BANCO DE MÉXICO®

Executive Summary

Quarterly Report October - December 2021

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Summary

Mexico has faced an environment of high inflation, in which upside pressures on prices of a wide range of goods and services due to the shocks associated with the COVID-19 pandemic have been intensifying. Thus, annual headline inflation has remained above the 3% target, reaching by the end of 2021 levels unseen in over two decades. Annual core inflation has increased for fourteen consecutive months, while the non-core component has even registered double-digit annual increments. This has occurred in a context in which ample slack conditions in the economy and risks to inflation, economic activity and financial markets prevail. In this scenario, Banco de México has implemented monetary policy in a prudent and timely manner, in order to prevent possible adverse effects on longer-term inflation expectations and on the price formation process in the economy, while ensuring an orderly adjustment of relative prices and in financial markets. Given the complex outlook for inflation and an environment of high uncertainty, Banco de México will continue seeking to attain the convergence of inflation in the horizon in which monetary policy operates, ensuring conditions that can contribute to better address any additional challenges that may arise, including tighter global monetary and financial conditions.

Regarding the external environment, world economic activity continued recovering during the fourth quarter of 2021, although at a lower-than-expected rate, given the persistent bottlenecks in supply chains and a lesser mobility associated to the resurgence of infections caused by the omicron variant of the SARS-CoV-2 virus by the end of that year. These factors are anticipated to continue affecting economic activity in the first quarter of 2022, although they are expected to be shorter-lived and less intense than in the previous waves of the pandemic.

Thus, the growth outlook for the world economy for 2022, as a whole, was revised slightly downwards, reflecting the lower probability of a greater fiscal stimulus being approved in the United States, of a faster withdrawal of monetary stimulus in systemically important economies, of a lesser mobility due to the resurgence of the pandemic, and more lasting-than-anticipated disruptions to supply chains. These previsions remain subject to a high degree of uncertainty, especially associated with the evolution of the pandemic, or the possibility of the latter becoming endemic, the vaccination process worldwide, distortions in supply chains, persistent inflationary pressures, and adjustments in monetary and financial conditions. In addition, the intensification of the conflict between Russia and Ukraine could also have repercussions on growth, inflation and the stability of the global financial system.

World inflation continues increasing, because of pressures originated by bottlenecks in global supply chains, the reallocation of spending towards merchandise, the high levels of food and energy prices, and the recovery of certain services. Thus, inflation in most major advanced and emerging economies remained above the targets of their respective central banks.

The box *International Evidence of the Correlation between Inflation's Average Level and Persistence* presents a descriptive exercise based on long-term historical data of a group of advanced and emerging economies, which illustrates that such correlation is positive.

In this context, most monetary authorities in the main advanced economies started to modify their monetary policy stances, in some cases via adjustments in their asset purchase programs during the reported period or, more recently, via increases in their reference rates or by announcing that they would raise them soon. The above, in addition to the increase in world inflation, generated expectations of a more accelerated reduction of the monetary stimulus worldwide. In turn, in emerging economies, a large number of central banks continued increasing their reference rates, as they have been doing since mid-2021.

In the described environment, international financial markets performed favorably during the first half of the reported period. However, by the end of November, and subsequently, starting from the second half of January, episodes of higher volatility were registered while uncertainty over the future evolution of these markets persists, among other factors, given the process of normalization of monetary policy in major advanced economies and the effects of the conflict between Russia and Ukraine, which could lead to a reallocation of portfolios to safer assets.

The box *Relation between the US Federal Funds Rate and the Evolution of Mexican Financial Markets* shows, based on a Vector Autoregressive Model (VAR), that when the US federal funds rate is raised, the exchange rate tends to depreciate and to exhibit higher volatility, while capital flows to Mexico decrease and the sovereign risk premium increases.

In Mexico, during the fourth quarter of 2021, economic activity kept showing weakness, registering zero growth and maintaining marked differences across its sectors. In particular, services contracted again, while industrial activity grew moderately. Although the Mexican economy is expected to resume its recovery during 2022, an environment of high uncertainty persists as to the evolution of the pandemic at both global and national levels, as well as to its effects on the economy and supply chains, which could negatively affect the performance of economic activity in the country.

In turn, Mexican financial markets, in line with the evolution of international markets, showed a generally favorable performance during the reported period. Nevertheless, some episodes of volatility were observed. In particular, during the second half of November 2021, the Mexican peso registered a depreciation and volatility. Subsequently, starting from the second fortnight of January 2022, some pressures on the foreign exchange market were observed, although these were more limited. In turn, interest rates increased throughout the yield curve. These adjustments occurred in light of the increments in Banco de México's reference rate and increases in medium- and long-term interest rates in the United States, given the expectations of a less accommodative monetary policy in the latter.

The box *Impact of Exchange Rate Volatility on Capital Flows in Mexico* shows, via a Vector Autoregressive Model (VAR), that increases in exchange rate volatility lead to a reduction in capital flows to Mexico. It also shows that increases in global risk aversion, in the long-term interest rate in the United States or in the public debt as a percentage of GDP, as well as lower levels of economic activity lead to a reduction in said flows. In turn, increases in the interest rate spread between Mexico and the United States generate higher capital flows. Finally, it reveals the asymmetric effects of both positive and negative shocks in exchange rate volatility on capital flows, which could imply that said flows not necessarily reverse the observed outflows once exchange rate volatility decreases.

Annual headline inflation remained under pressure by a number of shocks associated with the COVID-19 pandemic, which have turned out to be more profound and longer-lasting than expected. Thus, between the third and fourth quarters of 2021, this indicator increased from 5.80 to 6.99%, reaching 7.22% in the first fortnight of February 2022. The provision of goods and services is still being affected by disruptions in production and supply chains, and by higher input prices. Conversely, there has been a higher demand for merchandise, as a result of the reallocation of households' spending from services to merchandise, in an international context of economic recovery supported by programs of significant economic stimuli in developed economies. Similarly, said economic recovery has exerted pressure on the international references of energy prices, in an environment of low levels of inventories and investment in that sector. Inflation of services has also been driven by the reopening of activities and the increase in their demand, which was contained for several months and has benefited from progress in the vaccination campaigns. The result has been an imbalance between supply and demand in different markets, which has extended due to the slow reestablishment of distribution channels and the low flexibility of supply, which has also been affected by the spread of the omicron variant of the SARS-CoV-2 virus. In this context, both core and non-core inflation increased between the third and the fourth quarters of 2021. The former increased from 4.79 to 5.60% between the third and the fourth quarter, and further to 6.52% in the first fortnight of February 2022, affected by higher levels of inflation of both merchandise and services. Non-core inflation rose from 8.97 to 11.28% in the referred quarters, registering 9.33% in the first fortnight of February 2022. In this respect, high annual changes of energy prices and of agricultural and livestock products were observed.

The indicators estimated in the box *Measurement of Headline and Core Inflation Trends* show an upward trajectory since 2021 and are at high levels. This reflects that the upward pressures that have affected the prices of more and more goods and services of the CPI basket and of the core index in the context of the pandemic, have been increasingly generalized.

Regarding Banco de México's monetary policy decisions, the Governing Board decided to increase the target for the Overnight Interbank Interest Rate by 25 basis points during the meeting of November 2021 and by 50 basis points in the meetings of December 2021 and February 2022, setting it at 6.0%. During these meetings, the expected trajectories for headline and core inflation were revised upwards, mainly for the short term. In the meetings of December and February, the Governing Board assessed the magnitude and diversity of the shocks that affected inflation and its determinants, the risk of medium- and long-term expectations and price formation becoming contaminated, as well as the greater challenges associated with the tightening of global monetary and financial conditions. Based on the above, it decided, on those occasions, to increase the reference rate by 50 basis points.

For the next monetary policy decisions, the Governing Board will monitor thoroughly inflationary pressures as well as all factors that have an incidence on the foreseen path for inflation and its expectations. The latter, in order to set a policy rate that is consistent at all times with both an orderly and sustained convergence of headline inflation to the 3% target within the time frame in which monetary policy operates and an adequate adjustment of the economy and financial markets.

Given the current context of the monetary stimulus withdrawal at the global level, the box *Banco de México's Actions in Response to Policy Adjustment Cycles by the Federal Reserve* describes monetary policy implementation in Mexico during the previous cycles of increases and reductions to the target range for the federal funds rate in the United States. The box presents a conceptual framework of the impact of these cycles on the Mexican economy, describes the actions taken by Banco de México during the four cycles observed between 2004 and 2020, and contrasts Mexico's macroeconomic fundamentals at the beginning of the cycles with the situation at the end of 2021. During the cycle of adjustments in the federal funds rate, Banco de México's response is observed to have varied depending on macroeconomic circumstances, and have not necessarily followed a one-to-one relationship.

As for the macroeconomic outlook of Banco de México:

Growth of the national economy: For 2022, GDP is expected to grow between 1.6 and 3.2%, with a point estimate of 2.4%. For 2023, it is expected to grow between 1.9 and 3.9%, with a point estimate of 2.9% (Chart 1). These point estimates compare with those published in the previous Report of 3.2 and 2.7% for each year.[1]

Figures for 2022 were mainly revised due to the significant weakness exhibited by economic activity in the last quarter of 2021, which led to a lower growth base for the current year as compared to the one previously expected. However economic activity is anticipated to resume a period of gradual growth starting from the first quarter of the year, supported by both external[2] and domestic demand. The performance of the Mexican economy will remain influenced by the evolution of the pandemic, both at the national and international level. Thus, the recent wave of infections caused by the omicron variant at

[1] These intervals compare with those published in the previous report, of 2.2 to 4.2% for 2022, and of 1.7 to 3.7% for 2023.

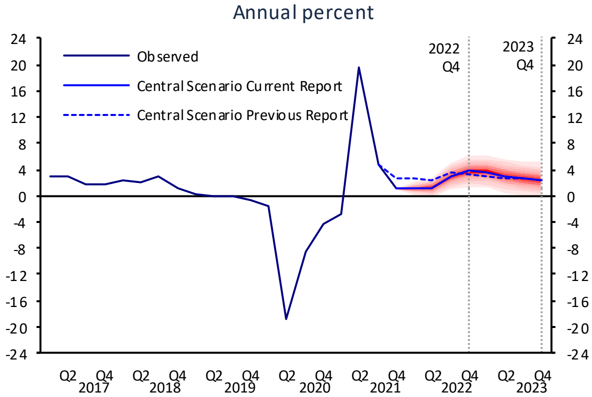
[2] Regarding expectations for industrial production growth in the United States, according to analysts surveyed by Blue Chip in February 2022, for 2022 and 2023 growth is expected to be 4.0 and 2.5%, respectively, as compared to 3.8 and 2.5%, respectively, presented in the previous report.

the beginning of the year could affect the economic rebound expected for the first quarter of 2022, while a more favorable evolution of the pandemic in the coming months is expected to contribute to a relatively better performance of the economy during the rest of the year. For 2023, expected quarterly growth figures remain similar to those previously anticipated, so that the revision for that year as a whole is determined by the growth base effects of the previous year.

If growth in 2022 materializes close to the upper part of the indicated range, economic activity would recover the level observed at the end of 2019 during the third quarter of the current year. If growth results close to the point estimate for 2022, such recovery would occur around the fourth quarter of the year. If growth is close to the lower part of the described ranges, the level observed at the end of 2019 would be reached during the second quarter of 2023.

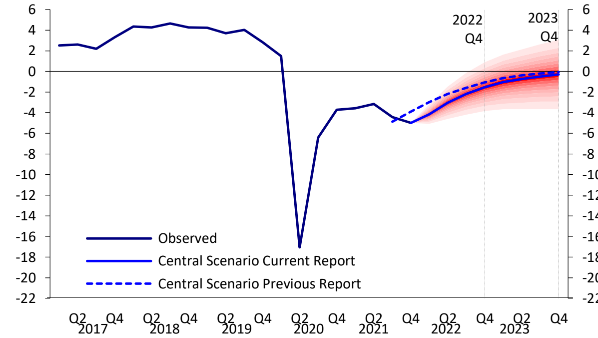
As for the cyclical position of the economy, from early 2022 onwards, slack conditions in the economy as a whole are expected to gradually decrease over the forecast horizon, in line with the expected behavior for economic activity (Chart 2).

Chart 1
Fan Chart: GDP Growth, s.a.
Annual percent



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

Chart 2
Fan Chart: Output Gap Estimate, s.a.
Percent of potential output



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

Employment: Based on the outlook for economic activity and on most recent information on the number of IMSS-insured jobs, the foreseen variation in the number of IMSS-insured jobs remains the same as in the previous report. Thus, a growth of between 560 and 760 thousand jobs is expected for 2022 and a variation of between 510 and 710 thousand jobs is expected for 2023.

The box *Recent Recovery of IMSS-insured Jobs* shows that the initial shock of the pandemic implied a strong reduction in the probability of having an IMSS-insured job. Although this effect has been dissipating, some effects of the shock still prevail.

The box *Effects of Inflation on Labor Poverty in Mexico* shows the results of a panel model with fixed effects at a city level from 1994 to 2019, in which the dependent variable is a city poverty rate and the independent variables include inflation, regional GDP growth and trend variables. The results suggest that the higher the inflation rate is, the increments in the poverty rate become larger and larger.

Current account: For 2022, the trade balance is expected to be between -15.0 and -9.0 billion dollars (-1.1 and -0.6% of GDP), and the current account balance is expected to be between -8.2 and 1.8 billion dollars (-0.6 and 0.1% of GDP). By 2023, a trade balance of between -17.8 and -9.8 billion dollars (-1.2 and -0.6% of GDP) and a current account balance of between -10.1 and 1.9 billion dollars (-0.7 and 0.1% of GDP) are projected.[3]

Risks to growth: In a context in which uncertainty regarding the evolution of the pandemic and its effects on economic activity persists and geopolitical conflicts have increased, the balance of risks to growth is biased to the downside.

Among the risks to the downside in the forecast horizon, the following stand out:

i. That the persistence of the pandemic results in a less vigorous economic recovery.

ii. That bottleneck problems in global supply chains that have led to shortages of inputs for some sectors in Mexico persist or intensify. Similarly, that the pandemic leads to higher input and production costs in various sectors of the economy.

iii. That additional episodes of volatility in international financial markets that could affect financing flows to emerging economies are observed.

iv. That the recovery of investment is lower than expected or insufficient to support the reactivation process and long-term growth of the economy. In this regard, a possible reorganization of the electricity sector could lead to a less favorable business climate for investment.

Among the risks to the upside in the forecast horizon, the following stand out:

i. That greater pandemic control due to increased vaccination coverage leads to a more vigorous and widespread recovery of the economy.

ii. That the effects of international and domestic stimuli continue to support consumption and investment.

iii. That, within the framework of the USMCA, Mexico becomes an attractive destination for investment in view of a global reconfiguration of production processes, benefitting its economic activity and productivity.

iv. That global financial conditions conducive to a faster economic recovery are maintained.

Inflation: Pandemic-related shocks have continued exerting widespread pressures on the prices of various goods and services, which has driven inflation in Mexico to high levels. These shocks have turned out to be of greater magnitude and duration than anticipated. The imbalance between supply and demand in various markets worldwide continues to exercise pressure on the prices of inputs and final products, affecting consumer prices of goods and services in our country. This imbalance has extended due to the difficulty to reestablish logistics channels and to make supply more flexible in order to satisfy the high levels of global demand. The emergence of the omicron variant may have also contributed to the persistence of these shocks. In addition, businesses have faced higher costs to contain employee and customer contagions, while demand for some services has increased due to greater consumer confidence, in the context of progress in vaccination campaigns.

The box *Rising Transportation Costs and their Impact on Inflation Worldwide* evaluates the effect on inflation by the increase in sea freight costs that has been registered in recent years, using a general equilibrium model that considers the productive and trade links among countries and sectors. Results suggest that the heterogeneous increase in sea freight costs between different routes is a relevant factor in explaining the difference in the recent evolution of inflation between countries.

This complex environment for inflation made it necessary to revise the inflation forecasts upwards in the Monetary Policy Statements of December 16, 2021 and once again in that of February 10, 2022. This

[3] Figures for 2022 compare with the previous Report's figures of a trade balance of between -16.1 and -10.1 billion dollars (-1.1 and -0.7% of GDP) and a current account balance of between -8.5 and 1.5 billion dollars (-0.6 and 0.1% of GDP). Figures for 2023 compare with the previous Report's forecast of a trade balance of between -18.6 and -10.6 billion dollars (-1.2 and -0.7% of GDP) and a current account balance of between -9.1 and 2.9 billion dollars (-0.6 and 0.2% of GDP).

Report maintains the trajectory for inflation presented in the latest Monetary Policy Statement.

Thus, relative to the previous Quarterly Report, the expected path for headline inflation is revised upwards up to the first quarter of 2023. This adjustment responds to greater pressures on core and non-core inflation. In the latter case, it responds to a higher rate of change in the prices of agricultural and livestock products, partially offset by a downward revision in energy prices. However, headline inflation continues to be expected to decline throughout 2022 and to converge to levels close to the 3% headline inflation target in the third quarter of 2023 (Table 1 and Chart 3a). This trajectory reflects the prevision that the effects of the pandemic-related shocks on inflation will gradually fade. However, considering the complex environment of the pandemic and the conflict between Russia and Ukraine, the possibility of new shocks occurring and exerting upward pressures on inflation, and thus causing a revision of the forecast trajectory, cannot be ruled out.

The revision to the core inflation forecast reflects the greater pressures that the pandemic has imposed on merchandise inflation due to higher production costs, supply chain problems, and the reallocation of household spending to merchandise, all of which have resulted in an imbalance between supply and demand. Although with a lower incidence on the revised forecast, greater pressures are also included in services inflation, reflecting that these have also been affected by cost-related pressures, in addition to the fact that they have faced a greater demand in the reopening of activities, as consumer mobility has increased. Nevertheless, the effects of the pandemic on core inflation are expected to fade throughout 2022, so that, after reaching 6.4% in the first quarter of 2022, core inflation declines over the rest of the forecast horizon, reaching levels close to 3% in the second quarter of 2023 (Table 1 and Chart 3b). The annual and annualized seasonally adjusted quarterly rates of change for the forecast horizon are presented in Table 1 and in Chart 4. It is observed that the seasonally adjusted and annualized quarterly rates of the Consumer Price Index would be at lower levels in 2022 than in 2021. In turn, in 2023 they would be at levels below those anticipated for 2022, fluctuating, in general, around 3%. In the case of core inflation, its annualized seasonally adjusted quarterly rates would range around 3% since the third quarter of 2022. Since annual rates are influenced for 12 months by the short-term shocks that affected inflation, their reduction is slower than those seasonally adjusted. Therefore, annual changes are above those seasonally adjusted during the stage where shocks to inflation are being assimilated, for most of the forecast horizon, for both headline and core inflation.

Although inflation continues being affected by shocks derived from the pandemic, in the baseline scenario these effects are considered to diminish throughout 2022. Nevertheless, considering the complexity of the environment faced by inflation in the context of the health crisis, and that it could deteriorate further due to the conflict between Russia and Ukraine, the possibility of pressures extending for a longer period than anticipated or of new shocks emerging cannot be ruled out. This would result in a more adverse scenario for inflation than the one considered in the central scenario. In light of the aforementioned factors, the balance of risks with respect to the expected trajectory of inflation over the forecast horizon has deteriorated and remains biased to the upside.

Among the main risks to inflation, the following stand out:

On the upside:

i. Persistence of core inflation at high levels.

ii. External inflationary pressures associated with the evolution of the pandemic and the measures to contain its effects. This could result from higher input or transportation costs, as well as from logistical problems in global production chains or from a geographic reorganization of these with adjustment costs.

iii. That the recent geopolitical conflict leads to greater pressures on commodity prices, particularly energy prices, or on agricultural and livestock product prices.

iv. Episodes of exchange rate depreciation, possibly as a result of volatility in international financial markets.

v. Cost-related pressures due to disruptions in supply chains, or higher costs associated with hiring conditions or wages, which could be passed on to consumer prices.

On the downside:

i. That given the slack conditions in the economy, cost-related pressures and labor hiring conditions do not exert pressure on prices.

ii. Lower consumer mobility that reduces the demand for goods and services.

iii. That the exchange rate appreciates.

iv. A greater-than-expected effect from the negative output gap.

v. That energy prices are lower than expected.

Table 1
Forecasts for Headline and Core Inflation
Annual percentage change of quarterly average indices

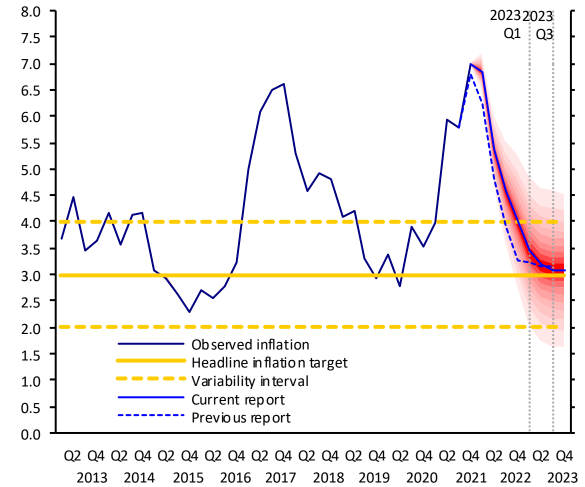
	2021		2022				2023			
	III	IV	I	II	III	IV	I	II	III	IV
CPI										
Current Report = Monetary Policy Statement of February 2022 1/	5.8	7.0	6.9	5.4	4.6	4.0	3.4	3.2	3.1	3.1
Previous Report = Monetary Policy Statement of November 2021	5.8	6.8	6.3	4.8	3.9	3.3	3.2	3.2	3.1	
Core										
Current Report = Monetary Policy Statement of February 2022 1/	4.8	5.6	6.4	6.1	5.1	4.3	3.3	2.9	2.7	2.7
Previous Report = Monetary Policy Statement of November 2021	4.8	5.5	5.8	5.3	4.3	3.5	3.0	2.7	2.6	
Memo										
Annualized seasonally adjusted quarterly variation in percent 3/										
Current Report = Monetary Policy Statement of February 2022 1/										
CPI	6.4	6.8	4.9	3.4	3.4	4.3	2.6	2.4	3.2	4.0
Core	6.6	6.5	6.8	4.2	3.1	3.2	2.7	2.6	2.5	2.8

1/ Forecast starting February 2022. It corresponds to the forecast published in the Monetary Policy Statement of February 16th 2022.
2/ Forecast starting November 2021 It corresponds to the forecasts published in the Monetary Policy Statement of November 11th 2021 3/
See methodological note on seasonal adjustment process.
Source: INEGI for observed annual variation figures and Banco de México for seasonally adjusted figures and forecasts.

Chart 3

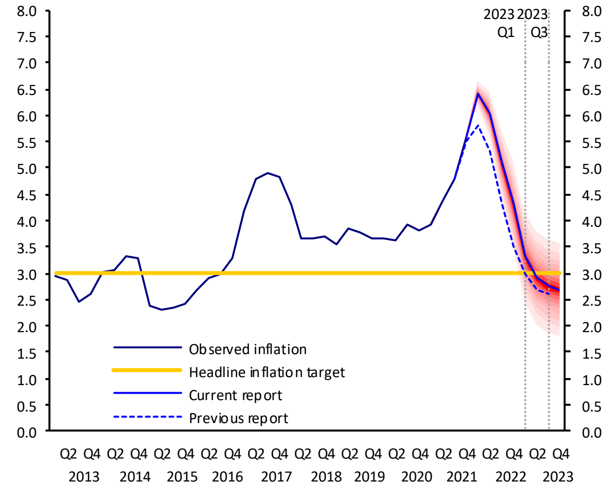
a) Fan Chart: Annual Headline Inflation[1/]

Percent



b) Fan Chart: Annual Core Inflation[1/]

Percent



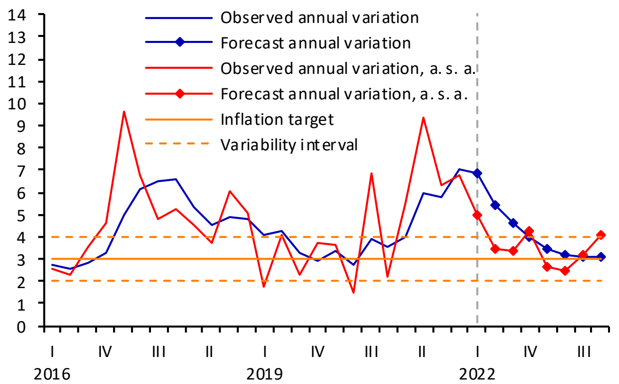
1/ Quarterly average of annual inflation. The next four and six quarters are indicated with vertical lines, using as a reference the first quarter of 2022, that is, until the first quarter of 2023 and the third quarter of 2023, respectively, time frames in which the transmission channels of monetary policy fully operate.

Source: Banco de México and INEGI.

Chart 4

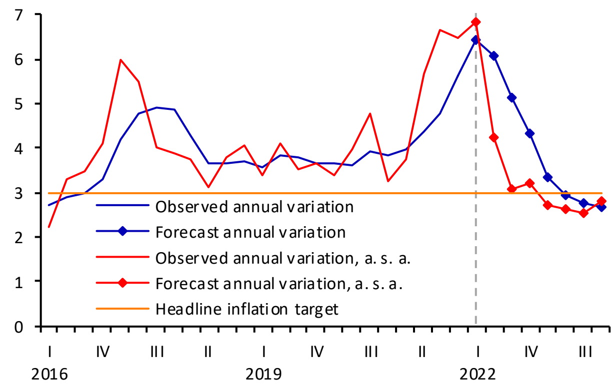
a) Headline Inflation

Quaterly variation, annualized and s.a., and annual variation in percent



b) Core Inflation

Quaterly variation, annualized and s.a., and annual variation in percent

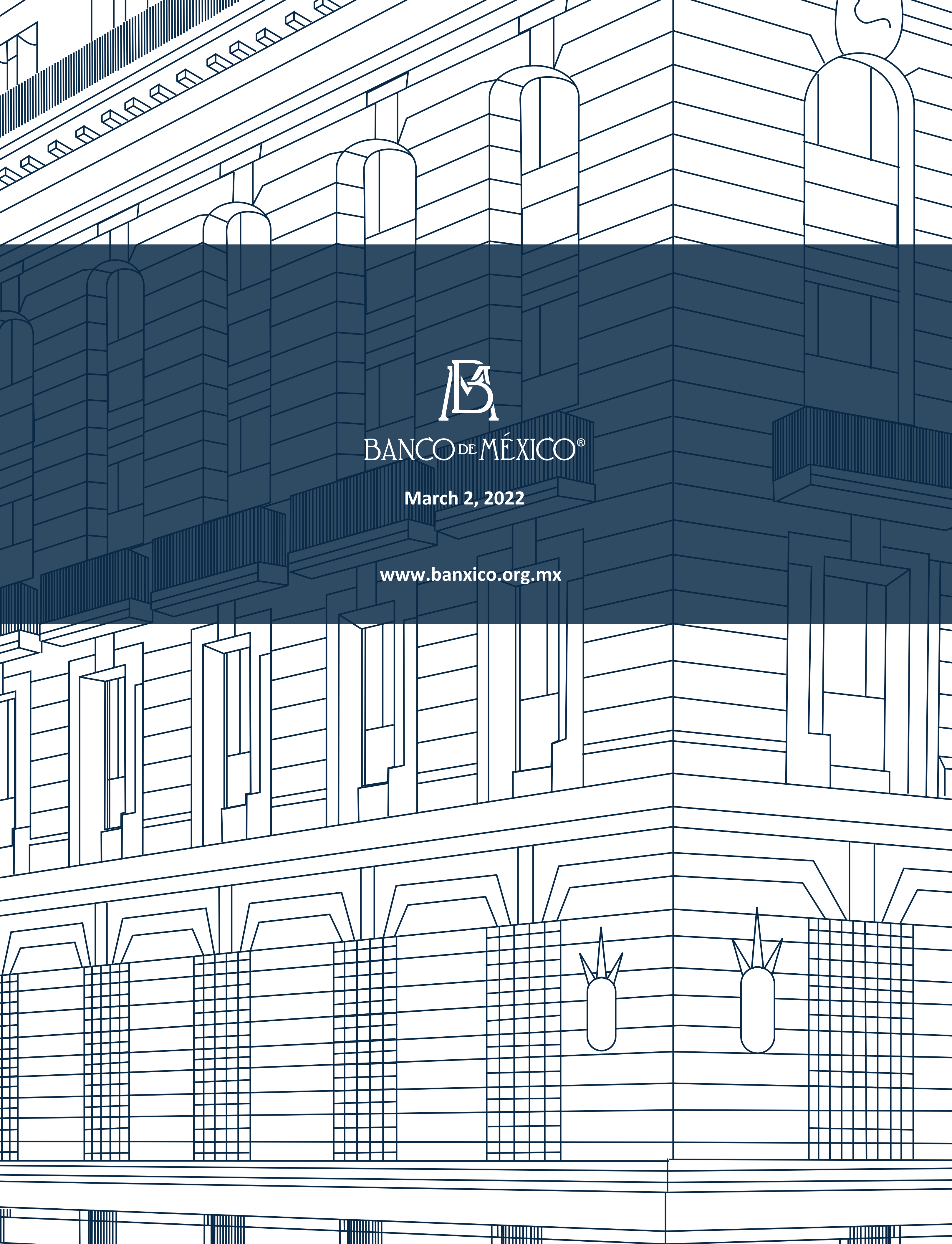


s.a. seasonally adjusted figures.
a.s.a. annualized seasonally adjusted figures.
Vertical line corresponds to first quater of 2022.
Source: Banco de México and INEGI.

The emergence of the omicron variant of the SARS-CoV-2 virus in late 2021 and its rapid spread worldwide in early 2022 has confirmed the risks that persist surrounding the evolution of the pandemic. This, in turn, has highlighted the prevailing uncertainty about the magnitude and duration of the impact of the health emergency on global and national economic activity, as well as on the behavior of inflation and monetary policy worldwide. Thus, controlling the pandemic remains a primary goal, both for health reasons and to support economic recovery, with full vaccination of the population and relevant boosters in all countries being one of the fundamental tools. This should also contribute to normalize supply chains and reduce pressures on world inflation, as well as to avoid episodes of volatility in international financial markets.

In this complex environment, maintaining sound macroeconomic fundamentals is a permanent task of national economic policy. This requires preserving fiscal discipline, a sound and resilient financial system, as well as a monetary policy focused on achieving price stability. In this regard, Banco de México's Governing Board determines its monetary policy stance seeking to foster an orderly adjustment of relative prices, financial markets and the economy as a whole, leading to the convergence of inflation to the 3% target, and preserving the anchoring of inflation expectations.

Given the duration of the pandemic and its effects on the economy, it is crucial to adopt policies that support a more rapid and widespread growth of the Mexican economy and that not only contribute to recovering the levels of activity prior to the health emergency, but also mitigate possible more persistent adverse effects and support longer-term growth, in order for more and better jobs to be created for the benefit of all Mexicans. Thus, the structural problems that for years have led to low productivity levels must continue to be addressed. At the same time, it is necessary to foster conditions of certainty for investment and productive activity, and to strengthen the rule of law and the fight against insecurity.



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