BANCO DE MÉXICO

Quarterly Report
April – June 2017

QUARTERLY REPORT

This report analyzes recent developments in economic activity, inflation and different economic indicators of Mexico, as well as the monetary policy implementation in the quarter April – June 2017, and, in general, the activities of Banco de México over the referred period, in the context of the Mexican and international economic environment, in compliance with Article 51, section II of Banco de México's Law.

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BOXES

1.   Introduction

In recent years the Mexican economy, and in particular inflation, have experienced an array of shocks of considerable magnitude, as a result of which inflation accelerated and reached levels above 6.0 percent in recent months, after having reached a historic low in late 2015. In this context, Banco de México has implemented a timely strategy, taking the necessary measures to contribute to an orderly adjustment in relative prices (derived from the said sequence of shocks), namely that medium- and long-term inflation expectations remain anchored, and thereby provide conditions for inflation to return to its 3.0 percent target. Thus, since December 2015, this Central Institute has raised the target for the Overnight Interbank Interest Rate by 400 basis points, increasing it from 3.0 to 7.0 percent. Hence, Banco de México has been among the central banks that have tightened their monetary policy stance the most in recent years. Considering that adjustments in the monetary policy have a lagged effect on headline inflation, the adopted monetary policy actions have also begun to be reflected in different indicators and components of inflation, which have recently lowered their growth rate and, even, in some cases, presented a certain reversion in their trend. It is important to highlight the considerable appreciation of the national currency against the U.S. dollar over the last months, as it is one of the most important monetary policy transmission channels.

High levels of annual headline inflation during this year reflect the impact of different shocks, such as the depreciation that the national currency has accumulated since late 2014, the effects of the liberalization process of some energy products' prices and the rise in the minimum wage last January. In recent months, headline inflation received an additional impulse, as a consequence of price increments across some non-core index items, such as the increases in public transport fares in Mexico City, as well as some other cities of the country, and, more recently, in the prices of some agricultural products. Despite the upward trend in headline and core inflation during the period analyzed in this Report, which marked 6.59 and 5.02 percent in the first fortnight of August 2017, respectively, its growth rate has started to slow down. Similarly, there has already been a change of trend in the items affected by the initial shocks, such as those corresponding to energy products and non-food merchandise.

Banco de México's Board of Governors increased the monetary policy rate by 25 basis points, both in its decision of May and of June, raising it to 7.0 percent. These decisions principally considered the inflation trend prompted by the referred shocks, no anticipated aggregate demand-related pressures onto inflation, and the 25-basis-point increase in the target range for the U.S. Federal Reserve reference rate. On the other hand, in its August meeting the Board decided to maintain the target for the Overnight Interbank Interest Rate, considering (based on the information available at the time) that the level of the reference rate achieved in the previous decision seemed to be congruent with the convergence of headline inflation to the 3.0 percent target at the end of 2018.

For the remainder of 2017 and for 2018, both advanced and emerging economies are still expected to recover slightly. Nevertheless, this outlook still has downward risks, including high uncertainty over the direction of the U.S. economic policies,

growing geopolitical tensions across different regions, and a possible environment of greater protectionism in international trade.

In advanced economies, in general inflation prevailed below the targets of their respective central banks, due to lower energy prices, absence of wage pressures despite a lower slack in the labor market, as well as, in some cases, price reductions in certain items, the effects of which are considered transitory. This environment of low inflation and reduced wage pressures also seems to be affected, in part, by certain structural factors, such as technological progress and globalization, in light of the moderate growth of global aggregate demand. In this environment, the central banks of the main advanced economies have maintained their accommodative monetary policy stances and the perspective that they will remain lax in the near future prevails, to later come closer slowly to a more neutral stance.

Despite the persistent uncertainty regarding the economic policy and the increasing geopolitical risks, international financial markets showed a sharp decline in their volatility levels and an increase in asset prices with respect to the first quarter of 2017. In other words, they benefitted from a greater global growth, from an environment of ample liquidity and the prospect of interest rates remaining low, which has been reflected in a continuous search for higher yields, mainly by institutional investors. Despite the fact that probability of extreme or tail risks that could affect the performance of financial markets reduced during the second quarter, it remains high. In this context, a disorderly adjustment in financial markets cannot be ruled out, given high valuations of multiple assets and risks associated to a greater-than-expected tightening in global financial conditions, to the process of monetary policy normalization in the U.S., to recent geopolitical risks, as well as the possibility that barriers to international trade and investment are implemented.

In the same vein, conditions in domestic financial markets kept improving in the reported period. The volatility of the quote of the Mexican peso against the U.S. dollar decreased and the national currency further appreciated, as it resumed levels that had not been observed since May 2016. This largely reflects the monetary policy actions adopted by Banco de México, along with a more positive international financial environment and a relative improvement in the perception of the future bilateral Mexico – U.S. relation. As regards the end of the previous quarter, short-term interest rates went up in accordance with the monetary policy actions, while medium- and long-term ones declined given the anchoring of medium- and long-term inflation expectations in Mexico, the corresponding reduction in the inflation risk premium, the decrease in long-term rates in the U.S. and the environment of higher risk appetite. As a result, the slope of the yield curve continued declining. Consistent with the above, interest rates spreads between Mexico and U.S. keep observing considerable increments for short-term horizons and reductions for medium- and long-term ones.

Regarding the domestic economy, in the second quarter of 2017 productive activity kept expanding, even though its growth rate was slightly lower than that observed in the previous quarter. This reflected the positive trajectory of exports and private consumption, while the weakness of investment persisted. In this context, no significant aggregate demand-related pressures onto prices have been recorded. Furthermore, even though labor market conditions kept suggesting no slack in that

market, no wage pressures that could affect the inflation process have been perceived.

The outlook for economic growth in Mexico appears to have improved with respect to the perception that prevailed at the release of the previous Report. World economic activity and global trade have recovered more noticeably, and the domestic market has proven to be resilient. Productive activity in the second quarter of 2017 even decelerated slightly less than anticipated in the last Report. Furthermore, with respect to the bilateral Mexico – U.S. relation, the most recent data point to a lower probability of scenarios that could affect growth to a greater degree, despite the persistent uncertainty over this relation. As a consequence, and considering the greater amount of available information, the forecast interval for GDP growth in Mexico in 2017 is adjusted from one between 1.5 and 2.5 percent published in the previous Report to one between 2.0 and 2.5 percent in the current one. Likewise, the interval for GDP growth in 2018 is adjusted upwards from one between 1.7 and 2.7 percent released in the previous Report to one between 2.0 and 3.0 percent. In this way, just as in the previous Report, the growth rate of the Mexican economy in 2018 is expected to be greater than in 2017. This estimated trajectory responds to the expectation that in the forecast horizon the reactivation of U.S. industrial production will consolidate, that some structural reforms will have more noticeable effects on growth, and that an environment that grants greater confidence for private investment will prevail, derived from the country's macroeconomic strengthening and from conditions more conducive to international trade.

Thus, it can be concluded that the Mexican economy and domestic financial markets have been resilient to the shocks that have affected them. The strengthening of the macroeconomic fundamentals over the last almost two decades, in which curbing inflation is noteworthy, has been a necessary condition for this. However, it is important to keep in mind that the economy is still facing a highly complex environment, in particular, due to the possible tightening of global financial conditions, the evolution of the NAFTA negotiations and the electoral process in 2018. In this environment, it is particularly relevant for the authorities to persevere in maintaining strong macroeconomic fundamentals. In particular, it is important for the fiscal and monetary policies to continue contributing to propitiate an orderly adjustment in the economy and financial markets. In this sense, the Federal Government's commitment to obtain a primary surplus of 0.4 percent of GDP in 2017 (excluding Banco de México's operational surplus) is noteworthy. The referred surplus would be the first on record since 2008. Furthermore, for 2018 the Federal Government reiterated its commitment to fiscal consolidation, as it suggested a surplus in the primary balance amounting to 1.0 percent of GDP.[1] Progress achieved in the implementation of structural reforms, in particular the energy and telecommunications' reforms, should also be highlighted. In recognition of the above factors, some rating agencies revised Mexico's sovereign debt credit outlook up to stable from negative.

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[1] Figure for 2017 is taken from Reports on Economic Activity, Public Finances and Public Debt of the Second Quarter of 2017. Figure for 2018 is taken from the Document concerning the compliance with the provisions of Article 42, Fraction I of the LFPRH, also known as General Economic Policy Preliminary Guidelines (*Pre-Criterios*). Both documents have been published by the Ministry of Finance.

Over the years, Banco de México has been making an effort to continue improving its communication strategy with the public. Therefore, starting from this Quarterly Report, fan charts will include the trajectory of the central outlook of inflation and economic activity, which is compared to the central forecast included in the previous Quarterly Report. The Board of Governors considers that this modification will contribute to reinforce the role of this Central Bank in the formation of expectations, at the same time further reinforcing the channel of inflation expectations in the monetary policy transmission mechanism. This will allow to explain the forecasts to the public in more detail, along with risks associated to the said forecasts and their possible updates.

Although in line with the central outlook for the next months, annual headline inflation is expected to persist over 6.0 percent, it seems to be approaching its ceiling. In fact, it is estimated that during the last months of this year annual headline inflation will resume its downside trend and that it will be accentuated during 2018, leading to the convergence to the 3.0 percent inflation target around the third quarter of 2018. Annual core inflation is anticipated to remain above 4.0 percent in 2017, even though significantly below the trajectory of annual headline inflation, and that in late 2017 and early 2018 it will resume a trajectory of convergence to the inflation target, reaching levels close to 3.0 percent at the end of that year. These forecasts consider the monetary policy adjustments that have been implemented since December 2015 up until now and that will continue affecting the inflation performance over the next quarters. Similarly, they consider that in January 2018 the fading of the base effect generated by higher prices of various energy products at the beginning of 2017 will considerably affect annual inflation, and a downside inflation trajectory will be observed over the following months as a result of a strong appreciation of the national currency. This will take place in an environment in which no aggregate demand-related pressures onto prices are anticipated. These forecasts assume that if any volatility event occurs in domestic financial markets, it will be transitory.

Going forward, the Board of Governors will closely follow the evolution of all inflation determinants and its medium- and long-term expectations, especially the potential pass-through of exchange rate adjustments onto prices, as well as the evolution of the output gap. Likewise, it will assess the monetary stance of Mexico relative to the U.S. In any event, due to a number of still persisting risks, the Board will be watchful to ensure that a prudent monetary stance prevails, so that the anchoring of medium- and long-term inflation expectations is strengthened and its convergence to the target is attained.

2.   Recent Evolution of Inflation

2.1.   Inflation

The levels of annual headline inflation this year reflect the impact of different shocks. Among these, the depreciation of the MXN-USD exchange rate, accumulated since the end of 2014, is noteworthy (see Box 1), as well as the effects of the price liberalization process of energy products, in particular gasoline and LP gas prices, and the minimum wage increase in January 2017. In recent months, headline inflation faced new upward pressures, due to the increments in passenger transport fares in some cities of Mexico, and, more recently, due to higher prices of some agricultural products. Thus, although in the period analyzed in this Report headline and core inflation maintained an upward trajectory, locating at 6.59 and 5.02 percent in the first fortnight of August 2017, respectively, their growth rate started to slow down. In this sense, various indicators for different subindices of the Consumer Price Index, such as the monthly seasonally adjusted changes and trimmed means, among others, already suggest a change of trend. In the same way, turning points have also been observed in the items affected by the initial shocks, such as energy products and non-food merchandise. Even if tomatoes, the prices of which were adjusted upwards in recent months, were excluded from the CPI, annual headline inflation would mark 6.17 and 6.23 percent in July and the first quarter of August, respectively. Likewise, if tomato, potato and green tomato were excluded, annual headline inflation in July and the first fortnight of August would be 6.08 and 6.10 percent, respectively, which would be lower than the figure that would be observed in June, if the same estimation was realized in that month. It should be noted that the key role in the above was played by the monetary policy actions implemented by Banco de México, which prevented the second round effects on the price formation process of the economy, at the same time supporting the appreciation of the national currency. Meanwhile, the said appreciation has been lowering pressure on core inflation. In addition, in the non-core component, lower prices of energy products, which derived from the favorable evolution of their international references, along with the exchange rate dynamics, have helped to partly offset the effect of price increments in agricultural products.

Delving in the performance of annual headline inflation, it shifted from an average of 4.98 percent in the first quarter of 2017 to 6.10 percent in the second one, and registered, as stated above, 6.59 percent in the first fortnight of August. On the other hand, average annual core inflation went up from 4.19 to 4.78 percent in the mentioned quarters, locating at 5.02 percent in the first fortnight of August, while annual non-core inflation shifted from 7.38 to 10.31 percent during the referred quarters and marked 11.60 percent in the first fortnight of August (Table 1 and Chart 1).

Box 1
Evolution of the Exchange Rate Pass-through onto Inflation

1. Introduction

The real exchange rate is one of the main and most efficient adjustment variables in an open economy, such as the Mexican one. In particular, in view of shocks that tend to affect the country's external accounts, adjustments in the real exchange rate lead to changes in the relative prices of tradable goods and services as compared to non-tradable ones, which, in turn, lead to adjustments in the structure of spending and production in the economy, and therefore mitigate the effects of these shocks on the economic activity. Indeed, in light of considerable external shocks that had affected the Mexican economy in recent years, the Mexican peso accumulated a depreciation against the U.S. dollar amounting to over 64 percent in nominal terms and approximately 52 percent in real terms from July 2014 to January 2017 –the month in which it attained its highest level– this depreciation episode being the most important over the last 20 years. However, it is noteworthy that from January to July 2017, the nominal exchange rate appreciated by around 16.5 percent and the real exchange rate did so by 17 percent (see Chart 1).

Chart 1
Nominal and Real Exchange Rate
MXN/USD, index June-01
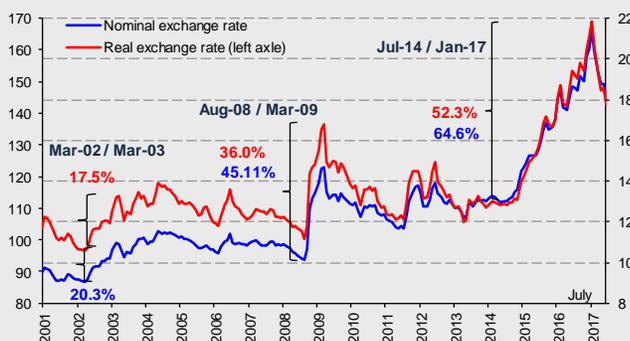
Source: Banco de México.

In this environment, the main contribution of Banco de México, given its mandate, is to contribute to an orderly adjustment in relative prices derived from this process. In particular, by means of its monetary policy actions, this Central Institute has sought to prevent this adjustment from deanchoring inflation expectations, thus averting

second round effects from negatively affecting the price formation process of the economy. In this sense, it should be underlined that the structural achievements in curbing inflation, which Mexico has gained over the last two decades, have considerably contributed to lower the pass-through of the exchange rate depreciation onto inflation.[1] This, in turn, is relevant for the conduct of monetary policy, as the fact that exchange rate fluctuations affect inflation to a lower degree grants the Central Bank more degrees of freedom to implement its monetary policy under the inflation-targeting regime. Among the studies that have documented a lower pass-through, the following should be mentioned: Capistrán, Ibarra and Ramos-Francia (2012) who found that a 12-month exchange rate pass-through of one percent on the exchange rate shifted from 0.32 to 0.02 percentage points from the period of January 1997 – May 2001 to the period of June 2001 – December 2010. On the other hand, more recent estimates of the pass-through, such as Cortés (2013) for the period June 2001 – August 2012, as well as Kochen and Sámano (2016) for the period of January 2011 – April 2016 estimate the pass-through at 0.04 percentage points in both studies. Even though these studies show that the pass-through of exchange rate adjustments onto inflation is low, given the considerable depreciation in recent years, it is relevant to determine if the pass-through has been affected. Considering the above, this box seeks to analyze the referred pass-through coefficient and its characteristics from different perspectives.

To carry out this analysis, four exercises were realized with data from June 2001 to May 2017, using Autoregressive Vectors (VAR).[2] All exercises include macroeconomic variables that are both domestic and external, in accordance with the traditional model for small and open economies, such as the Mexican one.

A. ***Base Model:*** it is estimated using a traditional VAR model that incorporates the main variables affecting the inflation dynamics in Mexico. This model is estimated for two periods, one up to May 2016 and the other one until May 2017, to analyze possible changes in the pass-through of exchange rate adjustments to inflation.

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[1] Indeed, among these achievements, the following are notable: a reduction in the level, volatility and persistence of inflation, the anchoring of inflation expectations at levels close to its target and a decrease in the pass-through of the changes in relative prices, including the real exchange rate, onto the general price growth of goods and services. A detailed explanation of the structural achievements that have been attained with respect to curbing inflation is presented in the first section of Aguilar et al. 2014.

[2] Estimates in the first three exercises are based on the paper Angeles, D., J. Cortés and D. Sámano (2017). "Evolución y Características del Traspaso del Tipo de Cambio a Precios en México." The fourth estimation is based on the paper Jaramillo, J., L. Pech, C. Ramírez and D. Sánchez (2017) "Traspaso no lineal del Tipo de Cambio a Precios".

B. ***Model with Interaction between the Exchange Rate and the Output Gap:*** the base model is extended by incorporating the exchange rate variable that is conditional on the positive gap of IGAE. The goal is to identify if the pass-through of the exchange rate is different in the period in which the economy is above its potential growth trend, with respect to periods when it is below this trend.

C. ***Model with Asymmetry:*** the specification of this model includes the possibility that the inflation response is quantitatively different from an appreciation as compared to a depreciation of the same magnitude in the exchange rate.

D. ***Model Threshold VAR (TVAR):*** it analyzes the possibility of different pass-throughs when a moderate depreciation is observed, as compared to a case when a higher depreciation is presented, given an endogenously estimated threshold.

Results indicate that, despite the considerable depreciation of the national currency over the last years, the degree of the pass-through practically has not changed and persists at a low level. In addition, it is found that the pass-through of the exchange rate onto inflation: i) is higher when the economy is growing above its potential growth trend, although, with the methodology used in this analysis in particular, the difference is not statistically significant;[3] ii) the pass-through is higher when the currency depreciates as compared to the situation in which it appreciates; and iii) there are differences in the pass-through of the exchange rate onto inflation in an environment of low depreciation with respect to a juncture of high depreciation; however, the differences are not of an economically relevant magnitude. Thus, there is no statistical evidence that the pass-through has changed, and it remains low. Even considering the current economic conditions, where the pass-through could be perceived as being affected, it, in fact, has remained low.

2. Estimates

A. Base Model

A VAR model is estimated in annual changes, with a monthly frequency considering an analysis sample from June 2001 to May 2017. This model includes the main variables that have been documented to affect inflation dynamics. In this context, the exchange rate pass-through onto inflation is analyzed by estimating impulse–response functions and elasticities of the pass-through at different horizons, which in this model represent months. The VAR equation corresponding to inflation is the following:

$$\Delta_{12}\pi_t = \alpha + \sum_{j=1}^{n}\beta_j\Delta_{12}\pi_{t-j} + \sum_{j=1}^{n}\varphi_j\Delta_{12}\text{FX}_{t-j} + \sum_{j=1}^{n}\delta_j\, r_{t-j}$$

$$+ \sum_{j=1}^{n}\tau_j\Delta_{12}IGAE_{t-j} + \gamma_1\Delta_{12}IP_t + \gamma_2RFF_t +$$
$$\gamma_3\Delta_{12}CPI_t + \gamma_4\Delta_{12}PCOMM_t + \varepsilon_t \qquad \textbf{(1)}$$

Where:

$\Delta_{12}\pi_t$ is the annual change in t of the CPI or of the estimated subindex.

$\Delta_{12}\text{FX}_t$ is the annual change in t of the bilateral exchange rate with the U.S. in MXN/USD.

r_t is the rate of 28-day Cetes in t.

$\Delta_{12}IGAE_t$ is the annual change in t of IGAE.

$\Delta_{12}IP_t$ is the annual change in t of U.S. industrial production.

RFF_t is the federal funds' rate in t.

$\Delta_{12}CPI_t$ is the annual change in t of the U.S. consumer price index.

$\Delta_{12}PCOMM_t$ is the annual change in t of the commodity price index of the IMF.

To quantify possible changes in the pass-through of the exchange rate onto inflation last year, the base model was estimated using the data from June 2001 to May 2016, and subsequently the estimation was updated as of May 2017. Table 2 at the end of the box shows all results of the exercises to simplify comparison. For this model, in the case of estimates up until May 2016 the elasticity of the 12-month pass-through of the exchange rate onto headline inflation was 0.03 percentage points. When the estimation period is extended up until May 2017, this elasticity is 0.05. However, this difference is not statistically significant, reason why there is no empirical evidence of changes in the pass-through.[4] With respect to the main subindices of the CPI, similar results are obtained. In particular, for the full sample the accumulated elasticity of the pass-through at 12 months is 0.04, 0.11 and 0.10 percentage points for core inflation, merchandise and non-core inflation, respectively. These results are compared to elasticities of 0.03, 0.09 and 0.09 for the same subindices, considering the estimation sample up until May 2016. In the case of services, the accumulated elasticity of the pass-through remains statistically non-significant.

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[3] However, using the methodology from Kochen, F. and D. Sámano (2016) based on CPI microdata, a modest but statistically significant difference is established in the pass-through when the gap is positive.

[4] In particular, for headline inflation proof of a Chow structural change was carried out, in which a statistical value F of 1.46 was obtained with a value of probability of 0.23, indicating that the null hypothesis (that the pass-through coefficient is equal for the two analyzed samples) cannot be rejected. In addition, it can be graphically illustrated that the impulse-response function of inflation, in view of the exchange rate shock on the total sample, is not statistically different from that estimated for May 2016. Similar results are obtained for the main subindices of the CPI.

In addition, Chart 2 shows the impulse-response function of headline inflation given a one-time exogenous shock of one percent on the exchange rate with its confidence intervals for the estimate as of May 2017.[5] This impulse-response function, along with the subsequent ones that are presented in this box, consider the degree of endogenous persistence that the exchange rate exhibits in the face of an exogenous shock on itself.

Chart 2
Base Model: Impulse-Response Function of Headline Inflation given a One Percent Shock onto the Exchange Rate
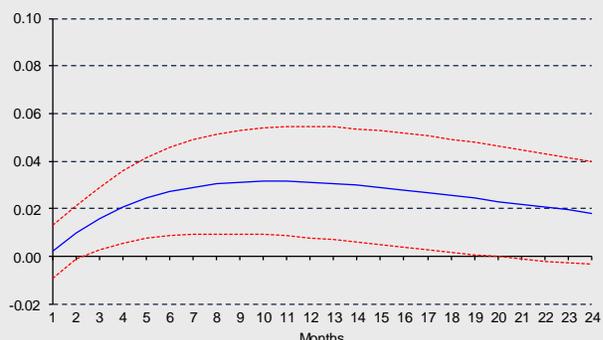
Source: Own estimates with data from Banco de México and INEGI.

B. Model with Interaction between the Exchange Rate and the Output Gap

This model includes a conditional variable (FX_t^{g+}) to calculate the pass-through of the exchange rate in the periods when the economy is above its potential growth trend. Instead of introducing IGAE in annual changes, as it was used in the base model, it is included as a gap with respect to its growth trend.

The VAR equation corresponding to inflation is the following:

$$\Delta_{12}\pi_t = \alpha + \sum_{j=1}^{n}\beta_j\Delta_{12}\pi_{t-j} + \sum_{j=1}^{n}\varphi_j\Delta_{12}FX_{t-j} + \sum_{j=1}^{n}\varphi_j^{g+}\Delta_{12}FX_{t-j}^{g+} + \sum_{j=1}^{n}\delta_j r_{t-j} + \sum_{j=1}^{n}\tau_j GAP_{t-j} + \gamma_2 RFF_t + \gamma_3\Delta_{12}CPI_t + \gamma_4\Delta_{12}PCOMM_t + \varepsilon_t \quad \textbf{(2)}$$

Where:
$\Delta_{12}FX_t^{g+}$ is the annual change in t of the exchange rate if the IGAE gap is positive, and zero, otherwise.
Brecha_t is the gap in t of the IGAE.

Two impulse-response functions are obtained: (1) for headline inflation, as a result of a one-time

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[5] The impulse-response function is calculated using the methodology suggested by Pesaran and Shin (1998), which is a generalization of the methodology of Cholesky and is invariant to the variables' arrangement.

shock of 1 percent in the exchange rate when the gap is less than or equal to zero; and (2) for headline inflation, derived from a one-time shock of 1 percent in the exchange rate, when the gap is positive (Chart 3). The results indicate that if the economy is growing below its long-term growth trend, the accumulated pass-through elasticity at 12 months, given a shock to the exchange rate for headline inflation, is of 0.05 percentage points. In contrast, if the shock of the exchange rate occurs when the economy is above its long-term trend, this elasticity is 0.14 percentage points (Table 2). It should be noted that, although, on average, the exchange rate pass-through onto inflation is higher when the gap is positive as compared to episodes characterized by a gap lower than or equal to zero, the difference with this estimation methodology is not statistically significant.

Chart 3
Model with Interaction: Impulse-Response Functions of Headline Inflation given a One Percent Shock to the Exchange Rate
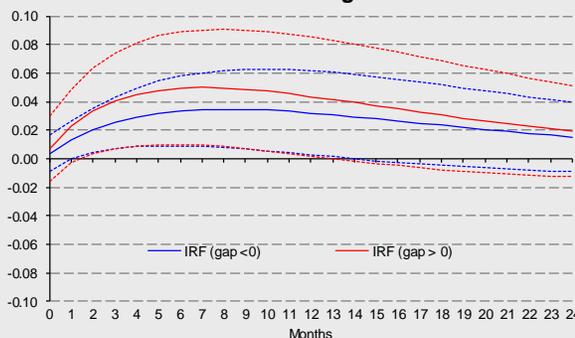
Source: Own estimates with data from Banco de México and INEGI.

C. Model with Asymmetry

This section modifies the base model to identify asymmetric responses of the exchange rate pass-through onto inflation, when appreciations and depreciations occur. To do that, a conditional variable (FX_t^+) is added to calculate the exchange rate pass-through onto inflation in the periods in which the national currency is depreciated and to compare the results with the response that would be obtained in a context of appreciations. That is, considering a positive variation of the exchange rate as a depreciation (more Mexican pesos for U.S. dollars), the variable $(\Delta_{12}FX_t^+)$ takes positive values of the annual changes of the exchange rate when there are depreciations and takes a value of zero when there are appreciations. This allows to differentiate the pass-through of the exchange rate onto inflation between appreciations and depreciations. The VAR equation corresponding to inflation is:

$$\Delta_{12}\pi_t = \alpha + \sum_{j=1}^{n}\beta_j\Delta_{12}\pi_{t-j} + \sum_{j=1}^{n}\varphi_j\Delta_{12}FX + \sum_{j=1}^{n}\varphi_j^+\Delta_{12}FX_{t-j}^+ + \sum_{j=1}^{n}\delta_j r_{t-j} + \sum_{j=1}^{n}\tau_j GAP_{t-j} + \gamma_1\Delta_{12}IP + \gamma_2 RFF_t + \gamma_3\Delta_{12}CPI_t + \gamma_4\Delta_{12}PCOMM_t + \varepsilon_t \quad \textbf{(3)}$$

Where:

$\Delta_{12}FX_t^+$ is the annual change in t of the exchange rate if it is positive, that is, if the currency is depreciated, and zero, otherwise.

Chart 4
Model with Asymmetry: Impulse-Response Functions of Headline Inflation given a One Percent Shock to the Exchange Rate
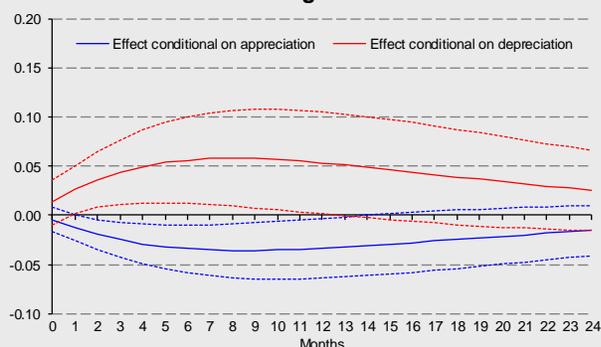
Source: Own estimates with data from Banco de México and INEGI.

With respect to this model, Chart 4 illustrates that the impulse-response function for headline inflation as a result of a one-time shock of 1 percent on the exchange rate is different depending on whether it is an appreciation or a depreciation. In particular, the accumulated pass-through elasticity of a depreciation (a positive change) 12 months after a 1 percent shock on the exchange rate on headline inflation is 0.09 percentage points with respect to its previous level, while core, merchandise and non-core inflation go up 0.06, 0.19 and 0.21 percentage points, respectively. On the other hand, a one-time appreciation (a negative change) of 1 percent in the exchange rate causes headline inflation to decline 0.05 percentage points 12 months after the shock, while core inflation, merchandise and non-core inflation go down 0.04, 0.11 and 0.12 percentage points, respectively (Table 2). In this sense there is evidence of asymmetry in the pass-through of the exchange rate onto inflation, and the effects of the depreciation are greater as compared to those of appreciation.

D. Model Threshold VAR (TVAR)

This section presents the methodology of threshold VAR models, following Alfonso, et al. (2011), Balke (2000) and Li and St-Amant (2010). Unlike a linear VAR, such as

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[6] See, for example, Caselli & Roitman (2016), Da Silva Correa & Minella (2010), Frankel et al. (2012) and Pollard & Coughlin (2004).

[7] The number of lags was determined using the data criterion of Hannan-Quinn.

[8] For the estimation of the threshold, the first step is to set the number of minimum observations that will be considered in the regime with fewer observations. For the size of the sample, the threshold was sought considering that at least 20 percent of observations are in the regime with fewer observations.

those presented above, this methodology allows to identify if there are different coefficients of the pass-through depending if the economy is facing an environment of "low" or "high" depreciation. What defines "low" or "high" depreciation is if there are structural changes in how inflation responds to an exchange rate shock depending on the size of the depreciation. In this exercise the exchange rate threshold is endogenously estimated, distinguishing between "low" and "high" depreciation, that is the value that differentiates between both regimes, as will be explained below. Some authors have found for different economies that the degree of the pass-through is different depending on the depreciation regime.[6] The equation of this model is the following: [7]

$$\Delta_{12}\pi_t = \alpha_1 + \sum_{j=1}^{n}\beta_{1j}\Delta_{12}\pi_{t-j} + \sum_{j=1}^{n}\varphi_{1j}\Delta_{12}FX_{t-j} +$$
$$\sum_{j=1}^{n}\delta_{1j}r_{t-j} + \sum_{j=1}^{n}\tau_{1j}\Delta_{12}IGAE_{t-j} + \big(\alpha_2 +$$
$$\sum_{j=1}^{n}\beta_{2j}\Delta_{12}\pi_t + \sum_{j=1}^{n}\varphi_{2j}\Delta_{12}FX_{t-j} + \sum_{j=1}^{n}\delta_{2j}r_{t-j} +$$
$$\sum_{j=1}^{n}\tau_{2j}\Delta_{12}IGAE_{t-j}\big)\, I(FX_{t-d} > \gamma) + \lambda'X_t + \varepsilon_t \qquad \textbf{(4)}$$

Equation (4) includes the same endogenous variables used in the base model, X_t is the same vector of control variables; the term $(FX_{t-d} > \gamma)$ is an indicative function that takes the value of 1 if the annual rate of exchange rate depreciation is higher than the value γ and 0, otherwise. In this way, γ represents the threshold that distinguishes between the regimes of "low" and "high" depreciation. As mentioned above, this threshold is determined endogenously in the model. In order to obtain the parameter γ, equation (4) is estimated for each observed depreciation rate in the sample. The value of γ that yields the best adjustment is chosen as a threshold, in particular, the one that has the lowest mean squared error.[8] Thus, if the economy experiences a depreciation below threshold γ the impact of the exchange rate onto inflation is determined by coefficient φ_1 in the equation (4), while if the depreciation is above this value, it is determined by $\varphi_1 + \varphi_2$. This implies that by shifting from a low to a high depreciation regime, there is a different pass-through of exchange rate adjustments onto inflation. To underpin the use of this methodology, it is important to obtain statistical evidence of nonlinearity. In this case, the goal is to identify if there is a non-linear relation between the exchange rate and inflation. The results indicate that for all the inflation measurements analyzed, there are statistically significant nonlinearities with respect to the performance of the exchange rate.[9] Table 1 presents the thresholds of annual depreciation found for each inflation index for which

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[9] An avg-Wald is used to evaluate the statistical relevance of each value taken by the threshold within the subset of selected values. Given that the asymptotic distribution of the threshold is unknown. Bootstrap methodology used by Hansen (1996) is used to generate an empirical distribution of the statistic, based on which the inference can be made.

nonlinearity proofs are statistically significant. As can be appreciated, this nonlinearity seems to exist in the case of headline inflation, in merchandise (and therefore, in core inflation) and in non-core inflation. In contrast, the services' inflation does not seem to present this type of nonlinearity. For headline inflation, the annual depreciation rate that is distinguished between both regimes is estimated to be 7.16 percent.

Table 1
Threshold VAR Model: Estimated Thresholds of Annual Depreciation of the Exchange Rate
Percent

Inflation	Exchange rate threshold
Headline	7.16
Core	9.26
Merchandise	9.26
Non-core	7.16

Source: Own estimates with data from Banco de México and INEGI.

The nonlinear nature of TVAR makes the analysis of the impulse-response functions more complex than in the linear case, given that they are not necessarily symmetrical when shocks are different in sign or magnitude. In this case, there is an impulse-response function that corresponds to the regime of low depreciation and the other one corresponding to that of high depreciation. Chart 5 shows both functions for headline inflation given a one-time shock of 1 percent of the exchange rate. It can be appreciated that the impact on inflation in the regime of high depreciation is stronger. Besides, responses are statistically different, even though the magnitude of this difference is low (Table 2).[10]

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[10] A linear regression for Minimum Least Squares was estimated as well, in which inflation is explained by different variables, including a quadratic term of a variable of the exchange rate. Although there is evidence of a nonlinear performance in inflation with respect to the exchange rate, it seems to be that this functional way of introducing nonlinearities makes a good adjustment only when the depreciation levels are very high.

Chart 5
Threshold VAR Model: Impulse-Response Functions of Headline inflation given a One Percent Shock on the Exchange Rate
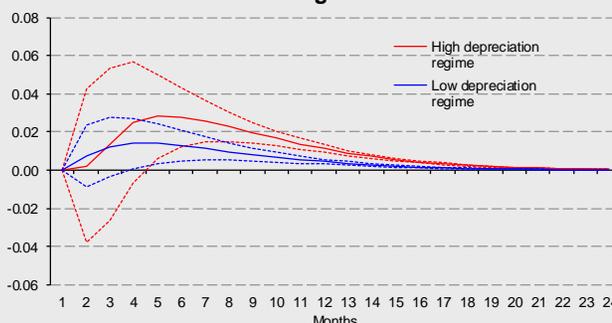
Source: Own estimates with data from Banco de México and INEGI.

In particular, when the economy is facing an environment of low depreciation, the pass-through of an additional depreciation of 1 percent raises headline inflation by 0.04 percentage points 12 months after, while in the environment of high depreciation it increases it by 0.05 percentage points. For core inflation, when the rate of depreciation is below the threshold, inflation increases 0.03 percentage points, while when it lies above it, it increases by 0.04 percentage points. As expected, the highest pass-through was found in the merchandise component: after 12 months, a depreciation of 1 percent causes inflation in the merchandise index to go up by 0.08 percentage points in the regime of low depreciation, and 0.09 percentage points in the regime of high depreciation.

Thus, although from a statistical point of view it is found that the degree of the pass-through is different between the two regimes, the difference does not seem to be economically relevant. The pass-through coefficient is not statistically significant for the inflation in the services component in either of the two regimes. It should be noted that the pass-through coefficients that can be found in this exercise, both for headline and core inflation, in the regime of high depreciation are similar to the results found in the base model for this period of estimation, above all considering that last year the depreciation of the Mexican peso was higher than its historic average.

Table 2
Results: Elasticity of the Accumulated Pass-through

Inflation	Base model		With output gap		With asymmetry		VAR threshold	
	As of May 2016	As of May 2017	Exchange rate	Exchange rate plus cash conditional on the positive gap	Depreciation	Appreciation	Low depreciation regime	High depreciation regime
CPI	0.03*	0.05**	0.05**	0.14***	0.09**	-0.05**	0.04**	0.05**
Core	0.03*	0.04***	0.04***	0.09***	0.06***	-0.04***	0.03***	0.04***
Merchandise	0.09***	0.11***	0.10***	0.22***	0.19***	-0.11***	0.08***	0.09***
Services	-0.01	0.00	0.00	0.02	0.00	0.00	-0.01	-0.01
Non-core	0.09*	0.10*	0.12**	0.30**	0.21*	-0.12**	0.08*	0.09

Source: Own estimates with data from Banco de México and INEGI.
Note: Superscripts ***, **, and * denote statistical significance at 1 percent, 5 percent and 10 percent, respectively.

3. Final Remarks

This box estimated the pass-through of exchange rate adjustments onto inflation and its characteristics under different economic conditions. Relative to the base model, it is found that the average pass-through of the exchange rate onto inflation has maintained practically unchanged last year, and remained low. On the other hand, in the model, in which the exchange rate interacts with the output gap, it is shown that the average pass-through of the exchange rate onto inflation is higher when the economy is expanding above its potential growth trend. However, this difference is not statistically significant. In the case of the model with asymmetry, there is evidence that the pass-through of the exchange rate onto inflation is higher when the currency depreciates as compared to when it appreciates in an equivalent magnitude. Finally, the threshold VAR model shows that there are two regimes, one of high depreciation and a greater pass-through, and the other of low depreciation with a pass-through that is relatively smaller. The differences in the pass-through between these two regimes, albeit statistically different, are low and are not economically relevant. Furthermore, the results of the different methodologies used in this Box show that the subindex of merchandise has the highest pass-through coefficient, as expected, while the coefficient for the services subindex is not statistically significant under any methodology. These results confirm that adjustments of the exchange rate have been reflected in changes in relative prices, affecting to a greater degree the prices of goods that are expected to respond to the exchange rate movements, and were not generalized to other components of inflation that are not directly related to the exchange rate. It should be noted that these results are, to a large degree, consequent on the progress obtained throughout many years in curbing inflation. Overall, these results indicate that the degree of the exchange rate pass-through onto inflation has not changed significantly over the last years. This shows that structural progress made since over almost two decades in this respect has been preserved. Nevertheless, this progress should not be taken for granted, reason why the Board of Governors has been acting in a preemptive manner, taking the monetary policy actions that it considered adequate and remaining watchful of the second round effects on the price formation process of the economy.

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

	2016				2017		
	I	II	III	IV	I	II	1f August
CPI	**2.69**	**2.56**	**2.78**	**3.24**	**4.98**	**6.10**	**6.59**
Core	**2.69**	**2.91**	**3.00**	**3.28**	**4.19**	**4.78**	**5.02**
Merchandise	**3.04**	**3.51**	**3.79**	**3.98**	**5.33**	**6.22**	**6.58**
Food, beverages and tobacco	2.88	3.69	3.89	4.26	5.93	6.82	7.57
Non-food merchandise	3.17	3.36	3.71	3.75	4.83	5.73	5.76
Services	**2.40**	**2.41**	**2.34**	**2.68**	**3.23**	**3.55**	**3.70**
Housing	2.11	2.21	2.32	2.40	2.52	2.56	2.60
Education (tuitions)	4.21	4.13	4.17	4.26	4.37	4.39	4.55
Other services	2.15	2.09	1.80	2.50	3.62	4.34	4.60
Non-core	**2.71**	**1.46**	**2.10**	**3.14**	**7.38**	**10.31**	**11.60**
Agriculture	**6.51**	**4.48**	**3.81**	**4.98**	**-0.20**	**6.39**	**14.43**
Fruit and vegetables	22.45	13.30	8.58	8.32	-6.88	9.60	27.22
Livestock	-1.60	-0.01	1.26	3.09	4.02	4.54	7.28
Energy and government approved fares	**0.39**	**-0.45**	**1.01**	**2.00**	**12.28**	**12.90**	**9.80**
Energy	-1.10	-1.49	-0.03	1.75	16.85	15.72	11.26
Government approved fares	3.23	1.41	2.83	2.48	3.91	7.99	7.28
Trimmed Mean Indicator [1]							
CPI	2.53	2.70	2.93	3.20	4.20	4.60	4.65
Core	2.85	3.05	3.20	3.29	4.01	4.40	4.55

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
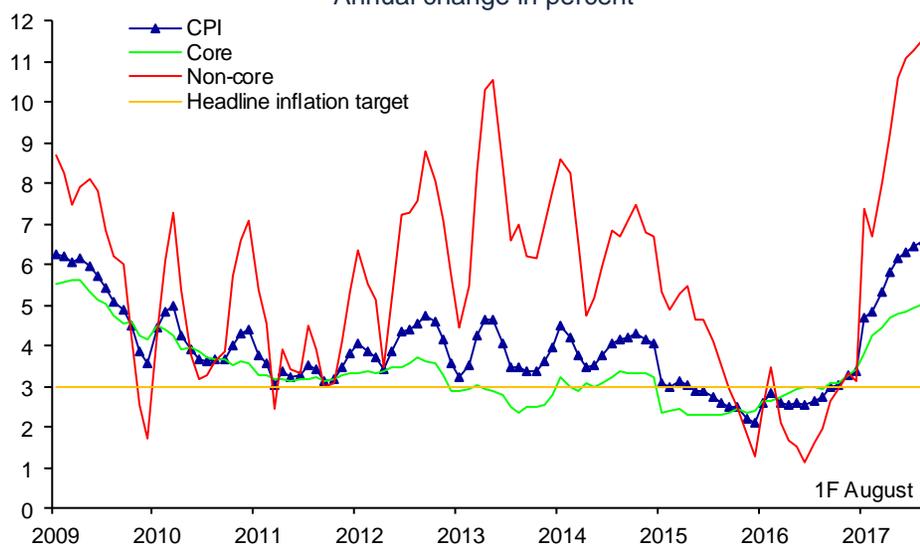
Source: Banco de México and INEGI.

To provide elements that would allow to demonstrate the improvement in the inflation process that has already started to be perceived, below a series of indicators is presented, which analyze in greater detail the performance of headline and core inflation (also see Box 2). In some of these, seasonally adjusted and annualized monthly price changes will be used. It should be kept in mind that these indicators, based on the monthly changes of the price index, are not affected by the

arithmetic comparison base effect that contains the annual change, and therefore, has information on the dynamics of inflation at the margin.

Thus, firstly, we analyze the proportion of the headline and core CPI baskets, the monthly (seasonally adjusted and annualized) price changes of which fall within certain intervals. To do so, generic items comprising the basket of both headline and core indices are grouped into three categories: i) items with a change below 2 percent; ii) between 2 and 4 percent; and iii) over 4 percent. In the same vein, the percentage of these baskets is presented in two additional categories: the one with price changes lower or equal to 3 percent; and the one with monthly price changes over 3 percent (Chart 2).

This illustrates that the percentage of both headline and core baskets with monthly seasonally adjusted and annualized changes in their prices below 4 percent have been increasing (the blue and green areas, Chart 2a and Chart 2b). In this way, the share of goods and services' basket of the headline index with price changes below 4 percent was on average 35 percent in the first quarter of 2017, while in the second one it was 44 percent, locating at 56 percent in the first fortnight of August. As regards the respective share of the basket of the core index, it went up from an average of 40 to 43 percent over the same quarters, and marked 54 percent in the first fortnight of August. In turn, the share of the basket of the headline index with seasonally adjusted and annualized monthly changes below or equal to 3 percent (the area below the yellow line) was on average 32 percent in the first quarter and 37 percent in the second one, observing 47 percent in the first fortnight of August. For the core index, the shares were 37, 38 and 49 percent in both periods. In total, the evolution of these indicators during the period presented in this Report gives evidence of a better inflation performance in Mexico over the last months.

Chart 2
Percentage of CPI Basket according to Intervals of Monthly Annualized Increment, s. a. [1]
Percent

a) CPI

b) Core
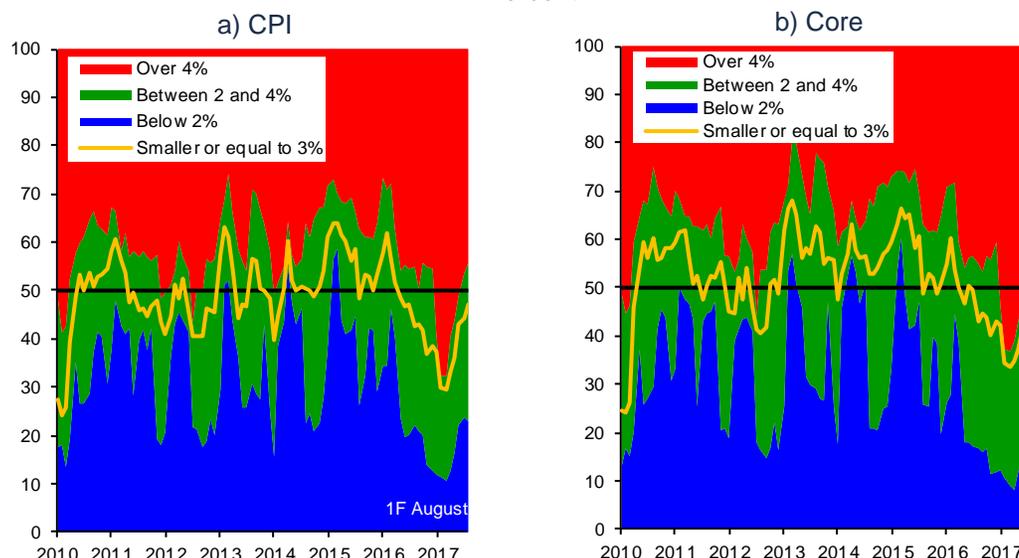
s. a. / Seasonally adjusted data.
1/ 3-month moving average.
Source: Banco de México and INEGI.

Below, we analyze the evolution of seasonally adjusted and annualized monthly changes of both the headline and core indices, as well as their 6-month moving

averages. It can be observed that both the indicator for the headline and that for core index presented lower levels than those at the beginning of the year, and both of them record declining trends (Chart 3a and Chart 3b). The change of trend is also accentuated in the case of seasonally adjusted and annualized monthly changes of the merchandise prices, while in the case of services they have remained stable and at levels close to 3 percent (Chart 3c and Chart 3d). With respect to 6-month moving averages of the price changes, they already present a downward trend for all referred items. The performance of these indicators complements the information presented in Chart 2, regarding a better performance of inflation at the margin and suggesting a change of trend in the inflation process.

<table>
<tr><td colspan="2" align="center">

Box 2
Impact of Recent Shocks on Inflation in Mexico

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1. Introduction

The performance of inflation in recent years has been subject to different shocks. Since mid-2014, the national economy has faced a series of external shocks that generated a strong depreciation of the national currency. Among them, in mid-2014 and during 2015, the decrease in oil prices, the outlook of the normalization of the U.S. monetary stance and the widespread U.S. dollar appreciation are noteworthy. Subsequently, this was coupled with the process and the result of the U.S. elections, as well as the uncertainty regarding the Mexico – U.S. relation. This depreciation pressured the prices of the core component and in particular of different merchandise upwards. Moreover, in early 2017 new shocks of considerable magnitude onto inflation were added simultaneously, while the process of some energy products' price liberalization began, such as gasoline and LP gas prices, and the increment in the minimum wage was higher than over the previous years. More recently, there were adjustments in the public transport tariffs in Mexico City and across other cities of the country, and the prices of some fruit and vegetables, such as tomato, potato, green tomato, spiked.

As a result, annual headline inflation presents high levels and currently maintains an upward trend, albeit it is more moderate than in the previous few months. The growth rate of annual headline inflation has started to slow down and it appears to be approaching its ceiling. In addition, the inflation process in Mexico, studied using different measures of the trend and the indicators that analyze the performance of price changes at the margin, have shown a better performance over the last months, after the rebound at the beginning of 2017.

Indeed, the previously mentioned shocks have made it difficult to adequately identify the performance of the inflation process in Mexico, while at the same time causing the measured inflation to present higher levels and a more marked trend than that observed in the performance of the price system of the economy at the margin. In particular, the most recent shocks have been concentrated in a limited set of goods and services, without generating second round effects on the price formation process of the economy. In this sense, by eliminating these shocks from the inflation process, it can be appreciated that its dynamics seems to be starting the convergence trajectory to the permanent target of the Central Bank.

Thus, this Box presents the analysis of the main CPI subindices, the distribution and trimmed means of the
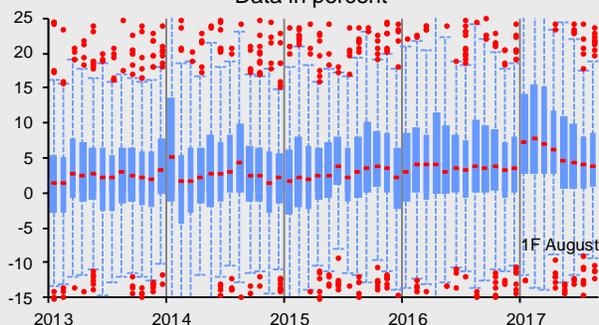
monthly seasonally adjusted changes, data on the frequency and the magnitude of price increments, as well as the correlations among the monthly changes of different generic items. Its goal is to distinguish the current performance of the inflation dynamics at the margin from the evolution of the measured annual inflation, which has been strongly affected by the referred shocks. As will be seen further on, the results show that the inflation dynamics in Mexico, analyzed in a comprehensive manner, has started to shown signs of a change in trend.

2. Distributions of Monthly Changes

Chart 1a and Chart 1b present box-and-whisker plots of the seasonally adjusted and annualized monthly changes of generic items included in the headline and core indices for the period from January 2013 to the first fortnight of August 2017. These diagrams summarize some of the most important features of a series probability distribution, such as the median, the interquartile range and extreme values.

It can be observed that in the first quarter of 2017, for headline and core inflation, an unfavorable shift in total distribution of price changes and an increment in the medians with respect to the previous quarter were evident, largely due to the shock caused by price adjustments of some energy products that occurred in January, by the indirect effects that generated these adjustments and by the impact of the accumulated depreciation of the exchange rate. In contrast, in more recent months, the distributions of the monthly changes of these indicators have shifted downwards, the medians have reduced and the interquartile range starts to compress, pointing to a better performance of the inflation process. In this context, albeit the process of convergence still needs to be completed, a change of trend can be already observed in the monthly inflations of most generic items.
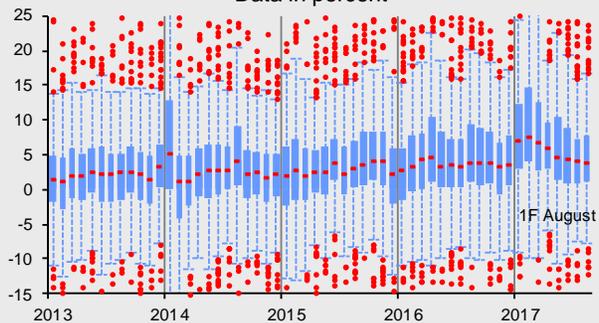
Chart 1a
Box-and Whisker Diagram of Annualized Monthly
Changes of Generic Items of the CPI[1]
Data in percent

1/ At each point of time, a box-and-whisker diagram is build based on seasonally adjusted and annualized monthly changes of all generic items of the CPI. This indicator summarizes some of the most important features of a probability distribution, the median, the interquartile range and extreme values among them.
Source: Banco de México and INEGI.

Chart 1b
Box-and-Whisker Diagram of Annualized Monthly
Changes of Generic Items of the Core Index[1]
Data in percent

1/ At each point of time, a box-and-whisker diagram is build based on seasonally adjusted and annualized monthly changes of all generic items of the core index. This indicator summarizes some of the most important features of a probability distribution, the median, the interquartile range and extreme values among them.
Source: Banco de México and INEGI.

3. Trimmed Means

Below, we present trimmed means of seasonally adjusted monthly changes, which exclude extreme upward and downward changes from headline, core and non-core indices. As can be appreciated in the corresponding charts, in all cases the downward trend is notable in the monthly changes in recent months, both in the observed values and in the trimmed ones, slowly approaching a level consistent with the inflation target. As regards the headline index, Chart 2a makes it clear that a great part of the monthly inflation dynamics has been explained by price increments in certain goods, rather than by a widespread price increase across the economy. Chart 2b, related to the core component, shows a more homogeneous performance among the observed monthly changes

and trimmed data, but with a clear downside trend. The non-core component, presented in Chart 2c, has been affected the most by extreme price changes, which started in January in price adjustments in some energy products and, more recently, price increments in different fruit and vegetables. Still, its trimmed mean is at lower levels, which is congruent with the inflation target, suggesting that, if extreme changes are eliminated, most components of the non-core index present price changes congruent with Banco de México's target.

Chart 2a
Monthly Trimmed Mean: Headline [1]
Data in percent

1/ Seasonally adjusted data.
2/ Expressed in monthly terms.
Source: Banco de México and INEGI.

Chart 2b
Monthly Trimmed Mean: Core [1]
Data in percent

1/ Seasonally adjusted data.
2/ Expressed in monthly terms.
Source: Banco de México and INEGI.

Chart 2c
Monthly Trimmed Mean: Non-core [1]
Data in percent

Monthly non-core
Monthly trimmed mean 10%
Headline inflation target [2]

0.85
0.35
0.25

1F August
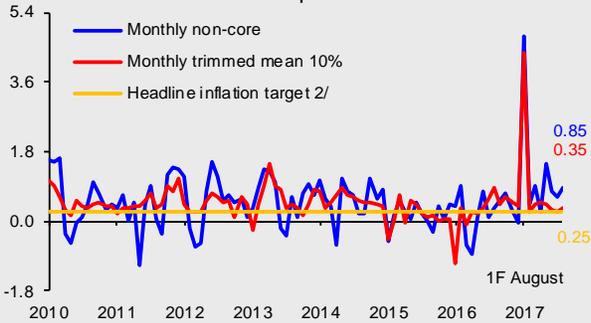
1/ Seasonally adjusted data.
2/ Expressed in monthly terms.
Source: Banco de México and INEGI.

4. Frequencies and Magnitudes of Price Increments

This Section exhibits the evolution of the frequencies and magnitudes of prices increments during this year, to compare it with that registered during 2014, when important fiscal adjustments took place, and to compare it with the average of the period of 2011 – 2016, excluding 2014. It is observed that the frequencies of price increments spiked in early 2017, later declined and are currently located below, or as in the case of core index, at levels similar to those observed during other periods. The above is consistent with the evidence based on studies for Mexico, which indicate that in view of supply shocks, as could be the price increase in energy products at the beginning of 2017, the adjustment of inflation initially happens via changes in the frequency of price increments and it subsequently resumes the levels of the average frequency.[1]

As regards the magnitudes of price increments, it can be appreciated that for the headline and non-core index, they have been generally higher than those observed in other periods, which reflects considerable increments at the beginning of the year in energy products' prices and more recently in the prices of agriculture and livestock products. In turn, in the case of the core component, even though the magnitudes of prices increments were above the historic average during several months, recently they have been at levels similar to that one. The performance of frequencies and magnitudes shows that a great part of the adjustment in the core component derived from the referred shocks has already occurred, without generating second-round effects so far.

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[1] See Banco de México (2010). "Evidencia sobre la Ausencia de Efectos de Segundo Orden en el Proceso de Formación de Precios Asociados a las Modificaciones Tributarias Aprobadas por el H. Congreso de la Unión para 2010", in Box 1 of the Inflation Report, January - March 2010, pp. 6-7.

Chart 3a
Frequency of Price Increments in Headline Inflation
Data in percent

2017
2014
Average 11-16 (excl. 14)
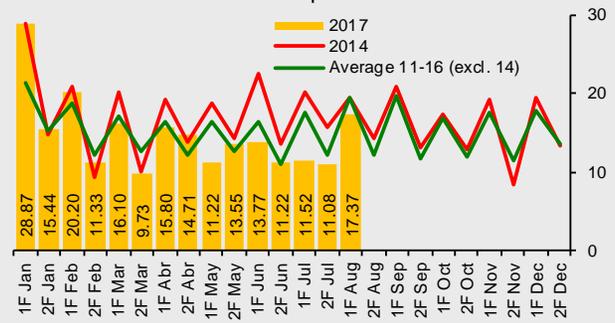
Source: Banco de México and INEGI.

Chart 3b
Frequency of Price Increments in Core Inflation
Data in percent

2017
2014
Average 11-16 (excl. 14)
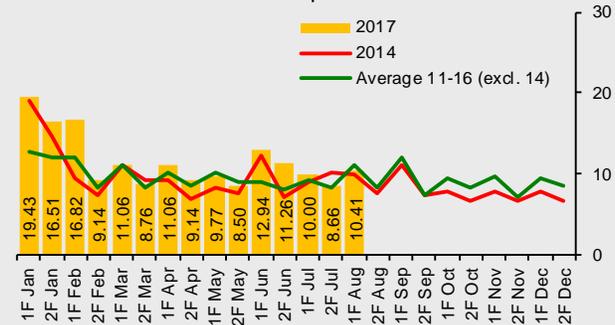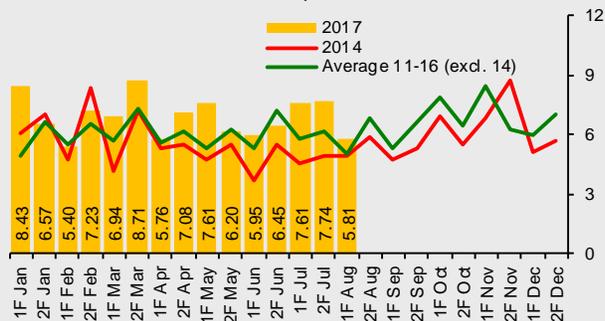
Source: Banco de México and INEGI.

Chart 3c
Frequency of Price Increments in Non-core Inflation
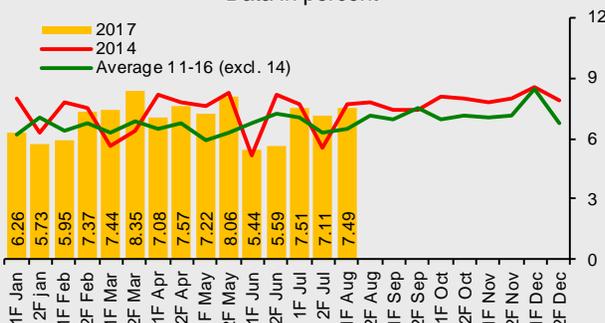Data in percent

2017   2014   Average 11-16 (excl. 14)
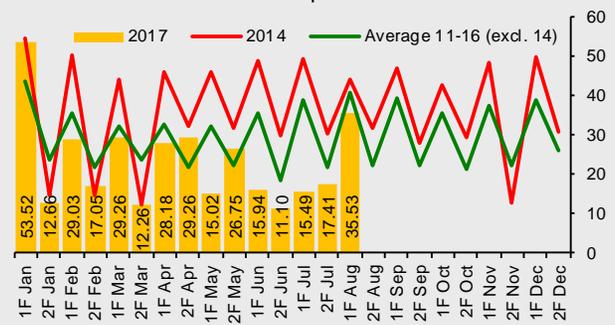
Source: Banco de México and INEGI.

Chart 3d
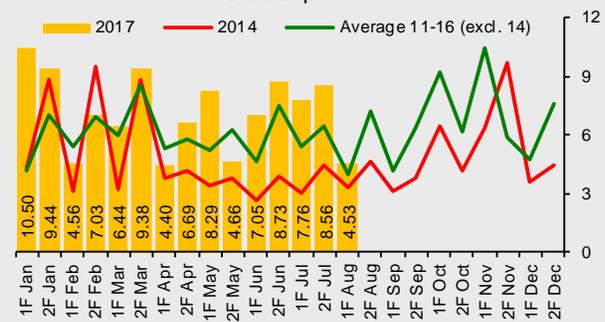**Magnitude of Price Increments in Headline Inflation**
Data in percent

2017
2014
Average 11-16 (excl. 14)

8.43 6.57 5.40 7.23 6.94 8.71 5.76 7.08 7.61 6.20 5.95 6.45 7.61 7.74 5.81

Source: Banco de México and INEGI.

Chart 3e
Magnitude of Price Increments in Core Inflation
Data in percent

2017
2014
Average 11-16 (excl. 14)

6.26 5.73 5.95 7.37 7.44 8.35 7.08 7.57 7.22 8.06 5.44 5.59 7.51 7.11 7.49

Source: Banco de México and INEGI.

Chart 3f
Magnitude of Price Increments in Non-core Inflation
Data in percent

2017   2014   Average 11-16 (excl. 14)

10.50 9.44 4.56 7.03 6.44 9.38 4.40 6.69 8.29 4.66 7.05 8.73 7.76 8.56 4.53

Source: Banco de México and INEGI.

5. Correlation of Monthly Changes among Generic Items

Finally, this section presents the evolution of the correlation of seasonally adjusted monthly changes in

different generic items that comprise the CPI and the core component, considering 24-month moving windows. The goal of this exercise is to analyze the degree of synchronization among price adjustments in generic items for different CPI baskets, as could be headline or core ones.

Charts 4a and 4b illustrate that at the beginning of the year the correlation of monthly price changes of generic items increased considerably both for the CPI and for the core component, due to price adjustments in energy products and the impact of the accumulated depreciation of the exchange rate.[2] However, in recent months, these correlations have been declining, as a result of which the most recent shocks have not generated a widespread impact and have been concentrated only in some goods and services.

Chart 4a
Correlation Coefficient of Monthly Changes among Generic Items: Headline Inflation
Data in percent

Correlation coefficient
Inflation

1F August
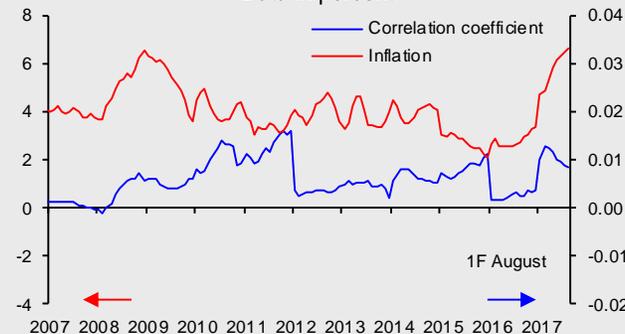
Source: Banco de México and INEGI.

Chart 4b
Correlation Coefficient of Monthly Changes among Generic Items: Core Inflation
Data in percent

Correlation coefficient
Inflation

1F August
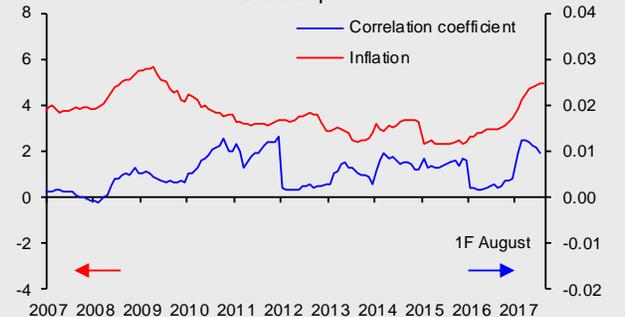
Source: Banco de México and INEGI.

6. Final Remarks

The recent evolution of measured inflation has been affected by different shocks that account for its current high levels and its upward trend. Considering the nature of the referred shocks, as well as the lags that

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[2] Charts 4a and 4b present normalized correlation coefficients, which are calculated by dividing original coefficients by inflaiton.

characterize the monetary policy, the actions implemented since the end of 2015 have prevented these shocks from generating widespread pressured on inflation, which seems to be decreasing if the particular shocks are excluded and its performance at the margin is analyzed. This is suggested by a number of elements of analysis, among which different measures of the inflation trends and indicators on the recent dynamics of the inflation process in Mexico are found. Hence, this evidence seems to suggest that, once the temporary effect of the most recent shocks dissipates, over the next months there will be a change of trend in annual headline inflation.

Chart 3
Annualized Seasonally Adjusted Monthly Change and Trend
Percent

a) CPI

b) Core

c) Merchandise

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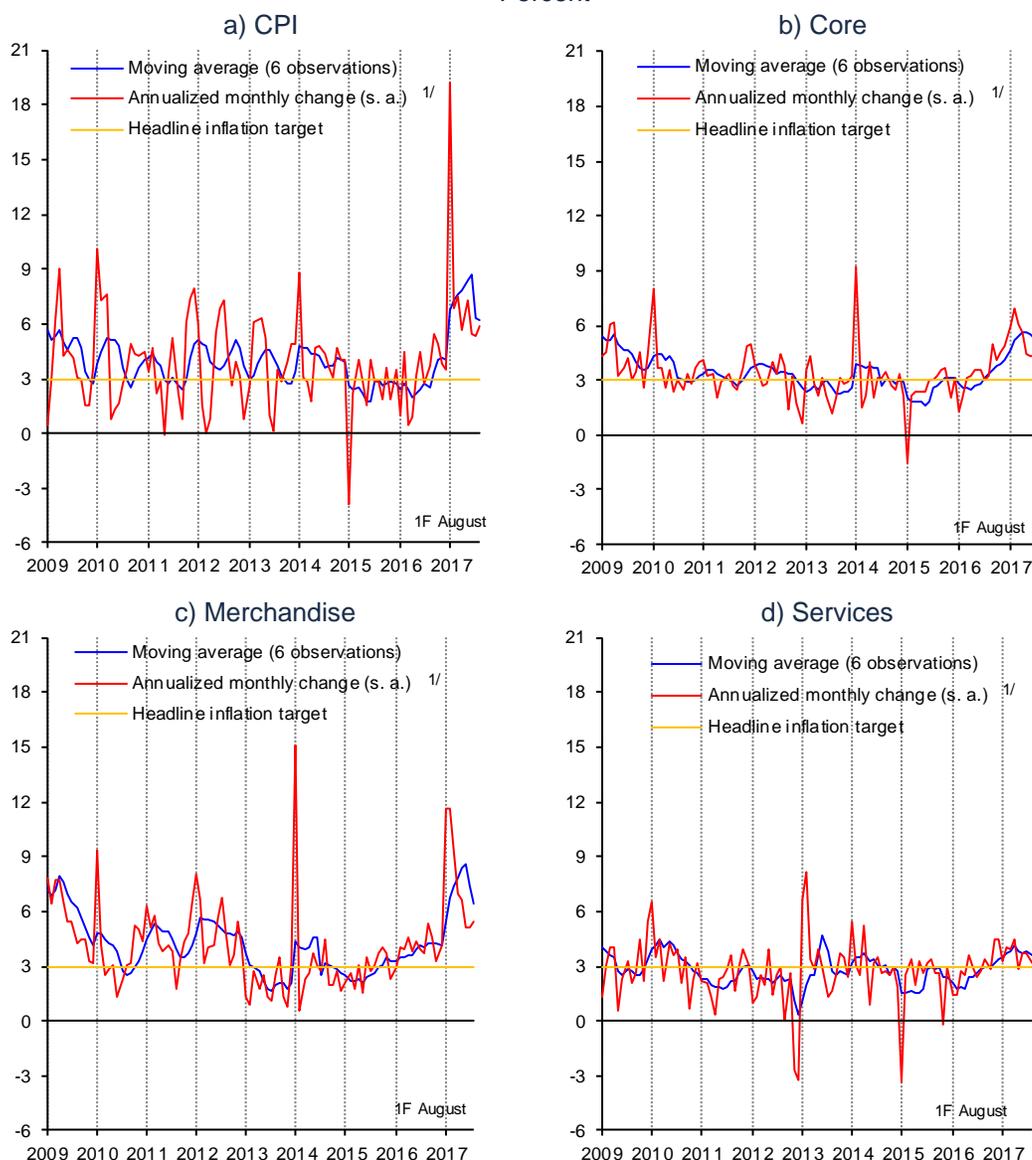
s. a. / Seasonally adjusted data.
1/ For the last observation, the annualized biweekly change is used.
Source: Seasonal adjustment prepared by Banco de México with own data and data from INEGI.

Likewise, using the annual changes, the measurement of the medium-term trend of inflation is presented, represented by the Trimmed Mean Indicator. In this regard, it can be observed that both in the case of headline and core inflations, the growth rate of their indicators has been decelerating at the margin. Thus, between the first and the second quarters of 2017, the Trimmed Mean Indicator for headline inflation shifted from 4.20 to 4.60 percent, locating at 4.65 percent in the first fortnight of August. Moreover, when comparing these data with the annual headline inflation observed in these periods (4.98, 6.10 and 6.59 percent, respectively), it is evident that, as of the second quarter, a great part of the level of measured inflation is

accounted for by price increments in some products, rather than by a generalized performance of prices. Meanwhile, for the case of core inflation, the referred indicator moved from 4.01 percent in the first quarter to 4.40 percent in the second one, observing 4.55 percent in the first fortnight of August. Although at a lower magnitude, the difference between the observed core inflation and its measurements of trend also suggest that the level of core inflation does not derive from generalized price increments (Chart 4 and Table 1).

Chart 4
Price Indices and Trimmed Mean Indicators [1]/
Annual change in percent
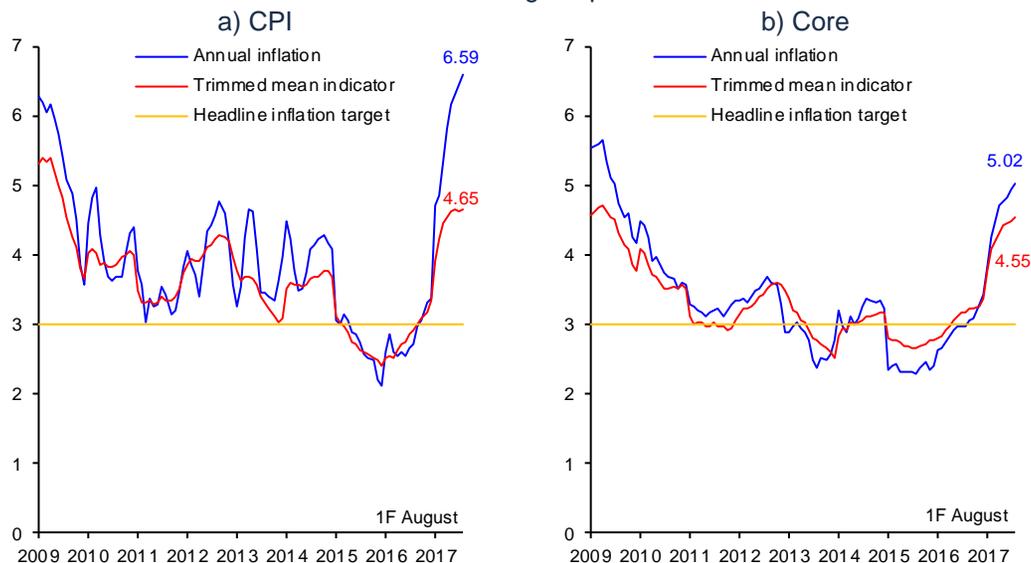
1/ The Trimmed Mean Indicator excludes the contribution of extreme variations in the prices of some generic items from the inflation of a price index. To eliminate the effect of these changes, the following is done: i) monthly seasonally adjusted changes of the generic items of the price index are arranged 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.

In the performance of core inflation it stands out that, despite its upward trend, its growth rate starts to moderate, which derives from a certain slowdown in the annual price changes of merchandise. This can be appreciated in the relative stabilization of its impact on annual headline inflation (Chart 5). Specifically:

Chart 5
Consumer Price Index
Annual impact in percentage points [1]
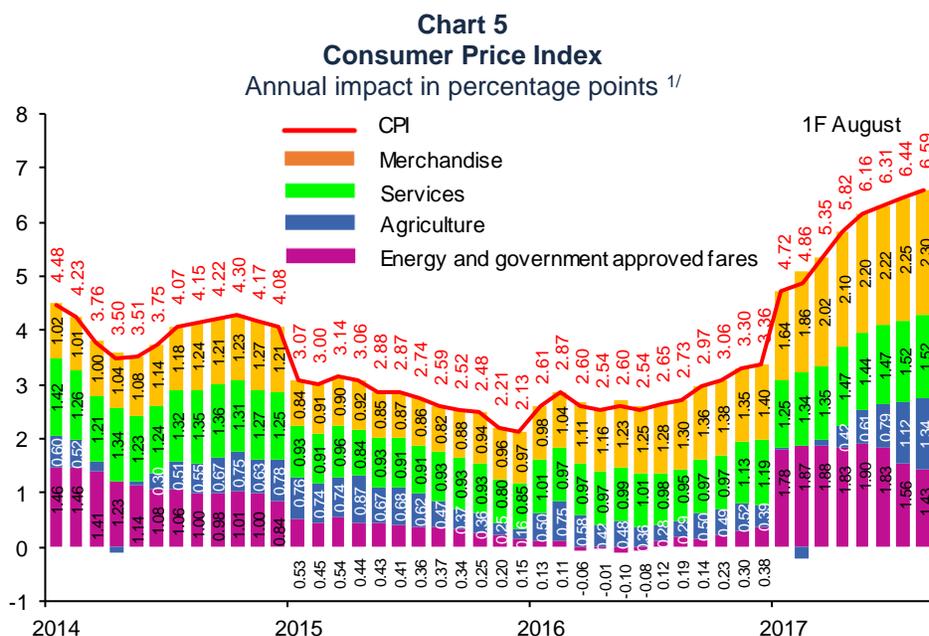
1/ In some cases, the sum of respective components can exhibit some discrepancies due to rounding.
Source: Prepared by Banco de México with data from INEGI.

i.   The subindex of merchandise prices principally keeps reflecting the effects of the depreciation of the national currency accumulated since late 2014. This subindex shifted from an average annual change rate of 5.33 to 6.22 percent between the first and the second quarters of 2017, marking 6.58 percent in the first fortnight of August. However, within this subindex the performance was differentiated. On the one hand, food merchandise prices maintained high growth rates, increasing from an average annual change of 5.93 to 6.82 percent between the mentioned quarters, and reaching 7.57 percent in the first fortnight of August. In contrast, non-food merchandise growth rates have started to stabilize. In this way, between the first and the second quarters of 2017, the average annual change of non-food merchandise went from 4.83 to 5.73 percent, and marked 5.76 percent in the first fortnight of August (Chart 6a and Chart 6b).

ii. On the other hand, the subindex of services' prices observed an increase in its average annual change rate, which shifted from 3.23 to 3.55 percent between the first and the second quarters of 2017, and located at 3.70 percent in the first fortnight of August. This performance is principally explained by higher growth rates reported by the services different from education and housing, whose average annual change rates were 3.62, 4.34 and 4.60 percent over the referred periods. In this respect, lower reductions in mobile phone tariffs with respect to last year were particularly relevant (Chart 6a).

Chart 6
Core Price Index
Annual change in percent

a) Merchandise and Services

b) Merchandise
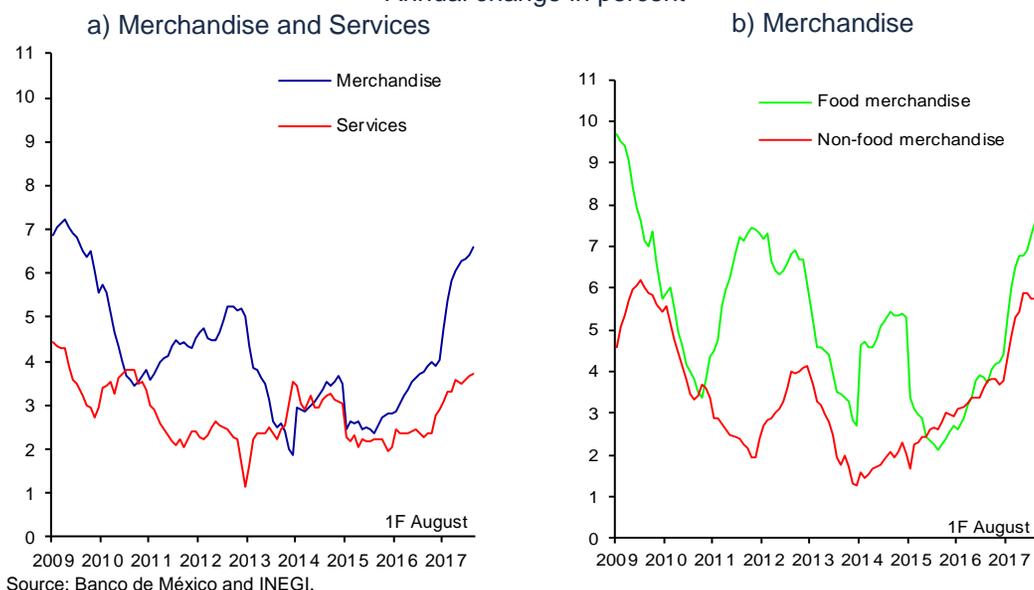
Source: Banco de México and INEGI.

The levels of non-core inflation, that had already been high, received an additional boost during the second quarter of 2017, as a consequence of some price increments in certain agricultural products, as well as the increases in public transport fares in some cities. However, the prices of most energy products declined in the reference quarter, due to the appreciation of the national currency, as well as the reductions in the prices of their international references. In this way, although higher annual growth rates in the price subindex of agricultural products have been increasing their impact on headline inflation, this effect has been partially offset by the lower impact of the subindex of energy products and government approved fares (Chart 5 and Table 1).

i.   Some agricultural products' prices went up significantly during the period analyzed in this Report, principally in the item of fruit and vegetables. Higher prices of tomato stand out, as its average annual change in the first quarter was -43.59 percent, while in the second one it went up to 29.56 percent and in the first fortnight of August marked 112.71 percent. Other products, characterized by notable price increments, were potato and other tubers, with average annual changes of -6.94, 0.75 and 38.03 percent in the same periods, and green tomato, with 7.79, 6.67 and 68.59 percent, respectively (Chart 7). Derived from the above, the subindex of agricultural products' prices increased from an average annual change of -0.20 percent in the first quarter of 2017 to 6.39 percent in the second one, observing 14.43 percent in the first fortnight of August. Volatility of fruit and vegetables' prices is well-known, as considerable increments generally derive from negative weather conditions that tend to return to normal over time, making the referred increments transitory, reason why in the near future these shocks are estimated to reverse.

Chart 7
Price Index of Selected Fruit and Vegetables
Annual change in percent

Source: Banco de México and INEGI.
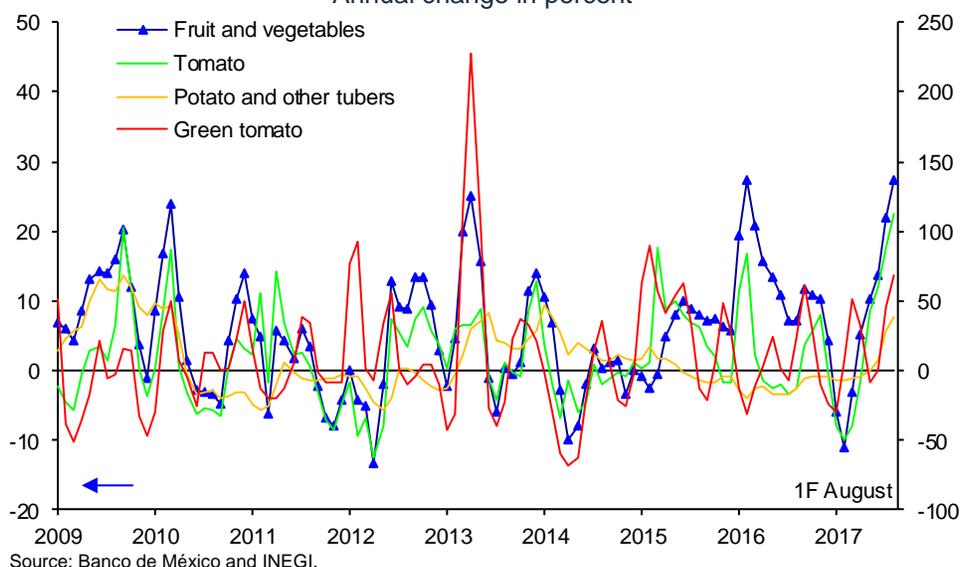
ii.   The subindex of energy prices and government approved fares shifted from an average annual change rate of 12.28 to 12.90 percent between the first and the second quarters of 2017. This slight increment was principally associated to adjustments in public transport tariffs that took place in April in different cities of Mexico. This was in contrast with a decrease in average annual changes of most energy products in the second quarter with respect to the previous period, which was encouraged by the appreciation of the national currency, as well as reductions in their international references (Chart 8). In fact, in the first fortnight of August, the annual change of the subindex of energy prices and government approved fares lowered to 9.80 percent.

Chart 8
Price Indices of Selected Transport Services and Energy Products
Annual change in percent

Source: Banco de México and INEGI.
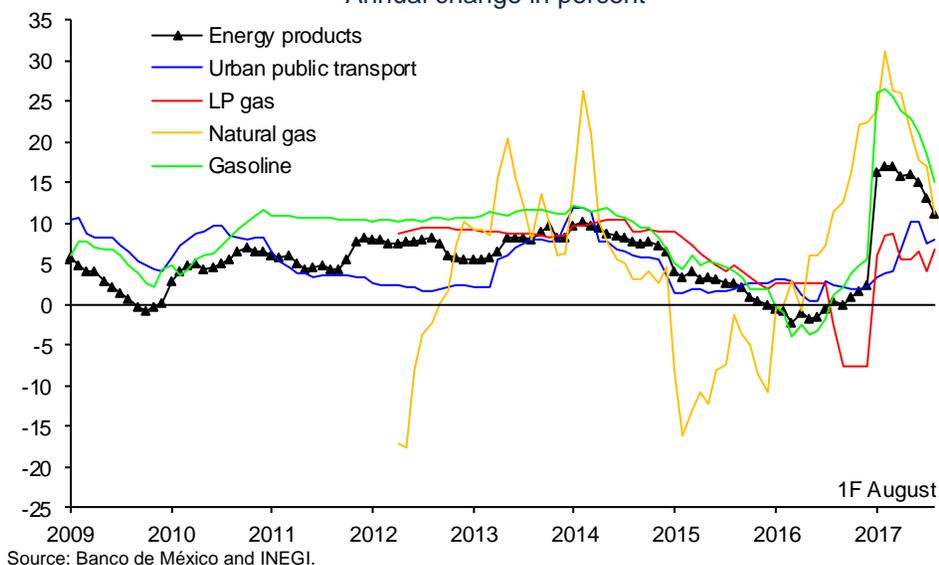
Delving in the above:

- Between the first and the second quarters of 2017, the item of government approved fares went up from an average annual change of 3.91 to 7.99 percent. This increment was largely due to the increase of 1 Mexican peso, which occurred in April in public transport fares and urban bus services in Mexico City, and which represented an increment of between 16.7 and 25 percent, depending on the specific considered service. Over the same period, there were also adjustments in different public transport fares in the cities of Huatabampo, Son.; San Luis Potosí, S.L.P.; Tehuantepec, Oax.; and Tijuana, B.C. Subsequently, during the following months, there were increments in the prices of the same service in Culiacán, Sin. and Hermosillo, Son.

- In early 2017, gasoline prices spiked as a result of the process of its total liberalization throughout this year. Thus, in January, its monthly change was 17.29 percent. However, over the following months, gasoline prices went down, which was related to the favorable evolution of their international references and the exchange rate appreciation. Hence, in the reference quarter, the average monthly change of gasoline prices was -0.50 percent, while the change in the first fortnight of August was 0.41 percent. With respect to the process of gasoline price liberalization, starting from June 15, 2017, this process proceeded in the states of Chihuahua, Coahuila, Nuevo León, Tamaulipas and the municipality Gómez Palacio in Durango.

- Likewise, the price of LP gas was liberalized in January 2017, which implied a monthly increment of 17.85 percent in its price. In contrast, these changes in the following months have been more

moderate, as a result of which the average monthly change of this energy product was -0.67 percent in the second quarter, and marked 2.18 percent in the first fortnight of August.

- The prices of the natural gas, determined by its international reference prices, have moderately increased in the reference quarter and in the first fortnight of August observed a zero change.

- In early 2016, low consumption electricity tariffs for domestic sector decreased by 2 percent, and since then they have remained unchanged. On the other hand, high consumption electricity tariffs for domestic sector (DAC) have reflected the performance of input costs required to generate electric power, which have recently lowered. Thus, these tariffs presented a change of -6.5 percent in the second quarter of 2017 and of -1.9 percent in the period of July – August.

2.2.   Producer Price Index

Between the first and the second quarters of 2017, the Producer Price Index (PPI) of total production, excluding oil, registered a decrease in the average annual change rate from 9.57 to 7.84 percent, marking 5.92 percent in July (Chart 9). The PPI subindex of exports presented greater reductions in their annual change rates (12.71 and 7.04 percent in the first and the second quarters of 2017, in this order, while in July 2017 it marked 2.63 percent). It has to do with the fact that this indicator includes goods quoted in USD, reason why this group to a greater degree reflects the Mexican peso appreciation that has been recorded over the last months. In turn, the subindex of finished merchandise prices for domestic consumption exhibited more stable annual change rates (6.36 and 6.60 percent in the first and second quarters of 2017, respectively, while in July 2017 it lied at 6.83 percent). As stated in previous Reports, the PPI subindex of finished merchandise for domestic consumption is the one with the maximum predictive power on the performance of core prices of merchandise destined to consumers.

Chart 9
Producer Price Index [1]
Annual change in percent
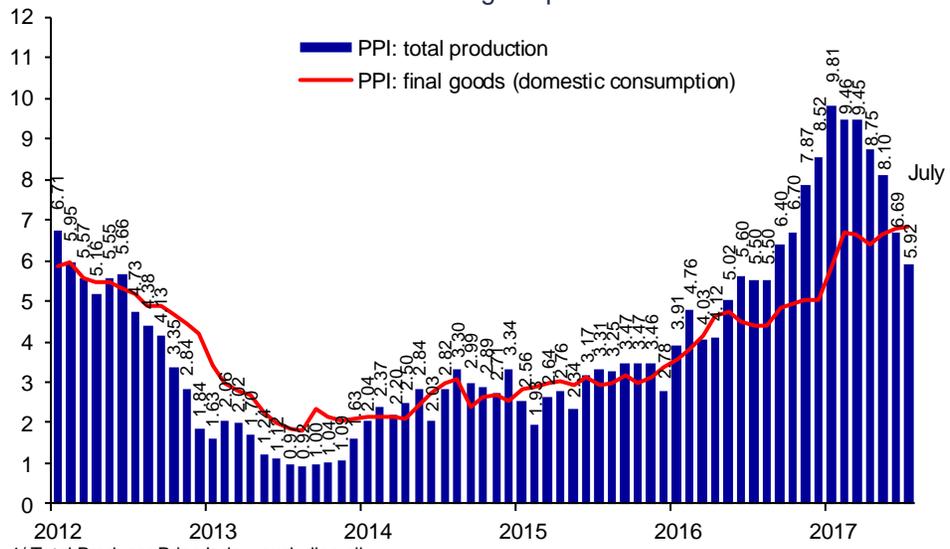
1/ Total Producer Price Index, excluding oil.
Source: Banco de México and INEGI.

3. Economic and Financial Environment

3.1. External Conditions

3.1.1. World Economic Activity

World economic activity continued expanding at a moderate rate and in a generalized manner across countries and regions in the second quarter of the year. This is reflected in the favorable evolution of international trade indicators and in industrial production (Chart 10). Furthermore, the sustained rate of job creation, high levels of households' confidence and favorable financial conditions indicate that the moderate recovery of advanced and emerging economies' growth will continue in the remainder of 2017 and in 2018. Despite the improvement in the global environment, this outlook is still subject to downside risks, including those derived from high uncertainty over the U.S. economic policy, increasing geopolitical tensions across different regions, and the possibility of a more protectionist environment in international trade.

Chart 10
World Economic Activity

a) Growth Forecast of World GDP
Annual change in percent

b) Industrial Production
Annual change in percent, s. a.

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

Source: IMF, WEO July 2017.

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

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

GDP in the U.S. increased at an annualized quarterly rate of 2.6 percent during the second quarter of 2017, after expanding 1.2 percent in the first one (Chart 11a). The greater dynamism registered in this economy largely derived from a rebound in private consumption, which was supported by the improvement in the labor market and high levels of households' confidence, as well as the continuous strengthening of businesses' investment. Furthermore, net exports kept contributing positively to the dynamism of the economy, reflecting the improvement in the global environment and the weakness of the U.S. dollar during the year. In contrast, residential investment contracted during the second quarter of the year, after the recovery over the previous two quarters.

Industrial production continued expanding during the second quarter at an annualized quarterly rate of 5.2 percent, the highest over the last three years (Chart 11b). This rebound in industrial activity persisted in July, as a reflection of an

increase in mining, derived from the reactivation of oil and gas extraction, the recovery of the utilities sector, and, to a lower extent, the moderate expansion of manufacturing production, in particular, non-automotive production, supported by the greater world growth and the weakening of the U.S. dollar (Chart 11c).
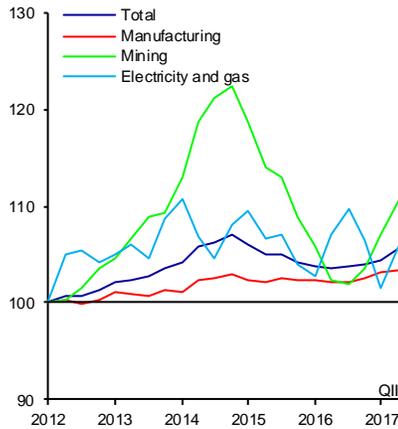
Chart 11
U.S. Economic Activity

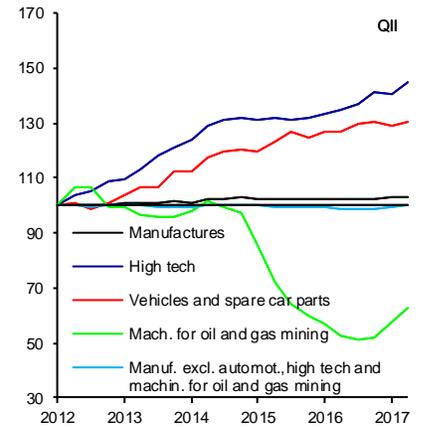a) Real GDP and Components Annualized quarterly change in percent and percentage point contributions, s. a.

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.

In this context, the U.S. labor market kept strengthening during the period analyzed in this Report. Indeed, during the first seven months of 2017, there was an average monthly increment of 184 thousand new jobs, which is similar to the figure registered during 2016 (Chart 12a). In accordance with this, the unemployment rate stood at 4.3 percent of the labor force in July, which was lower than the Federal Reserve estimate of this country's long-term unemployment rate. However, the increase in remunerations remained moderate (Chart 12b).

Chart 12
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.
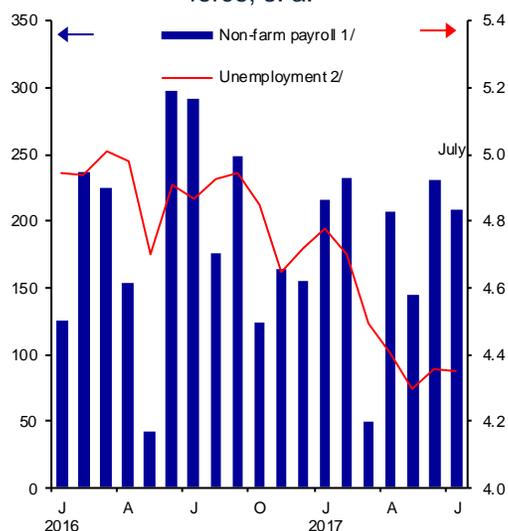
s. a. / Seasonally adjusted data.
1/ In thousands of jobs.
2/ In percent of labor force.
Source: Bureau of Labor Statistics.
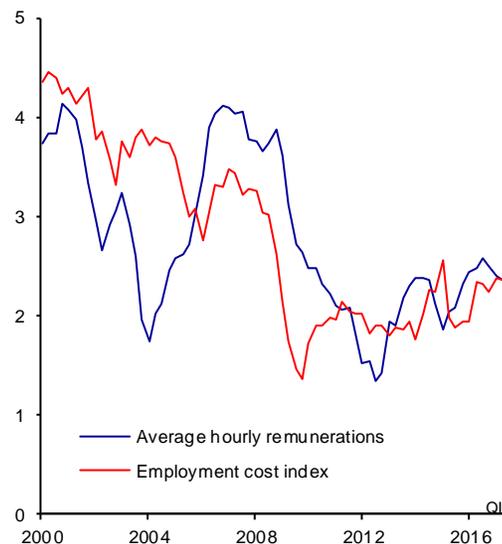
s. a. / Seasonally adjusted data.
Source: Bureau of Labor Statistics.

It should be noted that the course of the U.S. economic policy remains uncertain. On the fiscal side, the lack of agreement to repeal and replace the health system in the short term has lowered the expectation of the extent of other proposals, such as individual and corporate tax cuts, along with the expansion of spending on infrastructure. Additionally, there is the need to extend the borrowing authority and to raise the debt ceiling for the U.S. federal government before October, which could further delay discussions of the reforms in Congress, that have been proposed by the current Administration. On the other hand, the U.S. trade policy still remains as a factor of risk, which could lead to modifications in the economic outlook at the global level.

In the Euro zone, in the second quarter of 2017 economic activity expanded at a rate of 2.5 percent in annualized terms, which was above the 2 percent growth during the first quarter and it showed an increasingly more generalized dynamism across countries and sectors (Chart 13a). The significant relaxation of monetary conditions in the region has led to an increment in bank financing, a reduction in interest rates of loans to households and corporations (Chart 13b) and a lower interest rate disparity among the member states. Favorable financial conditions have, in turn, supported the expansion of domestic demand, in particular, businesses' investment, which had been stagnant since the onset of the global financial crisis. In this context, the unemployment rate kept declining, and in June marked 9.1 percent (Chart 13c). However, the wage growth remained weak.

Chart 13
**Economic Activity in the Euro Area**

a) Real GDP
Index 1Q-2008=100, s. a.

b) Bank Loans to Non-financial
Private Sector [1]
Annual change in percent, s. a.

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

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

s. a. / Seasonally adjusted data.
1/ Adjusted by sales and securitization.
Source: BCE.

s. a. / Seasonally adjusted data.
Source: Haver Analytics.
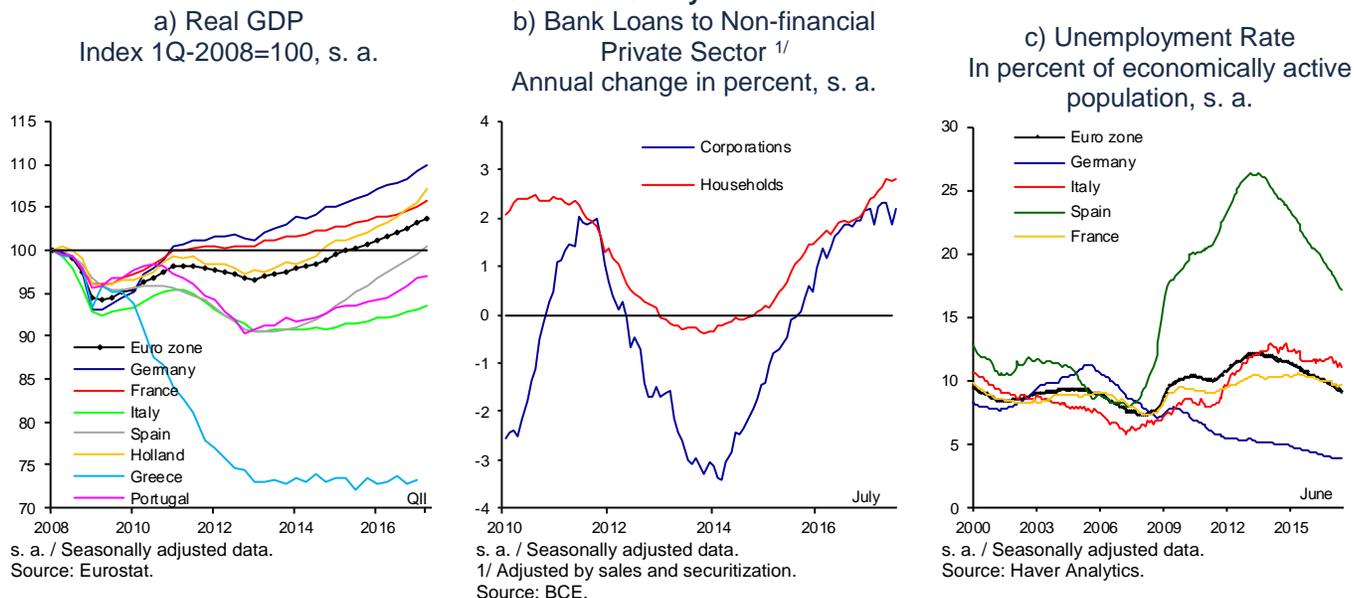
In Japan, economic activity expanded at a rate of 4 percent in annualized quarterly terms during the second quarter of the year, far above 1.5 percent observed in the first one. This was explained by the growth of domestic demand and, in particular, of spending on consumption, fixed investment and public spending, which was in contrast with the negative contribution of net exports (Chart 14a). Additionally, confidence of manufacturing companies attained its peak in the last three years, which suggests that the positive trend in investment in businesses and industrial production could continue during the third quarter. In this environment, the unemployment rate went down, and in July marked 2.8 percent of the labor force, which is its lowest level over the last two decades.

In the U.K., the growth rate of economic activity registered an annualized quarterly growth rate of 1.2 percent in the second quarter, after an expansion of 0.9 percent in the first one (Chart 14b). This rebound reflected the recovery in the services component, which offset drops in construction and industrial activity. Nevertheless, private consumption kept decelerating in the second quarter, indicating a lower consumers' confidence in view of the uncertainty related to the country's exit from the European Union, along with the weakening of the actual income derived from a moderate growth in wages and higher inflation. Despite the above, the unemployment rate kept declining and marked 4.4 percent in June.

Chart 14
Economic Activity in Japan and the U.K.

a) Japan: Real GDP and Components
Annualized quarterly change in percent and
share in percentage points, s. a.

b) U.K.: Real GDP
Annualized quarterly change in percent, s. a.
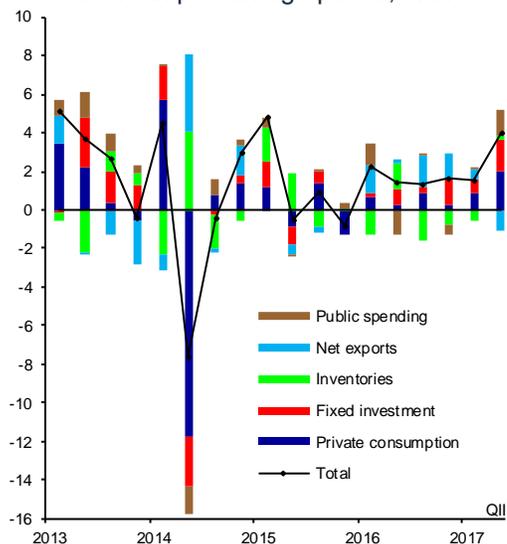
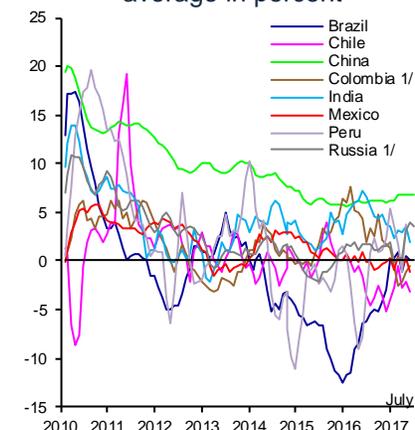s. a. / Seasonally adjusted data.
Source: Cabinet Office.
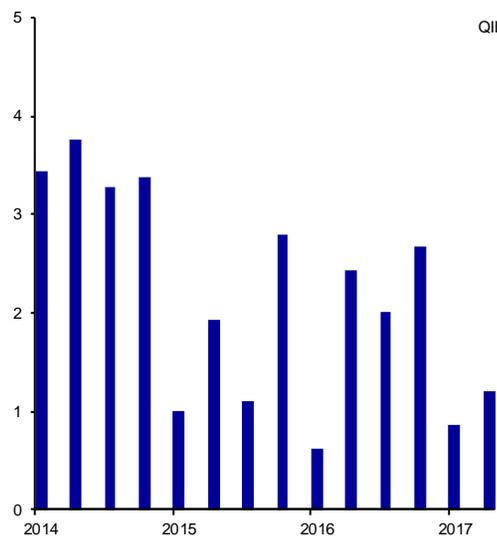
s. a. / Seasonally adjusted data.
Source: Office for National Statistics.

In emerging economies, economic activity has also been strengthening, supported by both the consolidation of the global trade growth and a higher domestic demand (Chart 15a and Chart 15b). In particular, in most Latin American countries a recovery was observed, in the emerging European countries a relatively solid growth prevailed, and in the Asian states the expansion was even greater than expected. Emerging economies benefitted from favorable international financial conditions, as the sustained capital inflow has been observed this year.

In the case of the Chinese economy, economic activity maintained the growth rate of 6.9 percent in annual terms over the first and the second quarters of 2017, hence exceeding the average observed during 2016 (Chart 15c). However, the indicators of economic activity, such as industrial production, fixed investment and retail sales in July point to a slight slowdown that is to be observed in the remainder of the year, in part reflecting a lower fiscal impulse and lagged effects of the different measures that had been adopted over the last years, and that seek to contain the important risks that still persist in its financial sector.

Chart 15
Economic Indicators of Emerging Economies

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

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

c) China: Gross Domestic Product Annual change in percent

1/ Seasonally adjusted data.
Source: Haver Analytics.
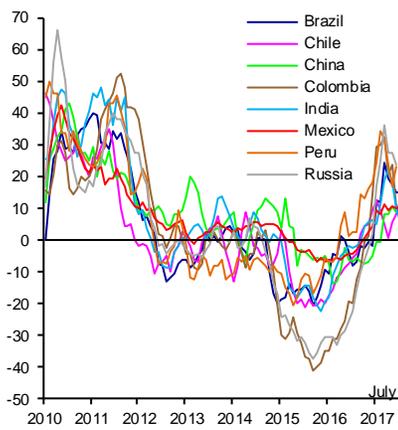
Note: Nominal figures.
Source: Haver Analytics.
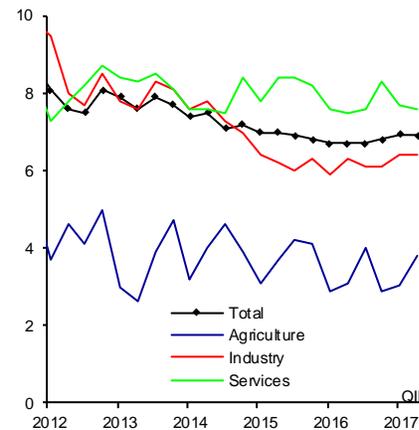
Source: Haver Analytics.

3.1.2. Commodity Prices

During the period analyzed in this Report, international commodity prices presented a volatile and heterogeneous behavior. In particular, oil prices plunged during the second quarter of this year, as a result of a higher-than-expected increase in oil production in North America, in particular in the U.S. (Chart 16a). Nevertheless, these prices strongly recovered as of the end of July, which derived from the announcement by the Saudi Arabia to further cut its crude oil exports. Meanwhile, wheat prices rebounded, as a result of unfavorable weather conditions in the U.S. and in South-East Asia, even though the observed progress has practically reverted in its entirety over the last weeks (Chart 16b). Finally, industrial metal prices increased in view of a favorable evolution of world economic activity (Chart 16c).

Chart 16
International Commodity Prices [1/]

a) Crude Oil USD/barrel	b) Corn and Wheat USD/bushel	c) Metals Index 01/01/2014=100
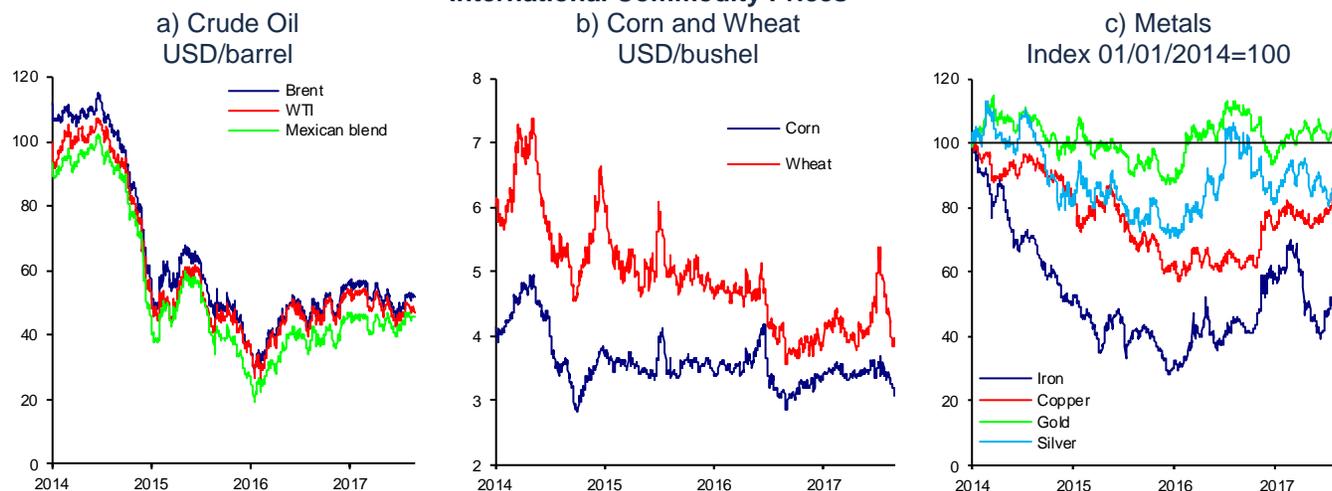
1/ Sport Market.
Source: Bloomberg.

3.1.3.   Inflation Trends Abroad

Inflation at the world level has remained low in recent months. In most advanced economies, it remained below the targets of the respective central banks, due to the reductions in energy prices, absence of wage-related pressures despite lower slack levels in the labor market, as well as, in some cases, price reductions in some items, the effects of which are considered transitory (Chart 17a). This environment of low inflation and reduced wage pressures also seems to be affected, in part, by some structural factors, such as the technological progress and globalization, in view of the moderate growth of global agregate demand.

In the U.S, the consumption deflation decreased from an annual rate of 1.8 percent in March to 1.4 percent in June. Although this weakness was due to the volatility observed in energy and food prices, the core indicator also slid from 1.6 to 1.5 percent in the said period. This is partly explained by the drop in the prices of certain goods and services, a trend that is considered transitory.

In the Euro zone, headline inflation decreased from an annual rate of 1.5 percent in March to 1.3 percent in July, while core inflation went up from 0.7 to 1.2 percent over the same period, still far below the inflation target of the European Central Bank, that is of a figure lower but close to 2 percent. It should be noted that over the recent months core inflation has been affected in its footwear and apparel items, as well as in the tourism services, derived from the calendar effect of the holiday season.

In the U.K, the headline inflation target shifted from 2.3 to 2.8 percent between March and May, which is its highest level over the last four years, to later decrease to 2.6 percent in July, in view of the persisting effect of the pound sterling depreciation, in response to the announcement of the U.K. exit from the European Union. Meanwhile, core inflation shifted from 1.8 percent in March to 2.4 percent in July.

In Japan, headline inflation went up from 0.3 percent in March to 0.5 percent in July, due to the impact of the previous increase in energy prices, while the core index, which excludes fresh food and energy products, shifted from 0 to 0.1 percent over the said period. In accordance with the Bank of Japan, weakness of prices partly derived from temporary factors, even though it considers that the tightening in the labor market and the recovery of medium- and long-term inflation expectations will allow inflation to converge to its 2 percent target in 2019.

In emerging economies, inflation pressures have moderated, as energy prices went down and the effects of the depreciation of their exchange rates, which were observed during 2016, faded. Thus, across most economies, inflation lies close to the target of their respective central banks, and even below the said target in the countries such as China, India, Korea, Hungary, Chile, Thailand, among others (Chart 17b).

Chart 17
Annual Headline Inflation in Advanced and Emerging Economies, and Reference Interest Rates

a) Advanced Economies: Headline Inflation In percent

b) Emerging Economies: Headline Inflation In percent

c) Referent Rate of Selected Central Banks Implicit in OIS Curve [1] at the End of 2018 In basis points
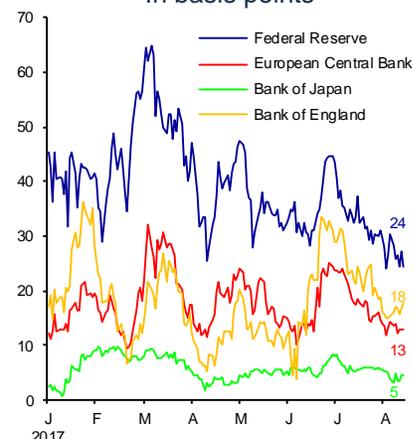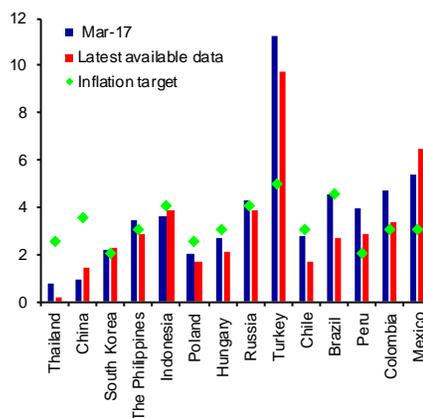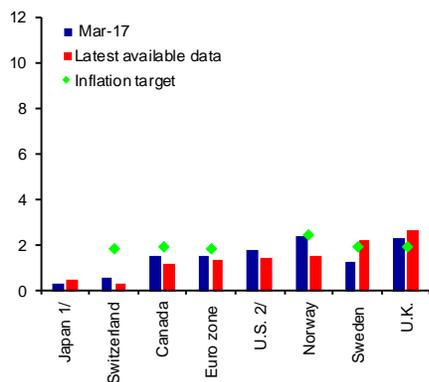
1/ Excludes fresh foods.
2/ It refers to consumption deflator. Seasonally adjusted data.
Source: Haver Analytics.

Source: Haver Analytics.

1/ OIS: fixed interest rate swap in which the fixed interest rate is the overnight interest rate.
Source: Banco de México with data from Bloomberg.

3.1.4. International Monetary Policy, and Financial Markets

In this environment of persisting weakness of inflation and its expectations, central banks of the main advanced economies maintained accommodative monetary policy stances. Even though in the future a gradual withdrawal of extraordinary stimulus packages is anticipated, the outlook persists that these stances will remain lax in the near future and will subsequently slowly approach a more neutral stance.

In its meeting of July, the U.S. Federal Reserve decided to maintain the reference interest rate unchanged, after having raised it by 25 basis points in its meeting of June, hence recognizing that inflation has declined and lies below its 2 percent target. In its latest press release, this Institution confirmed that the most appropriate strategy remains that of a gradual adjustment of the monetary policy stance. In line

with that, the Federal Reserve indicated that it expects to start the process of reducing its balance sheet relatively soon. In this context, and given moderate economic growth and the good performance of the labor market, the Federal Reserve is anticipated to announce in September 2017 the beginning of the reduction in the balance sheet size and that it will possibly increase its reference interest rate in its meeting of December. Still, reference interest rate futures reflected a slower upside trajectory as compared to that forecast up until some months ago, in view of weak readings of inflation in recent months (Chart 17c).

Meanwhile, in its meeting of July, the ECB maintained unchanged its reference interest rate, leaving open the possibility of extending its asset purchase program, if necessary. This occurred after this Institution eliminated from its press release the reference to a possible further reduction in its policy rates in its June meeting, as it considered the risks to growth as balanced. Furthermore, the ECB suggested that, in view of an improvement in the macroeconomic situation of the region, it may announce a reduction to the monthly amount of asset purchase in autumn, which may commence in 2018. However, it stressed that the monetary conditions will remain accommodative for a relatively prolonged period.

In its meeting of August, the Bank of England also maintained its monetary stance unchanged, just like in its meeting of June. It should be noted that in its Committee there was consensus that the interest growth rate will be gradual, reflecting doubts over the strength of the economic activity. In this regard, this institution confirmed that its monetary stance will continue depending on the balance between an inflation higher than its target and the level of slack in the economy, without overlooking inflation risks derived from the sterling pound depreciation. In its latest press release it signaled that, if the economy evolves in line with its outlook, monetary conditions will have to tighten at a less gradual rate than that currently reflected by implicit market rates.

In its meeting of July, the Bank of Japan maintained unchanged the amount of its asset buying program and its guide to manage the yield curve. Although this institution made a downside revision to its inflation outlook and postponed the time when it estimates to attain its 2 percent target until 2019, it was confident that a significant increase in inflation will be observed, due to a higher economic growth and lower slack that have been recently registered in the labor market.

Most emerging economies have faced lower inflation pressures, even registering cuts in the reference interest rates in such countries as Brazil, Colombia, Peru and South Africa. Still, in some economies, the central banks increased the policy interest rate in response to idiosyncratic factors. This was the case in Mexico, Turkey and the Czech Republic, among others.

During most of the period covered by this Report, international financial markets operated in an environment of low volatility, despite the persisting monetary normalization process in the U.S., the uncertainty related to the economic policies that can be implemented in the said economy and the intensification of geopolitical risks across certain regions. In general, financial asset prices seem to be incorporating a scenario of greater global economic recovery relative to that estimated some months ago, lower political risks in the Euro zone and the perspective that the environment of ample liquidity and low interest rates will maintain for a long period.

In this context of a lower risk aversion, the expectation that financing costs will remain low, along with an environment of low volatility, propitiated search for yield by institutional investors by means of portfolio readjustments towards higher-risk market assets (Chart 18a). Indeed, capital flows to emerging economies persisted, both fixed-income and variable-income assets, and most currencies in these economies appreciated against the U.S. dollar (Chart 18b and Chart 18c).

In advanced economies, although stock markets presented a mixed performance, most of the main indices continued benefitting from a better growth outlook and solid corporate results, and even some of these attained new historic highs (Chart 19). On the other hand, even though sovereign yields in these economies remained at historic lows, recently an increment in interest rates has been observed, particularly in longer-term bonds, in view of the expectation that central banks will continue with the process, albeit gradual, of the normalization of the monetary policy.

Although the probability of extreme risks, which could affect the performance of financial markets, has lowered during the second quarter with respect to the first one, it remains high. In this sense, there is still a risk of a possible disorderly adjustment in financial markets, given high asset valuation and risks related to the uncertainty over the adoption of the U.S. fiscal reform, of a greater-than-estimated tightening in global financial conditions, of the process of reduction in the Federal Reserve balance, the escalation of geopolitical risks and the possibility that barriers to international trade and investment are created.

Chart 18
Financial Indicators in Selected Emerging Economies

a) Volatility in International Financial Markets (VIX) [1]
Index 01/01/2007=100

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

c) Stock Markets
Index 01/01/2015=100
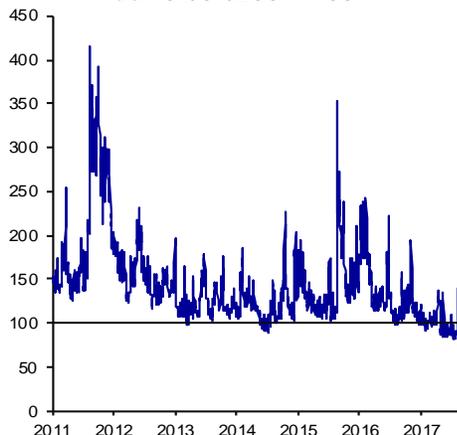
1/ The VIX index is a weighted indicator that measures implied volatility in the options' market for S&P.
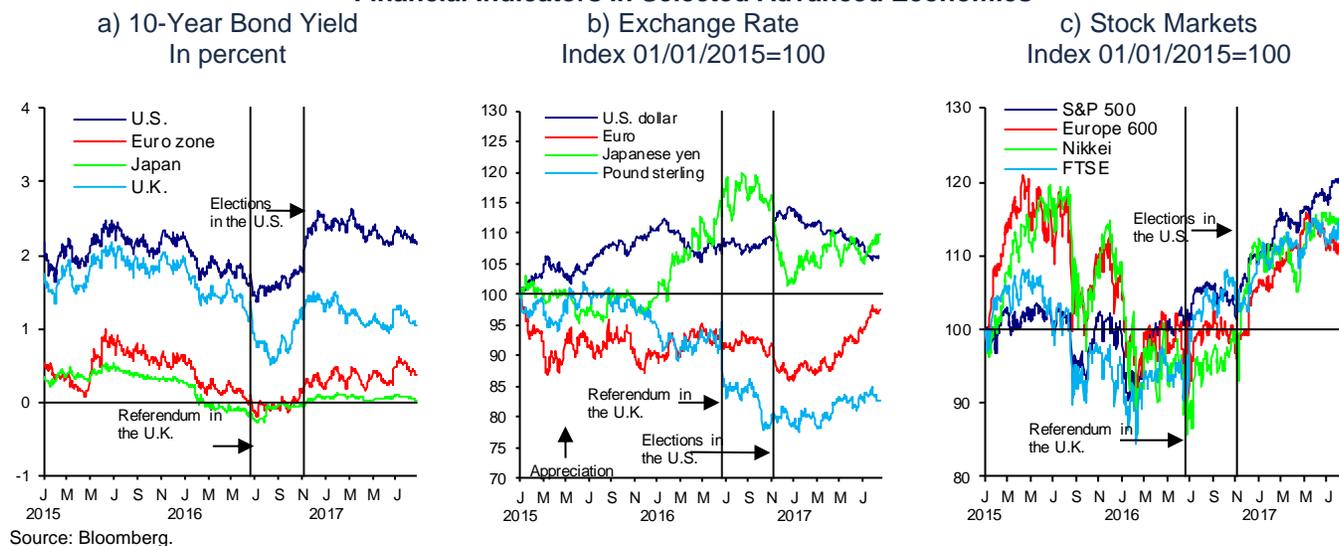Source: Bloomberg.
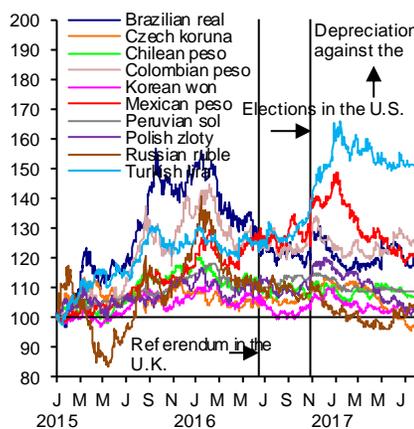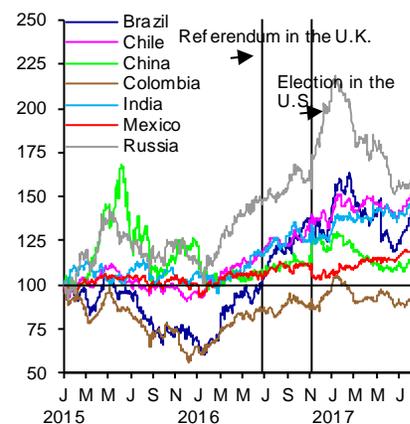
Chart 19
Financial Indicators in Selected Advanced Economies

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.

3.2. Evolution of the Mexican Economy

3.2.1. Economic Activity

In the second quarter of 2017, the Mexican economy continued expanding, although at a slightly lower growth rate than in the previous one. This expansion reflected the positive trend in exports and private consumption, while investment remained weak.

Regarding external demand, in the period April - July 2017, the gradual strengthening of the economic activity at the global level and the accumulated depreciation of the real exchange rate over the last years contributed to the continuous recovery of Mexico's manufacturing exports, after the negative trend they exhibited in 2015 and in early 2016. This reactivation was observed in exports destined to the U.S. and to the rest of the world (Chart 20a). In the same vein, the improvement involved both automotive and non-automotive manufacturing exports (Chart 20b and Chart 20c). In contrast, oil exports declined in the second quarter of the year and remained at particularly low levels. This contraction was a consequence of a lower average price of the Mexican crude oil blend for exports and a reduction in the crude oil platform for exports relative to the previous quarter (Chart 20d).

Chart 20
Mexican Exports
Index 2008=100, s. a.
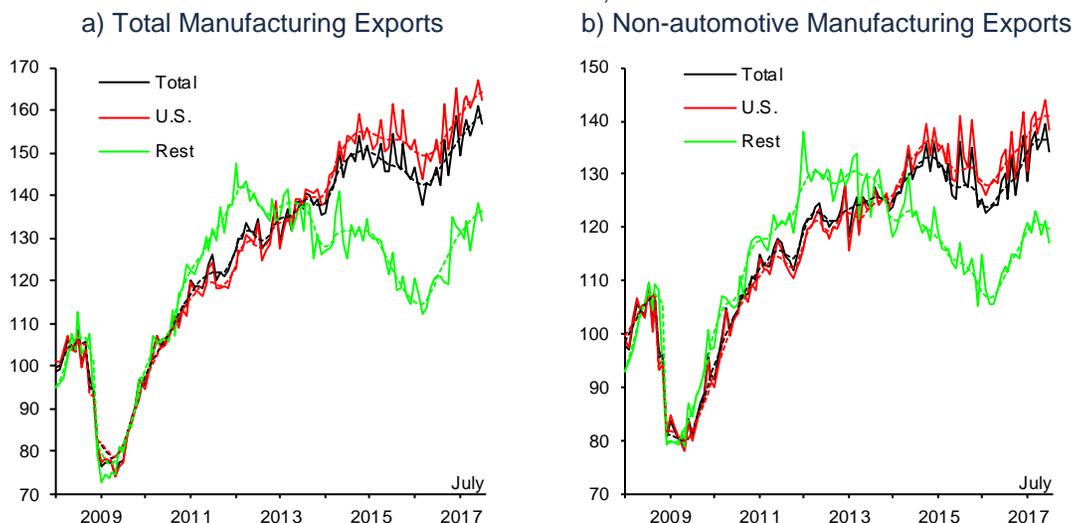
a) Total Manufacturing Exports

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

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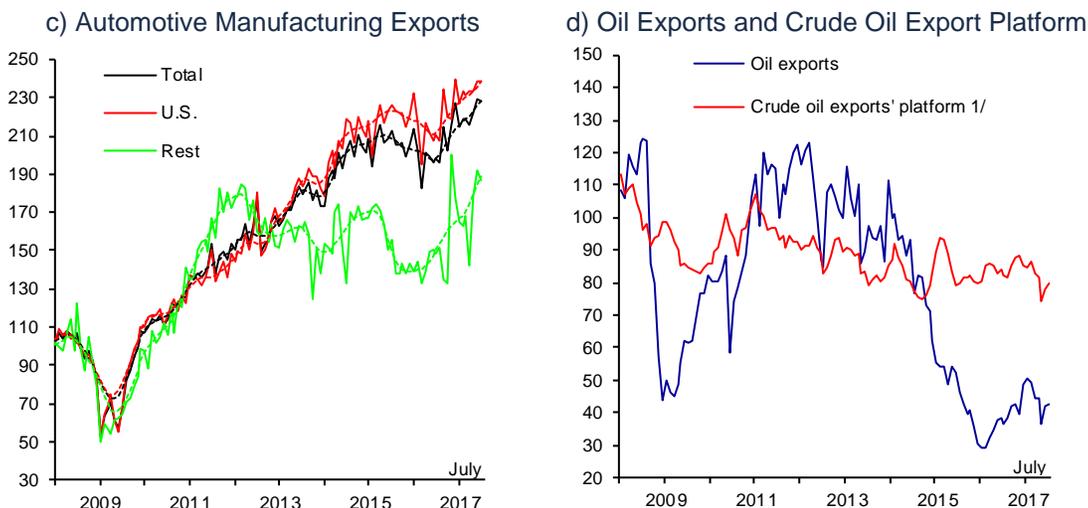
s. a. / Seasonally adjusted and trend data based on information in nominal dollars. The former is represented by a solid line, the latter by a dotted line.
Source: Banco de México with data from SAT, SE, Banco de México, INEGI. Merchandise Trade Balance. SNIEG. Information of National Interest.

s. a. / Seasonally adjusted series based on data in nominal dollars.
1/ 3-month moving average of daily barrels of the seasonally adjusted series.
Source: Banco de México with data from *PMI Comercio Internacional*, S.A. de C.V; and SAT, SE, Banco de México, INEGI. Merchandise Trade Balance. SNIEG. Information of National Interest.

The monthly indicator of private consumption in the domestic market maintained a positive trend, despite a certain deceleration in the period of April – May, as compared to the second half of 2016. It stands out that consumption of domestic goods has lost dynamism, while imported goods' consumption has recovered, which, in part, could be associated to the recent appreciation of the national

currency against the U.S. dollar (Chart 21a and Chart 21b). Likewise, it is notable that services' consumption has continued to show a high growth rate.

i. In this context, the determinants of private consumption have remained at high levels, although they have shown a certain deceleration so far this year. In particular, the real wage bill has remained at levels above those observed in 2008, despite the stagnation during the recent months, as a consequence of the effect of inflation on real earnings (Chart 22a). Additionally, income from remittances remained especially high, while the growth rate of credit to households moderated (Chart 22b and see Section 3.2.3). On the other hand, consumer confidence kept recovering, after a strong plunge last January, although it remained at low levels with respect to the end of 2015 and the beginning of 2016 (Chart 22c).

ii. More timely consumption indicators, but with a smaller coverage, such as revenues of retail commercial establishments and light vehicles' sales have decelerated. Indeed, an incipient negative trend was observed in domestic vehicle sales, following the expansion registered in 2016, while revenues of retail commercial establishments have presented a lower dynamism, relative to that observed in the first half of 2016 (Chart 21c).

Chart 21
Consumption Indicators
Index 2008=100, s. a.

a) Monthly Indicator of Domestic Private Consumption
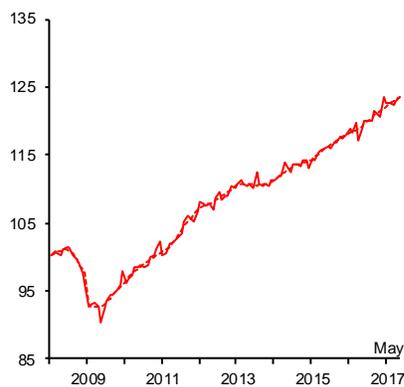
s. a. / Seasonally adjusted and trend data. The former is represented by a solid line, the latter by a dotted line.
Source: Mexico's National Accounts System (SCNM), INEGI.

b) Components of the Monthly Indicator of Domestic Private Consumption
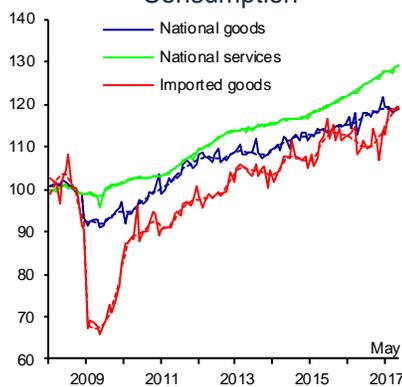
s. a. / Seasonally adjusted and trend data. The former is represented by a solid line, the latter by a dotted line.
Source: Mexico's National Accounts System (SCNM), INEGI.

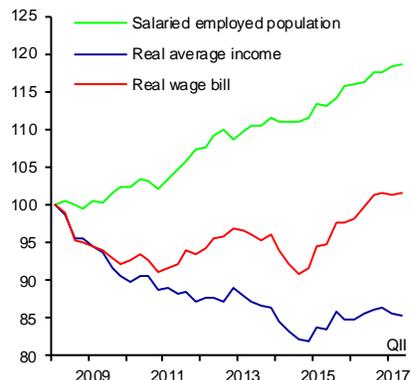c) Domestic Retail Sales of Light Vehicles and Revenues of Retail Businesses

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) and the Monthly Survey of Commercial Establishments (EMEC), INEGI.
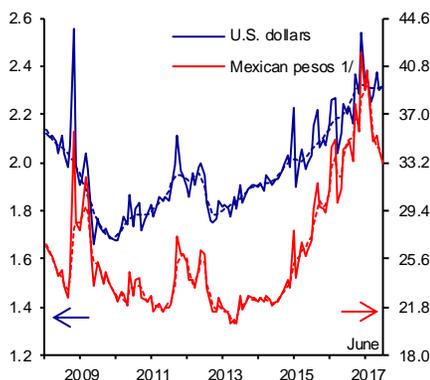
Chart 22
Determinants of Consumption

| a) Total Real Wage Bill | b) Workers' Remittances | c) Consumer Confidence |
| Index I-2008=100, s. a. | Billion, constant USD and MXN, 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 and INEGI.

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.

In the period of April – May 2017, stagnation of investment, which had been registered since mid-2015, prevailed (Chart 23a). In particular, investment in machinery and equipment had a weak performance, derived from an unfavorable change in trendin its domestic component and the fact that the imported component does not present clear signs of recovery (Chart 23b). Regarding investment spending on construction, a decreasing trend persisted as a consequence of the prevailing negative trend in non-residential construction, which had been observed for several years, while in recent months a declining trajectory has emerged in the residential component (Chart 23c). In connection with the above, by contracting sector, the unfavorable performance of spending on construction has resulted from the fact that the negative trajectory of public investment complemented the slowdown in private spending this year so far (Chart 23d). It should be noted that possibly the persisting uncertainty over the future bilateral Mexico – U.S. relation has negatively affected private investment in Mexico in recent quarters.
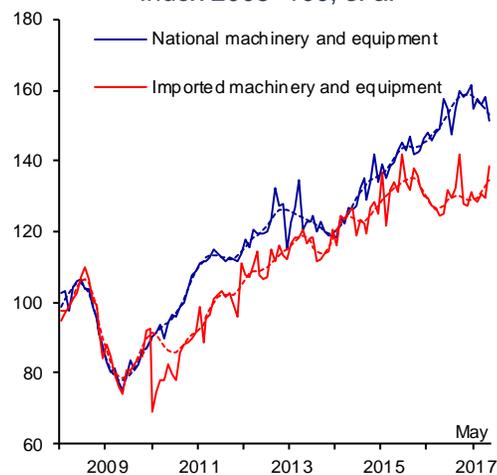
Chart 23
Investment Indicators

a) Investment and its Components
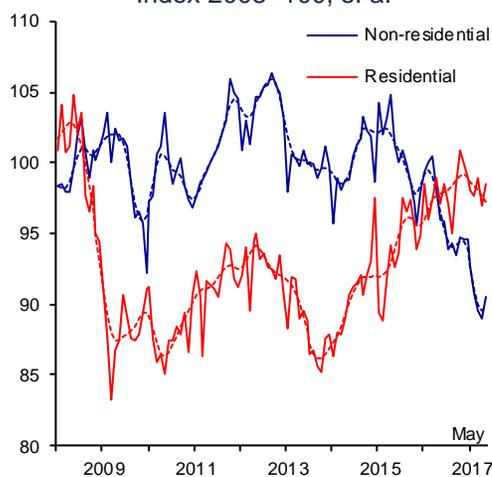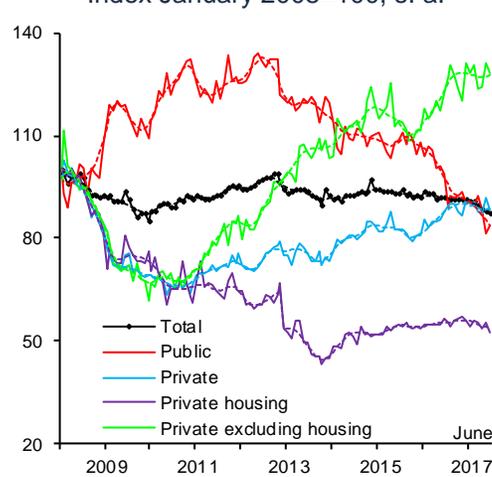Index 2008=100, s. a.
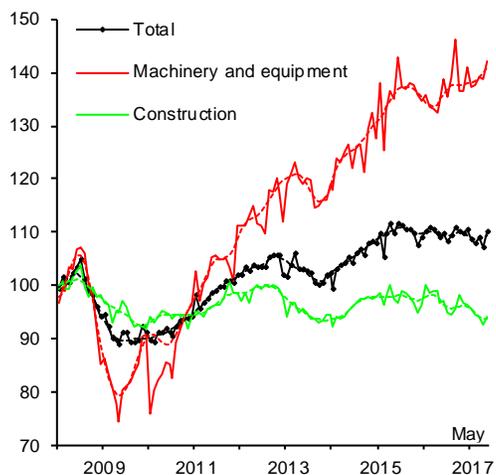
s. a. / Seasonally adjusted and trend data. The former is represented
by a solid line, the latter by a dotted line.
Source: Mexico's National Accounts System (SCNM), INEGI.

b) Investment in National and Imported
Machinery and Equipment
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.

c) Investment in Residential and Non-
residential Construction
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.

d) Real Value of Production in Construction
by Contracting Institutional Sector
Index January 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 ENEC,
INEGI. Seasonally adjusted by Banco de México, except
for the total.

Regarding the performance of economic activity from the production side, in the
second quarter of 2017 GDP grew 0.57 percent with respect to the previous period,
based on seasonally adjusted data, after having presented quarterly changes of
0.72 and 0.66 percent in the fourth quarter of 2016 and in the first one of 2017, in
the same order. Based on seasonally adjusted data, the Mexican economic activity
exhibited an annual growth rate of 3.0 percent in the period of April – June 2017,
after annual increments of 2.3 and 2.6 percent in the third quarter of 2016 and in

the first one of 2017, respectively. Based on non-seasonally adjusted data, in the reference quarter, GDP expanded at an annual rate of 1.8 percent, which compares to an annual increase of 2.3 percent in the fourth quarter of 2016 and of 2.8 percent in the period of January – March 2017 (Chart 24).

Chart 24
Gross Domestic Product

a) Quarterly Change
Percent, s. a.

b) Annual Change
Percent
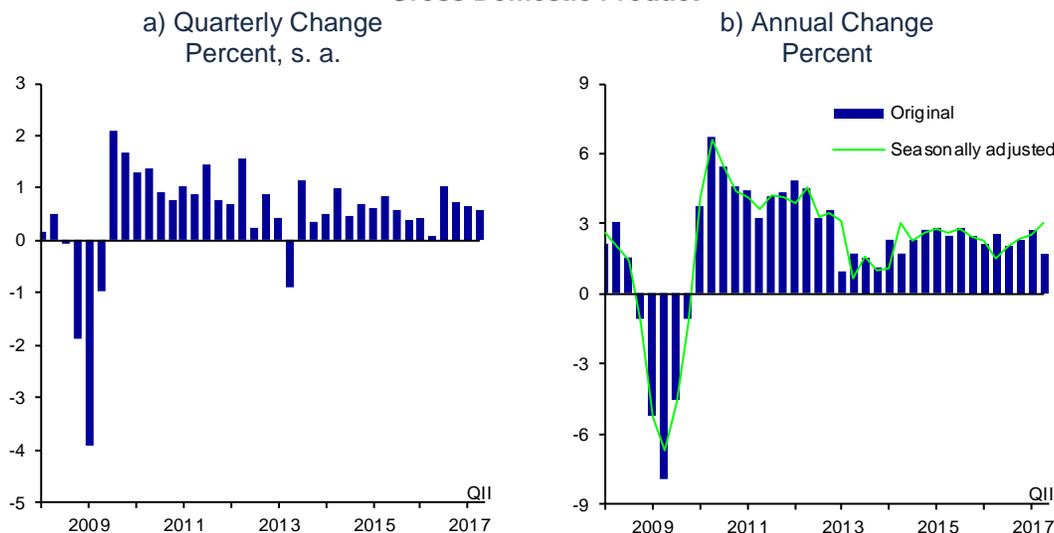
s. a. / Seasonally adjusted data.
Source: Mexico's National Accounts System, INEGI.

The expansion of economic activity in the second quarter of 2017 kept reflecting the dynamism of tertiary activities, while the stagnation, which the industrial activity had been presenting since mid-2014, prevailed; in contrast primary activities decreased (Chart 25a). In particular:

i.   Within industrial activity, in the period being reported, manufacturing activity lost dynamism with respect to the second half of 2016 (Chart 25b). This performance reflected an unfavorable change of trend in the non-transport manufacturing aggregate, while transport equipment maintained a positive trajectory (Chart 26). In particular, the quarterly contraction of the non-transport manufacturing aggregate was mainly explained by the drop in the subsectors of chemical industry; manufacturing of oil- and carbon-derived products –in part, due to low refinement levels, which are considered to be transitory–; manufacture of metal products; and basic metal industries. In contrast, growth in the following subsectors stands out: computer equipment, communications, measurement and other equipment, electronic components and accessories; and beverage and tobacco industry, which is congruent with the exports' dynamism presented by these aggregates since the second half of 2016.

ii.   The construction industry maintained a weak performance (Chart 25b). Specifically, even though the construction sector has somewhat recovered, it was slightly offset by the negative trend in the spending on civil engineering construction, which largely resulted from a lower volume of works contracted by the public sector.

iii.   Likewise, in the period of April – June 2017, mining sector kept decreasing, although the degree of deterioration moderated over the last

months with respect to 2016 and early 2017, as a result of a stabilization in the crude oil production platform (Chart 25b). However, by the end of July and in early August, the crude oil production platform contracted considerably again (Chart 27a). In addition, mining-related services remained at particularly low levels (Chart 27b).

iv.   In contrast, the electricity, water and gas pipeline supply sector somewhat improved during the last months, albeit without attaining the levels achieved in 2016 (Chart 25b).

Chart 25
Production Indicators
Index 2008=100, s. a.

a) Global Economic Activity Indicator

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: 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: Monthly Industrial Activity Indicator, Mexico's National Accounts System (SCNM), INEGI.

Chart 26
Manufacturing
Index 2008=100, s. a.

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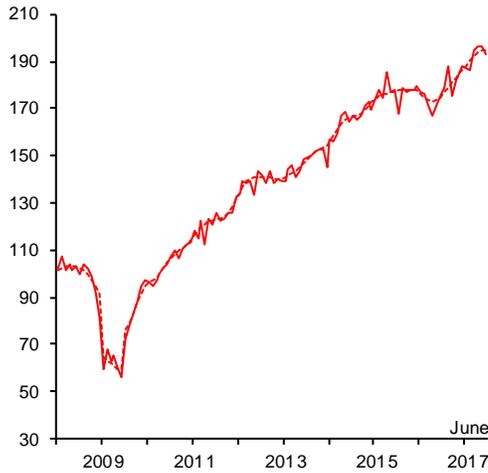
s. a. / Seasonally adjusted and trend data. The former is represented by a solid line, the latter by a dotted line.
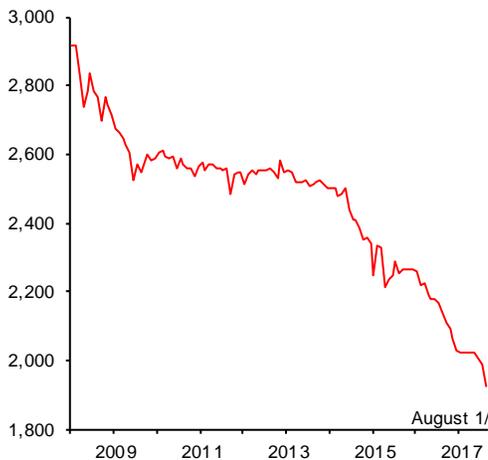Source: Monthly Industrial Activity Indicator, Mexico's National Accounts System (SCNM), INEGI.

b) Manufacturing Sector Excluding Transport Equipment
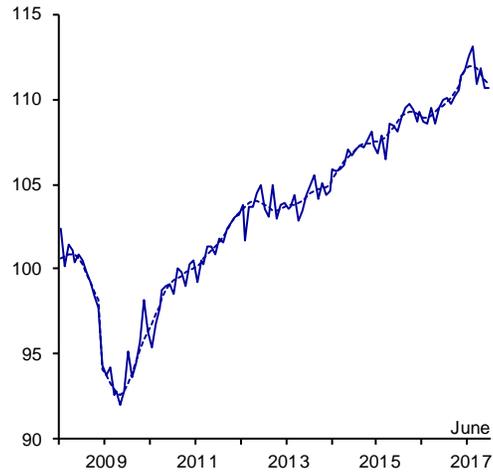
s. a. / Seasonally adjusted and trend data. The former is represented by a solid line, the latter by a dotted line.
Source: Prepared and seasonally adjusted by Banco de México with data from the Monthly Industrial Activity Indicator, Mexico's National Accounts System (SCNM), INEGI.

Chart 27
Oil Production Platform and Mining Sector

a) Crude Oil Production Platform
Thousands of barrels per day, s. a.

s. a. / Seasonally adjusted data.
1/ Data as of August 20, 2017.
Source: Seasonal adjustment by Banco de México with data from PEMEX Institutional Database.

b) Mining Sector Components
Index 2008=100, s. a.
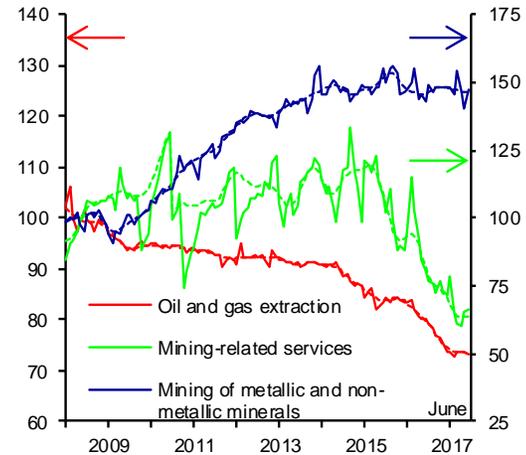
Oil and gas extraction
Mining-related services
Mining of metallic and non-metallic minerals

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.

v. In the period of April – June 2017, services maintained a positive trend. This performance was largely contributed to by the growth in the items of financial services and insurance; mass media information; transport, mail and warehousing; wholesale and retail trade; and temporary lodging

services, as well as preparation of food and beverages (Chart 28). In particular, the performance of the last two items has been congruent with the dynamism presented by foreign trade and tourism in the country.

vi. Contraction of primary activities in the second quarter of 2017 principally derived from a lower planted surface in the spring – summer cycle, as well as from a decline in the production of some crops, mainly sugar cane and avocado.

Chart 28
Gross Domestic Product: Services
Index 2008=100, s. a.
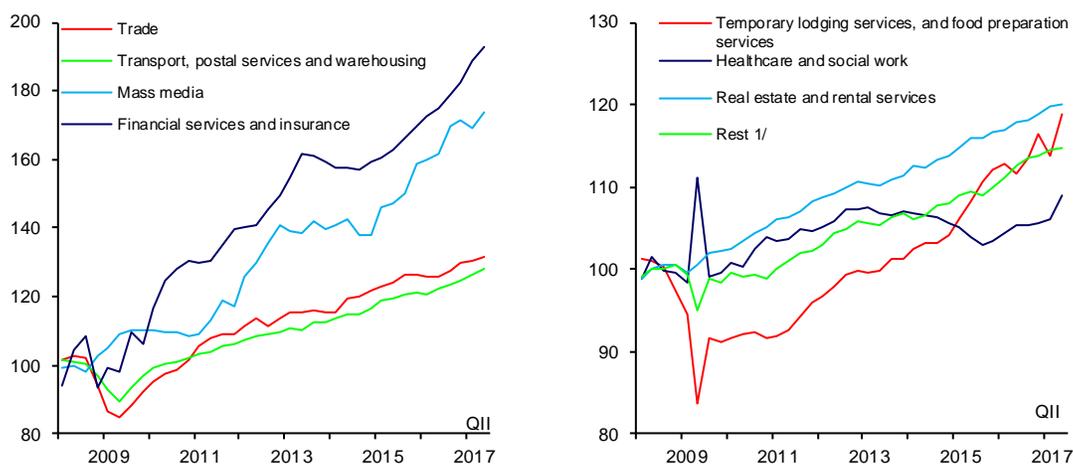
s. a. / Seasonally adjusted data.
1/ It includes professional, corporate services; business support-related services; educational services, recreation; other services and government activities.
Source: Mexico's National Accounts System (SCNM), INEGI.

In the second quarter of the year, the current account deficit was lower than in the same quarter of 2016. In particular, in the period of April – June 2017 the current account deficit was 0.1 percent of GDP (USD 0.3 billion), figure that is compared to 2.3 percent of GDP (USD 6.1 billion) registered in the second quarter of 2016 (Chart 29b and Chart 29c).[2] The annual decrease in the current account deficit largely derived from a reduction in the deficit of the merchandise trade balance. Indeed, in the second quarter of 2017 the total trade deficit attained USD 0.1 billion, an amount that is below that registered in the second quarter of 2016 of USD 3.1 billion (Chart 29a). In turn, this performance derived from an increase in the non-oil balance, which shifted from a deficit in the second quarter of 2016 to a surplus in the period of April – June 2017, thus accumulating three consecutive quarterly surpluses, in a context in which the gradual strengthening of economic activity at a global level and a more depreciated level in real terms of the national currency contributed to the continuous recovery of Mexican manufacturing exports. In contrast, the oil trade deficit kept expanding, mainly as a result of the contraction in the crude oil platform for exports and of greater imports of oil-derived products. The annual reduction in the current account deficit was also considerably contributed to by a lower deficit in the primary income balance, and, to a lower degree, the increment in the surpluses of the balances of remittances and travels.

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[2] Given that various components of the current account have a seasonal character, the comparison relative to the results reported for the same period of last year gains relevance.

Chart 29
Trade Balance and Current Account

a) Trade Balance
USD millions

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

b) Current Account
USD millions

Source: Banco de México.

c) Current Account
Share of GDP

Source: Banco de México and INEGI.
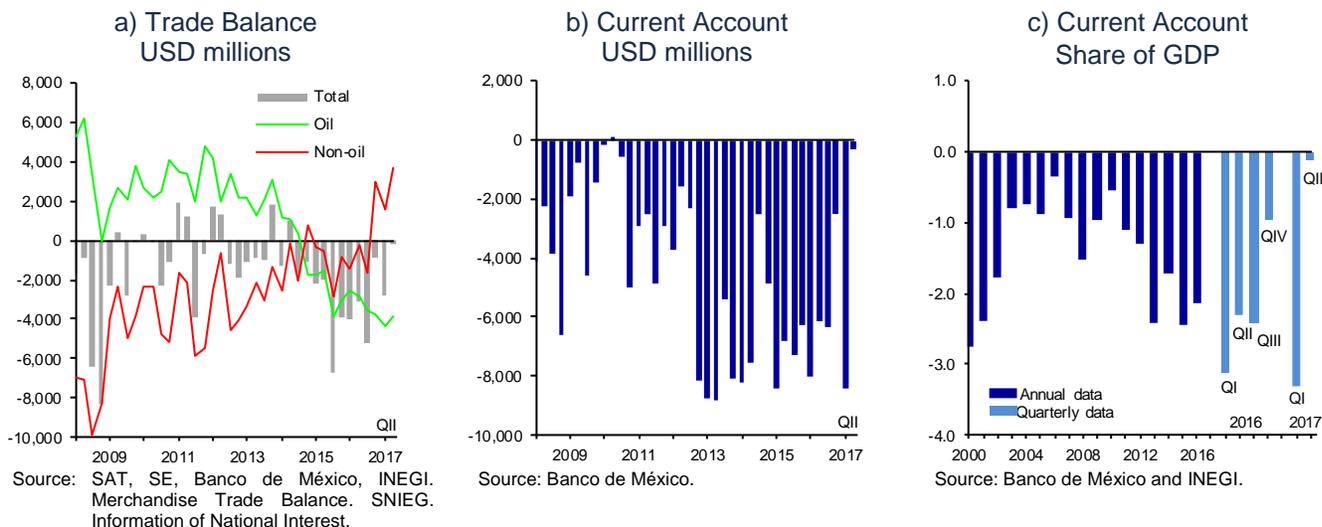
3.2.2. Labor Market

In the reference period, labor market conditions continued to tighten, so that said market appeared to have no slack (Chart 30). In particular, both the national and urban unemployment rates maintained a downward trend, while, even though the labor participation rate kept a certain negative trend, the employed population increased. Similarly, the number of IMSS-affiliated jobs kept presenting a positive trajectory, which contributed to a decline in the informal employment rate. Accordingly, both the urban unemployment rate and the labor informality rate remained around their lowest levels in the last twelve years.[3]

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[3] Currently, both the unemployment rates and the labor informality rates are measured based on the results of the National Employment Survey (ENOE), which began in 2005.
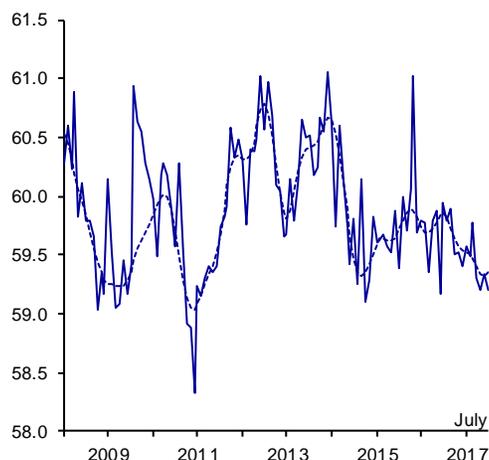
Chart 30
Labor Market Indicators

a) National and Urban Unemployment Rates
Percent, s. a.
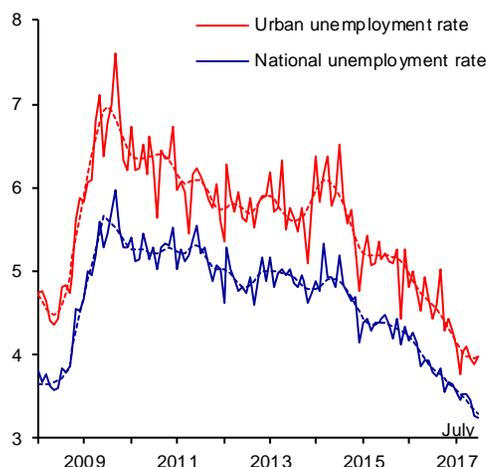
b) National Labor Participation Rate [1]
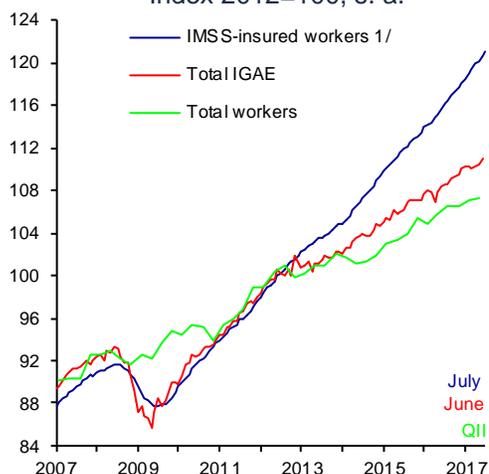Percent, s. a.

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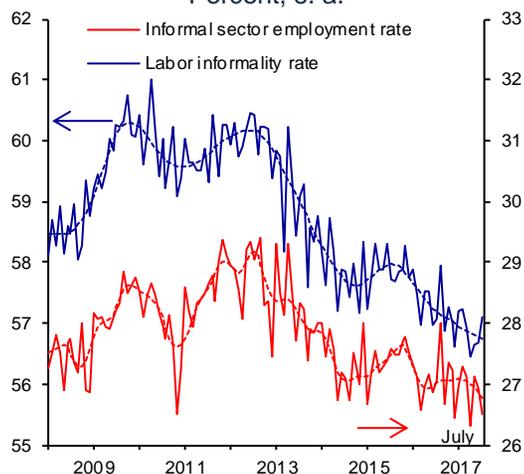Source: National Employment Survey (ENOE), INEGI.

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

The main wage indicators recorded nominal growths above 4 percent in the quarter being reported (Chart 31). In particular, the annual change rate of the average wage of salaried workers in the economy was 4.4 percent in the period of April – June

2017. Likewise, in the reference period, the daily wage associated to IMSS-affiliated workers showed an annual growth of 4.9 percent, while the growth rate of contractual wages negotiated by firms under federal jurisdiction was, on average, 4.6 percent.
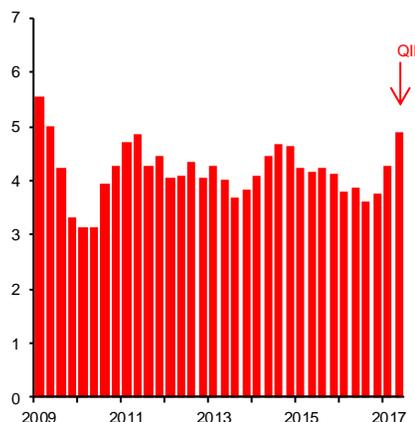
Chart 31
Wage Indicators
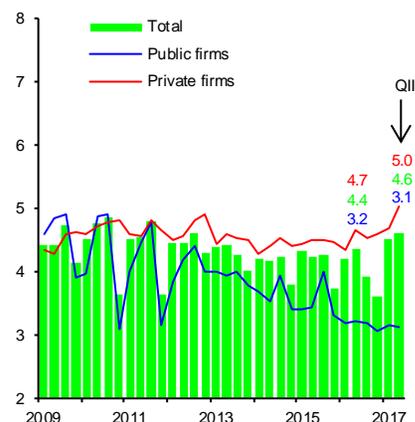Annual change in percent

a) Average Wage of Salaried Workers according to National Employment Survey [1]
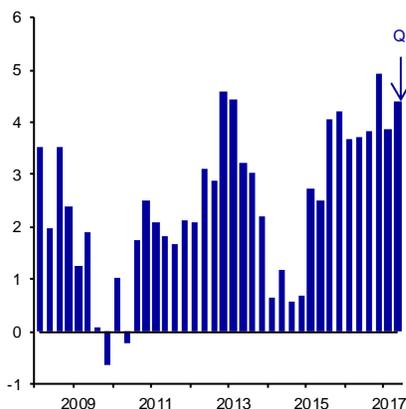
b) Daily Wage of IMSS-insured Workers [2]

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 second quarter of 2017, on average 19.1 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 2.3 million.
Source: Calculated by Banco de México with data from IMSS, STPS and INEGI (ENOE).

### 3.2.3.   Financial Saving and Financing in Mexico [4]

In the second quarter of 2017, the sources of financial resources of the economy decelerated. In particular, their real annual change was 0.6 percent, which was below 1.7 percent recorded in the previous quarter. This derived from a lower growth rate of domestic sources, in a context in which the external sources kept contracting (Chart 32a). In this environment of a lower growth of the sources of financial resources, different sectors of the economy decreased their use of resources in a generalized manner (Chart 32b). In particular, financing to the public sector kept reducing as a reflection of the fiscal consolidation strategy by the Federal Government. In fact, even excluding the effect of Banco de México's operational surplus, financing to the federal public sector observed a deceleration in its growth rate. In the same vein, total financing destined to the private sector kept growing at relatively low real rates, even though with certain heterogeneity in its components.

As regards domestic sources of the financial resources of the economy –measured as the monetary aggregate M4 held by residents–, their growth rates moderated from 3.7 to 1.9 percent in real annual terms between the first two quarters of 2017, fundamentally reflecting the performance of economic activity, as well as the impact of higher inflation on growth in real terms of the balance of financial assets (Chart

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4 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.

33a). This resulted from a deceleration in both voluntary and compulsory M4 (Chart 33b). With regard to the latter, SIEFORES (mutual funds specialized in pension funds) have substituted part of their holding of instruments that are part of monetary aggregates, such as fixed-income national securities, in favor of other type of instruments, such as foreign securities or equity instruments. Meanwhile, the external sources contracted 1.3 percent in real annual terms in the second quarter of the year, which equals the figure registered in the first one (Chart 33a). This largely derived from a sustained decrease in external resources (both bank and market resources) destined to finance businesses in Mexico. In contrast, non-resident financial saving in Mexico continued recovering with respect to the previous year, reflecting a greater holdings of short-term government bonds by foreigners, while the holdings of medium- and long-term securities remained practically unchanged (Chart 33c). Similarly, investment in variable-yield securities by non-residents has been increasing.

Chart 32
Total Funding of the Mexican Economy (Sources and Uses)
Real annual change in percent [1]

a) Sources

b) Uses
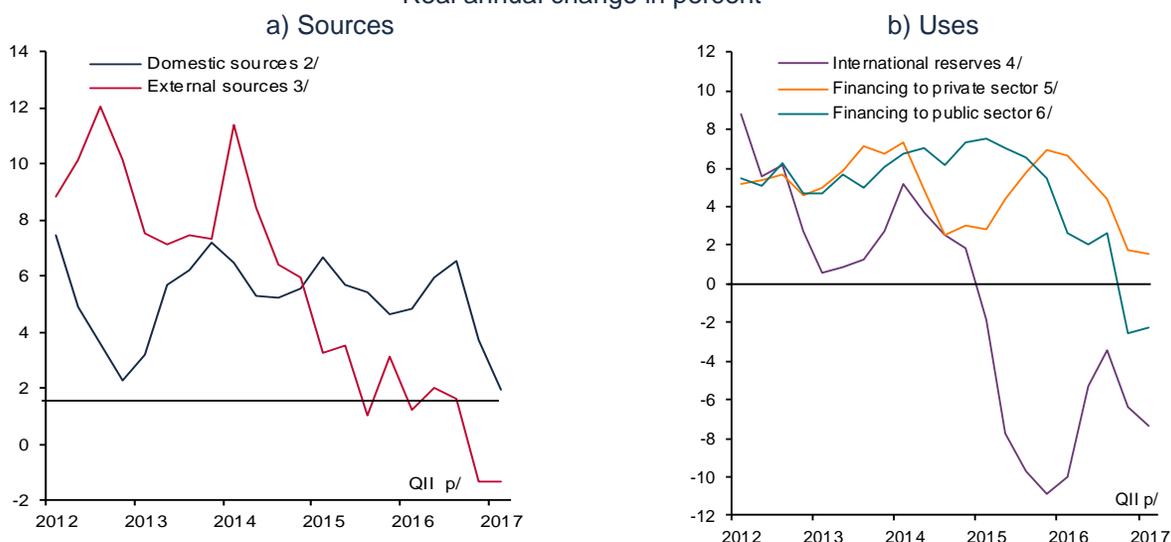
p/ Preliminary data.
1/ Real annual changes are calculated based on balances adjusted due to exchange rate and asset price variation.
2/ It includes the monetary aggregate M4 held by residents.
3/ It includes the monetary aggregate M4 held by non-residents, foreign financing for the federal government, public institutions and enterprises, commercial banks' foreign liabilities and external financing to the non-financial private sector.
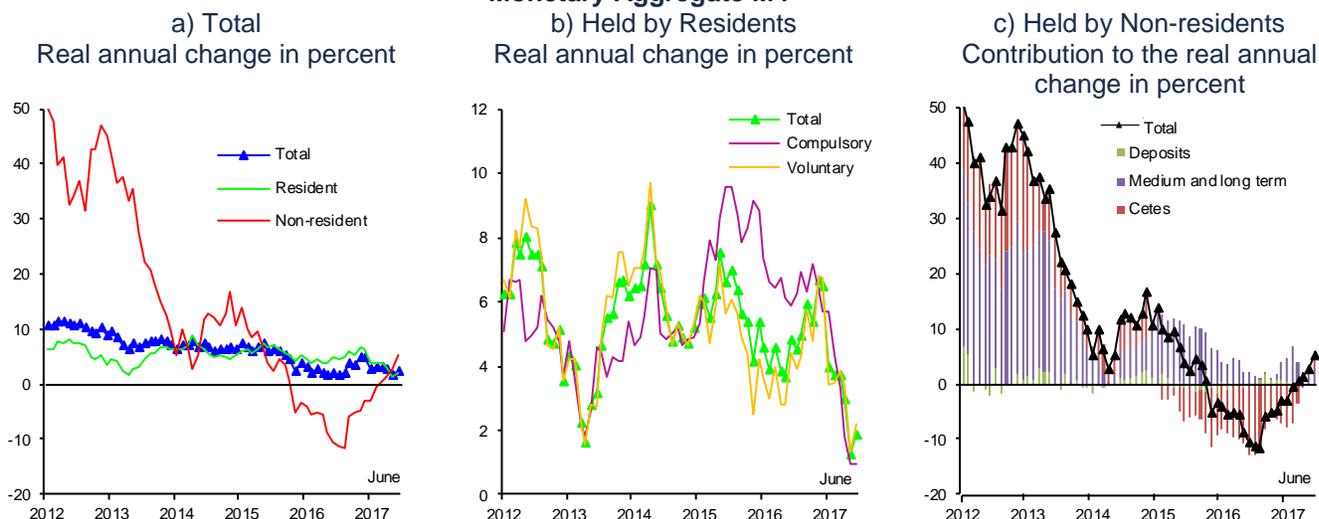4/ It is made up by currencies and gold reserves of Banco de México, free of any security rights and the availability of which is not subject to any type of restriction; the position in favor of Mexico with the IMF derived from contributions to the said entity; currency obtained from financing to realize foreign exchange regulation of the IMF and other entities of international financial cooperation or groups of central 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.

Chart 33
Monetary Aggregate M4 [1/]

a) Total
Real annual change in percent

b) Held by Residents
Real annual change in percent

c) Held by Non-residents
Contribution to the real annual
change in percent

1/ 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 growth rate of financing to the public sector contracted in real annual terms for the second consecutive quarter. In particular, its growth rate in the second quarter of 2017 was -2.3 percent, which compares to -2.6 percent in the previous one. This is accounted for by the fiscal consolidation effort undertaken by the Federal Government, greater tax revenue and lower public expenditure with respect to the program, besides the delivery of Banco de México's operational surplus, which amounted to MXN 321.7 billion in the first quarter of the year. As indicated in the previous Report, it is important to stress that financing to the federal public sector would have recorded a deceleration in its real annual growth rate with respect to the same quarter of the previous year, even excluding the effect of Banco de México's operational surplus on the historical balance of the Public Sector Borrowing Requirements. On the other hand, the stock of international reserves in the second quarter of 2017 slightly reduced with respect to the level in the first quarter of the year.[5]

Total financing to the non-financial private sector slightly moderated its growth rate during the second quarter of 2017, and registered a real annual growth rate of 1.5 percent, figure that is compared to 1.7 percent in the first quarter of 2017 (Chart 34a). Within it, its components maintained a mixed performance, higher growth of domestic financing to firms being notable –which principally reflects the substitution of external liabiliites by domestic liabiliites by large firms– and a deceleration of credit to households.

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[5] The real annual change of the international reserve in Mexican pesos is obtained with the method of revalued cash flows. It consists in multiplying the absolute annual change in USD by the average exchange rate of the period; adding to this amount the initial balance of international reserves in Mexican pesos, to obtain the final adjusted balance of international reserves in Mexican pesos; deflating both balances in Mexican pesos with the CPI, and, finally, calculate its annual change. Thus, in term of U.S. dollars, between the second quarter of 2016 and the same quarter of 2017, international reserves diminished by USD 3.2 billion. This figure expressed in Mexican pesos using the average exchange rate in the period equals an annual decrease of MXN 251 billion, which, complemented by the balance of MXN 3,399 billion of international reserves as of the second quarter of 2016, implies a real annual change of -7.4 percent. As a reference, the annual nominal change of the international reserves in U.S. dollars was -1.8 percent in the period.

Chart 34
Financing to Non-financial Private Sector
Real annual change in percent
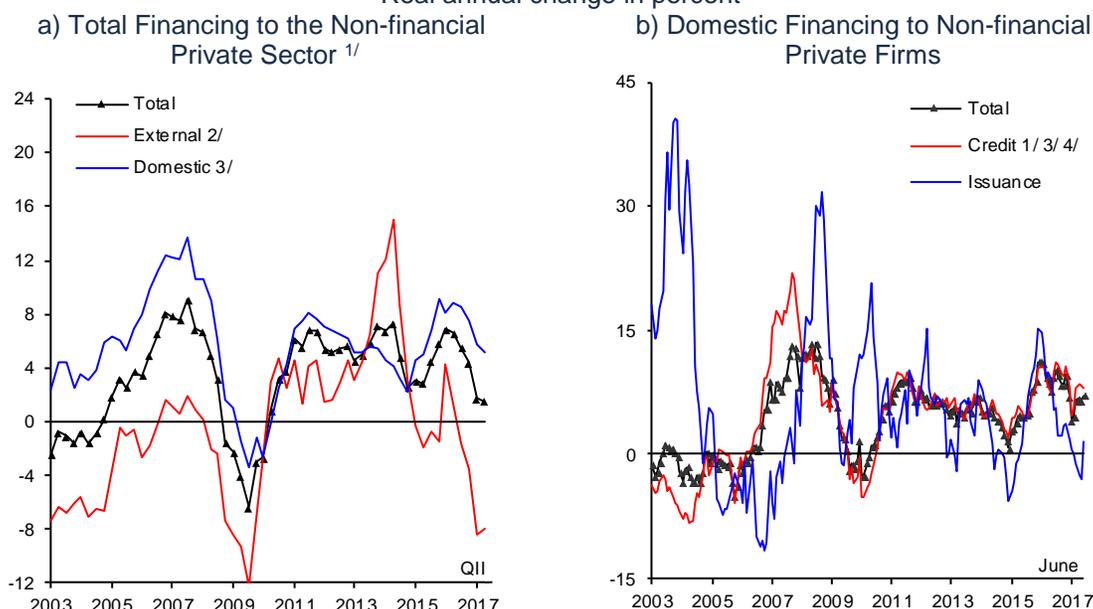
a) Total Financing to the Non-financial Private Sector [1]

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 second quarter of 2017 are preliminary.
3/ These data are adjusted due to the withdrawal from and the 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.

Delving in the above, external financing to firms kept contracting significantly, which has been offset by the dynamism of domestic financing. In particular, in the reference quarter domestic financing to firms exhibited a real annual change of 7.1 percent, a rate that is greater than that observed at the end of the previous quarter, when it expanded 6.6 percent (Chart 34b). This greater growth of domestic financing to firms is due to the expansion of commercial banks' credit –above all, to large firms– and, to a lower degree, to an incipient reactivation in debt issuance in the domestic market (Chart 35). This occurred despite the fact that financing costs in the domestic market have continued increasing, reflecting the increments in Banco de México's target of the overnight interbank interest rate (Chart 36a and Chart 36b). On the other hand, delinquency rates of the banks' credit portfolio have persisted at low levels (Chart 36c).
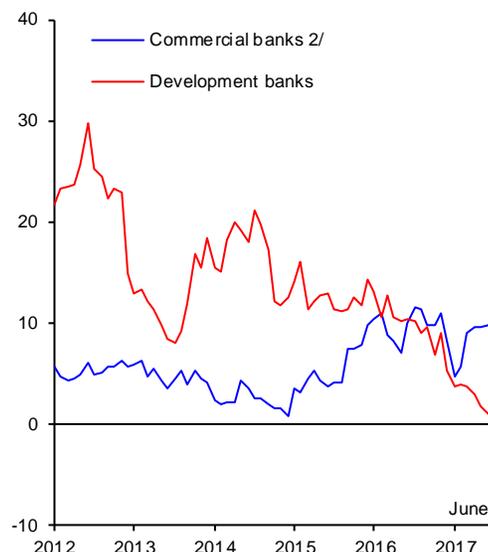
Chart 35
Domestic Financing to Non-financial Private Firms

a) Securities in Circulation
Stocks in MXN billion in June 2016
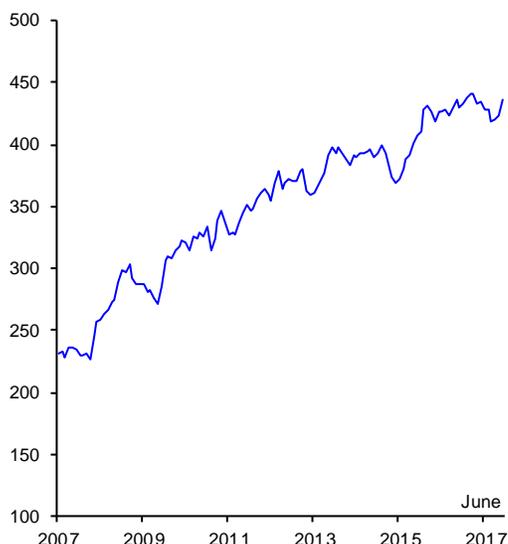
b) Performing Credit [1]/
Real annual change in percent

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.
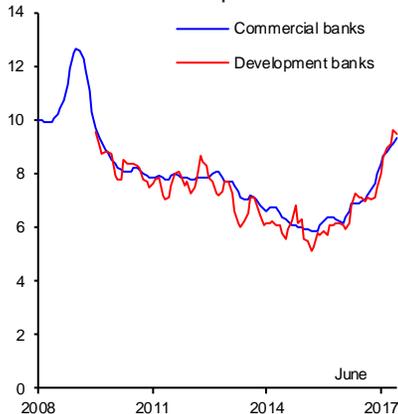Source: Banco de México.

Chart 36
Annual Interest Rates and Delinquency Rates of Non-financial Private Firms
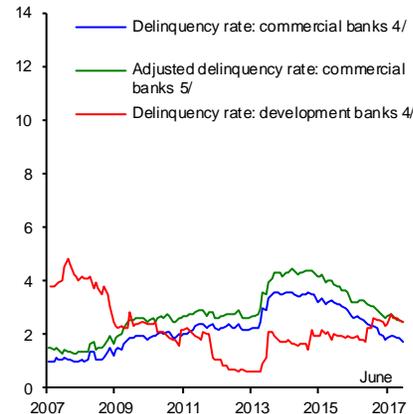
a) Annual Interest Rates of Private Securities
Quarterly average in percent
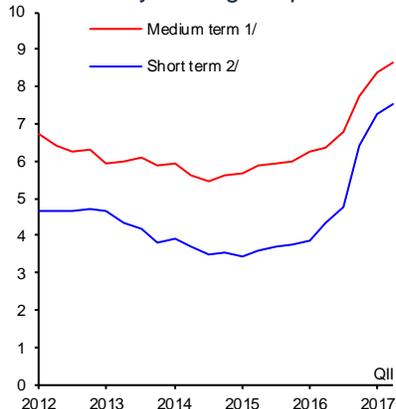
b) Annual Interest Rates of New Credits [3]/
Annual percent

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 –both destined to housing and for consumption– continued decelerating. In the reported period, the total portfolio of credit to households

expanded at a real annual rate of 3.5 percent, as compared to 5.0 percent registered at the end of the previous quarter (Chart 37a). In the case of credit to housing, a lower growth rate was observed both in the commercial bank portfoio and the National Housing Fund –which together constitute over 90 percent of total housing credit in Mexico– (Chart 37b).[6] In this environment, interest rates have increased as compared to those observed in 2016, while the corresponding delinqency rates have remained without significant changes (Chart 37c).
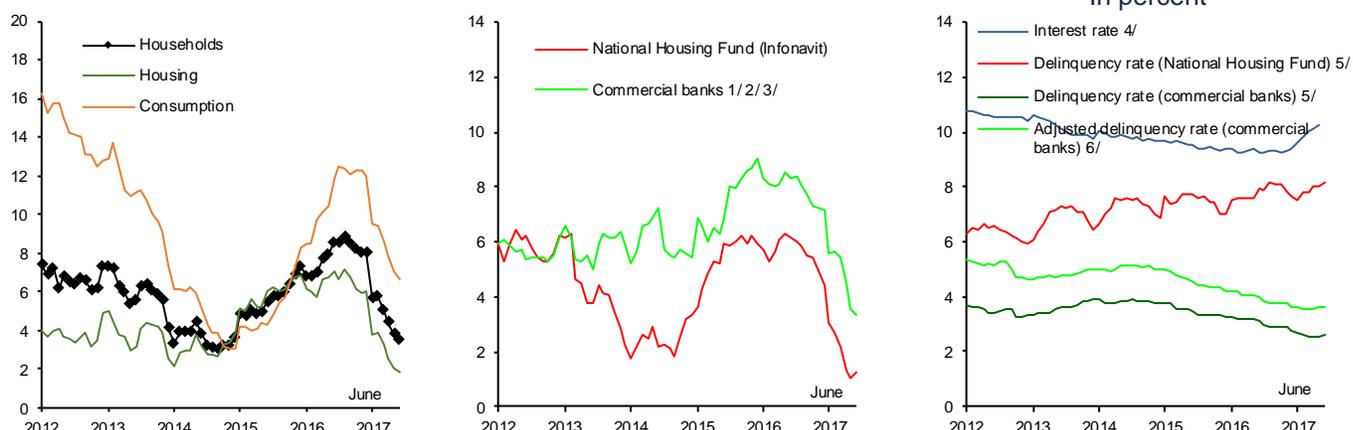
Chart 37
Credit to Households

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. Figures presented correspond to May 2017.
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, commercial bank consumer credit observed a reduction in its growth rate between the first and the second quarters of the year, as it shifted from 5.5 to 3.7 percent in real annual terms. Notably, this moderation was observed across all components of this portfolio, with the exception of credit for Acquisition of Consumer Durables, which maintained high growth rates due to the persisting dynamism of the auto loans (Chart 38a). As regards credit costs, in the reported period, interest rates remained generally unchanged, even though bank cards' rates, and, more recently, auto loan rates, somewhat increased. Finally, delinquency rates persisted relatively low, even though the adjusted index due to write-offs has gone up, which largely reflects a certain deterioration in the payroll segment (Chart 38b).

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[6] 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 38
Commercial Bank Consumer Credit

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

b) Delinquency Rates [1/ 4/]
In percent
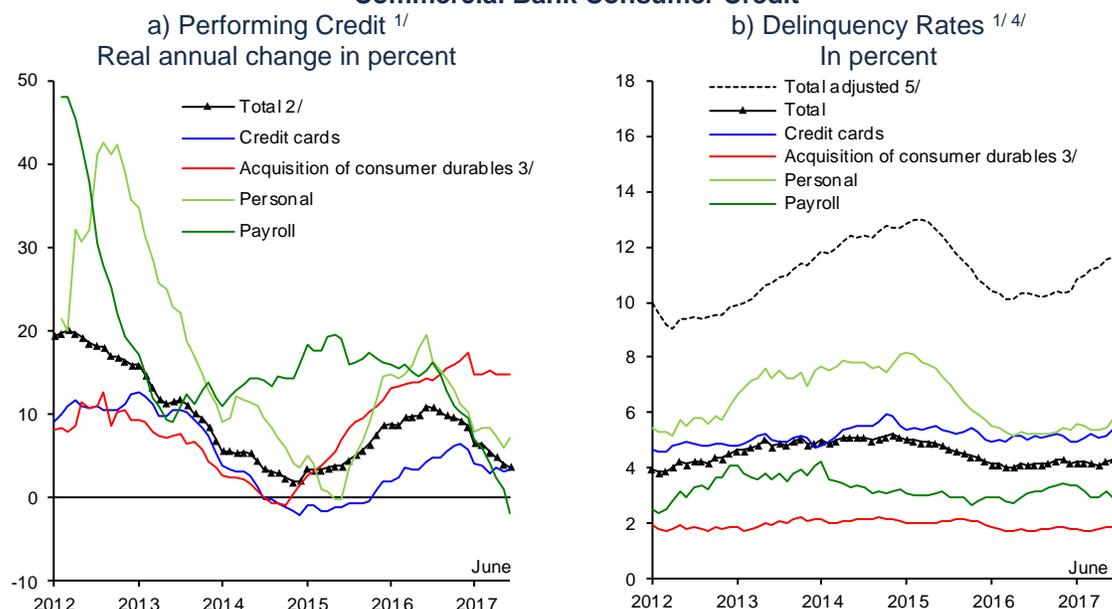
1/ It includes the Sofomes ER subsidiaries of bank institutions and financial groups.
2/ It includes credit for payable leasing operations and other consumer credits.
3/ It includes auto loans and credit for acquisition of other movable properties.
4/ The delinquency rate is defined as the stock of non-performing 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.
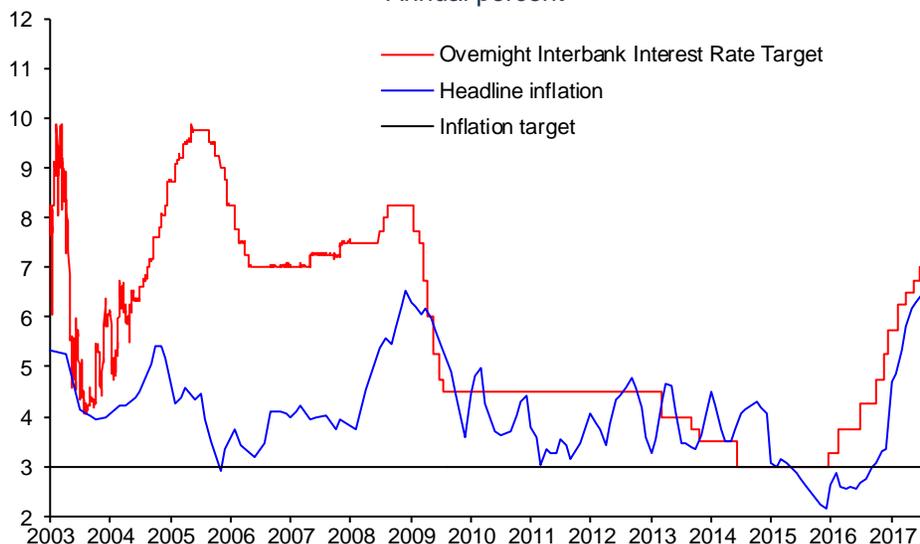Source: Banco de México.

In sum, the moderation in the sources of financial resources has been reflected in a lower financing to different sectors of the economy. In this context, it stands out that a lower resource absorption by the public sector contributed to generating room to maintain the expansion of domestic financing to the private sector, albeit at more moderate rates. This reflects the relevance of maintaining the fiscal consolidation efforts, which, besides strengthening the macroeconomic fundamentals of the country, would limit pressure on the loanable funds' market. On the other hand, the higher cost of financing and the resulting lower growth of demand for credit are without a doubt associated to the monetary policy measures that have been adopted by this Central Institute. This shows that the monetary policy transmission channels, which operate through credit markets, are functioning.

4. Monetary Policy and Inflation Determinants

Due to the convergence of different shocks on inflation, this Central Institute has acted in a timely manner and at a magnitude that is deemed necessary to prevent the price formation process of the economy from contamination; that is, that adjustments in relative prices as a result of the said shocks would take place in an orderly manner. This implies that the referred shocks would not generate second round effects on the price formation process in the economy, and, therefore, will not translate into deanchoring of medium- and long-term inflation expectations. In this sense, the Board of Governors of Banco de México has considered that monetary policy measures impact inflation with a considerable lag, which turns out to be even more relevant, since the dynamics of short-term inflation have been affected by shocks that, for the most part, have an impact that frequently is immediate on the measured inflation, even when they are transitory.

Thus, Banco de México has been adjusting its monetary policy stance from December 2015 to June 2017, increasing the target for the overnight interbank interest rate by 400 basis points, from 3 to 7 percent (Chart 39). These adjustments have started to be reflected in different indicators and aggregates of inflation, which have recently reduced the growth rate and even observed a certain reversal in their trends, but mainly have influenced the evolution of the exchange rate, which as appreciated considerably. The latter is particularly relevant, as the channel of the exchange rate is one of the most important in the monetary policy transmission mechanism. The above has occurred in a context in which, although inflation expectations for the end of 2017 kept slightly adjusting upwards, and attained 6.03 percent in July, medium-term ones remained below 4.00 percent and long-term ones at 3.50 percent, which is congruent with a temporary rise of inflation.

Chart 39
Overnight Interbank Interest Rate and Headline Inflation [1/]
Annual percent

1/ The Overnight Interbank Interest Rate is shown until January 20, 2008. The latest inflation figure corresponds to the
   first fortnight of May.
Source: Banco de México.

In particular, in the monetary policy meetings of March, May and June 2017, the Board of Governors decided to increase the reference rate by 25 basis points on

each occasion, after it had raised it on 6 previous occasions (by 50 basis points each time) over the period from February 2016 to February 2017. As indicated at the time, these actions aimed at preventing the contagion of the price formation process in the economy as a result of the above mentioned shocks, at anchoring inflation expectations and at strengthening the monetary policy contribution to the process of inflation convergence to its target. In this regard, it stands out that in its meeting of June, the members of the Board of Governors considered that, taking into account the temporary nature of shocks that affected inflation, the information available at the time, the horizon at which the monetary policy transmission channels operate, as well as the forecast for the economy, the reference rate level was congruent with the convergence of headline inflation to its 3 percent target in late 2018. Hence, upon verifying that the above remained the central scenario given available information, in its August meeting the Board of Governors decided to maintain unchanged the target for the overnight interbank interest rate. Similarly, it noted that in the future it 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, along with the evolution of the output gap and the monetary stance of Mexico relative to that of the U.S. Furthermore, it reaffirmed that, in any event, in light of a possibility of an array of risks, it will be vigilant in ensuring that a prudent monetary stance is maintained, in a manner that strengthens the anchoring of medium- and long-term inflation expectations and the convergence to its target is attained.

Among the elements considered to justify the monetary policy decisions made in the reference period, the following stand out:

i.   Although headline and core inflation maintained an upward trajectory, their growth rate has started to decelerate. Furthermore, it stands out that there are already changes in the trends of the categories affected by the initial shocks, such as those corresponding to energy products and non-food merchandise.

ii.   Headline inflation seems to be approaching its ceiling. In line with the above, in the last months of this year it is expected to resume a downward trend and this trend is estimated to accentuate during next year, leading to the convergence to the 3 percent target by the end of 2018.

iii.   The evolution of inflation expectations keeps reflecting its transitory increase. Thus, while those corresponding to the end of 2017 were adjusted upwards, medium-term ones remained below 4 percent and long-term ones persisted at 3.5 percent.

iv.   As a result of the recent evolution of economic activity, no significant aggregate demand-related pressures onto prices have been observed (Chart 40). Similarly, as mentioned in Section 3.2, conditions in the labor market continued to tighten, so it would seem that slack in that market has been exhausted. Indeed, the gap between the observed unemployment rate and that congruent with an environment of low and stable inflation is negative and significantly different from zero, as is the extended measure of this gap that includes informal salaried workers (Chart 41a and Chart 41b). However, so far no wage-related pressures have been perceived that may affect the inflation process. In this context,

derived from the performance of wages and labor productivity during the reference period, unit labor costs, both for the economy as a whole and for the manufacturing sector, in particular, remained at low levels, albeit with a certain upward trend relative to what was recorded in 2014 (Chart 42).

v. Although the Federal Reserve increased its target range of the reference rate by 25 basis points last June, no modifications were introduced in the latest meeting, thus ratifying that the process of the monetary policy normalization in the U.S. will be highly gradual, even considering that it could start reducing the amount of its balance sheet soon.

Chart 40
Output Gap Estimate [1]
Percentage of potential output, s. a.
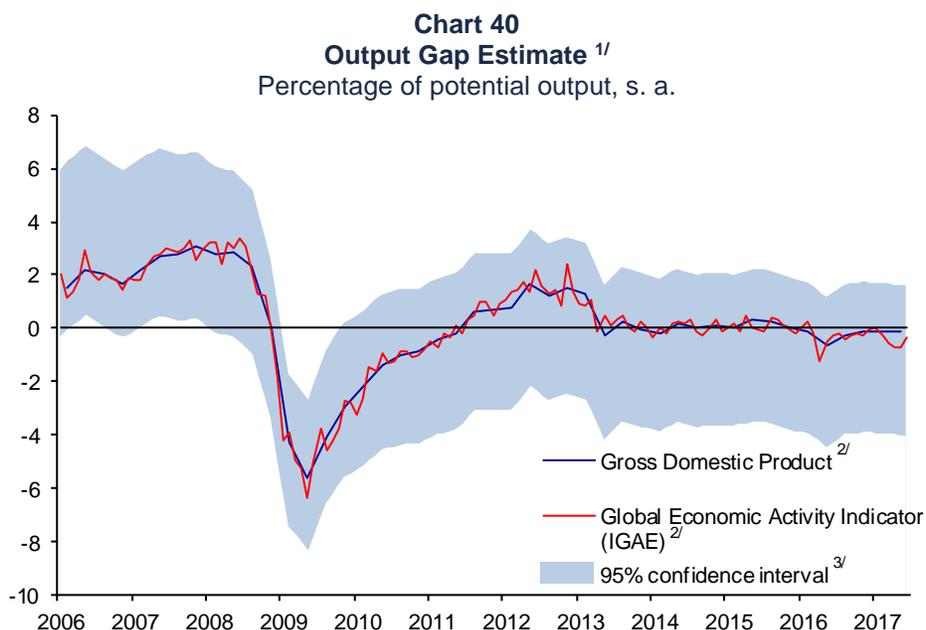
s. a. / Estimated with seasonally adjusted data.
1/ Estimated using the Hodrick-Prescott (HP) filter with tail correction; see Banco de México Inflation Report, April- June 2009, p.69.
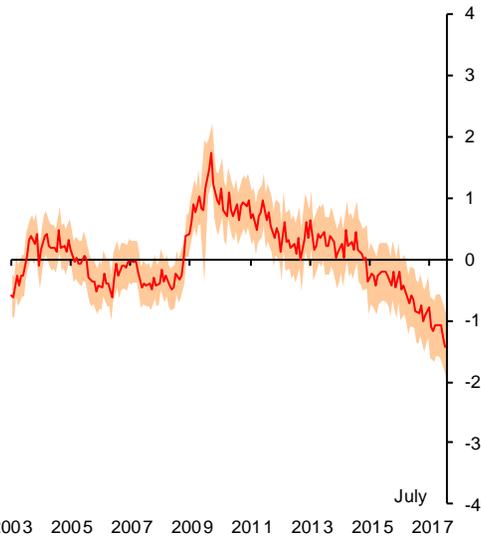2/ GDP figures as of the second quarter of 2017; IGAE figures as of June 2017.
3/ Confidence interval of the output gap calculated with an unobserved components' method.
Source: Estimated by Banco de México with data from INEGI.

Chart 41
Estimate of the Unemployment Gap
Percent, s. a.

a) Unemployment Rate [1/]

July

2003 2005 2007 2009 2011 2013 2015 2017

s. a. / Seasonally adjusted data.
1/ Shaded areas represent confidence intervals. An interval corresponds to two average standard deviations among all estimates.
Source: Banco de México.

b) Unemployment Rate and Informal Wage Workers [1/]
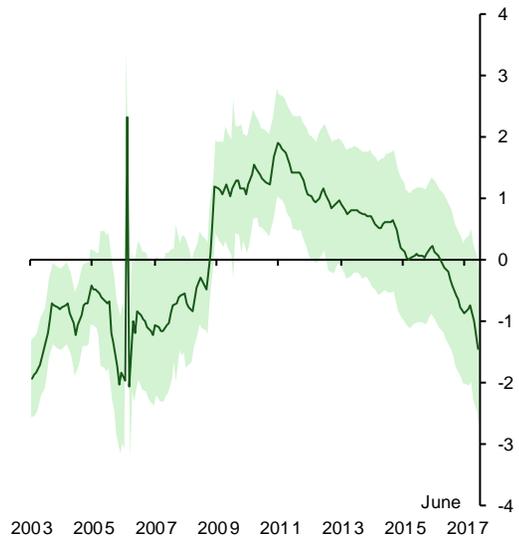
June

2003 2005 2007 2009 2011 2013 2015 2017

s. a. / Seasonally adjusted data.
1/ Shaded areas represent confidence intervals. An interval corresponds to two average standard deviations among all estimates.
Source: Banco de México.

Chart 42
Productivity and Unit Labor Cost
Index 2008=100, s. a.

a) Total of the Economy [1/]

b) Manufactures
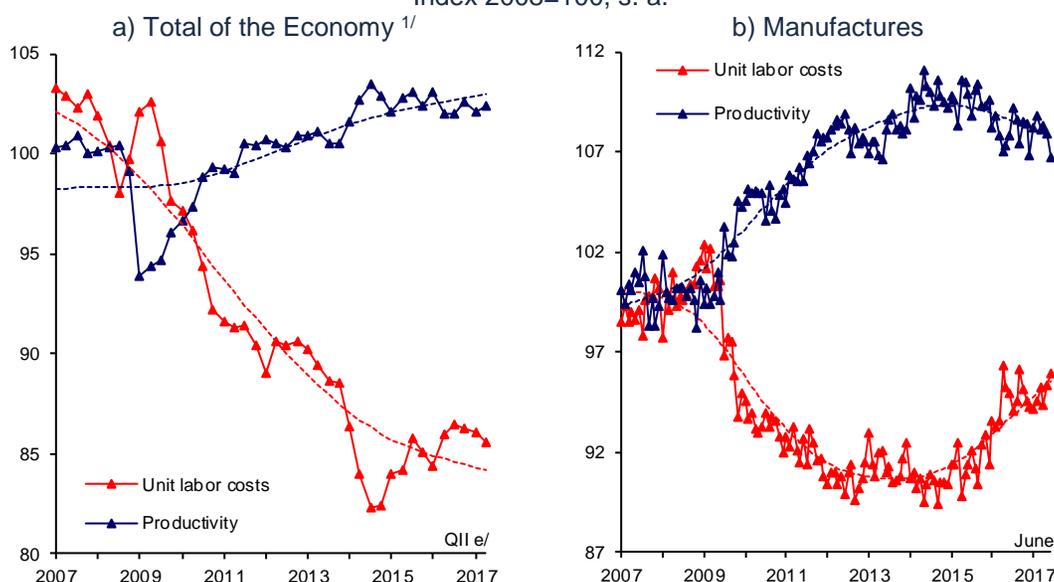
s. a. / Seasonally adjusted and trend series. The former is represented with a solid line, the latter, with a dotted line. Trends estimated by Banco de México.

e/ The second quarter of 2017 is the estimation of Banco de México.

1/ Labor productivity based on hours worked.

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. Mexico's System of National Accounts, INEGI.

s. a. / Seasonally adjusted and trend series. The former is presented 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 Monthly Indicator of Industrial Activity of the Mexico's System of National Accounts, INEGI.

Delving in the performance of inflation expectations based on Banco de México's survey among private sector specialists, it is notable that their medians for shorter terms continued adjusting upwards, which is still compatible with a transitory increase in inflation. In particular, it stands out that between March and July 2017:

i. The median of headline inflation expectations at the end of 2017 went up from 5.60 to 6.03 percent, although it stands out that the changes that had been observed recently have moderated, so that even between June and July it remained practically constant (Chart 43a).[7] In the same way, the median for the core component shifted from 4.60 to 4.92 percent (between March and July), while the implicit expectation for the non-core component adjusted significantly from 9.01 to 9.82 percent.

ii. The median of expectations at the end of 2018 remained around 3.80 percent between the referred surveys.[8] Within it, the median for the core component adjusted from 3.62 to 3.67 percent over the same period, while the implicit expectation for the non-core component lowered from 4.50 to 4.24 percent (Chart 43).

iii. In relation to the above described performance, it should be noted that, by considering the monthly trajectory of medians of inflation expectations

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[7] The median of headline inflation expectation for the end of 2017, based on the Citibanamex survey, went up from 5.5 to 6.1 percent between the surveys of March 21, 2017 and August 22, 2017.
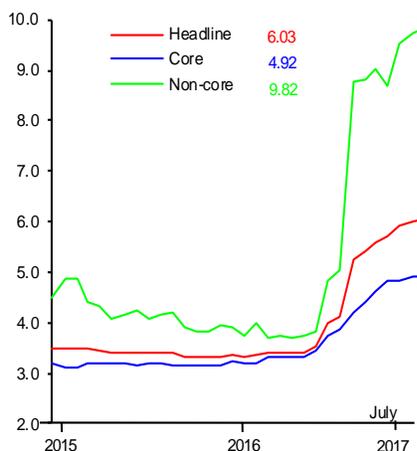
[8] The median of headline inflation expectation for the end of 2018, based on the Citibanamex survey, increased from 3.7 to 3.8 percent between the surveys of March 21, 2017 and August 22, 2017.

for each one of the next twelve months (until July 2018), it can be observed that it remains without significant changes with respect to the previous surveys (Chart 44a). Thus, the evolution of annual inflation implicit in these expectations still registered a decrease in the last months of 2017, a significant downward adjustment in January 2018, although of a lower magnitude than that expected by Banco de México, due to the vanishing of the comparison base effect that will impact the measured annual inflation during this year, and exhibits a trend in the same direction during the subsequent months (Chart 44b).

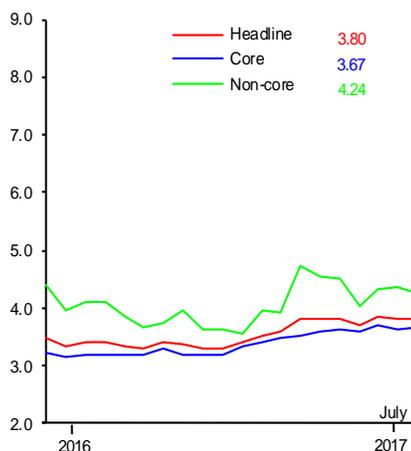iv.   Expectations for longer-term horizons remained anchored around 3.5 percent (Chart 43c).[9]

Chart 43
Inflation Expectations
Percent

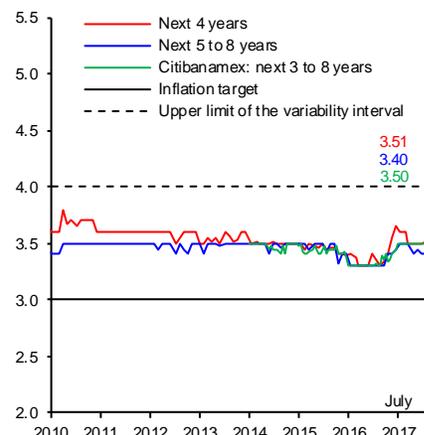a) Medians of Headline, Core and Non-core Inflation Expectations as of End of 2017

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.

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[9] Regarding the median of long-term inflation expectations, based on the Citibanamex survey (for the next 3-8 years), it maintained at 3.5 percent between the surveys of March 21, 2017 and August 22, 2017.

Chart 44
Inflation Expectations
Percent

a) Median of Monthly Inflation Expectations
for the Next Months

Source: Banco de México's Survey, INEGI.

b) Annual Inflation Implicit in Monthly
Inflation Expectations

Source: Banco de México's Survey, INEGI.
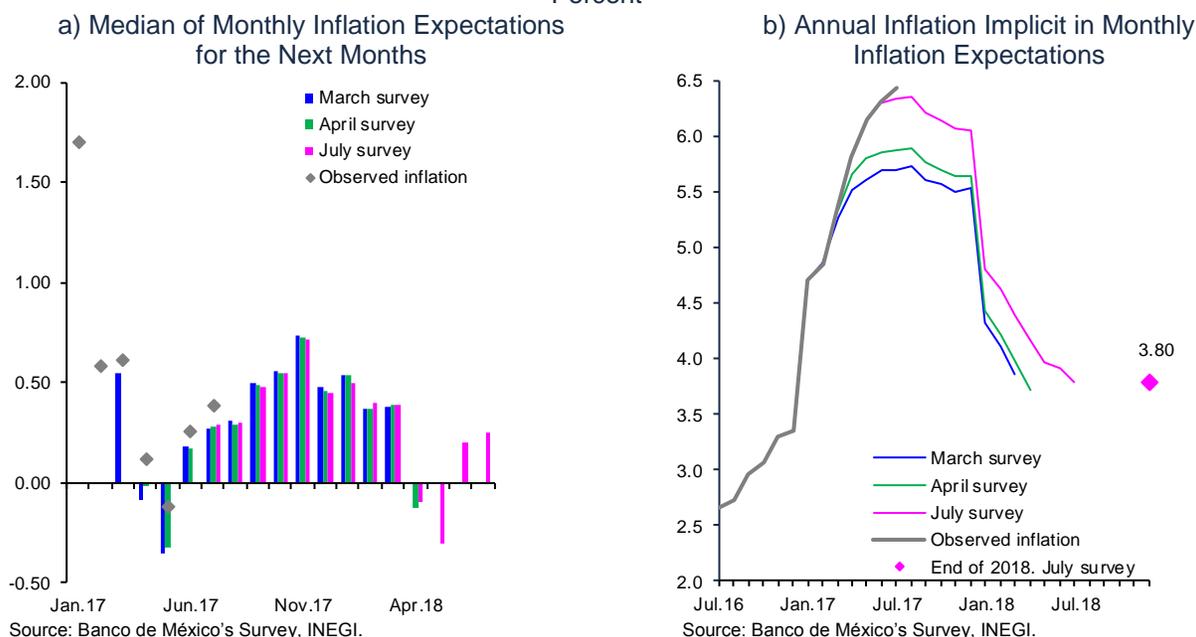
As regards the break-even inflation (the difference between long-term nominal and real interest rates), it moderated in the reference period, after spiking at the beginning of the year (Chart 45a). As regards its components, it stands out, on the one hand, that long-term inflation expectations implicit in market instruments (taken from government instruments with maturities of 10 years) somewhat increased (from 3.32 percent in March to 3.43 percent in July), although at a lower magnitude than on previous occasions. This principally derived from an upward adjustment in shorter-term inflation expectations, as it is shown by the average of the first 1-5 years, which lies at 3.68 percent, in contrast to the average of the next 6-10 years that persists close to 3 percent, at 3.18 percent (Chart 45b). Meanwhile, the estimate of the inflation risk premium further declined from 25 to 8 basis points between April and July 2017, after spiking in January (Chart 45c).[10]

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[10] 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.
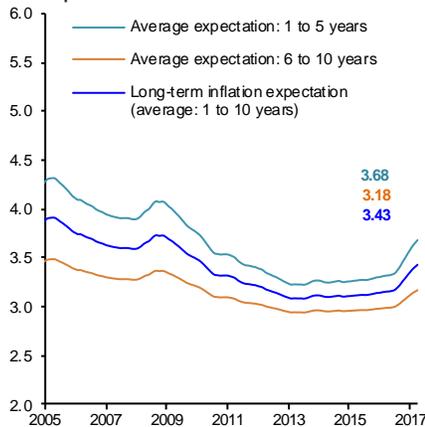
Chart 45
Inflation Expectations
Percent

a) Break-even Inflation and Inflation
Risk Implicit in Bonds

b) Annual Inflation Expectations
Implicit in Market Instruments [1]

c) 10-year Inflation Risk Premium [1]
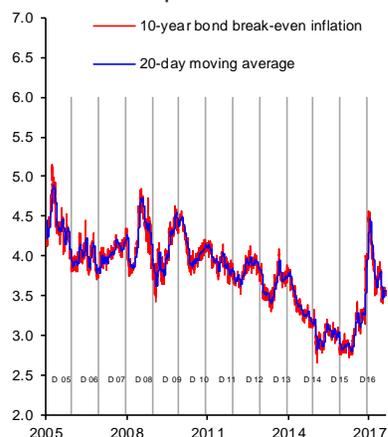
Source: Estimated by Banco de México with data from
Valmer and Bloomberg.

1/ The inflation expectation is calculated based on a
similar model using data from Bloomberg, PIP and
Valmer, based on Aguilar, Elizondo and Roldán
(2016).
Source: Estimated by Banco de México with data
from Bloomberg, Valmer and PIP.
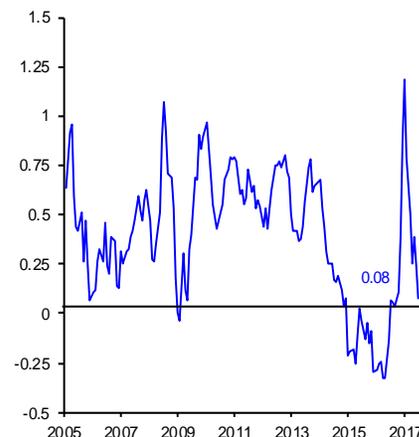
1/ The inflation risk premium is calculated based on
a similar model using data from Bloomberg, PiP
and Valmer, based on Aguilar, Elizondo and
Roldán (2016).
Source: Estimated by Banco de México with data
from Bloomberg, Valmer and PIP.

Operating conditions in domestic financial markets kept improving in the reported period. In particular, the Mexican peso against the U.S. dollar performed favorably, as its volatility reduced and it further appreciated. Thus, the national currency, which had begun the second quarter of 2017 at approximately USD/MXN 18.8, marked USD/MXN 17.8 at the end of August (Chart 46a and Chart 46b), after marking USD/MXN 17.45, a level that had not been observed since the second quarter of 2016. This evolution, to a large extent, reflected the monetary policy actions implemented by Banco de México and a relative improvement in the perception of the bilateral Mexico – U.S. relation in the future, as well as a more favorable international financial environment. Likewise, as determined by the Foreign Exchange Commission, a foreign exchange market mechanism consisting in non-deliverable forward (NDF's) auctions has been operating since March 2017, further contributing to improve the operating conditions in the foreign exchange market of the country. In this juncture, the expectations for the quote of the Mexican peso at the end of 2017 and 2018, derived from surveys, kept decreasing considerably (Chart 46a).
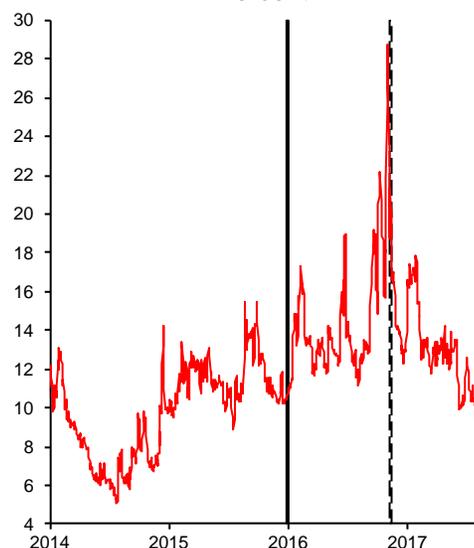
Chart 46
Exchange Rate and Implied Volatility

a) Nominal Exchange Rate [1]
MXN/USD

b) Implied Volatility in FX Options [1]
Percent
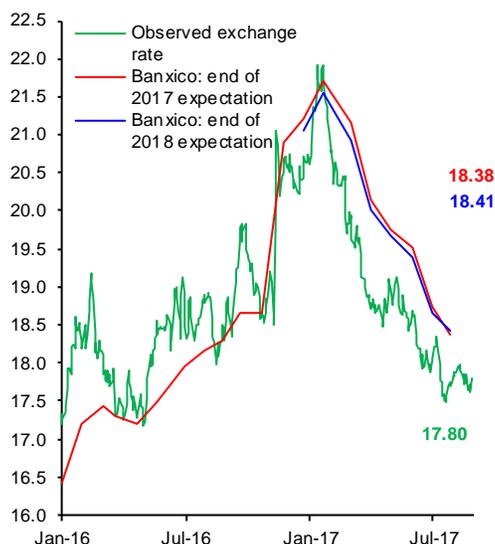
1/ The observed rate is the daily FIX exchange rate. Expectations correspond to the average of the July survey by Banco de México.
Source: Banco de México.

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.

The performance of interest rates was differentiated during the period analyzed in this Report. In particular, short-term ones increased, reflecting increments in the reference rate, while longer-term ones declined, in view of the anchoring of medium- and long-term inflation expectations in Mexico, the corresponding reduction of the inflation risk premium, the decrease in long-term U.S. rates and an environment of higher risk appetite. In this way, between late March and early August 2017, 3-month and 10-year interest rates shifted from 6.6 to 7.1 percent and from 7.1 to 6.8 percent, respectively (Chart 47a and Chart 47b). As a result of the above described evolution of interest rates, the slope of the yield curve (measured as the difference between 10-year and 3-month rates) plunged from 50 to -30 basis points, in the same interval (Chart 47c). Similarly, it stands out that from December 2015 to late August 2017 the slope of the yield curve adjusted downwards by 320 basis points, reflecting, on the one hand, a tighter monetary policy stance, derived from which 3-month interest rates went up by approximately 385 basis points in the referred interval, and, on the other hand, reflecting the anchoring of inflation expectations and other domestic and external factors, as a result of which 10-year interest rates went up by barely 65 basis points during the same period.

Chart 47
Interest Rates in Mexico

a) Government Bond Interest Rates
Percent

b) Yield Curve
Percent
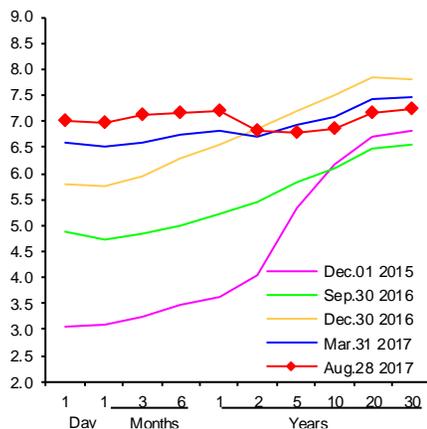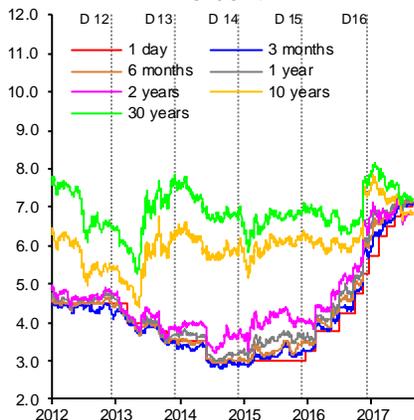

c) Slope of the Yield Curve
Basis points
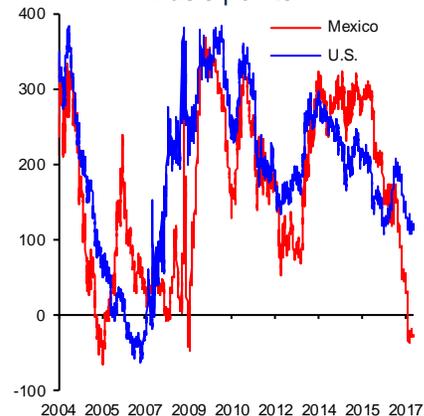
Source: *Proveedor Integral de Precios* (PiP) and U.S. Department of the Treasury.

Consistent with the above performance, and given that short-term interest rates in the U.S. grew to a lower degree, and medium- and long-term ones declined less than those of Mexico, spreads between Mexican and U.S. interest rates increased in their short-term horizons and slightly declined in medium- and long-term ones. In particular, from the end of March to the end of August 2017, the spread of short-term rates (3 months) went up from 580 to 610 basis points, while the 10-year spread declined from approximately 470 to 460 basis points (Chart 48a and Chart 48b). It should be noted that the level of these spreads (which is higher for short-term ones as compared to long-term rates) points to a clear differentiation between monetary policy stances of these two countries, given that the increment in the reference interest rate in Mexico has been 400 basis points, while in the U.S. it was 100 basis points. The difference between the relative monetary stances in part responds to the current inflation spreads and those anticipated between the two countries in the short term. Indeed, in Mexico, the most recent estimate of headline inflation measured in annual terms lies at 6.44 percent, while in the U.S. it places at 1.73 percent, which represents a difference of 471 basis points. Similarly, inflation expectations for the end of 2017 lie at 6.03 and 2.10 percent in Mexico and the U.S., respectively (a 393-basis-point difference). This is in contrast with longer-term ones that currently lie at 3.40 and 2.40 percent, respectively (a 100-basis-point difference; Chart 48c).

Chart 48
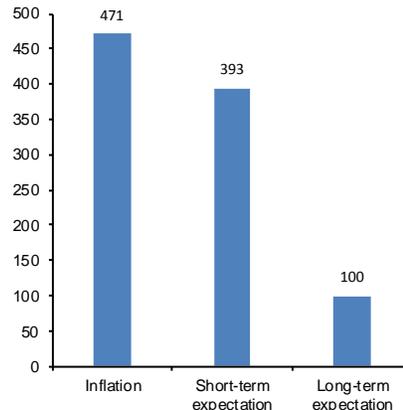**Spreads between Mexican and U.S. Interest Rates**

a) Spreads between Mexican and
U.S. Interest Rates [1]
Percent
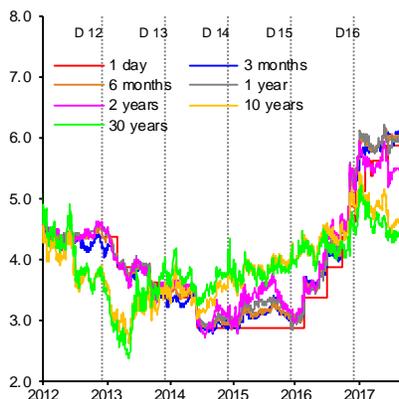
b) Curve of Spreads between
Mexican and U.S. Interest
Rates
Percentage points
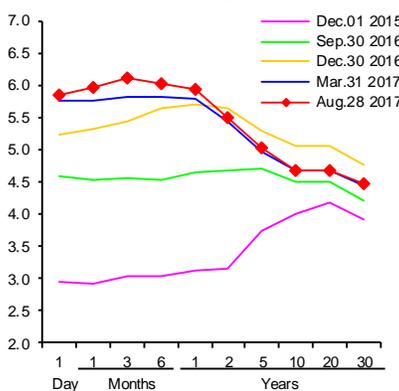
c) Inflation Spreads and Spreads
of Short- and Long-term Inflation
Expectations
Basis points

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.

Source: INEGI, Bureau of Labor Statistics, Blue
Chip Economic Indicators and Consensus
Forecast.

It is relevant to stress that adjustments in the reference rate implemented by this Central Institute since the end of 2015 were carried out based on a historic minimum of 3 percent. In this sense, the 400-basis-point increment in the reference rate from December 2015 up to date fundamentally constitutes a withdrawal of the monetary stimulus that prevailed in the previous period, while the current real ex ante rate seems to be close to the neutral level that would be anticipated in the long term (Chart 49).[11]

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[11] For a description of the estimation of the short-term neutral interest rate, see Box "Considerations on the Evolution of the Neutral Interest Rate in Mexico", in the Quarterly Report, July - September 2016.

Chart 49
Real Ex ante Short-term Rate and Estimated Ranges for Real Neutral Short-term Rate
in the Short and Long Terms [1]
Annual percent
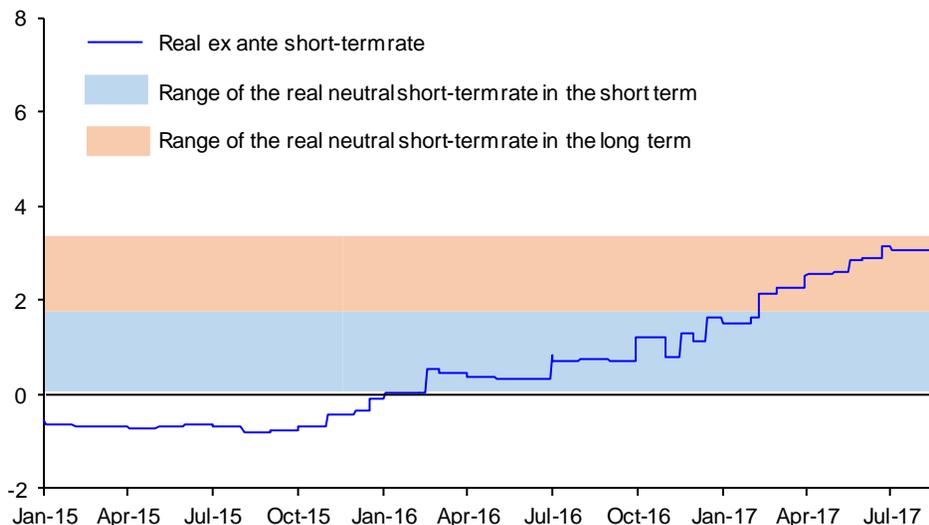
1/ Real ex ante short-term rate is calculated as the difference between the Overnight Interbank Interest rate and the median of inflation expectations for the next 12 months, derived from Banco de México's Survey.
Source: Banco de México.

On the other hand, market indicators that measure the sovereign credit risk decreased. In particular, the 5-year Credit Default Swap went down from 130 to 105 basis points and marked the minimum levels over the last two years, after having spiked during the fourth quarter of 2016. In this regard, it should be noted that some rating agencies (Standard & Poors and Fitch) adjusted their rating outlook of the Mexican sovereign debt from negative to stable.

Despite the better performance that has recently been observed in domestic financial markets, the Mexican economy still faces a complex environment. Thus, proceeding with the adequate implementation of structural reforms and the authorities' perseverance in strengthening the country's macroeconomic fundamentals, thus consolidating public finances, and ensuring that the Board of Governors of Banco de México maintains a prudent monetary policy become particularly relevant. Hence, the goal is to strengthen the anchoring of medium- and long-term inflation expectations and to achieve its convergence to the target.

5. Inflation Forecasts and Balance of Risks

In an ongoing effort to improve its communication strategy with the public, henceforth in its Quarterly Report, the Board of Governors has decided to add to all fan charts, of both inflation and economic activity, the central forecast of the current Report and to compare it with that of the previous Report. This new way to present the forecast, in particular that of inflation, will contribute to reinforce the Central Bank's role in forming expectations, and, in turn, further strengthening the inflation expectations channel in the monetary policy transmission mechanism. The goal is to explain to the public in more detail the Bank's forecasts, the risks associated to them, and their possible updates.

GDP Growth Rate: The outlook for the economic growth in Mexico seems to have improved with respect to the prevailing perception at the moment of the previous Report release. In particular, world economic activity and global trade have recovered, the domestic market has proven to be resilient, and business' and consumers' confidence has gradually increased. In the second quarter of 2017, even productive activity decelerated slightly less than anticipated in the previous Report. In addition, despite the persistent uncertainty over the future Mexico – U.S. bilateral relationship, the most recent information suggests that there is a lower probability that the scenarios that could affect growth the most could materialize. Hence, the forecast interval for GDP growth in Mexico for 2017 has been adjusted from one between 1.5 and 2.5 percent to one between 2.0 and 2.5 percent, an interval of a smaller amplitude than that of the previous Report. In addition, the forecast interval of GDP growth for 2018 has been revised upwards from one between 1.7 and 2.7 percent published in the previous Report to one between 2.0 and 3.0 percent. In this way, a greater growth of the economy is expected in 2018 relative to 2017. This trajectory is consistent with the expectation that the reactivation of U.S. industrial production will consolidate, as well as with the expectation that some structural reforms will generate even more noticeable effects on growth, and that the strengthening of the macroeconomic framework, that has been carried out by both the fiscal and monetary authorities, will generate more favorable conditions for economic activity in Mexico, so that the domestic market will keep contributing to economic growth (Chart 50a).[12]

These growth expectations do not suggest the presence of aggregate demand-related pressures onto prices in the forecast horizon. In particular, the output gap is still anticipated to remain negative, although lying closer to zero, when compared to the one in the previous Report (Chart 50b).

Employment: The forecasts for the number of IMSS-affiliated jobs for the following two years have been adjusted upwards with respect to the forecast found in the previous Report, congruent with the adjustment in the growth predictions for 2017 and 2018. In particular, in 2017 the number of IMSS-affiliated jobs is expected to increase between 660 and 760 thousand jobs, an interval that compares to the previous forecast of between 650 and 750 thousand jobs. For 2018, an increase of
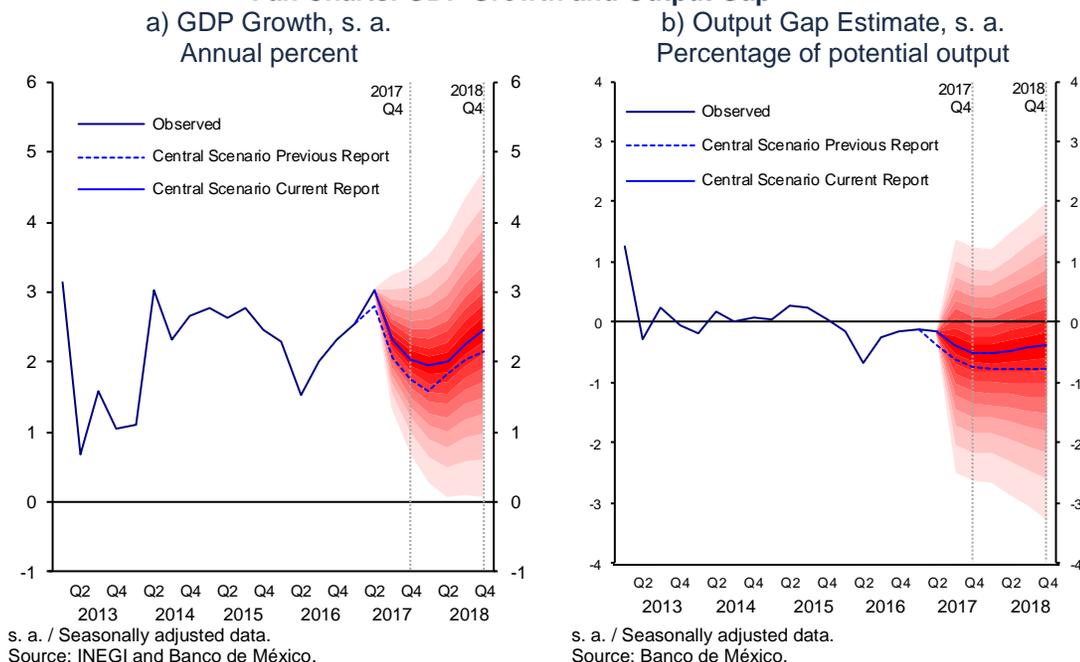
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[12] According to business analysts surveyed by Blue Chip in August 2017, industrial production in the U.S. is estimated to grow 1.9 percent in 2017, a growth rate that is higher than the 1.7 percent expected in the previous Report, but lower than the 2.4 percent estimated for 2018, which remained unchanged relative to the forecast in the previous Report.

between 670 and 770 thousand jobs is anticipated, which is compared to the forecast of between 640 and 740 thousand jobs in the previous Report.

Current Account: Regarding the external accounts forecasts, for 2017 deficits in the trade balance and the current account of 1.2 and 2.2 percent of GDP are expected (USD 13.2 and 25.0 billion, respectively), which are compared to the 1.2 and 2.3 percent of GDP anticipated in the previous Report. For 2018, the trade balance and current account deficits are estimated to amount to 1.0 and 2.2 percent of GDP (USD 12.5 and 27.1 billion, in the same order), figures that are slightly lower than the 1.1 and 2.3 percent of GDP expected in the previous Report.

Chart 50
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 growth has improved and has become neutral, due to the perception that the probability that some of the most extreme downward risks may take place has diminished. Among the downward risks, the following stand out:

i. That, as a result of the uncertainty over the renegotiation of NAFTA, different enterprises decide to further postpone their investment plans in Mexico.

ii. That the renegotiation of NAFTA is not favorable for the Mexican productive sector or that it even results in its cancellation.

iii. That episodes of high volatility in international financial markets occur, derived from geopolitical events or from the normalization process of U.S. monetary policy that could reduce the sources of financing to Mexico.

iv. That the upcoming electoral process in Mexico generates volatility in the domestic financial markets, creating an environment of uncertainty that could negatively affect the evolution of private spending, at the end of 2017 and, mainly, in 2018.

v.   That the rise in public insecurity further affects productive activity.

On the other hand, among the upward risks, the following are noteworthy:

i.   That the renegotiation of NAFTA triggers investment in areas of opportunity, which have not been previously considered by the Agreement.

ii.   That the implementation of the structural reforms renders greater-than-estimated results.

iii.   That in 2017 the oil production platform registers an annual reduction that is lower than expected, and that in 2018 it will reverse its trend more than previously anticipated.

Inflation: According to the central scenario, annual headline inflation is estimated to persist above 6.0 percent over the next months. However, it appears to be approaching its ceiling. In line with that, during the last months of this year headline inflation is expected to resume its downward trend, which is anticipated to accentuate during the following year, leading to the inflation convergence to its 3.0 percent target around the third quarter of 2018. Under this scenario, in 2017 annual core inflation is estimated to remain above 4.0 percent, although significantly below the trajectory of annual headline inflation. Likewise, at the end of 2017 and in early 2018, it is expected to resume its convergence trajectory to the inflation target, attaining levels close to 3.0 percent in late 2018. The above estimations consider monetary policy adjustments that have been implemented since December 2015 up to date, and which will keep affecting the evolution of inflation over the next quarters. Similarly, it is considered that in January 2018 the vanishing of the base effect brought about by higher prices of various energy products in early 2017 will significantly impact annual inflation, which will present a downside trajectory during the subsequent months. This will take place in an environment, in which no aggregate demand-related pressures onto prices are expected (Chart 51 y Chart 52). These forecasts assume that in an event of volatility in domestic financial markets, it would be transitory.

The above estimations are subject to risks. Among upward risks, the following should be mentioned:

i.   That given the simultaneity and the magnitude of shocks on inflation, second round effects on inflation are registered, which has not occurred so far.

ii.   That the materialization of external and domestic risks faced by the economy affects the exchange rate.

iii.   That price increments in agricultural prices persist, even though their impact on inflation will be transitory.

iv.   Considering that labor market conditions have been tightening, that the evolution of unit labor costs will start to be reflected in inflation.

Among downward risks, these should be listed:

i.   That the appreciation of the national currency consolidates and even deepens.

ii.   That energy prices go down in accordance with their international references.

iii.   That a greater-than-anticipated reversal in the price increments of agricultural products, which have affected inflation in recent months, is observed.

iv.   That the structural reforms lead to further reductions in different prices of the economy.
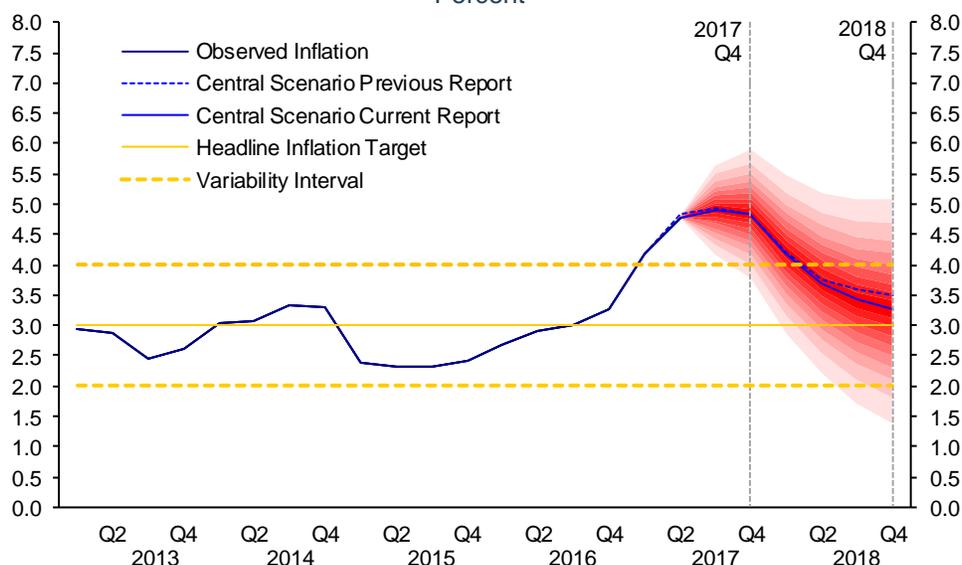
Given the current monetary policy stance, the balance of risks to inflation is considered to be neutral.

Chart 51
Fan Chart: Annual Headline Inflation [1]
Percent
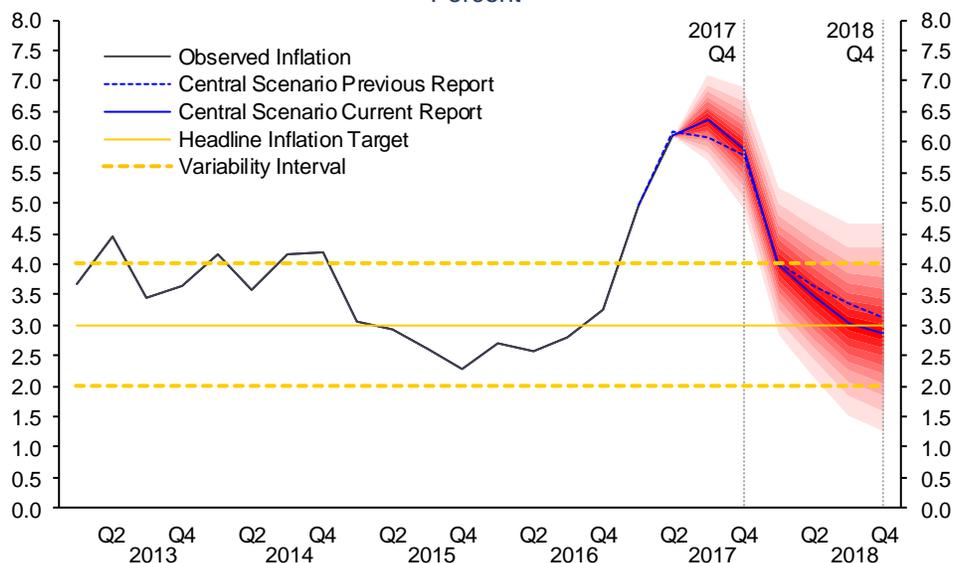
1/ Quarterly average of annual headline inflation.
Source: Banco de México and INEGI.

Chart 52
Fan Chart: Annual Core Inflation [1]
Percent

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

Considering the data 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 and the evolution of the output gap. It will also assess the monetary position of Mexico relative to the U.S. In any event, in light of different prevailing risks, the Board of Governors will be watchful to ensure that the monetary stance remains prudent, so that the anchoring of medium- and long-term inflation expectations is strengthened, and its convergence to the inflation target is achieved.

As a result of the sound macroeconomic framework of Mexico, despite the complex external environment faced by the Mexican economy throughout various years, the country continues growing and financial stability has prevailed, as the economy has been adjusting to the new environment in an orderly manner. Nonetheless, it is important to keep in mind that the economy is still facing serious challenges, reason why it is crucial to continue strengthening the macroeconomic fundamentals. This is contributed to by the monetary policy actions seeking to maintain anchored medium- and long-term inflation expectations and to attain the convergence of inflation to its target, as well as by the Federal Government commitment to implement the fiscal adjustment so that the public debt-to-GDP ratio declines. In particular, the fiscal authority has made a decision to attain a primary surplus of 0.4 percent of GDP in 2017 (excluding Banco de México's operational surplus). In fact, the results of public finances for the first half of the year are in line with fulfillment of this goal. Furthermore, for 2018 the Federal Government has strengthened its commitment to fiscal consolidation, when it put forward a surplus in the primary balance amounting to 1.0 percent of GDP.[13] In the future, it is important that the

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[13] Figures for 2017 are taken from Reports on Economic Activity, Public Finances and Public Debt of the Second Quarter of 2017. Data for 2018 are taken from the Document concerning the compliance with the provisions of Article 42, Fraction I of the LFPRH, also known as General Economic Policy Preliminary Guidelines (*Pre-Criterios*). Both documents have been published by the Ministry of Finance.

fiscal consolidation process procures to structurally strengthen public finances, for it to be sustainable in the medium term. Progress in the implementation of the structural reforms, in particular in the competition, telecommunications and energy reforms, should be stressed. In recognition of the above factors, some rating agencies revised Mexico's sovereign debt credit outlook up to stable from negative.

The Board of Governors of Banco de México considers that the current monetary policy stance is congruent with the convergence of headline inflation to its 3.0 percent target by the end of 2018. It is worth highlighting that achieving the fiscal goals proposed by the Ministry of Finance for this year and the next one will reinforce the convergence process of inflation to its target and will help make it more efficient. This takes on greater relevance in light of the still prevailing uncertainty, related to the possible tightening of global financial conditions in the future, to the NAFTA renegotiation and to the upcoming electoral process in Mexico.

For the reinforcement of the macroeconomic framework to better support the development of the country, it should be accompanied by a continuous strengthening of the Mexican institutions. The fact that in 1993 Banco de México was granted, at the constitutional level, autonomy regarding its functions and administration has enabled this Central Institute to focus, in independence of the political cycle, on maintaining price stability, which is the main task that society has entrusted to it. Thus, the credibility that the monetary authority has been building through its actions has allowed it to control inflation in Mexico and to make progress in consolidating an environment of low and stable inflation, for the benefit of the Mexican population. Similarly, it has contributed to the sound development of the financial system and has propitiated a good functioning of the payment systems.

Banco de México's experience in curbing inflation is proof that it is important for Mexico to have institutions that respond to society's demands. In this sense, strengthening Mexico's institutions at all levels so that they comply with their social purpose under the principles of transparency and with zero tolerance for corruption should be an essential part of the effort to ratify the supremacy of the rule of law in Mexico. In a context in which public insecurity issues have increased, it becomes particularly relevant to adopt measures to prevent this factor from gaining greater importance as an obstacle to the economic development of the country. Likewise, legal certainty and the strengthening of the rule of law will allow to achieve timely and correct implementation of the structural reforms and to correct the shortcomings that impede the country from attaining a greater potential growth and a more competitive economy that deliver a faster and more sustainable growth of employment and salaries. In this way, Mexico will be in a better position to face challenges in the future, in view of a complex external and domestic environment, and to benefit from the opportunities that may arise.

Annex

Modification to the Publication Calendar of the Quarterly Report July - September 2017

Table 1 in this Annex presents a new calendar for the monetary policy announcements and the publication of the minutes of the Board of Governors' Meetings regarding monetary policy decisions, as well as the Quarterly Reports for the remainder of 2017. It should be noted that the dates of all publications remain unchanged, except for the release of the Quarterly Report July – September 2017, which will be advanced by one week. It is relevant to note that the release of the monetary policy decisions will continue to be held on Thursdays at 1pm, as it has already been announced, and two weeks following each announcement, the corresponding Minutes will be released, just like it has been happening before.

Table 1
Calendar for 2017

	Announcements of Monetary Policy Decisions	Minutes of the Board of Governors' Meetings regarding Monetary Policy Decisions	Quarterly Reports [1]
September	28		
October		12	
November	9	23	22
December	14	28	

1/ The Quarterly Report that is to be published on November 22 corresponds to the report of the third quarter of 2017.

The calendar considers three previously announced dates for the announcement of the monetary policy decisions in 2017. However, 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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