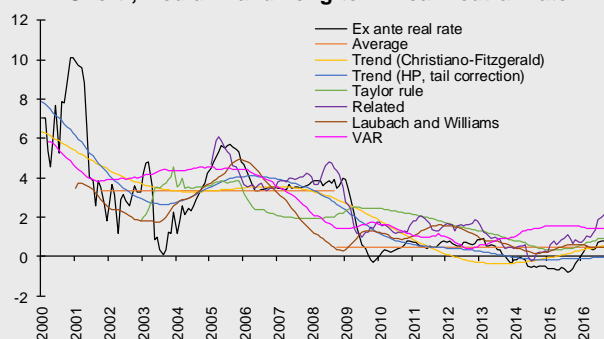
Source: Banco de México.

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8 It is interpreted in the following manner: the more negative the Wu and Xia rate is, the laxer the Fed's non-conventional policy is.
9 In particular, consistent with the model, the U.S. dynamics affect those of Mexico, but not vice versa.
10 In the absence of non-persistent transitory shocks, the variables of the system show a trend to their medium-term equilibrium level, which is in terms of time-dependent intercepts and the rest of coefficients that determine the dynamic interaction of the remaining variables.

Table 1
Level of the Real Neutral and Nominal Rate
in the Short and Medium Terms
Percent

	Real neutral rate		Nominal neutral rate	
	2001Q4 – 2008Q4	2009Q1- 2016Q3	2001Q4 – 2008Q4	2009Q1- 2016Q3
Averages and trends	3.4	0.4	7.5	4.3
Taylor rule	2.8	1.4	6.8	5.2
Related model	4.2	1.2	8.2	5.0
Laubach and Williams model	2.7	0.9	6.7	4.7
TVP-VAR model	3.7	1.2	7.7	5.0
Average	**3.4**	**1.0**	**7.4**	**4.8**

To calculate the nominal neutral rate, each methodology was complemented by the average of inflation expectations for the next 12 months. For the period from 2001Q1 – 2008Q4, this expectation lied at 4.01 percent, while for the period of 2009Q1 – 2016Q3 it reached 3.83 percent.

These results are consistent with the similar estimates that had been made for the case of the U.S., showing a drop in r^* during the 2008 financial crisis and remaining at low levels since then. This is related to households' deleveraging and weak economic activity that led to a lower demand for credit and, on the other hand, tighter conditions of credit granting, which reduced supply. It is noteworthy that the decline in aggregate demand produced a greater impact on the level of the neutral rate in the short term. As regards the decline of r^* in Mexico, it can be attributed to the transitory factors related to: (i) ample monetary liquidity in financial markets, which derived from non-conventional monetary policy measures in advanced economies, such as those carried out by the Federal Reserve; and (ii) persisting slack conditions prevailing in the Mexican economy over the recent years. Insofar as the transitory factors that led to this scenario fade, r^* is expected to converge to its longer- term level in the absence of shocks.

3.2 The Neutral Rate in the Long Run

The long-term level of r^* depends on structural factors that are relatively beyond the reach of the monetary policy, such as the potential growth (affected, among other things, by the demography and the trend in total factor productivity), and households' and investors' saving preferences and risk aversion, among others. For the case of the U.S. and other advanced economies, the recent studies establish that both the potential growth and the long-term level of r^* of these economies exhibited a declining trend over the last 25 years. Consistent with the above, the global factors played an important role in the determination of potential growth and the neutral rate at the international level (see Holston et al, 2016).

For the case of Mexico, a heuristic analysis points to the fact that the long-term level of r^* would be affected by the factors that determine the potential growth level, as well

as the dynamics of the international capital market. The potential growth could be adversely affected by a lower growth of population and labor force.[11] Nonetheless, the structural reforms, that have been recently implemented in Mexico, are expected to entirely compensate for the drop in the growth rate of population. Thus, if the potential growth increases, the long-term level of r^* of the economy will also go up.

However, as regards the international capital markets, the global long-term real interest rate has diminished gradually over the last 30 years in response to international determinants, which, on the one hand, increased desired global savings, and, on the other hand, decreased the demand for global investment. Likewise, this rate is estimated to stabilize around 1 percent for a long time period.[12] In this context, just like in other emerging economies, the long-term real interest rate of Mexico followed a trend similar to the global rate from 2002 to 2013, although from a higher level.[13] This trend can be accounted for by global capital flows which sought higher yields than those offered in their markets of origin, which generated a downward pressure on the long-term level of r^* during the referred period. Hence, insofar as capital flows are directed to domestic financial assets seeking higher yields, it could induce the long-term level of r^* to be lower than that prevailed prior to the global financial crisis, counteracting the effect of a possibly greater potential growth.

Below, three different quantitative methodologies are presented to infer the long-term level of r^*. Chart 2 exhibits the results obtained from each one of them.

a) Modified Taylor rule. The Federal Reserve monetary policy, above all non-conventional policies that have been implemented since 2009, may have affected the real neutral rate in the long run. To consider this factor, an indicator is included measuring the effect of the said policies on the Taylor rule, which had been previously estimated.[14] The recursive estimation of this rule yields that the estimated long-term level of r^* remains relatively stable starting from 2008, at around 2.5 percent in real terms and at a level of 5.5 percent in nominal terms (Chart 2, red line).

b) Model of real business cycles. A model of an open economy with flexible prices is proposed to replicate the dynamics of output, consumption, investment

and the working hours in Mexico, consistent with Lama (2011). The model infers a real equilibrium interest rate, which is consistent with these dynamics. The long-term average of this rate can be interpreted as an estimated long-term level of r^*. Thus, it is 2.4 percent in real terms and 5.4 percent in nominal terms (Chart 2, blue line).

c) Financial markets' data. The derived instruments provide alternatives of financing and flexible hedges. In the particular case of TIIE swaps of different terms, the counterparties exchange the flows at a fixed rate for flows at a floating rate. The fixed rate of this contract can be associated by the participants in the swap contract to the expected level of the TIIE for a determined term. To capture market expectations for the long-term level of r^*, the average of the fixed rate agreed upon in TIIE swap 5- and 10-year contracts is considered, minus 30 basis points, which is the historical difference between TIIE and the base borrowing rate. Thus, the swap market expectation of the long-term level of r^* has fluctuated at approximately 5.6 percent since January 2012 (Chart 2, green line).

Table 2 presents the summary of the results of the methodologies estimating the long-term level of r^*. The range for this variable, calculated by using the average of the minimum and maximum levels obtained in each method, suggests that the long-term level of r^* would lie between 1.7 and 3.3 percent in real terms and between 4.7 and 6.3 percent in nominal terms, with medium points at 2.5 and 5.5 percent, respectively.

Chart 2
Long-term Level of the Nominal Neutral Rate
Percent
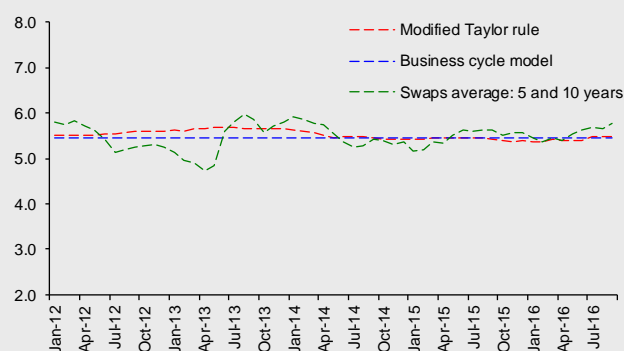
Source: Banco de México

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[11] The National Council of Population (CONAPO) estimates that from 2010 to 2030 total population will grow at a lower rate, as its growth rate will moderate from 1.3 to 0.7 percent. For population between 16 and 65 years old, the rate will move from 1.8 to 0.6 percent over the same time frame.
[12] Further details are available in Rachel and Smith (2015).
[13] Starting from this year, a slight increment in the long-term real interest rate can be appreciated, in particular of the 10-year udibonos rate. However, this rate has not reached the levels registered prior to the financial crisis.

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[14] This indicator takes the value of 0 when the federal funds' rate is positive (until June 2009), and takes the value "shade" of the federal funds' rate of Wu and Xia (2015) from July 2009 to December 2015.

Table 2
Level of the Real Neutral and Nominal Rate
in the Long Term
Percent

	Real neutral rate		Nominal neutral rate	
	Central measure	Range	Central measure	Range
Modified Taylor rule	2.5	1.6 − 3.4	5.5	4.6 − 6.4
Model with wedges	2.4	1.3 − 3.6	5.4	4.3 − 6.6
Swap market	2.6	2.2 − 2.9	5.6	5.2 − 5.9
Average	**2.5**	**1.7 − 3.3**	**5.5**	**4.7 − 6.3**

To calculate the nominal neutral rate, the average of each methodology was complemented by the 3 percent inflation target. The ranges are determined by a standard deviation of each model, with the exception of the swaps market, the range of which corresponds to the minimum and the maximum attained in the period from December 2015 to September 2016.

4. Final Remarks

This Box presents the summary of different estimates of the trend of the real neutral rate for the short and medium terms in Mexico, as well as the level to which this rate is expected to converge in the longer term, in the absence of further macroeconomic shocks.

The analysis for the short and medium terms concludes that the real neutral rate fell around the 2008 global financial crisis and reached its minimum in 2014. The main reasons for this trend are related to abundant liquidity in the financial markets derived from non-conventional policies carried out by advanced economies, as well as from persisting slack conditions that prevailed in the Mexican economy in recent years. On the other hand, it is argued that the dynamics and the demographic composition of the country (i.e. lower rates of population growth and a higher proportion of adults), in addition to the low levels of the global long-term real interest rate, have exercised and will keep exercising a downward impact on the long-term level of the neutral rate. On the contrary, a greater growth of productivity that can be observed in view of structural reforms, could exert an upward pressure on the long-term level of the neutral rate. The quantitative estimates of this variable suggest that it lies within the range of 4.7 and 6.3 percent in nominal terms.

An important restriction of the available quantitative methods to estimate the trajectory of the neutral rate is that they are characterized by considerable uncertainty. This implies that the results presented in this Box should be taken with caution. In addition, it is difficult to conclusively infer the phase of the economic cycle the economy is going through. All of this makes the use of a wide set of variables and indicators necessary, in order to analyze the required monetary stance to achieve the price stability goal.

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Delving into the elements considered by the monetary authority in its decisions, it stands out that, even though productive activity recovered moderately, no aggregate demand-related pressures on the prices in the economy have been observed (Chart 123). However, as previously mentioned, some labor market variables point to a continued improvement in the conditions of this market. In this context, as a result of the gradual growth of real wages, together with a stagnant labor productivity, labor unit costs increased both for the economy as a whole and for the manufacturing sector in particular, even though they remain at levels below those observed prior to the 2009 global financial crisis (Chart 124).

Chart 123
Output Gap Estimate [1]
Percentage of potential output, s. a.
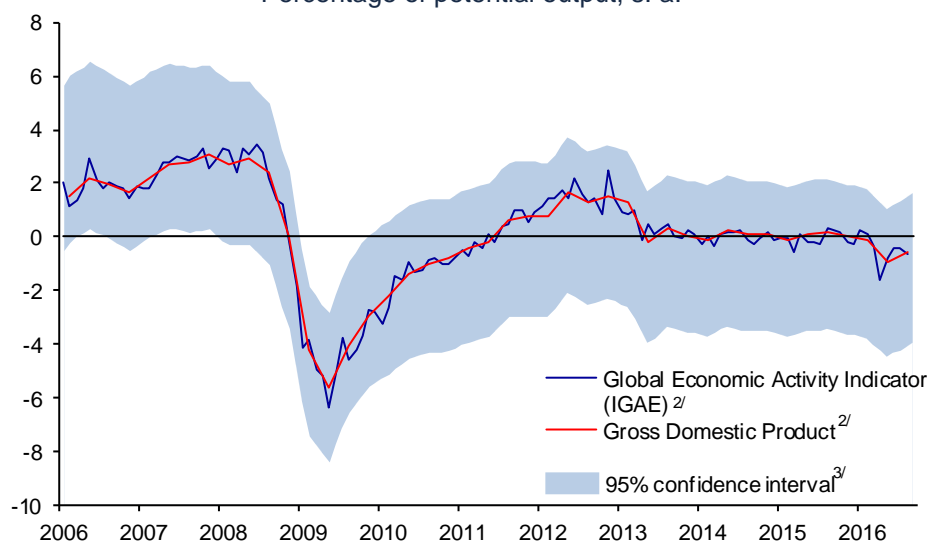
s. a. / Estimated with seasonally adjusted data.
1/ Estimated using the Hodrick-Prescott (HP) filter with tail correction; see Banco de México Inflation Report April-
    June 2009, p.69.
2/ IGAE figures as of August 2016. GDP figures as of the third quarter of 2016 correspond to the timely estimate
    released by INEGI.
3/ Confidence interval of the output gap calculated with an unobserved components' method.
Source: Estimated by Banco de México with data from INEGI.

Chart 124
Productivity and Unit Labor Cost
Index 2008=100, s. a.

a) Total of the Economy

b) Manufactures

s. a. / Seasonally adjusted and trend series. The former is
        represented with a solid line, the latter, with a dotted line.
        Trends estimated by Banco de México.
Source: Unit cost prepared by Banco de México based on data
        from INEGI. The Global Index of Labor Productivity in the
        Economy (IGPLE), as released by INEGI.

s. a. / Seasonally adjusted and trend series. The former is
        represented with a solid line, the latter, with a dotted line.
Source: Prepared by Banco de México with seasonally adjusted
        data from the Monthly Manufacturing Business Survey
        and the Indicator of Industrial Activity of the Mexico's
        System of National Accounts, INEGI.

Regarding the performance of inflation expectations based on Banco de México's survey among private sector specialists, it is notable that the median corresponding to the end of 2016 increased slightly, shifting from 3.10 to 3.25 percent, between the surveys of June and October 2016.[30] In particular, the median of core inflation expectations went up from 3.2 to 3.3 percent and the corresponding to implicit expectations for the non-core component adjusted from 2.7 to 3.0 percent between the referred surveys, persisting at minimum levels for such expectations (Chart 125). Similarly, the median of inflation expectations for the end of 2017 increased moderately from 3.4 to 3.5 percent during the same period. Specifically, the median of expectations of the core component went up from 3.3 to 3.4 percent, while implicit expectations of the non-core component adjusted from 3.7 to 3.8 percent between the referred surveys (Chart 125Chart 125). [31] Finally, showing certain volatility, longer-term inflation expectations increased marginally from 3.3 to 3.4 percent in the same period, while remaining close to the 3.0 percent target (Chart 125). [32]

Chart 125
Inflation Expectations
Percent
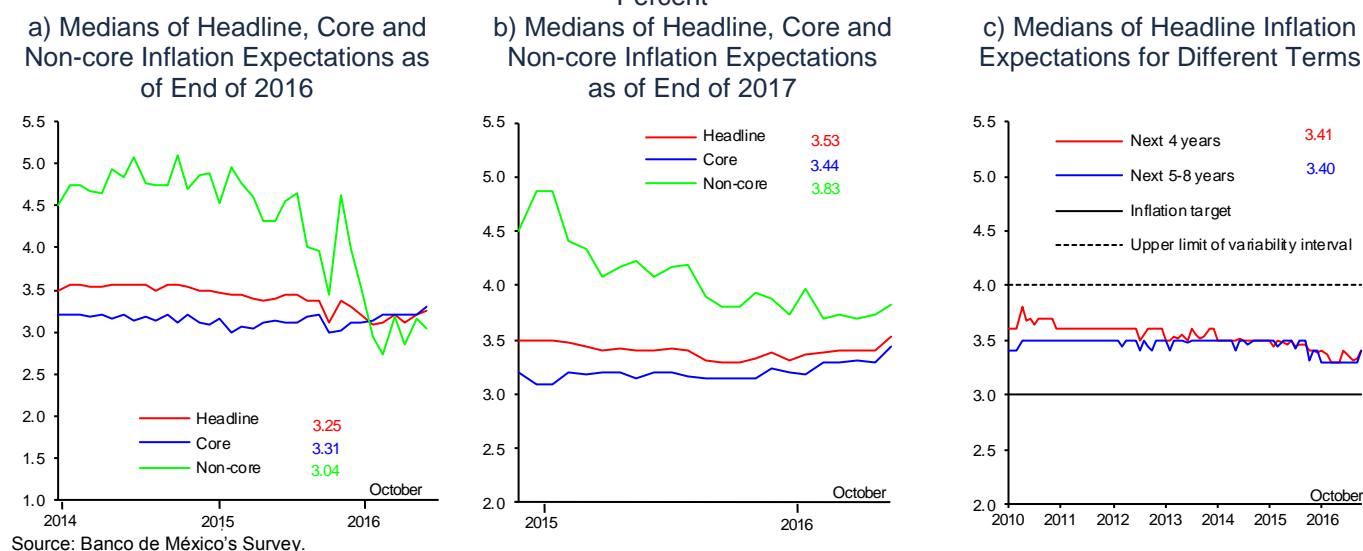
a) Medians of Headline, Core and Non-core Inflation Expectations as of End of 2016

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.

Inflation expectations implicit in 10-year market instruments remain stable around 3.0 percent, while the inflation risk premium remained practically unchanged, slightly above zero, after being at negative levels for an extended time period (Chart 126). [33] Thus, the break-even inflation (the difference between long-term nominal and real interest rates) somewhat increased, although from minimum historical levels that it reached in early 2016 (Chart 126). It should be noted that the estimation of the long-term inflation expectation and the inflation risk premium

[30] The median of headline inflation expectation for the end of 2016, based on the Citibanamex survey, increased from 3.1 to 3.2 percent between the surveys of June 21 and November 7, 2016.

[31] The median of headline inflation expectation for the end of 2017, based on the Citibanamex survey, went up from 3.3 to 3.5 percent between the surveys of June 21 and November 7, 2016.

[32] The median of long-term inflation expectations, based on the Citibanamex survey (for the next 3 to 8 years) shifted from 3.3 to 3.4 percent between the surveys of June 21 and November 7, 2016.

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

derived from these instruments is subject to certain uncertainty, as the presence of different risk premia (e.g. liquidity) could affect the results.

Chart 126
Inflation Expectations
Percent

a) Decomposition of Break-even Inflation and Inflation Risk

b) 10-year Bond Break-even Inflation

Source: Estimated by Banco de México.

Source: Estimated by Banco de México with data from Valmer and Bloomberg.
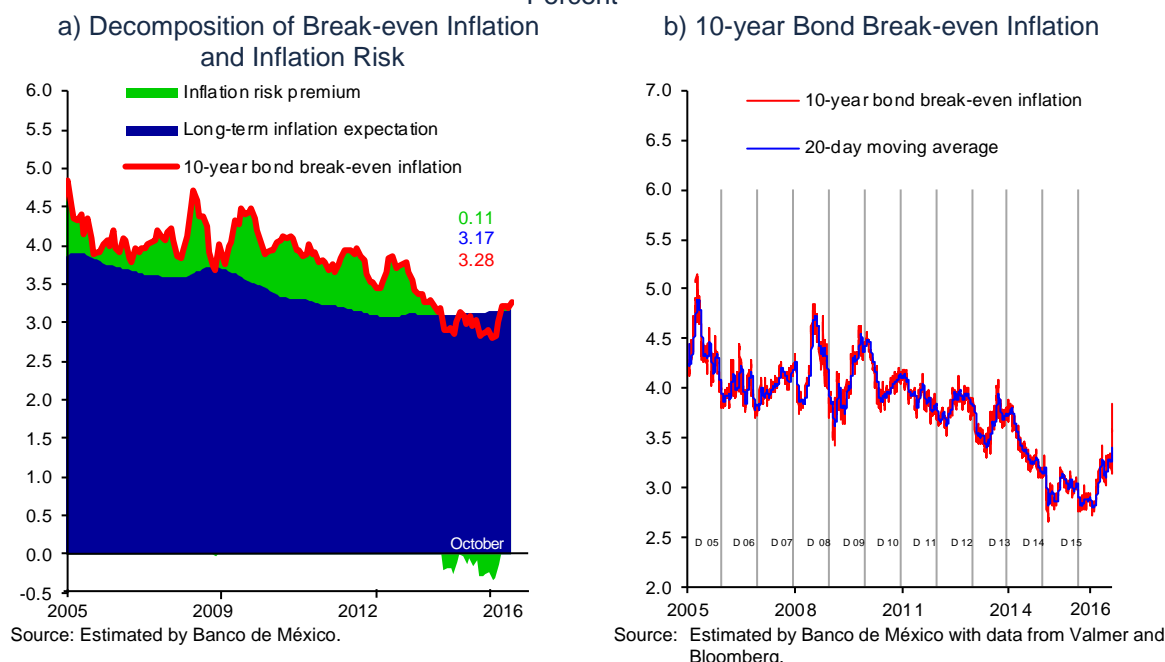
After an increment in volatility registered in September, in early October there was a temporary improvement in financial markets, partly, due to the changes in the expected outcome of the U.S. electoral process and due to the immediate consequences of the 50-basis-point hike in the reference rate implemented by Banco de México's Board of Governors on September 29. However, as of the end of October, volatility in the referred markets has increasingly intensified due to the uncertainty related to the above mentioned electoral process and, subsequently, to its outcome.

In this context, the exchange rate presented high volatility. Thus, following a strong depreciation of the national currency during September that prompted the exchange rate to reach levels of MXN/USD 19.83 during the last week of September, it appreciated approximately 7 percent to MXN/USD 18.50 in the third week of October. Afterwards, the Mexican peso continued responding to the events related to the electoral process with high volatility and a considerable depreciation close to 10.5 percent over the days following the elections. Hence, the exchange rate marked MXN/USD 21.05 at the end of the week during which the elections took place, attained intraday levels of over MXN/USD 21.30 and subsequently slightly improved by going down to levels of MXN/USD 20.19 in mid-November.

As regards the evolution of the fixed income market, interest rates for all terms increased in the period analyzed in this Report, registering high volatility. Relative to the interest rates' response to the modified monetary policy stance, it is notable that following the adjustment in the reference interest rate in late September, short-term interest rates increased more than long-term ones, leading to the flattening of

the slope of the yield curve, just as it had been expected. Afterwards, once the outcome of the U.S. elections became public, the upward trend in interest rates significantly exacerbated for all terms. In response to that, and in light of the anticipated adjustment of a considerable magnitude in the monetary policy stance among some market participants, short-term interest rates spiked. Thus, the immediate response of short-term rates to a 50-basis-point hike on November 17 was a reduction, while long-term rates remained unchanged, whereby the yield curve steepened. In sum, during the period covered by this Report, 3-month and 10-year interest rates increased from 4.2 to 5.7 percent and from 6.0 to 7.4 percent, respectively. As a result, the slope reduced by 10 basis points, from 180 to 170 basis points (Chart 127).

This increment in interest rates occurred in a context in which, as mentioned above, the outlook of the U.S. monetary policy normalization adjusted to a still gradual, but faster rate, characterized by a possibly greater magnitude than previously anticipated. This was likely complemented by the outlook of a greater future indebtedness of that economy, yielding a significant increase in long-term interest rates both in the U.S. (by around 80 basis points during the period analyzed in this Report) and in other advanced economies. Similarly, it stands out that, although the operation conditions in the national fixed income markets deteriorated recently, government securities' holdings by foreign investors remained stable, at recent levels that were close to historical maximum levels.

Chart 127
Interest Rates in Mexico
Percent
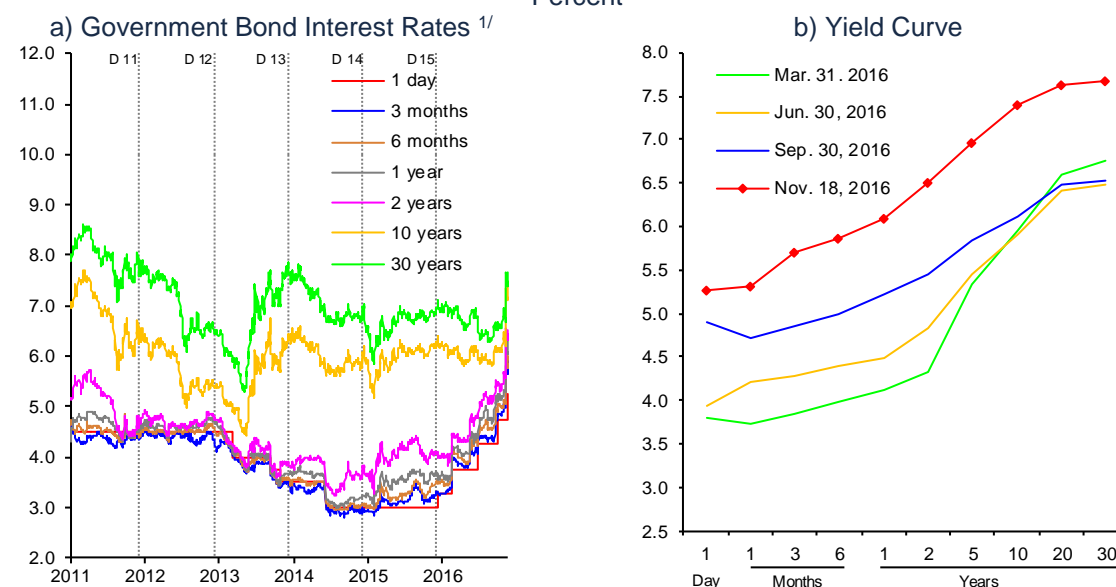
a) Government Bond Interest Rates [1/]

b) Yield Curve

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).

Consistent with the above performance, and despite widespread increments in interest rates in the U.S. in October, the spreads between Mexican and U.S. interest rates closed the quarter with considerable increases (Chart 128). Additionally, it is worth mentioning that, upon the completion of the U.S. electoral process, a decompression of term premia in different advanced economies (especially in the U.S.) started to be observed, after they remained low during recent years as a result

of extraordinary accommodative monetary conditions and high degrees of global liquidity derived from the implementation of non-conventional monetary policies. In particular, the decompression in the U.S. risk premium is notable, which during the reference period reached levels below 80 basis points and further increased to 125 basis points, which represented the most dramatic increment as of November 9 (Chart 128). Nonetheless, it stands out that the current level of the term premium in the U.S. still remains low.

Chart 128
Spreads between Mexican and U.S. Interest Rates and U.S. Term Premium
Percent

a) Spreads between Mexican and U.S. Interest Rates [1]
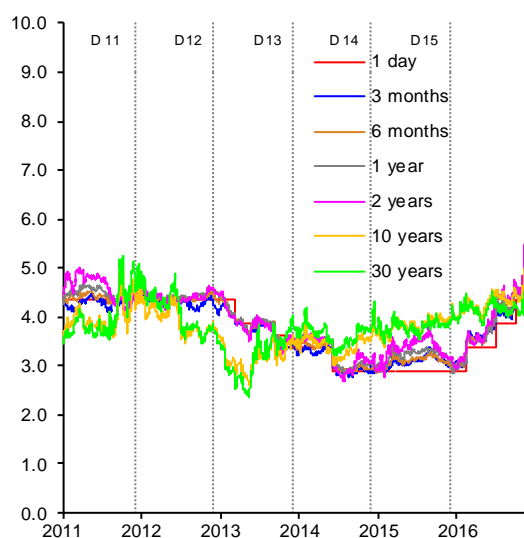
b) 10-year Government Bond Interest Rate and U.S. Term Premium [1/]

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.
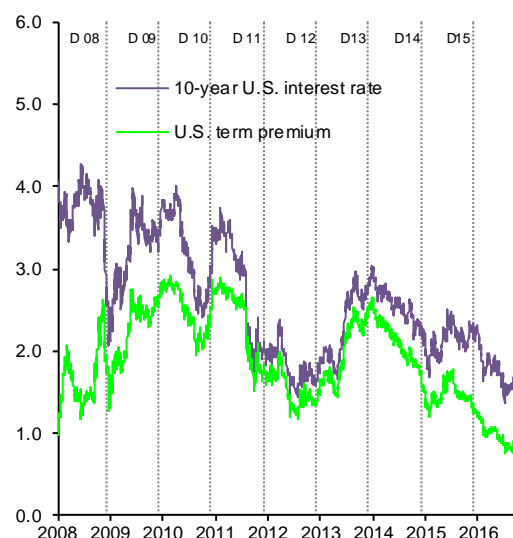
1/ The term premium refers to the difference between the 10-year interest rate and the 2-year interest rate.
Source: U.S. Department of the Treasury.

In the future, in addition to the uncertainty faced by the world economy and to the fact that it is still difficult to fully identify the specific elements that will define the economic policy implemented by the U.S., as well as its consequent effects on the bilateral relation between Mexico and the U.S. starting from 2017, new episodes of volatility in international financial markets, which could result from other risks in the world environment, cannot be ruled out. In this regard, even though the country is in a position of strength to tackle this new environment, it is of paramount importance to continue strengthening the macroeconomic fundamentals. In this context, the financial authorities announced that they will continue monitoring the evolution and the sound functioning of domestic financial markets, in order to take the necessary measures, in a coordinated manner, so as to maintain or, if appropriate, reestablish its normal functioning.

Likewise, it stands out that the implementation of fiscal consolidation measures drafted by the Ministry of Finance in the 2017 Economic Package, and approved by the Mexican Congress (in which a primary surplus is expected to be achieved as of this year and public debt to GDP ratio is estimated to decrease as of 2017) will

strengthen the macroeconomic framework of the country. The recent release of the 2016-2021 Pemex Business Plan also represents a considerable effort in contributing to lowering the risk of a contingency to public finances. Indeed, in the referred plan, PEMEX intends to continue adjusting its cost structure and a business strategy consistent with an outlook of low crude oil prices for the next years. In this context, the company will make an effort to use all instruments and flexibility granted by the energy reform (such as alliances and partnerships with third parties) in order to boost its profitability and improve its operational efficiency and effectiveness. This will let it register a primary surplus as early as in 2017 and a surplus in its financial balance in the near future. This is complemented by the anticipated renewal and an increment in the FCL amount for Mexico granted by the IMF on May 27, 2016, which stands out as a mark of confidence of the said institute regarding the soundness of the Mexican economy.

If future circumstances so require, this Central Institute will adjust its monetary stance with opportunity, flexibility and the magnitude needed, aiming to maintain inflation and its expectations well-anchored, thus generating greater financial stability. In this sense, it should be acknowledged that the current shock faced by the Mexican economy is real and permanent, and a depreciation in the real exchange rate is anticipated, which is the most efficient shock-absorber of the Mexican economy in view of this type of shocks. The main contribution of this Central Institute during this adjustment process, considering its constitutional mandate, is to procure that both the change in relative prices (as a result of the real exchange rate depreciation) and the decompression of term premia in the economy are orderly and of the lowest magnitude possible. Thus, these monetary policy actions seek to prevent inflation expectations from being contaminated and the price formation process of the economy from being altered.

5.   **Inflation Forecasts and Balance of Risks**

GDP Growth Rate: The Mexican economy has continued facing a complex and highly volatile international environment. Indeed, as it was indicated before, despite the moderate recovery of global economic activity in this quarter, its forecast is lower than previously anticipated.[34] Furthermore, consequent on diverse geopolitical events, less world trade is also foreseen in the following years. In this sense, the outcome of the U.S. electoral process heightened the risk of policies that might hamper foreign trade and foreign investment being implemented by our main trading partner. Still, the main growth scenario considers that the adjustment in financial markets in view of such event would remain relatively orderly and that, to a large extent, the trade relation between Mexico and the U.S. will continue to function in a sound manner. On the other hand, domestically, the crude oil production forecasts have been adjusted downwards. This suggests that GDP growth over the next quarters could be lower than anticipated in the previous Report.

Hence, it is estimated that in 2016, overall, Mexico's GDP will grow between 1.8 and 2.3 percent (between 1.7 and 2.5 percent in the last Report). The forecast interval for GDP growth in 2017 is adjusted to between 1.5 and 2.5 percent (between 2.0 and 3.0 percent in the previous Report). However, for that year and the next, the structural reforms are expected to contribute to the economic growth, and the efforts undertaken by the authorities to strengthen the stability of the macroeconomic framework will also foster a more favorable environment for economic activity. For 2018, a more evident recovery of the U.S. industrial activity is also anticipated. Hence, Mexico's GDP growth rate is estimated to lie between 2.2 and 3.2 percent for that year (Chart 129). Note that these forecasts should be taken with caution, as insofar as more information regarding the economic policies of the incoming U.S. administration becomes available, growth previsions will be adjusted to incorporate their possible adverse effects. The magnitude of the adjustment will depend on the degree of implementation of the policies hindering the trade relation between Mexico and the U.S. or implying a lower world economic growth.

Employment: Given that growth in the number of IMSS-affiliated jobs has recently tended to exceed previous expectations, the 2016 forecast for this indicator has been adjusted upwards. In particular, an increment of between 640 to 710 thousand jobs is expected, higher than the 590 to 690 thousand increase estimated in the previous Report. Still, in line with the downside revision of the economic outlook for 2017, the expected growth in the number of IMSS-affiliated jobs in the same year has also been adjusted downwards from 610 to 710 thousand jobs in the previous Report to 600 to 700 thousand jobs. For 2018, the number of IMSS-affiliated jobs is estimated to grow by 650 to 750 thousand jobs.

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[34] Expectations for the U.S. economy are based on the consensus of analysts surveyed by Blue Chip in November 2016. U.S. industrial production is expected to decrease by 0.9 percent in 2016, which is the same change rate that was estimated in the last Report. Meanwhile, the outlook for 2017 is adjusted downwards, shifting from 2.0 percent in the previous Report to 1.6 percent in the current one. Finally, for 2018, a 2.2 percent growth is expected, in line with the consensus of analysts surveyed by Blue Chip in October 2016.

Considering the growth forecasts described no aggregate-demand related pressures onto prices are expected (Chart 129).

Chart 129
Fan Charts: GDP Growth and Output Gap

a) GDP Growth, s. a.	b) Output Gap Estimate, s. a.
Annual percent	Percentage of potential output

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

s. a. / Seasonally adjusted data.
Source: Banco de México.
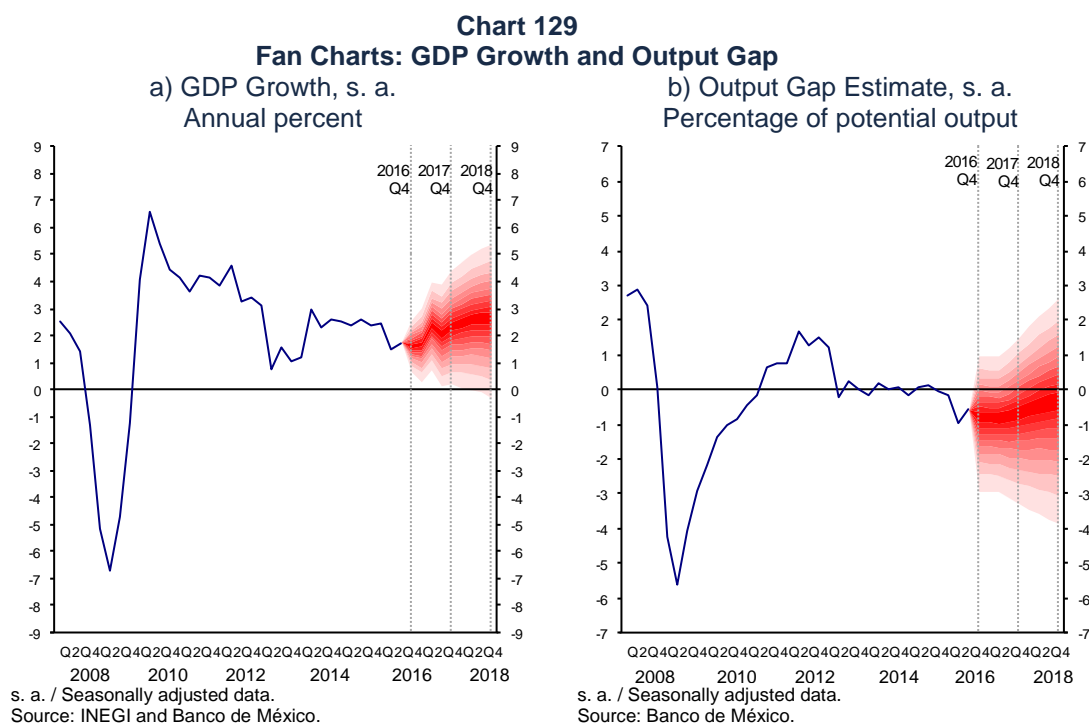
Current Account: Even though the current account's deficit as a share of GDP is anticipated to deteriorate relative to 2014 and 2015, efforts undertaken in terms of fiscal consolidation are estimated to contribute to the stabilization of the current account. For 2016, deficits in the trade balance and the current account of USD 15.2 and 31.5 billion are anticipated, respectively (1.5 and 3.0 percent of GDP, in the same order). For 2017, deficits in the trade balance and the current account are estimated to amount to USD 12.6 and 30.9 billion, respectively (1.2 and 3.0 percent of GDP, in the same order). For 2018, these deficits are expected to be USD 12.3 and 33.9 billion, respectively (1.1 and 3.0 percent of GDP, in the same order).

The balance of risks for growth in Mexico is biased to the downside. Among downward risks, the following stand out:

i.   That the new U.S. administration indeed implements policies, which could hamper the functioning of the shared production chains between Mexico and the U.S., despite the fact that such policies could be contrary to the very interest of the U.S. In this sense, lower Mexican exports and foreign investment can be observed. Likewise, the implementation of policies aiming to reduce the flow of workers' remittances to Mexico could affect private consumption. These shocks would initially tend to put pressure on the current account deficit, even though the subsequent endogenous adjustment of the Mexican economy would offset the referred effects, which could even lead to a net reduction of the deficit.

ii.   The possibility of persisting episodes of high volatility in international financial markets. Such episodes could reduce the sources of financing or foreign investment to Mexico. In the same vein, they could lead to lower growth in countries other than the U.S., which, in turn, would also affect Mexican exports.

iii.   That in this environment, a further deterioration in the consumers' and investors' confidence could also impact consumption and private sector investment.

Among upward risks to growth, these stand out:

i.   That the implementation of the structural reforms has a more favorable effect on economic growth and within a shorter time-frame than anticipated.

ii.   That in view of the recent depreciation of the exchange rate, non-oil exports exhibit a more noticeable and long-lasting reactivation, which would further boost industrial production.

Inflation: Annual headline inflation is expected to continue increasing gradually, to reach levels slightly above 3 percent by the end of the year. Core inflation is also forecast to close the year moderately above the aforementioned level. For 2017, both headline and core inflations are anticipated to lie above the inflation target, albeit below the upper limit of the variability interval. Both indicators are expected to register levels close to 3 percent by the end of 2018 (Chart 130).

This forecast is not without risks. Among upward risks, the following should be mentioned:

i.   Considering the prevailing uncertainty in the international environment, that the depreciation of the national currency may persist or become accentuated, and, thus, may contaminate inflation expectations and generate second round effects that would negatively impact the price-setting process in the economy.

ii.   Price increases of agricultural goods and gasoline, although their impact onto inflation would tend to be transitory.

Among downward risks, these should be listed:

i.   Further reductions in prices of some widely used inputs, such as the telecommunication services, as a result of structural reforms.

ii.   An accentuated deceleration in national economic activity, which could reduce the possibility of aggregate demand-related inflation pressure to emerge.

Chart 130
Fan Chart: Annual Headline Inflation [1]
Percent
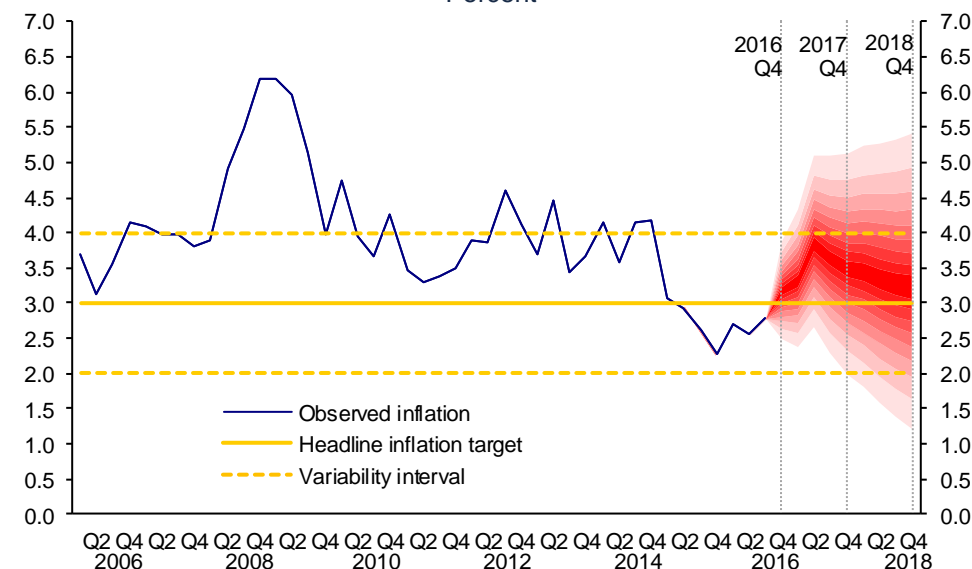
1/ Quarterly average of annual headline inflation.
Source: Banco de México and INEGI.

Chart 131
Fan Chart: Annual Core Inflation [1]
Percent
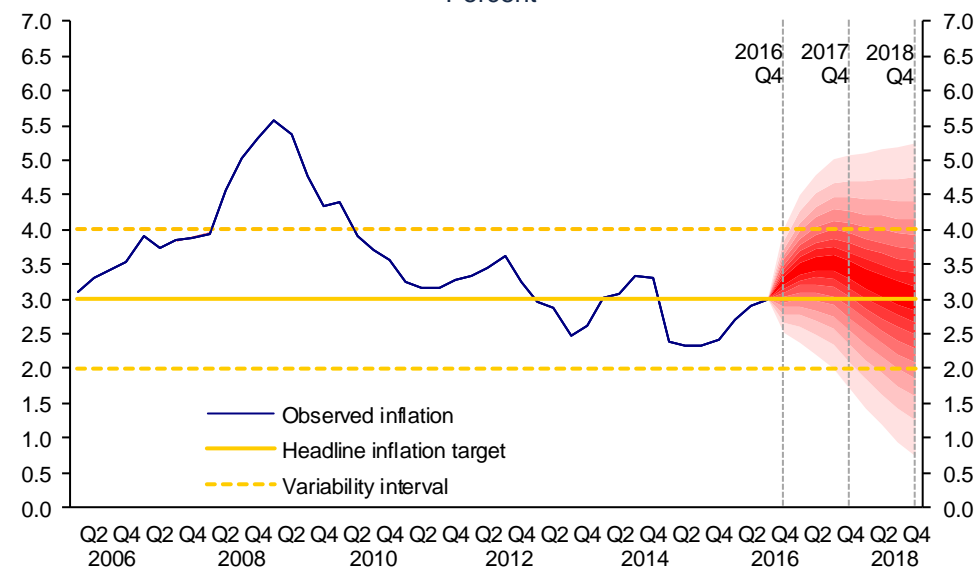
1/ Quarterly average of annual core inflation.
Source: Banco de México and INEGI.

It is important to reiterate that the Mexican economy is characterized by the solid macroeconomic stability that has been achieved through many years of enacting responsible, prudent, and timely fiscal and monetary policies. This, along with the unprecedented process of structural reforms implementation currently underway, places the Mexican economy in a privileged position to successfully compete in global markets and to reach solid economic growth. Furthermore, the Mexican government has announced that it will continue to further strengthen the fundamentals of the economy and will keep implementing structural reforms in a timely and adequate manner, in order to continue boosting economic growth and social welfare.

In the short run, in the current environment of volatility in the financial markets, the Mexican authorities will pay particular attention to their evolution and sound functioning. The Federal Government and Banco de México will take the necessary measures in a coordinated manner, using all available tools, in the scope of their attributions and in line with their respective mandates, to maintain the orderly functioning of the markets.

In this context, and considering what has been presented in this Report, in the future the Board of Governors will closely monitor the evolution of all inflation determinants and its medium- and long-term expectations, especially the possible pass-through of exchange rate adjustments onto prices, without implying that it is established as a goal. Likewise, it will be watchful of Mexico's monetary position relative to that of the U.S., without overlooking the evolution of the output gap. This will be done in order to be able to continue taking the necessary measures to consolidate the efficient convergence of inflation towards its 3.0 percent target, with total flexibility, whenever and to the extent that conditions may demand so.

Even though the close trade and financial links Mexico has established with the U.S. in recent decades have generally been beneficial for our country, they have made Mexico especially sensitive to the economic performance and to the economic policy decisions of the U.S. This is clearly evident in the impact generated by both the global crisis and the electoral process in the U.S. on Mexico. To achieve greater diversification and, more importantly, to reach an accelerated and sustained economic growth, Mexico needs to continue improving its infrastructure, its communications and transportation systems, and other elements that could enhance investments. In the same vein, it is indispensable to continue the adequate and prompt implementation of the structural reforms, as they will boost the country's productivity and will allow a better allocation of resources. In this way, greater competitiveness will allow Mexico to distinguish itself as an investment destination, besides fostering growth in the added value of the Mexican exports, making them more attractive to the rest of the world. These reforms will promote greater and sustained growth of the domestic market, thus offsetting the effects of the adverse external environment currently faced by the Mexican economy.

Annex   **Calendar of Monetary Policy Decision Announcements, Minutes of the Board of Governors' Meetings regarding Monetary Policy Decisions and Quarterly Reports in 2017**

Table 1 of this annex presents the calendar for the year 2017 of the monetary policy announcements, as well as the publication of the Minutes of the Board of Governors' meetings regarding the monetary policy decisions and the Quarterly Reports. It should be noted that the monetary policy decisions will continue to be released on Thursdays at 13:00. Moreover, two weeks after each announcement the corresponding Minutes will be released (except for April, when it falls on Wednesday), as it was done in 2016. The Quarterly Reports will be published on the following dates.

Table 1
Calendar for 2017

	Announcements of Monetary Policy Decisions	Minutes of the Board of Governors' Meetings regarding Monetary Policy Decisions	Quarterly Reports [1]
January			
February	9	23	
March	30		1
April		12	
May	18		31
June	22	1	
July		6	
August	10	24	30
September	28		
October		12	
November	9	23	29
December	14	28	

1/ The Quarterly Report that will be published on March 1, 2017 corresponds to the fourth quarter of 2016, the one to be released on May 31, 2017, to the first quarter of 2017, the one of August 30, 2017, to the second quarter of 2017, and finally the one to be presented on November 29, 2017, to the third quarter of 2017.

The calendar considers 8 dates for the announcement of monetary policy decisions in 2017. Nonetheless, as in previous years, Banco de México reserves the right to announce changes in the monetary policy stance at dates different from those previously scheduled, in the case of extraordinary events that may require the Central Bank's intervention.

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Section IV: Quarterly Report October - December 2016

1.   Introduction

During 2016 as a whole, the Mexican economy faced a challenging external environment, which deteriorated throughout the year. In particular, high volatility prevailed as a result, among other factors, of the uncertainty related to the process of the monetary policy normalization in the U.S., as well as to the elections held at the end of the year in that country and their outcome. This has led to an adjustment in international financial markets' portfolios, which strongly affected the national markets and as a result of which asset prices dropped and high volatility was observed. The effect of this environment on domestic financial markets was especially noticeable in the last quarter of 2016 and over the first weeks of January 2017, given the relevance that the outcome of the referred elections could represent for Mexico in light of the different elements of the possible economic policy implemented by the new U.S. administration. Thus, at the end of the year the national currency depreciated considerably and interest rates in Mexican pesos increased for all terms, while at the end of January and in February the exchange rate and interest rates registered a considerable reversal. As regards the exchange rate, this reversal was contributed to by the monetary policy actions undertaken by the Central Bank and the measures recently announced by the Foreign Exchange Commission. The impact of this environment on the performance of the exchange rate prompted a rise in core inflation, mainly in its merchandise subindex, as a reflection of the gradual change in relative prices induced by the depreciation. As a result of this performance, and of the increments in non-core inflation at the end of the year, as of October 2016 headline inflation slightly exceeded the 3 percent target, after persisting below this level for 17 consecutive months, and closed the year at 3.36 percent. Additionally, in January 2017 the upward trend in headline inflation was exacerbated by the impact of the adjustments in some energy prices, mainly gasoline, attaining an annual rate of 4.72 percent in that month and 4.71 percent in the first fortnight of February.

This environment could jeopardize the anchoring of inflation expectations and negatively affect its performance. Thus, in order to prevent contamination to the price formation process in the economy, to anchor inflation expectations and to strengthen the inflation convergence to its target, the Board of Governors decided to increase the target for the Overnight Interbank Interest Rate by 50 basis points in each of its decisions in November and December 2016, and in February 2017, to reach a level of 6.25 percent. These actions were taken while procuring that the adjustment in relative prices, which derived from the real exchange rate depreciation, and, in the case of the latter decision, also from other supply shocks, was orderly. It should be noted that the main challenge for the Board of Governors in the future is to prevent second round effects on inflation and to maintain medium- and long-term inflation expectations anchored.

Delving in the external environment faced by the Mexican economy, during the fourth quarter of 2016 the world economic activity continued to recover. In particular, the U.S. economy continued expanding and labor market conditions kept strengthening. Meanwhile, despite still remaining below the Federal Reserve target, inflation in that country went up, once the effects of the reductions in energy and imports prices vanished, and the degree of slack in the economy diminished. In this

context, in its decision of February this Institute maintained the target range of the federal funds' rate unchanged. Nevertheless, it is anticipated that the process of the monetary stance normalization will be carried out at a faster rate than it was expected prior to the December meeting. This estimation partly reflects the announcements by the new U.S. administration regarding its intention to set in motion an ambitious fiscal expansion, particularly undertaking reforms to the fiscal policy and a higher spending on infrastructure, along with a set of deregulation measures. Meanwhile, in the Euro area, the U.K. and Japan, a greater dynamism of the economic activity was observed and inflation rebounded, reason why deflationary concerns in these economies subsided, and hence less accommodative monetary policies may be adopted in the referred countries. On the other hand, emerging economies faced a scenario of great uncertainty, in particular given the fiscal, trade and migration policies contemplated by the new U.S. administration. This could cause lower trade and foreign direct investment at the global level, and, along with a faster-than-expected rate of the monetary policy normalization of the Federal Reserve, it could trigger a tightening of global financial conditions.

As regards the domestic economy, in the fourth quarter of 2016, productive activity kept expanding, although at a lower rate with respect to the previous quarter. In particular, external demand continued recovering, and private consumption maintained a positive trend. However, the performance of investment remained weak. In this context, no significant aggregate demand-related pressures onto prices have been observed. Furthermore, in the reference quarter there was an adjustment in external accounts that implied a significant reduction in the trade balance and current account deficits. Nevertheless, the improvement in the labor market has been translated into higher labor unit costs, albeit still at low levels relative to those observed prior to the global financial crisis. In this juncture, during 2016 as a whole the Mexican economy grew 2.1 percent based on seasonally adjusted data (2.3 percent based on data without seasonal adjustment).

For 2017 and 2018, a moderate upturn is still expected in the world economy, in part, due to the afore mentioned expectation of more expansionary policies implemented by the incoming U.S. government. However, the economic policy proposals of this new administration suggest that the U.S. will implement protectionist measures that could affect their trade relations with the world, which will remain an element of risk to the recovery of the global economy, and to the performance of the Mexican economy, in particular. Indeed, despite the prevailing uncertainty over the scope and the magnitude and timing of the said measures, the central growth scenario presented in this Report considers the materialization of some of these risks. In light of this, the forecasts for the next two years are revised downwards to incorporate a deterioration in the expected trade flow between Mexico and the U.S. and a lower foreign direct investment, as compared to that previously anticipated. Thus, the forecast interval for the GDP growth in 2017 is adjusted from between 1.5 and 2.5 percent as estimated in the previous Report to one between 1.3 and 2.3 percent in the current one, while the GDP growth forecast for 2018 is adjusted from a rate of 2.2 to 3.2 percent in the previous Report to one of between 1.7 and 2.7 percent in the present one. These forecasts should be taken with caution, as they should be reviewed once more information is available regarding the direction of the negotiations on the bilateral relation between Mexico and the U.S.

As previously stated, in January 2017, annual headline inflation spiked, in view of the modifications in the price determination of some energy prices, especially those of gasoline. Indeed, in the framework of this fuel's price liberalization process that is to take place throughout 2017, on December 27, 2016 the Ministry of Finance announced that maximum prices for gasoline will be established as of January 1, 2017, will be determined based on a formula that was applied across the regions where these prices have not been liberalized yet. In the said formula, the value of this fuel's international prices, converted to Mexican pesos, continued to directly enter the calculation of the said maximum prices, excluding the upper and the lower limits between which the maximum gasoline price was allowed to fluctuate in 2016. In an environment of upward adjustments in international gasoline references and a considerable depreciation of the domestic currency, this change in the determination of maximum gasoline prices implied a considerable price increment in January 2017, which generated a significant, although transitory, impact on inflation. In this context, the monetary authority has remained alert seeking to prevent second round effects, derived from the referred shocks, from affecting inflation. In subsequent communications, the Ministry of Finance announced that the maximum prices announced in December 2016 would be in force until February 17, 2017 and that starting from the following day the maximum prices applicable to each region would be adjusted on a daily basis in line with the new formula which, although still considering the prices of international references converted to the Mexican pesos, seeks to moderate the impact of excessive fluctuations in these references.

It is expected that changes in the relative prices of merchandise with respect to those of services, derived from the depreciation of the real exchange rate and the impact of the gasoline price liberalization, will temporarily affect headline inflation. This reflects the fact that, as mentioned above, the monetary policy will focus on preventing second round effects from affecting the price formation process of the economy. Thus, for 2017 headline inflation is expected to lie above the upper limit of the variability interval associated to the target set by Banco de México, resuming its convergence trend towards the referred target over the last months of the year, and closing 2018 around 3 percent. In turn, core inflation is expected to remain above its 3 percent target in 2017. However, for the last months of 2017 and in 2018 it is estimated to resume its trend of convergence towards the 3 percent target. Thus, both headline and core inflations are expected to converge to the target again, once the effects of the said shocks start fading, and the already implemented monetary policy actions along with those adopted in 2017 take effect, all this in an environment in which no aggregate demand-related inflation pressures are anticipated.

The environment of uncertainty currently faced by the Mexican economy makes it especially relevant for the authorities to reinforce the macroeconomic fundamentals of the country, strengthening public finances and adjusting the monetary policy stance in a timely fashion, while proceeding with the adequate implementation of structural reforms. In this sense, the favorable results observed in the fourth call of Round One of public tenders in hydrocarbon exploration and extraction and in the first call to formalize partnerships of private sector with Pemex, as well as the liberalization of gasoline prices should be highlighted, as they represent progress in strengthening the macroeconomic framework of the country. In particular, the referred liberalization stands out due to the reduced vulnerabilities it represents for public finances, as maintaining public prices that are misaligned in reference to their

international counterparts is not sustainable. Furthermore, a solid fiscal stance is essential to strengthen the macroeconomic framework and helps to reduce the perception of risk in the economy, creating an environment more conducive to growth and price stability in the medium and long terms. In this context, the Federal Government's goal to attain a primary surplus in public finances in 2017 plays a key role. It is also relevant to specify that within the process of structural reforms the public-private partnership project "*Red Compartida*" stands out, as it seeks to increase telecommunication services coverage, raise their quality, and promote competitive prices in these services.

In the future, the Board of Governors will closely monitor the evolution of all inflation determinants and its medium- and long-term expectations, especially the possible pass-through of exchange rate adjustments and gasoline prices onto the rest of prices. Likewise, it will be watchful of the monetary position of Mexico relative to the U.S., and the evolution of the output gap. This will be done in order to continue taking the necessary measures to consolidate the efficient convergence of inflation to its 3.0 percent target.

2.   Recent Evolution of Inflation

2.1.   Inflation

The moderate upward trend (that annual headline inflation had presented since July 2016) persisted in the fourth quarter of 2016. A further depreciation of the national currency in this period was especially relevant in this, as a consequence of the complex external environment faced by the Mexican economy, above all during the period following the elections in the U.S. This depreciation has been manifested through the adjustment in the relative prices of merchandise with respect to services, which contributed to maintaining an upward trend of core inflation. Meanwhile, in the reported quarter the non-core component also exhibited greater growth rates, associated to price increments of some agricultural products, as well as some energy products, as was the case of gasoline at the Northern border. Consequent on this, as of October 2016 headline inflation slightly exceeded its 3 percent target, after remaining below this level for seventeen consecutive months. Specifically, in December 2016 annual headline inflation reached 3.36 percent.

Subsequently, measures tending to the liberalization of some energy prices, the implementation of which started in early 2017, as is the case of gasoline and L.P. gas prices, strongly affected the Consumer Price Index (CPI), as the annual change of the non-core component spiked. It should be pointed out that, even though the effects of the liberalization of energy prices onto inflation measured in the short term were important, they are expected to be temporary, while the monetary policy will seek to prevent second round effects (generated by these changes in relative prices) from affecting the price formation process in the economy.

As a result of the afore mentioned developments, annual headline inflation shifted from an average of 2.78 percent in the third quarter of 2016 to 3.24 percent in the fourth one. In the first fortnight of February, inflation lied at 4.71 percent. It should be noted that in the former figure 1.35 percentage points are directly associated to the increments in gasoline prices, which, in turn, resulted from the increases in the international references of this fuel and from the exchange rate depreciation. This figure shows the relevance of the impact of the change in the determination of maximum prices of these fuels onto inflation. Meanwhile, average annual core inflation changed from 3.00 to 3.28 percent between the referred quarters, while in the first fortnight of February it lied at 4.20 percent. Likewise, the average annual change of the non-core component went from 2.10 to 3.14 percent between the third and the fourth quarters of 2016, attaining 6.25 percent in the first fortnight of February. As stated before, the latter mainly resulted from price increments in gasoline and domestic gas L.P. (Table 5 and Chart 132). Notably, so far only some normal indirect and expected effects generated by price increases in these energy products have been observed on the prices of goods and services that use them as inputs (see Box 5).

Table 5
Consumer Price Index, Main Components and Trimmed Mean Indicators
Annual change in percent

	2015		2016				2017
	III	IV	I	II	III	IV	1f February
CPI	**2.61**	**2.27**	**2.69**	**2.56**	**2.78**	**3.24**	**4.71**
Core	**2.33**	**2.40**	**2.69**	**2.91**	**3.00**	**3.28**	**4.20**
Merchandise	**2.46**	**2.78**	**3.04**	**3.51**	**3.79**	**3.98**	**5.27**
Food, beverages and tobacco	2.20	2.55	2.88	3.69	3.89	4.26	5.88
Non-food merchandise	2.67	2.98	3.17	3.36	3.71	3.75	4.77
Services	**2.22**	**2.09**	**2.40**	**2.41**	**2.34**	**2.68**	**3.29**
Housing	2.06	2.00	2.11	2.21	2.32	2.40	2.53
Education (tuitions)	4.37	4.28	4.21	4.13	4.17	4.26	4.41
Other services	1.75	1.52	2.15	2.09	1.80	2.50	3.75
Non-core	**3.53**	**1.87**	**2.71**	**1.46**	**2.10**	**3.14**	**6.25**
Agriculture	**5.33**	**2.76**	**6.51**	**4.48**	**3.81**	**4.98**	**-2.92**
Fruit and vegetables	7.91	6.33	22.45	13.30	8.58	8.32	-12.89
Livestock	4.00	0.84	-1.60	-0.01	1.26	3.09	3.60
Energy and government approved fares	**2.42**	**1.33**	**0.39**	**-0.45**	**1.01**	**2.00**	**12.26**
Energy	2.43	0.52	-1.10	-1.49	-0.03	1.75	16.85
Government approved fares	2.39	2.86	3.23	1.41	2.83	2.48	3.85
Trimmed Mean Indicator [1]							
CPI	2.62	2.45	2.50	2.66	2.91	3.22	4.22
Core	2.69	2.77	2.85	3.05	3.20	3.28	4.05

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

Chart 132
Consumer Price Index
Annual change in percent

Source: Banco de México and INEGI.
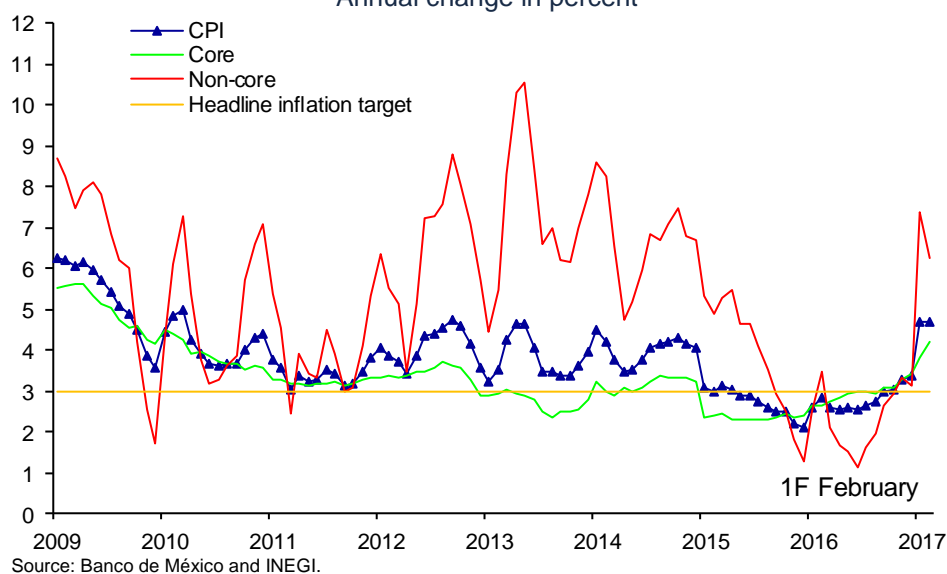
A more detailed analysis of the headline and core inflation trends, as well as its performance at the margin, can be obtained based on the following indicators. Firstly, the proportion of the CPI basket and the core component is presented, exhibiting annual price changes in three groups: i) items with an annual price change below 2 percent; ii) between 2 and 4 percent; and iii) over 4 percent. In the same vein, the percentage of the CPI basket and the core component are illustrated

in two additional categories: the one with annual price changes lower or equal to 3 percent, and the one with annual price changes over 3 percent (Chart 133).

This indicates that the proportion of headline and core baskets with price increments lower than 4 percent has presented a downward tendency (Chart 133 and Chart 133b). Thus, in the third quarter of 2016 the share of the CPI basket of goods and services with price increments below 4 percent was on average 68 percent, while in the fourth quarter it was 61 percent. For the core component, the shares were 65 and 60 percent in the same quarters. Likewise, the share of the CPI basket with price changes lower or equal to 3 percent (the area below the yellow line) was 53 percent in the third quarter of 2016, plunging to 46 percent in the fourth quarter, while in the case of the core component, this share changed from 47 to 45 percent in the same time frame. Furthermore, an analysis similar to the one prepared above for the baskets of merchandise and services of the core index (Chart 133), shows that, as a result of the depreciation of the exchange rate of the national currency and the consequent change in the relative prices of merchandise with respect to services, it was precisely the prices of the former that have recently presented a considerable decrease in the share of their basket with price increments lower than 4 percent, while this share for the services basket has remained relatively stable. In the same way, the share of the basket with price changes lower or equal to 3 percent has been diminishing in the case of the merchandise, while that of the services still persists above 50 percent.

Chart 133
Percentage of CPI Basket according to Intervals of Annual Increments
Percent

c) Merchandise

d) Services

Source: Banco de México and INEGI.
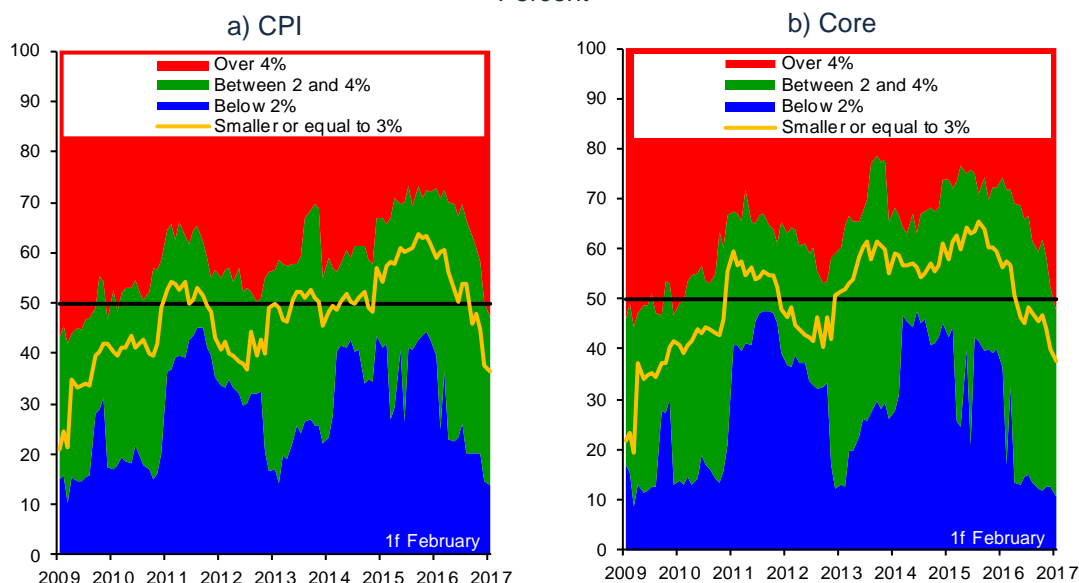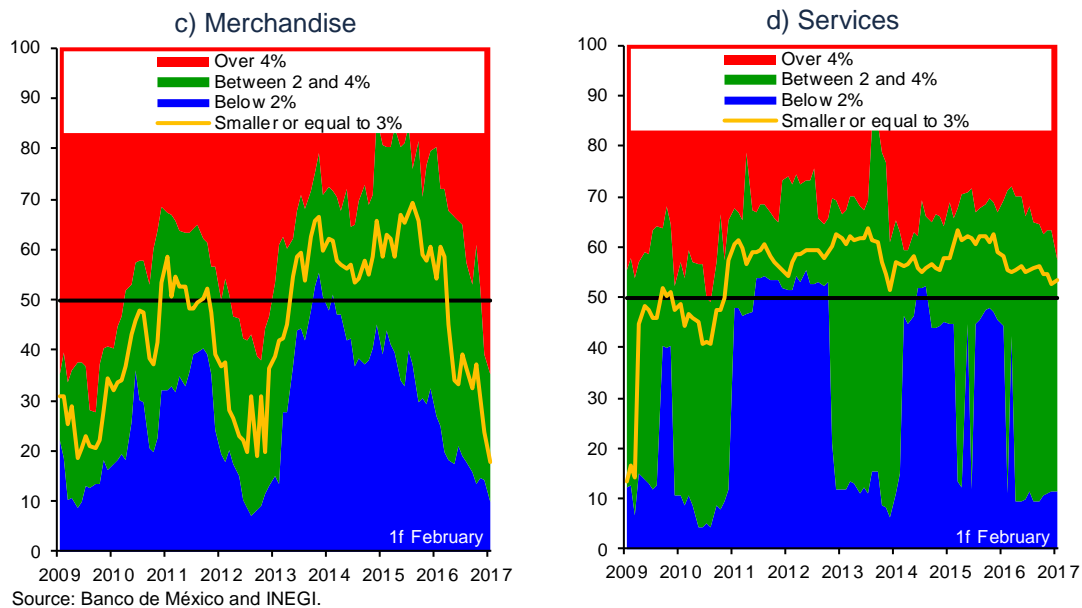
Meanwhile, the medium-term trend of headline inflation represented by the Trimmed Mean Indicator shifted from 2.91 to 3.22 percent between the third and the fourth quarters of 2016, marking 4.22 percent in the first fortnight of February. Likewise, the referred indicator for core inflation went up from 3.20 to 3.28 percent in the same time frame, attaining 4.05 percent in the first fortnight of February. The quarterly increase observed in these indicators was largely due to the adjustment in the relative prices of merchandise with respect to services. On the other hand, even though in the first fortnight of February both the Trimmed Mean Indicator for headline and for core inflations increased further, their levels lied below the observed figures, which indicates that the registered increment in headline and core inflations measured in this fortnight was mainly due to the price rise in a relatively small group of goods and services, especially increments in energy prices (Chart 134 and Table 5).

On the other hand, the evolution of annualized monthly (seasonally adjusted) inflation shows that, once the comparison base effects are discounted, the headline inflation trend has increased. This resulted from increments in the relative prices of merchandise, which are also reflected in the same sense in the tendency of the respective indicator of core inflation. Likewise, this analysis shows that, at the margin, headline inflation was notably affected, even though it was temporary, by the afore mentioned adjustment in energy prices (Chart 135).

Chart 134
Price Indices and Trimmed Mean Indicators [1]
Annual change in percent
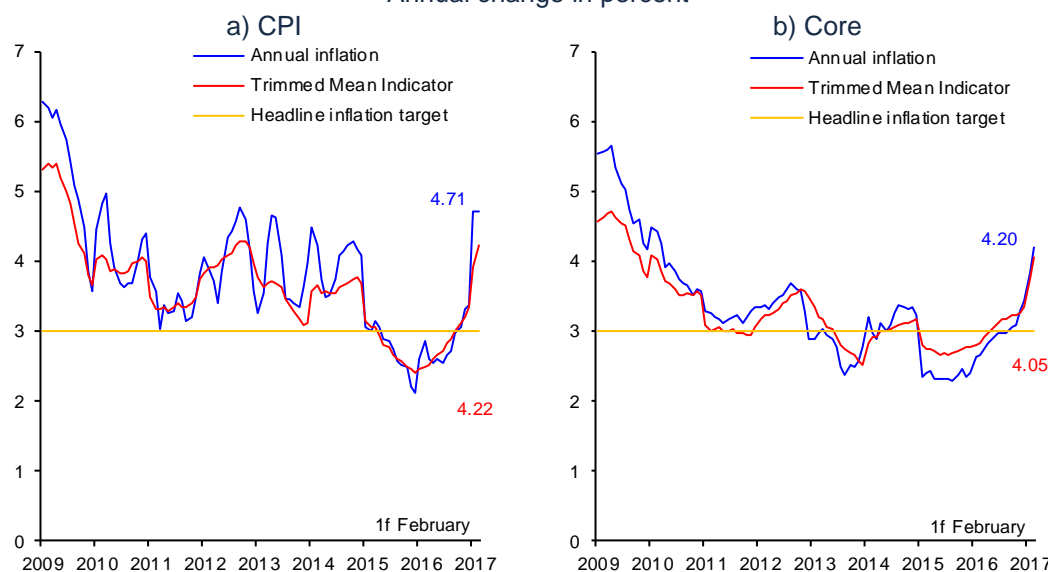
a) CPI

- Annual inflation
- Trimmed Mean Indicator
- Headline inflation target

4.71

4.22

1f February

2009 2010 2011 2012 2013 2014 2015 2016 2017

b) Core

- Annual inflation
- Trimmed Mean Indicator
- Headline inflation target

4.20

4.05

1f February

2009 2010 2011 2012 2013 2014 2015 2016 2017

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) 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 closer to the center of the distribution, the Trimmed Mean Indicator is calculated.
Source: Prepared by Banco de México with own data and data from INEGI.

Chart 135
Annualized Seasonally Adjusted Monthly Change and Trend
Percent

a) CPI

- Moving average (6 observations)
- Annualized monthly change (s. a.) [1]
- Headline inflation target

1f February

2009 2010 2011 2012 2013 2014 2015 2016 2017

b) Core

- Moving average (6 observations)
- Annualized monthly change (s. a.) [1]
- Headline inflation target

1f February

2009 2010 2011 2012 2013 2014 2015 2016 2017
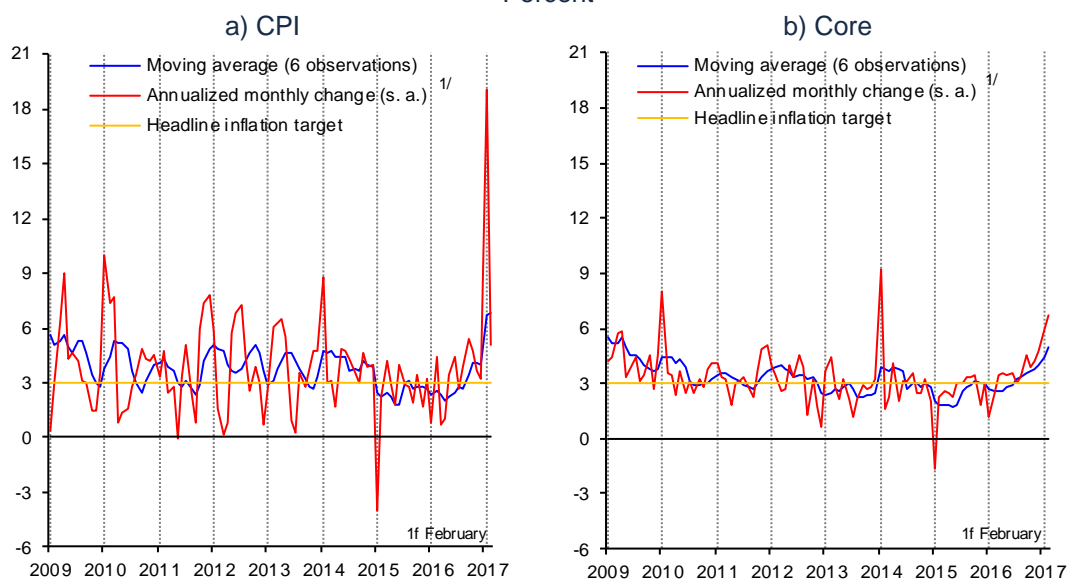
s. a. / Seasonally adjusted data.
1/ For the last observation, the annualized biweekly change is used.
Source: Seasonal adjustment prepared by Banco de México with own data and data from INEGI.

Within core inflation, the following should be noted:

i.   The merchandise price subindex shifted from an average annual change of 3.79 to 3.98 percent between the third and the fourth quarters of 2016, and marked 5.27 percent in the first fortnight of February. In this respect, the acceleration in the annual growth rates of food merchandise prices was noteworthy, as they changed from 3.89 to 4.26 percent in the referred quarters, and marked 5.88 percent in the first fortnight of February, while non-food merchandise prices persisted at similar levels between the third and the fourth quarters of 2016, observing 3.71 and 3.75 percent, and later went up to 4.77 percent in the first fortnight of February (Chart 136a). In particular, in the said fortnight some price increases in corn tortilla and sweet bread stood out, as they were associated to higher costs of some inputs.

ii.   In contrast, the subindex of services prices kept exhibiting moderate annual growth rates, even though in the fourth quarter it increased slightly, derived from the absence of reductions of the same magnitude in mobile phone tariffs, which were observed last year. Thus, between the third and the fourth quarters of 2016, their average annual change rose from 2.34 to 2.68 percent, observing 3.29 percent in the first fortnight of February. In particular, in the latter period, prices of different food services went up, as a result of higher input costs, such as some food products and L.P. gas. In this way, the annual change of the item of services other than housing and education rose from 1.80 to 2.50 percent between the third and the fourth quarters of 2016, reaching 3.75 percent in the first fortnight of February (Chart 136b).

Chart 136
Core Price Index
Annual change in percent

a) Merchandise and Services   b) Merchandise

Source: Banco de México and INEGI.
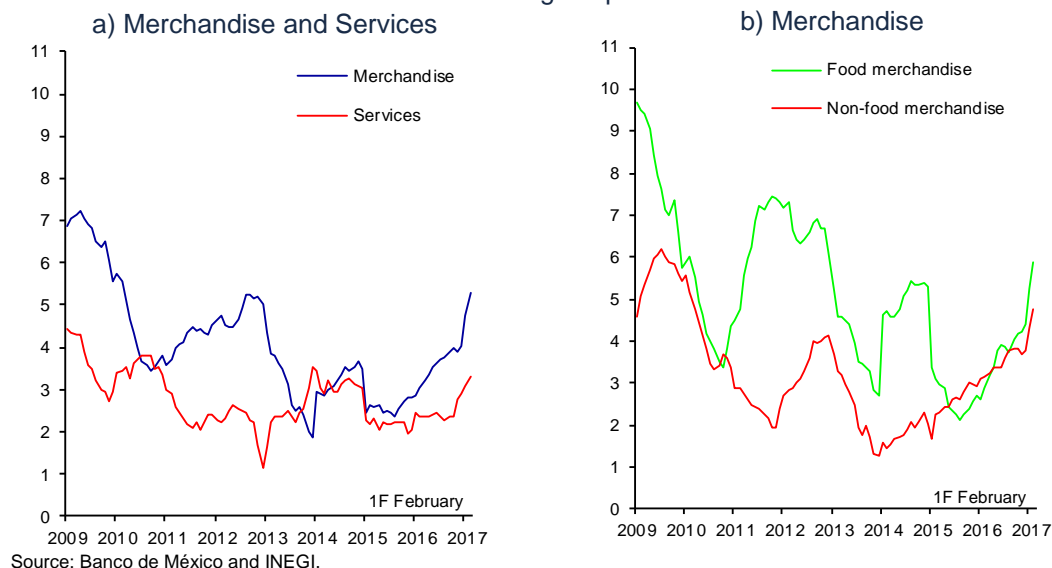
As compared to the previous quarter, the annual change rate of the non-core component increased in the fourth quarter. This result was due to price increases

in some livestock products and to higher growth rates in the prices of energy products and government approved fares. Subsequently, considering the changes in the determination of some energy prices that came into force in January 2017, the non-core component was the one that registered a more marked acceleration in its annual growth rate, as well as a high impact on headline inflation in that month, generating a strong effect in the first fortnight of February as well (Chart 137).

i.   The average annual change of the subindex of agricultural products' prices shifted from 3.81 to 4.98 percent between the third and the fourth quarters of 2016. Higher prices in some livestock products, such as chicken and pork, as well as smaller reductions in egg prices were especially noteworthy. Afterwards, the annual change of agricultural products' prices lowered considerably and located at -2.92 percent in the first fortnight of February. This was mainly due to the reductions in some vegetables' prices, such as tomato and onions.

ii.   The subindex of energy prices and government approved fares accelerated its average annual growth rate between the third and the fourth quarters, shifting from 1.01 to 2.00 percent. However, in the first fortnight of February, its annual change rate reached 12.26 percent. As mentioned above, this evolution is fundamentally attributed to the higher prices of gasoline and L.P. gas. At the same time, higher fuel prices caused upward adjustments in public transport fares across different cities of Mexico.

Chart 137
Consumer Price Index
Annual impact in percentage points [1/]

Legend: Core; Non-core excl. gasoline; Gasoline; CPI; 1f February
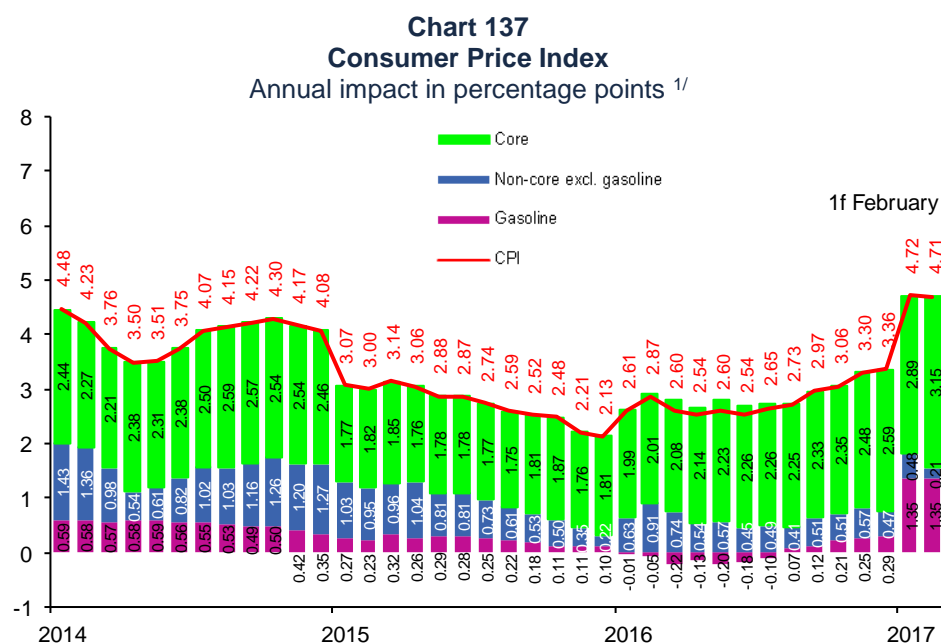
1/ In some cases, the sum of respective components can exhibit some discrepancies due to rounding.
Source: Prepared by Banco de México with data from INEGI.

With respect to the last point, it is relevant to highlight that:

i.   As regards gasoline, in the framework of the process to liberalize its price, on December 21, 2016, the Energy Regulatory Commission (CRE, for its acronym in Spanish) released a timetable to carry out this process, which

indicates a gradual liberalization throughout 2017, which would conclude by determining them without government intervention across the country by the end of the year. Subsequently, on December 27, 2016, the Ministry of Finance announced that Mexico would be divided into 90 regions in which maximum gasoline prices will be regulated. In the same line, it published the formula to determine maximum prices, which will be applied in the regions, where the prices will not be liberalized during the process. The most relevant point in determining maximum gasoline prices is that this fuel's international references, converted to the Mexican pesos, are still directly considered in the mentioned formula, but the upper and the lower bounds, between which this price was allowed to fluctuate during 2016, are eliminated. This change implied spikes in this fuel's prices in January 2017, which, as mentioned above, were manifested in inflation measured in that month. Thus, for instance, considering average annual inflation of the third and the fourth quarters of 2016 (2.78 and 3.24 percent), 0.03 and 0.25 percentage points were due to gasoline price increments, while in January, gasoline contributed with 1.35 percentage points to the annual inflation of 4.72 percent. An update to maximum gasoline prices was programmed for February 4, 2017. However, a day earlier the Ministry of Finance announced that these prices would remain unchanged between February 4 and February 17, and the maximum prices announced on December 27, 2016 would remain in force. To do so, the Ministry of Finance modified the fiscal stimuli, in particular the excise tax applicable to gasoline. Subsequently, on February 17 the said Ministry determined that as of the following day, the maximum gasoline prices applicable to each region will be adjusted on a daily basis, using a new formula which, although still contemplates the prices of the international references converted to the Mexican pesos, seeks to mitigate the effect of excessive fluctuations in the said references. Thus, the goal of the gradual liberalization of gasoline prices throughout 2017 and the new determination of maximum prices is to help transition from the scheme of gasoline prices established by the authorities to a scheme in which they are mainly determined by the evolution of their international counterparts. In the first fortnight of February, annual headline inflation was 4.71 percent, in which 1.35 percentage points were also associated to gasoline price increments carried out at the beginning of the year.

ii.   With respect to L.P. gas, during 2016 this fuel's prices started to move towards liberalization. Even though in 2016 the Ministry of Finance still used to set maximum prices, imports of this fuel were allowed and Pemex was no longer the only supplier. Starting from January 1, 2017, the price set by the authority disappeared. Thus, in January, the increment in this fuel was 17.85 percent as compared to last December. It should be noted that while the domestic consumer price of this hydrocarbon lies above the international reference of the L.P. gas, additional measures could be required to make its domestic price competitive. In this context, on February 15, 2017 the CRE announced its collaboration with the National Association of Supermarkets and Department Stores (ANTAD) to enable the sales of L.P. gas in supermarkets, which could boost competition in this market and, hence, lower consumer prices of this energy product. In

the first fortnight of February, the annual change of this fuel marked 7.52 percent.

iii.   In 2016, low consumption electricity tariffs for domestic sector decreased 2 percent, while in 2017 they are expected to remain unchanged. Meanwhile, high consumption electricity tariffs for domestic use have been increasing since June 2016, presenting an annual change of 23.8 percent in December 2016 and the monthly changes of 2.6 percent in January 2017 and of 3.8 percent in February. This performance is related to higher prices of inputs used to generate electric power, especially fuels.

iv.   The price of the natural gas is determined based on its international reference, and in the first fortnight of February it presented an annual change of 31.12 percent.

Box 8
Indirect Effects of Energy Price Increments onto the Price Formation Process
of the Mexican Economy

4. Introduction

This Box presents the analysis of the impact that the recent increments in energy prices have had so far on the price dynamics of the goods and services that are part of the Consumer Price Index (CPI). In particular, the evolution of the share of products of the CPI basket with upward price adjustments, as well as the magnitude of these increments in 2017 are studied. Although the analysis covers the period up to the first half of February, the results suggest that the adjustment in response to the referred shock in the proportion and the magnitude of price increments occurred fundamentally during the first fortnight of January 2017. In particular, in the referred fortnight both the share of goods and services with price increments and their average magnitude increased, with respect to previous years. The increment in the magnitude of price rises is attributed to the non-core component, given that in the case of the core one the magnitude of price increments has remained close to the average registered in recent years. Furthermore, it stands out that the average magnitude of price increments has been diminishing since the second fortnight of the year. Moreover, the evolution of the share of goods and services of the CPI with upward price adjustments has been very similar to that registered in the previous episodes in which there were supply shocks in the economy, which affected a relatively broad set of goods and services.

On the other hand, using the input-output matrix, the indirect effects derived from energy price increments on headline and core inflation are estimated. The results of these estimates suggest that the adjustment in prices so far has been orderly and as anticipated. That is, it can be argued that energy price increments have not generated indirect effects beyond their natural impact and beyond the expected magnitude on the prices of goods and services that use them as inputs. Thus, the referred increments do not seem to have led to an environment of more widespread price increases in the Mexican economy.

5. Recent Inflation Trends

In early 2015, as a result of the monetary policy conduction and lower prices of widely-used inputs, some of them as a consequence of the structural reforms, annual headline inflation practically attained the target set by Banco de México. This occurred despite the depreciation that the national currency had registered since the previous year. Moreover, since May 2015 annual headline inflation accumulated 17 consecutive

months persisting at levels below 3 percent, marking a historic minimum of 2.13 percent in December that year.

Despite this, and considering the magnitude of the depreciation of the national currency, as well as a long period over which it occurred, since July 2016 annual headline inflation started to observe an upward trend, which was largely a reflection of the impact of the depreciation of the national currency on the relative prices of merchandise with respect to services, which increased the growth rate of core inflation. Even considering this, in December 2016, annual headline inflation located close to the permanent target, marking 3.36 percent.

In January 2017, the upward trend of inflation was exacerbated by modifications in the determination of some energy prices, such as gasoline and L.P. gas. This occurred in an environment of the transition from the prices set by the authorities to a scheme in which prices are determined by the free market. However, in a juncture of increments of their international references and of the depreciation of the national currency, the measures tending to the liberalization of the said energy prices strongly affected inflation. Therefore, annual headline inflation marked 4.71 percent in the first fortnight of February 2017. It should be stressed that 1.64 percentage points in this figure are directly related to the energy price increment, and, specifically, as mentioned in this Report, 1.35 percentage points correspond to the rise in gasoline prices (Table 1).

Table 1
Contributions to Annual Headline Inflation
Change in percent and impact in percentage points

Item	Change			Incidence		
	Dec 2016	Jan 2017	1F Feb 2017	Dec 2016	Jan 2017	1F Feb 2017
CPI	**3.36**	**4.72**	**4.71**	**3.36**	**4.72**	**4.71**
Core	**3.44**	**3.84**	**4.20**	**2.59**	**2.89**	**3.15**
Merchandise	4.05	4.75	5.27	1.40	1.64	1.81
Food	4.40	5.27	5.88	0.69	0.83	0.92
Non-food merchandise	3.76	4.31	4.77	0.71	0.81	0.90
Services	2.92	3.07	3.29	1.19	1.25	1.34
Housing	2.41	2.46	2.53	0.44	0.45	0.46
Education	4.26	4.29	4.41	0.23	0.23	0.24
Other services	3.04	3.33	3.75	0.52	0.57	0.64
Non-core	**3.13**	**7.40**	**6.25**	**0.77**	**1.83**	**1.55**
Agriculture and livestock	4.15	0.53	-2.92	0.39	0.05	-0.29
Fruit and vegetables	4.31	-6.01	-12.89	0.15	-0.23	-0.50
Livestock	4.06	4.67	3.60	0.24	0.28	0.21
Energy and government appr. fares	2.49	11.80	12.26	0.38	1.78	1.84
Energy	2.42	16.31	16.85	0.24	1.59	1.64
Gasoline	5.57	26.04	26.21	0.29	1.35	1.35
Domestic gas	-4.20	8.05	10.14	-0.11	0.17	0.21
Electricity	1.14	3.14	3.28	0.05	0.08	0.08
Government approved fares	2.60	3.50	3.85	0.14	0.19	0.20

Source: Banco de México and INEGI.

Even though the effects of the referred process of price liberalization onto short-term inflation are considerable, as regards the changes in the relative prices, these effects are anticipated to dissipate over time, as the monetary policy will be on alert seeking to prevent second round effects on the price formation process of

the economy. Nevertheless, it is normal and to be expected that energy price increments can produce indirect effects on the prices of other goods and services that use them as inputs.

6. Stylized Facts of the Price Formation Process of the Mexican Economy

In recent economic literature there are various works analyzing the characteristics of the price formation process of an economy and its relation with inflation. These works use price databases collected to estimate price indices, based on which a series of indicators is developed, allowing a better comprehension of the price setting process. Among the said indicators, the following can be found: the share of prices of the CPI basket that changes in each period, which is referred to as the *price change frequency*, and the size of these changes, which is referred to as the *magnitude of price changes*. It is significant because, following the works of Klenow and Kryvtsov (2008) and Gagnon (2007), among others, these indicators allow to analyze inflation fluctuations (π_t) through the following decomposition:

$$\pi_t = fr_t^+ dp_t^+ + fr_t^- dp_t^-$$

where, fr_t^+ and fr_t^- represent the frequencies of price increases and price decreases, respectively, while dp_t^+ and dp_t^- refer to the magnitudes of price increases and decreases, in the same order. Thus, headline inflation can be decomposed into the sum of the frequency of price increases multiplied by their magnitude and the frequency of decreases by their magnitude.

The previous decomposition implies that in light of shocks affecting demand or the costs of different goods and services produced in the economy, firms can adjust the frequency at which they modify their prices, the magnitude of the changes, or both of the above. In the case of the U.S., Klenow and Kryvstov (2008) and Berger and Vavra (2015) find that fluctuations in the magnitudes of price changes account for most changes in inflation, which implies that the intensive margin is the one that dominates the inflation dynamics, over the extensive margin, which corresponds to the adjustments in the frequency of price changes. In the case of Mexico, there is also evidence showing that most fluctuations in inflation are explained by changes in the intensive margin.[1]

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[1] See Banco de México (2011). "Features of the Price Formation Process in Mexico: Evidence from CPI Micro Data", in the Technical Chapter of the Inflation Report October – December 2011, p. 57 -75, and Banco de México (2013). "Relative Price Changes and Inflation Convergence towards the 3 Percent Target", in the Box 1 of the Inflation Report April – June 2013, pp. 5-8.

Table 2 exhibits the correlation between inflation and the frequency of price changes, along with the correlation between inflation and the magnitude of price changes for the CPI and its main components. The results show that for the period from January 2011 to the first fortnight of February 2017, inflation is more correlated with the magnitude of price changes than with the frequency of price changes, thus reinforcing the dominance of the intensive margin.

Table 2
Correlation with Inflation

	Correlation coefficient	
	Frequency of price changes (fr) Jan11 - 1FFeb17	Magnitude of price changes Jan11 - 1FFeb17
CPI	0.24	0.92
Core	0.52	0.90
Non-core	0.13	0.89

Source: Calculated by Banco de México with own data and data from INEGI.

Despite the above, earlier studies of the Mexican case indicate that in view of supply shocks, such as those associated to energy price increments, which could affect the relative prices and costs of a relatively broad set of goods and services, the adjustment in inflation initially occurs via changes in the frequency of price increments.[2] That is, temporarily there is an increment in the number of goods and services that exhibit price adjustments. In particular, in response to fiscal adjustments in 2010 and in 2014, the frequency of price increments rose at the moment of the shock and subsequently resumed the average level several months after.

Charts 1a and 1b exhibit the magnitudes and frequencies of price increments for the CPI across different fortnights and years. The years 2014 and 2017 are presented separately, since significant shocks were registered in these years. In the former case, due to the fiscal adjustments in high-calorie density foods and the equalization of VAT in the border region and, in the second case, derived from the increments in gasoline and L.P. gas prices, as a result of the process of price liberalization. It should be pointed out that in the current episode, the brunt of the adjustment was registered in the first fortnight of the year. In particular, as can be appreciated in the referred charts, in the first fortnight of January 2017 both the magnitude and the frequency of price increments exceeded the average level for the period from 2011 to 2016, except for 2014. Afterwards, the average magnitude of price increments was declining starting from the second fortnight of January 2017, locating at levels close to the average in the period from 2011 to 2016, excluding 2014. As regards the

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[2] See Banco de México (2010). "Evidence on the Absence of Second-round Effects on the Price Formation Process Associated with the Tax Adjustments for 2010 Approved by Congress", in Box 1 of the Inflation Report January – March, 2010, pp. 6-7.

frequency of price increments, their dynamics were similar to those of 2014, when the effects of the fiscal adjustments were perceived in the price setting process of the economy.[3]

Chart 1a
Magnitude of Price Increments in Headline Inflation
In percent
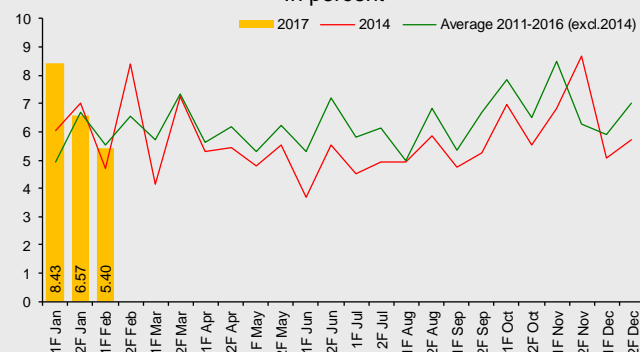
Source: Banco de México and INEGI.

Chart 1b
Frequency of Price Increments in Headline Inflation
In percent
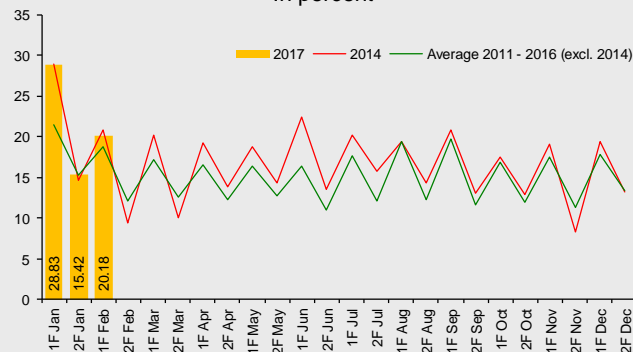
Source: Banco de México and INEGI.

Tables 3 and 4 show that the growth of the magnitude of price increments in the CPI in the first fortnight of January 2017 is attributed to the non-core component, given that its magnitude of increases is greater than in the previous years, while in the case of the core component it is similar to the average of the period 2011 – 2016, excluding 2014, and it is even lower when comparing the second fortnight of January and the first fortnight of February. This evolution of the non-core component is mainly explained by the direct effects of gasoline and L.P price increments. As regards the frequency of price changes, this indicator is greater

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[3] The frequency of price decreases has declined in 2017, relative to the average of the period 2011-2016, except for 2014. On the other hand, the magnitude of price decreases has gone up in the first fortnights of the year, as compared to the average of 2011-2016, excluding 2014.

during the first fortnight of January 2017, both in its non-core and core components relative to the average of the last years. In the first case, this adjustment resulted from direct effects generated by the referred energy price increments, while in the case of the core component the growth is fundamentally explained by the higher cost of some goods and services derived both from the increments in energy prices and the depreciation of the national currency. Thus, when comparing the frequency of changes of the first fortnight of January both of 2017 and 2014 with the average of the period 2011-2016, excluding 2014, it can be appreciated that in light of supply shocks that affect a relatively broad set of goods and services, the adjustment in core inflation mainly occurs through the modifications in the frequency of price increments. In other words, when a shock affects costs faced by businesses in a widespread manner, it leads to a higher number of price adjustments seeking to incorporate the effect of this shock. However, given that the impact on costs is not homogeneous across different sectors of the economy, the average magnitude of prices changes does not adjust as much as the frequency.

Table 3
Magnitude of Price Increments [1/]

	Magnitude of price increments								
	1F January			**2F January**			**1F February**		
	2017	2014	Average 2011- 16[2/]	2017	2014	Average 2011- 16[2/]	2017	2014	Average 2011- 16[2/]
CPI	8.4	6.0	4.9	6.6	7.0	6.7	5.4	4.7	5.5
Core	6.3	8.0	6.2	5.7	6.3	7.0	5.9	7.8	6.4
Non-core	10.5	4.2	4.2	9.4	8.9	7.0	4.6	3.1	5.4

1/ Data weighted according to the weight of each item.
2/ It excludes 2014.
Source: Calculated by Banco de México based on own data and data from INEGI.

Table 4
Frequency of Price Increments [1/]

	Frequency of price increments (fr+)								
	1F January			**2F January**			**1F February**		
	2017	2014	Average 2011- 16[2/]	2017	2014	Average 2011- 16[2/]	2017	2014	Average 2011- 16[2/]
CPI	28.8	28.9	21.4	15.4	14.7	15.3	20.2	20.8	18.8
Core	19.4	19.1	12.7	16.5	14.7	12.0	16.8	9.6	12.1
Non-core	53.5	54.7	43.8	12.7	14.7	23.6	29.0	50.2	35.8

1/ Data weighted according to the weight of each item.
2/ It excludes 2014.
Source: Calculated by Banco de México based on own data and data from INEGI.

7. Estimation of the Indirect Impact of Energy Price Increments

The above results indicate that so far no widespread price increments have been observed, as a result of higher energy prices. The increment in the proportion of upward price adjustments is congruent with the adjustment of the Mexican economy as a result of the previous supply shocks, such as the one in January 2014. In order to estimate the indirect effects generated by energy price increments on the prices of different sectors of the economy, as a consequence of higher input costs, the 2012 input-output matrix is used. In

particular, at the level of different goods and services comprising the core component of the CPI, this matrix is used to estimate the increment in costs of each item derived from higher energy prices. Once the estimates of the indirect effects are obtained, an indicator is created, called *accumulated inflation of costs*, which incorporates both the seasonal price increment of each month in the period, and the indirect impact of energy price increments. Table 5 compares this inflation of costs with the observed accumulated inflation of both the CPI index and the core index, along with the index of their components of merchandise and services.

Table 5
Indirect Impacts of Energy Prices

	Data in percent		
	Observed accumulated inflation: 2F Dec 16 - 1F Feb 17 (A)	Accumulated inflation of costs: 2F Dec 16 - 1F Feb 17 (B)	Difference (A) - (B)
CPI	2.10	1.97	0.13
Core	1.20	0.94	0.26
Merchandise	1.73	1.10	0.63
Services	0.76	0.82	-0.06

Source: Calculated by Banco de México based on own data and data from INEGI.

The results indicate that accumulated headline inflation observed during the reference period is similar to the inflation of costs. The accumulated core inflation is slightly greater than the respective inflation of costs, which is explained by the dynamics of the inflation of merchandise. In particular, it was greater than the inflation of costs, while that of the services was slightly smaller. In the case of merchandise, the difference can be attributed to the impact of the depreciation of the national currency onto prices, while in the case of services, the lower increment relative to the inflation of costs can be related to the slackness prevailing in the economy, along with the greater rigidity of prices in that sector. Thus, given that the accumulated inflation in 2017 is very close to the inflation of costs, it can be argued that the adjustment that has been registered so far in the price formation process has been orderly and the indirect effects derived from energy price increments have tended to be very close to their natural and expected impacts on those goods and services that use them as inputs of production.

8. Final Remarks

The increase in headline inflation registered in 2017 is largely explained by higher prices of gasoline and L.P. gas. As regards the impact of these increments on the price formation process of the Mexican economy, the increases during the first fortnight of the year that occurred both in the share of the CPI with price increments and in their average magnitude are notable. However, it should be pointed out that the adjustment in

the frequency and the magnitude of prices changes mainly took place during the first fortnight of the year. The magnitude of price increments has been decreasing as of the second fortnight of January, while the frequency of increments has observed a dynamics similar to that in 2014, when the effect of fiscal adjustments was manifested in the price formation process of the economy. Furthermore, the analysis of the frequency and the magnitude of price increments indicates that the adjustment in the latter indicator is explained by the non-core component, due to higher price increments of energy products relative to previous years, given that in the core component the magnitude of increases persisted at levels close to the average registered during the period of 2011 – 2016, with the exception of 2014.

On the other hand, the rise in the frequency of price increments is attributed to the performance of both non-core and core components. In the former case, the increment is accounted for by the referred increases in energy prices, while in the case of core inflation, the adjustment resulted both from higher costs of those goods and services that use the said fuels as inputs in their production, and from the depreciation of the national currency.

Hence, given that i) the greater part of the adjustment in the analyzed price statistics took place in the first fortnight of January 2017; ii) the increment in the magnitude of price increases of the first fortnight of January 2017 is accounted for by the dynamics of the non-core compoment; iii) the magnitude of price increments has been declining since the second fortnight of the year and the increment in the share of prices with upward revisions is congruent with previous episodes; iv) and the adjustment in the prices of goods and services so far has been congruent with the natural and expected impacts derived from the dynamics of energy prices, it can be inferred that so far energy price increments have not generated indirect effects beyond their natural and expected impact, and, in this context, no second round effects on the price formation process in Mexico have been generated.

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2.2.　　　Producer Price Index

Between the third and the fourth quarters of 2016, the Producer Price Index (PPI) of total production, excluding oil registered an increment in its average annual change rate from 5.80 to 7.70 percent, marking 9.81 percent in January 2017 (Chart 138). Just like in three previous quarters of 2016, the PPI subindex that observed the highest annual change rates is that of the prices of merchandise destined to exports, which includes goods quoted in USD (10.96 and 13.31 percent in the third and the fourth quarters, while in January 2017 it was 15.21 percent). In contrast, the price subindex of finished goods and services for domestic consumption presented more moderate annual change rates (3.82 and 4.48 percent in the third and the fourth quarters of 2016, while in January 2017 it was 5.08 percent). It should be recalled that the producer price subindex with the highest predictive power of the performance of core merchandise consumer prices is that of finished merchandise for domestic consumption, while the price subindices of investment and exports' goods have less predictive power on the inflation of merchandise destined to consumers.[35]

Chart 138
Producer Price Index [1/]
Annual change in percent
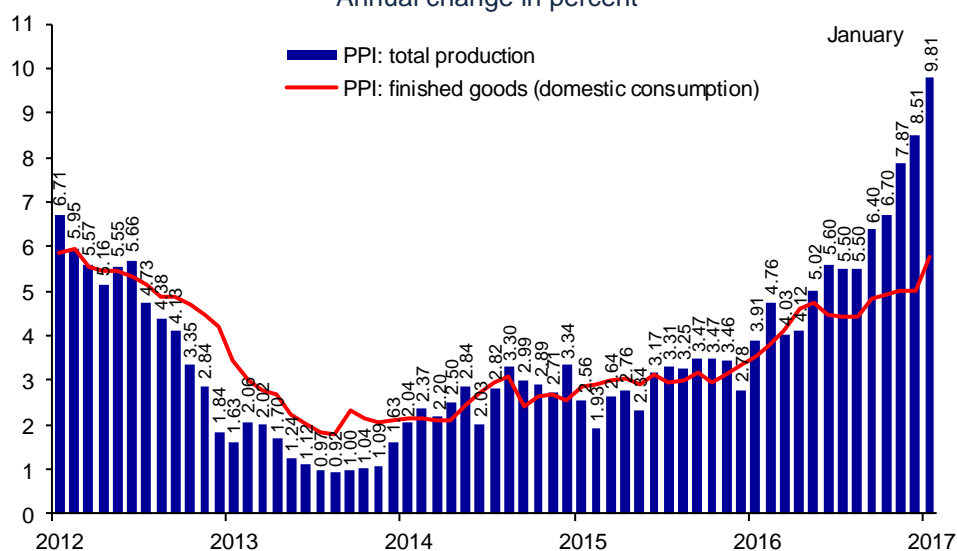
1/ Total Producer Price Index, excluding oil.
Source: Banco de México and INEGI.

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[35] See Box 1 of the Quarterly Report April – June 2016 "Can Inflationary Pressures be Identified when Measured with CPI by means of the Performance of PPI Merchandise Subindices?".

3.   Economic and Financial Environment

3.1.   External Conditions

During the fourth quarter of 2016, the global economic activity continued recovering. In this context, at the global level, trade presented signs of revival and inflation went up, in part, as a reflection of higher input prices. For 2017 and 2018, world economy is still expected to rebound moderately, partly derived from the expectation of expansionary fiscal policies in some of the main economies (Chart 139). Thus, the economic activity in the U.S. is anticipated to expand, in part due to the proposals contemplated by the new administration in terms of fiscal policies, via a higher spending on infrastructure and fiscal policy reforms, as well as the deregulation measures. In Europe, the dynamism of economic activity is expected to persist, despite important geopolitical risks. On the other hand, emerging economies are estimated to continue recovering, even though at a more moderate rate with respect to that previously expected. However, it should be noted that the expected expansion of the global economy is subject to different risks, among which those associated to a possible implementation of protectionist measures in various countries stand out. In particular, there is great uncertainty, among other factors, due to the possible features and the moment at which the fiscal, trade and migration policies could be implemented by the incoming U.S. administration. These policies could lead to lower trade and foreign direct investment at the global level, as well as to a considerable tightening of international financial conditions and a greater rate of the monetary policy normalization of the Federal Reserve.

Chart 139
World Economic Activity

a) Growth Forecast for World GDP
Annual change in percent
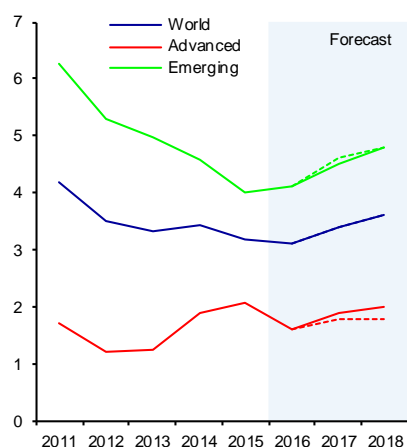
Note:	The dotted lines refer to WEO forecasts of
October 2016, the solid lines refer to WEO
forecasts of January 2017.
Source: IMF, WEO October 2016 and January 2017.

b) GDP Growth Forecasts: Selected
Advanced Economies
Annual change in percent
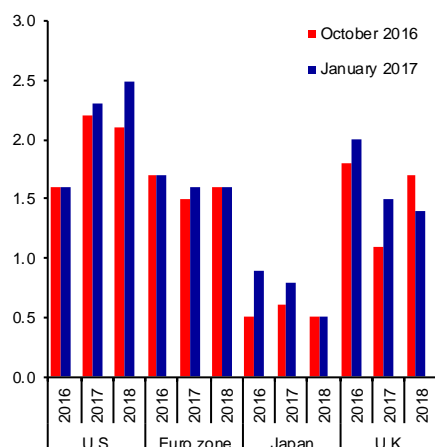
Source: IMF, WEO October 2016 and January 2017.

c) World Trade in Goods [1/] and Global
Manufacturing PMI
Annual change of the 3-month moving
average in percent and diffusion
indices, s. a.
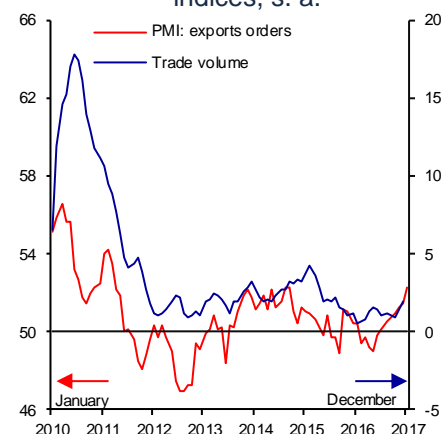
1/ It refers to the sum of exports and imports.
s. a. / Seasonally adjusted data.
Source: CPB Netherlands and Markit.

3.1.1. World Economic Activity

In the particular case of the U.S., during the fourth quarter of 2016, its economy continued expanding, presenting a growth of 1.9 percent at an annualized quarterly rate, following 3.5 percent in the third quarter (Chart 140). Private consumption kept expanding at a high rate, indicating a favorable evolution of personal income and a better financial situation of households. Besides, fixed investment expanded for the third consecutive quarter, backed by a recovery of spending on equipment. In contrast, net exports negatively affected growth, given higher imports and lower exports, mainly agricultural exports, after a transitory rebound observed during the third quarter

Meanwhile, the recovery rate of industrial activity moderated, on registering growth of 0.4 percent at an annualized quarterly rate in the fourth quarter (Chart 140).). On the one hand, production in the manufacturing and mining sectors increased at a greater rate than in the previous quarter, given the dynamism of the automotive sector and the recovery of activity in oil and gas exploration and extraction, respectively. The prospective indicators, such as the ISM Manufacturing Purchasing Managers' Index, point to a continuous recovery of activity in the manufacturing sector (Chart 140). On the other hand, activities related to electricity and gas generation contracted, as a result of the negative impact of unusually high temperatures, observed mainly in November.

Chart 140
U.S. Economic Activity

a) Real GDP and Components
Annualized quarterly change in
percent and percentage point
contributions, s. a.
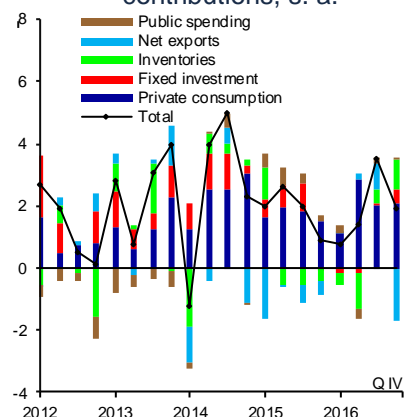
b) Industrial Production and
Components
Index 1Q-2012=100, s. a.
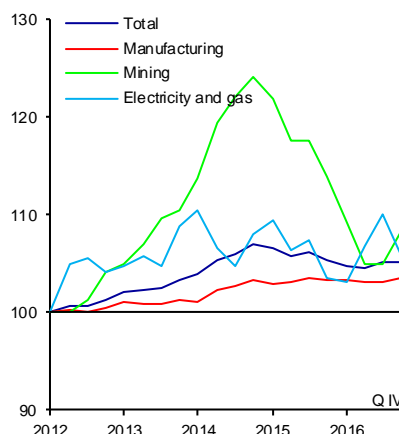
c) Purchasing Managers' Indices
(ISM)
Diffusion indices, s. a.

s. a. / Seasonally adjusted data.
Source: Bureau of Economic Analysis.

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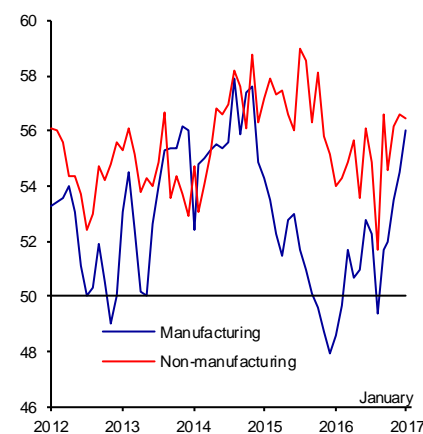
s. a. / Seasonally adjusted data.
Source: Haver Analytics.

In this environment, labor market conditions in the U.S. kept strengthening. Indeed, the job creation pace is still above the rate required to compensate for changes in the workforce. There was a shift from the monthly average rate of 200 thousand jobs between January and September 2016 to one of 168 thousand new jobs between October 2016 and January 2017 in non-farm payroll. Thus, the unemployment rate in January was 4.8 percent, which was close to the median of long-term unemployment rate estimates by the Federal Reserve (Chart 141). In this context, there was a widespread (though moderate) increment in the wage growth rate. In particular, the growth rate of the average hourly pay and of the Employment Cost Index increased in the second half of the year with respect to that observed in the first semester (Chart 141).

In the future, considerable risks to the sustained growth of the U.S. economy persist. Although the initial reaction of investors to the economic policy measures announced by the incoming U.S. administration seemed to be generally positive, there are important risks that the referred actions may negatively affect production and trade chains, the flows of foreign direct investment at the global level, along with the fiscal sustainability of this economy, in light of an estimated considerable increment in the public debt level. Furthermore, there is high uncertainty regarding the magnitude, the contents and the implementation date of the possible measures of fiscal stimulus and the effects that these will ultimately have onto the economy. Thus, the Federal Reserve will likely have to adjust its monetary policy in an environment in which it would be more difficult to anticipate the implications of the fiscal and monetary policies on the economic activity, employment and inflation.

Chart 141
U.S. Labor Market

a) Observed Unemployment Rate and
Estimated Natural Rate of Unemployment
In percent, s. a.
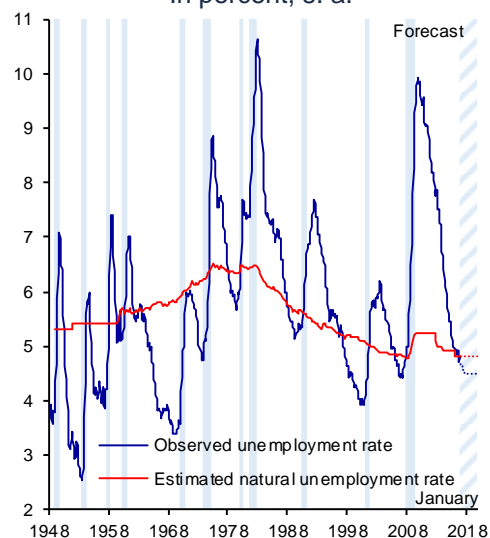
Note: Columns refer to recessions. The dotted lines refer to
medians of the Federal Reserve long-term
unemployment rate estimates (red) and estimates for
the next three years (blue).
s. a. / Seasonally adjusted data. The observed unemployment
rate corresponds to the 3-month moving average.
Source: BLS, CBO, Federal Reserve and the Federal Reserve
Bank of Philadelphia.

b) Wage Indicators
Annual change in percent, s. a.
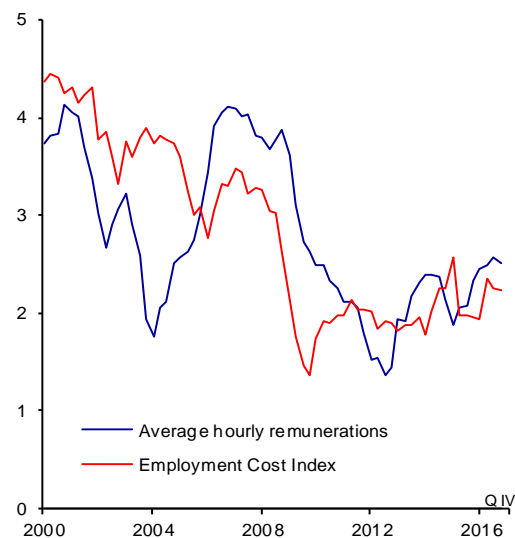
s. a. / Seasonally adjusted data.
Source: Bureau of Labor Statistics.

In the Euro zone, GDP expanded at an annualized quarterly rate of 1.6 percent during the fourth quarter of the year, which was slightly below 1.8 percent observed in the previous quarter (Chart 142). This can be accounted for by the improvement in domestic demand, which was prompted by the positive trend of employment and by a certain increment in households' confidence levels. On the other hand, investment and industrial production moderately recovered, in view of favorable financial conditions in the region. However, the economic activity could still be affected by the process of the U.K. exit from the European Union, as well as by uncertainty over the stability of the Italian financial system and the results of the elections that are to take place across various countries, which could affect the political and economic landscape of the region. In the same vein, imbalances among the member states of the Euro zone kept accentuating, with a considerable trade surplus in Germany standing out.

Box 9
The Importance of Global Value Chains in Mexico and the U.S.

1. Introduction

The fragmentation of production via global value chains (GVCs) represents the most recent manifestation of the global economic integration. Previously, international trade, to a larger extent, focused on transactions of goods and services for final consumption. Still, processes of trade liberalization and progress in information and communication technologies significantly lowered transportation costs and, hence, favored the cross-border shipment of intermediate goods. Indeed, this has led to a greater use of differentials between costs of production among countries and has propitiated a fragmentation of the productive process at a global scale, in which different productive stages are located across different countries, based on their respective comparative advantages (Los et al., 2015; Antràs et al., 2012; Hummels, Ishii & Yi, 2001; Feenstra, 1998). Thus, GVCs have encouraged greater specialization, and, therefore, a more frequent use of resources as compared to a situation in which the entire productive process is carried out in one sole country. Thus, GVCs have positively affected productivity in the different countries they are located in, as well as their welfare levels (Olsen, 2006 and Amiti & Wei, 2009).

In this juncture, the Mexico – U.S. relation has gained particular relevance, given the geographic proximity and differentials in production costs that link these economies. This Box seeks to quantify the role of GVCs in the said countries, as well as the connection between them and with the rest of the world. Traditionally, literature has addressed productive relations among countries and value chains by means of foreign trade links (Johnson & Noguera, 2012; Koopman et al., 2008). Nonetheless, this analytical framework generally does not consider the economic relevance of productive links within a country. Additionally, the traditional approach does not take into consideration that, in a context of the global fragmentation of production, exports are characterized by a high proportion of imported goods, and, therefore, gross trade flows are no longer informative regarding the performance of the country as an exporting state or regarding profits from participating in the world trade. To overcome these limitations, it is necessary to make use of the sources of information that record not only trade flows, but also production, consumption and income flows across different sectors or industries, both within a country and among different states.

2. Follow-up and Decomposition of the Added Value Liked to GVCs, Using WIOD

To quantify the contribution of GVCs and of productive links across countries to the generation of added value in different nations, information available in the world input-output database (WIOD) is used.[1] The principal elements in the construction of a WIOD are the data contained in the national input-output matrices and bilateral trade flows.[2]

To quantify the added value generated by the global demand of the Mexican and U.S. manufactures, we use the methodology developed by Leontief (1936) as a basis. Intuitively, the value of production is defined as the sum of the required intermediate inputs plus the production for final consumption. Formally, it is presented as:

$$x = Ax + c \qquad (1)$$

Where,

c: Is a vector (n x 1) that contains the production of each sector/country n destined for final consumption.

A: Is the matrix (n x n) of technical requirements to produce a unit of production.

x: Is a vector of production (n x 1) that contains total production of each sector/country n.

$$\begin{bmatrix} x_1 \\ x_2 \\ \vdots \\ x_n \end{bmatrix} = \begin{bmatrix} a_{1,1} & \cdots & a_{1,n} \\ a_{2,1} & & a_{2,n} \\ \vdots & \ddots & \vdots \\ a_{n,1} & \cdots & a_{n,n} \end{bmatrix} \begin{bmatrix} x_1 \\ x_2 \\ \vdots \\ x_n \end{bmatrix} + \begin{bmatrix} c_1 \\ c_2 \\ \vdots \\ c_n \end{bmatrix} \qquad (2)$$

Reordering the terms in (1), we obtain:

$$x = Bc \qquad (3)$$

Where $B = (I - A)^{-1}$ is Leontief's matrix that allows to obtain total necessary production of each industry/country contained in vector x to produce final goods included in vector c. This estimate can be extended

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[1] The World Input-Output Database (WIOD) was developed by 11 European academic institutions and was funded by the European Commission. It contains information on productive relations among 41 countries (including an aggregate for the rest of the world), each one with 35 sectors of economic activity. The data are available for the period from 1995 to 2011, at an annual frequency.

[2] The WIOD has been used in numerous studies as a tool to quantify countries or industries' contributions to different productive chains. For example, Timmer et al. (2015) and Baldwin & Lopez-Gonzalez (2015) describe trends in GVCs and analyze the formation of regional production clusters. Wang et al. (2013) use this database to allocate the contents of the domestic aggregate value to exports of different countries and sectors.

to obtain the generation of added value (AV) associated to this production.

Where:

$$\mathbf{VA} = V(I - A)^{-1}c \qquad (4)$$

V: Is a diagonal matrix (*n* x *n*) with the ratios of added value to production of each industry/country *1,…,n*.

Traditionally, the input-output analysis has been used to decompose different sectors/countries' contribution to the production of a given good. This Box seeks to analyze two aspects in particular: 1) the importance of GVCs for the added value of a country, and 2) the importance of a country's AV in a GVC.

3. The Importance of GVCs in the Mexican and U.S. Economies

To quantify the importance of GVCs in a particular economy, we follow a methodology similar to that of Wang et al. (2015). Note that the production of country s (x^s) can be decomposed in the following manner:

$$x^s = A^{ss}x^s + \sum_{r \neq s}^{M} A^{sr}x^r + c^{ss} + \sum_{r \neq s}^{M} c^{sr} \qquad (5)$$

Where *M* is the number of countries and the superscripts denote sub blocks within the considered matrices/vectors. Thus, for example A^{sr} refers to the sub block of matrix **A** which represents the required inputs to country s for the production of a unit of production of country r. In the same line, c^{sr} corresponds to the production of country s destined for final consumption in country r. By reordering the terms and using again the diagonal matrix of the added value, we can decompose the added value of country s in the following way:

$$VA^s = V^s x^s = V^s L^{ss} c^{ss} + V^s L^{ss} \sum_{r \neq s}^{M} c^{sr} + V^s L^{ss} \sum_{r \neq s}^{M} A^{sr}x^r \qquad (6)$$

Where $L^{ss} = (I - A^{ss})^{-1}$. After further modifications, this equation can be decomposed in the following manner:

$$VA^s = \underbrace{V^s L^{ss} c^{ss}}_{DVA1} + \underbrace{V^s L^{ss} \sum_{r \neq s}^{M} c^{sr}}_{DVA2} + \underbrace{V^s L^{ss} \sum_{r \neq s}^{M} A^{sr} \sum_{u}^{M} B^{ru} \sum_{t}^{M} c^{ut}}_{GVCs} \qquad (7)$$

Thus, the decomposition of the added value generated in country *s* consists of three terms:

DVA1: Represents the added value generated to produce final goods for domestic consumption.

DVA2: Represents the added value generated to produce final goods for exports consumed by each trade partner *r*.

GVCs: Represents the added value generated to produce intermediate goods used by each trade partner *r*, either for production of final goods or for their re-exporting (as intermediate or final goods) to third countries, including the initial exporter *s*.

Thus, the latter term covers a broad range of trade relations and captures the complex nature of GVCs. As will be shown below, this term has gained more importance in the Mexican and the U.S. economies and plays a relevant role in the manufacturing sectors of both countries.

Chart 1a shows the decomposition of Mexico's added value, in which slightly over 20 percent are linked to the export activity. Of this figure, approximately 13 percent are related to GVCs; that is, it is the added value that will be used in shared productive processes. The remaining 7 percent refer to the added value generated for the exports of final goods. The importance of the external sector increases in the case of the manufacturing industry, in which around 43 percent of the generated added value is related to the external sector and slightly more than 20 percent fall within GVCs. This participation is highly variable across different manufacturing sectors. For example:

i. In the electric equipment sector, almost 90 percent of the added value generated in Mexico are related to the external sector, where approximately a half falls within GVCs.

ii. Likewise, the transport equipment sector is closely linked to the external sector, with approximately 80 percent of its added value destined to the external sector. This includes 30 percent of AV oriented to GVCs.

iii. In contrast, other sectors, such as the chemical one, present a lower degree of orientation to the external sector, with 28 percent of their AV oriented to this sector, and 20 percent destined to GVCs.

The importance of GVCs in the generation of AV in Mexico has been increasing over the last two decades (Chart 1b). Besides, as shown in Chart 1c, the incorporation of Mexico into GVCs largely takes place via its trade with the U.S. In conclusion, the Mexican economy, and in particular its manufacturing sector are deeply integrated into GVCs, which strongly contribute to the generation of profits in the country.

Chart 2a shows the same decomposition for the case of the U.S. economy. It can be observed that, although the importance of the external sector is relatively lower for the economy as a whole, it is not the case for the manufacturing sector. In the latter, over 30 percent of the generated AV are linked to the external sector and almost 20 percent are integrated in GVCs. Furthermore, in the case of the U.S. the importance of the external sector is principally determined by its participation in GVCs, rather than as an exporter of final goods. This suggests that the productive process of manufactures in the U.S. managed to significantly benefit from the efficiency gains that are traditionally liked to GVCs. Likewise, in some sectors, the importance of GVCs is even greater, for example in the case of electric equipment and basic metals. Chart 2b also

shows a growing relevance of the manufacturing AV linked to GVCs in the case of the U.S. and a relatively stable importance of its role as an exporter of final goods. Chart 2c shows the importance of different trade partners for the integration of the U.S. manufacturing sector in GVCs. Unlike Mexico, which indicates a high concentration of a sole trade partner, the U.S. present a more balanced pattern, in which Canada, Mexico and China are notable. In the case of the latter two countries, a greater relevance of U.S. exports of intermediate goods is observed, to be used in GVCs, as compared to those for final consumption.

Chart 1
Decomposition of the Mexico's Added Value, by Destination [1]

a) Decomposition of added value, by sector (2011)

b) Evolution of the composition of the manufacturing added value, by destination

c) Decomposition of the manufacturing AV liked to the external sector, by importing country (2011)

1/ It refers to terms DVA1, DVA2 and GVCs from equation (7).
Source: Prepared by Banco de México with data from the World Input-Output Database.

Chart 2
Decomposition of the U.S. Added Value, by Destination [1]

a) Decomposition of added value, by sector (2011)

b) Evolution of the composition of the manufacturing added value, by destination

c) Decomposition of the manufacturing AV liked to the external sector, by importing country (2011)

1/ It refers to terms DVA1, DVA2 and GVCs from equation (7).
Source: Prepared by Banco de México with data from the World Input-Output Database.

4. Change in the Composition of GVCs

The previous section quantifies the composition of the manufacturing AV generated within a country and the importance of its incorporation within GVCs. This section seeks to analyze the composition of different GVCs and the importance of different countries within them. Rather than a detailed analysis of the weight of different economies within GVCs, this section analyzes the evolution of foreign added value in manufacturing GVCs in a sample of economies. As stated above, as a result of lower transport costs in trade and the fast progress in information and communication technologies, productive chains become increasingly fragmented, placing different production stages across different countries. This has favored the increment in the added value generated abroad within the given productive chains, a tendency that has been widespread across different productive processes and countries. As shown in Chart 3, the foreign component of AV has been increasing across almost all analyzed countries throughout recent decades and it is not a phenomenon peculiar to a particular country.

Chart 3
Foreign Contribution to the Manufacturing Production
Foreign added value as a percentage of manufacturing production
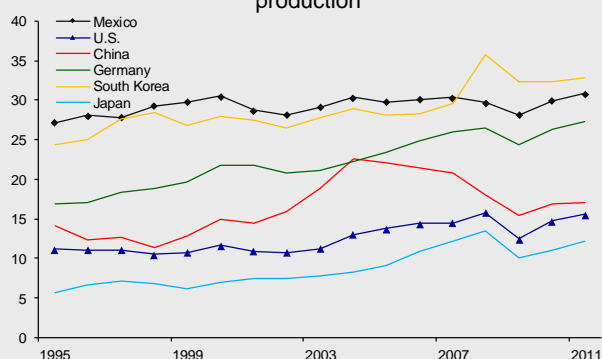
Source: Prepared by Banco de México with data from the World Input-Output Database.

5. Conclusions

Currently, there is great uncertainty over the possible implementation of protectionist measures at the global level. A higher incidence and the relevance that GVCs have gained implies stronger impacts generated by these measures. In particular, in a context of greater importance of GVCs, if a country imposes restrictions on its international trade, not only does it affect the country of origin of imported goods, but, in addition, it also loses competitiveness due to the impossibility to have access to inputs at competitive costs. Furthermore, in view of the fact that these chains contain components of different origins, a country's trade policy has broader indirect effects, affecting a wider number of economies. Additionally, the complex nature of international productive links implies that imposing restrictions to trade

could generate even more adverse effects than those that could be observed if the trade was only restricted to final goods and services, given that not only it distorts the patterns of consumption and trade, but also increases the costs affecting the international organization of the productive process. In this context, the distortions to trade are accumulated throughout the stages of the chains, when intermediate inputs cross the borders a number of times during the whole process.

In conclusion, it can be observed that the participation in GVCs has been established as an important factor in the economies of North America, particularly in the manufacturing sector. Thus, in view of uncertainty over the possible distortions and restrictions to the orderly functioning of these chains, that are possibly generated by strong adverse impacts across all economies conforming this block, Mexico should continue boosting its competitiveness in the international arena. Considering the high concentration of the national AV that participates in GVCs via the country's trade with the U.S., it is mandatory to maintain the country's openness, seeking greater diversification of exports' destination markets and of origin markets of imports.

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Wang, Z., Wei, S., & Zhu, K. (2013). "Quantifying international production sharing at the bilateral and sector levels". National Bureau of Economic Research, Working Paper No. 19677.

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In the U.K., during the fourth quarter of 2016 economic activity expanded 2.9 percent at an annualized quarterly rate, which exceeded the 2.3 percent observed over the previous two quarters (Chart 142). The dynamism of the economy remained supported by the growth in domestic consumption and by the expansion in the services. However, even though the prospective indicators, such as the Business Optimism Index, point to an uptick in investment and industrial production, the sustained recovery will depend on the negotiations of the U.K. withdrawal from the European Union.

Chart 142
Economic Activity in the Euro Area and the U.K.

a) Euro Area: Real GDP
Index 1Q-08=100, s. a.
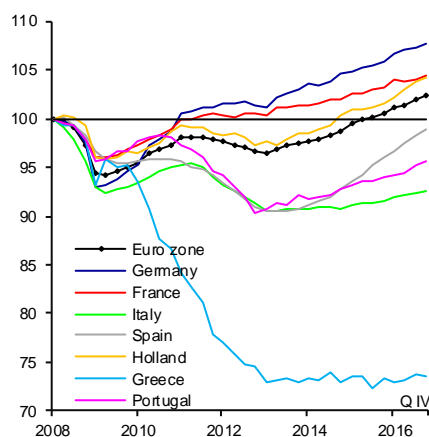
b) Euro Area: Retail Sales
Index 2010=100, s. a.
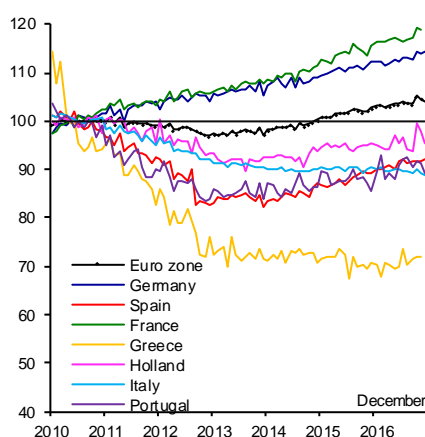
c) U.K.: GDP and Purchasing
Managers' Index (PMI)
Annualized quarterly change and
diffusion index, s. a.

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

s. a. / Seasonally adjusted data.
Source: Haver Analytics.
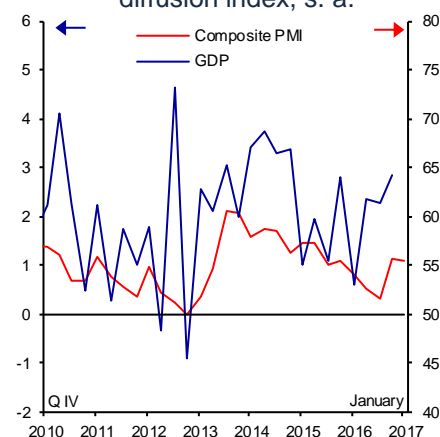
s. a. / Seasonally adjusted data.
Source: Office for National Statistics and Markit.

During the last quarter of 2016 the economy of Japan continued recovering, and expanded at an annualized quarterly rate of 1.0 percent. This result was largely supported by a rebound in exports and by a recovery of investment in businesses. On the other hand, industrial production expanded considerably in light of a greater external demand. Although corporate profits have increased due to improved terms of trade, the weakness of the Japanese yen and low interest rates, in the future the pace of the recovery will depend on the fact if the positive trend persists in consumers' and businesses' confidence, which, despite an improvement, still indicates caution.

In the fourth quarter of 2016, the performance of emerging economies varied across regions and countries (Chart 143). On the one hand, most Asian economies gradually reactivated, supported by the greater-than-expected growth in China and a rebound in input prices. As of the fourth quarter of 2016, GDP in that country expanded at an annual rate of 6.8 percent, which was slightly higher than in the previous one, and which was prompted, in part, by an expansionary fiscal policy. In the future, the economic activity is expected to decelerate moderately, due to the elimination of some stimuli in the housing and automotive sectors, and due to the implementation of measures to contain capital outflows and to lower financial risks. Nevertheless, there is still a risk of a stronger-than-estimated deceleration of the Chinese economy. If this risk materializes, it would carry implications for other emerging economies, manifested through lower input prices and a possibly higher volatility in international financial markets. On the other hand, economic activity in Latin America has weakened, as a result of the tightening of global financial conditions. Thus, the balance of risks to the growth in this group of economies has deteriorated.

Chart 143
Economic Indicators of Emerging Economies

a) China: Gross Domestic Product
Annual change in percent

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

c) Emerging Economies: Purchasing
Managers' Index (PMI)
Diffusion index, s. a.

Source: Haver Analytics.

Source: Haver Analytics.

s. a. / Seasonally adjusted data.
Source: Markit.
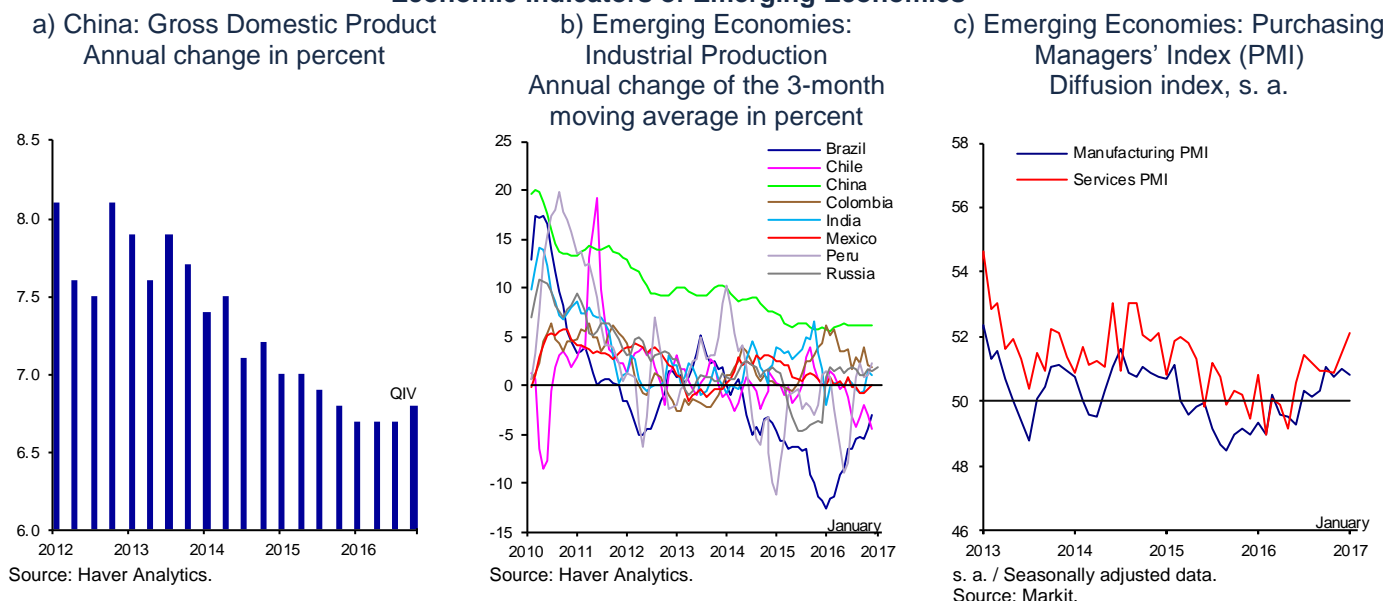
3.1.2. Commodity Prices

International commodity prices moderately recovered in the period analyzed by this Report (Chart 144). Oil prices went up, as a result of the agreement reached in late November among the OPEC countries and other states, the goal of which was to set a production ceiling. In the same vein, industrial metal prices rebounded, given a better outlook for the economy of China and the expectation that the incoming U.S. administration would boost demand, by encouraging spending on infrastructure. Finally, grain prices increased slightly, even though they remain close to the minimum levels over the period of the last 6 years, given the persistence of high production forecasts, which could lead to a continuous accumulation of inventories.

Chart 144
International Commodity Prices [1/]

a) Crude Oil
USD/barrel

b) Corn and Wheat
USD/bushel

c) Metals
Index 01/01/2013=100

1/ Spot Market.
Source: Bloomberg.

Source: Bloomberg.

Source: Bloomberg.
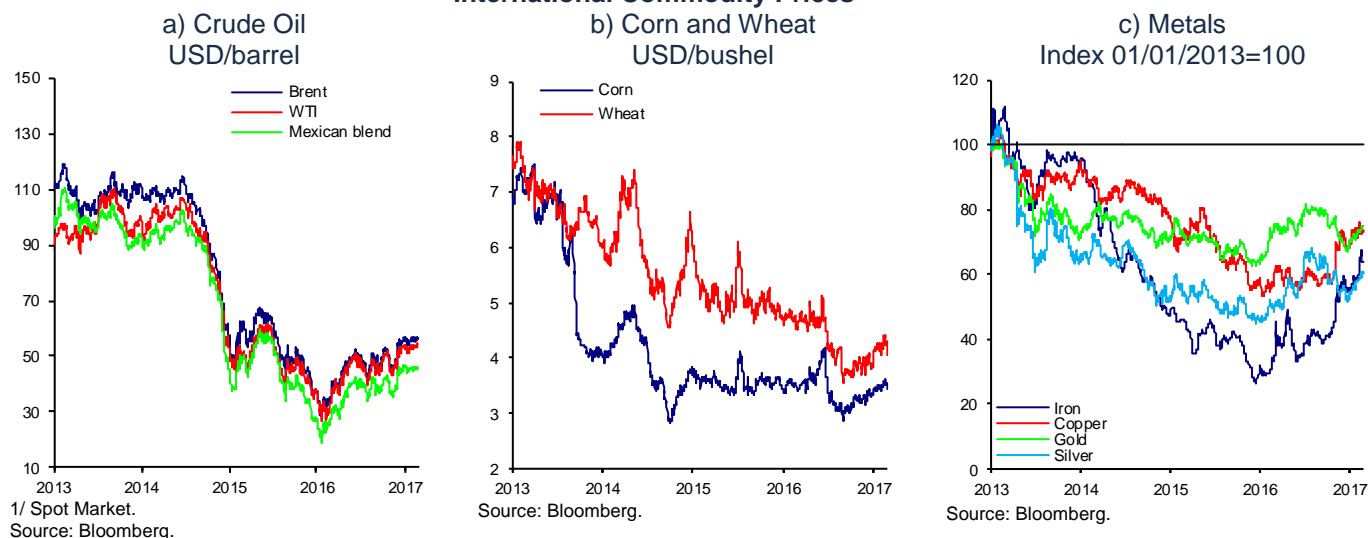
3.1.3.   Inflation Trends Abroad

Headline inflation and its expectations in most advanced economies maintained an upward trend in the fourth quarter. However, in many of these economies, inflation is still below the targets of the respective central banks (Chart 145).

i.   In the U.S., the consumption deflator lied at 1.6 percent in December, which was still below the Federal Reserve target, after persisting around 1 percent during the third quarter. This was due to both the fading of the negative impact generated by energy and imports prices onto prices, and a lower degree of slack conditions in the resource utilization of the economy. Nevertheless, core inflation remained unchanged at 1.7 percent.

ii.   In the Euro area, inflation kept growing during the reference period, observing an annual rate of 1.8 percent in January 2017, still below the European Central Bank's target (ECB) of a figure below but close to 2 percent in the medium term, supported by the recovery of input prices. On the other hand, even though core inflation rebounded slightly and marked 0.9 percent in January, it still points to the presence of slack conditions in the labor market in the region. It is noteworthy that the performance of prices varied among the main economies, exhibiting a higher inflation in Germany, while in some economies at the periphery the price growth is still low.

iii.   In the U.K., consumer inflation maintained its upward trend, locating at an annual rate of 1.8 percent in January 2017, in part reflecting the impact of the recent depreciation of the pound sterling and the relative strength of demand. In accordance with the Bank of England's forecast, inflation will likely continue growing until the first half of 2018 and will even remain above its inflation target of 2 percent during the forecast horizon, which covers the period up until the first quarter of 2020.

iv.   In Japan, inflation resumed its positive trend, marking an annual rate of 0.3 percent in December 2016. This result reflects higher energy prices and the weakness of the Japanese yen. However, the indicator that excludes food and energy items has maintained its downward trend since early 2016, and inflation expectations are far below the Bank of Japan's target.

In emerging economies, the performance of inflation has varied across countries and regions (Chart 145). In general, inflation in Latin America went down, once the effects of the previous depreciation of their exchange rates faded. In Asia, inflation increased in most countries during the period covered by this Report, as a result of a lower slack in their economies and the recovery of their input prices, even though it is still at low levels. Meanwhile, in the countries of North Africa, of the Middle East and emerging Europe, such as Egypt and Turkey, inflation pressures were observed, in the wake of greater geopolitical and economic risks.

Chart 145
Annual Headline Inflation and Inflation Expectations in Advanced and Emerging Economies
Percent

a) Advanced Economies: Headline Inflation

b) Advanced Economies: Long-term Inflation Expectations Derived from Financial Instruments [1/]

c) Emerging Economies: Headline Inflation

1/ It refers to consumption deflator. Seasonally adjusted data.
Source: Haver Analytics.

1/ Inflation expectation in a 5-year period for the following 5 years. Expectations 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: J.P. Morgan.

Source: Haver Analytics.

3.1.4.   International Fiscal and Monetary Policy, and Financial Markets

The estimated increment in the growth rate of the world economic activity is supported by the expected higher fiscal impulse in the main economies. In particular, the new administration of the U.S. is anticipated to adopt an expansionist fiscal policy, based on greater expenditure on infrastructure and on reforms to the fiscal policy, although there are still no formal proposals in this regard. On the other hand, Canada and Japan announced plans of a higher spending on infrastructure in the medium term, whereas the U.K. abandoned its pursuit to eliminate its fiscal deficit in 2020. Fiscal expansion is also anticipated in the Euro zone as a whole, for this year and the following one. Among emerging economies, during 2017 the government of China is expected to continue with a fiscal policy that boosts its economic growth.

In this context, and given the increment in inflation, the outlook for the monetary policy has been modified in various countries. Particularly, in the U.S. the rate of the monetary policy normalization could be faster than estimated prior to the Federal Reserve meeting in December. Also, in some cases, such as in the Euro area and Japan, a decrease in deflation risks is perceived, and, therefore, the current environment may lead to less accommodative monetary policies.

i.   In the U.S., in its meeting of February 2017, the Federal Reserve maintained the target range of its federal funds' rate between 0.50 and 0.75 percent, following a 25-basis-point increment in December 2016. Furthermore, it confirmed its stance that the most appropriate strategy to reach its 2 percent inflation target and to attain full employment is still by gradually increasing its reference rate. It should be noted that the

expected trajectory of the federal funds' rate reflects a monetary normalization rate that is faster than previously anticipated, in part due to the expectation of a considerable fiscal expansion. Given the possibility of this scenario, various members of the Open Market Committee emphasized the macroeconomic risks of maintaining an unemployment rate below the natural rate for a prolonged time period, which could require a greater tightening of monetary conditions. On the other hand, in its subsequent meetings, the Federal Reserve will assess the economic conditions that may prompt adjustments in its balance regarding its size and composition. In this respect, it has been stated that the said adjustment will start once the normalization process of the federal funds' rate is advanced and is carried out in a gradual and orderly fashion.

ii.   In its meeting of January, the European Central Bank (ECB) did not modify its reference rates and confirmed its commitment to maintaining an accommodative stance as long as inflation does not exhibit a sustained convergence to its target. It should be pointed out that in its previous meeting in December 2016, the ECB extended its asset purchase program for another nine months until December 2017, even though it reduced its asset purchasing pace from a monthly amount of EUR 80 to 60 billion, and some modifications were realized in the features of the assets that can be purchased. In the Minutes of this meeting, the said Institution highlighted that these modifications were perceived as a measure to lower pressures on liquidity of the market and to guarantee a more robust implementation of the program, while maintaining a sufficient degree of flexibility to adjust the amount of the purchases if necessary. Despite lower deflationary pressures in the Euro area, the ECB identified the challenges it faces derived from the differences in inflation rates across a number of countries of the region.

iii.   In its meeting of February, the Bank of England maintained its monetary stance unchanged. The institution acknowledged that the recent depreciation of the pound sterling and its pass-through onto consumer prices will imply an inflation higher than its target, but it has reiterated that inflation above the target will be tolerated for a while in view of the dilemma it faces between the speed at which it is expected to converge to the inflation target and the support that the monetary policy must provide to the economic activity and job creation. On the other hand, the central bank increased its growth forecast for the next years and lowered its estimate of the natural rate of unemployment. In this juncture, despite a low need of additional stimuli with respect to the previous estimate, the Monetary Policy Committee will wait until it has greater clarity regarding the effects of the U.K. exit from the European Union, stressing that the monetary policy could act in any direction, as applicable.

iv.   In its meeting in late January, the Bank of Japan maintained unchanged its asset buying program at the amount of JPY 80 trillion a year and its guide to manage the yield curve, with the deposit rate at -0.1 percent and the 10-year government rate around 0 percent. This institution adjusted its forecast for the economic activity for the next years upwards, but maintained its expectation to attain its inflation target in 2018. However, the central bank stated that the risks to the growth outlook and inflation are still downward.

v.   The improved inflation outlook in emerging economies prompted the monetary stance to generally remain unchanged and in some cases to even relax. This is despite the fact that inflation in different countries still persists above their respective targets. On the other hand, some countries, such as Egypt and Turkey had to increase their reference rate in view of higher inflation risks derived from the depreciation of their exchange rates, as a result of greater geopolitical risks.

As regards international financial markets, over the last months of 2016 investment portfolios were significantly readjusted and global financial conditions tightened, prompted by the expectation of possible fiscal stimuli in the U.S. This process accentuated after the Federal Reserve estimated a faster rate of the monetary policy normalization in its meeting of December 2016. This was reflected in higher long-term interest rates and in an appreciation of the U.S. dollar with respect to a broad basket of currencies (Chart 146). Thus, the exchange rates of emerging economies' currencies generally depreciated against the U.S. dollar. Despite significant capital outflows, the reactions in the stock and debt markets in the said economies, in general, were moderate. In contrast, in 2017 there has been greater stability in international financial markets, and even in some cases adjustments related to the outcome of the U.S. elections reverted. Thus, the U.S. dollar reverted part of its appreciation against most currencies of advanced economies, possibly as a reflection of the lack of consensus regarding the economic measures to be implemented by the new administration of the U.S. Stock market indices kept registering almost widespread profits, in light of a better outlook for the economic growth in the main developed countries, particularly in the U.S., despite the adjustment registered over the last weeks. In emerging economies, in foreign exchange markets, stock markets and bond markets there was a reversal in the negative trends initially observed, and even more timely data exhibit moderate capital inflows to this group of countries.

In the future, different factors of risk persist, which could lead to new episodes of volatility in international financial markets. Among these factors of risk are the effects of some of the measures that the incoming administration of the U.S., along with other countries, may introduce, and their implications for the world economy, as well as the normalization of the monetary policy by the Federal Reserve. Indeed, optimism perceived in financial markets in recent days partly reflects the expectation of the policies of fiscal expansion and deregulation measures in the U.S. However, protectionist policies, that may strongly affect international trade and may worsen the relation among the main economies, could adversely affect global growth. Furthermore, the exit of the U.K. from the European Union, along with the strengthening of the forces in the continent seeking withdrawal of other European countries from this Union, could affect the evolution of the economic activity and financial markets in the region. Finally, vulnerabilities of the financial sector and uncertainty over the sustainability of the economic growth in China are also factors of risks to the global economy during 2017.

Chart 146
Financial Indicators in Selected Advanced Economies

a) 10-Year Bond Yield
In percent

b) Exchange Rate
Index 01/01/2015=100

c) Stock Markets
Index 01/01/2015=100
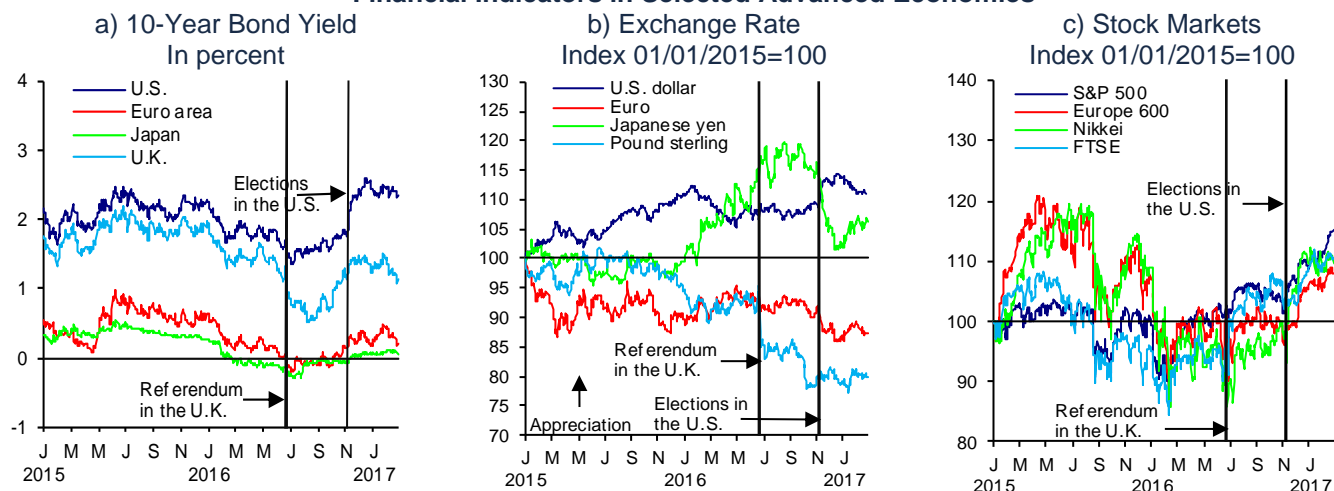
Source: Bloomberg.

Chart 147
Financial Indicators of Emerging Economies

a) Stock Markets
Index 01/01/2015=100

b) Exchange Rate
Index 01/01/2015=100

Source: Bloomberg.

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

Source: Bloomberg.

d) Weekly Flows of Funds to Emerging
Economies (Debt and Stock) [1]
In USD billion

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 the exchange rate movements.
Source: Emerging Portfolio Fund Research.

3.2.   Evolution of the Mexican Economy

3.2.1.   Economic Activity

In the last quarter of 2016, the Mexican economy kept expanding, although at a lower growth rate than in the third quarter. In particular, external demand continued to improve, while private consumption preserved its positive trajectory. In contrast, the performance of investment remained weak.

Specifically, in the reference quarter and in the first month of 2017, as a result of the depreciation of the real exchange rate and the incipient recovery of global demand, manufacturing exports recovered, after the negative trend they had exhibited during 2015 and in early 2016 (Chart 148). The recovery of the U.S. external demand relative to its performance in early 2016 would appear to have increased demand for Mexican products in the U.S. In this way, the improvement in Mexican exports was observed in exports to both the U.S. and to the rest of the world. Furthermore, both automotive and non-automotive exports exhibited a recovery (Chart 148).

Meanwhile, oil exports also presented a positive trend, despite remaining at low levels. The increment in the period from October 2016 to January 2017 can be explained mainly by a higher average price of the Mexican blend for exports, while the crude oil platform for exports remained relatively stagnant (Chart 148).

Chart 148
Mexican Exports
Index 2008=100, s. a.

a) Total Manufacturing Exports

s. a. / Seasonally adjusted and trend data based on information in nominal dollars. The former is represented by a solid line, the latter by a dotted line.
Source: Banco de México with data from SAT, SE, Banco de México, INEGI. Merchandise Trade Balance. SNIEG. Information of National Interest.

b) Non-automotive Manufacturing Exports

c) Automotive Manufacturing Exports

s. a. / Seasonally adjusted and trend data based on information in nominal dollars. The former is represented by a solid line, the latter by a dotted line.
Source: Banco de México with data from SAT, 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/ Based on information in nominal dollars.
2/ 3-month moving average of daily barrels of the seasonally adjusted series.
Source: SAT, 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.

In the reference quarter, private consumption maintained a positive trajectory, following a period of stagnation in the second quarter of 2016. This evolution reflected the dynamism of the component of domestic goods and services, while consumption of imported goods maintained the weak performance shown since mid-2015, which largely responds to the depreciation of the real exchange rate (Chart 149).

i.   The evolution of consumption in the domestic market during the fourth quarter of 2016 was a consequence, in part, of the continuous improvement in the labor market and, in particular, in the real wage bill, as well as the high expansion rate of consumer credit and workers' remittances, which in the year as a whole presented historically high levels. Nonetheless, consumer confidence kept deteriorating in late 2016 and plunged in January 2017, which could negatively affect the dynamism of consumption in the future.

ii.   In this context, some timely consumption indicators, such as ANTAD sales and light vehicle sales contracted at the end of 2016 and in early 2017, suggesting a deceleration of this aggregate at the beginning of this year.

Chart 149
Consumption Indicators
Index 2008=100, s. a.

a) Monthly Indicator of Domestic Private Consumption
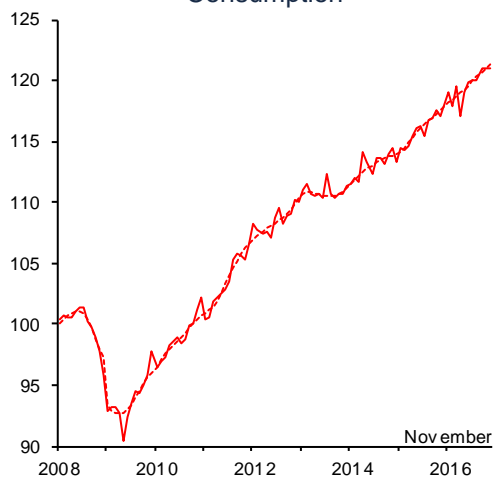
b) Components of the Monthly Indicator of Domestic Private Consumption

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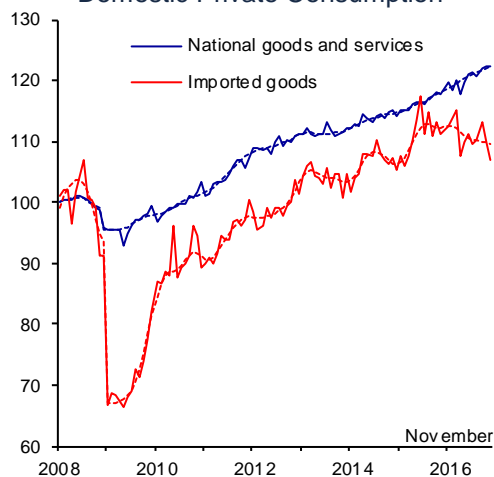
s. a. / Seasonally adjusted and trend data. The former is represented by a solid line, the latter by a dotted line.
Source: Mexico's National Accounts System (SCNM), INEGI.

Chart 150
Determinants of Consumption

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

b) Workers' Remittances
Billion, constant USD and MXN,
s. a.

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

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

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.

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.

On the other hand, during the last quarter of 2016 gross fixed investment remained stagnant given the weak spending on construction and on imported machinery and equipment, whereas the component of national machinery and equipment has maintained a positive trajectory (Chart 151). Within construction, the growing trend exhibited by spending on residential construction has been offset by the negative trend prevailing in non-residential construction, which is in part consequent on the lower activity related to oil wells drilling (Chart 151). It should be noted that private investment in the country has probably been affected in late 2016 and in early 2017 by the announcements of the incoming U.S. president regarding his intention to implement measures that may hamper the economic relation between Mexico and the U.S. This seems to have negatively affected businesses' confidence.

As regards public spending, consistent with the fiscal consolidation effort, during 2016 there were reductions in this component of aggregate demand, particularly in the item of government investment. Thus, the contribution of the public spending to GDP growth in 2016 is estimated to have been slightly negative.

Chart 151
Investment Indicators
Index 2008=100, s. a.

a) Investment and its Components
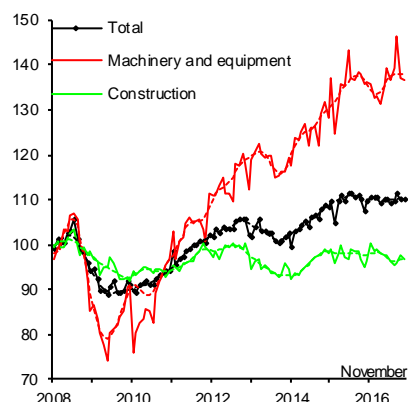
b) Investment in National and Imported Machinery and Equipment
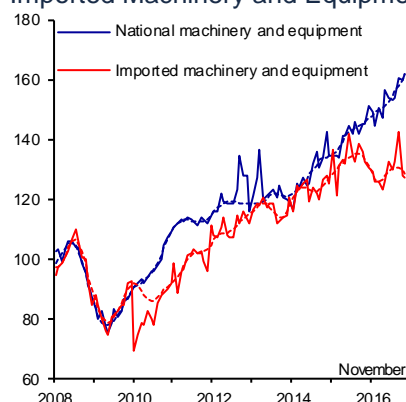
c) Investment in Residential and Non-residential Construction
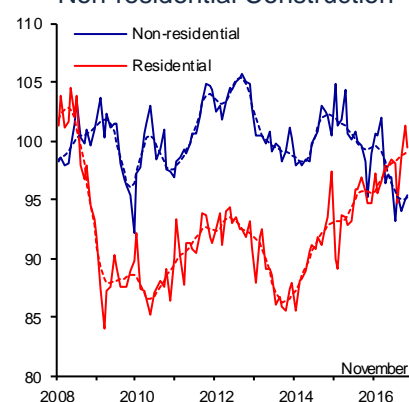
s. a. / Seasonally adjusted and trend data. The former is represented by a solid line, the latter by a dotted line.
Source: Mexico's National Accounts System (SCNM), INEGI.

Regarding the performance of economic activity from the production side, GDP growth in the last quarter of 2016 continued to reflect the dynamism of services, while the secondary activities as a whole prolonged the stagnation that had been perceived since mid-2014 (Chart 152).

i.   Within the industrial production, mining kept falling, as a result of a lower crude oil production platform and a contraction in mining-related services (Chart 152).

ii.   In contrast, in the fourth quarter of 2016, manufacturing production exhibited a positive trend, which seems to have reflected both the improvement in external demand and the dynamism of the domestic market (Chart 152). In this context, the positive performance of manufacturing during the reference period derived from a recovery both in the component of transport equipment and the aggregate of the rest of manufacturing.

iii.   Meanwhile, in the last quarter of 2016 the indicator of the spending on construction –which, unlike that reported in the classification of investment in aggregate demand, excludes oil well drilling- showed an increment with respect to the previous quarter (Chart 152). Within it, construction and specialized works maintained a positive trend. In contrast, the weakness of the aggregate of civil construction works prevails, reflecting a lower amount of labor force hired by the public sector

Chart 152
Production Indicators
Index 2008=100, s. a.

a) Global Economic Activity Indicator

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 (SCNM), 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 (SCNM), INEGI.

Chart 153
Oil Production Platform and Mining Sector

a) Crude Oil Production Platform
Thousands of barrels per day, s. a.

s. a. / Seasonally adjusted data.
Source: Seasonal adjustment by Banco de México with data
from PEMEX Institutional Database.

b) Mining Sector
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 Industrial Activity Indicator, Mexico's National
Accounts System (SCNM), INEGI.

Chart 154
Manufacturing
Index 2008=100, s. a.

a) Manufacturing Subsector of Transport Equipment
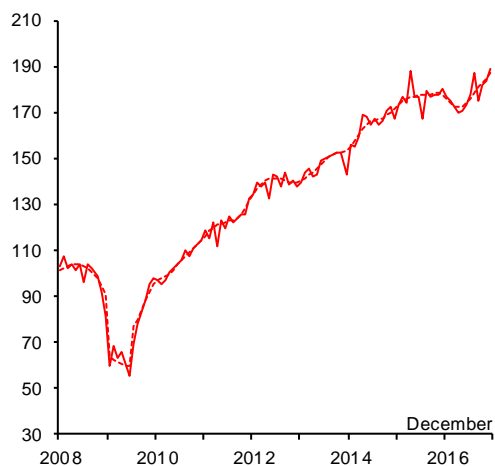
b) Manufacturing Sector Excluding Transport Equipment

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 (SCNM), INEGI.
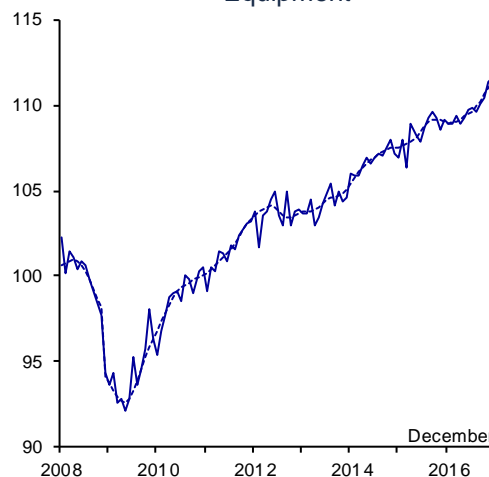
s. a. / Seasonally adjusted and trend data. The former is represented by a solid line, the latter by a dotted line.
Source: Prepared and seasonally adjusted by Banco de México with data from the Monthly Industrial Activity Indicator, Mexico's National Accounts System (SCNM), INEGI.

iv.   As regards services, it is notable that the observed expansion has been practically widespread across all its sectors. This performance reflected the dynamism of the domestic market and the improvement in external demand, which seems to have boosted trade and spending on transport. Additionally, it could also be a reflection of higher tourism activity and a favorable impact of the telecommunications reform (Chart 155).

v.   The quarterly (seasonally adjusted) contraction of the primary activities in the fourth quarter of 2016 largely derived from a drop in the area sown, as well as a lower production of some perennial crops.

In this context, in the fourth quarter of 2016, GDP grew 0.7 percent in seasonally adjusted terms, after presenting growth rates of 0.1 and 1.1 percent in the second and the third quarters of that year, respectively. Based on seasonally adjusted data, economic activity registered an annual expansion of 2.4 percent in the period of October – December 2016, following the rates of 1.6 and 2.0 percent in the second and the third quarters, in the same order. Based on non-seasonally adjusted data, GDP in Mexico presented a rate of growth of 2.4 percent in the reported quarter, which compares with the annual growth of 2.1 percent exhibited in the third quarter and of 2.6 percent in the second one. Hence, in 2016 as a whole the Mexican economy grew 2.3 percent based on non-seasonally adjusted figures, which was lower than 2.6 percent registered in 2015. Based on seasonally adjusted data, GDP growth in 2016 was 2.1 percent (2.6 percent in 2015), which is a rate lower than that calculated with non-seasonally adjusted figures, given that seasonal adjustment removes the effect of the fact that 2016 was a leap year.

Chart 155
Global Economic Activity Indicator: Services
Index 2008=100, s. a.
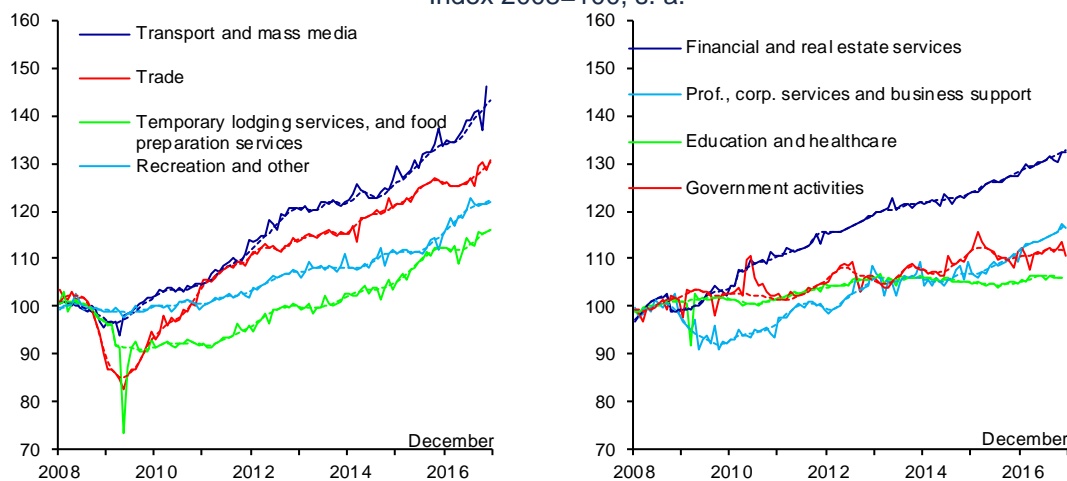
s. a. / Seasonally adjusted and trend data. The former is represented by a solid line, the latter by a dotted line.
Source: Mexico's National Accounts System (SCNM), INEGI.

Chart 156
Gross Domestic Product
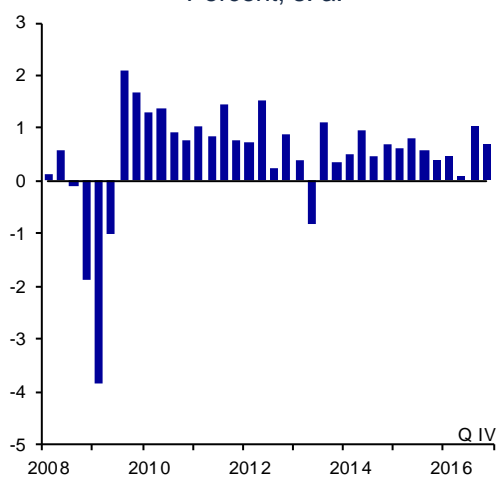
a) Quarterly Change
Percent, s. a.

b) Annual Change
Percent

s. a. / Seasonally adjusted data.
Source: Mexico's National Accounts System, INEGI.
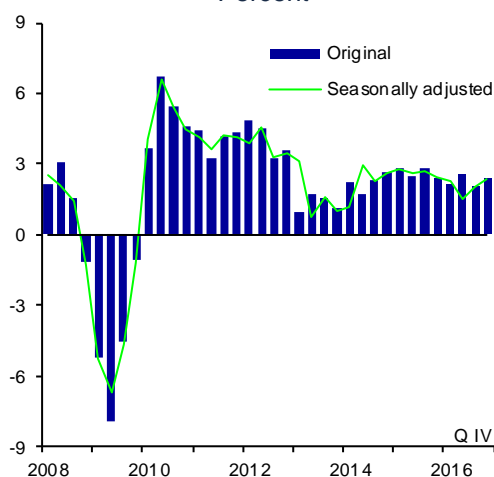
During the fourth quarter of 2016, a significant correction was observed in Mexico's external accounts, which was in response to the depreciation of the real exchange rate and the incipient improvement of the external demand. Indeed, during the quarter the largest non-oil trade surplus on record was registered, while the oil trade balance located at levels close to those exhibited in the previous quarter (Chart 157). Thus, the deficit of the trade balance shifted from USD 5.3 billion in the third quarter to USD 0.67 billion in the fourth quarter (figures which, as a share of GDP, represent 2.0 and 0.3 percent, respectively). The adjustment of the trade balance, along with the high dynamism of workers' remittances and a higher number of international travelers prompted the deficit of the current account to decrease in the fourth quarter of 2016, registering levels close to 1.3 percent of GDP (USD 3.4

billion), which compares to 2.9 percent of GDP in the third quarter (USD 7.6 billion; Chart 157). As a result of the above, in 2016 as a whole the current account observed a deficit of 2.7 percent as a share of GDP (USD 27.9 billion), which is lower than 2.9 percent of GDP exhibited in 2015.

Chart 157
Trade Balance and Current Account

a) Trade Balance
USD millions

b) Current Account
USD millions

c) Current Account
Share of GDP

Source: SAT, SE, Banco de México, INEGI. Merchandise Trade Balance. SNIEG. Information of National Interest.

Source: Banco de México.

Source: Banco de México and INEGI.
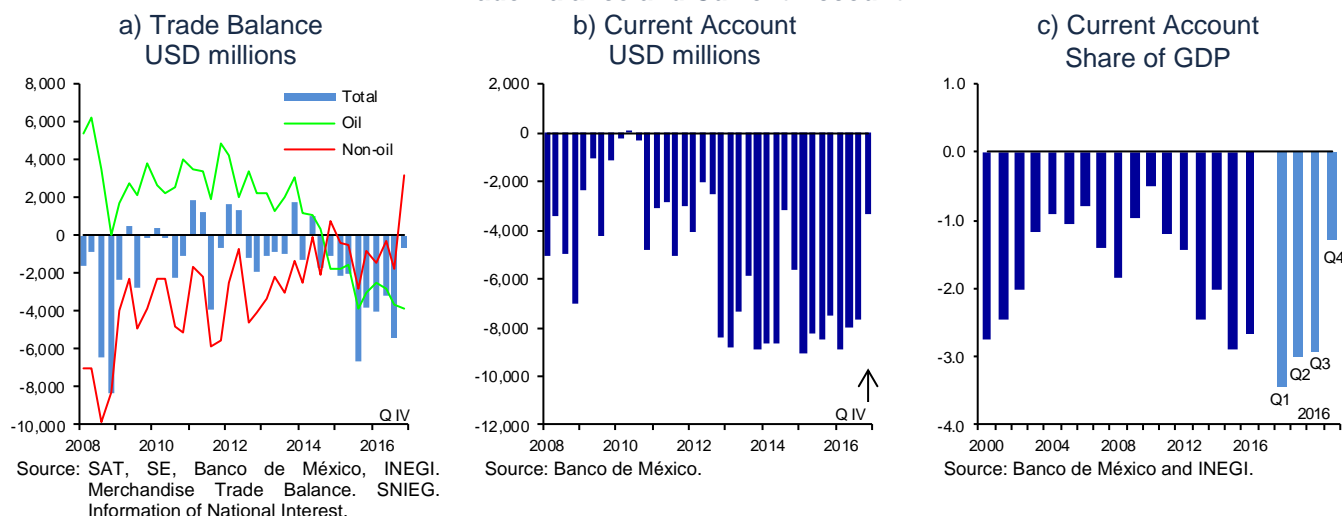
3.2.2.   Labor Market

In the reference quarter and during the first month of 2017, labor market conditions continued to improve. In particular, both national and urban unemployment rates maintained a decreasing trend and are currently at levels below those registered in 2008, prior to the onset of the global financial crisis (Chart 158). It is even possible that in light of the favorable performance of the labor market, the gap between the observed unemployment rate and the estimate of the unemployment rate consistent with stable inflation has practically closed (see Box 10). Likewise, the increment in IMSS-insured jobs maintained a positive trend, which contributed to the continuing decreasing trend of the labor informality rate that has been observed since mid-2015 (Chart 158). It should be pointed out, however, that the employed population in the last quarter of 2016 was at a level similar to that of the previous quarter, though it lies at high levels (Chart 158). It should be pointed out, however, that the employed population in the last quarter of 2016 was at a level similar to that of the previous quarter, though it lies at high levels (Chart 158).

Box 10
Considerations on the Recent Evolution of NAIRU and Slackness in the Mexican Labor Market

1. Introduction

An appropriate reading of the position of economic activity and the utilization of productive resources in the economic cycle is fundamental to conduct monetary policy. If economic activity and resources utilization are clearly and persistently below their potential, it generates downside pressures onto inflation, and vice versa. Given this environment, an adjustment in the monetary policy stance could be advisable. Nonetheless, the phase of the economic cycle is not directly observable, reason why it is necessary to monitor different indicators that allow its approximation. Among them, the output gap is one of the most analyzed measures, given that it estimates the degree of slackness in the market of goods and services. To complement its analysis, it is common to study the indicators of (sub or over) utilization in the markets of factors of production, which are the installed capacity utilization (capital) and labor market indicators.

Considering that the evolution of any macroeconomic variable has both a cyclical and a structural component, one of the main challenges associated to the analysis of slackness indicators is to adequately isolate the cyclical component of macroeconomic variables. An additional challenge regarding the analysis of labor market indicators in Mexico resides in the existence of a large informal sector in the country, which makes the study of its evolution even more difficult. In this sense, the fact that the informality rate tends to be countercyclical and that the informal labor market operates as a shock-absorber of aggregate shocks could complicate the identification of the effective degree of labor market slackness. Likewise, it can distort the information provided by conventional indicators, such as the open unemployment rate.

This Box analyzes the evolution of slack conditions in the Mexican labor market within the conceptual framework of the NAIRU (Non-Accelerating-Inflation Rate of Unemployment), defined as the unemployment rate consistent with an environment of stable inflation. Furthermore, as an additional measure for the analysis of slack conditions in the labor market, considering the high level of informality that exists in Mexico, an extended measure that considers both unemployed individuals and informal salaried employees is estimated, as the latter group tends to concentrate to a higher degree those informal workers who seem to be in this sector inadvertently, given a situation in which they are unable to find employment in the formal sector. The equilibrium value of this extended measure of unemployment and informality, congruent with an environment of stable inflation, is defined as "NAIRU-Inf".

Derived from uncertainty associated to the measurement of the NAIRU due to its unobservable nature, this Box ponders various methodologies to achieve a more robust estimate. In the same vein, some exercises and stylized facts for Mexico are presented, allowing to provide context to the analysis.

The results suggest that slack conditions in the labor market, estimated based on the difference between the unemployment rate and the corresponding NAIRU, have been presenting a downward trend, which accelerated during last year. It is noteworthy that, despite a slight upward path in the estimations of NAIRU and NAIRU-Inf in recent years, the fact that the indicators of the subutilization of the labor factor declined gradually is mainly the consequence of the recovery observed in the labor market. In particular, the unemployment rate is currently below that of NAIRU and this difference is statistically significant. That is, not only it does not present slack conditions, but it could also suggest pressures onto wages. Nevertheless, the more extended measure, which takes into account the high informality present in the Mexican labor market, is close to its long-term level (NAIRU-Inf), and the difference between them is not significantly different from zero. The latter suggests that, even though the labor factor is close to its full utilization, the market still does not present significant upward pressures onto labor costs. It should be noted that this analysis uses available information up to December 2016, reason why the possible effects generated in the future by potential migratory policies of the incoming U.S. administration on the labor force and the unemployment rate in Mexico are not considered.

2. NAIRU

When the unemployment rate is significantly below NAIRU, it is considered that labor market conditions may generate inflation pressures. For a given level of productivity, unemployment levels lower than those consistent with NAIRU could be reflected in wage increments –both observed and expected- which would exercise pressure onto inflation through increases in labor costs. These wage increments could also be reflected in higher aggregate demand for goods and services, further contributing to an increment in inflation pressures. Thus, the difference between the observed unemployment rate and NAIRU (the labor gap) constitutes an indicator of slackness in the labor market, useful to monitor possible risks to inflation derived from input markets. The following section includes different estimates of NAIRU for Mexico and their corresponding levels of slackness in the labor market.

3. Estimation of NAIRU and Analysis of Slackness of the Labor Market in Mexico

In general terms, the conceptual framework for the analysis of NAIRU is based on the Phillips curve, which establishes a negative relation between inflation and the "unemployment gap" in the short term:

$$\pi_t = \pi_t^e + \beta(u - \bar{u}) + \delta X_t$$

Where π is the inflation rate and π^e is the expected inflation rate, $(u - \bar{u})$ is the unemployment gap (that is the difference between the observed unemployment rate (u) and NAIRU $(\bar{u})$), and X represents a vector of variables that reflect the presence of supply shocks.

To better approximate the dynamics of the inflation process, the above relation is generalized and, in line with Staiger, Stock and Watson (1997), its estimation is simplified assuming that inflation expectations are adaptive, based on the past inflation. Thus, the model to estimate the Phillips curve takes this form:

$$\Delta\pi_t = \beta(u_t - \bar{u}) + \gamma(L)\Delta\pi_{t-1} + \delta(L)X_t + \varepsilon_t \quad (1)$$

Where L is the operator of lags, $\Delta = 1 - L$, $\gamma(L)$ and $\delta(L)$ are polynomials of lags, and ε_t is the error term.

Below, this Box presents four estimations of NAIRU in Mexico. Monthly and seasonally adjusted data of the national unemployment rate and core inflation for the period between January 2003 and December 2016 are used.[1]

1. NAIRU: recursive estimation. While reformulating equation (1) to include a constant and, thus, to be able to estimate it, the value of NAIRU can be inferred via the estimation of the following equation:

$$\Delta\pi_t = \alpha + \beta(u_t) + \gamma(L)\Delta\pi_{t-1} + \delta(L)X_t + \varepsilon_t \quad (2)$$

Therefore, $\beta(u_t - \bar{u})$ in (1) is equal to $\alpha + \beta(u_t)$ in (2), which implies that $\alpha = -\beta(\bar{u})$. Therefore, when estimating $\hat{\alpha}$ and $\hat{\beta}$ via OLS [*with equation (2)*], NAIRU, or the unemployment rate, that neither accelerates nor slows down inflation (that is, the one that attains that $\Delta\pi_t = \Delta\pi_{t-1} = 0$) can be calculated via the following relation:

$$\hat{\bar{u}} = -\hat{\alpha}/\hat{\beta}$$

To allow the relation between unemployment and inflation to vary across time, the trajectory of NAIRU is calculated via the recursive estimation of equation (2), letting the starting point of the sample be fixed (that is, $\hat{\bar{u}}_t = -\hat{\alpha}_t/\hat{\beta}_t$). Through this estimation, it is possible to appreciate how NAIRU has evolved over time as the most recent information of the variables in the model are incorporated.

2. NAIRU Random Walk. As in Gordon (1997), the evolution of NAIRU is obtained from the following system of equations:

$$\Delta\pi_t = \beta(u_t - \bar{u}_t) + \gamma(L)\Delta\pi_{t-1} + \delta(L)X_t + \varepsilon_t$$
$$\bar{u}_t = \bar{u}_{t-1} + e_t \quad (3)$$

where the errors are assumed i.i.d. $N(0, \sigma_\varepsilon^2)$ and uncorrelated with each other.

3. Random Walk NAIRU and Unemployment Gap AR (1). Following Laubach (2001), this specification models the dynamics of the unemployment rate gap $(u_t - \bar{u}_t)$. In particular, the unemployment gap is modeled as an autoregressive process. This specification allows the unemployment rate not to divert on a permanent basis from NAIRU, that is, the unemployment gap is a process that reverses to zero.

The system of equations to estimate NAIRU is given by:

$$\Delta\pi_t = \beta(u_t - \bar{u}_t) + \gamma(L)\Delta\pi_{t-1} + \delta(L)X_t + \varepsilon_t$$
$$\bar{u}_t = \bar{u}_{t-1} + e_t$$
$$(u_t - \bar{u}_t) = \rho_1(u_{t-1} - \bar{u}_{t-1}) + e_t \quad (4)$$

where errors are assumed $N(0, \sigma_i^2)$ and uncorrelated with each other, with $i = e, \varepsilon$.

4. NAIRU Random Walk and Unemployment Gap (Okun's Law). Following Gordon (1997), the previous system of equations is modified to include an equation establishing a relation between the unemployment rate and the output gap (Okun's law). Thus, the system of equations to estimate NAIRU is given by:

$$\Delta\pi_t = \beta(u_t - \bar{u}_t) + \gamma(L)\Delta\pi_{t-1} + \delta(L)X_t + \varepsilon_t$$
$$\bar{u}_t = \bar{u}_{t-1} + e_t$$
$$(u_t - \bar{u}_t) = \varphi_t y_t^{gap} + \varepsilon_t$$
$$\varphi_t = \varphi_{t-1} + r_t \quad (5)$$

where φ is Okun coefficient, assumed to change over time and modeled as a random walk, and the errors are assumed to be $N(0, \sigma_r^2)$ and uncorrelated with each other, with $i = e, \varepsilon, r$.

Table 1 presents a summary of the main results and an average estimation based on all methodologies used.

Table 1
Summary: Estimations of NAIRU and Slackness in the Labor Market

Date	Oct.15	Jan.16	Apr.16	Jun.16	Oct.16	Dec.16	Oct.15	Jan.16	Apr.16	Jun.16	Oct.16	Dec.16
National unemployment rate (s.a. data.)	4.43	4.18	3.91	3.91	3.57	3.66						
NAIRU models			**NAIRU**						**Unemployment gap**			
a) Variable coefficients (recursive)	3.97	4.01	4.04	4.07	4.07	4.16	0.49	0.07	-0.15	-0.11	-0.48	-0.31
b) State - space												
1.1 Random walk	5.05	5.07	5.08	5.08	5.10	5.10	-0.59	-0.99	-1.19	-1.13	-1.51	-1.26
1.2 Random walk and unemployment gap AR(1)	4.62	4.55	4.49	4.48	4.40	4.42	-0.17	-0.47	-0.60	-0.52	-0.81	-0.58
1.3 Random walk and Okun's law	4.33	4.27	4.20	4.17	4.11	4.11	0.13	-0.18	-0.31	-0.21	-0.53	-0.26
Average	4.49	4.48	4.46	4.45	4.42	4.45	-0.06	-0.30	-0.54	-0.54	-0.85	-0.79

Source: Banco de México and INEGI.

It should be noted that the results obtained using all methodologies are very similar. It is established that the estimated NAIRU presented a slight upward trend, such that the average of the estimations exhibits the same behaviour, and stabilizing to recently lie around 4.45 percent of EAP. This trend could be attributed to the

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[1] Two types of models are estimated: 1) the recursive estimation by OLS of the Phillips curve; and 2) the estimation of state-space models with maximum likelihood and Kalman filter.

structural changes in the labor market, such as demographic changes possibly associated to lower migration levels to the U.S. and a greater female labor force participation, or to a lower growth rate of productivity, among other factors. This evolution of the different estimations of NAIRU, along with a significant reduction in the observed unemployment rate, generated a decline in labor market slack, which not only seems to have closed last year, but currently the unemployment rate lies below the lower limit of confidence intervals for estimates of NAIRU. It should be noted that uncertainty of the estimates, reflected in the confidence intervals, is considerable, so these results should be interpreted with caution. Chart 1a presents NAIRU obtained as the average of four estimations. Overall, the message does not change: NAIRU has been rising over time and the slackness of the labor market currently seems to be negative (Chart 1b).

Chart 1a
National Unemployment Rate and Average NAIRU
Percentage, s. a.
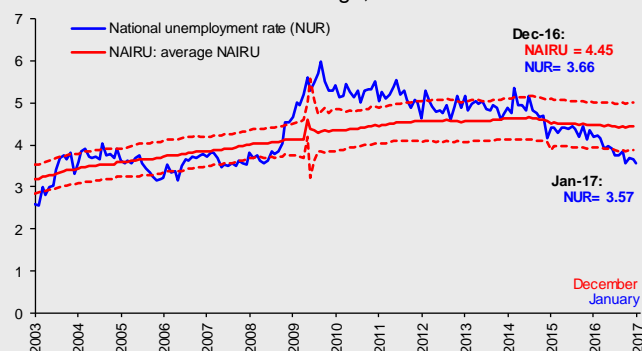
Note: For each of the four models, the NAIRU trajectory and the gap are estimated, along with their confidence intervals. Charts 1a and 1b show the average of these estimations, as well as the average of the confidence interval at 90 percent, where the standard error that is used to calculate it is the average of the standard errors of the four estimations. All results point to the same conclusion.
s. a. / Seasonally adjusted data.
Source: Banco de México and INEGI.

Chart 1b
Average Slackness
Percentage points
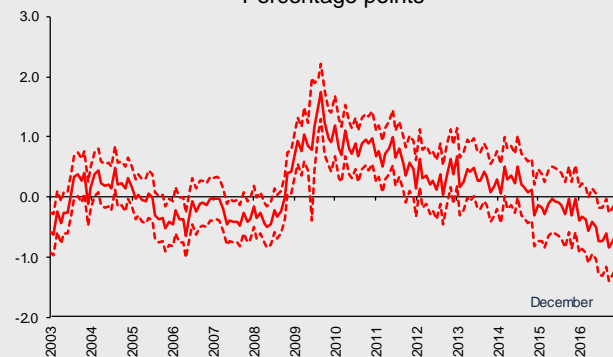
Note: The interval corresponds to two average standard deviations among all estimates.
Source: Banco de México.

4. Labor Market Slack in the Context of Mexico

Even though the previous results could suggest inflation pressures derived from labor market indicators, given the presence of a considerable informal labor market in Mexico, it is convenient to take this feature into consideration while reading the cycle. In the informal labor market, sufficient wage flexibility prevails, such that it can absorb most individuals who do not find employment in the formal market. Thus, workers who potentially would be unemployed, can find jobs in the informal sector. Consequently, the unemployment rate in Mexico is low, as it tends to concentrate solely frictional employment and part of the cyclical unemployment. Given the particular features of the Mexican labor market described above, the unemployment rate in Mexico may not fully reflect the labor slack conditions. Furthermore, with a transition of workers from the informal to the formal sector, given that the former is generally less productive than the latter, it is possible to attain greater production without necessarily generating pressures on prices derived from the labor market.

Additionally, the informality rate varies throughout the economic cycle (and apparently it is counter-cyclical, see Alcaraz (2009)). That is, the informal sector acts as a shock-absorber of unemployment, reason why if not considered in the analysis of the labor market, it could lead to inaccurate conclusions. Thus, using the same methodology as in the previous section, another estimation of the unemployment rate and informality congruent with price stability is carried out, based on the unemployment rate plus the informality of the salaried workers (NAIRU-Inf). This extended measure is used, because, according to the literature, the group of informal salaried workers tends to concentrate more involuntary informal workers, that is, those who would rather have a formal employment, but cannot obtain it (see Alcaraz et al. (2015) and Fajnzylber and Maloney et al. (2007)). It should be pointed out that, although NAIRU presented in the previous section is comparable with similar estimations for other countries, the estimates of slackness based on the difference between the extended unemployment rate and NAIRU-Inf reinforce the analysis of slackness in the particular case of the Mexican labor market, given that in this country the informality rate tends to be relatively high. Using this new indicator, it is established that even though slackness has been declining, that is, the unemployment rate plus salaried workers' informality is already below its long-term level (NAIRU-Inf), this difference is not significantly different from zero (Chart 2a and Chart 2b).

Chart 2a
Unemployment Rate and Informal Salaried Workers and Average NAIRU-Inf
Percentage, s. a.
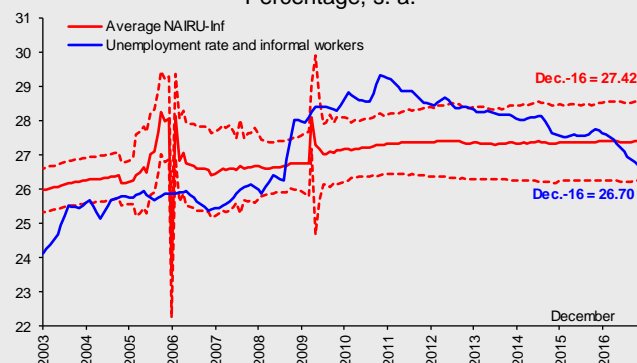
Note: The interval corresponds to two average standard deviations among all estimations.
s. a. / Seasonally adjusted data.
Source: Banco de México.

Chart 2b
Average Slackness
Percentage points
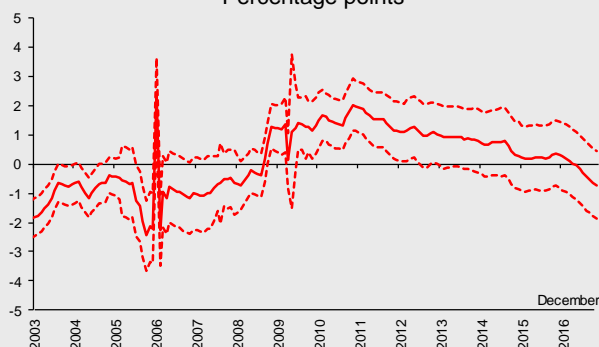
Note: The interval corresponds to two average standard deviations among all estimations.
Source: Banco de México.

As Banco de México documented on several occasions, slackness in the market of goods and services, measured through the output gap, has been negative recently, even though it does not seem to be statistically different from zero either. This suggests an absence of significant aggregate demand-related pressures on prices. To reconcile this result with those found in this Box, slackness is analyzed by sector. In particular, the gap of the IGAE services sector, the most labor-intensive activity, with relatively higher informality and lower wages relative to the industrial sector has closed already (Chart 3). Nonetheless, slackness in the IGAE industrial sector seems to persist. Thus, there could still be a certain reallocation of employment from the services sector (a sector with some activities of a relatively lower productivity) to the industrial sector (characterized by a higher level of productivity, in general), which would generate greater production without necessarily implying inflation pressures.

Thus, the labor market in Mexico seems to have allowed an adjustment in which workers without formal employment could be absorbed by the services sector in lower-paying jobs, with a higher proportion of informal employments. Hence, no wage pressures have been perceived in the sector that apparently presents a positive gap. In other words, the employment composition, which seems to be biased towards certain segments of the services sector (with a higher share of informal workers), could be a reflection of certain hidden "slackness" in informality. Consequently, and considering that labor still has room to reallocate from the services sector to the industrial sector (although slowly), we can state that there is still a certain margin for the labor market to keep recovering and generating greater production, without causing significant wage pressures.

Chart 3
IGAE Gap by Sector [1/]
Percentage

1/ IGAE gap by sector, measured as a percentage of potential output. The data on the secondary sector is shown including and excluding mining.
Source: Banco de México.

5. Final Remarks

Considering that reading the economic cycle is fundamental to conduct monetary policy, this Box analyzes the evolution of slack conditions in the Mexican labor market within the conceptual framework of NAIRU, defined as the unemployment rate that is congruent with an environment of stable inflation. As an additional measure for the analysis of labor market slack, considering informality in Mexico, NAIRU-Inf is estimated based on an extended measure that complements unemployment with data on informal salaried workers, which is the one concentrating to a higher degree informal involuntary workers, that is, those workers who would prefer a formal employment, but cannot obtain it, in view of the cyclical conditions of the economy. The results suggest that the estimations of NAIRU based on the unemployment rate and the extended measures including informality (NAIRU-Inf) have been increasing slightly over time. Furthermore, the measures of subutilization of the labor factor, derived from both estimations, have gradually decreased and this evolution accelerated over the last year. In particular, the unemployment rate is currently

below NAIRU and this difference is statistically significant. Although this may suggest inflation pressures derived from the labor market, the more extended measure that considers high informality present in the Mexican labor market is close to its long-term level (NAIRU-Inf), and the difference between them is not significantly different from zero. This diagnostic is consistent with the fact that there can still be slackness at the aggregate level, as shown by the output gap, while no considerable wage pressures are perceived in the Mexican economy. Thus, given the sectoral composition of employment, there could still be room for greater production, supported by reallocation of employment from the services sector to the industrial sector, without necessarily implying pressures on inflation. Finally, it stands out that the analysis presented here is carried out with the data available up to December 2016. Therefore, the possible effects that could be observed on the labor force and the unemployment rate in Mexico in the future, and, consequently, on the slackness in this market, in light of the implementation of potential migratory policies of the incoming U.S. administration, are not considered.

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Chart 158
Labor Market Indicators
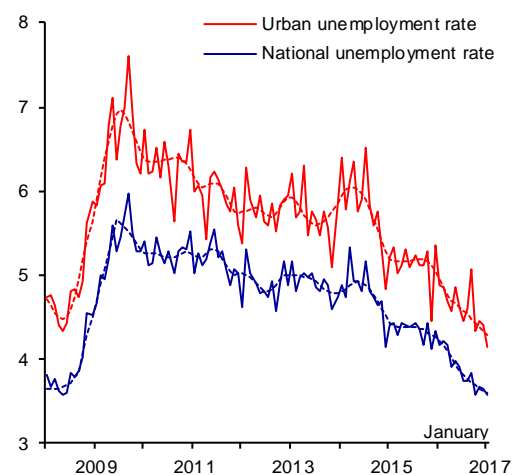
a) National and Urban Unemployment Rates
Percent, s. a.

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

b) Informal Sector Employment [1]
and Labor Informality [2]
Percent, s. a.
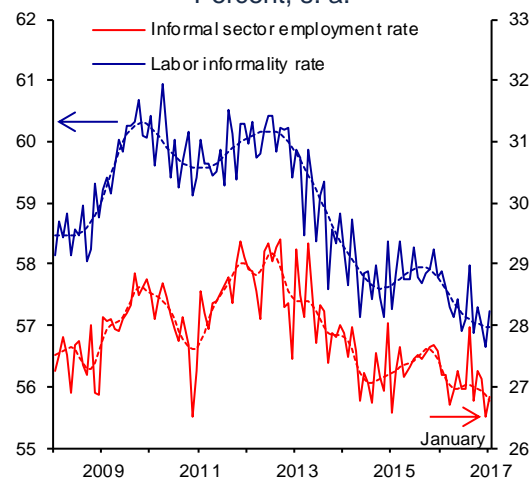
s. a. / Seasonally adjusted and trend data. The former is
represented by a solid line, the latter by a dotted line.
1/ It refers to individuals working in non-agricultural economic
units, operating with no accounting records and with
households' resources.
2/ It includes workers who, besides being employed 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 Employment Survey (ENOE), INEGI.

c) IMSS-insured Workers, Total IGAE and
Working Population
Index 2012=100, s. a.
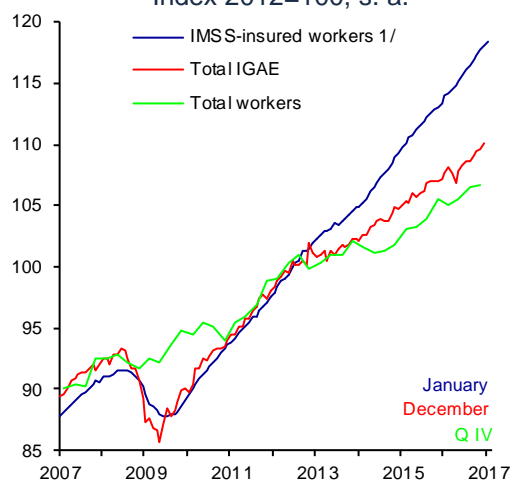
s. a. / Seasonally adjusted data.
1/ Permanent and temporary jobs in urban areas. Seasonal
adjustment by Banco de México.
Source: Prepared by Banco de México with data from IMSS and
INEGI (SCNM and ENOE).

d) National Labor Participation Rate [1]
Percent, s. a.
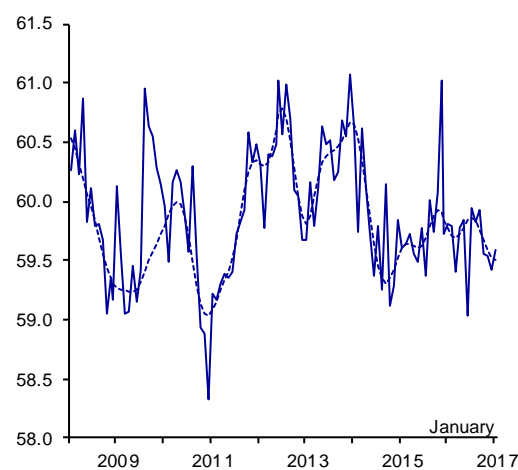
s. a. / Seasonally adjusted and trend data. The former is
represented by a solid line, the latter by a dotted line.
1/ Percentage of Economically Active Population (EAP) with
respect to the population of 15 years and older.
Source: National Employment Survey (ENOE), INEGI.

As regards wages, available indicators suggest that in the fourth quarter of 2016 a gradual recovery of wages in real terms continued.

i.   The annual growth rate of the average wage of salaried workers in the economy lied at 4.9 percent in the period of October-December, which is above the figure registered in the previous quarter and the highest since the global financial crisis (Chart 159a). This, along with the inflation evolution, implied an annual increment of 1.6 percent in these salaries in real terms in the last quarter of the year

ii.   Likewise, in the reported period, the annual growth rate of the daily wage of IMSS-insured workers presented similar increments to those observed over the first three quarters of 2016, thereby maintaining growth in real terms (Chart 159b). In January 2017, these wages presented an average expansion of 4.1 percent, although this month, in view of the evolution of inflation, the annual growth rate in real terms was negative.

iii.   In the last quarter of 2016, the growth rate of contractual wages negotiated by firms under federal jurisdiction was slightly lower than that observed in the same quarter of last year (Chart 159c). This reduction is attributed to a lower average increment in wages negotiated by public firms as compared to last year, while the average rate of wage increments negotiated by private firms was higher than in the last quarter of 2015. In January 2017, the wage increment of 4.1 percent was slightly greater than that of 4.0 percent reported in the same month of the previous year, even though the evolution of inflation in that month caused a negative annual change in real terms.

iv.   In January 2017, the general minimum wage and minimum wages for professionals increased by 3.9 percent, in addition to the fact that the former received a further increment of four pesos a day, which correspond to the Independent Recovery Amount, which, in line with the data on wages and salaries available so far for the first month of 2016, does not seem to have affected the dynamics of adjustments in the rest of the wage distribution. Indeed, as mentioned in preceding paragraphs, in January 2017 the annual growth of contractual wages negotiated by firms under federal jurisdiction and of wages of IMSS-insured workers were similar to those observed in the first month of last year. In addition, they were also close to the referred percentage increase of the minimum wage, excluding the Independent Recovery Amount.

Chart 159
Wage Indicators
Annual change in percent

a) Average Wage of Salaried Workers according to National Employment Survey [1]

b) Daily Wage of IMSS-insured Workers [2]
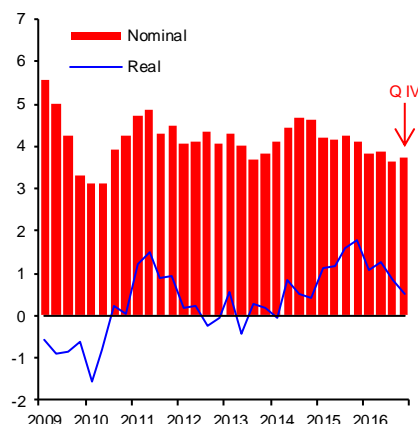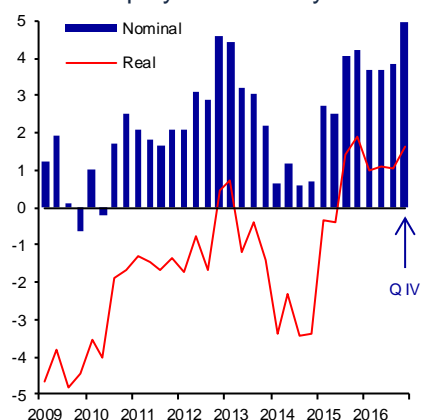
c) Nominal Contractual Wage [3]
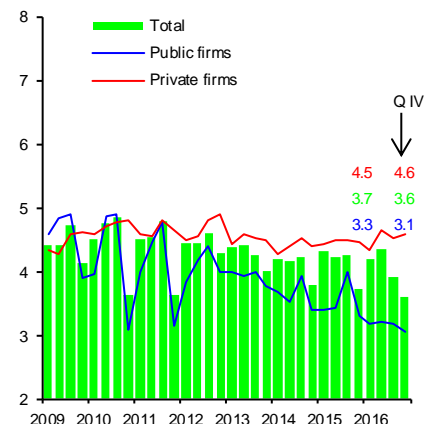
1/ To calculate average nominal wages, the bottom 1 percent and the top 1 percent in the wage distribution were excluded. Individuals with zero reported income or those who did not report it are excluded.
2/ During the fourth quarter of 2016, on average 18.8 million workers were registered with IMSS.
3/ The contractual wage increase is on average weighted by the number of involved workers. The number of workers in firms under federal jurisdiction that report their wage increases each year to the Secretary of Labor and Social Welfare (STPS) is approximately 2.3 million.
Source: Calculated by Banco de México with data from IMSS, STPS and INEGI (ENOE).

3.2.3.   Financial Saving and Financing in Mexico [36]

The deceleration of the economic activity of Mexico starting from 2013 and high volatility that has prevailed in international financial markets since the end of 2014 –and in particular the one that affected the national financial markets during 2016-, caused the sources of the financial resources of the economy to grow at lower rates than those registered in previous years. Thus, while in the period between the fourth quarter of 2011 and the third one of 2014 the sources of financial resources expanded at a real average annual rate of 6.3 percent, its average growth between the fourth quarter of 2014 and the last quarter of 2016 reduced to 4.2 percent. In particular, in the fourth quarter of 2016, the sources of financial resources grew at a rate of 4.2 percent, which is similar to 4.0 percent registered in the previous quarter. This resulted from a deceleration in the growth of external sources, while domestic sources maintained their dynamism (Chart 160b and Chart 160b).

As regards domestic sources, the environment of higher interest rates in the domestic markets contributed to the increment in domestic financial saving in the last quarter of 2016 –in particular, its voluntary component- (Chart 161).[37] Thus, the domestic sources of resources in the economy increased their growth rate from 5.8 to 6.3 percent between the third and the fourth quarters of 2016.

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[36] In this section, unless otherwise stated, growth rates are expressed in real annual terms and are calculated based on balances adjusted due to exchange rate and asset price variations.
[37] Financial saving is defined as the monetary aggregate M4 minus the stock of currency held by the public.

Chart 160
Total Funding of the Mexican Economy (Sources and Uses)
Real annual change in percent [1]

a) Sources

b) Uses

p/ Preliminary data.
1/ Real annual changes are calculated based on balances adjusted due to exchange rate and asset price variation.
2/ It includes the monetary aggregate M4 held by residents.
3/ It includes the monetary aggregate M4 held by non-residents, foreign financing for the federal government, public institutions and enterprises, commercial banks' foreign liabilities and external financing to the non-financial private sector.
4/ It is made up by currencies and gold reserves of Banco de México, free of any security rights and the availability of which is not subject to any type of restriction; the position in favor of Mexico with the IMF derived from contributions to the said entity; currency obtained from financing to realize foreign exchange regulation of the IMF and other entities of international financial cooperation or groups of centrals banks, of central banks and other foreign legal entities that act as financial authorities. Currencies pending to be received for sales transactions against the national currency are not considered, and Banco de México's liabilities in currency and gold are deducted, except for those that are for a term longer than 6 months at the moment of reserves' estimation, and those corresponding to financing obtained to carry out the above mentioned foreign exchange regulation. See Article 19 of Banco de México's Law.
5/ It refers to the 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 external financing. It includes restructuring programs.
6/ It includes financing to the federal public sector, as well as financing to states and municipalities.
Source: Banco de México.

In contrast, the external sources maintained low growth, expanding at a rate of 1.2 percent in real annual terms in the fourth quarter of 2016, which is below 1.5 percent observed in the previous quarter. On the one hand, it derived from sustained reductions in external sources of resources destined to finance firms in Mexico, as a reflection of the environment of high uncertainty in international financial markets and of tighter financing conditions in foreign currency. Additionally, the stock of non-resident financial saving kept contracting in annual terms (-2.7 percent), even after excluding the negative effect of higher interest rates in the quarter on the market valuation of this portfolio (Chart 161). However, during the quarter there was an increment in non-resident holdings of medium- and long-term government bonds (Chart 161).

Chart 161
Financial Saving Indicators
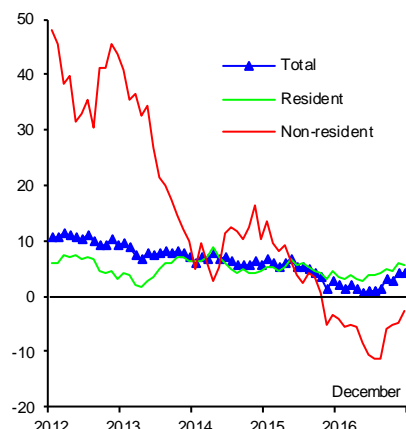
a) Total Financial Saving [1/ 2/]
Real annual change in percent

b) Resident Financial Saving [2/]
Real annual change in percent
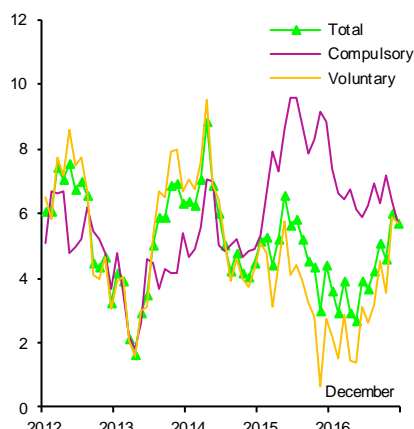
c) Non-resident Financial Saving
Contribution to the real annual
change in percent
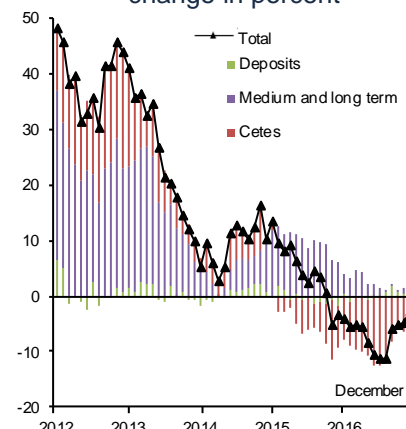
1/ it is defined as the monetary aggregate M4 minus the stock of currency held by the public.
2/ Real annual changes are calculated based on balances adjusted due to exchange rate and asset price variations.
Source: Banco de México.

As regards the use of financial resources of the economy, the annual growth rates of public sector financing and of international reserves have been moderating since mid-2015, which has generated room for financing to the private sector to expand at relatively high rates –even in the above described environment of more limited resources–. In particular, while between the first quarter of 2014 and the second one of 2015 financing to the public sector grew at an average annual rate of 6.4 percent, its growth rate has declined since then, registering an average annual growth of 3.0 percent in 2016. On the other hand, in the fourth quarter of 2016, the stock of international reserves was lower than that observed in the same quarter of the previous year, which was largely attributed to U.S. dollar sales by Banco de México in early 2016. These measures were taken so as to propitiate a more orderly functioning of the foreign exchange market. Furthermore, to the same end, in the first week of January 2017, the Foreign Exchange Commission ordered a direct sale of USD 2 billion to the market. Subsequently, on February 21, the Foreign Exchange Commission announced the implementation of a new foreign exchange market mechanism, which consists of non-deliverable forward (NDF's) auctions, which will be settled in Mexican pesos. The program can size up to 20 billion USD taking into consideration the total nominal amount outstanding that it was announced that the first auction would take place on March 6 for a total notional amount of 1 billion USD. In the same vein, the said Commission ratified that it does not rule out the possibility of additional measures if needed, using foreign exchange hedges or instruments that had been used in the past. It should be noted that the Foreign Exchange Commission reiterated that the anchoring of the value of the national currency will be procured at all times by maintaining solid economic fundamentals.

In this context, financing to the private sector kept expanding, although somewhat decelerating in the second half of 2016. Indeed, in the fourth quarter of 2016, total financing to the non-financial private sector presented a real annual growth rate of 3.9 percent, which compares to 5.0 percent in the previous one (Chart 162).

Chart 162
Financing to Non-financial Private Sector
Real annual change in percent
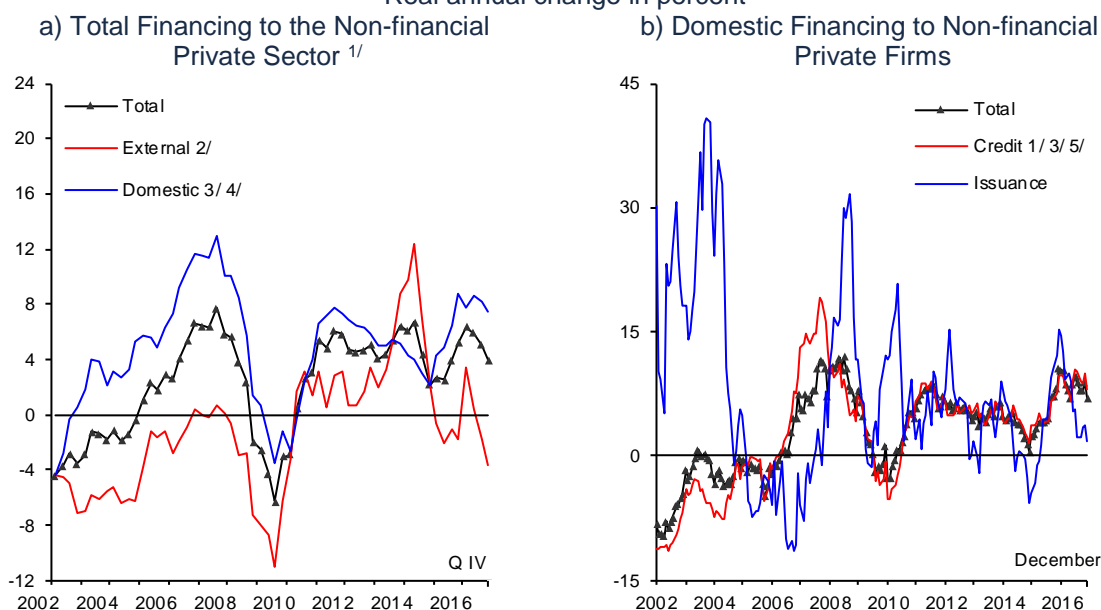
a) Total Financing to the Non-financial Private Sector 1/

b) Domestic Financing to Non-financial Private Firms

1/ Real annual changes are calculated based on balances adjusted due to exchange rate variations.
2/ Data of foreign financing for the fourth quarter of 2016 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/ These data can be affected by the disappearance of other non-bank financial intermediaries and their conversion to a non-regulated multiple purpose financial corporation (Sofom ENR).
5/ It refers to the performing and non-performing portfolios, and includes credit from commercial and development banks, as well as other non-bank financial intermediaries.
Source: Banco de México.

The moderation of the growth rate of financing to the private sector is principally accounted for by a greater contraction of foreign financing during the quarter. In contrast, domestic financing kept growing at relatively high rates, although they were lower than in the previous quarter. Domestic financing to firms expanded at a real annual rate of 7.1 percent in December 2016, figure that compares to 7.9 percent registered in September 2016. This was mainly attributed to the sustained growth of bank credit, while the domestic debt market maintained low dynamism (Chart 162). Particularly, commercial banks' performing credit portfolio to non-financial private firms grew at 8.1 percent in real annual terms at the end of the fourth quarter, which, despite being lower than 9.2 percent observed in the previous quarter, exceeds the average growth registered over the last 5 years (Chart 163. In this context, the costs of loans and lines of credit kept increasing –as a reflection of increments in the Target Rate – (Chart 164). On the other hand, the respective delinquency rates remained at low levels, and exhibited a negative trend (Chart 164).

Chart 163
Domestic Financing to Non-financial Private Firms

a) Securities in Circulation
Stocks in MXN billion as of December 2016
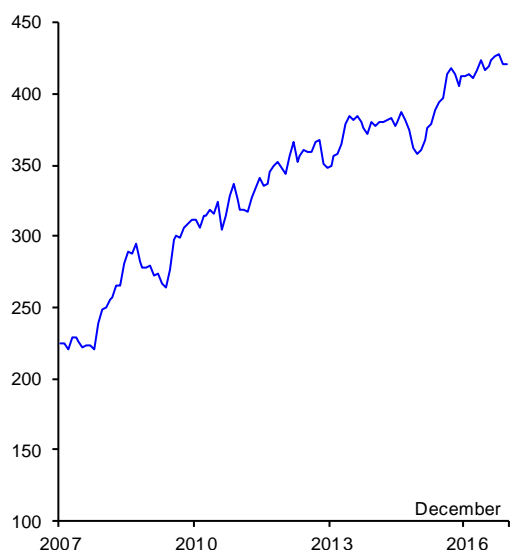
b) Performing Credit [1]
Real annual change in percent
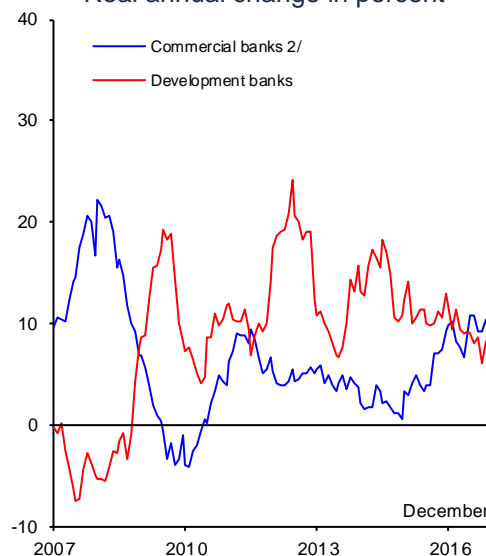
1/ Real annual changes are calculated based on balances adjusted due to exchange rate variations.
2/ It includes Sofomes ER subsidiaries of bank institutions and financial groups. Data are adjusted so as not to be affected by the transfer of bridge loans.
Source: Banco de México.

Chart 164
Annual Interest Rates and Delinquency Rates of Non-financial Private Firms

a) Annual Interest Rates of
Private Securities
Quarterly average in percent
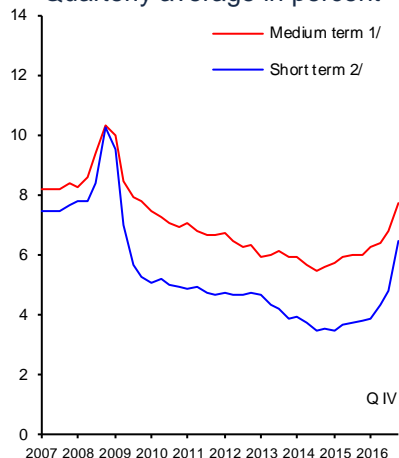
b) Annual Interest Rates
of New Credits [3]
Annual percent
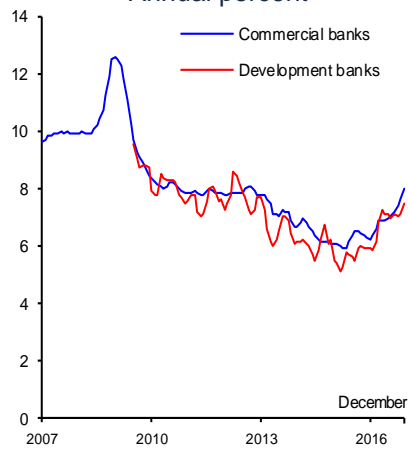
c) Delinquency Rates
Percent
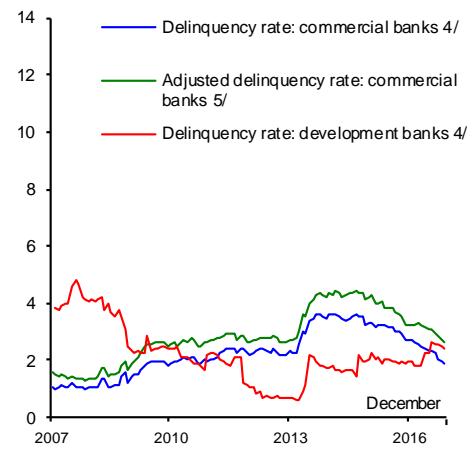
1/ Average weighted yield to maturity of issuances in circulation, with a term over 1 year, at the end of the month.
2/ Average weighted rate of private debt placements, at a term of up to 1 year, expressed in a 28-day curve. It only includes stock exchange certificates.
3/ It refers to the interest 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. It is presented as a 3-month moving average.
4/The delinquency rate is defined as the stock of non-performing loans divided by the stock of total loans.
5/ 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.

Credit to households expanded at a rate of 7.8 percent in real annual terms in the last quarter of 2016, while in the previous one it grew at a rate of 8.5 percent. This dynamism has been perceived both in the mortgage market and across different segments of consumer credits, largely reflecting an increasing formalization of employment (Chart 165a). With respect to housing loans, both the commercial bank and the National Housing Fund (Infonavit) portfolios –which together constitute 91 percent of total credit in this segment– kept expanding at relatively high rates, even though they were lower than at the end of the previous quarter (Chart 165b). [38] In this environment, the costs of housing loans have not changed significantly and persist at levels around their historic lows. In the same line, delinquency rates in this segment remained relatively low and stable (Chart 165c).

Chart 165
Credit to Households

a) Total Credit [1/]
Real annual change
in percent

b) Performing Housing Credit
Real annual change in percent

c) Annual Interest Rate of New Credits and Delinquency Rate of the Housing Credit
In percent

1/ These data are adjusted due to the withdrawal from and the incorporation of some financial intermediaries to the credit statistics.
2/ It includes the Sofomes ER subsidiaries of bank institutions and financial groups.
3/ Figures are adjusted in order to avoid distortions by the transfer and the reclassification of direct credit portfolio, 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.
4/ The interest rate of new housing credits from commercial banks, weighted by the stock associated to the performing credit. It includes credit for acquisition of new and used housing.
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.

Meanwhile, consumer credit kept growing at a high rate, even though it was lower than that in the previous quarter. Within it, the greater growth of automotive credits and credit granted via cards stands out, while the growth rates of payroll and personal credits have been moderating (Chart 165a and Chart 166a). In this environment, the respective interest rates remained stable, except for those associated to credit cards, which kept growing. Likewise, delinquency rates persisted at relatively low levels and in general have not increased significantly, despite a certain deterioration in the payroll credit portfolio over the last two quarters (Chart 166b).

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[38] 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 166
Commercial Bank Consumer Credit

a) Performing Credit [1/]   b) Delinquency Rates [1/ 5/]
Real annual change in percent   In percent

1/ It includes the Sofomes ER subsidiaries of bank institutions and financial groups.
2/ It includes credit for payable leasing operations and other consumer credits.
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 auto loans and credit for acquisition of other movable properties.
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 fact that the environment of high uncertainty in financial markets limited the sources of financial resources of the economy, financing to the private sector kept expanding. In the future, and given the possibility of further volatility episodes that would mitigate the capital inflow to the Mexican economy, fiscal consolidation efforts of the public sector should continue contributing to the growth of financing to the private sector without generating pressures in the loanable funds' markets.

4.   Monetary Policy and Inflation Determinants

During 2016, the Mexican economy faced an environment that deteriorated throughout the year, especially in the fourth quarter. In particular, volatility in the international financial markets rebounded, which was mainly related to the electoral process in the U.S. and its results. Subsequently, the announcements made by the new U.S. administration regarding its intention to implement an ambitious fiscal expansion generated a widespread appreciation of the U.S. dollar, and an increase in long-term U.S. interest rates, while the outlook for the normalization process of the monetary policy by the Federal Reserve now forecasts that, although still gradually, it will occur at a faster rate than expected prior to its decision of December. This, as well as the uncertainty regarding the impact of the economic policy to be adopted by the new U.S. administration regarding its commercial and migratory relation with Mexico prompted domestic financial markets to be strongly affected, as a result of which the national currency registered high volatility, as well as an additional considerable depreciation, while interest rates for all terms increased. On the domestic side, certain supply shocks affected inflation, highlighting the rise in energy prices. This, together with a number of episodes of depreciation of the Mexican currency during the period covered by this Report caused a spike in inflation expectations, especially in the short-term ones. The change in inflation expectations suggests that a temporary increment in inflation is expected, while medium-term expectations observed much smaller increases.

In this context, in each of the meetings of November 17 and of December 15, 2016, as well as in the meeting of February 9, 2017, the Board of Governors of Banco de México decided to increase the target for the Overnight Interbank Interest Rate by 50 basis points, raising it from a level of 4.75 to 6.25 percent (Chart 167). Chart 167These adjustments in the monetary policy had the objective to offset the inflation pressures derived from the current juncture, to avoid the contamination of the price formation process of the economy, to anchor inflation expectations and to strengthen the process of inflation convergence to the 3.0 percent target.

Chart 167
Overnight Interbank Interest Rate Target [1/]
Annual percent
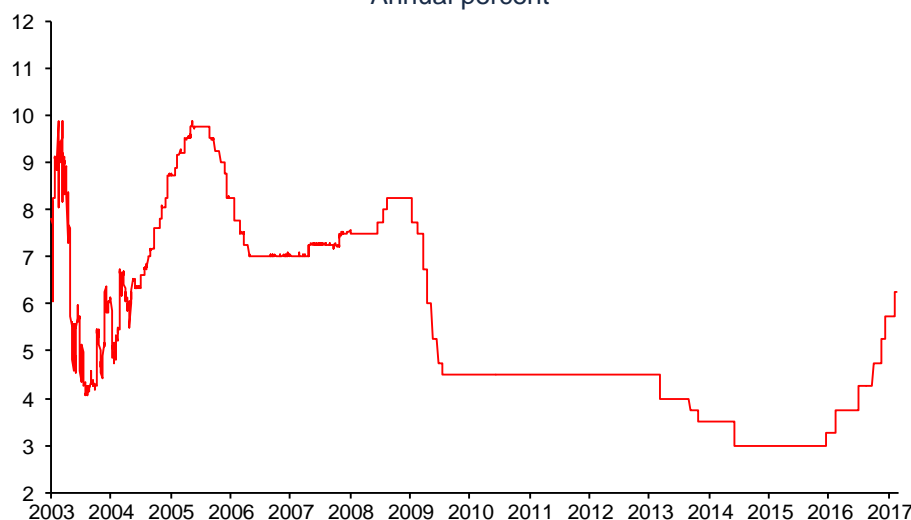
1/ The Overnight Interbank Interest Rate is shown until January 20, 2008.
Source: Banco de México.

Considering the above mentioned monetary policy decisions, the Central Bank increased its reference rate by a total of 300 basis points between 2016 and in 2017 so far, essentially acting in a preemptive manner in light of the environment that had been gradually deteriorating. It should be pointed out that the increment in the monetary policy rate in Mexico during this period has been considerably greater than that in the U.S. It is also worth noting that while making these decisions the monetary authority at all times considered that these actions affect the price formation process of the economy through different channels that comprise the mechanism of the monetary policy transmission with a certain lag. That is, a certain time period elapses for the maximum effect of a change in the interest rate on inflation to be perceived (which is estimated to be between 4 and 5 quarters). In this sense, it would be inefficient and costly in terms of economic activity to try to offset the shocks temporarily affecting inflation in the short term by implementing adjustments in the reference rate. However, through these actions the Central Bank seeks to prevent the different supply shocks mentioned above from altering the price formation process of the economy. Namely, it seeks to prevent second round effects derived from the changes in relative prices. Thus, this Central Institute will monitor that the effects of these increments in the reference rate, as well as those required to be implemented in 2017 will be reflected in the dynamics of future inflation.

It is noteworthy that as a result of the above described strengthening of the monetary policy, the current level of the ex ante real short-term rate, obtained from the difference between the 6.25 percent reference rate and the median of the inflation expectations for the next 12 months of 4.1 percent, lies at 2.15 percent. According to the results of different estimates for the neutral real interest rate in Mexico corresponding to short, medium and long terms, the current ex ante real rate is above the estimated interval for its neutral short-term level (of between 0.1 and 1.8 percent) and within that corresponding to the neutral real interest rate that is expected to be attained in the long term (of between 1.7 and 3.3 percent).[39] It is important to stress that these estimations are subject to high uncertainty.

Among the elements considered to justify the monetary policy decisions made in the period analyzed in this Report, the following stood out:

i.   During the fourth quarter of 2016, headline inflation presented an upward trend, which exacerbated in January and in the first fortnight of February 2017, locating at 4.72 and 4.71 percent, respectively, as is detailed in Section 2.

ii.   The correlation among the annual changes in the prices of different items has recently increased.

iii. Inflation expectations increased for all terms, even though essentially they still reflect a transitory increment in inflation, as medium- and long-term expectations increased to a smaller extent as compared to short-term ones, which increased significantly.

iv.   As regards the evolution of economic activity, there are no significant aggregate demand-related pressures on prices.

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[39] For a description of the estimation of the neutral interest rate, see Box "Considerations on the Evolution of the Neutral Interest Rate in Mexico" in the Quarterly Report, July – September 2016.

v.   The limited impact that has been generated so far by the increment in the minimum wage on the distribution of wages for the rest of the economy, as explained in Section 3.2.2.

vi.   The exchange rate exhibited high volatility, registering episodes of considerable depreciation and reaching a historic intraday level of MXN/USD 22.03 on January 11, 2017. However, when comparing the levels between late September 2016 and mid-February 2017, the Mexican peso registered a marginal depreciation of 1.6 percent. Currently, it lies at a level of MXN/USD 19.80.

vii.   Interest rates for all terms increased, pushing the yield curve upwards, although in general short-term ones adjusted to a greater degree than long-term ones. As of January 20, 2017, increments in longer-term rates reversed considerably.

viii.   The process of the monetary policy normalization, which is now anticipated to take place at a faster rate than it was expected prior to the elections in the U.S. Thus, interest rates in the U.S. went up, although to a lesser degree than those in Mexico, which prompted interest rate spreads to increase.

As stated above, derived from the recent evolution of economic activity, no significant aggregate demand-related pressures on prices have been perceived (Chart 168). Furthermore, there has been a significant adjustment in the external accounts. However, labor market conditions kept improving. In this juncture, and based on data as of the third quarter of 2016, as a result of the rate of wage growth and the performance of labor productivity, unit labor costs increased for the economy as a whole, even though they still remain below the levels registered prior to the 2008 global financial crisis (Chart 169a). In the same vein, in the quarter October-December 2016, unit labor costs in the manufacturing sector kept presenting an upward trajectory, even though they also lie below the levels observed in 2008 (Chart 169b).

Chart 168
Output Gap Estimate [1]
Percentage of potential output, s. a.
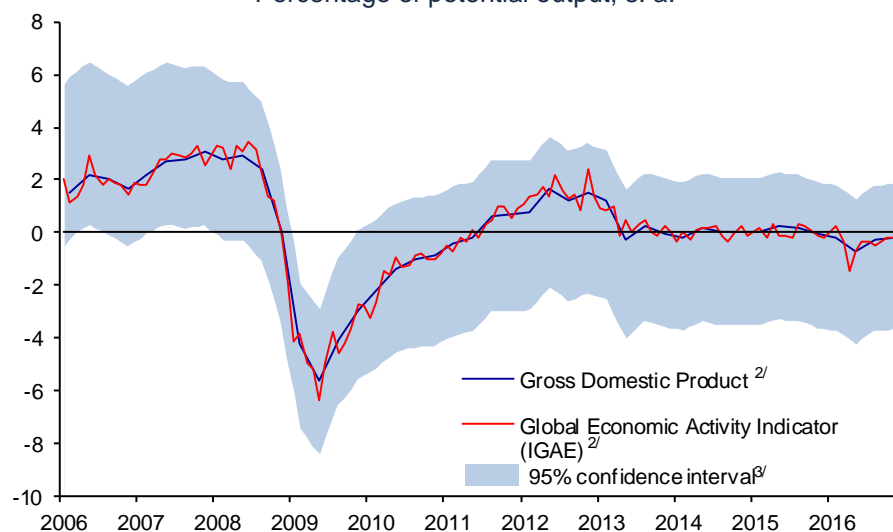
s. a. / Estimated with seasonally adjusted data.
1/ Estimated using the Hodrick-Prescott (HP) filter with tail correction; see Banco de México Inflation Report April-June 2009, p.69.
2/ GDP figures as of the fourth quarter of 2016; IGAE figures as of December 2016.
3/ Confidence interval of the output gap calculated with an unobserved components' method.
Source: Estimated by Banco de México with data from INEGI.

Chart 169
Productivity and Unit Labor Cost
Index 2008=100, s. a.

a) Total of the Economy

b) Manufactures

s. a. / Seasonally adjusted and trend series. The former is represented with a solid line, the latter, with a dotted line. Trends estimated by Banco de México.
Source: Unit cost prepared by Banco de México based on data from INEGI. The Global Index of Labor Productivity in the Economy (IGPLE), as released by INEGI.

s. a. / Seasonally adjusted and trend series. The former is represented with a solid line, the latter, with a dotted line.
Source: Prepared by Banco de México with seasonally adjusted data from the Monthly Manufacturing Business Survey and the Indicator of Industrial Activity of the Mexico's System of National Accounts, INEGI.

Regarding the performance of inflation expectations based on Banco de México's survey among private sector specialists, it is notable that the medians of inflation expectations increased for all terms. In particular, for the end of 2017, the median spiked as a reflection of the aforementioned shocks on inflation, from 3.4 to 5.2 percent between September 2016 and January 2017 (Chart 170a). [40] The median of core inflation expectations shifted from 3.3 to 4.2 percent and that corresponding to implicit expectations for the non-core component adjusted from 3.7 to 8.8 percent in the referred surveys. This occurred in response to the aforementioned increments in energy prices, which represent changes in relative prices, so that, in light of a monetary policy that aims at preventing second round effects, they should only have a transitory impact on inflation. This is reflected in the evolution of medium-term expectations, which increased to a lesser degree as compared to short-term ones. Thus, the median of expectations at the end of 2018 went up from 3.3 to 3.8 percent in the same period.[41] Specifically, the median of expectations of the core component adjusted from 3.2 to 3.5 percent, while implicit expectations of the non-core component went up from 3.6 to 4.7 percent between the referred surveys (Chart 170b). Likewise, when considering the trajectory of the medians of monthly inflation expectations for each one of the next 12 months, it can be observed that, although in the survey of January 2017 there was a considerable upward adjustment in that corresponding to the same month, the expected dynamics for the remaining months did not change considerably (Chart 171a). Thus, the evolution of the annual inflation implicit in these expectations registers considerable downward adjustment in January 2018, due to the vanishing of the comparison base effect that will impact the measured annual inflation in 2017 (Chart 171b). Finally, expectations for longer-term horizons adjusted to a lesser degree from 3.3 to 3.5 percent (Chart 170c). [42]

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[40] The median of headline inflation expectation for the end of 2017, based on the Citibanamex survey, went up from 3.4 to 5.4 percent between the surveys of September 20, 2016 and February 21, 2017.

[41] The median of headline inflation expectation for the end of 2018, based on the Citibanamex survey, lied at 3.6 percent on February 21, 2017.

[42] As regards the median of long-term inflation expectations, based on the Citibanamex survey (for the next 3-8 years), it went up from 3.4 to 3.5 percent between the surveys of September 20, 2016 and February 21, 2017.

Chart 170
Inflation Expectations
Percent

a) Medians of Headline, Core and Non-core Inflation Expectations as of End of 2017
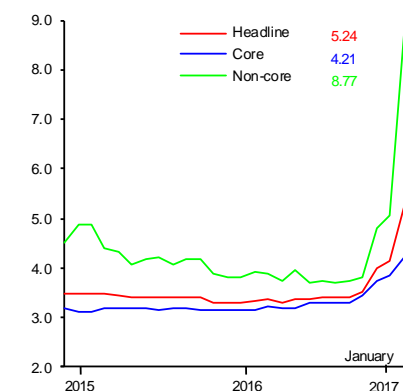
b) Medians of Headline, Core and Non-core Inflation Expectations as of End of 2018

c) Medians of Headline Inflation Expectations for Different Terms
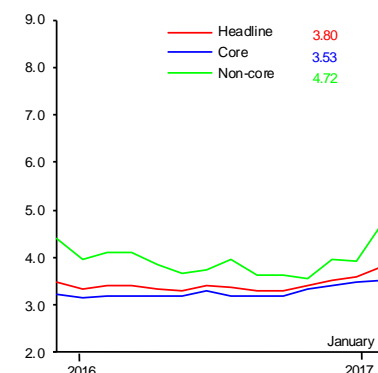
Source: Banco de México's Survey.

Source: Banco de México's Survey.

Source: Banco   de   México's   Survey   and Citibanamex Survey.

Chart 171
Inflation Expectations
Percent

a) Median of Monthly Inflation Expectations for January and Next 12 Months
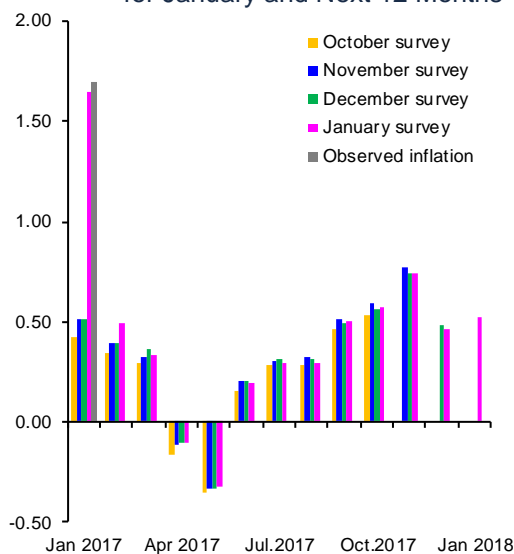
b) Annual Inflation Implicit in Monthly Inflation Expectations

Source: Banco de México's Survey, INEGI.
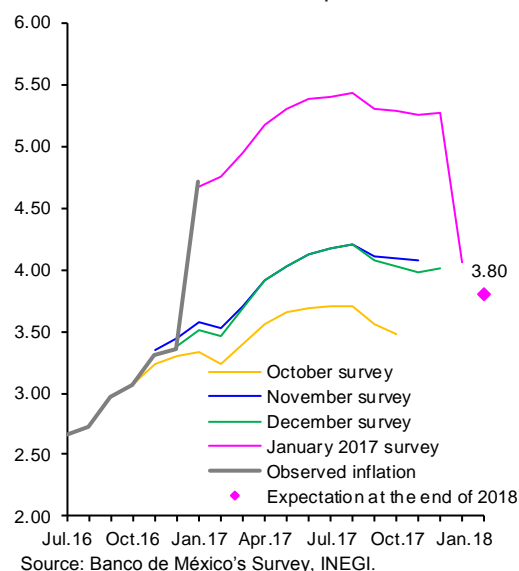
Source: Banco de México's Survey, INEGI.

With respect to inflation expectations implicit in market instruments for long-term horizons (taken from government instruments with maturities of 10 years), they are still slightly above 3 percent, despite recent moderate increments. Meanwhile, the inflation risk premium associated to them increased considerably (Chart 172a). In this way, the increment in the break-even inflation (the difference between long-term nominal and real interest rates) observed between September 2016 and January 2017 seems to be mostly attributed to the increment in the risk premium

(Chart 172b). [43] This can be related to a greater dispersion in inflation expectations, associated to high volatility of the exchange rate, the variance of oil and gasoline prices at the international level and the effect of this variability on domestic gasoline prices from now onwards, in light of the expectation of the liberalization process of these prices. However, it should be noted that considering the liquidity spreads between Bonds M and Udibonos, the information provided by the above referred instruments via this estimation has become more uncertain.

Chart 172
Inflation Expectations
Percent

a) Decomposition of Break-even Inflation and Inflation Risk

b) 10-year Bond Break-even Inflation

Source: Estimated by Banco de México.

Source: Estimated by Banco de México with data from Valmer and Bloomberg.
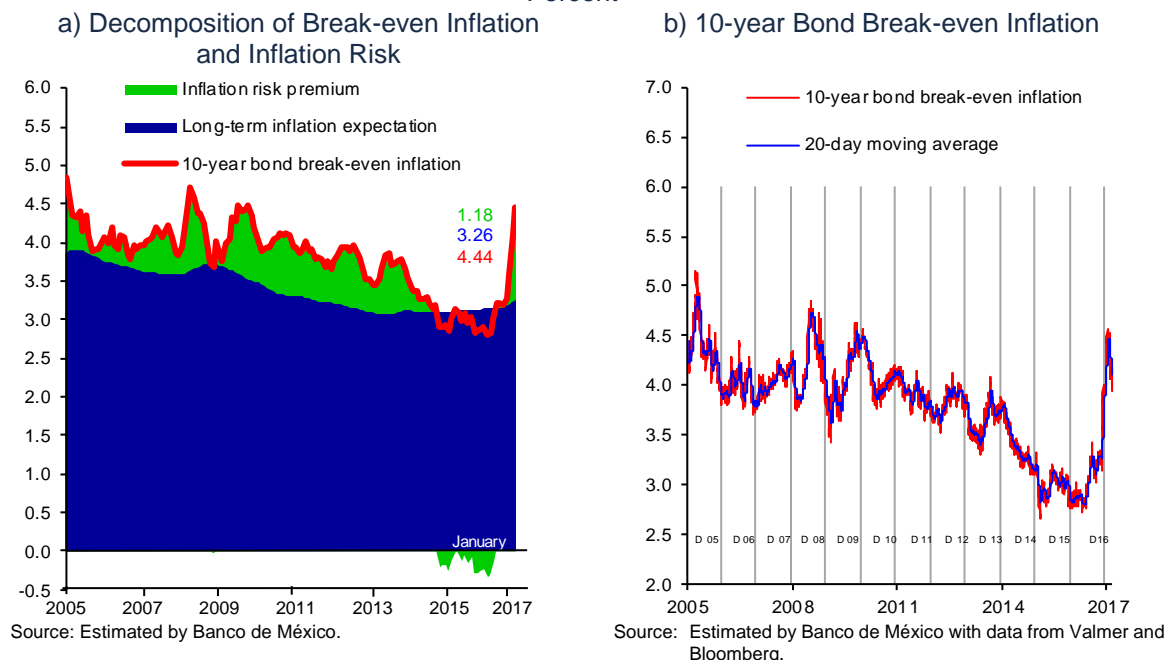
As regards the evolution of international financial markets, it stands out that higher volatility registered in late October and early November, largely due to the uncertainty related to the elections in the U.S. and their respective outcome, has tended to decrease. In contrast, volatility in domestic financial markets went up at the beginning of January, mainly in the foreign exchange market, as a reflection of the risk of possible modifications in the Mexico-U.S. relation, even though a reversal in the exchange rate and its volatility has been observed in recent weeks.

In this context, the exchange rate presented high volatility in the reference quarter and in 2017 so far. Thus, after starting the analyzed quarter at MXN/USD 19.50, it depreciated considerably and reached levels of MXN/USD 20.00 and MXN/USD 20.75 in the wake of the elections in the U.S. Subsequently, at the beginning of 2017, in light of a possible more protectionist policy implemented by the U.S. incoming administration, the volatility of the exchange rate increased and it attained a new historic maximum of MXN/USD 21.91, and even reaching a maximum intraday level of MXN/USD 22.03. Finally, after January 20, 2017, it began to revert and to appreciate considerably (Chart 173). This recent evolution of the national currency has been attributed to the monetary policy actions taken by Banco de

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[43] For a description of the estimation of long-term inflation expectations, see Box "Decomposition of the Break-even Inflation" in the Quarterly Report October – December 2013.

México, as well as to the measures announced by the Foreign Exchange Commission (see page 54).

Chart 173
Exchange Rate and Implied Volatility
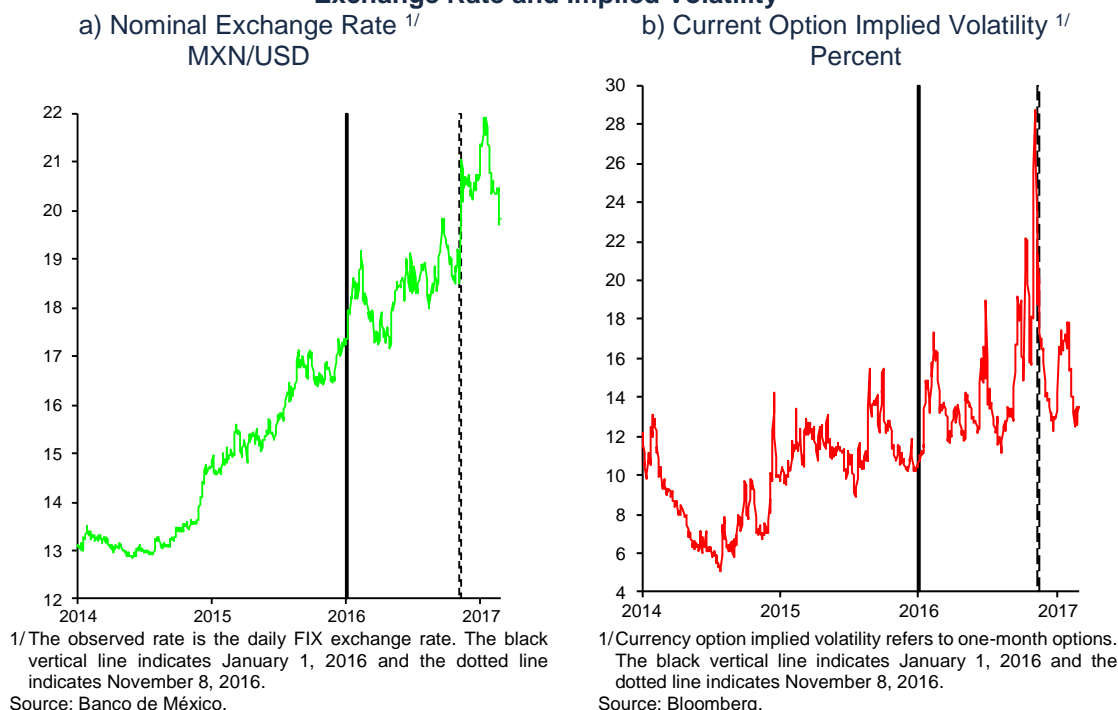
a) Nominal Exchange Rate [1]
MXN/USD

b) Current Option Implied Volatility [1]
Percent

1/ The observed rate is the daily FIX exchange rate. The black vertical line indicates January 1, 2016 and the dotted line indicates November 8, 2016.
Source: Banco de México.

1/ Currency option implied volatility refers to one-month options. The black vertical line indicates January 1, 2016 and the dotted line indicates November 8, 2016.
Source: Bloomberg.

As regards the evolution of the fixed income market, interest rates for all terms increased during the period covered by this Report. Even though it stands out that starting from January 20, 2017 these increments reversed considerably, though all of them remain at levels above those exhibited prior to the U.S. elections. Thus, between late September 2016 and mid-February 2017, 3-month and 10-year rates shifted from 4.8 to 6.3 percent and from 6.1 to 7.4 percent, respectively (Chart 174a and Chart 174b). Within this evolution, it stands out that generally and in particular after each one of the monetary policy decisions listed in this Report, short-term interest rates adjusted to a larger degree as compared to long-term ones, as a result of which the slope of the yield curve (between 3 months and 10 years) decreased by 30 basis points, from 130 to 110 basis points in this period, thus registering its lowest levels since May 2013. Hence, this indicator plunged from an average level of approximately 300 basis points in 2014 and 2015.

Chart 174
Interest Rates in Mexico
Percent

a) Government Bond Interest Rates

b) Yield Curve

Source: *Proveedor Integral de Precios* (PiP).
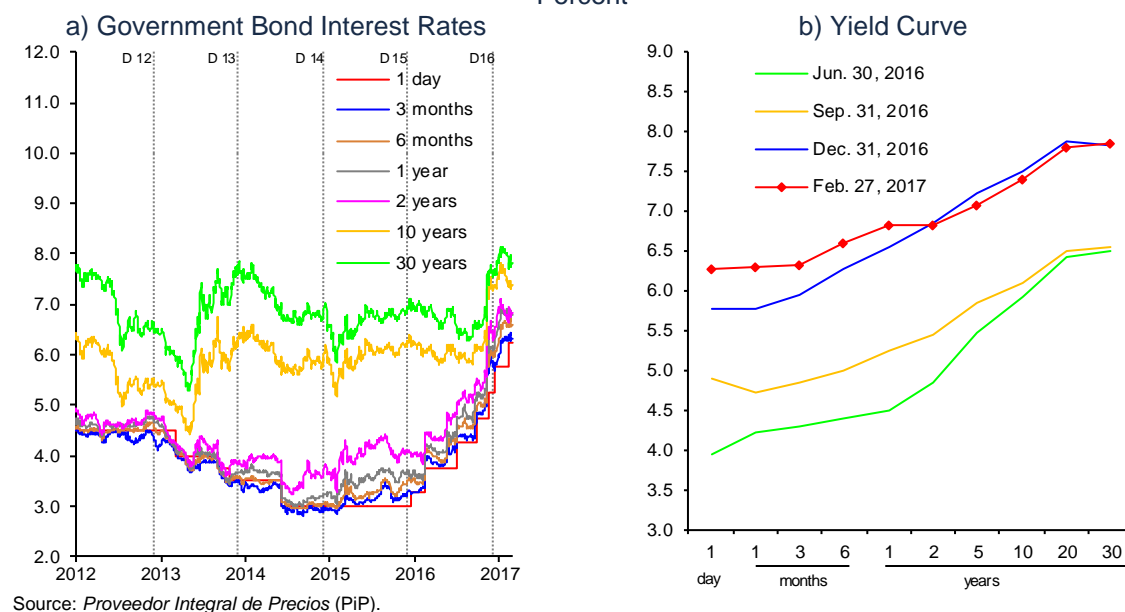
Consistent with the above performance, and given that interest rates in the U.S. raised to a lower degree, the spreads between Mexican and U.S. interest rates increased from the end of the third quarter of 2016 to mid-February 2017 (Chart 175a). Even though in recent weeks longer-term spreads have moderated, they prevail at levels above those prior to the elections in the U.S. In particular, in the period from the end of the third quarter of 2016 to mid-February 2017, the spread of short-term rates (3 months) went up from 450 to 580 basis points, largely as a result of the adjustments in the monetary policy of Mexico. Meanwhile, the 10-year spread shifted from 450 to 500 basis points in the referred period. In this sense, it is noteworthy that during this quarter the curve of the spreads between Mexican and U.S. interest rates (that is, the cross section of these spreads across different terms) registered a significant rise for the short-term spreads, as a result of which this curve inverted. This occurred as a result of the increment in short-term rates in Mexico in view of the monetary policy decisions and the better performance of the long part of the curve in the national currency (Chart 175b).

Chart 175
Spreads between Mexican and U.S. Interest Rates
Percent
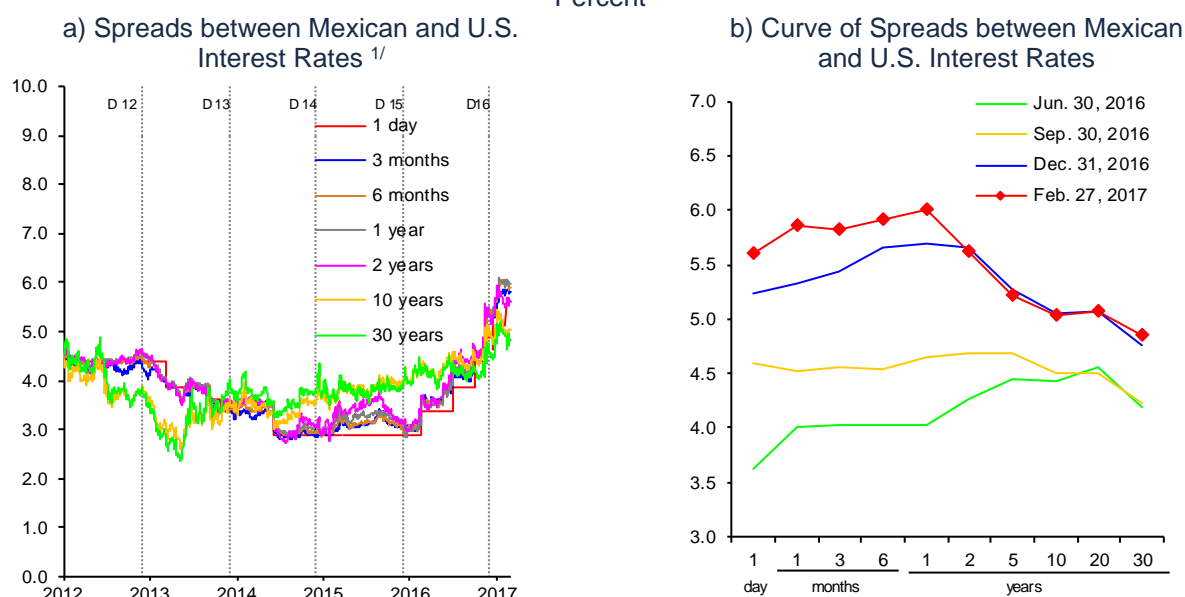
a) Spreads between Mexican and U.S.
Interest Rates [1]

b) Curve of Spreads between Mexican
and U.S. Interest Rates

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.

In light of the simultaneity of the adverse environment and different temporary shocks on the relative prices faced by the Mexican economy, the main challenge for the Board of Governors is to prevent the second round effects on inflation and to maintain its medium- and long-term expectations anchored. This considers both the transitory nature of shocks on inflation this year and the horizon in which the monetary policy transmission channels operate, in light of adjustments in the reference rate that were carried out preemptively during 2016, the adjustment in February 2017 and those deemed appropriate for the rest of the year. Thus, this Central Institute will monitor that the effects of the referred increments are reflected in the inflation dynamics, contributing to its efficient convergence to the 3.0 percent target over the last months of 2017 and in 2018.

In the future, given the uncertainty over the economic policy to be implemented in the U.S. and its consequent effects on the bilateral Mexico-U.S. relation, new volatility episodes in international and domestic financial markets cannot be ruled out. In this respect, in a context of the announced fiscal policy of the consolidation of public finances and the Foreign Exchange Commission's commitment to continue monitoring the operating conditions in the foreign exchange market in order to propitiate its more orderly functioning, this Central Institute will continue to contribute to maintain the soundness of the macroeconomic framework of Mexico by procuring price stability. Thus, whenever future circumstances may so require, this Central Bank will adjust its monetary stance at an appropriate pace.

5. Inflation Forecasts and Balance of Risks

GDP Growth Rate: As described in the previous sections, the Mexican economy continued to expand in the fourth quarter of 2016, reflecting the dynamism of private consumption and the improvement in Mexico's external demand, as a consequence of a moderate recovery of world economic activity and an incipient revival in trade. Thus, even though the growth rate was lower than in the third quarter, it was slightly better than anticipated in the last Report. Therefore, the growth rate for 2016 lied at 2.3 percent, which corresponds to the upper limit of the forecast interval announced in the previous Report.

Looking ahead, world economic growth is still expected to recover gradually over the next years. In particular, greater optimism can be perceived regarding the expected performance in advanced economies, particularly in the U.S.[44] However, these expectations do not seem to fully incorporate possible adverse effects on global economic activity and trade, as a consequence of certain protectionist policies pursued by the new U.S. government. Indeed, despite the prevailing uncertainty regarding the extent and the magnitude of the possible measures adopted by the incoming administration, and regarding the dates of their possible implementation, the economic policy proposals mentioned by the new U.S. government in reference to Mexico already tend to signal that, to a certain degree, it will take actions that would hinder the relation between the two countries. This environment has already affected consumers' and businesses' confidence, foreign direct investment and workers' remittances to Mexico. In this sense, the central growth scenario presented in this Report incorporates a certain deterioration in the expected trade flow between Mexico and the U.S. and a reduced flow of foreign direct investment with respect to that previously expected. Thus, the GDP growth forecasts for Mexico presented in this Report for 2017 and 2018 are adjusted downwards. It should be noted that in line with these expectations, structural reforms will continue boosting economic growth over the next years and the soundness of the macroeconomic framework will also contribute to propitiate a more favorable environment for economic activity, which will allow to partially offset the adverse external environment faced by Mexico. Thus, it is estimated that GDP growth in 2017 will be between 1.3 and 2.3 percent, an interval that is compared to that of 1.5 and 2.5 percent presented in the previous Report. For 2018, the forecast interval is adjusted from one between 2.2 and 3.2 percent to one between 1.7 and 2.7 percent (Chart 176a).

Employment: Consistent with the adjustment in the GDP growth, the forecast for the number of IMSS-affiliated jobs is revised downwards for the next years. In particular, for 2017 an increase of between 580 and 680 thousand jobs is expected, which is below that estimated in the previous Report of between 600 and 700 thousand jobs. In the same vein, in 2018 an increase of between 620 to 720

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[44] Expectations for the U.S. economy are based on the consensus of analysts surveyed by Blue Chip. In particular, according to the survey of February 2017, GDP growth in the U.S. is expected to be 2.3 and 2.4 percent in 2017 and 2018, respectively. These figures are compared to the expectations of 2.2 and 2.1 percent for the same years, which were available at the moment of the release of the previous Report. Likewise, in line with the same survey, U.S. industrial production is estimated to increase 1.5 percent in 2017 and 2.4 percent in 2018. The forecasts available in the previous Report indicated growth of 1.6 and 2.2 percent for the same years.

thousand jobs is expected, as compared to 650 to 750 thousand jobs estimated in the previous Report.

Current Account: Regarding the external accounts, adjustments observed in the trade balance in the last quarter of 2016, along with the revisions in the growth expectations and the trajectory of the real exchange rate lead to downward revisions in the expectations for the trade balance and current account deficits for 2017 and 2018, relative to those published in the previous Report. In particular, for 2017 deficits in the trade balance and the current account of USD 10.1 and 26.5 billion are anticipated, respectively (1.0 and 2.7 percent of GDP, in the same order). For 2018, deficits in the trade balance and the current account are estimated to amount to USD 9.0 and 27.8 billion, respectively (0.9 and 2.7 percent of GDP, in the same order).

Considering these growth forecasts, no aggregate demand-related pressures onto prices are anticipated in the forecast horizon (Chart 176b).

Chart 176
Fan Charts: GDP Growth and Output Gap

a) GDP Growth, s. a.
Annual percent

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

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

s. a. / Seasonally adjusted data.
Source: Banco de México.
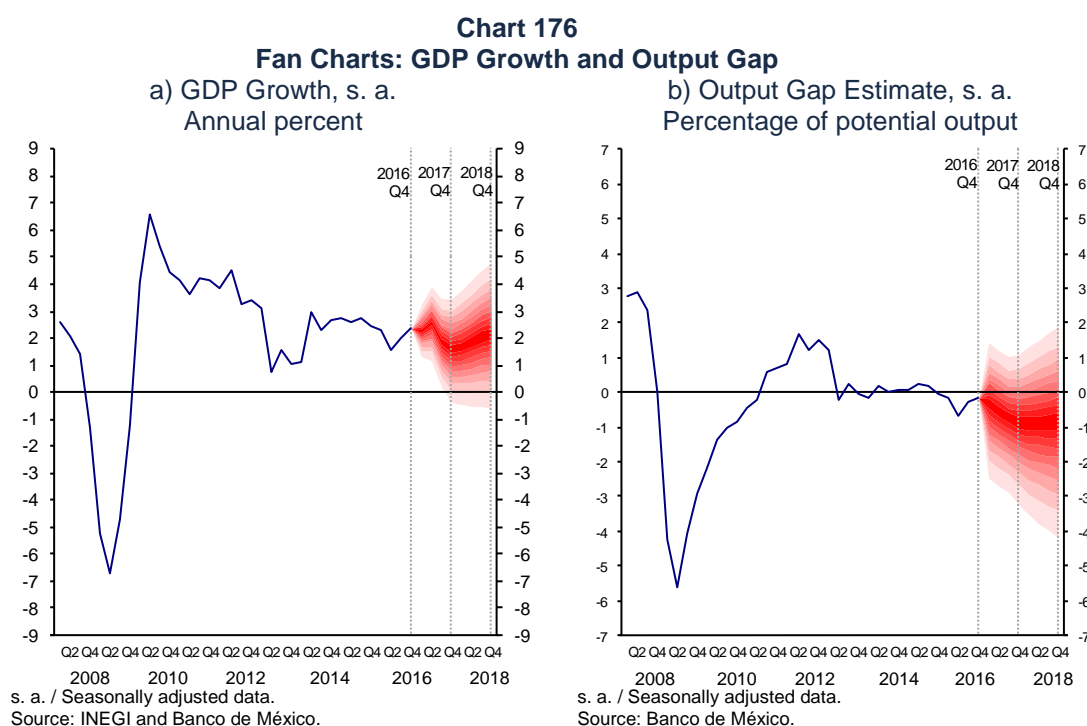
The balance of risks for the growth scenario in Mexico is still biased to the downside. Among downward risks, the following stand out:

i.   That some firms decide to cancel or postpone their investment plans in Mexico in light of the recent events in the U.S.

ii.   That indeed a highly protectionist trade or fiscal policies are implemented, reducing Mexican exports to the U.S. even more than anticipated, leading to a further deterioration of consumers' and businesses' confidence.

iii. That the rating agencies reduce the credit rating of Mexico, thus affecting investment flows to the country.

iv.   That workers' remittances to Mexico are lower than expected, possibly as a consequence of the policies impeding their transfers or of a smaller number of jobs for Mexicans in the U.S.

v.   That episodes of high volatility in international financial markets are observed, hence possibly reducing the sources of financing to Mexico, which could derive, among other factors, from uncertainty related to geopolitical events or to the magnitude and the rate of the monetary policy normalization in the U.S.

Among upward risks to growth, the following are noteworthy:

i.   That the implementation of structural reforms render higher-than-expected results.

ii.   That given the recent exchange rate depreciation, non-oil exports display a more notorious recovery, thus giving a boost to industrial production.

iii.   That the implementation of the expansionary fiscal policy in the U.S. has a net positive impact on the Mexican industrial production and on the transfer of workers' remittances to the country, in a scenario in which protectionist trade policies in the U.S. are not so severe.

iv.   That the forthcoming negotiations of the Free Trade Agreement with the U.S. reach a favorable outcome, and, in general, that a constructive relation with the Northern neighbor can be consolidated.

Inflation: It is estimated that during 2017 headline inflation will exceed the upper limit of the variability interval of Banco de México's target, even though during the last months of 2017 it is expected to resume its trend of convergence towards the target and will lie close to 3 percent in late 2018. Thus, during this year inflation is anticipated to be temporarily affected by both the changes in the relative prices of merchandise with respect of those of services, as a result of the depreciation of the real exchange rate, and the transitory impact of the liberalization of gasoline prices. Likewise, in 2017 core inflation is also estimated to remain at levels above the permanent 3 percent target. Nevertheless, in late 2017 and in 2018 it is expected to resume its trend of converging to the permanent Banco de México's target. The above is expected to occur once the effects of the above mentioned shocks start to fade and the monetary policy measures that have already been implemented, along with those to be adopted in 2017 take effect, in a context in which no aggregate demand-related inflation pressures are anticipated (Chart 177 and Chart 178).

In view of the different shocks that affected the inflation performance, the balance of risks for inflation is considered to have continued deteriorating. Among upward risks, the following should be mentioned:

i.   That the number of shocks that have occurred may increase the probability of second round effects onto inflation.

ii.   That inflation expectations may rise even further as a consequence of additional depreciations of the national currency, derived from uncertainty still prevailing in the external environment or that, given the national currency depreciation, its pass-through onto prices may increase.

iii.   Higher prices of agricultural products, even though their impact onto inflation is expected to be transitory.

Among downward risks, these should be listed:

i.   A possible appreciation of the national currency.

ii.   Further reductions in different prices of the economy, as a consequence of the structural reforms.

iii. That the future performance of the international references and a higher competition among gasoline and other fuels' suppliers in the country would lower the prices of these products.

iv.   That the national economy may decelerate more than estimated, which would further lower the possibility of aggregate demand-related pressures on inflation.

Chart 177
Fan Chart: Annual Headline Inflation [1/]
Percent
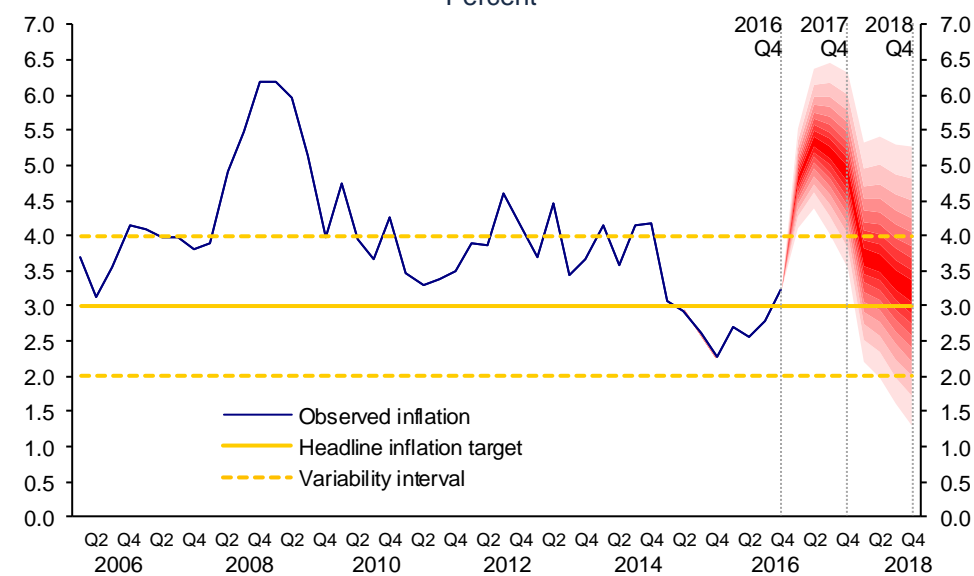
1/ Quarterly average of annual headline inflation.
Source: Banco de México and INEGI.

Chart 178
Fan Chart: Annual Core Inflation [1]
Percent
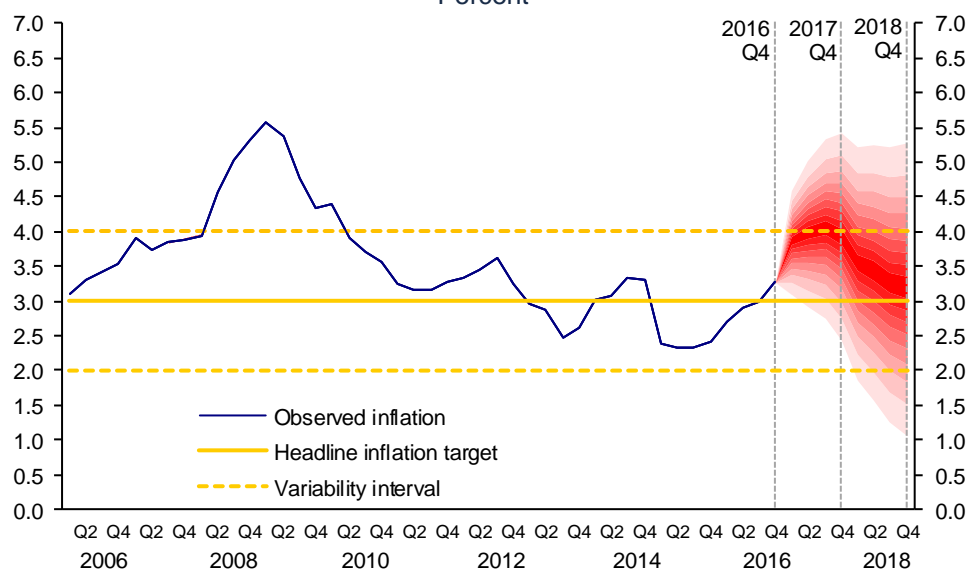
1/ Quarterly average of annual core inflation.
Source: Banco de México and INEGI.

In this context, in the future the Board of Governors will closely monitor the evolution of all inflation determinants and its medium- and long-term expectations, especially the possible pass-through of exchange rate adjustments and gasoline prices onto the rest of prices. Likewise, it will be watchful of the monetary position of Mexico relative to the U.S., and the evolution of the output gap. This will be done in order to continue taking the necessary measures to consolidate the efficient convergence of inflation to its 3.0 percent target.

Regardless of any external developments, Mexico should continue to boost its competitiveness in the international arena and enhance its growth potential in the domestic market. In this sense, the commitment to implement the approved structural reforms in an adequate and timely manner and to persevere with the fiscal consolidation efforts should be a priority. Likewise, the strengthening of both the microeconomic functioning of the economy and its macroeconomic soundness will allow Mexico to become a more attractive investment destination. Moreover, as stated in previous Reports, it is imperative to strengthen the rule of law and to guarantee legal certainty, so as to propitiate a more favorable environment for growth. All of this has gained even more relevance in view of the challenge faced by Mexico derived from the U.S.' intended economic agenda. In this respect, given the possibility that the U.S. may implement protectionist policies that could impede trade, not only with Mexico but with other economies as well, it is necessary to promote and implement strategies that boost productivity and competitiveness. In the same vein, even though the trade integration of North America has indeed benefitted all members of the block and that further deepening the economic relations could boost the competitiveness of the area against other economic regions, it is imperative to maintain Mexico's trade openness and to seek greater diversification of destination markets for Mexican exports, as well as to diversify the sources of foreign direct investment and imports to the country.

Annex

Mexico's Relationship with the International Monetary Fund, the Bank of International Settlements, the Group of Twenty and other Fora

International Monetary Fund

Mexico is a founding member of the International Monetary Fund (IMF) since its creation in 1944. The quota of Mexico in this international organization currently amounts to SDR 8.9 billion, with a relative share of 1.87 percent in the IMF's total quotas.[45] [46]

During 2016, two topics stood out regarding Mexico's relationship with the IMF: 1) the extension and renewal of the Flexible Credit Line (FCL) for an additional period of two years, and 2) the consultations under the Article IV of the IMF's Articles of Agreement. Furthermore, Dr. Agustín Carstens, Governor of Banco de México, as Chairman of the International Monetary and Financial Committee (IMFC) of the IMF (appointment effective on March 23, 2015) chaired two meetings of the aforementioned Committee in 2016, during the Spring and the Annual Meetings of the IMF/World Bank, held in Washington, D.C., U.S. in April and October, respectively.[47] [48] [49]

In May 2016, the IMF Executive Board approved a successor two-year FCL arrangement with Mexico for an amount equivalent to SDR 62.4 billion (approximately USD 88 billion on the date of the approval), as an proof of confidence in the soundness of the Mexican economy.[50] In the context of this approval, the Executive Board pointed out that Mexico is characterized by a very sound framework of macroeconomic policies; that its monetary policy is guided by an inflation-targeting regime in the context of a flexible exchange rate; and that fiscal policy is governed by a fiscal responsibility law. Likewise, the Executive Board noted that the framework for financial regulation and supervision in Mexico was solid and that growth in the medium term should benefit from a series of structural reforms that are currently being implemented. On the other hand, the Executive Board acknowledged that in recent years the Mexican economy has shown resilience in a context of global growth

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[45] The quota is a member state's total accumulated contribution of resources to the IMF. This quota is the IMF's main source of financing and it determines the voting power of each member country in the IMF's decisions. The member states' quota amounts are based on the relative size of their economies and on the indicators associated to their economic activity levels.

[46] The Special Drawing Right (SDR) is an international reserve asset, created by the IMF in 1969 to supplement its member countries' official reserves. SDRs can be exchanged for freely usable currencies. The value of the SDR is based on a basket of five reserve asset currencies: the U.S. dollar, the euro, the Chinese renminbi, the Japanese yen, and the British pound sterling.

[47] The IMFC is the primary advisory body for the IMF Board of Governors which deliberates on the main policy issues that the IMF has to follow. In practice, the IMFC has been a key instrument in providing strategic direction to the IMF. The IMFC, composed by finance ministers and central bank governors, has 24 members, reflecting the composition of the IMF Executive Board. The IMFC functions via consensus, including the process of its Chairman selection. Several international institutions participate as observers in the IMFC meetings.

[48] See the Press Release of the IMFC 33rd Meeting, of April 16, 2016.

[49] See the Press Release of the IMFC 34th Meeting, of October 8, 2016.

[50] See the Press Release of the Foreign Exchange Commission of May 27, 2016.

deceleration. Hence, a new agreement under the FCL for a higher amount, keeps playing an important part in supporting the authorities' macroeconomic strategy by providing an insurance against major external risks and by granting confidence to markets. Since 2009, Mexico has assigned a precautionary nature to this credit line.

Additionally, in November 2016, the IMF announced the results of the consultations to Mexico under the Article IV of the IMF's Articles of Agreement, which represent the surveillance and assessment exercise carried out by the Fund with each member country.[51] [52] In its last report regarding the economic and financial conditions in Mexico, the IMF Executive Board highlighted the strength of Mexico's macroeconomic policy framework in a complex external environment, characterized by high volatility episodes in international financial markets and a greater risk of protectionist policies' implementation. The IMF agreed that, in light of external risks, a flexible exchange rate policy and the strength of macroeconomic fundamentals have made Mexico resilient to the aforementioned shocks. The progress regarding the implementation of the structural reforms agenda that is key for Mexico was also noted, along with the openness to private investment in the energy and telecommunication sectors. As a result of a broad agenda of reforms, the IMF expects a boost in Mexico's potential GDP for the medium term.

Bank for International Settlements

The main mission of the Bank for International Settlements (BIS) is to support central banks' efforts in their pursuit of monetary and financial stability, to foster international cooperation in those areas, and to act as a bank for central banks. The BIS encourages debate and facilitates collaboration among monetary authorities by means of bimonthly meetings and other regular consultations, where Governors and other senior officials of BIS member central banks analyze the main economic events and the outlook for the world economy and international financial markets.

Banco de México became a member of the BIS in 1996. Since then it has actively participated in its meetings, fora and committees and has been part of some of its governing bodies.

In 2016, the participation of the Governor of Banco de México is noteworthy in the Economic Consultative Committee (ECC) and in the Global Economic Meeting (GEM), in his capacity of Chairman of these groups (appointment effective on July 1, 2013). In the said meetings, the development and risks of the global economy and the international financial system are monitored and assessed. In particular, the GEM guides the work and received reports of three Basel-based central bank committees that work to design and implement

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[51] See Press Release of November 22, 2016.

[52] To carry out the consultations, an IMF Mission visits the member country, gathers and analyzes its economic and financial data, and meets with the competent authorities to discuss the country's economic situation, its outlook, and current economic policy measures. Based on these consultations, the IMF technical staff elaborates and submits for discussion a report on the country to the Executive Board. Afterwards, the IMF informs the country's authorities about its conclusions and recommendations.

regulation and supervision norms to achieve financial stability.[53] During the course of 2016, among others, the following topics were discussed in these meetings: the impact of possible changes in the regulatory treatment regarding sovereign exposures on the implementation of monetary policy; monitoring the evolution of digital innovation in the financial system and its potential benefits and risks; initiatives to strengthen the norms and the code of conduct in foreign exchange markets; and the recent trends in the functioning of repo operations' markets.

Banco de México's Governor also took an active role in the work of the BIS Board of Directors, of which he has been a member since 2011. This body is responsible, among other issues, for determining the strategic and policy direction of this international institution, overseeing its operations and addressing its governance issues, appointing its main executive officers, and supervising their performance. In particular, Governor Carstens participated in the activities of one of the advisory committees of this Board, i.e. the Banking and Risk Management Committee which is in charge of analyzing and evaluating the BIS' financial objectives, the banking operations business model and its risk management frameworks.

The Governor also participated in the Group of Central Bank Governors and Heads of Supervision (GHOS) which analyzes the initiatives aimed at promoting a resilient international financial system and progress in the agenda of regulatory and supervision reforms to enhance global financial stability. Moreover, guidelines and strategic priorities in the work program of the Basel Committee on Banking Supervision are established in this Group.

Banco de México also had an outstanding involvement in the activities of other recurring consultative fora organized by the BIS, in which more detailed topics with a particular impact on a specific group of economies or regions are discussed. Among these meetings, the following should be underscored: 1) the Central Bank Governance Group, where specific information and research regarding the design and operation of central banks as public policy institutions are exchanged, and in which the criteria and priorities relative to the monetary authorities' governance are established; 2) the Major Emerging Market Economies, where the impact of the international economic juncture on emerging markets and the measures adopted by this group of countries are analyzed; and 3) the Consultative Council for the Americas (CCA), which seeks to strengthen the BIS work agenda with the central banks of the region, in order to be able to take into account topics of their specific interest and concern.

Financial Stability Board

The main goal of the Financial Stability Board (FSB) is to coordinate the activities of the national financial authorities and international standard-setting bodies, as well as to promote the implementation of efficient financial regulation and supervision policies in order to promote global financial stability.

During 2016, Banco de México actively participated in the Plenary meetings and in the FSB Steering Committee activities, along with other working groups

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[53] The Committee on the Global Financial System (CGFS), the Committee on Payments and Market Infrastructures (CPMI) and the Markets Committee.

where, among other topics, the following issues were discussed: vulnerabilities affecting the global financial system and the policy actions needed to address them, the FSB's priorities for 2016 and its work plan for 2017. Among the most relevant topics for this forum in 2016, the next should be listed: full, timely and consistent implementation of the reform agenda approved in the wake of the 2008 crisis, including Basel III, handling its unintended consequences; the response to the vulnerabilities that may emerge in the global financial system, including the potential risks to the financial stability associated to the asset management strategies, liquidity hedges and the decrease in correspondent banking services; promoting a robust financial infrastructure by assessing the policies to strengthen central counterparties (CCP); promoting the design of effective macroprudential policies, taking into account the available national and international experiences; and evaluating the risks and benefits derived from the innovation and digitalization of financial services (FinTech) to identify the regulatory and supervisory measures required from a financial stability perspective.

The Group of Twenty

The Group of Twenty (G20) is the main forum for international dialogue and cooperation, seeking to contribute to economic and financial growth and stability. Advanced and emerging market economies participate in this forum, representing as a whole around 80 percent of the world's GDP, 75 percent of global trade and two thirds of total population. The most relevant financial and economic topics are discussed in this forum in order to foster strong, sustainable, balanced and inclusive growth. Likewise, this forum seeks to promote an open and constructive dialogue on the relevant topics related to the global monetary and financial system, and to help strengthen the international financial architecture.

During 2016, China held the presidency of the G20, and its work agenda was focused on the continuous implementation of growth strategies to achieve strong, sustained, and balanced growth. China's presidency underscored the transition to a more interconnected and inclusive global economy. The action plan that was adopted during this presidency included macroeconomic measures to boost growth and job creation in the short term, along with structural reforms to increase productivity and welfare for the medium and long terms. China's G20 presidency culminated in the Leaders' Summit, held on September 4 and 5 in Hangzhou, China.

To fulfill Mexico's commitments before the G20, both the Ministry of Finance (SHCP, for its acronym in Spanish) and Banco de México participated in the meetings of Finance Ministers and Central Bank Governors, as well as in their Deputies' meetings, and in the activities of some working groups of the G20 Finance Track: the Framework for Strong, Sustainable and Balanced Growth; the International Financial Architecture; and Investment in Infrastructure.

Germany took on the G20 presidency on December 1, 2016. The priorities of the work agenda of Germany regarding the Finance Track in this forum are the following: 1) to increase economies' stability and resilience; ii) to promote

investment, particularly in Africa; and iii) to enhance opportunities and to identify the risks of financial services' digitalization.

Center for Latin American Monetary Studies (CEMLA)

CEMLA was formally established in September 1952. Banco de México was one of the seven founding central banks and one of the main driving forces behind its creation. Currently, the Center has 52 members, 30 of which are Associates (with the right of voice and vote) and 22 Collaborating Members (only with the right of voice).

Among the main goals of CEMLA, the following can be named: 1) to promote a better understanding of monetary and banking topics as well as fiscal and exchange rate policy issues in Latin America and the Caribbean; 2) to help improve the training of central banks and other financial bodies' personnel in Latin America and the Caribbean by means of seminars and special training courses, as well as the publication of research studies; 3) to conduct research and systematize the results obtained in the aforementioned areas; and 4) to provide information to its members regarding topics of international and regional interest related to monetary and financial policies.

As an Associate of this Center, Banco de México participated in different Governors' meetings, as well as the meetings of the Assembly held in 2016. Furthermore, Banco de México is a permanent member of CEMLA's Board of Governors, the Alternates Committee and the Auditing Committee, the governing bodies in which, among other things, the strategic plan, work program, budget, and guidelines to improve governance of the Center are approved. It should be noted that in its presiding capacity of the Auditing Committee, Banco de México organized the work plan of the said Committee during 2016, and hosted the Autumn meeting, held in August 2016 in Mexico City; it was also in charge of preparing and presenting the Committee's Annual Report before the Board of Governors.

It is noteworthy that the meeting of the Board of Governors and the Assembly focused on CEMLA's operational, administrative and good governance issues. Meanwhile, during the meetings of Governors, topics related to the international economic and financial outlook, the financial regulation agenda, as well as the challenges faced by central banks in Latin America were discussed.

In order to support CEMLA's training efforts and to strengthen its human capital, during 2016, Banco de México's personnel actively participated in different seminars, workshops, courses and technical meetings offered by this Center, some of which were even organized by this Central Bank.

Statistical Appendix

Contents

Basic Information

Table A 1
Summary of Selected Indicators

	2012	2013	2014	2015	2016 [p]
Social and demographic indicators					
Population (millions) [1]	117.1	118.4	119.7	121.0	122.3
Total population growth rate [1]	1.2	1.1	1.1	1.1	1.0
Life expectancy at birth [1]	74.3	74.5	74.7	75.0	75.2
Production and prices					
Gross Domestic Product (GDP) in MXN billion [p]	15,627	16,118	17,259	18,242	19,523
			Annual change in percent		
GDP at 2008 constant prices [p]	4.0	1.4	2.3	2.6	2.3
Consumer Price Index (Dec-Dec)	3.57	3.97	4.08	2.13	3.36
Money and finances					
Monetary aggregates [2]			Real annual change in percent		
Monetary base	9.4	2.4	9.1	16.9	12.7
M1	9.4	4.4	9.9	15.0	11.4
M4	12.1	7.5	6.6	6.5	3.2
Domestic financial saving [3]	12.2	7.8	6.3	5.8	2.5
Interest rates [4]					
28-day Cetes	4.24	3.75	3.00	2.98	4.15
28-day TIIE (Interbank Equilibrium Interest Rate) [5]	4.79	4.28	3.52	3.32	4.47
			MXN/USD		
Exchange rate (end of period) [5]	13.0101	13.0765	14.7180	17.2065	20.7314
Public finances			Percent of GDP		
Public balance [6]	-2.6	-2.3	-3.1	-3.5	-2.6
Primary balance [6]	-0.6	-0.4	-1.1	-1.2	-0.1
Public Sector Borrowing Requirements	-3.8	-3.7	-4.6	-4.1	-2.9
Net public debt [7]	31.5	32.1	36.2	39.4	41.8
External sector			Percent of GDP		
Trade balance	0.0	-0.1	-0.2	-1.3	-1.3
Current account	-1.4	-2.5	-2.0	-2.9	-2.7
Financial account	4.6	5.5	4.7	3.1	3.4
Total external debt	22.2	24.3	26.1	30.2	34.8
Interest paid	1.7	1.9	2.0	2.2	2.5
			USD billion		
Gross international reserves (end of period) [8]	167.1	180.2	195.7	177.6	178.0

1/ 1990-2010 basic demographic indicators and 2010-2050 Mexico's population projections of the National Council of Population (*Consejo Nacional de Población, CONAPO*).
2/ Estimates based on the average of monthly outstanding stocks.
3/ Defined as monetary aggregate M4 less currency outside banks.
4/ Average during the period.
5/ Used to settle liabilities in foreign currency.
6/ Based on the revenue-expenditure methodology.
7/ Refers to the broad economic debt, which includes net liabilities of the federal government, public entities and enterprises and of official financial intermediaries (development banks and trust funds). Outstanding stocks at end of period. Calculated by Banco de México.
8/ As defined in Banco de México's Law.
p/ Preliminary figures.
Fuente: CONAPO, Mexico's System of National Accounts (*Sistema de Cuentas Nacionales de México*), INEGI, Banco de México, Mexican Stock Exchange and Ministry of Finance (*Secretaría de Hacienda y Crédito Público*, SHCP).

Table A 2
Socio-Demographic Indicators

	2009	2010	2011	2012	2013	2014	2015	2016
Population (millions) [1]	112.9	114.3	115.7	117.1	118.4	119.7	121.0	122.3
Urban population [2]	n.a.	76.2	76.1	76.1	76.0	76.1	76.2	76.4
Rural population [2]	n.a.	23.8	23.9	23.9	24.0	23.9	23.8	23.6
Population by sq.km	57.5	58.2	58.9	59.6	60.3	61.1	61.8	62.4
Total population growth rate [3]	1.3	1.3	1.2	1.2	1.1	1.1	1.1	1.0
National unemployment rate [4]	5.4	5.3	5.2	4.9	4.9	4.8	4.3	3.9
Unemployment rate (in urban areas) [5]	6.6	6.4	5.9	5.8	5.7	5.9	5.1	4.7
Life expectancy at birth (years)	74.0	74.0	74.1	74.3	74.5	74.7	75.0	75.2
Fertility rate [6]	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2
Mortality rate (per thousand)	5.0	5.2	5.1	5.1	5.3	5.3	5.4	5.4
Infant mortality rate (per thousand live births)	14.6	14.1	13.7	13.3	13.0	12.5	12.2	11.8
Number of hospital beds (per 100 000 inhabitants) [7]	70.5	74.1	74.0	73.2	73.9	74.5	72.5	73.2
Illiteracy rate (population 15 years or older) [8]	7.0	6.9	6.5	6.2	6.0	5.7	5.0	4.3
Number of students per teacher (grade school) [8]	26.1	26.1	26.0	25.7	25.4	25.0	24.8	24.8
Population with access to drinking water [2]	90.7	91.2	91.6	92.0	92.3	92.7	92.5	93.3

1/ 1990-2010 basic demographic indicators and 2010-2050 Mexico's population projections of the National Council of Population (CONAPO).
2/ Percentage of total population. The estimate of the population by area of residence is based on the population projections by size of locality 2010 - 2030.
For years prior to 2010, there are no available data.
3/ An average annual growth rate including the net migration balance.
4/ Ratio of unemployed population to economic active population. The Unemployed Population is comprised of individuals that were not engaged in working activities during the reference week, but were searching for work during the last month.
Data are adjusted to the demographic projections of the National Council of Population (CONAPO). Figures correspond to the population of 15 years and older.
5/ Unemployment rate in 32 cities. Figures correspond to the population of 15 years and older.
6/ At the end of women's reproductive life.
7/ Only data from public sector institutions. Data estimated in 2016.
8/ Data estimated in 2016.
n.a. Not available.
Source: Annual Government Report 2016, Mexico's Presidency; CONAPO and INEGI Occupation and Employment Survey.

Table A 3
Infrastructure

	2009	2010	2011	2012	2013	2014	2015	2016
National road network [1/][2/]								
Roads (km)	366,807	371,936	374,262	377,660	378,922	389,345	390,301	390,301
Federal toll roads (km)	8,335	8,397	8,459	8,900	9,174	9,457	9,664	9,664
Federal non-toll roads (km)	40,509	40,575	40,643	40,752	40,812	40,783	40,739	40,739
Paved roads (km) [3/]	136,157	138,404	141,361	146,221	148,329	155,239	156,797	156,797
Railroad transportation [2/]								
Total railroad network (km)	26,709	26,715	26,727	26,727	26,727	26,727	26,727	26,727
Passengers (million passengers/km) [4/]	449	844	891	970	1,036	1,150	1,411	1,612
Commercial cargo (million tons/km) [5/]	69,185	78,770	79,728	79,353	77,717	80,683	83,401	84,329
Air transportation [2/]								
Number of international airports	61	64	64	64	64	63	63	63
Passengers (thousands)	46,971	48,698	50,764	55,153	60,007	65,135	73,265	80,247
Cargo (thousand tons)	466	571	562	559	582	618	655	670
Sea transportation [2/]								
Number of ports (sea and river)	116	116	117	117	117	117	117	117
Sea fright (international and domestic cargo, thousand tons)	241,923	272,811	282,902	283,462	288,696	286,761	292,645	294,296
Communications [2/]								
Phones (thousands of lines in services)	19,506	19,919	19,731	19,791	19,881	20,103	19,860	19,947
Mobile phones (thousand subscribers)	83,219	91,384	94,583	100,727	103,762	104,948	107,690	111,686
Telegraph services (number of offices)	1,582	1,588	1,592	1,615	1,620	1,677	1,683	1,693
Postal services (locations served)	16,536	16,966	17,080	16,903	17,021	16,964	12,311	12,323
Radio stations [6/]	1,501	1,472	1,485	2,147	2,263	1,745	1,706	1,731
TV stations [6/]	691	688	693	1,044	1,037	1,072	817	817
Lodging (number of rooms) [7/]	623,555	638,494	651,160	660,546	627,296	692,351	728,743	n.d.
Energy								
Electric power generation (gigawatts/hour) [8/]	266,564	274,701	290,755	294,637	296,342	301,467	308,970	154,422
Oil reserves (millions of barrels) [9/]	43,563	43,075	43,074	43,837	44,530	42,158	37,405	n.a.

1/ It refers to the National Road Inventory of December each year.
2/ Preliminary figures in 2015 and estimates in 2016.
3/ For 2013, it excludes road sections constructed and/or modernized, that are in the process of completion and delivery/reception.
4/ Since June 2008 onwards, figures include intercity and suburban service.
5/ Excluding baggage and express service.
6/ Includes broadcasting, concessions and licenses.
7/ Figures as of December of each year.
8/ Includes Federal Electricity Commission (*Comisión Federal de Electricidad*, CFE), Central Light and Power Company (*Luz y Fuerza del Centro*, LFC) and external energy producers.
9/ As of January 1st of each year.
n.a. Not available.
Source: Annual Government Report 2016, Mexico's Presidency and PEMEX.

Table A 4
Mexican Financial System

REGULATORY AUTHORITIES

MINISTRY OF FINANCE (*Secretaría de Hacienda y Crédito Público*, SHCP)	BANCO DE MÉXICO
NATIONAL BANKING AND SECURITIES COMMISSION (*Comisión Nacional Bancaria y de Valores*, CNBV)	NATIONAL INSURANCE AND BONDING COMMISSION (*Comisión Nacional de Seguros y Fianzas*, CNSF)
NATIONAL COMMISSION FOR PROTECTION AND DEFENSE OF FINANCIAL SERVICE USERS (*Comisión Nacional para la Protección y Defensa de los Usuarios de Servicios Financieros*)	NATIONAL COMMISSION FOR THE RETIREMENT SAVINGS SYSTEM (*Comisión Nacional de Sistema de Ahorro para el Retiro*)

FINANCIAL INSTITUTIONS

FINANCIAL GROUPS	CREDIT INSTITUTIONS	SECURITIES MARKET	OTHER FINANCIAL INTERMEDIARIES AND CREDIT INFORMATION COMPANIES	
23 Financial holding companies	52 Commercial banks [1]	1 Mexican stock exchange	101 Insurance corporations[3]	91 Credit unions
	6 Development banks	36 Brokerage houses	17 General warehousing storage	15 Financial guarantee corporations
	2 Development trust funds	605 Investment corporations[2]	49 Multiple-purpose non-bank financial corporations, regulated entitie	9 Foreign exchange companies
		73 Investment corporations specialized in retirement savings		195 Savings and loan associations
		1 Derivatives exchange		2 Credit bureaus

1/ The number of financial entities refers to those authorized as of December 2016.
2/ Includes stock investment funds, fixed-income investment funds for individuals and enterprises, and equity investment funds.
3/ Includes insurance corporations, pension funds, health insurance corporations, housing finance insurance corporations, and standardized guarantee insurance corporations.
Data as of December 2016.
Source: Banco de México.

Production and Employment

Table A 5
Main Production Indicators
2008 prices
Annual change in percent

	2012	2013	2014	2015	2016 p/
Gross Domestic Product	4.0	1.4	2.3	2.6	2.3
Private consumption	4.9	2.1	1.8	2.3	2.8
Public consumption	3.5	1.0	2.1	2.3	1.1
Private investment	9.0	-1.6	5.0	8.0	2.2
Public investment	-9.0	-1.3	-5.0	-12.0	-9.2
Exports (goods and services)	5.8	2.4	7.0	10.3	1.2
Imports (goods and services)	5.5	2.6	6.0	8.6	1.1

p/ Preliminary figures.
Source: Mexico's System of National Accounts, INEGI.

Table A 6
Gross Domestic Product

	MXN million at current prices	Exchange rate 1/	USD million
2011	14,550,013.9	12.4354	1,170,044.8
2012	15,626,906.6	13.1613	1,187,334.6
2013	16,118,030.6	12.7724	1,261,943.0
2014	17,258,964.1	13.3056	1,297,120.3
2015	18,241,981.6	15.8680	1,149,605.7
2016 p/	19,522,651.6	18.6908	1,044,504.1

1/ Exchange rate used to settle liabilities denominated in foreign currency, average of the period.
p/ Preliminary figures.
Source: Mexico's System of National Accounts, INEGI; Banco de México.

Table A 7
Aggregate Supply and Demand
2008 prices

	Annual change in percent					Percent of GDP	
	2012	2013	2014	2015	2016 p/	2008	2016 p/
Aggregate supply	4.4	1.7	3.2	4.1	2.0	130.2	134.5
GDP	4.0	1.4	2.3	2.6	2.3	100.0	100.0
Imports	5.5	2.6	6.0	8.6	1.1	30.2	34.5
Aggregate demand	4.4	1.7	3.2	4.1	2.0	130.2	134.5
Total consumption	4.7	2.0	1.8	2.3	2.6	77.8	78.2
Private	4.9	2.1	1.8	2.3	2.8	66.9	67.4
Public	3.5	1.0	2.1	2.3	1.1	10.9	10.9
Total investment	4.8	-1.6	3.0	4.2	0.4	23.1	21.6
Private	9.0	-1.6	5.0	8.0	2.2	17.5	18.4
Public	-9.0	-1.3	-5.0	-12.0	-9.2	5.6	3.1
Exports	5.8	2.4	7.0	10.3	1.2	27.9	35.2

p/ Preliminary figures.
Source: Mexico's System of National Accounts, INEGI.

Table A 8
Aggregate Supply and Demand
Annual change in percent with respect to the same period of last year

	2013	2014	2015	2016 p/				
				I	II	III	IV	Annual
Aggregate demand	1.7	3.2	4.1	2.4	2.1	1.6	1.9	2.0
GDP	1.4	2.3	2.6	2.2	2.6	2.1	2.4	2.3
Imports	2.6	6.0	8.6	3.1	0.8	0.3	0.5	1.1
Aggregate demand	1.7	3.2	4.1	2.4	2.1	1.6	1.9	2.0
Total consumption	2.0	1.8	2.3	2.5	2.3	2.8	2.6	2.6
Private	2.1	1.8	2.3	2.9	2.5	3.0	2.8	2.8
Public	1.0	2.1	2.3	-0.2	1.6	1.6	1.6	1.1
Total investment	-1.6	3.0	4.2	0.6	0.7	-0.7	1.0	0.4
Private	-1.6	5.0	8.0	2.7	2.4	1.4	2.4	2.2
Public	-1.3	-5.0	-12.0	-10.5	-7.7	-12.4	-6.5	-9.2
Exports	2.4	7.0	10.3	1.7	0.1	1.0	2.0	1.2

p/ Preliminary figures.
Source: Mexico's System of National Accounts, (INEGI).

Table A 9
Domestic Saving and Investment
Percent of GDP at current prices

Item	2011	2012	2013	2014	2015	2016 p/
Financing of gross capital formation 1/	22.2	23.0	21.7	21.6	22.9	23.3
Financed with external savings 2/	1.2	1.4	2.5	2.0	2.9	2.7
Financed with domestic savings	21.0	21.6	19.2	19.5	20.0	20.6

1/ Includes gross capital formation plus change in inventories.
2/ Current account stocks of the balance of payments, measured in current MXN and as a proportion of GDP.
p/ Preliminary figures.
Source: Banco de México with data from Mexico's System of National Accounts, INEGI and Banco de México.

Table A 10
Gross Domestic Product by Sector
2008 prices

	Annual change in percent					Percent of GDP	
	2012	**2013**	**2014**	**2015**	**2016** [p/]	**2008**	**2016** [p/]
Total	4.0	1.4	2.3	2.6	2.3	100.0	100.0
Primary sector	7.4	0.9	4.2	1.5	4.1	3.2	3.1
Secondary sector	2.9	-0.5	2.7	1.0	0.0	35.6	32.5
Mining	0.9	-0.1	-1.3	-4.6	-6.4	8.6	6.2
Electricity, water supply and pipeline gas supply	2.1	0.5	8.2	2.3	3.3	2.1	2.3
Construction	2.5	-4.8	2.0	2.5	1.8	8.4	7.3
Manufacturing industry	4.1	1.2	4.1	2.5	1.3	16.5	16.6
Tertiary sector	4.5	2.4	1.8	3.5	3.4	58.6	61.6
Commerce	4.8	2.2	3.1	4.7	2.4	14.6	15.7
Transport, mail and warehousing services	4.1	2.4	3.2	4.3	2.8	5.7	5.9
Mass media services	16.3	5.0	0.2	7.8	10.1	2.6	3.7
Financial and insurance services	7.7	10.4	-0.8	4.3	7.7	3.2	4.8
Real estate and leasing services	2.5	1.0	2.1	2.5	1.9	11.8	11.8
Professional, scientific and technical services	1.1	1.2	1.7	4.2	7.0	2.4	2.3
Corporate and firm management services	8.6	-1.8	7.2	3.5	4.7	0.6	0.6
Business support services, waste management and remediation services	4.4	4.3	-0.2	1.2	4.1	3.3	3.1
Educational services	2.2	0.8	0.1	0.0	1.0	3.9	3.5
Health and social assistance services	2.1	0.6	-0.6	-2.3	1.3	2.0	1.8
Cultural and sport services, and other recreational services	2.9	3.4	-1.5	3.8	5.7	0.5	0.5
Temporary lodging services, and food and beverage-related services	5.4	1.8	2.9	5.8	3.8	2.3	2.2
Other services, except for government-related services	3.3	2.1	1.6	2.7	5.8	2.1	2.1
Government activity-related services	3.7	-0.5	1.9	2.7	0.0	3.7	3.5

p/ Preliminary figures.
Source: Mexico's System of National Accounts, INEGI.

Table A 11
Manufacturing
2008 prices

	Annual change in percent				Percent of GDP	
	2013	**2014**	**2015**	**2016** [p/]	**2008**	**2016** [p/]
Total	1.2	4.1	2.5	1.3	16.5	16.6
Food industry	0.9	0.6	1.6	2.6	3.7	3.5
Beverage and tobacco industries	-0.5	3.1	5.6	5.3	0.8	0.9
Textile input manufacturing	-2.7	-1.7	3.8	-0.7	0.1	0.1
Textile manufacturing (except for apparel)	3.5	7.0	9.8	4.1	0.1	0.1
Apparel industry	3.3	-2.8	7.0	-2.0	0.5	0.4
Leather product industry (except for leather clothing)	-0.6	-1.7	2.0	-1.6	0.1	0.1
Timber industry	-2.2	1.0	3.1	-4.8	0.2	0.2
Paper industry	2.1	3.1	3.7	3.4	0.3	0.3
Printing and printing-related industries	-6.9	-2.7	1.7	-2.8	0.1	0.1
Oil and coal by-product industries	3.3	-4.5	-7.4	-11.2	0.7	0.4
Chemical industry	0.8	-1.3	-2.8	-2.8	2.2	1.7
Plastic and rubber industry	-1.9	6.5	2.4	3.2	0.4	0.5
Non-metal mineral products industry	-3.1	2.7	4.6	2.8	0.9	0.8
Basic metal industries	2.3	8.4	-3.5	3.2	1.2	1.1
Metal products industry	-3.3	7.8	3.2	3.2	0.6	0.6
Machinery and equipment	0.2	1.6	0.1	3.4	0.5	0.7
Manufacturing of measurement and other equipment, components and accessories	3.6	11.1	6.1	6.1	0.7	0.8
Manufacturing of electric supply equipment and electric devices and accessories	-2.0	8.8	5.7	3.6	0.5	0.5
Transport equipment manufacturing	5.8	12.4	7.2	0.2	2.1	3.2
Manufacturing of furniture and furniture-related products	-5.8	-1.8	7.7	-3.4	0.2	0.2
Other manufacturing industries	0.0	6.4	4.7	3.3	0.4	0.4

p/ Preliminary figures.
Source: Mexico's System of National Accounts, INEGI.

Table A 12
Crude Oil, Gas Production and Crude Oil Reserves

Year	Crude oil (Million barrels)		Natural gas (Million cubic feet per day)	Total oil reserves [1] (Billion barrels)
	Total	Daily average	Total	Total
2002	1,159.6	3.177	4,423	53.0
2003	1,230.4	3.371	4,498	50.0
2004	1,238.1	3.383	4,573	48.0
2005	1,216.7	3.333	4,818	46.9
2006	1,188.3	3.256	5,356	46.4
2007	1,122.6	3.076	6,058	45.4
2008	1,021.7	2.792	6,919	44.5
2009	949.5	2.601	7,031	43.6
2010	940.6	2.577	7,020	43.1
2011	931.7	2.553	6,594	43.1
2012	932.5	2.548	6,385	43.8
2013	920.6	2.522	6,370	44.5
2014	886.5	2.429	6,532	42.2
2015	827.4	2.267	6,401	37.4
2016 [p]	788.2	2.154	5,792	n.a.

1/ Figures up to January 1st.
p/ Preliminary figures.
n.a. Not available.
Source: Institutional Database and Oil Statistics (*Indicadores Petroleros*), PEMEX.

Table A 13
Employment: IMSS-insured Workers [1]
Thousands

Year [2]	Permanent	Temporary in urban areas	Total
2011	13,267	1,936	15,202
2012	13,848	2,054	15,902
2013	14,250	2,105	16,356
2014	14,783	2,269	17,052
2015	15,381	2,304	17,685
2016	16,031	2,373	18,404
2015 Jan	14,794	2,303	17,097
Feb	14,885	2,336	17,221
Mar	14,969	2,360	17,328
Apr	15,024	2,373	17,397
May	15,062	2,369	17,431
Jun	15,146	2,393	17,539
Jul	15,188	2,403	17,591
Aug	15,250	2,402	17,651
Sep	15,344	2,417	17,761
Oct	15,461	2,443	17,904
Nov	15,548	2,458	18,006
Dec	15,381	2,304	17,685
2016 Jan	15,391	2,342	17,733
Feb	15,492	2,388	17,880
Mar	15,533	2,395	17,928
Apr	15,611	2,412	18,023
May	15,666	2,415	18,082
Jun	15,761	2,426	18,187
Jul	15,783	2,433	18,216
Aug	15,861	2,460	18,321
Sep	15,986	2,486	18,471
Oct	16,109	2,519	18,628
Nov	16,206	2,531	18,737
Dec	16,031	2,373	18,404

1/ Permanent and temporary workers in urban areas.
2/ Data as of the end of the year.
Source: Mexican Social Security Institute (*Instituto Mexicano del Seguro Social*, IMSS).

Table A 14
Employment and Unemployment indicators [1]
Percent

		In relation to economic active population			In relation to employed population		
		National unemployment rate [2]	**Unemployment rate in urban areas** [3]	**Partial employment and unemployment rate** [4]	**Underemployment rate** [5]	**Informal labor rate** [6]	**Employment rate in the informal sector** [7]
2013		4.9	5.7	11.2	8.4	58.8	28.3
2014		4.8	5.9	11.0	8.1	57.8	27.4
2015		4.3	5.1	10.6	8.4	57.8	27.4
2016		3.9	4.7	9.9	7.7	57.3	27.1
2015	I	4.2	5.1	10.3	8.1	57.6	27.1
	II	4.3	5.2	10.7	8.3	57.8	27.3
	III	4.6	5.4	10.7	8.5	57.8	27.4
	IV	4.2	4.9	10.8	8.6	58.2	27.8
2016	I	4.0	4.7	10.2	7.9	57.4	27.1
	II	3.9	4.7	10.0	7.9	57.2	27.1
	III	4.0	5.0	10.0	7.8	57.4	27.1
	IV	3.5	4.3	9.4	7.1	57.2	27.2

1/ Figures refer to individuals 15 years old and older.
2/ Ratio of unemployed population to economic active population. The unemployed population is composed of individuals that were not engaged in working activities during the reference week, but were searching for work during the previous month.
3/ Unemployment rate in 32 cities is generated based on data from the monthly National Employment Survey (ENOE).
4/ Percent of economic active population that is not working, plus the individuals that worked less than 15 hours during the reference week.
5/ Employed individuals needing and willing to work more hours than those spent in their current jobs.
6/ It refers to the sum, without duplicating, of the vulnerable individuals in terms of work, due to the nature of the economic unit they work for, with those whose work ties and employee status are not recognized as their source of employment. This rate includes –besides those working in non-registered small businesses or in the informal sector– other analogous modalities, such as self-employed in subsistence agriculture, as well as workers without the social security and whose services are used by registered economic units.
7/ Percent of employed population working in economic non-agricultural units operating with no accounting records and financed with households' funds, or by an individual in charge of the activity, without identifying it as an independent enterprise. Thus, this production unit is not an identifiable entity, independent from the household or an individual in charge of it. Therefore, this production unit ends up operating on a small scale.
Source: National Employment Survey (*Encuesta Nacional de Ocupación y Empleo*, ENOE).

Table A 15
Real Exchange Rate Index [1]

Year		Indices 1990 = 100			Annual change in percent		
		Bilateral with respect to the U.S.	Multilateral GDP-weighted [2]	Multilateral trade-weighted [3]	Bilateral with respect to the U.S.	Multilateral GDP-weighted [2]	Multilateral trade-weighted [3]
1998		95.8	84.5	92.7	0.9	-1.6	-1.6
1999		88.0	77.7	84.4	-8.1	-8.1	-8.9
2000		82.2	68.7	77.4	-6.7	-11.5	-8.3
2001		78.5	62.7	72.4	-4.5	-8.8	-6.4
2002		78.4	60.9	71.9	-0.1	-2.7	-0.6
2003		85.7	71.6	80.4	9.3	17.5	11.8
2004		88.0	77.0	84.0	2.6	7.5	4.4
2005		84.4	73.7	81.3	-4.0	-4.3	-3.2
2006		84.1	72.7	81.3	-0.3	-1.2	0.0
2007		83.4	74.9	82.2	-0.8	2.9	1.1
2008		83.8	78.2	84.0	0.4	4.5	2.2
2009		96.5	88.7	95.8	15.1	13.4	14.2
2010		88.0	81.7	88.7	-8.7	-7.9	-7.5
2011		86.3	82.9	88.3	-2.0	1.5	-0.4
2012		89.7	84.0	91.2	4.0	1.3	3.2
2013		85.0	77.6	86.1	-5.2	-7.6	-5.6
2014		86.4	77.0	87.1	1.7	-0.7	1.2
2015		100.5	82.0	98.0	16.2	6.5	12.6
2016		116.5	95.1	113.3	16.0	15.9	15.5
2015	I	94.1	77.9	92.6	9.4	0.3	6.5
	II	97.9	80.1	95.9	14.4	3.3	10.8
	III	104.8	85.1	101.8	22.1	11.1	17.6
	IV	105.1	85.1	101.9	19.0	11.5	15.6
2016	I	112.1	90.8	108.4	19.1	16.5	17.1
	II	113.8	93.9	110.9	16.2	17.3	15.6
	III	117.7	97.1	115.0	12.3	14.1	12.9
	IV	122.5	98.5	118.8	16.6	15.8	16.6

1/ An increase in the index implies a depreciation of the Mexican peso.
2/ The real effective exchange rate is estimated based on consumer prices and with respect to a basket of 111 countries, weighted with the GDP of each one of them.
3/ The real effective exchange rate is estimated based on consumer prices and with respect to a basket of 49 countries, weighted by the participation of each country in trade with Mexico. The trade with these countries represents approximately 98% of total trade of Mexico.
Source: Prepared by Banco de México with data from the IMF, INEGI, OECD and central banks.

Prices, Wages and Productivity

Table A 16
Main Price Indicators
Annual change in percent

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Prices												
Consumer prices												
End-period	3.33	4.05	3.76	6.53	3.57	4.40	3.82	3.57	3.97	4.08	2.13	3.36
Annual average	3.99	3.63	3.97	5.12	5.30	4.16	3.41	4.11	3.81	4.02	2.72	2.82
Producer prices. Finished merchandise excluding oil												
End-period	2.46	7.12	3.69	10.48	1.99	4.39	7.19	0.94	0.13	4.24	5.29	10.27
Annual average	3.56	6.12	4.25	7.38	5.91	3.25	5.23	4.56	-0.17	2.29	5.43	7.69
Producer prices. Finished merchand. and serv. excl. oil												
End-period	3.59	5.39	3.57	7.75	3.29	3.70	5.74	1.54	1.71	3.70	4.20	7.73
Annual average	4.22	5.12	3.83	5.79	5.36	3.57	4.21	4.22	1.24	2.53	4.29	6.00
Producer prices. Finished merchand. and serv. with oil												
End-period	4.01	5.50	4.40	6.50	4.34	3.89	6.58	1.01	1.47	1.79	3.03	9.06
Annual average	4.52	5.39	4.05	6.33	4.88	3.82	4.92	4.32	0.99	1.95	2.28	5.77
Construction cost index (residential)												
End-period	-0.39	8.50	3.04	9.57	-0.33	4.54	9.28	0.78	-0.06	3.75	6.42	9.95
Annual average	1.19	7.58	3.36	9.70	-0.06	3.84	6.07	4.65	0.15	2.74	4.82	8.21

Source: Banco de México and INEGI.

Table A 17
Consumer Price Index (CPI)
2F Dec 2010

	Month	CPI 2F Dec 2010	Change in percent		
			Annual	Annual 12-month moving average	Monthly
2001	Dec	67.135	4.40	6.37	
2002	Dec	70.962	5.70	5.03	
2003	Dec	73.784	3.98	4.55	
2004	Dec	77.614	5.19	4.69	
2005	Dec	80.200	3.33	3.99	
2006	Dec	83.451	4.05	3.63	
2007	Dec	86.588	3.76	3.97	
2008	Dec	92.241	6.53	5.12	
2009	Dec	95.537	3.57	5.30	
2010	Dec	99.742	4.40	4.16	
2011	Dec	103.551	3.82	3.41	
2012	Dec	107.246	3.57	4.11	
2013	Dec	111.508	3.97	3.81	
2014	Dec	116.059	4.08	4.02	
2015	Jan	115.954	3.07	3.90	-0.09
	Feb	116.174	3.00	3.79	0.19
	Mar	116.647	3.14	3.74	0.41
	Apr	116.345	3.06	3.70	-0.26
	May	115.764	2.88	3.65	-0.50
	Jun	115.958	2.87	3.58	0.17
	Jul	116.128	2.74	3.46	0.15
	Aug	116.373	2.59	3.34	0.21
	Sep	116.809	2.52	3.19	0.37
	Oct	117.410	2.48	3.04	0.51
	Nov	118.051	2.21	2.88	0.55
	Dec	118.532	2.13	2.72	0.41
2016	Jan	118.984	2.61	2.68	0.38
	Feb	119.505	2.87	2.67	0.44
	Mar	119.681	2.60	2.63	0.15
	Apr	119.302	2.54	2.59	-0.32
	May	118.770	2.60	2.56	-0.45
	Jun	118.901	2.54	2.54	0.11
	Jul	119.211	2.65	2.53	0.26
	Aug	119.547	2.73	2.54	0.28
	Sep	120.277	2.97	2.58	0.61
	Oct	121.007	3.06	2.63	0.61
	Nov	121.953	3.31	2.72	0.78
	Dec	122.515	3.36	2.82	0.46

Source: Banco de México e INEGI.

Table A18
Consumer Price Index (CPI) by Type of Good
Annual change in percent
2F Dec 2010 base

	Month	CPI	Food, beverages and tobacco	Apparel, footwear and accessories	Housing	Furniture and household goods	Medical and personal care	Transport	Education and enertainment	Other goods and services
2003	Dec	3.98	4.31	0.32	4.20	0.16	4.35	2.47	6.35	5.88
2004	Dec	5.19	8.17	1.14	5.04	1.28	2.89	5.38	4.77	4.72
2005	Dec	3.33	2.24	1.26	3.60	1.87	3.87	3.50	5.09	4.46
2006	Dec	4.05	6.27	1.24	3.27	1.75	3.41	3.54	4.41	4.17
2007	Dec	3.76	6.00	1.31	2.32	1.85	4.04	3.16	4.19	4.49
2008	Dec	6.53	10.24	2.30	5.44	6.11	4.83	5.47	5.51	6.51
2009	Dec	3.57	4.24	3.47	0.94	5.51	4.94	5.35	4.04	4.36
2010	Dec	4.40	5.29	3.34	2.92	2.66	4.27	6.88	3.89	4.82
2011	Dec	3.82	6.02	3.43	2.10	2.83	1.94	4.99	3.15	4.47
2012	Dec	3.57	7.20	2.51	-0.68	4.56	5.01	4.54	3.15	5.10
2013	Dec	3.97	4.11	1.52	3.84	0.67	2.27	7.33	3.64	3.52
2014	Dec	4.08	6.54	2.27	2.02	1.58	2.87	4.45	3.85	6.80
2015	Jan	3.07	5.24	2.03	0.80	1.47	2.16	3.01	3.57	5.85
	Feb	3.00	4.99	2.09	0.65	1.87	3.37	2.78	3.54	5.43
	Mar	3.14	4.93	2.34	0.59	1.85	3.20	3.67	4.06	5.28
	Apr	3.06	5.40	2.52	0.62	2.07	3.20	2.89	3.20	4.91
	May	2.88	4.27	2.65	0.65	1.89	3.13	3.20	3.64	4.73
	Jun	2.87	4.26	2.80	0.57	2.22	2.86	3.34	3.69	4.62
	Jul	2.74	3.95	2.75	0.45	2.28	2.89	3.14	3.74	4.58
	Aug	2.59	3.20	2.37	0.56	2.02	3.19	3.12	3.76	4.76
	Sep	2.52	2.88	2.37	0.63	2.38	3.40	2.89	3.63	4.83
	Oct	2.48	2.95	2.62	0.58	3.01	3.51	2.46	3.53	4.68
	Nov	2.21	2.62	2.89	-0.02	3.33	3.26	2.39	3.46	4.55
	Dec	2.13	2.32	2.90	-0.07	2.94	3.33	2.43	3.55	4.51
2016	Jan	2.61	3.59	3.00	0.74	2.89	3.77	1.89	3.54	4.41
	Feb	2.87	4.81	3.05	0.67	3.36	3.46	1.60	3.55	4.53
	Mar	2.60	4.33	3.45	0.73	3.01	3.32	0.37	3.66	4.63
	Apr	2.54	3.78	3.28	0.79	2.72	3.82	0.44	3.80	4.81
	May	2.60	4.28	2.89	0.79	2.77	3.96	-0.18	3.85	5.04
	Jun	2.54	3.89	3.04	0.73	2.75	4.06	0.04	3.95	5.04
	Jul	2.65	3.53	3.19	0.75	2.49	4.30	1.30	3.96	5.02
	Aug	2.73	3.50	3.59	0.44	2.54	4.36	2.24	3.94	4.95
	Sep	2.97	4.54	3.66	0.12	2.43	4.14	2.73	4.15	4.78
	Oct	3.06	4.57	3.54	0.26	2.29	4.19	3.34	4.07	4.61
	Nov	3.31	4.71	3.00	0.85	2.07	4.25	3.85	4.28	4.66
	Dec	3.36	4.31	3.26	1.11	2.19	4.15	4.25	4.23	4.89

Source: Banco de México and INEGI.

Table A 19
Inflation: CPI, Core and Complementary Subindices
Annual change in percent
2F Dec 2010 base

	Month	CPI	Core [1]	Merchandise	Services	Non-core	Agricultural	Energy products and government approved fares
2007	Dec	3.76	3.87	4.52	3.33	3.39	3.42	3.36
2008	Dec	6.53	5.54	6.50	4.72	9.80	11.63	8.68
2009	Dec	3.57	4.16	5.57	2.94	1.72	1.66	1.76
2010	Dec	4.40	3.58	3.82	3.36	7.09	6.96	7.16
2011	Dec	3.82	3.35	4.52	2.40	5.34	3.73	6.19
2012	Dec	3.57	2.90	5.00	1.15	5.74	9.18	3.84
2013	Dec	3.97	2.78	1.89	3.54	7.84	6.67	8.65
2014	Dec	4.08	3.24	3.50	3.03	6.70	8.61	5.55
2015	Jan	3.07	2.34	2.43	2.26	5.34	8.50	3.49
	Feb	3.00	2.40	2.64	2.20	4.88	8.32	2.90
	Mar	3.14	2.45	2.60	2.32	5.29	8.34	3.52
	Apr	3.06	2.31	2.65	2.03	5.46	9.86	2.89
	May	2.88	2.33	2.44	2.23	4.64	7.50	2.90
	Jun	2.87	2.33	2.48	2.20	4.63	7.67	2.80
	Jul	2.74	2.31	2.47	2.18	4.12	6.94	2.42
	Aug	2.59	2.30	2.36	2.25	3.51	5.14	2.51
	Sep	2.52	2.38	2.54	2.24	2.96	3.98	2.33
	Oct	2.48	2.47	2.73	2.25	2.52	3.91	1.68
	Nov	2.21	2.34	2.79	1.95	1.84	2.70	1.33
	Dec	2.13	2.41	2.82	2.07	1.28	1.72	1.00
2016	Jan	2.61	2.64	2.86	2.46	2.52	5.27	0.84
	Feb	2.87	2.66	3.02	2.36	3.49	8.08	0.71
	Mar	2.60	2.76	3.23	2.37	2.12	6.21	-0.37
	Apr	2.54	2.83	3.37	2.37	1.66	4.46	-0.09
	May	2.60	2.93	3.55	2.41	1.55	5.10	-0.71
	Jun	2.54	2.97	3.61	2.44	1.16	3.87	-0.56
	Jul	2.65	2.97	3.71	2.36	1.65	2.97	0.81
	Aug	2.73	2.96	3.76	2.29	1.99	3.09	1.29
	Sep	2.97	3.07	3.92	2.36	2.65	5.34	0.94
	Oct	3.06	3.10	3.97	2.36	2.95	5.25	1.52
	Nov	3.31	3.29	3.91	2.77	3.34	5.56	1.99
	Dec	3.36	3.44	4.05	2.92	3.13	4.15	2.49

1/ Core inflation is obtained by eliminating from the CPI calculation the goods and services with more volatile prices, otherwise its determination process does not correspond to market conditions. Thus, the groups excluded from the core component are the following: agricultural and energy products and fares approved by government.
Source: Banco de México and INEGI.

Table A 20
Producer Price Index (PPI) Excluding Oil
June 2012 base = 100

Period	Finished merchandise			Services			Finished merchandise and services		
	Index	Percentage change		Index	Percentage change		Index	Percentage change	
		Annual	Monthly		Annual	Monthly		Annual	Monthly
2001 Dec	56.386	2.61	-0.32	64.656	5.77	0.37	60.626	4.33	0.06
2002 Dec	59.934	6.29	0.31	68.010	5.19	0.31	64.061	5.67	0.31
2003 Dec	63.673	6.24	0.85	70.142	3.13	0.27	66.960	4.52	0.53
2004 Dec	68.747	7.97	-0.29	73.828	5.25	0.41	71.328	6.52	0.08
2005 Dec	70.438	2.46	0.45	77.225	4.60	0.34	73.886	3.59	0.39
2006 Dec	75.454	7.12	0.30	80.202	3.85	0.14	77.865	5.39	0.21
2007 Dec	78.235	3.69	0.00	82.976	3.46	0.31	80.643	3.57	0.16
2008 Dec	86.436	10.48	0.33	87.342	5.26	0.42	86.896	7.75	0.38
2009 Dec	88.156	1.99	-0.05	91.306	4.54	0.80	89.756	3.29	0.39
2010 Dec	92.026	4.39	0.72	94.102	3.06	0.65	93.080	3.70	0.68
2011 Dec	98.640	7.19	0.73	98.215	4.37	1.01	98.424	5.74	0.87
2012 Dec	99.570	0.94	-0.36	100.488	2.31	-0.15	99.937	1.54	-0.27
2013 Dec	99.704	0.13	0.08	104.548	4.04	0.52	101.642	1.71	0.26
2014 Jan	100.420	1.03	0.72	104.408	3.35	-0.13	102.016	1.97	0.37
Feb	100.962	1.49	0.54	104.989	2.90	0.56	102.573	2.06	0.55
Mar	101.018	1.48	0.06	105.210	2.77	0.21	102.695	2.00	0.12
Apr	100.820	1.91	-0.20	105.498	2.94	0.27	102.691	2.33	0.00
May	100.896	2.36	0.08	105.420	2.80	-0.07	102.706	2.54	0.01
Jun	100.584	1.50	-0.31	105.677	2.73	0.24	102.621	2.00	-0.08
Jul	100.953	2.42	0.37	106.160	2.79	0.46	103.036	2.57	0.40
Aug	101.513	2.86	0.55	106.118	2.82	-0.04	103.355	2.84	0.31
Sep	101.705	2.44	0.19	106.516	2.88	0.37	103.630	2.62	0.27
Oct	102.075	2.85	0.36	106.669	2.78	0.14	103.913	2.82	0.27
Nov	102.470	2.85	0.39	106.913	2.80	0.23	104.248	2.83	0.32
Dec	103.934	4.24	1.43	107.614	2.93	0.66	105.406	3.70	1.11
2015 Jan	104.650	4.21	0.69	106.893	2.38	-0.67	105.548	3.46	0.13
Feb	104.996	4.00	0.33	107.367	2.26	0.44	105.945	3.29	0.38
Mar	105.813	4.75	0.78	108.138	2.78	0.72	106.743	3.94	0.75
Apr	105.952	5.09	0.13	108.130	2.50	-0.01	106.823	4.02	0.08
May	105.704	4.77	-0.23	108.166	2.61	0.03	106.689	3.88	-0.13
Jun	106.242	5.63	0.51	108.471	2.64	0.28	107.134	4.40	0.42
Jul	107.000	5.99	0.71	108.993	2.67	0.48	107.797	4.62	0.62
Aug	107.751	6.15	0.70	109.291	2.99	0.27	108.367	4.85	0.53
Sep	108.422	6.60	0.62	109.672	2.96	0.35	108.922	5.11	0.51
Oct	108.587	6.38	0.15	109.729	2.87	0.05	109.044	4.94	0.11
Nov	108.907	6.28	0.29	109.691	2.60	-0.03	109.220	4.77	0.16
Dec	109.432	5.29	0.48	110.440	2.63	0.68	109.835	4.20	0.56
2016 Jan	110.987	6.06	1.42	110.951	3.80	0.46	110.973	5.14	1.04
Feb	112.372	7.03	1.25	111.373	3.73	0.38	111.972	5.69	0.90
Mar	112.136	5.98	-0.21	111.661	3.26	0.26	111.946	4.87	-0.02
Apr	112.478	6.16	0.31	111.467	3.09	-0.17	112.074	4.91	0.11
May	113.492	7.37	0.90	111.886	3.44	0.38	112.849	5.77	0.69
Jun	114.862	8.11	1.21	112.388	3.61	0.45	113.872	6.29	0.91
Jul	115.376	7.83	0.45	112.729	3.43	0.30	114.317	6.05	0.39
Aug	115.679	7.36	0.26	112.691	3.11	-0.03	114.484	5.64	0.15
Sep	117.238	8.13	1.35	113.387	3.39	0.62	115.698	6.22	1.06
Oct	117.444	8.16	0.18	113.581	3.51	0.17	115.899	6.29	0.17
Nov	119.445	9.68	1.70	113.835	3.78	0.22	117.201	7.31	1.12
Dec	120.671	10.27	1.03	114.812	3.96	0.86	118.327	7.73	0.96

Source: Banco de México and INEGI.

Table A 21
Producer Price Index (PPI) Excluding Oil
Classified by finished goods' end use
Annual change in percent in December of each year

Item	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
P P I finished merchandise and services	**5.39**	**3.57**	**7.75**	**3.29**	**3.70**	**5.74**	**1.54**	**1.71**	**3.70**	**4.20**	**7.73**
Domestic demand	5.25	3.67	7.24	3.32	3.44	5.45	2.49	2.51	3.32	3.13	5.80
Consumption	4.03	3.70	6.24	4.07	3.33	4.75	2.88	3.35	2.95	2.33	4.67
Investment	10.77	2.81	12.55	-0.53	3.58	8.78	0.65	-0.16	4.52	5.74	9.33
Exports	6.41	2.81	11.61	3.11	5.61	7.77	-2.12	-0.94	5.02	7.79	13.93
P P I finished merchandise	**7.12**	**3.69**	**10.48**	**1.99**	**4.39**	**7.19**	**0.94**	**0.13**	**4.24**	**5.29**	**10.27**
Domestic demand	7.16	3.90	10.07	1.92	4.05	6.90	2.83	0.95	3.75	3.57	7.65
Consumption	4.94	4.60	8.42	3.64	4.40	5.68	4.66	1.86	3.46	2.80	6.45
Investment	10.91	2.75	12.77	-0.76	3.48	8.87	0.42	-0.25	4.14	4.61	9.23
Exports	6.94	2.79	12.25	2.30	5.79	8.36	-3.33	-1.35	5.16	8.45	14.88
P P I services	**3.85**	**3.46**	**5.26**	**4.54**	**3.06**	**4.37**	**2.31**	**4.04**	**2.93**	**2.63**	**3.96**
Domestic demand	3.81	3.49	5.04	4.46	2.96	4.29	2.16	4.10	2.89	2.69	3.95
Consumption	3.53	3.20	5.02	4.32	2.72	4.21	1.83	4.26	2.65	2.04	3.60
Investment	6.70	4.59	5.89	6.84	6.67	6.20	6.09	0.69	8.20	16.23	10.17
Exports	4.63	2.88	9.40	5.99	4.97	5.76	5.06	3.04	3.72	1.41	4.21

Source: Banco de México and INEGI.

Table A 22
Producer Price Index (PPI) Excluding Oil
Classified by origin of finished goods
Annual change in percent in December of each year

Item	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
PPI finished merchandise and services	**5.39**	**3.57**	**7.75**	**3.29**	**3.70**	**5.74**	**1.54**	**1.71**	**3.70**	**4.20**	**7.73**
Agriculture, livestock, forest use, fishing and hunting	8.42	4.45	14.16	-0.51	13.20	3.46	5.76	-0.10	4.65	1.52	10.69
Mining	31.48	10.39	-3.82	31.26	17.60	9.17	-2.60	-0.35	9.20	16.06	14.29
Electricity, water supply and pipeline gas supply	4.60	4.07	11.70	-0.33	4.90	5.30	3.68	4.25	3.58	-2.77	3.38
Construction	11.76	2.90	13.08	-0.95	3.89	9.29	0.41	-0.69	4.46	4.38	8.71
Manufacturing industry	4.81	3.82	9.03	3.38	3.23	6.81	1.30	0.28	4.17	6.06	10.65
Transport, mail and warehousing services	2.87	2.73	6.07	6.86	2.73	5.74	2.99	4.20	2.57	2.96	4.25
Mass media services	--	--	--	--	--	2.67	-13.84	13.08	-3.81	-14.38	-1.99
Real estate and leasing services	3.30	2.72	3.62	2.16	2.24	1.96	2.04	2.11	2.03	1.89	2.78
Professional, scientific and technical services	--	--	--	--	--	5.69	2.85	2.47	4.23	3.13	2.50
Business support services, waste management and remediation services	--	--	--	--	--	2.14	5.09	4.38	4.45	7.22	7.27
Educational services	--	--	--	--	--	4.37	6.91	4.53	4.37	4.36	4.34
Health and social assistance services	--	--	--	--	--	3.75	3.03	3.91	3.45	3.65	4.05
Cultural and sport services, and other recreational services	--	--	--	--	--	2.91	4.19	2.18	2.93	3.63	3.54
Temporary lodging services and food and beverage-related services	3.83	3.96	6.02	3.55	3.69	4.74	4.03	3.06	5.11	3.93	5.58
Other services excluding government activity services	--	--	--	--	--	3.28	3.25	2.91	2.97	2.83	3.84

Source: Banco de México and INEGI.

Table A 23
Construction Cost Index
Annual change in percent in December of each year

Item	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
General index	**11.76**	**2.90**	**13.08**	**-0.95**	**4.80**	**9.29**	**0.41**	**-0.69**	**4.46**	**4.38**	**8.71**
Construction materials index	14.11	2.55	15.47	-1.84	5.16	10.56	-0.16	-1.39	4.54	4.41	9.82
Non-metal minerals	2.82	4.88	7.78	2.58	3.16	4.81	4.98	4.30	5.10	5.30	9.10
Cement and concrete	4.76	4.71	8.72	0.14	5.37	9.04	1.24	-1.97	5.58	10.14	12.44
Cementing materials	5.19	3.38	10.40	3.26	5.01	5.91	4.98	0.63	4.75	7.21	12.81
Clay materials	6.59	3.67	6.30	0.21	2.85	1.68	1.48	2.84	2.15	6.95	7.80
Concrete products	8.20	3.18	5.06	0.98	1.82	3.16	2.44	1.64	3.18	7.67	9.89
Concrete structures	7.93	4.35	11.35	-0.25	3.24	6.75	1.72	1.15	2.85	6.68	5.35
Other concrete products	7.96	1.47	8.19	0.70	2.51	3.95	1.96	-0.26	5.13	3.27	4.56
Other non-metal mineral products	7.83	0.53	7.77	-3.32	3.05	6.32	7.47	-2.03	3.53	4.96	6.05
Timber products	4.12	3.38	7.27	1.80	3.03	2.86	5.04	1.48	1.83	7.44	7.47
Paint and similar materials	3.05	0.85	19.19	-0.27	5.01	14.83	1.27	2.91	0.17	7.41	3.41
Plastic products	5.10	-1.68	8.36	-4.76	5.37	3.26	2.39	-0.56	3.47	7.82	5.39
Other chemical products	29.07	0.98	49.02	-10.00	7.40	15.62	-5.34	-6.52	13.68	-19.64	-10.73
Metal products	30.58	0.90	26.13	-7.13	5.54	11.50	-1.55	-4.30	4.53	1.42	11.76
Wire products	23.86	-3.55	24.34	-8.83	5.22	36.15	-10.69	-8.24	-1.20	4.17	22.86
Electric equipment	12.82	6.04	15.68	2.24	1.71	6.22	5.28	-0.15	1.39	6.23	12.44
Electric accessories	52.24	0.54	-4.09	6.34	15.71	5.63	1.22	-5.74	-0.33	4.75	9.74
Furniture and accessories	10.02	4.56	11.52	3.14	2.39	4.24	5.14	3.80	1.71	10.31	9.12
Other materials and accessories	8.74	2.84	16.92	-0.36	7.70	7.51	2.55	1.57	6.45	5.65	9.96
Rented machinery and equipment subindex	2.79	2.89	6.89	1.82	3.24	5.26	-0.24	1.43	5.14	6.77	7.91
Worker earnings' subindex	3.79	4.35	3.55	3.07	3.32	3.80	3.21	2.87	3.91	3.78	2.85

Source: Banco de México and INEGI.

Table A 24
Contractual Wages

		Contractual wages					
		Total			Manufactures		
Period		Annual increase (percent)	Number of workers (thousand)	Number of firms	Annual increase (percent)	Number of workers (thousand)	Number of firms
2005	Average	4.4	1,783.3	5,957	4.7	541.2	2,476
2006	Average	4.1	1,684.2	5,819	4.4	482.7	2,433
2007	Average	4.2	1,858.1	6,251	4.4	566.8	2,546
2008	Average	4.4	1,909.6	6,308	4.7	557.5	2,768
2009	Average	4.4	1,824.3	6,645	4.4	511.5	2,930
2010	Average	4.3	1,882.0	6,825	4.8	560.0	3,268
2011	Average	4.3	1,970.7	7,192	4.7	612.8	3,445
2012	Average	4.4	2,072.6	7,442	4.8	638.1	3,405
2013	Average	4.3	2,071.6	7,802	4.6 [1]	669.0 [1]	3,403 [1]
2014	Average	4.1	2,197.8	8,250	4.5	708.7	3,584
2015	Average	4.1	2,229.5	8,336	4.6	760.5	3,728
2016	Average	4.0	2,258.2	7,973	4.6	765.9	3,836
2013	Jan	4.3	185.0	535	4.8 [1]	47.2 [1]	245 [1]
	Feb	4.4	213.8	864	4.7	103.5	392
	Mar	4.5	147.0	898	4.6	78.0	419
	Apr	4.3	250.0	793	4.6	80.1	422
	May	4.6	126.1	726	4.8	69.4	371
	Jun	4.6	90.4	557	4.3	41.6	276
	Jul	4.1	237.3	582	4.6	25.5	230
	Aug	4.6	79.7	941	4.7	46.9	285
	Sep	4.4	80.3	544	4.7	43.5	234
	Oct	4.0	560.5	522	4.7	87.1	241
	Nov	4.2	49.8	438	4.4	21.1	182
	Dec	4.2	51.5	402	4.3	25.0	106
2014	Jan	3.8	186.8	707	4.5	51.3	308
	Feb	4.4	205.6	822	4.5	97.3	408
	Mar	4.4	181.4	1,014	4.5	110.3	499
	Apr	4.0	275.7	762	4.6	74.7	367
	May	4.4	100.2	638	4.2	58.9	334
	Jun	4.4	82.1	650	4.4	42.7	339
	Jul	4.1	240.7	436	4.3	26.1	190
	Aug	4.5	113.7	734	4.8	56.3	297
	Sep	4.2	87.8	588	4.2	44.2	258
	Oct	3.7	611.1	625	4.5	105.4	256
	Nov	4.3	48.1	378	4.5	15.7	164
	Dec	3.9	64.6	896	4.7	25.7	164
2015	Jan	4.3	192.2	530	4.6	65.3	262
	Feb	4.4	211.7	822	4.4	103.8	427
	Mar	4.3	225.0	1,174	4.6	122.8	591
	Apr	4.1	241.6	751	4.8	80.3	375
	May	4.4	158.0	762	4.9	62.2	353
	Jun	4.4	108.4	795	4.3	47.7	352
	Jul	4.8	43.4	377	4.7	30.4	206
	Aug	4.4	86.9	718	4.7	51.2	307
	Sep	4.1	251.0	574	4.2	34.9	256
	Oct	3.6	597.7	578	4.6	108.6	240
	Nov	4.1	75.1	474	4.5	37.3	237
	Dec	4.3	38.4	781	4.3	16.1	122
2016 [p]	Jan	4.0	186.2	571	4.4	49.7	288
	Feb	4.1	235.7	954	4.5	110.0	460
	Mar	4.5	148.7	796	4.4	72.1	406
	Apr	4.8	201.6	1,035	4.5	97.0	492
	May	4.0	228.3	838	4.6	75.8	369
	Jun	4.4	118.7	836	4.5	70.7	429
	Jul	4.4	80.2	417	4.7	50.3	212
	Aug	3.7	245.7	706	4.6	48.7	318
	Sep	4.1	104.2	499	4.4	61.2	269
	Oct	3.4	564.8	482	5.0	74.8	226
	Nov	4.4	79.4	466	4.8	41.8	220
	Dec	4.1	64.7	373	4.5	14.0	147

1/ Data of Manufacturing as of 2013 correspond to the classification of the Industrial Classification System of North America (2007).
p/ Preliminary figures starting from the indicated date.
Note: Annual wage increase figures correspond to weighted averages of monthly figures. Annual figures of the number of workers and number of firms correspond to total monthly figures.
Source: Ministry of Labor.

Table A 25
Nominal Earnings and Output per Worker (ENOE)
Annual change in percent

Period		Average monthly earnings	Output per worker	
			Total	Manufactures
2012	Average	3.7	0.7	0.9
2013	Average	2.8	0.3	-2.3
2014	Average	-0.9	1.9	1.8
2015	Average	4.6	0.2	-0.3
2016	Average	4.4	0.4	-2.3
2012	I	2.3	1.1	1.8
	II	2.8	0.0	3.5
	III	3.3	-0.8	-1.0
	IV	6.5	2.5	-0.6
2013	I	5.0	-0.3	-3.3
	II	2.9	1.1	-1.8
	III	2.6	1.5	-1.3
	IV	0.8	-1.1	-2.8
2014	I	-1.3	0.8	0.1
	II	-0.3	1.7	0.6
	III	-0.8	2.0	2.1
	IV	-1.1	2.9	4.4
2015	I	2.6	1.3	1.7
	II	2.9	0.4	0.1
	III	6.9	0.2	-0.5
	IV	6.1	-1.0	-2.5
2016	I	4.5	0.2	-3.6
	II	4.5	0.4	-2.1
	III	3.4	-0.5	-2.7
	IV	5.2	1.3	-0.7

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

Table A 26
Minimum Wage
MXN per day

Term starting date	National average [1]	Geographic area [2]		
		A	**B**	**C**
1996 Jan 1	18.43	20.15	18.70	17.00
1996 Apr 1	20.66	22.60	20.95	19.05
1996 Dec 3	24.30	26.45	24.50	22.50
1997 Jan 1	24.30	26.45	24.50	22.50
1998 Jan 1	27.99	30.20	28.00	26.05
1998 Dec 3	31.91	34.45	31.90	29.70
1999 Jan 1	31.91	34.45	31.90	29.70
2000 Jan 1	35.12	37.90	35.10	32.70
2001 Jan 1	37.57	40.35	37.95	35.85
2002 Jan 1	39.74	42.15	40.10	38.30
2003 Jan 1	41.53	43.65	41.85	40.30
2004 Jan 1	43.30	45.24	43.73	42.11
2005 Jan 1	45.24	46.80	45.35	44.05
2006 Jan 1	47.05	48.67	47.16	45.81
2007 Jan 1	48.88	50.57	49.00	47.60
2008 Jan 1	50.84	52.59	50.96	49.50
2009 Jan 1	53.19	54.80	53.26	51.95
2010 Jan 1	55.77	57.46	55.84	54.47
2011 Jan 1	58.06	59.82	58.13	56.70
2012 Jan 1	60.50	62.33	60.57	59.08

	National average [1]	Geographic area [2] [3]	
		A	**B**
2012 Nov 27	60.75	62.33	59.08
2013 Jan 1	63.12	64.76	61.38
2014 Jan 1	65.58	67.29	63.77
2015 Jan 1	68.34	70.10	66.45
2015 Apr 1	69.26	70.10	68.28

	General minimum wage [4]
2015 Oct 1	70.10
2016 Jan 1	73.04
2017 Jan 1 [5]	80.04

1/ Country's average weighted by the number of wage earners in each region.
2/ States and municipalities are classified by regions to show country's different costs of living.
3/ From November 27, 2012, the Council of Representatives of the Minimum Wage Commission (CONASAMI) decided to unify the previous geographic areas 'A' and 'B' within the same minimum wage. In turn, the previously known as geographic area 'C' was denominated 'B'.
4/ Starting from October 1, 2015, the Council of Representatives established a general minimum wage across the country.
5/ On December 1, 2016, the Council of Representatives of the Minimum Wage Commission (CONASAMI) resolved to increase the general minimum wage by MXN 4.00 (raising it from MXN 73.04 to MXN 77.04). In addition to the above, based on MXN 77.04, the CONASAMI granted an increase of 3.9 percent to the general minimum wage.
Source: Minimum Wage Commission.

Monetary and Financial Indicators

Table A 27
Main Monetary and Financial Indicators

	2013	2014	2015	2016
Monetary aggregates [1]	Real annual change in percent			
Monetary base	2.40	9.09	16.92	12.72
M1	4.43	9.93	15.00	11.43
M4	7.46	6.56	6.52	3.24
Domestic financial saving [2]	7.85	6.34	5.78	2.49
	Percent of GDP [3]			
Monetary base	4.92	5.21	5.92	6.41
M1	13.86	14.81	16.54	17.71
M4	69.33	71.77	74.28	73.69
Domestic financial saving [2]	65.00	67.15	69.02	67.97
Nominal interest rates [4]	Annual rates in percent			
28-day TIIE	4.28	3.52	3.32	4.47
28-day Cetes	3.75	3.00	2.98	4.15
CPP [5]	2.97	2.41	2.18	2.67
CCP [6]	3.86	3.23	3.03	3.76
Exchange rate [7]	MXN/USD			
To settle liabilities denominated in foreign currency	13.0765	14.7180	17.2065	20.7314
Mexican stock exchange [7]	Index base Oct 1978=100			
Stock exchange benchmark index (IPC)	42,727	43,146	42,978	45,643

1/ Based on the average of monthly stocks.
2/ Defined as monetary aggregate M4 less currency outside banks.
3/ GDP (base 2008) annual average.
4/ Average of daily or weekly observations.
5/ / Commercial Bank's Average Cost of Funds (CPP) is the weighted average of the costs paid by commercial banks for term deposits, current account deposits, certificates of deposit, banker's acceptances and commercial paper with bank guarantee. This rate is calculated by Banco de México since August 1975 and is published between the 21st and 25th of every month in the Official Gazette. The publication of this rate will continue for an undetermined period, as stipulated in the Official Gazette of November 3rd, 2005.
6/ Commercial Bank's Average Cost of Term Deposits (CCP), includes the interest of term deposits denominated in domestic currency. It excludes convertible subordinated debt, guarantees and interbank operations. The publication of this rate started on February 1996. For further information see the Official Gazette of February 13th, 1996.
7/ At end of period.
Source: Banco de México and Mexican Stock Exchange (*Bolsa Mexicana de Valores*, BMV).

Table A 28
Monetary Aggregates
Stocks in MXN billion

End of period		Monetary base	M1	M2	M3	M4	Domestic financial saving
				Nominal stocks			
2003		303.6	857.7	3,458.4	3,492.2	3,524.9	3,261.3
2004		340.2	946.6	3,800.7	3,889.8	3,928.8	3,627.6
2005		380.0	1,068.5	4,366.1	4,503.8	4,545.9	4,209.7
2006		449.8	1,218.5	4,972.3	5,149.7	5,201.4	4,811.9
2007		494.7	1,350.1	5,384.9	5,647.7	5,720.0	5,289.9
2008		577.5	1,482.9	6,269.9	6,596.6	6,680.6	6,186.2
2009		632.0	1,614.6	6,672.3	7,053.0	7,126.8	6,589.7
2010		693.4	1,833.3	7,207.8	7,952.0	8,037.2	7,437.9
2011		763.5	2,083.2	8,065.7	9,227.1	9,330.6	8,664.7
2012		846.0	2,280.0	8,740.2	10,573.9	10,684.9	9,950.9
2013		917.9	2,513.8	9,507.3	11,566.2	11,658.7	10,865.8
2014		1,062.9	2,879.2	10,539.7	12,989.4	13,107.5	12,178.8
2015		1,241.7	3,352.0	11,301.9	13,726.0	13,858.3	12,770.2
2016	Jan	1,203.7	3,299.5	11,451.7	13,905.7	14,044.7	12,976.0
	Feb	1,190.7	3,275.6	11,446.7	13,868.0	14,005.7	12,933.2
	Mar	1,214.3	3,304.7	11,504.9	13,912.4	14,029.0	12,963.1
	Apr	1,200.8	3,321.8	11,596.3	14,006.7	14,123.0	13,044.0
	May	1,223.3	3,385.4	11,734.1	14,049.3	14,174.5	13,077.7
	Jun	1,237.3	3,444.0	11,876.1	14,136.8	14,263.2	13,157.0
	Jul	1,253.1	3,459.8	12,015.3	14,275.6	14,408.9	13,291.4
	Aug	1,245.7	3,473.6	12,048.3	14,331.3	14,464.2	13,351.9
	Sep	1,252.3	3,492.0	12,195.6	14,601.9	14,733.1	13,607.5
	Oct	1,267.1	3,517.3	12,181.7	14,554.8	14,683.7	13,547.2
	Nov	1,307.1	3,654.4	12,298.9	14,585.9	14,725.6	13,566.8
	Dec	1,420.3	3,872.5	12,500.8	14,832.3	14,970.2	13,707.5
				Average stocks as percentage of GDP [1]			
2010		4.50	11.88	52.07	56.21	56.81	52.86
2011		4.50	12.44	51.76	58.32	59.02	55.05
2012		4.77	13.19	53.95	63.43	64.11	59.89
2013		4.92	13.86	56.52	68.74	69.33	65.00
2014		5.21	14.81	58.21	71.18	71.77	67.15
2015		5.92	16.54	60.16	73.58	74.28	69.02
2016		6.41	17.71	60.98	73.02	73.69	67.97

The Monetary Base includes banknotes and coins in circulation plus bank deposits in Banco de México's current account.
M1 includes currency outside banks plus domestic private sector deposits in checking accounts and current accounts.
M2 includes M1 plus domestic private sector deposits at banks and savings and popular loan entities (other than deposits in checking and current accounts) plus public sector and private sector securities held by the resident private sector, and housing and retirement savings funds.
M3 includes M2 plus non-residents' demand and term deposits in banks, plus public sector securities held by non-residents.
M4 includes M3 plus deposits in Mexican banks' agencies abroad, from the domestic private sector and non-residents.
Domestic Financial Saving is equal to **M4 less currency outside banks.**
1/ GDP (2008 base) annual average.
Source: Banco de México.

Table A 29
Monetary Base
Stocks in MXN billion

End of period	Monetary base	Liabilities		Assets	
		Banknotes and coins in circulation [1]	Bank deposits	Net domestic credit	Net international assets [2]
2002	263.937	263.937	0.000	-265.566	529.503
2003	303.614	303.614	0.000	-360.043	663.657
2004	340.178	340.178	0.000	-375.992	716.170
2005	380.034	380.034	0.000	-408.133	788.167
2006	449.821	449.821	0.000	-375.146	824.967
2007	494.743	494.743	0.000	-457.484	952.227
2008	577.543	577.542	0.000	-739.750	1,317.293
2009	632.032	631.938	0.095	-672.860	1,304.892
2010	693.423	693.423	0.000	-796.192	1,489.615
2011	763.492	763.491	0.001	-1,318.080	2,081.572
2012	846.019	845.396	0.624	-1,320.331	2,166.351
2013	917.876	917.875	0.001	-1,440.338	2,358.214
2014	1,062.893	1,062.892	0.001	-1,822.202	2,885.095
2015					
Jan	1,024.725	1,024.725	0.000	-1,960.887	2,985.612
Feb	1,025.435	1,025.434	0.001	-1,939.521	2,964.957
Mar	1,064.273	1,064.273	0.001	-1,955.041	3,019.314
Apr	1,046.382	1,046.382	0.001	-2,002.573	3,048.956
May	1,057.904	1,057.904	0.000	-1,964.388	3,022.292
Jun	1,054.391	1,054.390	0.000	-1,993.878	3,048.269
Jul	1,073.443	1,071.939	1.504	-2,035.404	3,108.847
Aug	1,079.657	1,078.994	0.664	-2,062.056	3,141.714
Sep	1,073.234	1,072.557	0.677	-2,002.888	3,076.122
Oct	1,095.608	1,095.608	0.000	-1,831.832	2,927.440
Nov	1,118.916	1,118.916	0.000	-1,745.622	2,864.539
Dec	1,241.685	1,239.327	2.358	-1,822.182	3,063.867
2016					
Jan	1,203.744	1,203.744	0.000	-2,004.745	3,208.490
Feb	1,190.669	1,190.668	0.001	-2,039.487	3,230.156
Mar	1,214.342	1,214.341	0.001	-1,883.829	3,098.171
Apr	1,200.802	1,200.802	0.000	-1,927.938	3,128.740
May	1,223.289	1,221.643	1.646	-2,079.486	3,302.775
Jun	1,237.332	1,235.274	2.059	-2,065.297	3,302.629
Jul	1,253.084	1,251.300	1.784	-2,122.062	3,375.146
Aug	1,245.686	1,243.634	2.051	-2,109.115	3,354.800
Sep	1,252.267	1,251.258	1.009	-2,246.002	3,498.269
Oct	1,267.091	1,266.175	0.916	-2,074.049	3,341.140
Nov	1,307.077	1,306.230	0.847	-2,302.485	3,609.562
Dec	1,420.269	1,419.754	0.515	-2,251.156	3,671.425

1/ Currency outside banks and in banks' vaults.
2/ Net international assets are defined as gross reserves plus credit agreements with central banks with maturity of more than six months, minus total liabilities with the IMF and with foreign central banks with maturity of less than six months.
Source: Banco de México.

Table A 30
Monetary Aggregates M1, M2, M3 and M4
Stocks in MXN billion

	December					
	2011	**2012**	**2013**	**2014**	**2015**	**2016**
1. Currency outside banks	665.9	734.0	792.9	928.8	1,088.1	1,262.7
2. Domestic currency checking accounts	934.7	979.4	1,082.7	1,170.4	1,301.9	1,475.8
3. Foreign currency checking accounts	132.9	163.6	189.0	232.5	333.1	469.2
4. Current account deposits	341.1	393.2	438.0	535.0	614.3	647.4
5. Demand deposits in saving and popular loan entities	8.6	9.8	11.1	12.6	14.6	17.3
6. M1=(1+2+3+4+5)	**2,083.2**	**2,280.0**	**2,513.8**	**2,879.2**	**3,352.0**	**3,872.5**
7. Residents' term deposits in domestic bank	1,289.4	1,387.4	1,459.4	1,583.0	1,747.6	1,941.8
8. Term deposits in saving and popular loan entities	49.9	54.2	69.0	76.3	85.0	97.8
9. Public securities held by residents [1]	3,274.0	3,583.9	3,913.8	4,393.0	4,344.5	4,690.4
Federal government securities	2,126.5	2,328.9	2,529.1	2,889.7	2,886.3	3,144.9
Banco de México's securities (BREMS)	0.0	0.0	0.0	0.0	0.0	0.0
IPAB securities	599.7	660.8	693.7	733.5	631.6	704.4
Other public securities	547.8	594.2	691.0	769.7	826.7	841.1
10. Private securities [1]	383.2	391.9	435.3	429.2	508.6	545.4
11. Housing and other funds [2]	986.1	1,042.8	1,116.1	1,179.1	1,264.2	1,353.0
12. M2=(6+7+8+9+10+11)	**8,065.7**	**8,740.2**	**9,507.3**	**10,539.7**	**11,301.9**	**12,500.8**
13. Non-residents' bank deposits	126.3	119.8	136.2	165.2	147.0	198.7
14. Public securities held by non-residents	1,035.0	1,714.0	1,922.7	2,284.5	2,277.1	2,132.8
15. M3=(12+13+14)	**9,227.1**	**10,573.9**	**11,566.2**	**12,989.4**	**13,726.0**	**14,832.3**
16. Residents' deposits in Mexican bank agencies abroad	32.0	22.6	19.3	22.6	25.7	15.6
17. Non-residents' deposits in Mexican bank agencies abroad	71.5	88.4	73.2	95.5	106.6	122.2
18. M4=(15+16+17)	**9,330.6**	**10,684.9**	**11,658.7**	**13,107.5**	**13,858.3**	**14,970.2**

1/ Includes holdings of Investment Companies Specialized in Retirement Savings (*Sociedades de Inversión Especializadas en Fondos para el Retiro*, SIEFORES).

2/ Includes public housing funds (National Employees' Housing Fund – *Instituto del Fondo Nacional de la Vivienda para los Trabajadores*, Infonavit and the Housing Fund – *Fondo de la Vivienda del ISSSTE*, Fovissste) and retirement funds other than Siefores, particularly those managed by Banco de México and the retirement savings' funds from the Public Employees' Social Security Institute (*Instituto de Seguridad y Servicios Sociales de los Trabajadores del Estado*, ISSSTE).

Note: Stocks may not coincide with components' totals due to rounding.

Source: Banco de México.

Table A 31
Credit Market Conditions Survey: Financing [1]

Item	Total					Q4 2016				
	2015	2016				By size of firm		By economic activity [2]		
	Q4	Q1	Q2	Q3	Q4	From 11 up to 100 workers	Over 100 workers	Manufactures	Services and commerce	Other
TOTAL FINANCING										
Percentage of firms										
Firms using financing: [3]	**87.3**	**83.3**	**83.6**	**84.9**	**85.3**	**83.3**	**86.4**	**91.1**	**85.5**	**61.1**
Source: [4]										
Suppliers	74.6	76.6	72.1	73.2	76.8	77.1	76.6	83.7	77.6	44.8
Commercial banks	41.4	35.5	36.8	38.8	38.5	29.4	43.9	38.0	39.9	30.6
Foreign banks	6.3	6.5	6.6	6.8	5.9	0.9	8.9	8.6	5.2	0.8
Firms of the corporate group/ headquarters	20.4	19.5	16.9	17.7	20.7	16.6	23.2	22.9	21.3	7.8
Development banks	5.7	6.0	6.4	6.5	5.6	0.8	8.5	6.0	5.7	3.7
Via bond issuance	1.7	1.8	2.1	1.2	0.4	0.0	0.6	0.0	0.7	0.0
Firms granting financing: [3]	**79.6**	**81.1**	**78.8**	**76.8**	**80.3**	**76.9**	**82.4**	**86.8**	**79.8**	**60.0**
Destined for [4]										
Clients	75.9	79.3	76.3	74.0	77.7	75.0	79.3	82.8	78.1	56.0
Suppliers	13.6	13.4	15.0	15.9	14.7	7.4	19.0	23.4	10.7	10.7
Other firms of the same corporate group	15.6	12.8	14.6	13.6	15.4	11.2	17.9	22.7	12.4	8.9
Other	0.1	0.3	0.2	0.3	0.4	0.1	0.5	0.6	0.2	0.6
Average maturity of financing (in days) granted to:										
Clients	55	58	60	61	60	46	68	52	65	49
Suppliers	58	50	50	52	49	44	50	54	44	41
Other firms of the same corporate group	69	63	72	70	61	73	56	62	57	91
Firms expecting to request credit in the following three months: [3]	**33.8**	**32.8**	**35.2**	**36.2**	**38.0**	**25.2**	**45.6**	**37.2**	**42.2**	**10.3**

1/ Sample with a nationwide coverage of at least 450 firms. Responses are voluntary and confidential.
2/ Manufacturing sector and services and commerce sector are the only representative at the national level.
3/ Since the press release of the first quarter of 2010, the results are presented as a percentage of the total of firms. In the previous press releases this information was presented as a percentage of responses.
4/ The total percentage may be above 100 since firms may choose more than one option.
Source: Banco de México.

Table A 32
Credit Market Conditions Survey: Bank Credit [1]

Item	Total					Q4 2016				
	2015	2016				By size of firm		By economic activity [2]		
	Q4	Q1	Q2	Q3	Q4	From 11 up to 100 workers	Over 100 workers	Manufactures	Services and commerce	Other
BANK CREDIT MARKET [3]										
Percentage of firms										
Firms with bank liabilities at the beginning of the quarter:	**49.8**	**45.6**	**47.0**	**48.9**	**49.8**	**43.1**	**53.8**	**42.5**	**54.9**	**40.6**
Firms that received new bank credits: [4]	**25.1**	**19.3**	**20.7**	**26.3**	**25.9**	**20.3**	**29.2**	**26.5**	**26.8**	**17.4**
Destined for: [5]										
Working capital	71.8	80.1	73.6	74.2	75.5	70.0	77.8	74.6	76.1	73.4
Liability restructuring	9.4	10.1	12.3	16.4	11.3	14.4	10.0	15.6	9.7	4.2
Foreign trade transactions	1.7	0.2	1.3	0.0	0.5	1.6	0.0	1.5	0.0	0.0
Investment	22.0	20.9	22.1	20.8	21.8	17.3	23.6	13.2	26.1	23.7
Other purposes	3.9	2.3	0.2	2.8	2.1	2.7	1.9	2.3	1.9	3.3
Perception of access conditions to bank credit:										
Diffusion index [6]										
Amounts offered	62.8	53.2	54.9	50.5	53.4	57.7	51.8	57.1	51.3	55.5
Terms offered	59.1	56.0	53.5	52.3	44.9	52.7	42.0	51.0	41.1	66.7
Collateral requirements	47.3	43.3	43.8	42.5	42.3	44.9	41.3	41.8	42.6	40.7
Credit resolution time	51.9	48.8	42.6	49.1	40.0	54.1	34.7	44.6	37.3	52.0
Conditions to refinance credits	52.0	49.3	48.6	52.0	47.2	54.7	44.3	49.5	45.6	62.4
Other bank requirements	49.4	43.6	43.2	49.9	45.6	57.2	40.7	44.3	46.1	53.4
Perception of conditions of bank credit costs:										
Diffusion index [7]										
Bank interest rates	43.7	39.8	32.7	29.5	17.8	16.4	18.3	21.7	15.3	35.2
Commissions and other spendings	43.0	48.4	40.8	44.3	30.2	30.1	30.3	40.5	24.6	29.3
Firms that did not receive new bank credits: [4]	**74.9**	**80.7**	**79.3**	**73.7**	**74.1**	**79.7**	**70.8**	**73.5**	**73.3**	**82.6**
Applied for and are going through the authorizaiton process	1.5	4.0	5.9	2.7	1.7	1.4	1.9	3.4	0.8	1.8
Applied for and were rejected	1.7	0.3	0.6	1.7	1.7	1.5	1.8	0.8	1.8	3.8
Applied for but rejected it, because it was too expensive	0.3	0.9	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Did not apply	71.4	75.5	72.6	69.3	70.8	76.8	67.2	69.3	70.6	77.0
Limiting factors to apply for or receive new credits: [8]										
General economic situation	50.3	48.9	49.6	47.5	49.8	56.0	45.7	49.5	49.1	55.5
Access to public support	41.8	41.2	41.8	38.0	36.3	40.4	33.5	36.7	33.8	50.8
Sales and profitability of the firm	41.0	39.9	40.9	37.1	40.6	50.2	34.2	40.0	40.5	43.3
Firm's capitalization	40.8	39.3	37.2	35.5	39.1	46.9	33.9	37.9	39.7	39.2
Firm's credit history	27.8	28.5	25.6	26.9	26.2	31.1	22.9	25.8	25.6	30.8
Banks' disposition to grant credits	42.5	37.6	39.5	37.4	42.4	44.3	41.2	41.8	42.2	46.1
Difficulties to pay the services of the performing bank debt	32.1	33.2	30.0	30.1	35.9	39.4	33.5	30.8	37.8	40.8
Interest rates of the bank credit market	50.7	47.3	48.5	44.2	53.0	57.1	50.3	55.1	52.0	52.2
Access conditions to bank credit	44.8	42.7	43.0	43.5	47.6	51.2	45.1	44.7	48.1	53.9
Amounts required as collateral to access bank credit	45.0	42.0	46.4	42.9	46.4	50.4	43.7	46.5	46.2	47.5
Total firms										
Conditions of access and the market cost of the bank credit are limiting the firm's operation:										
Major constraint	18.6	18.5	17.0	18.5	19.6	18.7	20.1	15.1	22.1	18.2
Minor constraint	33.8	29.5	26.5	29.8	27.1	28.9	26.0	26.6	25.9	37.7
No constraint	47.6	52.0	56.5	51.7	53.3	52.4	53.9	58.3	52.0	44.1

1/ Sample with a nationwide coverage of at least 450 firms. Responses are voluntary and confidential.
2/ Manufacturing sector and services and commerce sector are the only representative at the national level.
3/ The bank credit market includes commercial banks, development banks and foreign banks.
4/ Since the press release of the first quarter of 2010 the results are presented as a percentage of the total of firms. In the previous press releases, this information was presented as a percentage of responses. Figures may not add up due to rounding.
5/ The total percentage may be above 100 since firms may choose more than one option.
6/ Diffusion index is defined as the sum of the percentage of firms that mentioned that there were more accessible conditions, plus the half of the total percentage of firms that indicated that there were no changes in the access conditions. Under this metrics, when the value of the diffusion index is superior (inferior) to 50, it means that more firms pointed out that they perceived conditions as more accessible (less accessible) in the relevant variable, as compared to the situation observed in the previous quarter.
7/ Diffusion index is defined as the sum of the total percentage of firms that mentioned that there were less expensive conditions, plus the half of the total percentage of firms that indicated that there was no change. Under this metrics, when the value of the diffusion index is superior (inferior) to 50, it means that more firms pointed out that they perceived less expensive (more expensive) conditions in the relevant variable, as compared to the situation observed in the previous quarter.
8/ From a set of possible constraints, each firm marks each factor's share (very limiting, relatively limiting or not limiting), reason for which total percentage of factors can be above 100. The percentage of each factor includes the total of very limiting and relatively limiting grades.
Source: Banco de México.

Table A 33
Total Financing to Non-financial Private Sector
Quarterly data
Stocks in MXN billion

		External financing			Domestic financing				
	Total financing	**External credit 1/**	**External debt issuance 2/**	**Commercial banks 3/**	**Development banks 3/**	**Non-bank financial intermediaries 3/**	**Domestic debt issuance 4/**	**Infonavit 5/**	**Fovissste 6/**
2013									
Mar	5,085,680	398,433	679,478	2,365,316	170,302	98,298	319,044	903,957	150,853
Jun	5,278,665	427,037	750,698	2,429,959	179,992	98,516	341,332	906,493	144,639
Sep	5,505,066	437,414	856,639	2,504,414	191,887	99,241	340,036	926,104	149,331
Dec	5,729,108	478,702	936,950	2,595,273	210,690	104,604	345,720	917,791	139,379
2014									
Mar	5,805,536	472,520	951,825	2,595,975	218,023	106,140	351,060	968,476	141,517
Jun	5,969,346	503,012	1,013,826	2,662,947	225,982	109,821	347,567	964,300	141,890
Sep	6,134,144	518,562	1,057,853	2,710,011	240,718	114,968	354,532	985,945	151,555
Dec	6,410,262	608,532	1,150,176	2,805,198	263,460	110,713	339,551	991,881	140,752
2015									
Mar	6,555,328	585,017	1,158,592	2,848,641	270,649	129,548	358,016	1,050,677	154,188
Jun	6,771,741	618,895	1,237,000	2,921,066	286,548	132,815	373,633	1,051,845	149,939
Sep	7,209,233	703,186	1,320,285	3,051,507	305,807	203,019	398,363	1,074,072	152,994
Dec	7,402,960	708,245	1,352,759	3,172,801	330,417	210,243	399,806	1,074,863	153,828
2016									
Mar	7,714,630	724,658	1,395,746	3,234,571	331,062	328,574	401,202	1,140,308	158,510
Jun	8,042,661	776,012	1,485,331	3,362,799	350,129	348,625	404,197	1,147,828	167,740
Sep	8,357,014	820,389	1,527,928	3,499,242	368,924	372,309	419,332	1,175,200	173,689
Dec	8,645,073	877,976	1,576,989	3,634,956	397,865	397,735	420,618	1,168,733	170,201

1/ Previously, denominated as External Direct Financing. Includes credit from foreign suppliers to Mexican firms, from foreign commercial banks and other creditors. In February 2017, figures of External Credit were updated, due to the replacement of the information of foreign commercial banks' report credits stemming from the source. This modification is made retroactive as of October 2008 and affects the External Credit series, as well as the series it is part of. Source: data on foreign supplier credit is obtained from the balance sheets of the issuing firms listed on the Mexican Stock Exchange, while credit from foreign commercial banks is obtained from Banco de México's Survey: "Outstanding Consolidated Claims on Mexico".

2/ Commercial paper, bonds and securities issued by Mexican companies abroad. In February 2016, the external issuance data were revised retroactively as of March 2002. This modification affects the series of External Debt Issuance, as well as the series it is part of. Source: Banco de México.

3/ Includes total loan portfolio (performing and non-performing). In the case of commercial and development banks, the portfolio associated with debt-restructuring programs (UDIs and ADES) is included. Given that banks and financial groups acquired or established commercial banks' regulated entities, to distribute part of their credit portfolio to the different segments of the market, as of June 2016 and retroactively from March 2008, the commercial banks' data is consolidated with the information of their Sofomes ER subsidiaries. For more details, see explanatory note of the press release "Monetary Aggregates and Financial Activity in July 2016". Source: Banco de México.

4/ Calculated by Banco de México based on data from S.D. INDEVAL S.A. de C.V.

5/ Non-performing and performing mortgage portfolio from the National Employees' Housing Fund (*Instituto del Fondo Nacional de la Vivienda para los Trabajadores*, Infonavit). Source: Minimum Catalogue of the National Banking and Securities Commission (CNBV, for its acronym in Spanish).

6/ Non-performing and performing mortgage portfolio from the Public Employees' Housing Fund (*Fondo de Vivienda del Instituto de Seguridad y Servicios Sociales de los Trabajadores del Estado*, Fovissste). Source: Minimum Catalogue of the National Banking and Securities Commission (CNBV, for its acronym in Spanish).

Note: Figures are subject to revision. The total stocks may not coincide with the sum of their components due to the rounding of the figures.

Table A 34
Financial System Flow of Funds Matrix, January - December 2016 [1]
Flows revalued as a percentage of GDP [2]

	Resident private sector [3]			States and municipalities [4]			Public sector [5]			Banking sector [6]			External sector		
	Use of funds (assets)	Source of funds (liabil.)	Net financing received	Use of funds (assets)	Source of funds (liabil.)	Net financing received	Use of resources (assets)	Source of funds (liabil.)	Net financing received	Use of funds (assets)	Source of funds (liabil.)	Net financing received	Use of funds (assets)	Source of funds (liabil.)	Net financing received
	a	b	c = b - a	d	e	f = e - d	g	h	i = h - g	j	k	l = k - j	m	n	o = n - m
1. Change in domestic financial instruments (2 + 7 + 8 + 9)	3.3	2.5	**-0.9**	0.1	0.1	**-0.1**	0.0	0.8	**0.8**	2.7	3.0	**0.3**	0.2		**-0.2**
2. Financial instruments	3.3	0.6	**-2.7**	0.1	0.0	**-0.1**	0.2	0.0	**-0.2**	1.1	3.4	**2.3**	-0.7		**0.7**
3. Currency (banknotes and coins)	0.9		**-0.9**								0.9	**0.9**			
4. Checkable, time and savings deposits	2.1		**-2.1**	0.1		**-0.1**	0.2		**-0.2**		2.5	**2.5**	0.0		**0.0**
4.1 Non-financial enterpr. and other instit. [7]	0.9		**-0.9**	0.1		**-0.1**	0.2		**-0.2**		1.3	**1.3**	0.0		**0.0**
4.2 Individuals	1.2		**-1.2**								1.2	**1.2**			
5. Securities issued [8]	-0.2	0.2	**0.4**		0.0	**0.0**		0.0	**0.0**	1.1	0.0	**-1.1**	-0.7		**0.7**
6. Retirement and housing funds [9]	0.5	0.4	**0.0**					0.0	**0.0**						
7. Financing		2.4	**2.4**		0.1	**0.1**	-0.4	0.7	**1.2**	3.2	-0.4	**-3.6**			
7.1 Non-financial enterpr. and other instit. [10]		1.4	**1.4**		0.1	**0.1**	-0.4	0.7	**1.2**	2.3	-0.4	**-2.7**			
7.2 Households		0.9	**0.9**							0.9		**-0.9**			
8. Shares and other equity		0.9	**0.9**								0.0	**0.0**	0.9		**-0.9**
9. Other financial system items [11]		-1.4	**-1.4**				0.2	0.0	**-0.1**	-1.5		**1.5**			
10. Change in external financial instruments (11 + 12 + 13 + 14 + 15)	1.6	2.5	**0.9**				0.1	1.9	**1.9**	0.3	0.0	**-0.3**	4.4	2.0	**-2.4**
11. Foreign direct investment		2.6	**2.6**										2.6		**-2.6**
12. External financing		0.9	**0.9**					1.9	**1.9**		0.0	**0.0**	2.8		**-2.8**
13. Financial assets held abroad	1.6		**-1.6**				0.1		**-0.1**	0.3		**-0.3**		2.0	**2.0**
14. Banco de México international reserves										0.0		**0.0**		0.0	**0.0**
15. Errors and omissions (balance of payments)		-0.9	**-0.9**										-0.9		**0.9**
16. Statistical discrepancy [12]		0.0	**0.0**										0.0		**0.0**
17. Total change in financial instruments (1+ 10 +16)	5.0	5.0	**0.0**	0.1	0.1	**-0.1**	0.1	2.7	**2.7**	3.0	3.0	**0.0**	4.7	2.0	**-2.6** [13]

1/ Preliminary figures. Figures may not add up due to rounding.
2/ Excludes the effect of exchange rate fluctuations (MXN/USD).
3/ Private sector includes firms, individuals, non-bank financial intermediaries.
4/ States and municipalities show their position in relation to the banking sector and the debt market.
5/ Public sector measured as the change in the financial position of the public sector at market value.
6/ Banking sector includes Banco de México, development banks and commercial banks (including agencies abroad). By construction, this sector has a total net position of zero (line item 17), which has to do with financial intermediaries. Statistics on assets and liabilities from commercial banks, development banks and Banco de México were used to consolidate banking sector's financial flows.
7/ In addition to firms, private sector includes non-bank financial intermediaries.
8/ Includes government securities, IPAB securities, BREMS, private securities and state and municipal securities, and securities held by Siefores.
9/ Includes retirement saving funds from both the Public Employees' Social Service Institute (Ins*tituto de Seguridad y Servicios Sociales para los Trabajadores del Estado*, ISSSTE) and the Social Security Institute (*Instituto Mexicano del Seguro Social*, IMSS) held by Banco de México, and housing funds.
10/ In addition to firms, private sector includes individuals with business activities, and non-bank financial intermediaries and securities associated to restructuring programs.
11/ Includes non-classified assets, real estate assets and others, as well as banking sector's capital accounts and balance sheets.
12/ Difference between financial data and data drawn from the balance of payments.
13/ Corresponds to the balance of payments' current account. A negative figure implies external financing to the domestic economy (external sector surplus), which is equivalent to Mexico's current account deficit.
Source: Banco de México.

Table A 35
Banco de México's Bonds (BONDES D)
One year
Weekly auction results

		Amount in MXN million			Price			
	Maturity (days)	Offered	Allotted	Tendered	Weighted placement	Maximum	Minimum allotted	Minimum
07/01/2016	364	500	500	3,000	99.85684	99.85684	99.85684	99.83836
14/01/2016	357	500	500	2,550	99.86653	99.86653	99.86653	99.85257
21/01/2016	350	500	500	3,516	99.87034	99.87034	99.87034	97.00000
28/01/2016	343	500	500	2,350	99.87565	99.87565	99.87565	99.85920
04/02/2016	336	500	500	7,400	99.87607	99.87700	99.87354	99.70000
11/02/2016	329	500	500	145,206	99.87700	99.87700	99.87700	97.00000
18/02/2016	322	500	500	750	99.87650	99.87650	99.87650	99.86769
25/02/2016	315	500	500	1,640	99.87825	99.87950	99.87777	99.86312
03/03/2016	308	500	500	2,160	99.88673	99.88712	99.88671	99.87576
10/03/2016	301	500	500	1,000	99.88460	99.88460	99.88460	99.88059
17/03/2016	294	500	500	4,800	100.03760	100.03760	100.03760	99.88542
23/03/2016	288	500	500	3,980	99.90039	99.90040	99.89993	99.88170
31/03/2016	280	500	500	2,700	99.90610	99.90610	99.90610	99.89643
07/04/2016	364	500	500	3,490	99.88096	99.88100	99.87888	99.86787
14/04/2016	357	500	500	4,250	99.88816	99.88816	99.88816	99.87578
21/04/2016	350	500	500	3,390	99.89594	99.89594	99.89594	99.89156
28/04/2016	343	500	500	2,600	99.90401	99.90401	99.90401	99.89887
05/05/2016	336	500	500	3,200	99.90881	99.91235	99.90731	99.90144
12/05/2016	329	500	500	2,320	99.91486	99.91486	99.91486	99.91009
19/05/2016	322	500	500	1,450	99.91640	99.91640	99.91640	99.90700
26/05/2016	315	500	500	4,900	99.99540	99.99540	99.99540	99.91046
02/06/2016	308	500	500	7,030	99.92500	99.92500	99.92500	99.91780
09/06/2016	301	500	500	1,000	99.92584	99.92584	99.92584	99.91550
16/06/2016	294	500	500	2,000	99.92555	99.92555	99.92555	99.91950
23/06/2016	287	500	500	3,250	99.92768	99.92806	99.92730	95.00000
30/06/2016	280	500	500	4,000	99.92911	99.92911	99.92911	95.00000
07/07/2016	364	750	750	2,500	99.90432	99.90438	99.90429	99.90005
14/07/2016	357	750	750	1,550	99.90045	99.90670	99.90000	99.89790
21/07/2016	350	750	750	1,750	99.89998	99.90007	99.89980	99.89511
28/07/2016	343	750	750	7,860	99.90773	99.90780	99.90680	99.89718
04/08/2016	336	750	750	2,750	99.91279	99.91279	99.91279	95.00000
11/08/2016	329	750	750	4,450	99.91603	99.91655	99.91584	99.90500
18/08/2016	322	750	750	2,750	99.91592	99.91653	99.91469	99.90900
25/08/2016	315	750	750	5,850	99.92055	99.92090	99.91917	90.00000
01/09/2016	308	750	750	2,950	99.92338	99.92350	99.92288	99.92062
08/09/2016	301	750	750	2,960	99.92602	99.92764	99.92600	99.92279
15/09/2016	294	750	750	5,250	99.91968	99.91968	99.91968	99.91720
22/09/2016	287	750	750	2,950	99.92552	99.92552	99.92552	99.92160
29/09/2016	280	750	750	5,950	99.93129	99.93129	99.93129	99.92500
06/10/2016	364	750	750	6,550	99.90850	99.90850	99.90850	99.90116
13/10/2016	357	750	750	8,900	99.91200	99.91200	99.91200	90.00000
20/10/2016	350	750	750	2,950	99.91553	99.91560	99.91460	99.91153
27/10/2016	343	750	750	7,750	99.91637	99.91650	99.91610	99.88000
03/11/2016	336	750	750	2,600	99.91869	99.91930	99.91828	99.91609
10/11/2016	329	750	750	2,250	99.88000	99.88000	99.88000	99.86000
17/11/2016	322	750	750	1,900	99.87726	99.87726	99.87726	99.85098
24/11/2016	315	750	750	2,400	99.88008	99.88008	99.88008	99.82870
01/12/2016	308	750	750	3,000	99.85972	99.85972	99.85972	99.84080
08/12/2016	301	750	750	47,940	99.86673	99.86673	99.86673	99.84530
15/12/2016	294	750	750	4,490	99.87553	99.87560	99.87456	99.86410
22/12/2016	287	750	750	16,350	99.88738	99.88780	99.88685	99.87126
29/12/2016	280	750	750	8,850	99.89688	99.89700	99.89525	99.87844

Continues

Continuation

Banco de México's Bonds (BONDES D)
Three years
Weekly auction results

		Amount in MXN million			Price			
	Maturity (days)	Offered	Allotted	Tendered	Weighted placement	Maximum	Minimum allotted	Minimum
07/01/2016	1,071	500	500	1,900	99.43000	99.43000	99.43000	99.37000
14/01/2016	1,064	500	500	1,567	99.43880	99.44150	99.43722	99.41000
21/01/2016	1,057	500	500	1,212	99.44177	99.44670	99.44160	99.44150
28/01/2016	1,050	500	500	1,900	99.42533	99.42710	99.42016	98.30000
04/02/2016	1,043	500	500	7,950	99.44540	99.44540	99.44540	99.40000
11/02/2016	1,036	500	500	1,300	99.44626	99.44700	99.44516	99.44500
18/02/2016	1,029	500	500	1,450	99.42349	99.42349	99.42349	99.38706
25/02/2016	1,022	500	500	5,600	99.43700	99.43700	99.43700	99.40917
03/03/2016	1,015	500	500	5,000	99.46940	99.46940	99.46940	97.00000
10/03/2016	1,008	500	500	3,000	99.48230	99.48230	99.48230	99.47170
17/03/2016	1,001	500	500	1,500	99.48847	99.48847	99.48847	99.43350
23/03/2016	995	500	500	4,000	99.49764	99.50249	99.49440	99.45651
31/03/2016	1,092	500	500	3,100	99.44160	99.44160	99.44160	99.10000
07/04/2016	1,085	500	500	13,169	99.46618	99.46620	99.46534	99.20000
14/04/2016	1,078	500	500	5,699	99.48510	99.48510	99.48510	99.43742
21/04/2016	1,071	500	500	154,952	99.50590	99.50734	99.50234	99.45187
28/04/2016	1,064	500	500	1,399	99.52608	99.52610	99.52600	99.00000
05/05/2016	1,057	500	500	3,599	99.54238	99.54238	99.54238	99.30000
12/05/2016	1,050	500	500	3,247	99.53768	99.53780	99.53751	99.40000
19/05/2016	1,043	500	500	1,999	99.53000	99.53000	99.53000	99.20000
26/05/2016	1,036	500	500	3,400	99.52300	99.52300	99.52300	99.50915
02/06/2016	1,029	500	500	1,800	99.52410	99.52410	99.52410	99.49088
09/06/2016	1,022	500	500	1,800	99.52720	99.52720	99.52720	99.52660
16/06/2016	1,015	500	500	1,000	99.53296	99.53296	99.53296	99.53266
23/06/2016	1,008	500	500	129,200	99.54202	99.54202	99.54202	95.00000
30/06/2016	1,092	500	500	1,500	99.48480	99.48480	99.48480	95.00000
07/07/2016	1,085	750	750	2,800	99.49157	99.49200	99.49150	95.00000
14/07/2016	1,078	750	750	10,200	99.50481	99.50621	99.50200	90.00000
21/07/2016	1,071	750	750	750	99.49700	99.49700	99.49700	99.49700
28/07/2016	1,064	750	750	8,800	99.50700	99.50700	99.50700	95.00000
04/08/2016	1,057	750	750	2,850	99.50370	99.50370	99.50370	99.49270
11/08/2016	1,050	750	750	4,250	99.51150	99.51150	99.51150	99.50690
18/08/2016	1,043	750	750	3,350	99.51672	99.51678	99.51667	99.51390
25/08/2016	1,036	750	750	1,450	99.52023	99.52070	99.51970	99.49955
01/09/2016	1,029	750	750	7,550	99.52396	99.52400	99.52380	97.00000
08/09/2016	1,022	750	750	4,300	99.54142	99.54150	99.54112	99.53920
15/09/2016	1,015	750	750	1,900	99.53594	99.53660	99.53560	99.52800
22/09/2016	1,008	750	750	1,600	99.53400	99.53400	99.53400	99.52126
29/09/2016	1,001	750	750	1,950	99.53878	99.53896	99.53870	99.53869
06/10/2016	1,092	750	750	5,050	99.50512	99.50606	99.50325	90.00000
13/10/2016	1,085	750	750	127,700	99.51173	99.51173	99.51173	97.00000
20/10/2016	1,078	750	750	9,300	99.52035	99.52035	99.52035	99.50000
27/10/2016	1,071	750	750	4,950	99.52753	99.52753	99.52753	99.50920
03/11/2016	1,064	750	750	18,300	99.53031	99.53047	99.53020	97.00000
10/11/2016	1,057	750	750	36,200	99.42610	99.42610	99.42610	90.00000
17/11/2016	1,050	750	750	2,450	99.41754	99.44231	99.41546	99.35042
24/11/2016	1,043	750	750	2,000	99.42903	99.42903	99.42903	99.32860
01/12/2016	1,036	750	750	2,950	99.43634	99.44070	99.43343	99.38690
08/12/2016	1,092	750	750	5,010	99.39956	99.39956	99.39956	99.32821
15/12/2016	1,085	750	750	11,450	99.40427	99.40427	99.40427	99.36393
22/12/2016	1,078	750	750	69,620	99.42003	99.42003	99.42003	90.00000
29/12/2016	1071	750	750	196,550	99.44020	99.44020	99.44020	97.00000

Continues

Continuation

Banco de México's Bonds (BONDES D)
Five years
Weekly auction results

	Maturity (days)	Amount in MXN million			Price			
		Offered	Allotted	Tendered	Weighted placement	Maximum	Minimum allotted	Minimum
07/01/2016	1,785	500	500	4,400	98.86817	98.86817	98.86817	98.80000
14/01/2016	1,778	500	500	17,600	98.89346	98.89657	98.88100	98.85000
21/01/2016	1,771	500	500	15,431	98.91693	98.91693	98.91690	98.80000
28/01/2016	1,820	500	500	14,000	98.87721	98.87851	98.87200	98.84166
04/02/2016	1,813	500	500	9,560	98.90250	98.90250	98.90250	98.80000
11/02/2016	1,806	500	500	1,000	98.89607	98.89610	98.89604	98.86100
18/02/2016	1,799	500	500	2,000	98.86855	98.86870	98.86795	98.65000
25/02/2016	1,792	500	500	1,815	98.88447	98.88830	98.88158	98.84790
03/03/2016	1,785	500	500	2,450	98.94078	98.94180	98.94000	98.93682
10/03/2016	1,778	500	500	1,200	98.96942	98.96979	98.96932	98.94400
17/03/2016	1,771	500	500	5,300	98.97200	98.97200	98.97200	98.96013
23/03/2016	1,765	500	500	4,400	98.99050	98.99050	98.99050	98.88731
31/03/2016	1,820	500	500	2,800	98.94936	98.94936	98.94936	90.00000
07/04/2016	1,813	500	500	4,341	99.00597	99.00604	99.00244	98.99104
14/04/2016	1,806	500	500	8,528	99.08387	99.08400	99.07748	98.90000
21/04/2016	1,799	500	500	1,890	99.09697	99.09700	99.09672	99.00000
28/04/2016	1,792	500	500	7,122	99.13269	99.13270	99.12818	99.02000
05/05/2016	1,785	500	500	30,871	99.16167	99.16273	99.16000	99.14427
12/05/2016	1,778	500	500	4,223	99.16622	99.16702	99.16550	99.00001
19/05/2016	1,771	500	500	1,222	99.14900	99.14901	99.14900	99.00000
26/05/2016	1,820	500	500	2,100	99.09231	99.09231	99.09230	99.07900
02/06/2016	1,813	500	500	2,400	99.09596	99.09775	99.09551	99.06558
09/06/2016	1,806	500	500	1,990	99.09300	99.09300	99.09300	99.02000
16/06/2016	1,799	500	500	1,000	99.07954	99.07954	99.07954	99.04796
23/06/2016	1,792	500	500	29,000	99.03303	99.03500	99.03008	95.00000
30/06/2016	1,785	500	500	32,900	99.03205	99.03230	99.03180	95.00000
07/07/2016	1,778	750	750	153,950	99.02421	99.02421	99.02421	97.00000
14/07/2016	1,771	750	750	8,525	99.02900	99.02990	99.02890	90.00000
21/07/2016	1,764	750	750	32,194	99.00430	99.00431	99.00430	98.94220
28/07/2016	1,820	750	750	12,789	98.94978	98.94978	98.94978	95.00000
04/08/2016	1,813	750	750	475,500	98.96400	98.96400	98.96400	90.00000
11/08/2016	1,806	750	750	6,950	98.97470	98.97470	98.97470	90.00000
18/08/2016	1,799	750	750	8,250	98.99563	98.99563	98.99562	98.96886
25/08/2016	1,792	750	750	8,400	99.00107	99.00110	99.00100	98.97713
01/09/2016	1,785	750	750	7,000	99.02633	99.02633	99.02633	99.01040
08/09/2016	1,778	750	750	6,000	99.09907	99.09910	99.09900	99.00000
15/09/2016	1,771	750	750	4,900	99.09360	99.09361	99.09360	99.03241
22/09/2016	1,819	750	750	8,200	99.05400	99.05400	99.05400	98.90000
29/09/2016	1,812	750	750	3,151	99.03919	99.03919	99.03919	90.00000
06/10/2016	1,805	750	750	5,750	99.05424	99.05424	99.05424	99.02195
13/10/2016	1,798	750	750	11,300	99.09632	99.09632	99.09632	97.00000
20/10/2016	1,791	750	750	4,126	99.10056	99.10137	99.09950	99.07270
27/10/2016	1,784	750	750	8,750	99.10227	99.10227	99.10227	98.94153
03/11/2016	1,777	750	750	12,450	99.10740	99.10740	99.10740	97.00000
10/11/2016	1,770	750	750	60,275	99.04159	99.04247	99.04115	98.00000
17/11/2016	1,763	750	750	2,750	99.01000	99.01000	99.01000	98.00000
24/11/2016	1,820	750	750	4,000	98.93873	98.93873	98.93873	98.67310
01/12/2016	1,813	750	750	2,650	98.93233	98.93237	98.93232	98.76830
08/12/2016	1,806	750	750	7,059	98.94556	98.94561	98.94556	98.77090
15/12/2016	1,799	750	750	6,350	98.94850	98.94852	98.94847	98.90943
22/12/2016	1,792	750	750	21,100	98.96641	98.96680	98.96615	98.90000
29/12/2016	1,785	750	750	59,250	99.00716	99.00716	99.00716	98.00000

Source: Banco de México.

Table A 36
Representative Interest Rates: Cetes and Fixed Rate Bonds
Yield on public securities
Annual rates in percent [1]

		CETES [2]				Fixed rate bonds					
		28 days	91 days	182 days	364 days	3 years (1092 days)	5 years (1820 days)	7 years (2520 days)	10 years (3640 days)	20 years (7280 days)	30 years (10800 days)
2005		9.20	9.33	9.30	9.28	9.11	9.14	9.34	9.42	9.81	
2006		7.19	7.30	7.41	7.51	7.71	7.86	8.19	8.39	8.55	8.08
2007		7.19	7.35	7.48	7.60	7.60	7.70		7.77	7.83	7.83
2008		7.68	7.89	8.02	8.09	8.00	8.24		8.36	8.55	8.44
2009		5.43	5.52	5.60	5.83	6.51	7.41		7.96	8.48	8.79
2010		4.40	4.57	4.68	4.86	5.59	6.35		6.95	7.60	7.85
2011		4.24	4.35	4.51	4.66	5.38	5.93		6.65	7.85	8.00
2012		4.24	4.38	4.51	4.63	4.89	5.09		5.60	6.79	6.80
2013		3.75	3.81	3.90	3.98	4.42	4.70		5.63	6.42	6.67
2014		3.00	3.12	3.23	3.35	4.72	4.88		6.01	6.74	7.02
2015		2.98	3.14	3.29	3.54	4.90	5.31		5.96	6.56	6.62
2016		4.15	4.34	4.50	4.61	5.47	5.73		6.18	6.70	6.77
2014											
	Jan	3.14	3.41	3.55	3.66	5.06	5.27		6.46		7.59
	Feb	3.16	3.39	3.52	3.78	4.86	5.09			7.44	7.43
	Mar	3.17	3.29	3.46	3.68	4.80	5.06		6.32	6.89	
	Apr	3.23	3.37	3.49	3.66	4.72	5.07		6.15	7.12	7.20
	May	3.28	3.42	3.51	3.61	4.70	4.80		5.87		6.94
	Jun	3.02	3.08	3.17	3.10	4.57	4.57			6.53	6.65
	Jul	2.83	2.90	2.99	3.03	4.42	4.53		5.69	6.40	
	Aug	2.77	2.89	2.97	3.01	4.57	4.57		5.65		6.86
	Sep	2.83	2.86	2.97	3.09	4.81	4.74			6.50	6.88
	Oct	2.90	2.95	3.04	3.17	4.64	4.88		6.08	6.50	6.74
	Nov	2.85	2.92	3.01	3.17	4.54			5.98	6.53	
	Dec	2.81	2.92	3.02	3.22	4.92	5.12		5.90		6.92
2015											
	Jan	2.67	2.91	3.01	3.23	4.69	4.58			6.37	6.00
	Feb	2.81	2.94	3.09	3.21	4.93	5.05		5.31	6.24	
	Mar	3.04	3.12	3.32	3.53	5.26	5.15		6.04		6.42
	Apr	2.97	3.09	3.24	3.50	4.88	5.18		5.83	6.43	6.38
	May	2.98	3.09	3.20	3.51	5.07	5.26			6.61	6.69
	Jun	2.96	3.12	3.25	3.54	5.01	5.33		6.25	6.73	
	Jul	2.99	3.13	3.28	3.63	4.89	5.46		6.07		6.76
	Aug	3.04	3.35	3.45	3.70	5.01	5.59			6.56	6.68
	Sep	3.10	3.33	3.46	3.72	4.80	5.67		6.07	6.72	
	Oct	3.02	3.13	3.26	3.53	4.60	5.37			6.56	6.90
	Nov	3.02	3.22	3.42	3.70	4.83	5.46		6.18		6.89
	Dec	3.14	3.29	3.51	3.68	4.80	5.64			6.81	6.90
2016											
	Jan	3.08	3.30	3.46	3.58	5.11	5.53		6.23	6.88	
	Feb	3.36	3.53	3.66	3.53	5.05	5.68		6.07		6.86
	Mar	3.80	3.91	4.03	4.11	5.25	5.42		6.03	6.73	6.99
	Apr	3.74	3.83	3.94	4.04	5.06	5.28			6.46	6.55
	May	3.81	3.94	4.00	4.47	5.00	5.50		5.91	6.80	
	Jun	3.81	4.14	4.32	4.47	5.27	5.64		6.08		6.85
	Jul	4.21	4.39	4.59	4.79	5.41	5.59			6.41	6.37
	Aug	4.24	4.36	4.63	4.76	5.34	5.60		6.01	6.25	
	Sep	4.28	4.48	4.70	4.87	5.63	5.52		5.99	6.47	6.29
	Oct	4.69	4.85	5.03	5.23	5.50	5.82		6.09		6.55
	Nov	5.15	5.47	5.57	5.31	6.57	5.98			6.68	7.67
	Dec	5.61	5.87	6.09	6.21	6.45	7.14		7.25	7.60	

1/ Simple average.
2/ Primary auction placement rate for 28, 91, 182 and 364 days, respectively.
Source: Banco de México.

Continues

Continuation

Representative Interest Rates: Udibonos and IPAB Bonds
Yields on public securities
Annual rates in percent [1]

	UDIBONOS [2]				Surtax		
					BPAs [3/ 4/]	BPATs [3/ 5/]	BPA 182 [3/ 6/]
	3 years	10 years	20 years	30 years	3 years	5 years	7 years
	(1092 days)	(3640 days)	(7280 days)	(10800 days)	(1092 days)	(1820 days)	(2548 days)
2005		4.92			0.23	0.21	0.20
2006		4.17	4.34	4.41	0.20	0.20	0.20
2007	3.40	3.63	3.58	3.61	0.14	0.11	0.13
2008	3.48	4.04	3.75	4.21	0.22	0.18	0.19
2009	2.53	3.84		4.40	0.44	0.37	0.35
2010	1.47	2.79		3.66	0.26	0.22	0.22
2011	1.47	2.59		3.91	0.31	0.28	0.24
2012	0.99	1.97		3.12	0.38	0.36	0.25
2013	0.88	1.86		3.10			0.20
2014	0.92	2.56		3.55			0.00
2015	2.03	2.91		3.52			0.00
2016	2.30	2.97		3.64			-0.01
2014							
Jan	0.58	2.62		3.88			0.08
Feb	0.99	2.60		4.03			0.01
Mar	1.15	2.61		3.77			0.03
Apr	1.29	2.75		3.69			0.05
May	1.03	2.48		3.35			0.11
Jun	0.55	2.38		3.34			0.04
Jul	0.68	2.43		3.31			-0.03
Aug	0.75	2.36		3.25			-0.02
Sep	0.77	2.51		3.47			-0.03
Oct	0.88	2.64		3.37			-0.08
Nov	0.94	2.68		3.54			-0.08
Dec	1.45	2.65		3.64			-0.05
2015							
Jan	1.84	2.52		3.24			-0.12
Feb	2.00	2.62		3.10			-0.07
Mar	2.40	2.82		3.35			0.04
Apr	2.15	2.86		3.49			0.11
May	2.30	2.88		3.52			0.10
Jun	2.00	2.99		3.51			0.04
Jul	1.82	2.91		3.61			0.00
Aug	2.02	3.00		3.57			-0.04
Sep	1.74	2.99		3.60			-0.01
Oct	1.56	2.99		3.64			-0.02
Nov	1.94	3.02		3.68			-0.05
Dec	2.62	3.27		3.89			-0.01
2016							
Jan	2.59	3.22		3.94			0.02
Feb	1.98	3.20		3.90			-0.07
Mar	2.35	3.02		3.82			-0.03
Apr	2.09	3.07		3.69			0.04
May	2.25	3.13		3.85			0.00
Jun	2.15	3.13		3.70			-0.01
Jul	1.91	2.57		3.30			-0.02
Aug	2.04	2.62		3.30			-0.01
Sep	2.24	2.70		3.36			0.00
Oct	2.22	2.74		3.46			0.00
Nov	3.20	3.08		3.58			0.01
Dec	2.58	3.18		3.79			0.01

1/ Simple average.
2/ Federal government development bonds denominated in UDIs paying a fixed real interest rate.
3/ Savings protection bonds issued by the Institute for the Protection of Bank Savings (*Instituto de Protección al Ahorro Bancario*, IPAB).
4/ Spread in percentage points over the coupon paying the 28-day Cetes primary auction interest rate.
5/ Spread in percentage points over the coupon paying the 91-day Cetes primary auction interest rate.
6/ Spread in percentage points over the coupon paying the 182-day Cetes primary auction interest rate.
Source: Banco de México.

Table A 37
Representative Interest Rates
Costs of bank deposits (CCP and CPP), interbank interest rate,
overnight interest rate and short-term private securities
Annual rates in percent [1]

		Target rate [2]	Weighted funding rate		Interbank rates			Cost of bank deposits					Short-term private securities [3]
			Bank	Government	28-day TIIE	91-day TIIE	91-day Mexibor [4]	CCP	CCP-USD	CCP-Udis	CPP	CCP development banks	
2005			9.30	9.00	9.61	9.63	9.50	7.64	3.61	5.50	6.47	9.46	9.70
2006			7.23	7.07	7.51	7.69	7.38	6.06	4.05	5.45	5.14	7.55	7.51
2007			7.23	7.12	7.66	7.78	7.24	5.99	4.44	4.93	5.00	7.47	7.56
2008		7.84	7.82	7.67	8.28	8.35		6.73	3.27	4.74	5.69	7.94	8.71
2009		5.59	5.62	5.55	5.93	5.93		5.07	2.62	4.67	4.25	6.06	7.07
2010		4.50	4.59	4.55	4.91	5.00		4.17	2.18	4.20	3.41	4.87	5.29
2011		4.50	4.48	4.46	4.82	4.86		4.18	2.15	3.89	3.34	4.67	4.92
2012		4.50	4.49	4.50	4.79	4.81		4.20	2.79	4.37	3.25	4.79	4.73
2013		3.97	3.98	4.00	4.28	4.29		3.86	3.57	4.30	2.97	4.52	4.25
2014		3.22	3.22	3.25	3.52	3.53		3.23	3.78	4.29	2.41	3.99	3.55
2015		3.01	3.05	3.08	3.32	3.34		3.03	3.71	4.33	2.18	3.91	3.42
2016		4.15	4.16	4.18	4.47	4.57		3.76	3.71	4.37	2.67	4.75	4.72
2014													
	Jan	3.50	3.49	3.51	3.78	3.80		3.47	3.54	4.25	2.57	4.11	3.83
	Feb	3.50	3.49	3.52	3.79	3.80		3.46	3.96	4.25	2.61	4.12	3.80
	Mar	3.50	3.49	3.52	3.80	3.81		3.44	3.73	4.26	2.54	4.12	3.93
	Apr	3.50	3.50	3.53	3.81	3.81		3.41	3.83	4.29	2.55	4.15	3.88
	May	3.50	3.50	3.53	3.80	3.82		3.42	3.86	4.31	2.60	4.18	3.80
	Jun	3.08	3.11	3.14	3.43	3.44		3.30	3.85	4.17	2.50	4.02	3.43
	Jul	3.00	3.00	3.02	3.30	3.31		3.12	3.85	4.31	2.35	3.87	3.36
	Aug	3.00	3.01	3.05	3.30	3.31		3.05	3.73	4.31	2.30	3.89	3.32
	Sep	3.00	3.00	3.02	3.29	3.30		3.02	3.86	4.32	2.28	3.83	3.36
	Oct	3.00	3.01	3.04	3.29	3.30		3.03	3.71	4.32	2.26	3.84	3.34
	Nov	3.00	3.02	3.05	3.29	3.30		3.04	3.79	4.32	2.25	3.82	3.19
	Dec	3.00	3.05	3.08	3.30	3.31		3.03	3.61	4.32	2.15	3.87	3.38
2015													
	Jan	3.00	3.01	3.04	3.30	3.31		3.01	3.42	4.32	2.20	3.83	3.33
	Feb	3.00	3.03	3.06	3.30	3.31		3.01	3.77	4.32	2.24	3.82	3.36
	Mar	3.00	3.05	3.08	3.30	3.33		3.00	3.59	4.32	2.21	3.82	3.45
	Apr	3.00	3.02	3.04	3.30	3.31		3.02	3.66	4.31	2.23	3.84	3.41
	May	3.00	3.00	3.02	3.30	3.31		3.02	3.67	4.32	2.24	3.87	3.53
	Jun	3.00	3.07	3.10	3.30	3.31		3.03	3.82	4.32	2.23	3.86	3.28
	Jul	3.00	3.07	3.10	3.30	3.32		3.03	3.74	4.33	2.15	3.96	3.36
	Aug	3.00	3.03	3.08	3.32	3.35		3.03	3.78	4.33	2.13	3.98	3.32
	Sep	3.00	3.03	3.06	3.33	3.36		3.04	3.69	4.33	2.16	4.03	3.46
	Oct	3.00	3.02	3.04	3.31	3.32		3.03	3.73	4.34	2.16	3.98	3.39
	Nov	3.00	3.05	3.07	3.32	3.38		3.02	3.88	4.34	2.13	3.95	3.58
	Dec	3.11	3.21	3.24	3.42	3.50		3.06	3.77	4.35	2.11	4.02	3.60
2016													
	Jan	3.25	3.27	3.28	3.56	3.59		3.13	3.80	4.35	2.19	4.11	3.64
	Feb	3.47	3.48	3.48	3.75	3.78		3.20	4.00	4.35	2.24	4.19	3.87
	Mar	3.75	3.77	3.79	4.06	4.11		3.40	3.80	4.36	2.40	4.42	4.26
	Apr	3.75	3.74	3.76	4.06	4.12		3.48	3.41	4.36	2.47	4.46	4.12
	May	3.75	3.77	3.80	4.08	4.14		3.54	3.41	4.36	2.53	4.49	4.17
	Jun	3.77	3.80	3.83	4.10	4.21		3.59	3.43	4.36	2.57	4.59	4.30
	Jul	4.25	4.24	4.27	4.56	4.66		3.75	3.46	4.36	2.67	4.77	4.71
	Aug	4.25	4.27	4.29	4.59	4.69		3.88	3.62	4.36	2.75	4.86	4.80
	Sep	4.28	4.30	4.33	4.61	4.72		3.94	3.75	4.36	2.82	4.87	4.86
	Oct	4.75	4.75	4.77	5.11	5.19		4.15	3.89	4.39	2.98	5.17	5.33
	Nov	4.98	4.98	5.00	5.34	5.59		4.32	3.98	4.41	3.11	5.33	5.64
	Dec	5.52	5.57	5.57	5.84	6.02		4.69	3.94	4.41	3.28	5.71	6.92

1/ Simple average.
2/ Banco de México's target for the interest rate on overnight operations in the interbank funding market (operational target).
3/ 28-day interest rate calculated based on Indeval data.
4/ The Mexibor rate stopped being calculated on March 13, 2007 as stated in Nacional Financiera, S.N.C. press release in Mexico's Official Gazette (*Diario Oficial de la Federación*) of that day.
Source: Banco de México, based on data from Indeval.

Table A 38
Representative Exchange Rates
MXN/USD

| | Exchange rate to settle liabilities payable in foreign currency in Mexico [1] | | 48-hour interbank exch. rate Closing references [2] | | | |
| | | | Buy | | Sell | |
	End of period	Average of period	End of period	Average of period	End of period	Average of period
2011	13.9904	12.4233	13.9655	12.4375	13.9725	12.4404
2012	13.0101	13.1695	12.8684	13.1570	12.8704	13.1599
2013	13.0765	12.7720	13.0850	12.7699	13.0900	12.7728
2014	14.7180	13.2925	14.7445	13.3048	14.7475	13.3075
2015	17.2065	15.8483	17.2050	15.8685	17.2120	15.8728
2016	20.7314	18.6641	20.6320	18.6867	20.6400	18.6925
2013						
Jan	12.7134	12.7219	12.7150	12.6937	12.7170	12.6960
Feb	12.8680	12.7144	12.7459	12.7164	12.7489	12.7186
Mar	12.3579	12.5745	12.3319	12.5186	12.3339	12.5204
Apr	12.1550	12.2249	12.1391	12.2057	12.1411	12.2078
May	12.6328	12.2522	12.8011	12.3151	12.8041	12.3174
Jun	13.1884	12.9361	12.9765	12.9547	12.9795	12.9579
Jul	12.7321	12.7851	12.7820	12.7600	12.7850	12.7637
Aug	13.2539	12.8704	13.3860	12.9268	13.3900	12.9304
Sep	13.0119	13.0925	13.1504	13.0686	13.1524	13.0718
Oct	12.8903	13.0187	13.0380	12.9951	13.0400	12.9982
Nov	13.0925	13.0634	13.1125	13.0794	13.1175	13.0832
Dec	13.0765	13.0098	13.0850	13.0044	13.0900	13.0083
2014						
Jan	13.3671	13.1981	13.3120	13.2172	13.3160	13.2207
Feb	13.2992	13.2888	13.2420	13.2750	13.2460	13.2784
Mar	13.0837	13.2154	13.0620	13.2004	13.0640	13.2036
Apr	13.1356	13.0681	13.0830	13.0623	13.0850	13.0650
May	12.8660	12.9479	12.8525	12.9215	12.8560	12.9242
Jun	13.0323	12.9832	12.9850	12.9921	12.9865	12.9945
Jul	13.0578	12.9734	13.2030	12.9873	13.2050	12.9894
Aug	13.0811	13.1490	13.0680	13.1430	13.0700	13.1452
Sep	13.4541	13.2002	13.4215	13.2378	13.4235	13.2398
Oct	13.4239	13.4768	13.4690	13.4785	13.4715	13.4807
Nov	13.7219	13.5819	13.9055	13.6261	13.9080	13.6284
Dec	14.7180	14.4266	14.7445	14.5160	14.7475	14.5198
2015						
Jan	14.6878	14.6757	14.9470	14.6927	14.9500	14.6964
Feb	14.9228	14.9167	14.9255	14.9138	14.9295	14.9184
Mar	15.1542	15.2003	15.2560	15.2276	15.2610	15.2323
Apr	15.2225	15.2228	15.3755	15.2338	15.3795	15.2380
May	15.3581	15.2555	15.3850	15.2591	15.3890	15.2629
Jun	15.5676	15.4562	15.6900	15.4803	15.6950	15.4842
Jul	16.2140	15.8881	16.1230	15.9392	16.1260	15.9430
Aug	16.8863	16.4880	16.6795	16.5420	16.6825	16.5459
Sep	17.0073	16.8372	16.9300	16.8546	16.9330	16.8593
Oct	16.4503	16.6020	16.5040	16.5767	16.5070	16.5810
Nov	16.5492	16.6348	16.5705	16.6323	16.5735	16.6367
Dec	17.2065	17.0019	17.2050	17.0703	17.2120	17.0750
2016						
Jan	18.4530	17.9780	18.1420	18.0904	18.1460	18.0956
Feb	18.1680	18.4837	18.0970	18.4759	18.1030	18.4817
Mar	17.4015	17.7383	17.2800	17.6156	17.2900	17.6207
Apr	17.3993	17.4924	17.2180	17.4773	17.2230	17.4829
May	18.4527	18.0405	18.4655	18.1565	18.4695	18.1616
Jun	18.9113	18.6471	18.2535	18.6301	18.2575	18.6351
Jul	18.8602	18.5699	18.7635	18.5876	18.7685	18.5932
Aug	18.5773	18.4760	18.8440	18.4880	18.8490	18.4930
Sep	19.5002	19.1386	19.3740	19.1761	19.3820	19.1822
Oct	18.8443	18.9480	18.9010	18.8879	18.9060	18.8940
Nov	20.5521	19.9425	20.4995	20.1302	20.5065	20.1375
Dec	20.7314	20.5137	20.6320	20.5249	20.6400	20.5326

1/ The FIX exchange rate is determined by Banco de México as an average of wholesale foreign exchange references for transactions payable in 48 hours. It is published in Mexico's Official Gazette (*Diario Oficial de la Federación*) one banking business day after its setting date. It is used to settle liabilities denominated in foreign currency payable in Mexico the day after its publishing.

2/ Representative exchange rate for wholesale transactions (among banks, securities firms, foreign exchange firms and other major financial and non-financial companies). Payable two banking business days after it has been settled.

Source: Banco de México.

Table A 39
Mexican Stock Exchange (*Bolsa Mexicana de Valores*, BMV) Market Capitalization
MXN million, according to the last listed price

	Overall total	Mining	Manufacturing	Construction	Retail and commerce	Communications and transport	Services	Other [1]
Previous methodology: indices by sector according to the previous classification of the Mexican Stock Exchange
2006	3,771,498	142,574	572,818	497,754	650,601	1,395,233	271,454	241,064
2007	4,340,886	273,841	586,815	453,355	644,805	1,772,050	390,211	219,810
2008	3,220,900	141,652	516,354	217,308	632,165	1,239,884	313,449	160,088

New methodology: Mexican Stock Exchange classified by sector [2/3]

	Overall total	Energy [4]	Material	Industrial	Services and non-basic consumer goods	Frequently consumed goods	Healthcare	Financial services	Telecom services	FIBRAs	Information technology [4]
2009	4,596,094		673,709	374,927	299,754	1,255,922	41,975	366,018	1,583,789		
2010	5,603,894		890,805	553,538	308,804	1,537,221	59,004	501,174	1,753,348		
2011	5,703,430		909,660	460,721	539,049	1,758,093	57,958	438,519	1,529,373	10,057	
2012	6,818,386		1,267,993	659,865	390,524	2,214,939	62,058	783,784	1,385,379	53,843	
2013	7,043,213	60,205	1,039,869	860,115	418,190	2,232,512	75,314	825,960	1,377,166	153,881	
2014	7,336,864	85,167	984,285	924,660	457,026	2,246,540	67,821	821,792	1,491,430	258,143	
2015	7,203,516	83,482	833,209	952,513	606,535	2,394,341	50,433	840,806	1,155,469	249,684	37,044
2016	7,507,510	138,568	1,303,284	949,523	475,892	2,243,169	56,385	863,498	1,199,855	240,245	37,092
2013											
Jan	7,003,546		1,282,200	704,952	414,931	2,232,944	63,459	749,137	1,474,359	81,564	
Feb	6,898,090		1,264,767	779,903	402,876	2,259,788	65,828	771,787	1,267,446	85,695	
Mar	6,990,836	45,399	1,286,558	790,228	410,753	2,280,895	61,553	787,842	1,226,960	100,646	
Apr	6,876,199	47,777	1,172,855	775,985	436,192	2,277,938	59,006	775,838	1,215,794	114,814	
May	6,750,084	54,724	1,143,214	776,853	407,655	2,268,815	59,991	713,704	1,206,899	118,230	
Jun	6,629,967	53,858	1,024,515	771,832	403,966	2,249,160	57,898	680,746	1,275,845	112,147	
Jul	6,643,701	58,359	1,035,946	789,172	395,372	2,207,082	66,033	747,110	1,222,065	122,563	
Aug	6,491,044	57,367	1,040,452	797,736	408,993	2,093,170	65,136	739,119	1,172,825	116,187	
Sep	6,612,463	58,313	1,036,782	829,038	408,451	2,161,782	62,175	745,801	1,201,310	108,812	
Oct	6,816,899	59,409	1,029,617	823,567	408,861	2,199,848	71,923	775,285	1,300,274	148,116	
Nov	6,971,682	62,652	999,658	867,022	414,852	2,215,285	75,408	801,557	1,384,235	151,014	
Dec	7,043,213	60,205	1,039,869	860,115	418,190	2,232,512	75,314	825,960	1,377,166	153,881	
2014											
Jan	6,745,930	66,449	1,010,350	856,099	407,281	2,106,766	71,163	762,936	1,308,901	155,984	
Feb	6,431,865	66,772	991,813	819,837	387,493	1,992,329	69,408	747,600	1,202,138	154,476	
Mar	6,647,774	77,966	1,005,022	836,382	395,267	2,088,690	68,781	782,663	1,235,441	157,562	
Apr	6,683,452	78,612	994,592	842,110	385,942	2,131,358	72,089	773,308	1,243,023	162,418	
May	6,774,676	81,705	1,039,175	865,548	368,110	2,172,098	73,005	816,567	1,195,876	162,592	
Jun	7,094,308	83,067	1,074,320	900,109	379,468	2,236,613	76,061	847,135	1,275,526	222,009	
Jul	7,332,979	86,090	1,099,026	921,602	386,292	2,229,861	77,658	850,950	1,437,428	244,072	
Aug	7,597,031	90,533	1,123,270	982,008	415,821	2,308,542	77,287	879,460	1,470,777	249,332	
Sep	7,561,524	94,584	1,093,032	1,007,846	417,146	2,242,174	74,236	865,209	1,515,218	252,079	
Oct	7,514,646	95,115	1,080,866	991,567	429,961	2,209,706	75,113	881,296	1,493,430	257,591	
Nov	7,422,661	94,111	1,063,316	960,588	454,375	2,196,287	70,161	821,496	1,498,836	263,491	
Dec	7,336,864	85,167	984,285	924,660	457,026	2,246,540	67,821	821,792	1,491,430	258,143	
2015											
Jan	7,057,264	82,143	913,489	875,864	452,639	2,142,591	62,266	813,673	1,452,554	262,044	
Feb	7,476,394	90,429	1,000,238	918,219	456,558	2,381,674	49,002	858,132	1,461,721	260,420	
Mar	7,426,036	96,061	948,921	906,372	456,274	2,444,069	47,142	851,635	1,422,709	252,853	
Apr	7,473,975	103,031	984,674	911,496	451,466	2,401,227	52,536	831,586	1,490,225	247,733	
May	7,496,304	95,172	1,000,503	885,303	439,735	2,447,346	52,092	820,165	1,507,888	248,101	
Jun	7,542,803	89,829	991,684	899,611	457,383	2,443,441	50,506	820,294	1,546,646	243,410	
Jul	7,637,495	90,810	985,777	957,664	531,760	2,498,740	48,910	826,715	1,451,341	245,778	
Aug	7,508,133	85,675	957,096	960,178	502,656	2,549,147	47,217	786,512	1,388,873	230,779	
Sep	7,451,590	79,674	910,200	975,194	550,540	2,611,782	46,506	790,611	1,250,657	236,426	
Oct	7,478,926	91,918	900,661	1,000,372	607,383	2,427,815	44,253	827,067	1,333,550	245,906	
Nov	7,323,575	83,909	860,224	994,268	615,199	2,411,820	47,360	824,882	1,238,676	247,236	
Dec	7,203,516	83,482	833,209	952,513	606,535	2,394,341	50,433	840,806	1,155,469	249,684	37,044
2016											
Jan	7,240,754	81,924	792,352	934,556	596,121	2,497,823	47,426	810,202	1,203,060	240,960	36,330
Feb	7,261,910	82,016	870,668	938,303	574,200	2,474,920	45,245	829,116	1,165,675	249,436	32,331
Mar	7,572,081	81,509	964,166	1,011,167	587,846	2,467,731	46,741	872,636	1,245,212	261,978	33,095
Apr	7,574,156	77,585	1,029,580	1,000,548	584,808	2,474,455	52,384	870,402	1,177,297	272,269	34,827
May	7,466,497	84,325	985,172	995,938	564,301	2,519,177	48,685	856,801	1,110,936	261,891	39,273
Jun	7,556,846	88,894	1,060,067	1,013,726	528,609	2,557,676	48,969	867,510	1,095,000	259,082	37,313
Jul	7,556,538	87,406	1,160,525	1,013,592	528,735	2,478,975	51,576	873,977	1,066,345	257,985	37,422
Aug	7,688,500	83,690	1,186,421	1,016,726	554,220	2,477,843	54,066	902,847	1,122,054	254,136	36,498
Sep	7,612,893	87,475	1,195,707	1,000,052	545,210	2,466,094	53,146	879,809	1,099,156	250,241	36,003
Oct	7,775,773	128,367	1,213,298	1,011,381	547,225	2,429,879	52,229	919,334	1,172,979	265,044	36,036
Nov	7,413,475	138,998	1,299,728	938,492	467,453	2,259,391	53,237	824,102	1,149,717	242,692	39,666
Dec	7,507,510	138,568	1,303,284	949,523	475,892	2,243,169	56,385	863,498	1,199,855	240,245	37,092

1/ Mainly holding companies.
2/ The new BMV methodology of classifying by sector is in force since March 2009.
3/ From January 2013, the Mexican Stock Exchange places FIBRAs in a separate sector.
4/ During 2013, the Mexican Stock Exchange incorporated this sector, due to the placement of securities by a firm of the referred sector.
Source: Mexican Stock Exchange (*Bolsa Mexicana de Valores*, BMV).

Table A 40
Mexican Stock Exchange Main Benchmark Index (*Índice de Precios y Cotizaciones*, IPC, *de la Bolsa Mexicana de Valores*, BMV)
End of period
October 1978 = 100

	Previous methodology: indices by sector according to the previous classification of the Mexican Stock Exchange							
	Overall total	Mining	Manufacturing	Construction	Retail and commerce	Communications and transport	Services	Other [1]
2006	26,448	32,778	7,167	40,316	44,267	121,352	3,331	6,833
2007	29,537	62,127	7,604	34,786	44,610	155,119	4,128	7,094
2008	22,380	30,885	5,894	16,985	36,242	117,947	3,340	4,395

	New methodology: Mexican Stock Exchange classification by sector [2]							
	Overall total	Materials	Industrial	Services and non-basic consumer goods	Frequently consumed goods	Health care	Financial services	Telecom servcies
2009	32,120	461	106	310	360	338	59	709
2010	38,551	635	135	329	423	477	70	720
2011	37,078	597	120	351	462	467	52	657
2012	43,706	797	169	407	623	496	75	664
2013	42,727	662	198	532	642	603	90	734
2014	43,146	625	221	521	674	552	98	806
2015	42,978	547	243	684	787	423	102	783
2016	45,643	824	240	609	756	505	94	814
2013								
Jan	45,278	810	185	443	628	507	77	689
Feb	44,121	769	185	456	643	526	78	664
Mar	44,077	783	184	507	653	523	80	683
Apr	42,263	720	176	514	663	502	79	681
May	41,588	710	179	502	659	510	84	689
Jun	40,623	654	180	470	656	493	79	654
Jul	40,838	670	183	498	654	528	84	658
Aug	39,492	660	182	502	616	521	83	668
Sep	40,185	683	183	514	627	525	83	696
Oct	41,039	653	183	525	628	576	85	708
Nov	42,499	647	198	522	633	604	89	718
Dec	42,727	662	198	532	642	603	90	734
2014								
Jan	40,880	645	199	511	599	570	86	775
Feb	38,783	629	192	503	575	555	85	743
Mar	40,462	632	200	540	606	581	85	776
Apr	40,712	634	202	525	618	577	85	760
May	41,363	655	207	522	639	584	86	767
Jun	42,737	679	214	537	663	609	88	799
Jul	43,818	692	217	531	664	622	90	819
Aug	45,628	701	230	532	683	619	93	833
Sep	44,986	697	239	521	665	594	95	836
Oct	45,028	685	238	530	663	611	96	830
Nov	44,190	663	227	538	664	571	95	819
Dec	43,146	625	221	521	674	552	98	806
2015								
Jan	40,951	581	208	504	644	507	90	780
Feb	44,190	617	219	551	698	441	97	803
Mar	43,725	599	218	548	714	426	97	829
Apr	44,582	628	221	566	707	471	98	827
May	44,704	648	219	561	717	467	98	839
Jun	45,054	642	218	571	708	455	100	853
Jul	44,753	618	231	601	732	444	105	830
Aug	43,722	605	231	584	744	431	99	789
Sep	42,633	568	236	604	756	425	96	766
Oct	44,543	574	245	642	800	409	100	782
Nov	43,419	548	242	679	786	398	101	787
Dec	42,978	547	243	684	787	423	102	783
2016								
Jan	43,631	529	241	691	826	399	93	789
Feb	43,715	568	240	700	830	382	90	792
Mar	45,881	629	258	722	830	394	95	843
Apr	45,785	672	256	718	831	442	95	805
May	45,459	643	255	696	845	442	93	763
Jun	45,966	694	258	659	861	445	94	752
Jul	46,661	763	258	663	846	467	95	745
Aug	47,541	776	258	671	843	457	98	774
Sep	47,246	781	253	661	838	449	95	758
Oct	48,009	787	255	665	824	470	100	801
Nov	45,286	835	237	610	759	478	89	778
Dec	45,643	824	240	609	756	505	94	814

1/ Main holding companies.
2/ The new BMV methodology of classification by sector is in force since March 2009.
Source: Mexican Stock Exchange (*Bolsa Mexicana de Valores*, BMV).

Public Finances

Table A 41
Public Finance Indicators: 2011-2016
Percent of GDP

Item	2011	2012	2013	2014	2015	2016 [p]
Budgetary revenues	22.5	22.5	23.6	23.1	23.4	24.8
Net paid expenditure	25.0	25.1	25.9	26.2	26.8	27.4
Budgetary balance	-2.5	-2.6	-2.3	-3.2	-3.4	-2.6
Balance of EUIBC [1]	0.0	0.0	0.0	0.0	-0.1	0.0
Public balance [2]	-2.4	-2.6	-2.3	-3.1	-3.5	-2.6
Primary balance [3]	-0.6	-0.6	-0.4	-1.1	-1.2	-0.1
Public Sector Borrowing Requirements	-3.4	-3.8	-3.7	-4.6	-4.1	-2.9
Accrued operational balance [4]	-2.1	-2.7	-0.4	-3.3	-2.0	-1.1
Net broad economic debt [5]	29.0	31.5	32.1	36.2	39.4	41.8
Budgetary sector financial cost [6]	1.9	2.0	2.0	2.0	2.2	2.4

1/ EUIBC = Entities under Indirect Budgetary Control. It includes non-budgetary balance and the difference with sources of financing.
2/ It includes total budgetary balance and the balance of EUIBC.
3/ Defined as the public sector balance less the budgetary financial cost and that of EUIBC.
4/ Defined as public sector accrued economic balance less the inflationary component of the financial cost. Measured by Banco de México.
5/ Includes net liabilities of the federal government, public entities and official financial intermediaries (development banks and public funds and trusts). Stocks
   at end of period. Measured by Banco de México.
6/ Excludes financial cost of public entities under indirect budgetary control.
p/ Preliminary figures.
Note: Figures may not add up due to rounding.
Source: Ministry of Finance (SHCP) and Banco de México.

Table A 42
Public Sector Revenues, Expenditures and Balances in 2015 and 2016

Item	2015 Observed		2016 Programmed		2016 Observed [p/]		Real growth % 2016-2015
	MXN billion	Percentage of GDP	MXN billion	Percentage of GDP [1/]	MXN billion	Percentage of GDP	
Budgetary revenues	**4,267.0**	**23.4**	**4,154.6**	**21.6**	**4,840.9**	**24.8**	**10.3**
Federal government	**3,180.1**	**17.4**	**3,102.4**	**16.1**	**3,566.2**	**18.3**	**9.1**
Tax revenues	2,366.5	13.0	2,407.7	12.5	2,716.2	13.9	11.6
ISR-IETU-IDE	1,222.5	6.7	1,244.2	6.5	1,420.6	7.3	13.0
Income tax (ISR)	1,237.6	6.8	1,249.3	6.5	1,426.0	7.3	12.1
ISR	1,232.4	6.8	1,248.8	6.5	1,425.8	7.3	12.5
ISR (contractors and legatees)	5.2	0.0	0.5	0.0	0.2	0.0	-95.8
Flat rate business tax (IETU)	-11.8	-0.1	n.a.	d.n.a.	-4.2	0.0	d.n.a.
Tax on cash deposits (IDE)	-3.3	0.0	n.a.	d.n.a.	-1.3	0.0	d.n.a.
Value added tax (VAT)	707.2	3.9	742.0	3.9	791.7	4.1	8.9
Excise tax (IEPS)	354.3	1.9	348.9	1.8	411.4	2.1	12.9
Import duties	44.1	0.2	36.3	0.2	50.6	0.3	11.5
Other	38.4	0.2	36.3	0.2	42.0	0.2	6.4
Non-tax revenues	813.6	4.5	694.7	3.6	850.1	4.4	1.6
Public entities and enterprises	**1,086.9**	**6.0**	**1,052.2**	**5.5**	**1,274.7**	**6.5**	**14.1**
Pemex	429.0	2.4	398.4	2.1	481.5	2.5	9.1
Other	657.9	3.6	653.8	3.4	793.2	4.1	17.3
Net paid expenditures	**4,892.9**	**26.8**	**4,731.8**	**24.6**	**5,343.8**	**27.4**	**6.2**
Accrued programmable	**3,826.6**	**21.0**	**3,574.7**	**18.6**	**4,160.4**	**21.3**	**5.7**
Deferred payments	n.a.	d.n.a.	-32.0	-0.2	n.a.	d.n.a	d.n.a.
Programmable accrued expenditures	n.a.	d.n.a.	3,606.7	18.8	n.a.	d.n.a.	d.n.a.
Current expenditures	2,890.6	15.8	2,867.8	14.9	2,978.1	15.3	0.2
Wages and services	1,078.5	5.9	1,124.6	5.9	1,110.1	5.7	0.1
Other current expenditures	1,812.1	9.9	1,743.2	9.1	1,868.0	9.6	0.3
Capital expenditures	936.0	5.1	738.9	3.8	1,182.3	6.1	22.8
Fixed investment	772.5	4.2	717.6	3.7	728.4	3.7	-8.3
Financial investment and other [2/]	163.4	0.9	21.3	0.1	453.9	2.3	170.1
Non-programmable	**1,066.3**	**5.8**	**1,157.2**	**6.0**	**1,183.4**	**6.1**	**7.9**
Financial cost	408.3	2.2	462.4	2.4	473.0	2.4	12.7
Federal government	322.2	1.8	377.9	2.0	370.1	1.9	11.7
Interests	311.3	1.7	357.4	1.9	349.6	1.8	9.2
Financial restructuring	10.9	0.1	20.6	0.1	20.6	0.1	82.6
Public entities and enterprises	86.1	0.5	84.4	0.4	102.9	0.5	16.3
Revenue sharing	629.1	3.4	678.7	3.5	693.7	3.6	7.2
Adefas and other [3/]	28.9	0.2	16.0	0.1	16.6	0.1	-43.9
Budgetary balance	**-625.9**	**-3.4**	**-577.2**	**-3.0**	**-502.9**	**-2.6**	**d.n.a.**
Balance of EUIBC	**-11.8**	**-0.1**	**0.0**	**0.0**	**-0.8**	**0.0**	**d.n.a.**
Non-budgetary balance	-1.1	0.0	n.d.	n.a.	5.7	0.0	d.n.a.
Difference from sources of financing [4/]	-10.7	-0.1	n.d.	n.a.	-6.5	0.0	d.n.a.
Public balance	**-637.7**	**-3.5**	**-577.2**	**-3.0**	**-503.7**	**-2.6**	**d.n.a.**
Primary balance [5/]	**-218.5**	**-1.2**	**-114.3**	**-0.6**	**-24.0**	**-0.1**	**d.n.a.**
Public Sector Borrowing Requirements	**-742.3**	**-4.1**	**-664.2**	**-3.5**	**-556.6**	**-2.9**	**d.n.a.**

1/ GDP for 2015 estimated by the Ministry of Finance.
2/ Includes recoverable expenditures and transfers for EUIBC amortization and financial investment.
3/ Includes external net expenditure of the Federal Government.
4/ Difference between the public balance calculated with the revenue-expenditure methodology and that calculated according to the sources of financing methodology.
5/ Defined as public sector balance less interest paid by the budgetary and non-budgetary sectors.
d.n.a. Does not apply.
p/ Preliminary figures.
Note: Figures may not add up due to rounding.
Source: Ministry of Finance (SHCP).

Table A 43
Public Sector Revenues, Expenditures and Balances: 2011-2016
Percent of GDP

Item	2011	2012	2013	2014	2015	2016 [p]
Budgetary revenues	22.5	22.5	23.6	23.1	23.4	24.8
Federal government	15.9	15.7	16.8	16.7	17.4	18.3
Tax revenues	8.9	8.4	9.7	10.5	13.0	13.9
Non-tax revenues	7.1	7.3	7.1	6.3	4.5	4.4
Public entities and enterprises	6.5	6.8	6.8	6.3	6.0	6.5
Pemex	2.7	3.0	3.0	2.6	2.4	2.5
Other	3.8	3.8	3.8	3.8	3.6	4.1
Net paid expenditure	25.0	25.1	25.9	26.2	26.8	27.4
Programmable	19.7	19.9	20.6	20.7	21.0	21.3
Current expenditures	14.8	15.1	15.1	15.5	15.8	15.3
Capital expenditures	4.8	4.7	5.4	5.2	5.1	6.1
Non-programmable expenditures	5.3	5.2	5.3	5.5	5.8	6.1
Financial cost	1.9	2.0	2.0	2.0	2.2	2.4
Revenues sharing	3.3	3.2	3.3	3.4	3.4	3.6
Adefas and other [1]	0.1	0.1	0.1	0.1	0.2	0.1
Budgetary balance	-2.5	-2.6	-2.3	-3.2	-3.4	-2.6
Balance of EUIBC [2]	0.0	0.0	0.0	0.0	-0.1	0.0
Public balance	-2.4	-2.6	-2.3	-3.1	-3.5	-2.6
Primary balance [3]	-0.6	-0.6	-0.4	-1.1	-1.2	-0.1
Public Sector Borrowing Requirements	-3.4	-3.8	-3.7	-4.6	-4.1	-2.9

1/ Includes net external expenditure of the Federal Government.
2/ EUIBC = Entities Under Indirect Budgetary Control.
3/ Defined as the public balance less budgetary and EUIBC financial costs.
p/ Preliminary figures.
Note: Figures may not add up due to rounding.
Source: Ministry of Finance (SHCP).

Table A 44
Public Sector Budgetary Revenues: 2011-2016
Percent of GDP

Item	2011	2012	2013	2014	2015	2016 [p]
Budgetary revenues	**22.5**	**22.5**	**23.6**	**23.1**	**23.4**	**24.8**
Classification I						
Federal government	15.9	15.7	16.8	16.7	17.4	18.3
Tax revenues	8.9	8.4	9.7	10.5	13.0	13.9
ISR-IETU-IDE	5.2	5.1	5.9	5.6	6.7	7.3
Income tax (ISR)	5.0	4.9	5.6	5.7	6.8	7.3
ISR	5.0	4.9	5.6	5.7	6.8	7.3
ISR (contractors and legatees)	d.n.a.	d.n.a.	d.n.a.	d.n.a.	0.0	0.0
Flat rate business tax (IETU)	0.3	0.3	0.3	-0.1	-0.1	0.0
Tax on cash deposits (IDE)	-0.1	0.0	0.0	-0.1	0.0	0.0
Value added tax (VAT)	3.7	3.7	3.5	3.9	3.9	4.1
Excise tax (IEPS)	-0.5	-0.8	0.0	0.6	1.9	2.1
Imports	0.2	0.2	0.2	0.2	0.2	0.3
Other	0.3	0.2	0.2	0.2	0.2	0.2
Non-tax revenues	7.1	7.3	7.1	6.3	4.5	4.4
Rights	6.1	6.2	5.6	4.8	0.3	0.3
Fees	0.0	0.0	0.1	0.0	0.0	0.0
Other	0.9	1.1	1.4	1.4	1.9	2.5
Transfers to MFFSD [1]	d.n.a.	d.n.a.	d.n.a.	d.n.a.	2.2	1.6
Public entities and enterprises	6.5	6.8	6.8	6.3	6.0	6.5
Pemex	2.7	3.0	3.0	2.6	2.4	2.5
Other	3.8	3.8	3.8	3.8	3.6	4.1
Classification II						
Oil revenues	8.6	8.9	8.3	7.1	4.6	4.0
Pemex	2.7	3.0	3.0	2.6	2.4	2.5
Exports	2.1	1.9	1.5	1.1	0.1	-0.3
Domestic sales	5.3	5.5	5.7	5.6	4.2	3.3
Other	1.3	1.5	1.1	0.5	0.5	1.1
(-) Taxes [2]	5.9	6.0	5.4	4.6	2.3	1.6
Federal government [3]	5.8	5.9	5.3	4.5	2.3	1.6
Non-oil revenues	13.9	13.6	15.2	16.0	18.8	20.8
Federal government	10.1	9.8	11.4	12.2	15.2	16.7
Tax revenues	8.9	8.4	9.7	10.5	12.9	13.9
ISR	5.0	4.9	5.6	5.7	6.8	7.3
IETU	0.3	0.3	0.3	-0.1	-0.1	0.0
IDE	-0.1	0.0	0.0	-0.1	0.0	0.0
VAT	3.7	3.7	3.5	3.9	3.9	4.1
IEPS	-0.5	-0.8	0.0	0.6	1.9	2.1
Other	0.5	0.4	0.4	0.4	0.5	0.5
Non-tax revenues	1.2	1.4	1.7	1.7	2.2	2.8
Rights	0.2	0.3	0.3	0.3	0.3	0.3
Fees	0.0	0.0	0.1	0.0	0.0	0.0
Other	0.9	1.1	1.4	1.4	1.9	2.5
Public entities and enterprises	3.8	3.8	3.8	3.8	3.6	4.1

1/ Mexican Fund for Stabilization and Development (MFFSD).
2/ Excludes taxes paid on behalf of third parties (VAT and IEPS).
3/ Includes rights and benefits from oil extraction.
p/ Preliminary figures.
Note: Figures may not add up due to rounding.
Source: Ministry of Finance (SHCP).

Table A 45
Public Sector Budgetary Expenditures: 2011-2016
Percent of GDP

Item	2011	2012	2013	2014	2015	2016 [p]
Net paid expenditure	**25.0**	**25.1**	**25.9**	**26.2**	**26.8**	**27.4**
Programmable	19.7	19.9	20.6	20.7	21.0	21.3
Current expenditures	14.8	15.1	15.1	15.5	15.8	15.3
Wages and salaries	5.9	5.9	6.0	5.9	5.9	5.7
Direct	3.4	3.4	3.4	3.4	3.4	3.2
Indirect [1]	2.6	2.5	2.6	2.5	2.5	2.4
Acquisitions	1.7	1.7	1.7	1.4	1.3	1.2
Other [2]	4.0	4.2	4.0	4.4	4.8	4.6
Subsidies and transfers [3]	3.2	3.3	3.5	3.8	3.9	3.7
Capital expenditures	4.8	4.7	5.4	5.2	5.1	6.1
Fixed investment	4.5	4.4	4.6	4.8	4.2	3.7
Direct	3.1	2.9	2.8	3.0	2.5	2.3
Indirect [4]	1.4	1.4	1.7	1.8	1.7	1.4
Financial investment and other [5]	0.4	0.4	0.9	0.4	0.9	2.3
Non-programmable	5.3	5.2	5.3	5.5	5.8	6.1
Financial cost	1.9	2.0	2.0	2.0	2.2	2.4
Federal government	1.7	1.6	1.7	1.7	1.8	1.9
Interest	1.5	1.6	1.6	1.6	1.7	1.8
Financial restructuring	0.1	0.1	0.1	0.1	0.1	0.1
Public entities and enterprises	0.2	0.3	0.3	0.3	0.5	0.5
Revenue sharing	3.3	3.2	3.3	3.4	3.4	3.6
Adefas and other [6]	0.1	0.1	0.1	0.1	0.2	0.1

1/ Includes contributions to state governments for basic education, and transfers for wages and salaries to entities under indirect budgetary control (EUIBC).
2/ General services of the public sector and net external operations of firms and entities of direct budgetary control.
3/ Includes subsidies and transfers other than those paid for wages and salaries, and for capital expenditure.
4/ Includes transfers to finance fixed investment of the EUIBC.
5/ Includes recoverable expenditures and transfers for debt amortization and financial investment of the EUIBC.
6/ Includes other net flows of the federal government.
p/ Preliminary figures.
Note: Figures may not add up due to rounding.
Source: Ministry of Finance (SHCP).

Table A 46
Public Sector Net Debt
Average stocks

Years		Broad economic debt [1]					Debt consolidated with Banco de México [2]				
		Domestic	External		Total		Domestic	External		Total	
		MXN billion	USD million	MXN billion	MXN billion	Percentage of GDP	MXN billion	USD million	MXN billion	MXN billion	Percentage of GDP
2011		2,712.5	99,290.2	1,384.9	4,097.4	28.2	4,510.7	-19,910.4	-277.7	4,233.0	29.1
2012		3,200.3	121,800.1	1,579.2	4,779.5	30.6	5,340.4	-38,744.7	-502.4	4,838.0	31.0
2013		3,608.7	124,601.6	1,630.3	5,239.0	32.5	5,974.9	-42,610.5	-557.5	5,417.4	33.6
2014		4,008.8	130,380.0	1,922.0	5,930.8	34.4	6,635.1	-39,741.5	-585.8	6,049.3	35.1
2015	January	4,489.8	155,293.1	2,327.6	6,817.4		7,248.0	-40,567.5	-608.0	6,640.0	
	February	4,493.6	155,271.0	2,322.1	6,815.7		7,249.1	-40,340.9	-603.3	6,645.8	
	March	4,463.5	154,225.2	2,354.2	6,817.7	39.0	7,228.5	-38,388.9	-586.0	6,642.5	38.0
	April	4,428.5	155,309.5	2,387.3	6,815.8		7,198.6	-36,904.7	-567.3	6,631.3	
	May	4,431.5	156,255.8	2,403.4	6,834.9		7,202.1	-36,057.7	-554.6	6,647.5	
	June	4,441.5	154,339.1	2,420.9	6,862.4	38.7	7,206.8	-34,653.9	-543.6	6,663.2	37.6
	July	4,457.8	151,887.6	2,441.9	6,899.7		7,217.6	-33,313.2	-535.6	6,682.0	
	August	4,478.6	147,295.7	2,472.0	6,950.6		7,222.4	-30,926.4	-519.0	6,703.4	
	September	4,499.5	147,635.7	2,495.8	6,995.3	38.9	7,221.0	-29,486.8	-498.5	6,722.5	37.4
	October	4,522.5	151,986.8	2,511.5	7,034.0		7,218.1	-28,484.5	-470.7	6,747.4	
	November	4,538.5	152,216.2	2,524.6	7,063.1		7,208.1	-26,651.2	-442.0	6,766.1	
	December	4,553.4	147,642.5	2,546.6	7,100.0	38.9	7,209.2	-24,546.5	-423.4	6,785.8	37.2
2016 [p]	January	4,869.4	163,899.8	2,981.9	7,851.3		7,343.1	-9,177.6	-167.0	7,176.1	
	February	4,818.1	167,400.4	3,030.3	7,848.4		7,306.5	-7,171.5	-129.8	7,176.7	
	March	4,806.2	175,339.8	3,022.3	7,828.5	42.3	7,305.4	-5,685.9	-98.0	7,207.4	39.0
	April	4,774.5	175,531.8	3,015.1	7,789.6		7,340.6	-5,414.2	-93.0	7,247.6	
	May	4,756.7	165,551.6	3,048.1	7,804.8		7,356.9	-4,709.0	-86.7	7,270.2	
	June	4,751.3	167,236.6	3,088.0	7,839.3	41.7	7,369.2	-3,502.3	-64.7	7,304.5	38.9
	July	4,747.4	166,459.5	3,126.7	7,874.1		7,380.7	-2,602.3	-48.9	7,331.8	
	August	4,765.6	167,621.4	3,161.5	7,927.1		7,406.8	-1,523.3	-28.7	7,378.1	
	September	4,784.0	165,148.5	3,200.2	7,984.2	41.8	7,436.8	-888.3	-17.2	7,419.6	38.8
	October	4,798.8	170,166.7	3,214.2	8,013.0		7,455.5	-501.6	-9.5	7,446.0	
	November	4,802.1	158,371.8	3,249.1	8,051.2		7,462.1	-186.1	-3.8	7,458.3	
	December	4,815.8	159,386.3	3,286.5	8,102.3	41.5	7,483.1	196.8	4.1	7,487.2	38.3

1/ The net broad economic debt includes net liabilities from the federal government, non-financial public entities and enterprises, and official intermediaries (development banks and public funds and trusts). It is calculated in accrued terms with data of the banking system; public values are reported at market value.
2/ The net economic debt consolidated with Banco de México includes central bank's assets and liabilities and all sectors of the broad economic debt.
(-)It means stocks of financial assets are larger than stocks of gross debt.
p/ Preliminary figures.
Source: Banco de México.

Table A 47
Public Sector Net Debt
Stocks at end of period

Years		Broad economic debt [1]					Debt consolidated with Banco de México [2]				
		Domestic	External		Total		Domestic	External		Total	
		MXN billion	USD million	MXN billion	MXN billion	Percentage of GDP	MXN billion	USD million	MXN billion	MXN billion	Percentage of GDP
2011		2,904.7	115,763.7	1,614.6	4,519.3	29.0	4,872.7	-29,786.9	-415.5	4,457.2	28.6
2012		3,516.6	122,463.4	1,587.8	5,104.4	31.5	5,743.4	-40,918.7	-530.5	5,212.9	32.2
2013		3,673.4	132,360.6	1,731.8	5,405.2	32.1	6,159.0	-44,152.1	-577.7	5,581.3	33.2
2014		4,389.9	146,503.1	2,159.7	6,549.6	36.2	7,089.3	-45,765.3	-674.6	6,414.7	35.5
2015	January	4,489.8	155,293.1	2,327.6	6,817.4		7,248.0	-40,567.5	-608.0	6,640.0	
	February	4,497.4	154,904.3	2,316.6	6,814.0		7,250.1	-40,024.3	-598.6	6,651.5	
	March	4,403.2	158,427.8	2,418.4	6,821.6	38.8	7,187.3	-36,120.3	-551.4	6,635.9	37.8
	April	4,323.7	161,774.2	2,486.7	6,810.4		7,108.8	-33,251.4	-511.1	6,597.7	
	May	4,443.6	160,448.9	2,467.9	6,911.5		7,216.0	-32,766.8	-504.0	6,712.0	
	June	4,491.4	159,892.7	2,508.0	6,999.4	38.9	7,230.8	-31,127.5	-488.2	6,742.6	37.4
	July	4,555.8	159,745.9	2,568.3	7,124.1		7,282.3	-30,336.3	-487.7	6,794.6	
	August	4,624.2	159,859.1	2,682.9	7,307.1		7,255.8	-24,024.2	-403.2	6,852.6	
	September	4,666.6	158,887.2	2,686.0	7,352.6	40.2	7,209.6	-19,761.2	-334.1	6,875.5	37.6
	October	4,729.6	160,518.8	2,652.5	7,382.1		7,191.9	-13,346.8	-220.5	6,971.4	
	November	4,698.4	160,118.6	2,655.7	7,354.1		7,108.9	-9,369.0	-155.4	6,953.5	
	December	4,717.4	161,700.5	2,789.1	7,506.5	39.4	7,220.4	-12,665.7	-218.5	7,001.9	36.7
2016 [p]	January	4,869.4	163,899.8	2,981.9	7,851.3		7,343.1	-9,177.6	-167.0	7,176.1	
	February	4,766.8	170,072.6	3,078.7	7,845.5		7,269.9	-5,118.9	-92.7	7,177.2	
	March	4,782.4	174,417.4	3,006.4	7,788.8	42.0	7,303.2	-1,994.9	-34.4	7,268.8	39.2
	April	4,679.3	174,261.0	2,993.2	7,672.5		7,446.2	-4,539.2	-78.0	7,368.2	
	May	4,685.4	172,731.1	3,180.3	7,865.7		7,422.2	-3,341.0	-61.5	7,360.7	
	June	4,724.3	178,028.3	3,287.2	8,011.5	41.7	7,430.7	2,464.1	45.5	7,476.2	38.9
	July	4,724.1	178,843.0	3,359.3	8,083.4		7,449.5	2,440.8	45.8	7,495.3	
	August	4,893.0	180,536.9	3,405.1	8,298.1		7,590.0	5,954.8	112.3	7,702.3	
	September	4,931.0	181,107.9	3,509.4	8,440.4	43.0	7,676.1	3,867.0	74.9	7,751.0	39.5
	October	4,932.9	176,859.9	3,340.7	8,273.6		7,624.1	3,185.6	60.2	7,684.3	
	November	4,835.1	175,357.9	3,597.6	8,432.7		7,528.5	2,570.8	52.7	7,581.2	
	December	4,966.3	179,324.4	3,697.6	8,663.9	41.8	7,714.1	4,398.9	90.7	7,804.8	37.6

1/ The net broad economic debt includes net liabilities from the federal government and non-financial public entities and enterprises, as well as official intermediaries (development banks and public funds and trusts). It is calculated in accrued terms with data of the banking system; public values are reported at market value.
2/ The net economic debt consolidated with Banco de México includes central bank's assets and liabilities and all sectors of the broad economic debt.
(-) It means stocks of financial assets are larger than stocks of gross debt.
p/ Preliminary figures.
Source: Banco de México.

Table A 48
Non-financial Public Sector Net Debt [1]
Stocks at end of period

		Public sector non-financial net economic debt				
		Domestic	**External**		**Total net debt**	
Stock at end of		**MXN billion**	**USD million**	**MXN billion**	**MXN billion**	**Percentage of GDP**
2011		3,095.0	108,173.2	1,508.8	4,603.7	29.5
2012		3,701.2	115,918.6	1,503.0	5,204.2	32.1
2013		3,947.2	125,414.2	1,641.0	5,588.2	33.2
2014	January	3,946.4	131,210.8	1,755.2	5,701.6	
	February	4,060.5	130,238.6	1,724.1	5,784.6	
	March	4,149.5	133,240.3	1,739.4	5,888.9	35.3
	April	4,084.0	137,318.3	1,797.5	5,881.5	
	May	4,204.9	137,237.8	1,765.0	5,969.9	
	June	4,344.5	137,858.4	1,788.2	6,132.7	36.0
	July	4,358.5	138,111.9	1,826.8	6,185.3	
	August	4,403.8	137,830.8	1,802.3	6,206.1	
	September	4,382.8	136,457.5	1,833.0	6,215.8	36.0
	October	4,458.4	139,109.1	1,874.8	6,333.2	
	November	4,582.8	138,880.4	1,930.0	6,512.7	
	December	4,740.5	137,981.6	2,034.0	6,774.5	37.6
2015	January	4,855.9	146,742.3	2,199.4	7,055.3	
	February	4,853.5	146,435.2	2,190.0	7,043.5	
	March	4,743.3	149,262.4	2,278.4	7,021.7	40.0
	April	4,687.9	152,254.1	2,340.4	7,028.2	
	May	4,793.7	151,399.4	2,328.7	7,122.4	
	June	4,830.7	150,468.0	2,360.2	7,190.8	39.9
	July	4,913.7	150,089.7	2,413.0	7,326.7	
	August	4,976.4	150,683.1	2,528.9	7,505.3	
	September	4,989.3	151,112.7	2,554.6	7,543.9	41.2
	October	5,067.4	152,084.1	2,513.1	7,580.5	
	November	5,041.1	151,643.8	2,515.1	7,556.2	
	December	5,084.3	152,836.3	2,636.2	7,720.6	40.5
2016 [p]	January	5,238.1	155,359.4	2,826.5	8,064.6	
	February	5,139.1	161,136.1	2,916.9	8,056.0	
	March	5,137.9	165,861.8	2,859.0	7,996.8	43.1
	April	5,009.4	165,973.3	2,850.9	7,860.3	
	May	5,013.5	165,138.1	3,040.5	8,054.0	
	June	5,095.1	169,767.7	3,134.7	8,229.8	42.9
	July	5,086.5	171,142.2	3,214.7	8,301.2	
	August	5,262.5	172,482.3	3,253.2	8,515.7	
	September	5,313.3	172,877.1	3,349.9	8,663.2	44.2
	October	5,322.8	168,507.0	3,182.9	8,505.7	
	November	5,241.1	167,589.4	3,438.2	8,679.3	
	December	5,396.0	170,257.0	3,510.6	8,906.6	43.0

1/ Non-financial public sector (federal government and public entities) net debt is computed on an accrued basis with data available from the banking sector. Federal government domestic securities are reported at market value and external debt is classified by debtor and not by end user.
p/ Preliminary figures.
Source: Banco de México.

Table A 49
Public Sector Total Debt

	MXN billion		Percentage of GDP [1]			Real annual change	Percentage structure	
	2015	2016 [p]	2015 [p]	2016 [p]	Difference	2016 - 2015	2015	2016 [p]
Public sector total debt (a+b) [2]	**8,704.9**	**9,936.9**	**45.6**	**47.9**	**2.3**	**10.4**	**100.0**	**100.0**
a. Net broad economic debt	**7,506.6**	**8,663.9**	**39.4**	**41.8**	**2.4**	**11.7**	**86.2**	**87.2**
1. Foreign	2,789.1	3,697.6	14.6	17.8	3.2	28.3	32.0	37.2
2. Domestic	4,717.4	4,966.3	24.7	24.0	-0.8	1.9	54.2	50.0
b. Additional liabilities	**1,198.3**	**1,273.0**	**6.3**	**6.1**	**-0.2**	**2.8**	**13.8**	**12.8**
1. IPAB [3]	848.6	858.4	4.5	4.1	-0.3	-2.1	9.7	8.6
2. FARAC [4]	182.5	215.3	1.0	1.0	0.1	14.1	2.1	2.2
3. UDIs restructuring programs [5]	49.1	45.4	0.3	0.2	0.0	-10.5	0.6	0.5
4. Direct Pidiregas [6]	118.1	153.9	0.6	0.7	0.1	26.1	1.4	1.5
5. Debtor support programs [7]	0.0	0.0	0.0	0.0	0.0	n.s.	0.0	0.0

1/ Amounts expressed in GDP ratio use the GDP of the last quarter of the year.
2/ Non-financial public sector (federal government and public entities) net debt is computed on an accrued basis with data available from the banking sector. Federal government domestic securities are reported at market value and external debt is classified by debtor and not by end user.
3/ It corresponds to the difference between gross liabilities and total assets of IPAB, in accordance with the data of Annex II of Public Debt of the Public Finances Report as of the Fourth Quarter of 2016.
4/ Bonds covered by the federal government of the trust fund for the toll highway rescue.
5/ Difference between the liabilities of the federal government special Cetes with a bank and UDI's restructured debt.
6/ Outstanding debt associated with direct Pidiregas is based on flows of investment carried out.
7/ It corresponds to credit granted by commercial banks to the federal government via the referred programs.
p/ Preliminary figures.
n.s./ Non-significant.
Source: Ministry of Finance (SHCP) and Banco de México.

Table A 50
Public Sector Total Debt Consolidated with Banco de México

	MXN billion		Percent of GDP [1]			Real annual change	Percentage structure	
	2015	2016 [p]	2015	2016 [p]	Difference	2016 - 2015	2015	2016 [p]
Public sector total debt consolidated with Banco de México (a+b) [2]	**8,200.2**	**9,077.8**	**43.0**	**43.8**	**0.8**	**7.1**	**100.0**	**100.0**
a. Net debt consolidated with Banco de México	**7,001.9**	**7,804.8**	**36.7**	**37.7**	**0.9**	**7.8**	**85.4**	**86.0**
1. Foreign	-218.5	90.7	-1.2	0.4	1.6	-140.2	-2.7	1.0
2. Domestic	7,220.4	7,714.1	37.9	37.2	-0.6	3.4	88.1	85.0
b. Additional liabilities	**1,198.3**	**1,273.0**	**6.3**	**6.1**	**-0.2**	**2.8**	**14.6**	**14.0**
1. IPAB [3]	848.6	858.4	4.5	4.1	-0.3	-2.1	10.3	9.5
2. FARAC [4]	182.5	215.3	1.0	1.0	0.1	14.1	2.2	2.4
3. UDIs restructuring programs [5]	49.1	45.4	0.3	0.2	0.0	-10.5	0.6	0.5
4. Direct Pidiregas [6]	118.1	153.9	0.6	0.7	0.1	26.1	1.4	1.7
5. Debtor support programs [7]	0.0	0.0	0.0	0.0	0.0	n.s.	0.0	0.0

1/ Amounts expressed in GDP ratio use the GDP of the last quarter of the year.
2/ The net debt consolidated with Banco de México comprises the sectors of broad economic debt with the central bank's financial liabilities and assets.
3/ Corresponds to the difference between gross liabilities and total assets of IBAP, in accordance with the data of Annex II of Public Debt of the Public Finances Report as of the Fourth Quarter of 2016.
4/ Bonds covered by the federal government of the trust fund for the toll highway rescue.
5/ Difference between the liabilities of the federal government special Cetes with a bank and UDIs' restructured debt.
6/ Outstanding debt associated with direct Pidiregas is based on flows of investment carried out.
7/ It corresponds to credit granted by commercial banks to the federal government via the referred programs.
p/ Preliminary data.
n.s./ Non-significant.
Source: Ministry of Finance (SHCP) and Banco de México.

Table A 51
Federal Government Domestic Debt Securities
Total circulation per instrument [1]
Current stocks in MXN billion at market value

Stocks at end of		Total securities in circulation	Cetes	Bondes	Udibonos	Fixed rate bonds	Bondes D
2011		3,875.9	696.0	0.0	703.1	1,779.2	697.6
2012		4,663.1	811.9	0.0	887.1	2,057.5	906.5
2013		5,150.5	952.1	0.0	940.1	2,195.7	1,062.6
2014	January	5,193.3	932.9	0.0	955.4	2,248.8	1,056.1
	February	5,344.0	956.9	0.0	993.7	2,319.7	1,073.7
	March	5,471.4	946.2	0.0	1,022.5	2,441.3	1,061.5
	April	5,535.9	919.5	0.0	1,045.7	2,485.0	1,085.6
	May	5,694.4	934.9	0.0	1,099.2	2,582.8	1,077.6
	June	5,677.4	950.3	0.0	1,114.6	2,517.0	1,095.5
	July	5,767.2	969.7	0.0	1,140.4	2,568.1	1,089.0
	August	5,797.6	906.6	0.0	1,164.4	2,619.2	1,107.4
	September	5,782.1	924.7	0.0	1,152.8	2,606.4	1,098.2
	October	5,936.2	954.7	0.0	1,191.3	2,659.3	1,130.9
	November	6,097.9	1,014.4	0.0	1,216.8	2,738.8	1,127.9
	December	5,935.7	1,010.6	0.0	1,128.0	2,638.7	1,158.3
2015	January	6,098.6	1,007.2	0.0	1,156.3	2,772.2	1,162.9
	February	6,108.1	1,000.6	0.0	1,155.8	2,758.8	1,193.0
	March	6,150.3	1,029.7	0.0	1,147.4	2,773.4	1,199.7
	April	6,193.5	1,026.6	0.0	1,165.0	2,809.0	1,193.0
	May	6,287.4	1,041.5	0.0	1,189.6	2,857.5	1,198.8
	June	6,165.5	1,025.5	0.0	1,180.2	2,729.9	1,229.9
	July	6,229.1	1,016.2	0.0	1,201.3	2,781.7	1,229.9
	August	6,276.8	1,033.9	0.0	1,212.1	2,829.3	1,201.4
	September	6,297.6	984.0	0.0	1,232.0	2,883.2	1,198.3
	October	6,288.7	894.0	0.0	1,251.2	2,937.0	1,206.6
	November	6,293.2	847.3	0.0	1,257.4	2,972.3	1,216.2
	December	6,199.0	865.3	0.0	1,229.6	2,870.4	1,233.7
2016 [p]	January	6,255.4	826.6	0.0	1,273.2	2,944.3	1,211.4
	February	6,309.6	816.3	0.0	1,294.3	2,972.4	1,226.7
	March	6,297.4	714.3	0.0	1,329.7	3,045.6	1,207.8
	April	6,354.4	679.7	0.0	1,362.6	3,113.6	1,198.6
	May	6,220.4	675.5	0.0	1,313.2	3,056.8	1,174.9
	June	6,034.4	733.2	0.0	1,222.5	2,936.9	1,141.8
	July	6,133.2	764.6	0.0	1,265.4	2,959.1	1,144.2
	August	6,273.9	774.9	0.0	1,270.6	3,021.6	1,206.7
	September	6,279.0	764.1	0.0	1,293.5	3,043.3	1,178.1
	October	6,192.8	730.9	0.0	1,288.7	3,017.3	1,156.0
	November	6,136.8	746.7	0.0	1,277.5	2,939.2	1,173.4
	December	5,977.9	762.4	0.0	1,290.9	2,766.8	1,157.9

1/ Total circulation includes federal government securities and placements of monetary regulation bonds.
p/ Preliminary figures.
Source: Banco de México.

Table A 52
Federal Government Domestic Debt Securities
Total circulation per holding sector [1]
Current stocks in MXN billion at market value

Stocks at end of		Total securities in circulation	Private firms and individuals	Non-bank public sector	Development banks	Commercial banks	Repors
2011		3,875.9	3,199.4	152.3	37.7	428.6	57.9
2012		4,663.1	4,081.0	148.8	39.5	337.5	56.2
2013		5,150.5	4,498.2	136.6	34.3	357.4	124.0
2014	January	5,193.3	4,529.0	140.5	82.9	332.8	108.1
	February	5,344.0	4,717.6	145.8	63.8	286.5	130.3
	March	5,471.4	4,698.7	142.4	86.6	430.6	113.2
	April	5,535.9	4,675.9	169.5	110.5	409.5	170.5
	May	5,694.4	4,868.6	166.4	91.3	364.3	203.7
	June	5,677.4	4,991.9	121.0	84.5	409.4	70.6
	July	5,767.2	5,066.7	140.0	75.7	381.3	103.4
	August	5,797.6	5,096.8	165.4	70.5	373.1	91.9
	September	5,782.1	5,087.2	146.6	62.0	388.0	98.2
	October	5,936.2	5,176.8	155.4	56.7	400.8	146.5
	November	6,097.9	5,395.4	184.6	50.3	251.9	215.7
	December	5,935.7	5,217.7	133.7	56.9	388.8	138.6
2015	January	6,098.6	5,413.5	134.9	102.0	344.9	103.3
	February	6,108.1	5,338.9	149.3	88.7	418.9	112.3
	March	6,150.3	5,252.0	143.6	84.3	501.3	169.1
	April	6,193.5	5,293.7	154.2	78.1	371.4	296.1
	May	6,287.4	5,361.2	149.5	89.0	403.3	284.4
	June	6,165.5	5,295.7	170.0	52.8	472.8	174.2
	July	6,229.1	5,417.3	131.5	59.3	385.3	235.7
	August	6,276.8	5,381.5	138.4	47.1	433.8	276.0
	September	6,297.6	5,352.2	129.5	33.8	459.6	322.5
	October	6,288.7	5,360.5	121.8	55.1	420.2	331.2
	November	6,293.2	5,306.1	139.7	73.2	394.4	379.9
	December	6,199.0	5,205.0	137.1	47.9	411.7	397.4
2016 [p]	January	6,255.4	5,391.7	121.0	72.6	366.2	304.0
	February	6,309.6	5,387.8	140.2	65.1	393.6	322.9
	March	6,297.4	5,400.8	144.0	56.0	391.8	304.9
	April	6,354.4	5,411.8	142.6	65.9	448.3	285.7
	May	6,220.4	5,339.5	152.7	45.6	462.6	220.0
	June	6,034.4	5,288.2	154.1	56.4	472.3	63.4
	July	6,133.2	5,421.6	153.3	60.5	419.9	78.0
	August	6,273.9	5,476.4	163.1	109.7	435.0	89.7
	September	6,279.0	5,611.6	124.7	37.5	403.4	101.8
	October	6,192.8	5,493.1	148.3	64.3	429.8	57.4
	November	6,136.8	5,386.1	159.8	67.8	417.4	105.7
	December	5,977.9	5,328.5	160.6	50.5	371.9	66.4

1/ Total circulation includes federal government securities and placement of monetary regulation bonds.
p/ Preliminary figures.
Source: Banco de México.

External Sector

Table A 53
External Sector Indicators

	2009	2010	2011	2012	2013	2014	2015	2016
Balance of payments					USD billion			
Current account	-8.7	-5.3	-14.0	-17.0	-31.0	-26.2	-33.3	-27.9
Trade balance	-4.7	-3.0	-1.4	0.0	-1.2	-3.1	-14.6	-13.1
Financial account	16.9	49.3	53.4	55.0	69.8	61.2	35.2	35.9
Foreign direct investment in Mexico	18.1	27.3	24.7	21.1	47.5	27.5	33.2	26.7
Change in gross international reserves	4.6	20.7	28.6	17.8	13.2	15.5	-18.1	0.4
Stock of gross international reserves	99.9	120.6	149.2	167.1	180.2	195.7	177.6	178.0
					Percentage of GDP			
Current account	-1.0	-0.5	-1.2	-1.4	-2.5	-2.0	-2.9	-2.7
Financial account	1.9	4.7	4.6	4.6	5.5	4.7	3.1	3.4
Foreign trade					Annual change in percent			
Exports	-21.2	29.9	17.1	6.1	2.5	4.4	-4.1	-1.8
Oil	-39.1	35.2	35.4	-6.2	-6.6	-14.4	-45.3	-19.1
Non-oil	-17.4	29.1	14.1	8.5	4.0	7.3	0.8	-0.6
Manufactures	-17.8	29.5	13.4	8.4	4.2	7.2	0.8	-1.1
Other	-6.6	20.3	30.3	10.1	0.9	8.1	1.3	9.4
Imports	-24.0	28.6	16.4	5.7	2.8	4.9	-1.2	-2.1
Consumer goods	-31.5	26.2	25.0	4.8	5.6	1.7	-3.5	-7.7
Intermediate goods	-22.9	34.5	14.9	5.3	2.5	6.0	-1.6	-0.8
Capital goods	-21.6	-1.3	15.8	10.1	1.3	1.5	5.2	-3.8
Gross external debt and interest paid [1]					Percent of income in current account			
Total external debt	67.6	66.9	62.1	62.2	70.6	74.5	79.5	84.1
Public sector [2]	38.1	33.1	30.2	30.7	31.9	33.4	38.0	42.7
Private sector	29.5	33.7	31.8	31.5	38.7	41.1	41.5	41.3
Interest [3]	4.7	4.1	4.5	4.8	5.4	5.7	5.9	6.0
					Percent of GDP			
Total external debt	20.6	22.0	21.2	22.2	24.3	26.1	30.2	34.8
Public sector [2]	11.6	10.9	10.3	11.0	11.0	11.7	14.4	17.7
Private sector	9.0	11.1	10.8	11.2	13.3	14.4	15.8	17.1
Interest [3]	1.4	1.3	1.5	1.7	1.9	2.0	2.2	2.5

1/ As of 2009, debt associated with Pidiregas is reclassified from the private to the public sector.
2/ It includes Banco de México.
3/ It includes private and public sectors.
Note: Figures may not add up due to rounding.
Source: Prepared by Banco de México with data from INEGI; SAT, SE, Banco de México, INEGI. Merchandise trade balance of Mexico, SNIEG.
        Information of National Interest.

Table A 54
Balance of Payments
USD million

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Current account	**-14,510**	**-20,379**	**-8,715**	**-5,266**	**-14,010**	**-17,023**	**-30,973**	**-26,203**	**-33,347**	**-27,858**
Credit	**323,714**	**343,686**	**273,251**	**346,512**	**399,383**	**423,528**	**435,019**	**454,481**	**437,057**	**432,563**
Goods and services	**289,537**	**309,559**	**244,799**	**314,094**	**365,586**	**387,587**	**400,923**	**418,735**	**403,936**	**398,384**
Goods	**272,293**	**291,886**	**229,975**	**298,860**	**350,004**	**371,442**	**380,729**	**397,650**	**381,049**	**374,287**
General merchandise	271,875	291,343	229,704	298,473	349,433	370,770	380,015	396,912	380,623	373,930
Goods procured in ports by carriers	418	544	271	387	571	672	714	738	426	357
Services	**17,244**	**17,673**	**14,824**	**15,235**	**15,582**	**16,146**	**20,194**	**21,086**	**22,886**	**24,097**
Tourists	10,367	10,861	9,431	9,991	10,006	10,766	11,854	14,320	15,826	17,622
Same-day travelers	2,552	2,509	2,082	2,001	1,862	1,973	2,095	1,888	1,908	1,949
Transport	1,512	1,767	1,338	1,040	1,037	961	801	866	1,428	1,387
Other services	2,813	2,536	1,974	2,203	2,676	2,445	5,444	4,011	3,724	3,140
Income	**7,664**	**8,530**	**6,798**	**10,795**	**10,645**	**13,173**	**11,447**	**11,720**	**7,915**	**6,798**
Interest	6,218	6,128	4,253	3,388	3,475	2,671	2,391	2,309	2,470	2,725
Other income	1,446	2,402	2,545	7,407	7,171	10,502	9,057	9,411	5,445	4,073
Transfers	**26,513**	**25,597**	**21,653**	**21,623**	**23,152**	**22,768**	**22,649**	**24,026**	**25,206**	**27,380**
Workers' remittances	26,059	25,145	21,306	21,304	22,803	22,438	22,303	23,647	24,785	26,970
Other transfers	454	452	347	319	349	330	346	379	421	410
Debit	**338,223**	**364,064**	**281,966**	**351,778**	**413,393**	**440,551**	**465,992**	**480,684**	**470,403**	**460,421**
Goods and services	**307,509**	**335,150**	**259,943**	**327,595**	**381,584**	**401,301**	**412,815**	**433,977**	**427,629**	**419,295**
Goods	**282,604**	**309,501**	**234,901**	**301,803**	**351,209**	**371,151**	**381,638**	**400,440**	**395,573**	**387,369**
General merchandise	281,949	308,603	234,385	301,482	350,843	370,752	381,210	399,977	395,232	387,064
Goods procured in ports by carriers	655	898	516	321	366	399	428	462	341	304
Services	**24,904**	**25,649**	**25,043**	**25,792**	**30,375**	**30,150**	**31,177**	**33,537**	**32,056**	**31,926**
Freight and insurance	8,297	10,000	7,510	8,723	10,225	9,726	9,755	11,604	10,048	10,451
Tourists	4,794	4,946	4,397	4,540	5,014	5,549	6,025	6,611	7,026	7,079
Same-day travelers	3,668	3,622	2,811	2,715	2,818	2,900	3,097	2,995	3,072	3,148
Transport	2,333	2,585	2,376	2,428	2,524	3,053	3,664	3,815	3,565	3,498
Commissions	270	116	419	548	452	272	228	326	302	523
Other services	5,542	4,380	7,530	6,838	9,342	8,650	8,407	8,186	8,043	7,227
Income	**30,607**	**28,786**	**21,962**	**24,098**	**31,631**	**39,041**	**52,181**	**45,596**	**41,869**	**40,396**
Dividends and distributed profits	5,381	2,945	3,854	4,738	3,695	8,643	11,941	4,405	5,410	6,184
Reinvested earnings and undistributed profits	8,504	9,272	5,318	5,198	10,116	9,942	16,815	15,490	10,595	8,244
Interests	16,722	16,569	12,790	14,162	17,821	20,457	23,425	25,701	25,864	25,968
Public sector	8,476	8,410	6,700	7,507	9,557	11,728	13,264	13,775	13,402	13,186
Private sector	8,246	8,158	6,089	6,655	8,264	8,728	10,161	11,926	12,462	12,781
Transfers	**108**	**128**	**60**	**86**	**178**	**209**	**995**	**1,111**	**905**	**730**
Financial account	**24,905**	**33,407**	**16,864**	**49,344**	**53,431**	**55,021**	**69,818**	**61,207**	**35,245**	**35,873**
Foreign direct investment	**24,201**	**28,224**	**8,506**	**12,117**	**11,900**	**-2,010**	**34,660**	**20,531**	**22,448**	**27,526**
In Mexico	32,457	29,381	18,112	27,263	24,706	21,061	47,537	27,508	33,181	26,739
Abroad	-8,256	-1,157	-9,606	-15,145	-12,806	-23,071	-12,877	-6,977	-10,733	787
Portfolio investment	**-1,454**	**17,238**	**-14,981**	**32,137**	**47,836**	**73,348**	**49,032**	**46,345**	**27,972**	**30,709**
Liabilities	**13,285**	**4,577**	**15,288**	**38,040**	**42,512**	**81,842**	**51,119**	**47,079**	**20,377**	**28,647**
Public sector	**2,057**	**1,257**	**9,314**	**28,096**	**36,975**	**56,869**	**33,156**	**36,019**	**16,923**	**21,424**
Bonds and notes issued abroad	-5,753	-4,696	5,836	4,970	5,326	10,226	11,184	12,956	15,663	22,902
Money-market instruments	7,810	5,953	3,479	23,126	31,650	46,643	21,973	23,063	1,260	-1,477
Private sector	**2,927**	**-6,489**	**5,973**	**9,944**	**5,537**	**24,973**	**17,963**	**11,060**	**3,454**	**7,222**
Bonds and notes issued abroad	3,408	-2,966	1,818	9,569	12,101	15,099	18,905	6,227	-147	-2,296
Equity securities and money-market	-481	-3,523	4,155	374	-6,564	9,873	-942	4,833	3,601	9,518
Pidiregas	8,301	9,810	0	0	0	0	0	0	0	0
Assets	**-14,739**	**12,661**	**-30,269**	**-5,903**	**5,324**	**-8,494**	**-2,086**	**-734**	**7,596**	**2,062**
Other investment	**2,158**	**-12,055**	**23,340**	**5,090**	**-6,305**	**-16,317**	**-13,874**	**-5,668**	**-15,175**	**-22,362**
Liabilities	**20,966**	**6,650**	**2,363**	**32,095**	**-2,631**	**-10,043**	**13,405**	**15,242**	**-2,322**	**2,076**
Public sector	**-1,195**	**768**	**11,826**	**5,478**	**302**	**-1,432**	**-2,553**	**3,133**	**320**	**-2,591**
Development banks	-1,040	-496	1,194	648	-283	398	426	870	-651	-155
Banco de México	0	0	7,229	-3,221	0	0	0	0	0	0
Non-banking public sector	-155	1,265	3,402	8,051	585	-1,830	-2,980	2,263	971	-2,435
Private sector	**17,237**	**2,838**	**-9,463**	**26,618**	**-2,933**	**-8,611**	**15,958**	**12,110**	**-2,643**	**4,667**
Commercial banks	11,214	234	-4,085	28,903	-2,931	-5,856	13,811	6,206	-3,208	4,415
Non-banking private sector	6,023	2,604	-5,378	-2,286	-2	-2,755	2,147	5,903	566	251
Pidiregas	4,924	3,044	0	0	0	0	0	0	0	0
Assets	**-18,809**	**-18,705**	**20,977**	**-27,005**	**-3,674**	**-6,274**	**-27,279**	**-20,910**	**-12,853**	**-24,438**
Errors and omissions	**461**	**-4,950**	**-3,621**	**-23,463**	**-11,241**	**-20,474**	**-21,056**	**-18,676**	**-17,565**	**-8,150**
Change in gross international reserves	**10,881**	**8,091**	**4,591**	**20,695**	**28,621**	**17,841**	**13,150**	**15,482**	**-18,085**	**428**
Valuation adjustments	**-25**	**-12**	**-63**	**-79**	**-441**	**-317**	**4,639**	**847**	**2,418**	**-564**

Note: Figures may not add up due to rounding.
Source: Banco de México.

Table A 55
Balance of Payments
USD million

	2015	2016				
	Annual	Q1	Q2	Q3	Q4	Annual
Current account	**-33,347**	**-8,880**	**-7,973**	**-7,643**	**-3,363**	**-27,858**
Financial account	**35,245**	**11,224**	**8,029**	**4,394**	**12,226**	**35,873**
Foreign direct investment	**22,448**	**7,036**	**7,591**	**8,003**	**4,895**	**27,526**
In Mexico	33,181	10,404	6,077	4,532	5,726	26,739
Abroad	-10,733	-3,368	1,515	3,472	-831	787
Portfolio investment	**27,972**	**12,184**	**-4,716**	**6,982**	**16,259**	**30,709**
Liabilities	20,377	12,006	-4,434	10,071	11,004	28,647
Public sector	16,923	8,126	-5,479	8,126	10,651	21,424
Bonds and notes issued abroad	15,663	12,462	1,553	2,360	6,527	22,902
Money-market instruments	1,260	-4,336	-7,032	5,766	4,124	-1,477
Private sector	3,454	3,880	1,045	1,946	352	7,222
Bonds and notes issued abroad	-147	1,797	-632	-1,592	-1,869	-2,296
Equity securities and money market	3,601	2,082	1,677	3,537	2,222	9,518
Assets	7,596	178	-282	-3,089	5,255	2,062
Other investment	**-15,175**	**-7,996**	**5,154**	**-10,591**	**-8,928**	**-22,362**
Liabilities	-2,322	2,955	7,317	-535	-7,660	2,076
Public sector	320	-96	2,833	626	-5,954	-2,591
Banco de México	0	0	0	0	0	0
Private sector	-2,643	3,051	4,484	-1,162	-1,707	4,667
Assets	-12,853	-10,951	-2,163	-10,056	-1,268	-24,438
Errors and omissions	**-17,565**	**-1,956**	**-1,445**	**4,925**	**-9,674**	**-8,150**
Change in gross international reserves	**-18,085**	**2,111**	**-878**	**1,669**	**-2,473**	**428**
Valuation adjustments	**2,418**	**-1,723**	**-511**	**7**	**1,663**	**-564**

Note: Figures may not add up due to rounding.
Source: Banco de México.

Table A 56
Current Account
USD million

	2015	2016				
	Annual	Q1	Q2	Q3	Q4	Annual
Current account	**-33,347**	**-8,880**	**-7,973**	**-7,643**	**-3,363**	**-27,858**
Balance of goods and services	-23,694	-4,985	-5,011	-8,305	-2,610	-20,911
Goods	-14,524	-3,971	-3,113	-5,340	-658	-13,082
General merchandise	-14,609	-3,985	-3,131	-5,348	-671	-13,135
Exports	380,623	85,148	93,683	94,807	100,292	373,930
Imports	395,232	89,133	96,814	100,155	100,963	387,064
Goods procured in ports by carriers	85	14	17	8	13	52
Services	-9,170	-1,014	-1,897	-2,964	-1,953	-7,828
Income	-33,954	-10,009	-9,848	-6,155	-7,585	-33,598
Transfers	24,301	6,115	6,885	6,817	6,833	26,650
Oil trade balance	**-10,115**	**-2,525**	**-2,850**	**-3,615**	**-3,833**	**-12,823**
Non-oil trade balance	**-4,495**	**-1,460**	**-281**	**-1,733**	**3,162**	**-312**

Note: Figures may not add up due to rounding.
Source: Banco de México.

Table A 57
Foreign Trade
USD million

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016 [p/]
Exports	249,925.1	271,875.3	291,342.6	229,703.6	298,473.1	349,433.4	370,769.9	380,015.1	396,911.7	380,623.0	373,929.6
Oil	39,016.8	43,013.8	50,635.4	30,831.3	41,693.3	56,443.4	52,955.5	49,481.5	42,369.4	23,172.9	18,742.7
Crude oil [1/]	34,707.1	37,937.2	43,341.5	25,614.0	35,918.5	49,380.6	46,852.4	42,711.7	35,638.5	18,524.4	15,499.9
Other	4,309.7	5,076.7	7,293.8	5,217.2	5,774.8	7,062.8	6,103.2	6,769.8	6,730.9	4,648.5	3,242.8
Non-oil	210,908.3	228,861.5	240,707.2	198,872.3	256,779.9	292,990.0	317,814.3	330,533.6	354,542.3	357,450.1	355,186.9
Agricultural products	6,835.9	7,415.0	7,894.6	7,725.9	8,610.4	10,309.5	10,914.2	11,245.8	12,181.3	12,970.6	14,742.9
Mining	1,320.6	1,737.1	1,931.0	1,447.9	2,424.0	4,063.5	4,906.5	4,714.4	5,064.0	4,504.5	4,368.3
Manufactures	202,751.8	219,709.4	230,881.6	189,698.5	245,745.4	278,617.1	301,993.6	314,573.4	337,297.0	339,974.9	336,075.8
Imports	256,058.4	281,949.0	308,603.3	234,385.0	301,481.8	350,842.9	370,751.6	381,210.2	399,977.2	395,232.4	387,064.5
Oil	19,637.0	25,469.2	35,656.9	20,462.5	30,211.2	42,704.1	41,138.5	40,867.8	41,489.7	33,287.7	31,565.7
Non-oil	236,421.3	256,479.9	272,946.3	213,922.5	271,270.7	308,138.8	329,613.1	340,342.3	358,487.5	361,944.7	355,498.8
Consumer goods	36,901.0	43,054.5	47,940.7	32,828.1	41,422.7	51,790.2	54,272.4	57,329.4	58,299.1	56,279.4	51,950.3
Oil	7,303.1	10,931.9	15,805.1	8,929.7	12,820.3	18,964.6	18,668.8	16,931.9	15,756.8	13,058.8	11,576.7
Non-oil	29,597.9	32,122.6	32,135.6	23,898.4	28,602.4	32,825.7	35,603.6	40,397.5	42,542.4	43,220.5	40,373.6
Intermediate goods	188,632.5	205,295.5	221,565.4	170,911.7	229,812.4	264,020.2	277,911.1	284,823.4	302,031.2	297,253.4	294,994.4
Oil	12,333.9	14,537.3	19,851.8	11,532.8	17,390.8	23,739.5	22,469.7	23,935.9	25,732.9	20,228.8	19,989.0
Non-oil	176,298.5	190,758.2	201,713.6	159,378.9	212,421.6	240,280.7	255,441.4	260,887.5	276,298.3	277,024.5	275,005.4
Capital goods	30,524.9	33,599.0	39,097.1	30,645.2	30,246.7	35,032.4	38,568.1	39,057.4	39,646.8	41,699.7	40,119.8
Trade balance	-6,133.2	-10,073.7	-17,260.7	-4,681.4	-3,008.7	-1,409.5	18.3	-1,195.1	-3,065.5	-14,609.4	-13,134.9
Oil trade balance	19,379.8	17,544.6	14,978.4	10,368.8	11,482.1	13,739.3	11,817.0	8,613.6	879.7	-10,114.8	-12,823.0
Non-oil trade balance	-25,513.0	-27,618.4	-32,239.1	-15,050.2	-14,490.8	-15,148.8	-11,798.7	-9,808.8	-3,945.3	-4,494.6	-311.9

1/ Data provided by PMI Internacional, S.A. de C.V. (operation figures).
p/ Preliminary figures.
Note: Figures may not add up due to rounding.
Source: SAT, SE; Banco de México, INEGI. Merchandise trade balance of Mexico. SNIEG. Information of National Interest.

Table A 58
Exports by Economic Sector
USD million

Item	2009	2010	2011	2012	2013	2014	2015	2016 p/
T o t a l	**229,703.6**	**298,473.1**	**349,433.4**	**370,769.9**	**380,015.1**	**396,911.7**	**380,623.0**	**373,929.6**
I. Agriculture and forestry	6,575.5	7,325.5	8,652.9	9,225.7	9,764.9	10,345.5	11,046.2	13,116.9
II. Livestock, apiculture and fishing	1,150.4	1,284.9	1,656.6	1,688.5	1,480.9	1,835.8	1,924.4	1,626.0
III. Mining industries	32,279.2	44,117.3	60,506.9	57,862.0	54,195.9	47,433.4	27,677.4	23,111.0
Crude oil [1]	25,614.0	35,918.5	49,380.6	46,852.4	42,711.7	35,638.5	18,524.4	15,499.9
Other	6,665.2	8,198.8	11,126.3	11,009.6	11,484.2	11,794.9	9,153.0	7,611.1
IV. Manufacturing industries	189,698.5	245,745.4	278,617.1	301,993.6	314,573.4	337,297.0	339,974.9	336,075.8
A. Food, beverages and tobacco	8,346.4	9,552.1	11,528.9	11,697.1	12,902.4	13,202.2	13,514.4	14,072.2
B. Textile, apparel and leather products	6,400.3	7,151.0	7,856.4	8,036.5	8,305.3	8,468.5	8,251.6	7,718.0
C. Timber industry	479.0	492.9	530.6	583.7	727.9	721.0	783.2	807.0
D. Paper, printing and publishing	1,665.7	1,959.7	2,119.1	1,962.8	1,884.4	1,971.0	1,958.8	1,876.5
E. Chemical industry	7,582.3	8,521.5	9,910.2	10,945.6	11,103.1	10,909.9	10,299.3	9,497.3
F. Plastic and rubber products	5,390.9	6,870.4	8,094.6	9,265.3	9,770.3	10,433.4	10,307.0	10,130.2
G. Non-metal mineral products	2,430.5	2,951.6	3,094.9	3,407.7	3,657.7	3,790.2	3,819.8	3,748.5
H. Iron and steel	4,943.3	6,542.5	7,913.0	7,913.0	8,446.3	8,549.0	6,813.7	6,132.6
I. Mining and metallurgy	8,561.1	12,333.8	17,397.8	17,020.4	12,982.2	11,275.8	10,084.5	11,360.4
J. Metal products, machinery and equipment	137,566.1	182,696.7	202,353.1	222,030.5	234,643.7	256,325.3	261,293.1	257,835.9
1. For agriculture and stockbreeding	409.6	558.5	691.2	807.8	910.5	868.4	788.7	664.8
2. For other transport and communications	43,690.7	66,489.4	81,655.5	91,566.9	101,673.4	114,788.3	119,667.3	117,923.3
Automobile industry	42,373.1	64,947.9	79,176.5	88,377.2	97,780.9	109,395.1	114,493.4	113,316.0
3. Special machinery and equipment for different industries	24,073.5	33,560.7	38,514.2	43,732.0	43,078.9	48,676.6	47,028.7	49,370.5
4. Metal products (domestic use)	3,820.3	4,715.6	5,152.9	5,252.7	5,639.8	5,774.5	6,070.0	6,044.2
5. Professional and scientific equipment	8,227.3	9,808.2	10,602.0	11,459.6	12,528.4	14,102.4	14,902.7	15,914.9
6. Electric and electronic equipment	56,932.6	67,089.2	65,325.9	68,818.0	70,415.0	71,710.1	72,428.9	67,467.5
7. Photographic and optical equipment, watchmaking	412.1	475.2	411.4	393.4	397.6	404.9	406.9	450.7
K. Other industries	6,332.7	6,673.2	7,818.6	9,300.4	10,150.3	11,650.8	12,849.6	12,897.2

1/ Data provided by PMI Internacional, S.A. de C.V. (operation figures).
p/ Preliminary figures.
Note: Figures may not add up due to rounding.
Source: SAT, SE; Banco de México, INEGI. Merchandise trade balance of Mexico. SNIEG. Information of National Interest.

Table A 59
Imports by Economic Sector
USD million

Item	2009	2010	2011	2012	2013	2014	2015	2016 p/
T O T A L	**234,385.0**	**301,481.8**	**350,842.9**	**370,751.6**	**381,210.2**	**399,977.2**	**395,232.4**	**387,064.5**
I. Agriculture and forestry	8,303.6	9,416.7	12,632.3	12,695.6	11,704.4	11,578.6	10,629.0	10,804.9
II. Livestock, apiculture and fishing	306.4	428.4	508.7	535.8	647.6	797.1	612.0	663.3
III. Mining industries	21,274.6	31,415.0	44,355.3	42,751.6	42,238.9	42,770.4	34,345.0	32,667.2
IV. Manufacturing	204,500.3	260,221.8	293,346.6	314,768.6	326,619.2	344,831.1	349,646.5	342,929.1
A. Food, beverages and tobacco	9,884.6	11,231.0	13,333.7	13,912.4	14,357.7	15,075.0	13,842.9	13,658.0
B. Textile, apparel and leather products	7,745.9	9,336.7	10,979.2	11,642.8	12,246.2	13,167.5	13,480.1	13,106.9
C. Timber industry	1,120.0	1,308.2	1,424.2	1,541.4	1,622.0	1,725.8	1,844.7	1,751.6
D. Paper, printing and publishing	5,474.4	6,612.3	6,898.9	6,885.4	7,048.6	7,273.9	7,194.6	6,913.8
E. Chemical industry	16,685.0	19,507.8	22,004.1	23,508.4	24,477.1	25,854.4	24,415.2	22,984.1
F. Plastic and rubber products	13,270.0	18,375.3	19,891.8	22,072.8	22,719.3	24,298.0	24,635.4	24,162.1
G. Non-metal mineral products	1,658.7	2,174.0	2,547.8	2,686.7	2,676.2	3,034.0	3,033.6	3,009.3
H. Iron and steel	10,113.3	13,356.4	15,252.5	18,037.3	16,810.6	18,072.2	17,994.7	16,574.9
I. Mining and metallurgy	5,550.9	8,198.3	10,191.0	9,513.3	8,896.0	9,539.7	9,464.4	8,982.0
J. Metal products, machinery and equipment	123,195.1	158,232.0	176,808.0	191,131.1	200,774.0	209,212.8	215,114.2	212,411.9
1. For agriculture and stockbreeding	682.8	785.9	927.7	989.0	963.2	957.3	1,020.7	968.8
2. For other transport and communications	24,752.5	34,599.9	41,222.3	46,902.6	48,259.9	52,187.2	53,847.1	53,031.9
Automobile industry	23,703.5	33,283.6	38,890.7	44,143.9	45,883.7	49,136.2	50,849.9	50,418.2
3. Special machinery and equipment for different industries	33,492.7	41,281.1	46,948.0	53,268.0	55,324.9	57,753.3	59,757.2	59,974.9
4. Metal products (domestic use)	737.5	1,007.8	1,223.4	1,221.5	1,315.2	1,367.9	1,448.5	1,435.8
5. Professional and scientific equipment	8,192.4	9,794.7	10,789.0	11,328.3	12,034.5	12,772.1	14,638.1	14,098.4
6. Electric and electronic equipment	54,765.4	70,070.5	74,931.6	76,625.3	82,124.7	83,409.0	83,657.7	82,158.8
7. Photographic and optical equipment, watchmaking	571.9	692.1	766.2	796.3	751.7	766.1	745.0	743.3
K. Other industries	9,802.4	11,889.7	14,015.2	13,836.9	14,991.4	17,577.8	18,626.7	19,374.5

p/ Preliminary figures.
Note: Figures may not add up due to rounding.
Source: SAT, SE; Banco de México, INEGI. Merchandise trade balance of Mexico. SNIEG. Information of National Interest.

Table A 60
Foreign Trade by Country
USD million

	Exports					Imports				
	2012	**2013**	**2014**	**2015**	**2016** [p/]	**2012**	**2013**	**2014**	**2015**	**2016** [p/]
Total	**370,770**	**380,015**	**396,912**	**380,623**	**373,930**	**370,752**	**381,210**	**399,977**	**395,232**	**387,065**
America	327,481	337,728	354,756	342,056	333,025	209,713	212,417	220,846	209,666	201,889
North America	298,780	309,892	329,080	319,435	313,082	195,000	197,109	205,323	196,750	189,214
U.S.	287,842	299,439	318,366	308,891	302,655	185,110	187,262	195,278	186,802	179,583
Canada	10,938	10,453	10,714	10,545	10,427	9,890	9,847	10,045	9,948	9,632
Central America	5,992	5,873	5,865	6,085	5,764	4,573	4,902	4,320	2,240	2,134
Costa Rica	993	977	996	964	916	3,259	3,174	2,542	550	391
El Salvador	609	639	605	637	597	106	126	127	136	115
Guatemala	1,827	1,735	1,790	1,818	1,714	612	529	490	461	488
Panama	1,136	1,047	989	1,042	899	83	17	20	121	51
Other countries of Central America	1,426	1,476	1,485	1,624	1,640	513	1,056	1,141	971	1,090
South America	20,563	19,682	17,828	14,750	12,173	9,075	9,380	9,778	9,600	9,492
Argentina	1,932	1,966	1,302	1,497	1,409	1,004	1,167	1,050	1,057	897
Brazil	5,658	5,386	4,740	3,799	3,056	4,495	4,421	4,473	4,622	4,733
Colombia	5,592	4,735	4,734	3,668	3,066	877	912	935	923	1,098
Chile	2,252	2,085	2,148	1,861	1,745	1,503	1,438	1,398	1,480	1,335
Peru	1,528	1,771	1,730	1,651	1,404	440	585	1,106	681	556
Venezuela	2,118	2,155	1,552	1,222	600	189	97	72	131	174
Other countries of South America	1,483	1,585	1,622	1,052	893	568	760	745	706	699
Antilles	2,148	2,281	1,984	1,786	2,007	1,065	1,026	1,425	1,077	1,049
Europe	23,841	21,658	22,391	20,547	20,569	44,685	47,108	49,210	48,085	46,520
European Union	22,043	19,623	20,211	18,280	19,358	40,986	43,169	44,595	43,744	42,384
Germany	4,495	3,797	3,558	3,509	3,951	13,508	13,461	13,762	13,975	13,878
Belgium	1,143	1,107	1,700	1,594	1,465	984	991	942	1,074	1,089
Denmark	190	142	147	174	183	466	421	543	483	664
Spain	7,075	6,962	5,788	3,350	3,281	4,081	4,311	4,753	4,554	4,456
France	1,282	1,288	1,594	2,120	2,004	3,467	3,686	3,786	3,727	3,729
Netherlands	1,915	1,589	2,271	1,835	1,637	3,562	4,202	3,688	3,253	1,950
Italy	1,302	1,249	1,626	1,673	1,600	5,462	5,621	5,217	5,062	5,291
Portugal	173	62	45	166	166	437	420	554	425	422
United Kingdom	2,604	1,438	1,806	1,968	3,232	2,392	2,508	2,513	2,345	2,128
Other countries of European Union	1,865	1,988	1,679	1,891	1,839	6,627	7,548	8,836	8,847	8,777
Other European countries	1,798	2,036	2,180	2,267	1,211	3,699	3,939	4,615	4,341	4,136
Asia	17,325	18,666	17,669	16,031	18,449	113,713	119,436	127,626	135,532	136,781
China	5,721	6,469	5,964	4,873	5,407	56,936	61,321	66,256	69,988	69,521
Korea	1,728	1,527	2,028	2,816	2,503	13,350	13,507	13,782	14,633	13,619
Philippines	67	105	128	83	86	1,389	1,593	1,936	1,993	2,234
Hong Kong	825	957	1,029	767	592	339	289	290	254	288
India	3,322	3,963	2,666	1,788	2,056	2,951	2,868	3,727	4,067	4,286
Indonesia	146	213	116	88	65	1,191	1,149	1,348	1,327	1,319
Israel	116	112	136	147	198	736	616	641	695	707
Japan	2,611	2,244	2,609	3,018	3,771	17,655	17,076	17,545	17,368	17,751
Malaysia	203	176	195	122	448	4,736	5,379	6,561	7,463	8,161
Singapore	724	577	529	523	851	1,371	1,456	1,200	1,328	1,279
Thailand	407	425	361	323	497	3,806	4,322	4,354	4,958	5,427
Taiwan	371	487	392	270	246	6,183	6,689	6,368	6,630	6,837
Other Asian countries	1,086	1,412	1,516	1,213	1,729	3,071	3,170	3,620	4,827	5,352
Africa	682	784	890	747	857	1,334	1,334	1,363	980	955
Oceania	1,196	1,105	1,116	1,166	936	1,295	901	913	957	912
Australia	1,086	988	1,009	1,050	836	935	518	554	599	527
New Zealand	102	112	99	106	94	335	371	349	349	364
Other countries of Oceania	8	5	7	10	6	25	12	11	9	21
Not identified	244	75	89	76	94	12	13	20	13	7

p/ Preliminary figures.
Note: Figures may not add up due to rounding.
Source: SAT, SE; Banco de México, INEGI. Merchandise trade balance of Mexico. SNIEG. Information of National Interest.

Table A 61
Main Trade Goods

	Exports					Imports			
	2013	**2014**	**2015**	**2016 p/**		**2013**	**2014**	**2015**	**2016 p/**
Total (USD million)	**380,015**	**396,912**	**380,623**	**373,930**	**Total (USD million)**	**381,210**	**399,977**	**395,232**	**387,065**
	Percent of total					Percent of total			
Automobiles	8.5	8.2	8.6	8.4	Automobile spare parts	5.4	5.7	5.9	5.9
Automobile spare parts	5.4	5.7	6.6	7.0	Electronic microcircuits	3.5	3.5	3.7	3.9
Trucks and cargo vehicles	4.6	5.4	5.7	6.3	Telephone electric parts	4.0	3.4	3.7	3.8
Computers	4.6	5.2	4.8	5.5	Gasoline	4.3	3.8	3.3	2.9
Telephone electric devices	4.7	4.0	4.2	4.4	Computers	2.3	2.2	2.4	2.6
Crude oil 1/	11.2	9.0	4.9	4.1	Automobiles	2.2	2.1	2.4	2.6
TV sets	4.4	4.3	4.4	3.6	Devices to cut or connect electric circuits	1.5	1.5	1.5	1.5
Insulating cables for electric installations	2.7	2.8	3.0	3.0	Computer spare parts and accessories	1.5	1.4	1.4	1.5
Medical and veterinarian equipment	1.3	1.5	1.7	1.8	Insulating cables for electric installations	1.4	1.4	1.4	1.4
Seats and their parts	1.4	1.6	1.6	1.7	Spare parts for recorders and TV sets	2.5	2.4	1.5	1.4
Tractors	1.5	2.0	2.3	1.5	Plastic parts for furniture, autom., apparel etc.	1.0	1.0	1.1	1.1
Gold (crude, worked and ground)	1.5	1.2	1.1	1.3	Diesel oil	1.5	1.5	1.1	1.0
Refrigerators	1.2	1.1	1.2	1.3	Diesel engines	1.0	1.1	1.2	1.0
Gasoline engines	0.9	0.9	0.9	1.1	Liquid crystal displays	0.8	0.8	1.2	1.0
Engine parts	0.9	1.0	1.1	1.1	Engine parts	0.9	0.9	0.9	0.9
Devices to cut or connect electric circuits	0.8	0.8	0.9	0.9	Spare parts for sound reprod. and recording devices	0.8	0.8	0.9	0.9
Air-conditioning machines and devices	0.6	0.7	0.8	0.8	Electric transformers	0.8	0.8	0.9	0.9
Electric engines and generators	0.7	0.7	0.8	0.8	Air and vacuum pumps	0.8	0.9	0.8	0.9
Malt beer	0.6	0.6	0.7	0.8	Natural gas	0.7	0.8	0.7	0.8
Electric transformers	0.7	0.7	0.7	0.7	Semiconductor devices	0.7	0.8	0.8	0.8
Freight transport	0.5	0.7	0.8	0.7	Plumbing articles	0.7	0.8	0.8	0.8
Plumbing articles	0.5	0.6	0.6	0.6	Propeller shafts, bearings and gear assemblies	0.7	0.7	0.8	0.8
Oils other than crude oil	1.5	1.4	1.0	0.6	Medical and veterinarian devices	0.6	0.6	0.7	0.7
Automatic regulating instruments	0.5	0.6	0.6	0.6	New rubber tiers	0.8	0.8	0.8	0.7
Lighting fittings	0.4	0.5	0.5	0.6	Corn	0.5	0.6	0.6	0.7
Lamps and illuminated signs	0.4	0.5	0.5	0.6	Iron and steel bars and hooks	0.7	0.7	0.7	0.7
Centrifuges, filters and purifiers	0.5	0.6	0.6	0.6	TV sets	0.8	0.8	1.0	0.7
Fresh or refrigerated vegetables	0.5	0.4	0.5	0.6	Plastic containers	0.6	0.6	0.6	0.7
Fresh or refrigerated tomato	0.5	0.5	0.5	0.6	Medicine for retail sales	0.8	0.7	0.7	0.6
Avocado	0.3	0.4	0.4	0.5	Iron and steel screws and bolts	0.6	0.6	0.7	0.6
Plastic containers	0.5	0.5	0.5	0.5	Gas turbines	0.4	0.5	0.5	0.6
Electric machinery and devices	0.4	0.5	0.5	0.5	Gasoline engines	0.6	0.5	0.5	0.6
Silver (crude, worked and ground)	0.8	0.6	0.5	0.5	Printed circuit board assembly	0.6	0.5	0.5	0.6
Microphones and their support bases	0.5	0.5	0.5	0.5	Freight transport	0.6	0.5	0.5	0.6
Electronic microcircuits	0.4	0.4	0.5	0.5	Liquid pumps	0.6	0.5	0.6	0.6
Liquid pumps	0.4	0.5	0.5	0.5	Polyethylenes	0.6	0.6	0.6	0.5
Plastic parts of furniture, automob., apparel etc.	0.4	0.4	0.5	0.5	Electric engines and generators	0.4	0.4	0.5	0.5
Radios	0.4	0.4	0.4	0.4	Centrifuges, filters and purifiers	0.5	0.5	0.6	0.5
Diesel engines	0.5	0.5	0.4	0.4	Seats and their parts	0.5	0.5	0.5	0.5
Suits and pants for kids	0.4	0.4	0.4	0.4	Printing machines and devices	0.6	0.6	0.6	0.5
Other	31.3	32.0	33.0	33.1	Other	50.3	50.8	50.4	50.6

1/ Data provided by PMI Internacional, S.A. de C.V. (operation figures). Subject to revisions.
p/ Preliminary figures.
Source: SAT, SE; Banco de México, INEGI. Merchandise trade balance of Mexico. SNIEG. Information of National Interest.

Table A 62
International Travelers

Item	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016 p/
Balance (USD million)	**3,108**	**3,837**	**4,203**	**4,068**	**4,457**	**4,802**	**4,305**	**4,737**	**4,037**	**4,291**	**4,827**	**6,603**	**7,636**	**9,344**
						Incoming								
Revenues (USD million)	**9,362**	**10,796**	**11,803**	**12,177**	**12,919**	**13,370**	**11,513**	**11,992**	**11,869**	**12,739**	**13,949**	**16,208**	**17,734**	**19,571**
Tourists	6,680	7,783	8,502	8,955	9,737	10,152	8,827	9,443	9,448	10,199	11,312	13,580	15,035	16,853
In border areas	2,393	2,591	2,848	2,764	2,684	2,734	2,232	2,020	1,942	2,100	2,279	2,210	2,300	2,317
With overnight stay	572	599	644	605	630	708	604	548	558	568	542	740	791	769
Without overnight stay	1,821	1,993	2,204	2,159	2,054	2,026	1,628	1,472	1,384	1,533	1,737	1,470	1,509	1,548
On cruises	289	421	453	458	498	483	454	529	479	440	358	419	399	401
Number of travelers (thousands)	**92,330**	**99,250**	**103,146**	**97,701**	**93,582**	**92,948**	**88,044**	**81,953**	**75,732**	**76,749**	**78,100**	**81,042**	**87,129**	**94,621**
Tourists	10,353	11,553	12,534	12,608	13,041	13,425	12,501	13,327	13,237	13,665	14,562	16,000	18,307	20,424
In border areas	77,002	81,204	83,905	78,577	73,599	73,031	69,842	62,578	57,205	57,885	58,983	59,257	62,707	67,502
With overnight stay	8,312	9,065	9,381	8,745	8,565	9,505	9,845	9,962	10,166	9,738	9,589	13,346	13,786	14,537
Without overnight stay	68,690	72,139	74,524	69,832	65,034	63,526	59,997	52,615	47,039	48,148	49,394	45,911	48,920	52,966
On cruises	4,974	6,493	6,707	6,516	6,943	6,491	5,701	6,048	5,289	5,199	4,555	5,785	6,115	6,695
Average spending (USD)	**101.4**	**108.8**	**114.4**	**124.6**	**138.1**	**143.8**	**130.8**	**146.3**	**156.7**	**166.0**	**178.6**	**200.0**	**203.5**	**206.8**
Tourists	645.2	673.7	678.4	710.3	746.7	756.2	706.1	708.5	713.8	746.3	776.8	848.8	821.3	825.1
In border areas	31.1	31.9	33.9	35.2	36.5	37.4	32.0	32.3	33.9	36.3	38.6	37.3	36.7	34.3
With overnight stay	68.8	66.1	68.6	69.2	73.5	74.5	61.3	55.0	54.9	58.3	56.5	55.5	57.4	52.9
Without overnight stay	26.5	27.6	29.6	30.9	31.6	31.9	27.1	28.0	29.4	31.8	35.2	32.0	30.8	29.2
On cruises	58.0	64.8	67.5	70.3	71.8	74.4	79.6	87.4	90.5	84.7	78.6	72.4	65.3	59.9
						Outgoing								
Expenditures (USD million)	**6,253**	**6,959**	**7,600**	**8,108**	**8,462**	**8,568**	**7,207**	**7,255**	**7,832**	**8,449**	**9,122**	**9,606**	**10,098**	**10,227**
Tourists	2,565	2,911	3,314	3,805	4,373	4,566	4,058	4,187	4,693	5,223	5,777	6,153	6,470	6,513
In border areas	3,688	4,048	4,287	4,303	4,089	4,001	3,149	3,067	3,139	3,226	3,346	3,452	3,628	3,714
With overnight stay	270	316	340	388	421	380	339	353	321	326	248	457	556	566
Without overnight stay	3,418	3,732	3,947	3,915	3,668	3,622	2,811	2,715	2,818	2,900	3,097	2,995	3,072	3,148
Number of travelers (thousands)	**123,015**	**128,903**	**128,392**	**122,022**	**109,540**	**107,519**	**98,228**	**91,658**	**88,113**	**87,332**	**90,777**	**90,982**	**94,988**	**97,113**
Tourists	6,603	7,398	8,000	8,486	9,387	9,397	9,037	9,331	10,200	11,209	11,694	11,242	11,275	11,282
In border areas	116,412	121,505	120,392	113,536	100,153	98,122	89,191	82,326	77,913	76,124	79,083	79,739	83,713	85,832
With overnight stay	4,441	5,096	5,305	5,516	5,870	5,129	5,067	5,003	4,599	4,372	4,217	7,018	8,328	8,678
Without overnight stay	111,971	116,409	115,087	108,020	94,283	92,992	84,124	77,323	73,314	71,752	74,866	72,721	75,385	77,154
Average spending (USD)	**50.8**	**54.0**	**59.2**	**66.4**	**77.2**	**79.7**	**73.4**	**79.2**	**88.9**	**96.7**	**100.5**	**105.6**	**106.3**	**105.3**
Tourists	388.5	393.5	414.2	448.4	465.8	485.9	449.0	448.8	460.1	466.0	494.0	547.3	573.9	577.3
In border areas	31.7	33.3	35.6	37.9	40.8	40.8	35.3	37.3	40.3	42.4	42.3	43.3	43.3	43.3
With overnight stay	60.7	62.1	64.0	70.3	71.8	74.0	66.9	70.5	69.9	74.5	58.9	65.2	66.8	65.3
Without overnight stay	30.5	32.1	34.3	36.2	38.9	38.9	33.4	35.1	38.4	40.4	41.4	41.2	40.7	40.8

p/ Preliminary figures.
Note: Figures may not add up due to rounding.
Source: Banco de México.

Table A 63
Revenues from Workers' Remittances

	2011	2012	2013	2014	2015	2016 [p]
Total remittances (USD million)	**22,803**	**22,438**	**22,303**	**23,647**	**24,785**	**26,970**
Money orders	207	195	218	267	162	159
Electronic transfers	22,229	21,858	21,749	22,914	24,146	26,375
Cash and kind	367	386	335	466	477	436
Number of remittances (thousands)	**69,861**	**71,611**	**76,752**	**80,529**	**84,719**	**91,473**
Money orders	427	393	422	525	303	279
Electronic transfers	68,553	70,351	75,498	78,870	83,146	90,040
Cash and kind	881	867	833	1,133	1,269	1,155
Average remittances (USD)	**326**	**313**	**291**	**294**	**293**	**295**
Money orders	484	495	517	509	534	571
Electronic transfers	324	311	288	291	290	293
Cash and kind	417	445	402	411	376	377

p/ Preliminary figures.
Note: Figures may not add up due to rounding.
Source: Banco de México.

Table A 64
Revenues from Workers' Remittances

Distribution by state and international comparison

State	By state										International comparison: selected countries in 2015		
	Ranking					Percentage structure					Country	USD million	As a percentage of GDP
	2004	2006	2012	2015	2016 p/	2004	2006	2012	2015	2016 p/			
											India	65,230	3.1
Michoacán	1	1	1	1	1	12.45	9.79	9.85	10.22	10.19	Mexico		
Jalisco	3	4	3	3	2	7.98	7.73	8.39	8.95	9.34	2016	26,970	2.6
Guanajuato	2	2	2	2	3	9.43	9.04	9.53	9.13	8.95	2015	24,785	2.2
Estado de México	4	3	4	4	4	7.89	8.13	6.97	6.30	5.96	2014	23,647	1.8
Puebla	7	7	5	5	5	5.50	5.80	6.25	5.53	5.42	2013	22,303	1.8
Oaxaca	8	9	6	6	6	5.18	5.32	6.09	5.20	5.28	China	n.a.	n.a.
Distrito Federal	9	6	9	8	7	5.03	5.83	4.52	4.40	5.23	Philippines	21,991	7.5
Guerrero	6	8	7	7	8	5.56	5.69	5.49	5.16	5.09	Nigeria	20,837	4.2
Veracruz	5	5	8	9	9	6.37	6.57	5.24	4.38	4.17	Pakistan	19,246	7.1
San Luis Potosí	13	12	10	10	10	2.56	2.79	3.29	3.43	3.57	Egypt	18,325	5.6
Zacatecas	12	32	12	11	11	2.64	2.61	2.92	3.10	3.26	Bangladesh	15,367	7.4
Hidalgo	10	10	11	12	12	3.96	3.84	3.22	2.93	2.84	Indonesia	9,447	1.1
Chihuahua	21	17	17	16	13	1.52	1.85	2.08	2.60	2.61	Sri Lanka	6,980	8.6
Baja California	26	23	18	13	14	0.90	1.18	2.07	2.75	2.57	Morocco	6,904	6.9
Tamaulipas	20	15	16	14	15	1.55	1.94	2.16	2.68	2.39	Lebanon	6,619	13.0
Nuevo León	19	21	21	15	16	1.61	1.34	1.52	2.60	2.39	Nepal	6,498	30.5
Sinaloa	15	14	15	20	17	2.04	1.97	2.23	2.15	2.30	Guatemala	6,481	10.2
Durango	17	18	19	19	18	1.80	1.68	1.92	2.15	2.24	The Republic of Korea	5,593	0.4
Morelos	14	13	14	18	19	2.36	2.30	2.50	2.22	2.16	Ghana	4,982	13.2
Chiapas	11	11	13	17	20	3.21	3.68	2.55	2.39	2.14	Jordan	4,969	13.2
Querétaro	16	16	20	21	21	1.93	1.89	1.69	1.86	1.95	Dominican Republic	4,961	7.4
Nayarit	22	20	22	22	22	1.43	1.36	1.51	1.61	1.62	Colombia	4,636	1.6
Coahuila	24	24	25	23	23	0.98	1.08	1.26	1.56	1.55	El Salvador	4,270	16.5
Sonora	25	22	24	24	24	0.93	1.27	1.46	1.52	1.52	Thailand	3,865	1.0
Aguascalientes	18	19	23	25	25	1.72	1.48	1.48	1.41	1.47	Honduras	3,650	17.8
Colima	27	27	27	27	26	0.73	0.72	0.80	0.88	0.93	Japan	3,519	0.1
Tlaxcala	23	25	26	26	27	1.01	1.06	1.13	0.91	0.87	Poland	3,501	0.7
Tabasco	28	26	29	29	28	0.57	0.73	0.50	0.53	0.57	Russia	3,401	0.3
Yucatán	29	31	28	28	29	0.41	0.48	0.53	0.54	0.53	Yemen	3,351	8.9
Quintana Roo	30	28	30	30	30	0.37	0.39	0.42	0.47	0.48	Serbia	3,166	8.7
Campeche	31	29	31	31	31	0.29	0.32	0.25	0.23	0.24	The United Kingdom	3,019	0.1
Baja California Sur	32	30	32	32	32	0.10	0.11	0.18	0.21	0.20	Peru	2,725	1.4
Total									100.00	100.00			

p/ Preliminary figures.
n.a. / Not available.
Source: Prepared with data from IMF Balance of Payments Division. In the case of Mexico the source is Banco de México.

Table A 65
Foreign Investment in Government Securities
End of period outstanding stocks at face value
USD billion

		CETES		BONDS		UDIBONOS		BONDES D [1/]		BONDES		Total	
		Stock	%	Stock	%	Stock	%	Stock	%	Stock	%	Stock	%
2003		0.4	18.0	1.2	57.5	0.0	0.4	0.0	2.1	0.5	21.9	2.1	100.0
2004		0.6	9.1	6.1	87.2	0.0	0.7	0.2	2.7	0.0	0.3	7.0	100.0
2005		0.3	3.2	8.8	87.2	0.3	2.6	0.5	4.7	0.2	2.3	10.1	100.0
2006		0.6	4.7	10.8	86.9	0.4	3.3	0.6	5.1	0.0	0.0	12.4	100.0
2007		0.9	4.3	18.8	92.8	0.5	2.4	0.1	0.5	0.0	0.0	20.2	100.0
2008		1.3	6.4	17.9	89.8	0.7	3.3	0.1	0.5	0.0	0.0	20.0	100.0
2009		0.9	3.7	22.1	92.2	0.9	3.9	0.0	0.2	0.0	0.0	24.0	100.0
2010		8.1	16.8	37.5	77.4	2.0	4.1	0.8	1.7	0.0	0.0	48.4	100.0
2011		15.6	22.3	50.7	72.6	3.0	4.3	0.6	0.9	0.0	0.0	69.8	100.0
2012		38.4	31.7	75.4	62.3	6.9	5.7	0.4	0.3	0.0	0.0	121.2	100.0
2013		45.8	32.6	87.3	62.3	6.7	4.8	0.4	0.3	0.0	0.0	140.3	100.0
2014		42.5	29.5	92.8	64.5	8.4	5.8	0.2	0.1	0.0	0.0	143.9	100.0
2015		26.2	21.2	90.2	73.1	6.8	5.5	0.2	0.2	0.0	0.0	123.3	100.0
2016		14.2	13.9	83.1	81.3	4.6	4.5	0.3	0.3	0.0	0.0	102.1	100.0
2013	Jan	39.2	30.9	80.0	62.9	7.5	5.9	0.4	0.3	0.0	0.0	127.1	100.0
	Feb	37.6	29.5	81.5	63.8	8.3	6.5	0.3	0.3	0.0	0.0	127.7	100.0
	Mar	38.8	28.4	87.5	64.2	9.6	7.1	0.5	0.4	0.0	0.0	136.4	100.0
	Apr	36.7	26.0	93.1	66.1	10.4	7.4	0.7	0.5	0.0	0.0	141.0	100.0
	May	36.3	26.8	88.6	65.6	9.6	7.1	0.7	0.5	0.0	0.0	135.2	100.0
	Jun	38.2	29.3	82.9	63.7	8.6	6.6	0.5	0.4	0.0	0.0	130.2	100.0
	Jul	38.3	28.9	85.8	64.7	7.8	5.9	0.6	0.5	0.0	0.0	132.6	100.0
	Aug	35.0	27.8	83.8	66.6	6.6	5.3	0.5	0.4	0.0	0.0	125.9	100.0
	Sep	36.8	28.0	88.0	66.7	6.5	4.9	0.5	0.4	0.0	0.0	131.8	100.0
	Oct	34.3	26.0	90.2	68.4	6.9	5.2	0.5	0.4	0.0	0.0	131.9	100.0
	Nov	34.6	25.8	91.3	68.2	7.4	5.5	0.6	0.5	0.0	0.0	134.0	100.0
	Dec	45.8	32.6	87.3	62.3	6.7	4.8	0.4	0.3	0.0	0.0	140.3	100.0
2014	Jan	41.8	30.6	88.1	64.6	6.0	4.4	0.5	0.3	0.0	0.0	136.4	100.0
	Feb	46.8	32.6	90.1	62.7	6.4	4.4	0.5	0.3	0.0	0.0	143.8	100.0
	Mar	45.7	31.5	91.8	63.4	6.8	4.7	0.5	0.3	0.0	0.0	144.8	100.0
	Apr	39.8	28.4	92.8	66.2	7.1	5.1	0.4	0.3	0.0	0.0	140.2	100.0
	May	43.9	29.6	97.3	65.6	6.6	4.5	0.5	0.3	0.0	0.0	148.2	100.0
	Jun	50.0	33.0	94.0	62.0	7.2	4.7	0.4	0.3	0.0	0.0	151.7	100.0
	Jul	48.4	31.7	95.5	62.7	8.1	5.3	0.4	0.3	0.0	0.0	152.4	100.0
	Aug	45.1	29.9	96.6	64.1	8.6	5.7	0.4	0.3	0.0	0.0	150.7	100.0
	Sep	43.9	29.6	95.3	64.3	8.7	5.9	0.4	0.3	0.0	0.0	148.3	100.0
	Oct	42.6	28.7	97.1	65.3	8.6	5.8	0.3	0.2	0.0	0.0	148.6	100.0
	Nov	46.3	30.3	97.5	63.8	8.8	5.7	0.2	0.2	0.0	0.0	152.8	100.0
	Dec	42.5	29.5	92.8	64.5	8.4	5.8	0.2	0.1	0.0	0.0	143.9	100.0
2015	Jan	40.7	28.1	95.8	66.1	8.3	5.7	0.2	0.1	0.0	0.0	145.0	100.0
	Feb	38.6	27.0	95.5	66.7	8.8	6.2	0.2	0.1	0.0	0.0	143.2	100.0
	Mar	36.0	26.0	93.2	67.4	8.9	6.4	0.2	0.1	0.0	0.0	138.2	100.0
	Apr	32.8	23.9	95.1	69.2	9.3	6.8	0.2	0.1	0.0	0.0	137.3	100.0
	May	30.6	22.5	96.1	70.6	9.3	6.8	0.2	0.2	0.0	0.0	136.2	100.0
	Jun	33.4	24.7	93.0	68.6	8.8	6.5	0.3	0.2	0.0	0.0	135.5	100.0
	Jul	32.5	24.4	92.4	69.5	7.9	5.9	0.2	0.2	0.0	0.0	133.0	100.0
	Aug	30.0	23.3	90.8	70.7	7.4	5.8	0.2	0.1	0.0	0.0	128.4	100.0
	Sep	28.6	22.5	91.5	71.9	6.9	5.4	0.2	0.2	0.0	0.0	127.2	100.0
	Oct	25.3	19.9	94.7	74.6	6.9	5.4	0.2	0.1	0.0	0.0	127.1	100.0
	Nov	23.4	18.8	93.9	75.7	6.5	5.3	0.3	0.2	0.0	0.0	124.1	100.0
	Dec	26.2	21.2	90.2	73.1	6.8	5.5	0.2	0.2	0.0	0.0	123.3	100.0
2016	Jan	23.3	20.0	85.8	73.6	7.2	6.2	0.2	0.2	0.0	0.0	116.6	100.0
	Feb	22.0	19.1	87.0	75.2	6.4	5.6	0.2	0.1	0.0	0.0	115.6	100.0
	Mar	19.2	16.1	92.3	77.7	7.1	6.0	0.2	0.1	0.0	0.0	118.7	100.0
	Apr	16.3	13.7	95.3	80.4	6.7	5.7	0.2	0.2	0.0	0.0	118.5	100.0
	May	12.9	12.1	86.9	81.7	6.4	6.0	0.2	0.2	0.0	0.0	106.4	100.0
	Jun	12.2	11.7	85.4	82.3	6.1	5.8	0.2	0.1	0.0	0.0	103.8	100.0
	Jul	11.8	11.5	85.0	83.3	5.1	5.0	0.2	0.2	0.0	0.0	102.1	100.0
	Aug	11.1	10.9	85.7	84.5	4.4	4.4	0.2	0.1	0.0	0.0	101.4	100.0
	Sep	15.2	14.5	84.1	80.4	5.1	4.9	0.2	0.1	0.0	0.0	104.5	100.0
	Oct	14.9	13.9	86.4	80.7	5.3	4.9	0.4	0.4	0.0	0.0	107.0	100.0
	Nov	12.1	12.4	80.4	82.5	4.9	5.0	0.1	0.1	0.0	0.0	97.4	100.0
	Dec	14.2	13.9	83.1	81.3	4.6	4.5	0.3	0.3	0.0	0.0	102.1	100.0

1/ Includes Brems and IPAB bonds.

Table A 66
Gross External Debt Position
By residence [1]
End of period outstanding stocks

Items	USD million			Percent of GDP		
	2015	2016 [p]	Difference	2015	2016 [p]	Difference
TOTAL (I + II + III + IV)	298,015.9	313,605.0	15,589.1	26.95	28.36	1.41
TOTAL ADJUSTED (I + II +III + IV + V)	417,897.9	412,033.6	-5,864.3	37.79	37.26	-0.53
PUBLIC SECTOR (I + 3.3 + 4.2.1)	162,209.5	180,986.0	18,776.5	14.67	16.37	1.70
I. Federal Government [2]	82,588.3	88,157.0	5,568.7	7.47	7.97	0.50
II. Monetary authority	0.0	0.0	0.0	0.00	0.00	0.00
III. Banking sector	26,279.5	25,626.1	-653.4	2.38	2.32	-0.06
3.1 Commercial banks [3]	14,960.1	13,860.0	-1,100.1	1.35	1.25	-0.10
3.2 Other depositary corporations [4]	1,319.5	1,624.9	305.4	0.12	0.15	0.03
3.3 Development banks [2]	9,999.9	10,141.2	141.3	0.90	0.92	0.01
IV. Other sectors	189,148.1	199,821.9	10,673.8	17.10	18.07	0.97
4.1 Non-bank financial corporations [5]	39.3	32.6	-6.7	0.00	0.00	0.00
4.2 Non-financial enterprises	189,108.8	199,789.2	10,680.4	17.10	18.07	0.97
4.2.1 Public enterprises and entities [2]	69,621.3	82,687.8	13,066.5	6.30	7.48	1.18
4.2.2 Private sector [6]	119,487.5	117,101.4	-2,386.1	10.80	10.59	-0.22
4.2.3 IPAB [7]	0.0	0.0	0.0	0.00	0.00	0.00
V. Adjustments (5.1-5.2+5.3+5.4+5.5)	119,882.0	98,428.6	-21,453.4	10.84	8.90	-1.94
5.1 Non-residents' holdings of MXN-denominated debt [8]	123,298.5	102,145.9	-21,152.6	11.15	9.24	-1.91
5.2 Residents' holdings of foreign currency-denominated debt [9]	4,557.9	4,466.8	-91.1	0.41	0.40	-0.01
5.3 Agencies' claims on Mexican residents [10]	1,100.5	698.2	-402.3	0.10	0.06	-0.04
5.4 Pemex-Pidiregas [11]	0.0	0.0	0.0	0.00	0.00	0.00
5.5 Other debt liabilities with non-residents [12]	41.0	51.3	10.3	0.00	0.00	0.00

1/ Gross external debt statistics are compiled by Banco de México and the Ministry of Finance (SHCP). In order to comply with IMF's "External Debt Statistics: Guide for Compilers and Users" (2003) and, at the same time, facilitate its comparison with official figures published by the Ministry of Finance (available at www.shcp.gob.mx), both official statistics on Mexico's public external debt and its corresponding adjustments are presented following IMF's Special Data Dissemination Standard (SDDS) for residence criteria.

2/ Public sector data (federal government, development banks and public enterprises and institutions) are classified according to "user" criteria.

3/ Unlike official statistics, the present figures do not include debt with other non-resident entities of Mexican commercial bank agencies' located abroad. The reason for such exclusion is that IMF's "External Debt Statistics: Guide for Compilers and Users (2003)" considers agencies as non-residents. Figures include accrued interests.

4/ Includes financial leasing companies, financial factoring companies, limited purpose financial companies (*Sociedades Financieras de Objeto Limitado*, Sofoles), savings and loan companies, credit unions, and investment funds..

5/ Includes insurance companies, deposit warehouses, brokerage houses and bonding companies.

6/ Data on short and long-term loans are drawn from Banco de México's Survey "Outstanding Consolidated Claims on Mexico" on foreign creditor banks. Since official statistics for private sector's debt are based on debtor data, figures may not coincide with those published by the Ministry of Finance.

7/ Institute for the Protection of Banks' Savings (*Instituto para la Protección al Ahorro Bancario*, IPAB). Since official statistics do not include this item, it is reported as zero. However, IPAB's liabilities with non-residents are considered in the adjustments section.

8/ Defined as non-residents' holdings of Treasury bills (Cetes), federal government development bonds (Bondes); fixed-rate federal government development bonds (Bonos), federal government bonds denominated in investment units (Udibonos), monetary regulation bonds (BREMs) and savings protection bonds (BPAs and BPATs).

9/ Federal government bonds denominated in foreign currency held by Mexican residents.

10/ Corresponds to Mexican residents' liabilities with Mexican commercial banks' agencies abroad. Includes both agencies' direct loans to Mexican residents and agencies' holdings of bonds issued by Mexican residents.

11/ Pidiregas (*Proyectos de Infraestructura Productiva a Largo Plazo*) is a mechanism used since 1995 to finance strategic long-term investment projects for the oil, gas and energy industries. This item does not include debt related with Pidiregas-CFE because such debt is assumed as part of the private sector. If such assumption were incorrect, the Gross External Debt associated with Pidiregas would be underestimated. In 2009 the Pidiregas model of Pemex was cancelled, after which this firm's investment is funded by own sources or debt, and, therefore, it is registered as budget investment.

12/ Includes deposits of Banco de México, international financial entities and foreign central banks.

p/ Preliminary figures. Calculations based on GDP of the last quarter of the year and end of period FIX exchange rate.

Source: Banco de México and Ministry of Finance (SHCP).

Balance Sheet

BALANCE SHEET AS OF DECEMBER 31, 2016
MXN MILLION

A S S E T S		**LIABILITIES AND EQUITY**	
INTERNATIONAL RESERVES	$ 3,640,181	**MONETARY BASE**	$ 1,420,269
INTERNATIONAL ASSETS	3,670,769	BANKNOTES AND COINS IN CIRCULATION	1,419,754
LIABILITIES TO BE DEDUCTED	-30,588	BANK DEPOSITS IN CURRENT ACCOUNT	515
		FEDERAL GOVERNMENT CURRENT ACCOUNT DEPOSITS	319,025
CREDIT GRANTED TO THE FEDERAL GOVERNMENT	0	**OTHER FEDERAL GOVERNMENT DEPOSITS**	8,540
		MONETARY REGULATION LIABILITIES	1,258,328
GOVERNMENT SECURITIES	0	MONETARY REGULATION DEPOSITS	1,085,315
		GOVERNMENT SECURITIES	870,322
		BANKS	214,993
		MONETARY REGULATION BONDS	105,050
CREDIT GRANTED TO BANKS AND DEBTORS FROM REPO OPERATIONS	203,240	OTHER DEPOSITS FROM BANKS AND CREDITORS FROM REPO OPERATIONS	67,963
		DEPOSITS FROM MEXICAN OIL STABILIZATION AND DEVELOPMENT FUND	53
PARTICIPATION IN INTERNATIONAL FINANCIAL INSTITUTIONS	15,150	**INTERNATIONAL MONETARY FUND**	0
		SPECIAL DRAWING RIGHTS	79,033
FIXED ASSETS, FURNISHINGS AND EQUIPMENT	3,725	**OTHER LIABILITIES**	76,877
		TOTAL LIABILITIES	3,162,125
		CAPITAL	9,014
OTHER ASSETS	14,986	**CAPITAL RESERVES**	384,490
		FISCAL YEAR'S OPERATIONAL SURPLUS	321,653
		TOTAL EQUITY	715,157
TOTAL ASSETS	$ 3,877,282	**TOTAL LIABILITIES AND EQUITY**	$ 3,877,282

MEMORANDUM ACCOUNTS $26,495,114

The present Balance Sheet was prepared according to the requirements set in the Law governing Banco de México and Banco de México's Internal Bylaw, following the Financial Reporting Standards of Banco de México, that have the favorable opinion of the Mexican Financial Reporting Standards Board, regarding its complete convergence with the national Financial Reporting Standards, except for the cases in which Banco de México's Internal law dictates a different course of action. In compliance with article 38 of the referred Bylaw, International Reserves are defined as stated in article 19 of the Law governing Banco de México; Government Securities are presented as net holdings after deducting Monetary Regulation Deposits, excluding any securities purchased or transmitted via repo operations, and if there is a creditor position, it is listed under line item Monetary Regulation Deposits; Credit Granted to Banks and Debtors from Repo Operations includes Commercial Banks, Development Banks and repo operations. The accounts balance in foreign currency was valued at the daily exchange rate.

DR. AGUSTÍN GUILLERMO CARSTENS CARSTENS
GOVERNOR

DR. LORENZA MARTÍNEZ TRIGUEROS		**L.C. VÍCTOR MOISÉS SUÁREZ PICAZO**
PAYMENT SYSTEMS AND CORPORATE		**ACCOUNTING, PLANNING AND BUDGET**
SERVICES DIRECTOR GENERAL		**DIRECTOR**
DR. GUILLERMO ORTIZ MARTINEZ	**LIC. ALEJANDRO GARAY ESPINOSA**	**C.P. GERARDO ZUNIGA VILLARCE**