Inflation targeting in Mexico: evolution, achievements and policy lessons

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Abstract

This chapter reviews the importance of the inflation targeting framework to the progress in attaining a credible monetary policy regime in Mexico, which in turn, has contributed to the achievement of a price stability environment in the face of shocks. Importantly, its adoption was preceded by Banco de México's autonomy, a cornerstone of the country's macroeconomic stability. It is argued that the Great Financial Crisis, the unfavourable shocks that the Mexican economy experienced during the 2014-17 period and, more recently, the shocks derived from the pandemic and the military conflict in Ukraine have presented important tests to the anchoring of inflation expectations. Actions and measures that have underpinned the Bank's commitment with its price stability mandate are discussed. Some policy lessons are drawn from the current environment.

Introduction

In response to episodes of high inflation in the 1980s and 1990s, the macroeconomic framework of the Mexican economy and, in particular, its monetary policy regime was aimed at achieving price stability. A fundamental step in this process was the constitutional reform granting autonomy to the Bank of Mexico, which came into force in 1994. It established as the Bank's main objective the pursuit of stability in the national currency's purchasing power.

The adoption of an inflation targeting (IT) framework represented another crucial step towards achieving price stability in Mexico.[1] This regime, which leverages central banks' autonomy, was formally adopted as Bank of Mexico's monetary policy framework in 2001. From that moment to date, the Mexican economy has made significant progress in maintaining a credible monetary policy regime, which in turn has contributed to an environment of low and stable inflation.

There has also been notable progress in achieving an environment of price stability. The current monetary policy framework and inflationary environment in Mexico cannot be understood without considering its autonomous central bank or

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1 See Bernanke et al (1999) for an early survey of the IT regime across industrialised economies and Corbo and Schmidt-Hebbel (2002) for early experiences with said regime in Latin America.

the IT regime. In particular, the IT framework has anchored agents' inflation expectations in the face of extremely adverse economic shocks such as those of the Great Financial Crisis (GFC) and the unfavourable shocks that the Mexican economy experienced during the period 2014–17 due to the drop in international oil prices, increased uncertainty associated with Mexico's commercial relationship with the United States, and the liberalisation of the domestic price of gasoline, which marked the beginning of a short period of market-based consumer gasoline prices. More recently, the shocks derived from the pandemic and the military conflict in Ukraine have presented important tests to the anchoring of inflation expectations.

The IT regime in Mexico, which has evolved into an inflation forecast targeting (IFT) regime, has yielded high returns in terms of its fundamental role in controlling inflation in Mexico. It has also grown stronger as a transparency- and accountability-based framework through which monetary policy actions and communications reinforce the central bank's commitment to its price stability mandate.

The beginnings of the IT regime in Mexico coincide with the opening of the BIS Office of the Americas in 2002. Since then, the Office has provided services to the entire region. Today, it coordinates the meetings of various groups that are fundamental to modern central banking, facilitating discussions on key issues. It is in that setting that the last 20 years' worth of continuous improvements to Mexico's monetary policy frameworks and tools, including in communications with the public, have been discussed, putting the Bank of Mexico in a better position to tackle the current inflationary episode.

Evolution of the current monetary policy framework in Mexico

During the 20th century, various countries – including Mexico – experienced episodes of high inflation which affected the well-being of the population. In many cases, systematically expansionary monetary policies were implemented, under the belief that such policies could have permanent effects on economic growth and job creation. In the end, such episodes were often associated with the development of macroeconomic imbalances, mainly large fiscal and external deficits related to the implementation of unsustainable macroeconomic policies, which only led to extended periods of high inflation. In the case of many developing countries, including several Latin American economies, the underlying root of these inflationary problems was the phenomenon of fiscal dominance. Under such a phenomenon, money supply is set to simply satisfy a government budget constraint on a consolidated basis. Typically, if economic agents believe that fiscal deficits may be met with monetary expansions as opposed to the use of additional government revenues, this would lead to a de-anchoring of inflation expectations. At times, these fiscal deficits may even lead to hyperinflationary episodes, which the Mexican economy managed to avoid even as it suffered extremely high levels of inflation.[2]

This led to a consensus among academics and policymakers on the advisability of giving central banks status as autonomous bodies and a price stability mandate as

[2] See Sargent and Wallace (1981) and Sargent (1982).

their main objective.[3] In this context, a constitutional reform in Mexico came into force in 1994, granting autonomy to the Bank of Mexico and establishing the pursuit of the stability of the national currency's purchasing power as its primary objective. The Mexican Constitution establishes that no authority can demand credit from the Bank of Mexico.

A year after the approval of this constitutional reform, the financial crisis that broke out in Mexico in the mid-1990s, which would come to be known as the Tequila Crisis, led to a pickup in inflation, bringing it to double-digit levels and causing a substantial decline in the well-being of the country's population. A flexible exchange rate was adopted by the Foreign Exchange Commission,[4] and the central bank established intermediate targets for monetary aggregates. Over the next few years, several measures were taken in order to move gradually towards an IT regime, which was formally adopted in 2001. In 1996, the Bank started setting annual inflation targets for subsequent years. Later, in 2000, an inflation target of 3% was set for 2003, communicated then as a medium-term target, with intermediate inflation targets of no more than 6.5% and 4.5% for 2001 and 2002, respectively.

Given the instability exhibited by the velocity of money, the targets for monetary aggregates were abandoned. The 2001 adoption of an IT regime as a framework for conducting monetary policy in Mexico was officially announced in Bank of Mexico's *Inflation Report* for July–September 2000. In said report, a permanent target of 3% corresponding to the annual variation in the Mexican CPI (*Índice Nacional de Precios al Consumidor*, or INPC) was defined.

As is well known, one of the premises of IT is transparency, which is based on a strategy of communicating the monetary authority's objectives, plans and decisions. Information and communication also make for an efficient accountability mechanism, a key aspect of central bank independence, which is a fundamental part of the operation of the regime.[5] In the case of Mexico, over the last two decades this monetary policy framework has been strengthened through different measures aimed mainly at improving transparency and accountability. This has reinforced the central bank's commitment to its price stability mandate. Efforts to improve communication with the public have been ongoing (see Table 1).

With these actions, the monetary policy framework in Mexico transitioned to an IFT regime.[6] Under this regime, central banks determine the monetary policy stance such that the resulting inflation forecasts are consistent with the fulfilment of their mandate, considering the horizon in which monetary policy operates. Thus, when, in the face of inflationary shocks, the forecast trajectory for inflation no longer aligns with the price stability objective, monetary authorities assess the expected nature, magnitude and persistence of said shocks and adjust the monetary policy stance accordingly.

3 See the seminal contributions of Kydland and Prescott (1977) and Barro and Gordon (1983) for arguments in favour of using the time-consistency approach for setting monetary policy, thereby avoiding inflationary bias. See also Cukierman (1992) and Persson and Tabellini (1993).

4 This body, which comprises top officials of the Bank of Mexico and the Ministry of Finance, including the Governor of the Bank of Mexico and the Minister of Finance, is responsible for foreign exchange policy in Mexico.

5 See Blinder et al (2008) and Woodford (2005).

6 See Box 6, "Inflation targeting regime and the role of forecasts", published in BDM (2017) for an explanation of the regime.

The economic literature suggests that the publication of inflation forecasts allows agents to better understand central banks' reaction function and provides more information on monetary authorities' interpretation of the economic environment and their policy response to changes in said environment.[7] In line with this, in 2018 the Bank of Mexico started publishing the point values for headline and core annual inflation for the next eight quarters in its *Quarterly Report*.

The IT scheme, which has evolved into an IFT regime over the last few years, has become a fundamental pillar of Mexico's macroeconomic policy framework. This framework has been accompanied with fiscal discipline, a regime of exchange rate flexibility, and the strengthening of financial regulation and supervision.

Progress in achieving an environment of price stability in Mexico (2001–19)

During the first two decades of the 21st century, the monetary policy framework, along with the macroeconomic policy framework, made it possible to advance in the creation of an environment of low and stable inflation in Mexico. In particular, headline inflation dropped.

With the benefit of hindsight, the main achievements associated with a monetary policy framework focused on a price stability mandate include:

i. a reduction in the level, volatility and persistence of inflation;[8]

ii. lower pass-through of exchange rate fluctuations to prices;[9]

iii. reduced dispersion of inflation expectations, which results in a better anchoring;[10]

iv. an inflationary process determined more by forward-looking elements rather than backward-looking ones, which reflects the strengthening of the monetary policy expectations channel;[11] and

v. increased room for manoeuvre for monetary policy to implement countercyclical policies, as occurred during the GFC, the sequence of adverse shocks to the Mexican economy during 2014–17 and, more recently, during the first stage of the Covid-19 crisis in 2020, thanks to the anchoring of longer-term inflation expectations.

7 See Svensson (1997) and (1999).

8 See Chiquiar et al (2010).

9 See, for instance, Cortés (2013), Kochen and Sámano (2016) and Angeles et al (2019).

10 Box 5, "Behavior of long-term inflation expectations in the context of inflationary pressures", published in BDM (2022) presents evidence supporting the view that, despite the severity of the shocks that have affected inflation in Mexico, long-term inflation expectations have remained anchored around their historical levels. Similarly, econometric analysis indicates that long-term inflation expectations do not exhibit a statistically significant response to either permanent or transitory inflationary shocks. These results are consistent with those of Beauregard et al (2023), De Pooter et al (2014) and Aguilar et al (2014).

11 See Box 2, "Recent changes in the transmission mechanism of monetary policy in Mexico", published in BDM (2016a). It shows that, for the periods 2001–06 and 2001–15, the reduced-form forward-looking coefficients of the hybrid Phillips curve and those of the IS curve are larger in the latter period than in the former. This strengthens the expectations channel of monetary policy in Mexico.

The main benefits associated with advancement in controlling inflation in Mexico include the following:

1. An environment of greater price stability has contributed to the development and deepening of the national financial system. In particular, it has allowed for the development of medium- and long-term financial instruments.[12]
2. The fall in inflation caused a decline in both inflation expectations and the inflationary risk premium, which led to lower interest rates. Accordingly, the financing costs incurred by households, firms and the federal government have tended to decline.[13]
3. An environment of low and stable inflation has helped preserve the stability of households' purchasing power.[14]

There has been notable progress in achieving an environment of price stability. In this context, it is important to note that the credibility of the central bank is not permanent but rather is earned from day to day through the bank's work to achieve and preserve an environment of low and stable inflation. Once the public believes that the bank is credible in delivering said inflationary environment, it can face episodes of adverse shocks more effectively. Among such episodes, there are three that stand out in Mexico.

The first of these is the GFC. Following the collapse of the investment bank Lehman Brothers in 2008, the crisis intensified and significantly affected emerging market economies (EMEs) like Mexico. The sharp increase in global risk aversion and the contraction in world economic activity deeply affected the national economy, leading to domestic financial market turmoil. In this context, the Bank of Mexico, along with the federal government, implemented a series of measures aimed at re-establishing the orderly functioning of these markets and ultimately preserving financial stability. After picking up with the adverse financial shock of 2008, headline inflation reached 6.53% in December 2008 before starting a downward trend in early 2009. The easing of inflationary pressures was driven by the drop in international commodity prices and greater slack in the economy as the economic outlook worsened. In this setting, and considering the fact that inflation expectations remained well anchored, the Bank of Mexico initiated a monetary easing cycle.

The second episode occurred more recently, during the period 2014–17. The Bank of Mexico conducted monetary policy in a complex environment in which the Mexican economy faced a series of adverse shocks, many of them having an effect on the Mexican currency. From mid-2014 to its lowest point in mid-January 2017, the peso depreciated against the dollar by close to 68%. One of the shocks that occurred during this period was a deterioration in the terms of trade due to the persistent drop in international oil prices in late 2014. This shock, together with a generalised appreciation of the dollar due to the expectation of monetary policy normalisation in the United States, gave rise to greater volatility in international financial markets, including EMEs' currencies.

12 See Technical Chapter, "Change in the nominal system of the Mexican economy in the early 2000's", published in BDM (2010) and Box 6, "Importance of central bank's autonomy and of the price stability mandate" in BDM (2019).

13 Ibid.

14 See Box 6, "Importance of central bank's autonomy and of the price stability mandate" published in BDM (2019).

In 2015, economic conditions in the United States created the expectation that monetary policy normalisation was imminent after several years of very lax conditions in that economy. This was reflected in financial markets volatility and further adjustments of the Mexican peso, which led to a real exchange rate depreciation. This process was absent of second-round effects given the anchoring of inflation expectations and the low pass-through of exchange rate variations to prices, both factors being dependent on the Bank of Mexico's commitment to its price stability mandate.

In 2016, as the result of the US elections in November pointed towards protectionist measures, the future of Mexico's trade relationship with the United States became highly uncertain, affecting the Mexican economy. In this context, domestic financial markets exhibited heightened volatility at the end of 2016 and the beginning of 2017. In particular, the Mexican peso depreciated sharply, reaching its pre-pandemic low against the dollar, and long-term interest rates increased. The increase in volatility was also driven by the expectation of a fiscal expansion carried out by the new US administration, which led markets to anticipate a more accelerated process of monetary policy normalisation in that country.

In the second half of January 2017, a combination of factors, namely the monetary policy actions implemented by the Bank of Mexico, the measures set forth by the Foreign Exchange Commission and some constructive comments by members of the US government regarding the future bilateral relationship between the United States and Mexico, partially reversed the depreciation of the domestic currency.

In early 2017, the domestic price of gasoline was liberalised, resulting in significant inflationary pressures in an already complex scenario for inflation.[15] In January 2017, headline inflation was around 4.72%. Close to 80% of the increase in headline inflation in annual terms from December 2016 to January 2017 can be attributed to the direct effect of the increase in gasoline prices.[16] An upward trend in inflation would follow as a result of both external and domestic factors. On one hand, inflation started to reflect the effects of the peso's depreciation, which, despite its partial reversal in 2017, still left the peso about 35% weaker than its mid-2014 level, even at its strongest point in July 2017. This took place in an environment of relatively tight cyclical economic conditions. The currency further weakened over the last few months of the year, and the minimum wage was adjusted in December 2017.[17] On the other hand, the non-core component of inflation was also affected by adverse shocks to the prices of LP gas, public transportation and some agricultural goods. In this context, headline inflation ended 2017 at 6.77%, a level not seen since 2001, when

[15] In December 2016, the Ministry of Finance established a mechanism for determining the price of gasoline in Mexico that aimed to introduce more flexibility in said prices in order to align them with their international benchmarks, thereby gradually limiting the role of subsidies in smoothing them over time, except in the case of excessive fluctuations. In an environment of upward adjustments in international gasoline benchmarks and a considerable depreciation of the domestic currency, this change in the determination of gasoline prices implied a considerable price increase in January 2017. In February 2017, the Ministry of Finance adjusted this mechanism to allow gasoline prices to be smoothed out further.

[16] See Box 1, "Indirect effects of energy price increments onto the price formation process of the Mexican economy", published in BDM (2016b).

[17] The increase in the minimum wage in December 2017 was the first of several multi-year minimum wage increases of considerable magnitude. It rose from 80.04 pesos a day to 88.36. However, an important assumption behind this policy was that a lump-sum increase (*Monto Independiente de Recuperación*), in combination with a percentage increase in the minimum wage, would mitigate the lighthouse effect on other wages.

core inflation reached 4.87% by the end of that year. In January 2018, annual headline inflation dropped significantly to a still high level of 5.55%, with a strong decrease in non-core inflation and a smaller decline in core inflation, which landed at 4.56%.[18]

In response to this set of shocks, the Bank of Mexico raised the reference rate from 3% in 2015 to 8.25% in 2018. In the face of an incredibly difficult inflationary outlook, the main challenge for the Bank of Mexico was to prevent a de-anchoring of longer-term inflation expectations and negative effects on the price formation process, while also facilitating an orderly adjustment of relative prices induced by the real exchange rate depreciation. A message that was emphasised in its communications was that the Bank remained vigilant regarding all inflation determinants and expectations for the medium- and long-term, among them the exchange rate and its possible pass-through to consumer prices, Mexico's monetary stance relative to the United States, and the potential effects of international energy prices, in particular that of gasoline, on prices in the rest of the economy. The purpose of this was to consolidate the convergence of inflation to the target.

The monetary policy response to the inflationary episode of the Covid-19 pandemic and war in Ukraine (2020 to present)

As a result of the shocks caused by the Covid-19 pandemic and, later, the geopolitical conflict in Ukraine, central banks around the world, including the Bank of Mexico, have faced an extremely complex and uncertain environment. Global inflation has been subjected to multiple shocks, which have caused it to increase considerably for a long period of time. In fact, inflation figures in several economies have reached levels not seen decades ago. Although the pandemic has affected the economy and society in several ways, the evolution of inflation has posed multiple challenges for monetary policy management.

In March 2020, at the onset of the pandemic in Mexico, annual headline inflation was 3.25% and core inflation was 3.60%. In the early stages of the pandemic, annual headline inflation even declined and registered its second-lowest level on record, reaching 2.15% in April. This was due in large part to significant decreases in energy prices.

As for the remainder of 2020, there was a change in relative prices within the core component as the lockdown exerted downward pressures on services inflation and upward pressures on merchandise inflation. These conditions, combined with various supply shocks such as disruptions in global production and distribution chains and the sudden depreciation of the exchange rate by close to 30% from the second half of February 2020 to April, when it reached its lowest level, resulted in a 3.80% annual core inflation recorded in December 2020. Non-core inflation closed that year at 1.18%. With these results, annual headline inflation ended 2020 at 3.15%.

Therefore, in 2020 the shocks triggered by the pandemic affected inflation in opposite directions and tended to neutralise each other. The effect of the sharp depreciation would subsequently weigh on the inflationary outlook. This was one of the factors which, combined with other risks to inflation, limited the space for monetary accommodation during the easing phase of the pandemic, producing a

[18] In December 2016, headline inflation was 3.36% while core inflation reached 3.44%.

different trade-off to the one faced by advanced economies and therefore requiring a more prudent monetary policy stance.

The surge in inflation observed since 2021 has been driven by various factors:

i. First, from an aggregate demand perspective, considerable monetary and fiscal stimulus in advanced economies resulted in a vigorous increase in demand, particularly for merchandise, in a context in which consumer behaviour was already characterised by a reallocation of expenditure away from services. Moreover, global economic activity recovered quickly, amplifying the abrupt increase in demand.

ii. Supply has been affected by widespread disruptions in production and distribution networks due to the restrictions on the operation of businesses and interruptions in the production process as a result of the measures adopted to contain the spread of Covid-19. In addition, the unsynchronised reopening of economies also contributed to the scarcity of certain inputs and generalised increases in input prices and operation costs.

The relatively inelastic supply was not capable of adjusting at the same pace as demand, as the latter was expanding very dynamically. This led to a severe imbalance between supply and demand in several world markets, which characterised the period of economic recovery, resulting in significant inflationary pressures. These pressures prompted the beginning of an unprecedented hiking cycle in both AEs and EMEs.

All of the above exerted pressure on the prices of both merchandise and services in Mexico such that annual core inflation closed 2021 at 5.94%. In turn, annual variations in the prices of energy and fruits and vegetables, as well as the prices of livestock products, remained high during most of 2021, driving annual non-core inflation to 11.74% in December of that year. Due to the above, annual headline inflation closed 2021 at 7.36%.

In 2022, inflationary pressures associated with the geopolitical conflict in Ukraine that began in the first quarter of that year added to the shocks derived from the pandemic, which continued to affect inflation. The military conflict brought heightened uncertainty, exacerbating some of the disruptions in supply networks and further increasing the already high prices of several products, particularly food commodities, fertilisers and energy. In this context, in 2022 inflationary pressures turned out to be deeper, longer-lasting and more widespread than anticipated.

However, in the final months of the year, some of the factors that had exerted pressure on inflation began to show signs of subsiding. In particular, supply chain operations improved and the prices of certain commodities stabilised and, in some cases, fell. In this context, annual headline inflation reached 8.70% in August 2022, then decreased over the last few months of the year, reaching 7.82% in December. Core inflation followed a 24-month upward trajectory, which was interrupted in December 2022 when it decreased to 8.35%. In turn, non-core inflation reached 10.65% in August 2022, its highest level that year. It eventually settled at 6.27% in December. Hence, the aforementioned moderation in headline inflation was largely due to the decrease in the non-core component.

Given the atypical nature of the shocks derived from the pandemic and, later, from the geopolitical conflict in Ukraine, monetary policy management in Mexico has been particularly challenging, as the Bank of Mexico has faced an extremely complex and uncertain environment.

The Bank of Mexico hiked rates for the first time well ahead other central banks, mainly those of advanced economies and most EMEs, as the Governing Board determined that the shocks affecting inflation posed a risk to the economy's price formation process. Actions like this reflect the Bank's commitment to its price stability mandate and underpin its credibility, given that the latter is endogenous to the Bank's decisions.

Since the Governing Board decided to start raising the policy rate in June 2021, it has responded to either existing or new inflationary shocks by setting a reference rate that is consistent, at all times, with both an orderly and sustained convergence of headline inflation to the 3% target within the monetary policy horizon and an adequate adjustment of the economy and financial markets.

At each of its meetings in June, August, September and November 2021, the Governing Board increased the reference rate by 25 basis points. It then raised the rate by 50 basis points at its meeting in December 2021, as well as at those in February, March and May 2022. At each of its meetings in June, August, September and November 2022, it raised the reference rate by 75 basis points. Since the adoption of the definition of the overnight interbank interest rate target as the Bank of Mexico's policy instrument in 2008, the inflationary environment had not required the Bank to hike by 75 basis points. Given the intensification of inflationary pressures and the greater challenge that inflation control has presented, the pace of policy rate hikes was increased twice during this tightening cycle. Forceful actions were thus adopted, making it possible to achieve a restrictive monetary policy stance as required by the inflationary outlook.

At the December 2022 meeting, in response to a slight improvement in the inflation outlook and considering the cumulative increases in the reference rate throughout this tightening cycle, the Governing Board decided to reduce the rate of increase from 75 to 50 basis points. This decision reflected a delicate balance. On the one hand, some inflationary shocks had started to show signs of moderation. Annual headline inflation had also decreased, mainly due to the decline in the non-core component. On the other hand, up until November, core inflation had continued to rise, though later adjustments had been smaller than those recorded in the months before. In a still complex environment and with a balance of risks for inflation biased to the upside, the additional increase of 50 basis points in the December decision helped to further strengthen the monetary policy stance.

Thus, from June 2021 to December 2022, the Bank of Mexico increased the target for the overnight interbank interest rate by a cumulative 700 basis points, taking the reference rate to 10.50%. Had the Bank not acted in such a forceful way under these exceptional circumstances, the price formation process in Mexico would have been put in a much more complex situation, which would have made it more challenging to reduce inflation in Mexico in the future.

These actions, which refer not only to the increases in the reference rate but also to communications through the Bank's different channels, have sought to keep long-term inflation expectations anchored as well as foster the orderly function of domestic financial markets, including the foreign exchange market.

Among the most relevant measures implemented to improve the Bank's communications are those related to the publication of inflation forecasts. In August 2021, the Bank started to include point values for headline and core annual inflation forecasts for the following eight quarters in each *Monetary Policy Statement*.[19] Given the environment of high uncertainty, which led to important revisions between monetary policy decisions, this has allowed the public to access more information about the inflation forecasts considered by the Bank in each decision. This information has thus been useful in explaining to the public the Bank of Mexico's monetary policy actions under an IFT regime framework in the face of extremely complex economic conditions.

In 2022, the Bank of Mexico also began to provide forward guidance regarding its future monetary policy decisions. In an extremely complex and uncertain inflationary environment, the central bank emphasised through these communication actions that forceful measures were required to achieve inflation convergence over the forecast horizon. In this way, the Bank of Mexico reinforced its commitment to its primary mandate of price stability, helping to anchor inflation expectations.

In sum, through its monetary policy actions and communications, the Bank of Mexico strengthened its monetary policy stance as required by the inflationary environment. Yet, core inflation must still be monitored in order to achieve the inflation target of 3% within the forecast horizon in the face of an economic environment that remains extremely complex and therefore still presents challenges ahead.

Policy lessons for the current environment

Since the formal adoption of the IT regime in Mexico in 2001, this framework had not been exposed to the inflationary pressures that emerged during the highly atypical episode of the Covid-19 pandemic and the war in Ukraine, whose effects are still felt in the economic environment. Some policy lessons can be drawn from this episode as it has represented a stress test for the IT regime in Mexico and in the region.

a) Keeping inflation expectations well anchored

The current inflationary episode has provided unprecedented evidence on central banks' actions to keep inflation expectations well anchored, particularly long-term ones. This is a precondition for a sustained reduction in inflation since central banks' credibility is endogenous to the policy response implemented to achieve price stability.

When shocks that drive inflation upwards occur, it is common for short-term inflation expectations to be adjusted to the upside. However, to the extent that medium- and longer-term expectations remain anchored, observed inflation will tend to decrease as the shocks dissipate, even if short-term expectations have increased.

In the face of several widespread, large and long-lasting supply shocks, such as those derived from the pandemic and the war, the risk that economic agents adjust their medium- and long-term inflation expectations upwards is significantly high. In this scenario, monetary policy may respond when facing the risk that said expectations will become de-anchored to keep them stable.

[19] Later, in December 2021, it started publishing the annualised seasonally adjusted quarterly forecast for headline and core inflation.

In this context, as mentioned above, the Bank of Mexico has reinforced its commitment to its constitutional mandate to pursue the stability of the national currency's purchasing power throughout this tightening cycle. The central bank's actions have aimed to avoid a de-anchoring of longer-term inflation expectations, which would have entailed a higher and more persistent inflation. Increases in private sector specialists' expectations for headline and core inflation for the next five to eight years have been relatively moderate. However, they have remained above the 3% target, and their distribution has shown some bias towards relatively higher inflation levels, which is a warning sign for this central bank and implies important challenges for monetary policy.

However, in an inflationary environment that will remain quite complicated, central banks face the challenge of avoiding a de-anchoring of both medium- and long-term inflation expectations. The latter would keep inflation at high levels even after shocks dissipate. Given this, analysing the main determinants of medium- and long-term inflation expectations in events such as the Covid-19 pandemic and its aftermath may shed light on the extent to which monetary policy actions can mitigate and even offset the effects of long-lasting shocks to inflation. Moreover, EMEs like those of Latin America are likely to serve as a good case of study because supply shocks are typically the rule in these economies rather than the exception. Nevertheless, it is important to note that the depth, generalised nature and duration of these shocks have been completely new factors.

b) Sound macroeconomic fundamentals in the face of a complex and uncertain environment

Sound macroeconomic fundamentals are crucial in a complex and uncertain environment. Reminders of this came in the form of the unprecedented inflationary episode caused by the pandemic, the measures to contain it, and the war, as well as the monetary tightening cycles of systemically important economies like the United States.[20] The latter typically present significant challenges for EMEs like Mexico, as the hiking cycles of the federal funds rate tend to be associated with capital outflows and exchange rate pressures. The current tightening cycle in the United States has come with increases in long-term interest rates worldwide and a generalised appreciation of the US dollar.

The Mexican economy has been able to strengthen its policy framework over time. Stronger macroeconomic fundamentals have been mapped into a relatively better situation as compared with previous episodes. It is currently in a better position than in the past to face risks associated with an external environment characterised by stringent financial conditions. This is due to the country's sounder macroeconomic fundamentals relative to other economies, which include the following: (i) a well-capitalised and liquid banking system; (ii) sustainable external accounts; (iii) fiscal discipline; (iv) an adequate level of international reserves; and (v) a free-floating exchange rate regime.

Along with said fundamentals, the Bank of Mexico has, as previously mentioned, implemented a prudent and timely monetary policy focused on price stability. Hence,

[20] Ahmed et al (2021) study EMEs' different responses to US monetary changes depending on the anchoring of their inflation expectations, potential currency mismatches and currency of exports. Their results indicate that well-anchored inflation expectations, together with strong balance sheets and exports priced in foreign currency, insulate the economy from foreign monetary policy shocks, particularly if said shocks are driven by a more hawkish stance.

the monetary policy actions implemented by this central bank have led to relatively high spreads of domestic currency volatility-adjusted interest rates between Mexico and the United States. In this context, domestic financial markets have generally operated in an orderly manner during this episode, despite exhibiting some bouts of volatility. As for the exchange rate market, the Mexican peso has shown a more resilient and orderly performance with respect to the vast majority of EMEs' currencies. Looking forward, the economic outlook is expected to remain highly complex and uncertain.

Under these conditions, it is essential to maintain solid macroeconomic fundamentals, which are also conducive to a credible monetary policy framework and, more generally, to a credible macroeconomic policy regime.

c) Inflation dynamics – dependency and judgement in an atypical, uncertain environment

The pandemic and, later, the war were reminders that central banks must continue following a flexible approach. Moreover, awareness of the changing environment with regard to their actions, analysis and communications must continue prevailing.[21] Given the exceptional shocks that the economy faced throughout this period of inflationary pressures, it was very difficult for central banks, the Bank of Mexico included, to assess the evolution of inflation. With the intensification of pre-existing shocks and the emergence of additional ones, inflation surprised to the upside on several occasions.

Given the nature of the pandemic-induced crisis and the fact that the available economic analytical tools were not designed to fully assess the effects of such an event on the economy, central banks have required a policy response that is cautious, flexible and driven by inflation dynamics. In terms of analysis, the situation has made it necessary to introduce new variables and novel data, such as freight costs, into economic models.

Monetary authorities have faced an extremely uncertain outlook for inflation, in which it has been affected by shocks originating during both a health emergency and a geopolitical conflict. Considering the atypical nature of these shocks, it is difficult to assign probabilities to the ways in which they could evolve, as we already found over the last two years. For this reason, in a still highly uncertain environment, it is essential that central banks maintain flexibility, continue to act prudently and make decisions based on inflation and its assessment. The use of well-informed and disciplined judgement complementing rigorous analysis has been and will continue to be important.

Final remarks

The inflation targeting regime in Mexico, which has evolved into an inflation forecast targeting regime, has yielded high returns in terms of its fundamental role in controlling inflation in Mexico. Crucially, this regime stands on the autonomy that the

[21] See Gopinath (2022) for a discussion on the slope of the Phillips curve in the face of the pandemic and the war. See also the survey of forecasting issues during Covid-19 pandemic times presented by Ho (2022).

Mexican Constitution grants to the Bank of Mexico. However, autonomy is of even broader importance, as it overcomes the phenomenon of fiscal dominance in the inflationary process of the economy. Given the highly adverse effects of inflation on the most vulnerable sector of the population, both autonomy and the inflation targeting regime are crucial to the achievement of a price stability environment.

Although the first two decades of the 20th century saw clear progress in inflationary control in Mexico, with tangible benefits for the population, central banks are currently facing a challenging environment. This is characterised by the presence of shocks caused by the pandemic and the geopolitical conflict, which have been deeper, longer lasting and more widespread than anticipated, driving inflation in several economies to levels not seen decades ago.

These inflationary conditions have proven to be an exceptional test for the inflation targeting framework. In the case of Mexico, a restrictive monetary policy was achieved through adjustments to the policy rate of greater magnitude than those that had historically been implemented by the Bank of Mexico, as well as through a communication strategy that reinforced the central bank's commitment to achieving its mandate. In this context, medium- and long-term inflation expectations have adjusted only moderately, while domestic financial markets have functioned in an orderly fashion, in which the resilient performance of the national currency stands out.

As the economic environment is still very uncertain, central banks must be prudent and must remain watchful for upcoming challenges. The approach that central banks should follow is one in which caution and flexibility continue to prevail. Caution is required to carefully analyse any additional information that is obtained, while flexibility is required to adjust the monetary stance in line with the scenario that materialises. Moreover, it must be recalled that central banks' credibility is endogenous; therefore, it is built up based on actions aimed at achieving price stability.

Cooperation with the BIS Office of the Americas will remain important for central banks in the region in the face of the economic environment that will likely prevail in the upcoming years, in which topics such as the energy transition and reconfiguration of global supply chains will be subject to policy discussions. In this vein, although the Mexican economy has benefited from a solid macroeconomic framework, strengthening it requires daily work.

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Annex

Changes to Bank of Mexico monetary policy communications framework

Table 1

1995	✓	Establishment of the "accumulated balances regime" for the conduction of monetary policy.
1999	✓	Adoption of a medium-term inflation objective.
2000	✓	Bank of Mexico starts publishing a press release that announces changes to the operational objective in the conduction of monetary policy.
	✓	Bank of Mexico starts publishing a quarterly inflation report.
2001	✓	Inflation targeting regime is formally adopted by Bank of Mexico.
2002	✓	Permanent 3% inflation target is adopted, to start in 2003.
2003	✓	Calendar with pre-established dates for monetary policy decisions is released.
	✓	The publication of a monthly press release on monetary policy is implemented, with the possibility of an additional mid-month report to be published if the monetary policy stance is modified.
	✓	Adoption of an "accumulated daily balances regime" for the conduction of monetary policy.
2006	✓	Decrease in monetary policy decisions from 23 to 12 per year.
2008	✓	Decrease in monetary policy decisions from 12 to 11 per year.
	✓	Adoption of monetary policy conduction through interest rate operational objectives
2010	✓	Use of fan charts to announce inflation and economic activity forecasts in issues of the Quarterly Report begins.
2011	✓	Start of the publication of minutes of the monetary policy decision meetings.
	✓	Decrease in monetary policy decisions from 11 to eight per year.
	✓	Transmission of Quarterly Report executive presentation and subsequent press conference starts.
2017	✓	Central trajectories of inflation and economic activity forecasts are added to fan charts.
2018	✓	Start of publication of point values for median forecasts of annual inflation in the Quarterly Report.
	✓	Adoption of policies to obtain public commentary on general policy proposal projects before they are issued by Bank of Mexico, in accordance with its legal powers.
	✓	Voter identities in monetary policy decisions are included in the MP decision meeting minutes, with the inclusion of a motives paragraph in case of dissent.
	✓	Simultaneous publication in English and Spanish of the monetary policy press release and the minutes of the monetary policy decision meetings.
	✓	Transcripts of Governing Board monetary policy decision meetings are set to be published three years after each meeting takes place.
	✓	Speeches and public presentations by Governing Board members are made available to the public.
2020	✓	General Communication Criteria for Governing Board members and Bank of Mexico executives are updated and published for the first time.
	✓	The monetary policy press release and the corresponding meeting minutes are shortened.
	✓	The quorum present in each monetary policy decision meeting is included in the monetary policy press release.
2021	✓	Publication of the Bank of Mexico headline inflation and core inflation forecasts and of the annualised seasonally adjusted quarterly headline inflation and core inflation forecasts for the following eight quarters with each monetary policy decision.
	✓	Publication of the individual vote by each member of the Governing Board in the monetary policy press release, rather than its publication for the first time in the minutes of the monetary policy decision meeting.
2022	✓	Publication of next year's monetary policy calendar moved up from the July–September Quarterly Report to the April–June Quarterly Report.

Source: Bank of Mexico.