Financial Stability Report – Second Semester 2019

December 4, 2019

BANCO DE MÉXICO

Contents

Introduction

- To fulfill its objectives of **promoting the sound development of the financial system** and fostering **the proper functioning of the payment systems**, Banco de México monitors:
    - The main risks and vulnerabilities that may affect the functioning of Mexico's financial system.
    - The solvency of its participants.

- **Financial stability** is a key element for a solid macroeconomic environment and a necessary condition to achieve a more balanced and sustainable economic growth. The financial system must therefore:
    - Facilitate the exchange of funds among savers, borrowers and investors.
    - Promote adequate risk management.
    - Be able to withstand shocks.

- Since the publication of the previous *Financial Stability Report* in June, the prevailing **environment has been characterized by significant uncertainty** associated with external and domestic factors.

- **Mexico's financial system** continues to **grow at a moderate rate, without excessive risk-taking**.

- The **banking system** has maintained **adequate solvency and liquidity ratios, with limited risk levels.**
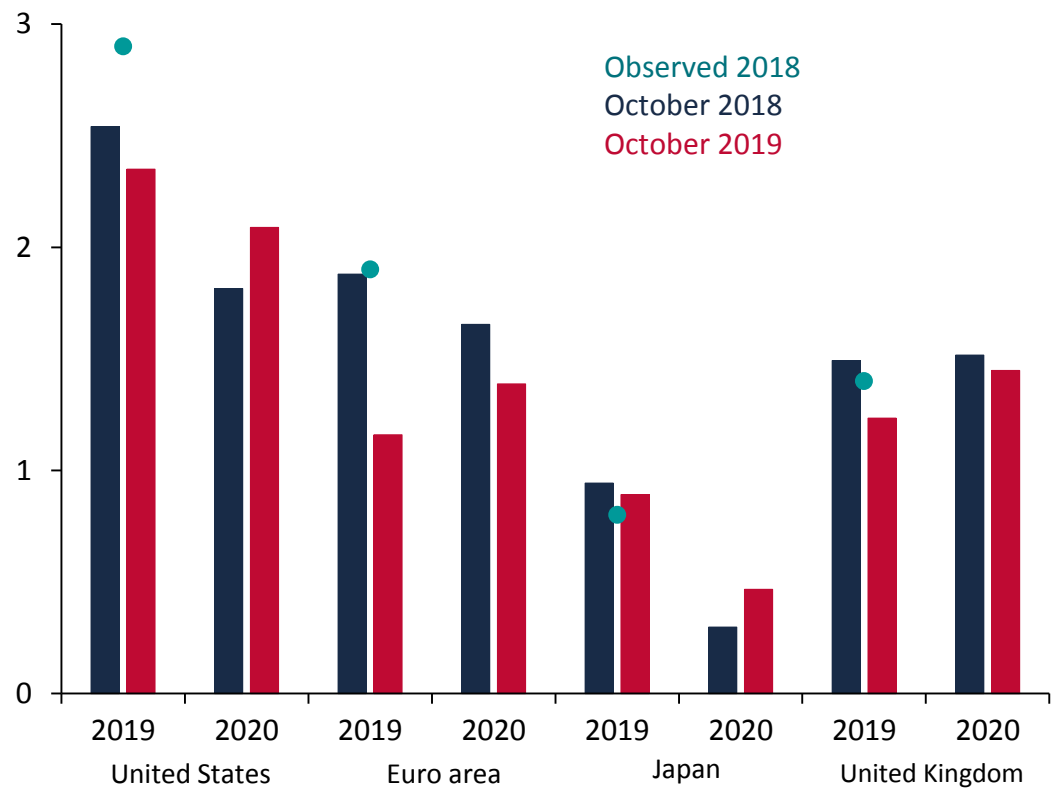
① Global economic growth

Global economic growth continued to slow down. This was due to trade tensions and their adverse impact on private investment and manufacturing activity. The International Monetary Fund world economic growth forecasts for 2019 and 2020 were once again revised to the downside.

GDP growth forecasts
Annual change in percent
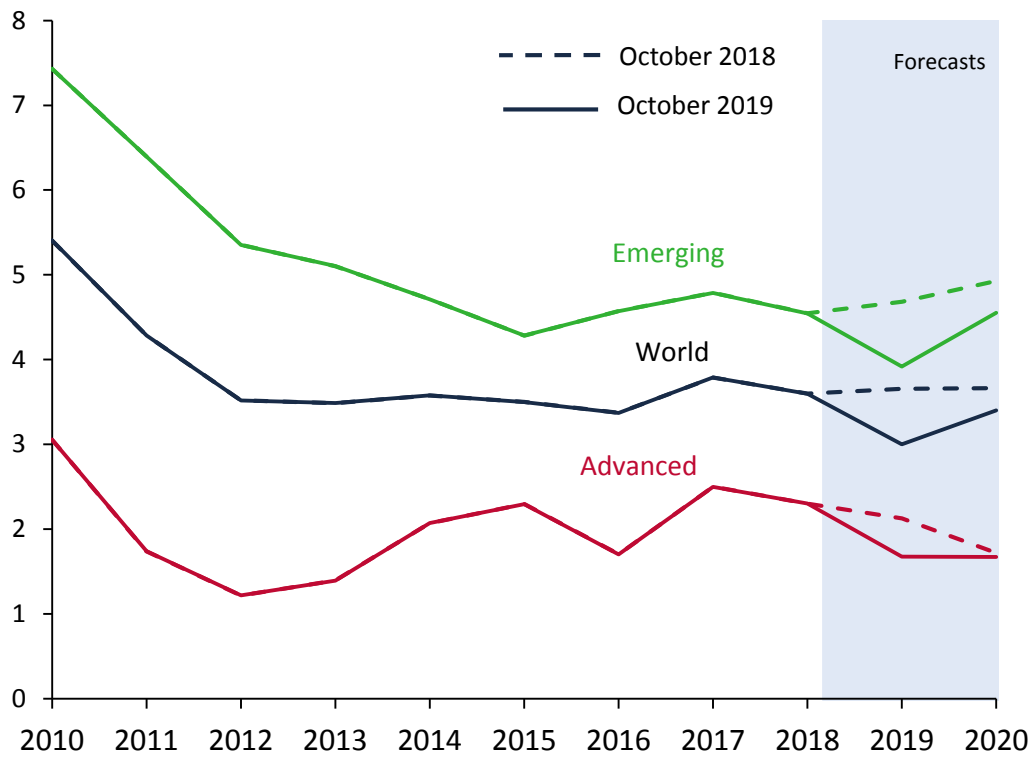
Data as of October 2019.
Source: International Monetary Fund, World Economic Outlook (WEO).
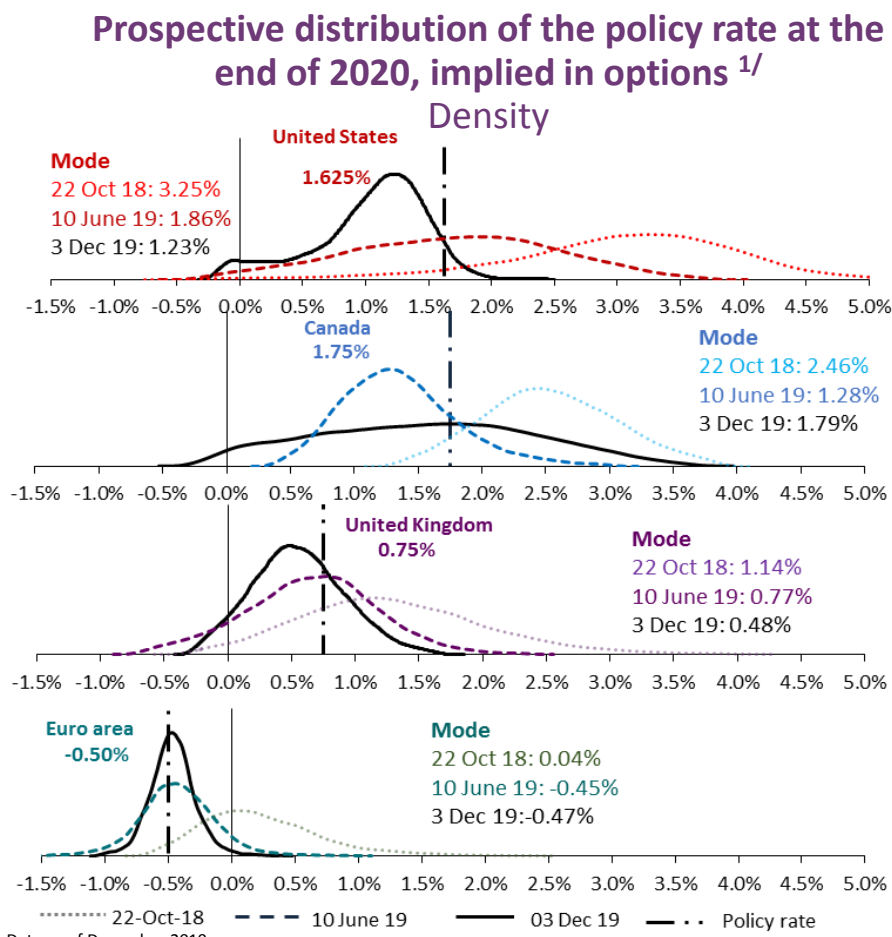
Observed growth for 2018 and growth forecasts for 2019 and 2020
Annual change in percent

Data as of October 2019.
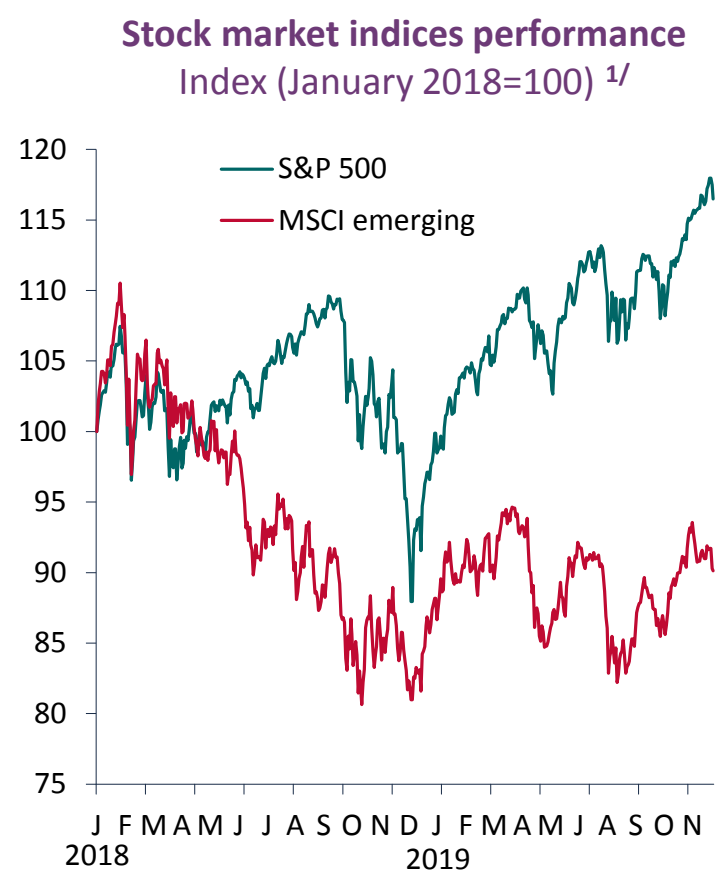Source: International Monetary Fund, World Economic Outlook (WEO).

Despite lower global economic growth and looser monetary and financial policy stances in international markets, there have also been episodes of volatility and lower risk appetite associated with escalating trade tensions.

Prospective distribution of the policy rate at the end of 2020, implied in options [1]
Density

Mode
22 Oct 18: 3.25%
10 June 19: 1.86%
3 Dec 19: 1.23%

United States
1.625%

Canada
1.75%

Mode
22 Oct 18: 2.46%
10 June 19: 1.28%
3 Dec 19: 1.79%

United Kingdom
0.75%

Mode
22 Oct 18: 1.14%
10 June 19: 0.77%
3 Dec 19: 0.48%

Euro area
-0.50%

Mode
22 Oct 18: 0.04%
10 June 19: -0.45%
3 Dec 19: -0.47%

· · · · 22-Oct-18 — — 10 June 19 —— 03 Dec 19 —·· Policy rate

Data as of December 2019.
Source: Bloomberg.
1/ The policy rate's implicit distribution is obtained from changes in interest rates implicit in 3-month interest rate futures options (LIBOR in the United States and the United Kingdom, EURIBOR in the euro area and bankers acceptance in Canada). The differential between the policy rate and the corresponding 3-month rate is assumed to remain constant. The Breeden-Litzenberger method is used to calculate the distribution implicit in options.

US interest rates
Percent

10-year
2-year

2018
2019

Data as of December 2019.
Source: Bloomberg.

Stock market indices performance
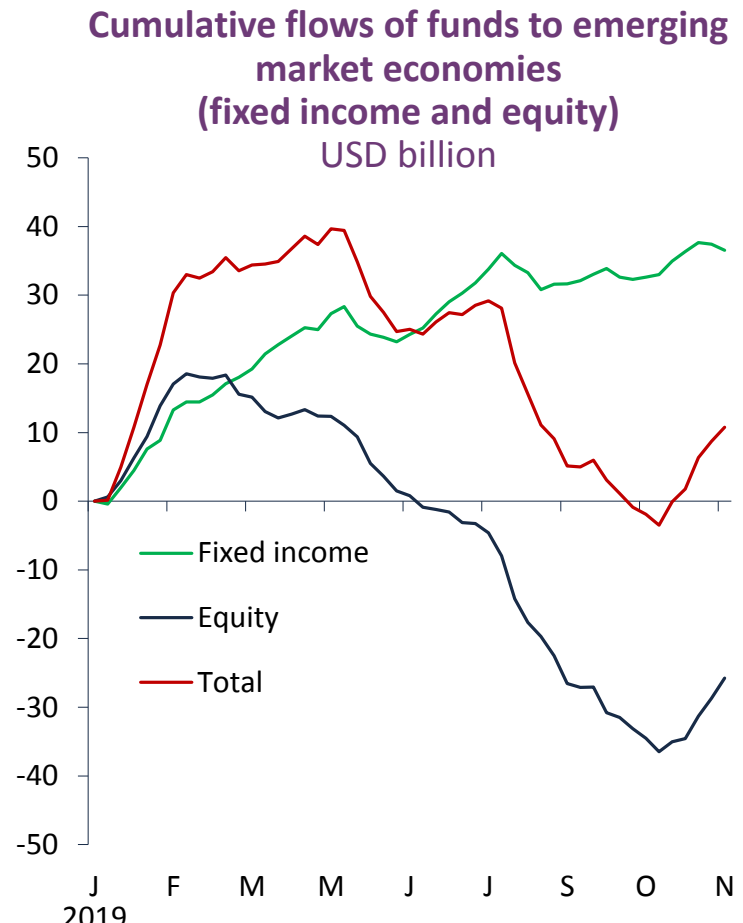### Index (January 2018=100) [1]

S&P 500
MSCI emerging

2018
2019

Data as of December 2019.
Source: Bloomberg.
1/ Market in US dollars.

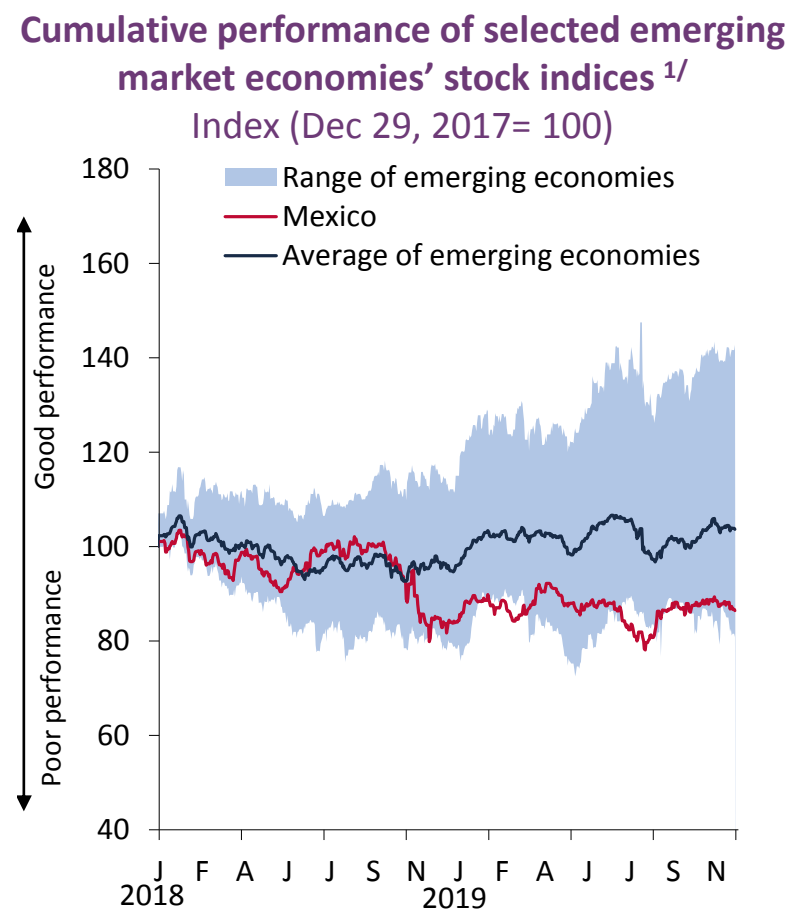# Financial markets: emerging market economies

Trade tensions and their impact on global growth together with looser global financial conditions have affected the composition of capital flows, triggering a decline in equity flows and increases in fixed income flows, in a context of volatile risk appetite and idiosyncratic risk factors.

Risk aversion index and _EMBI_ [1]
Left axis: index
Right axis: basis points

Data as of December 2019.
Source: Bloomberg.
1/ By performing a regression of the EMBI spread and Credit Suisse's risk aversion index with data from January 2007, these results are obtained with a statistically significant beta. _EMBI= 27.75 (Risk aversion)._

Cumulative flows of funds to emerging market economies
(fixed income and equity)
USD billion

Data as of November 2019.
Source: Banco de México with EPFR data.

Cumulative performance of selected emerging market economies' stock indices [1]
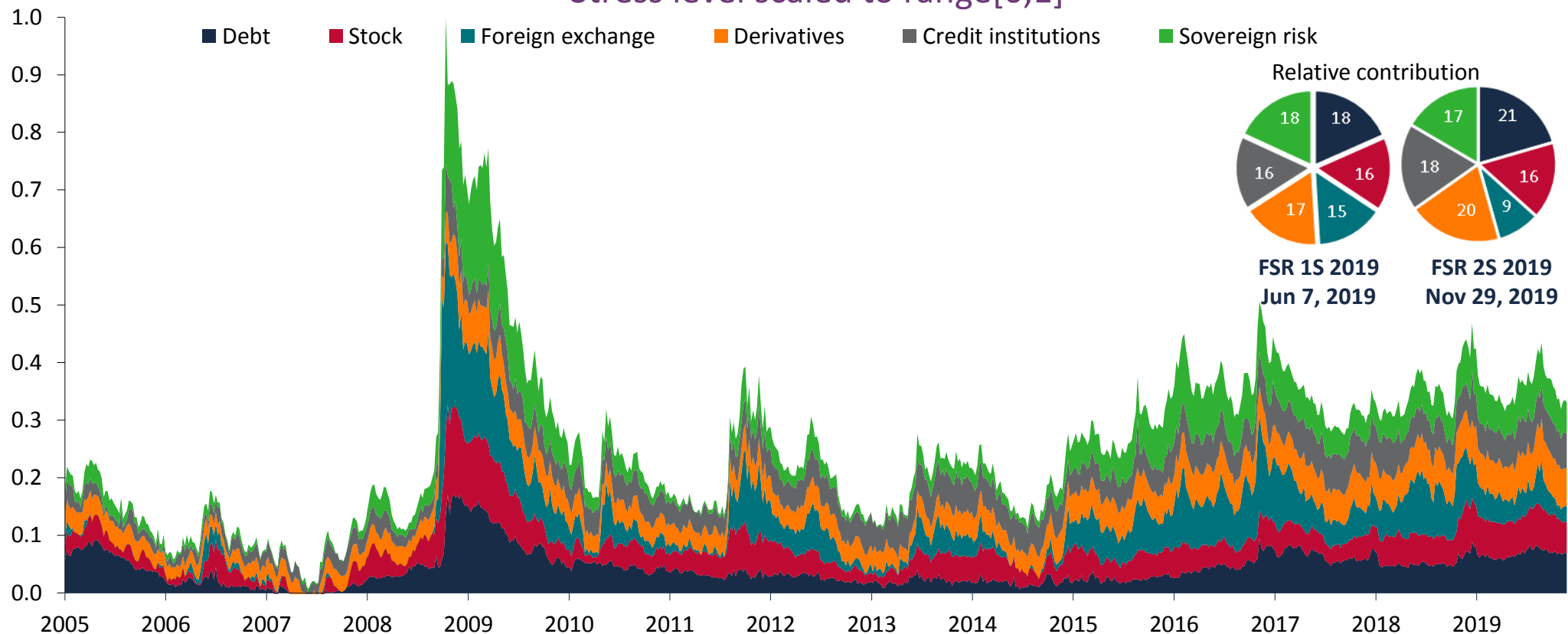Index (Dec 29, 2017= 100)

Data as of December 2019.
Source: Banco de México with Bloomberg data.
1/ Average for the following emerging economies: Argentina, Peru, Turkey, Philippines, Poland, Hungary, Indonesia, Russia, Colombia, Chile, Malaysia, India, Brazil and South Africa.

Mexican financial markets were subject to higher market stress in August, mainly associated with foreign exchange market, stock market, and with sovereign risk. Nevertheless, market stress has been fading since September.

Mexican Financial Market Stress Index (IEMF, for its acronym in Spanish) [1]

Stress level scaled to range[0,1]

Legend: ■ Debt ■ Stock ■ Foreign exchange ■ Derivatives ■ Credit institutions ■ Sovereign risk

Relative contribution

FSR 1S 2019
Jun 7, 2019
(pie: 18, 18, 16, 15, 17, 16)

FSR 2S 2019
Nov 29, 2019
(pie: 17, 21, 16, 9, 20, 18)

Data as of November 29, 2019.
Source: Banco de México.
1/ The index was estimated using a principal component analysis on 36 standardized variables of Mexican financial markets grouped into 6 categories (debt market, stock market, foreign exchange market, derivatives market, credit institutions and sovereign risk). The total sum of the components yields total IEMF scaled to range [0,1]. A higher level of the index represents higher financial stress.

Mexican financial markets

Regarding domestic markets, it is worth highlighting the reduction in the default risk premium and in the yield curve, which reflect lower external interest rates and Banco de México's adjustments to the monetary policy rate.

### Exchange rate trading range [1]
Pesos per US dollar
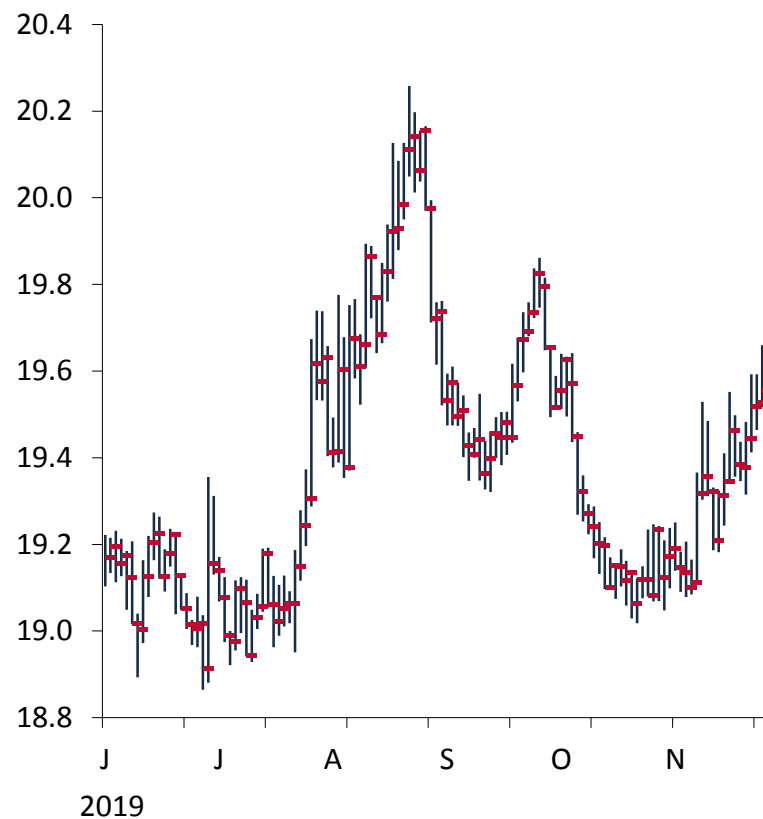
Data as of December 2019.
Source: Banco de México with Bloomberg data.
1/ Red lines indicate the closing exchange rate, while blue bars indicate the trading range.
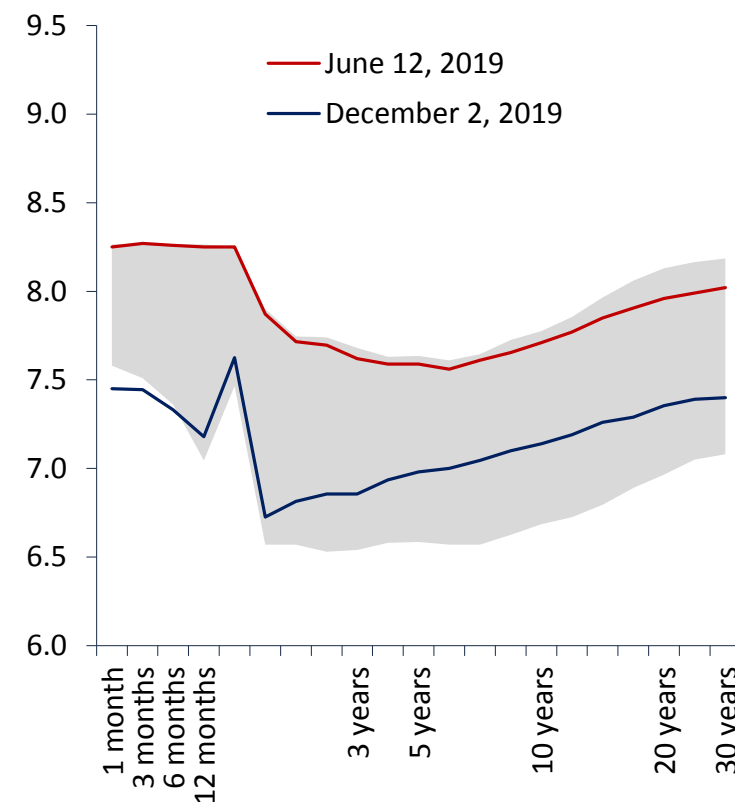
5-year Credit Default Swaps (CDS) of Pemex, Mexico and selected emerging market economies [1]
Basis points

- Brazil
- Chile
- Colombia
- Mexico
- PEMEX
- South Africa
- Turkey
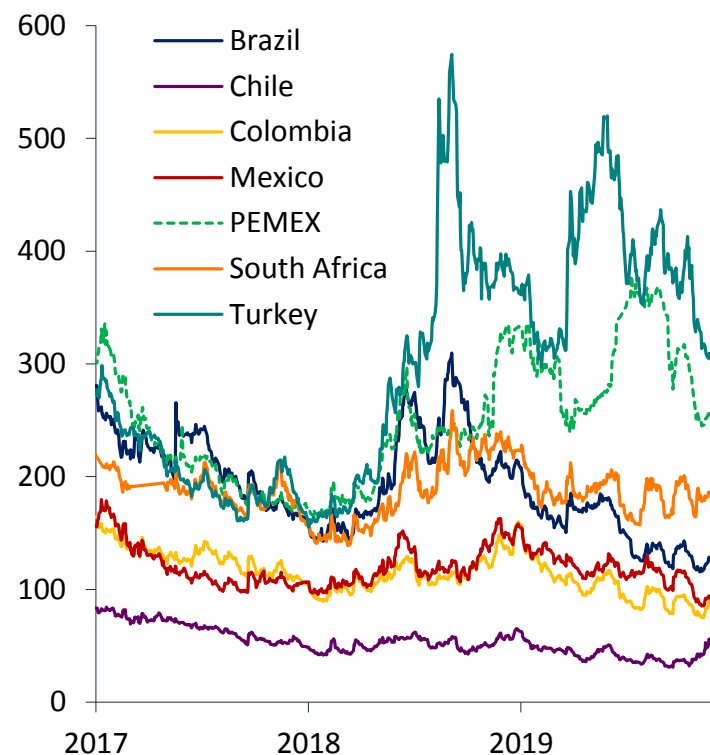
Data as of December 2019.
Source: Bloomberg.

Government bond nominal yield curve [1]
Percent

— June 12, 2019
— December 2, 2019

Data as of December 2019.
Source: Banco de México with PIP data.
1/ Grey range refers to daily yield curves since October 1, 2018. Dates in the horizontal axis correspond to nodes of the yield curve.

❺ Balance of macrofinancial risks

In the described context, the Mexican economy faces risks stemming from both the external and domestic environment. In particular, the following risks for financial stability stand out:

❶ A significant **slowdown of global economic growth**.

❷ The adoption of **greater protectionist measures** worldwide and **geopolitical risks**.

❸ Volatility in international financial markets and **a reallocation of flows towards lower risk assets**.

❹ **Lower investment levels and lower growth of the Mexican economy**.

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The heat map of financial system risks suggests that Mexico financial system's aggregate risk decreased slightly vis-à-vis the previous *Financial Stability Report*.

Heat map of Mexican financial system risks [1]
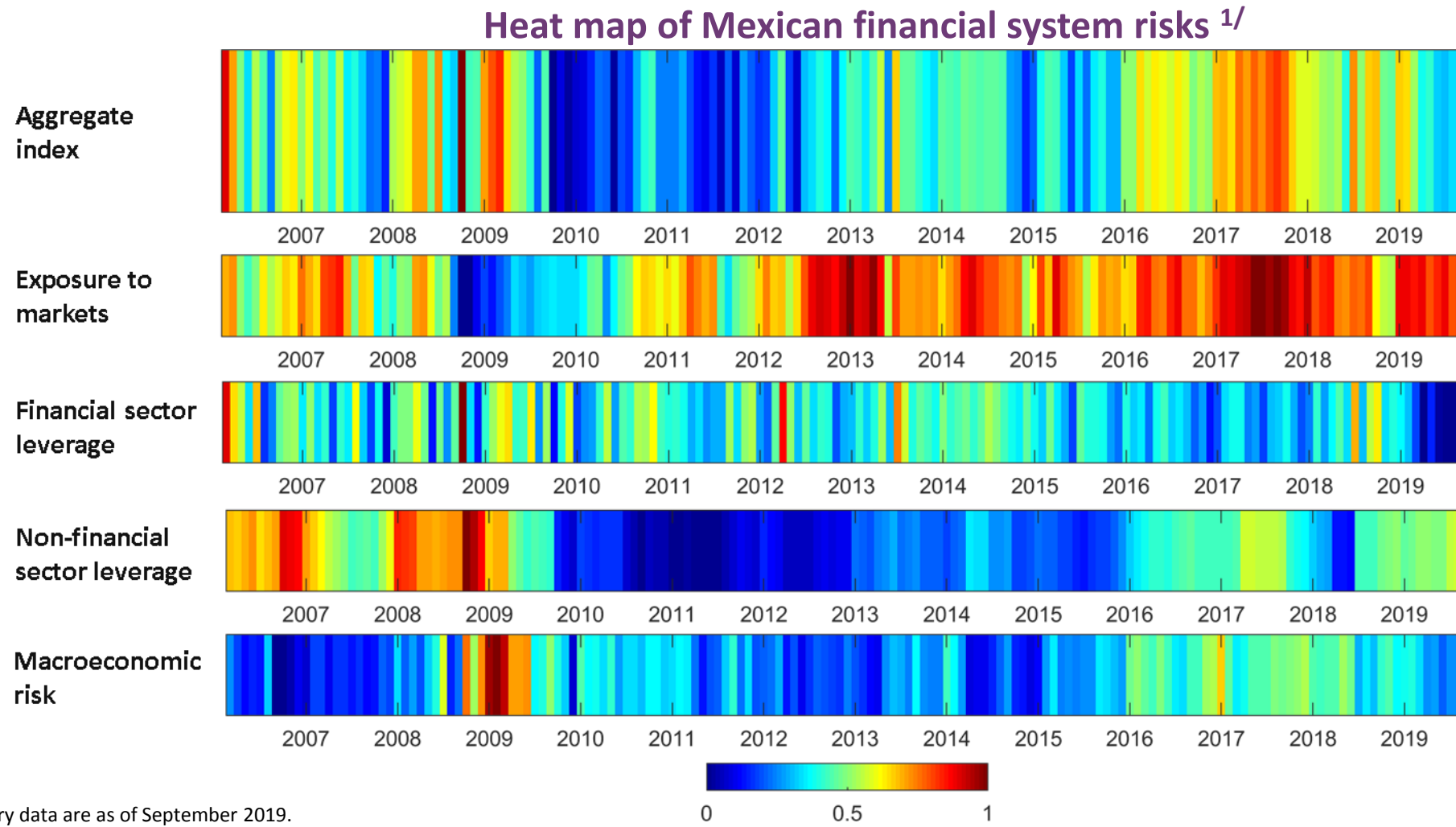
Preliminary data are as of September 2019.
Source: Banco de México.
1/ For a description of the methodology, see Box 3: Heat maps of Mexican financial system risks, *Financial System Report 2018*. The category *Risk of Market Exposure* corresponds to the category *Risk Appetite* of the *Financial System Report* 2018.

The Mexican economy's financial cycle continued to decelerate, a trend that had been registered since early 2018. Risks to financial stability associated with excessive credit growth are therefore limited.

Non-financial private sector credit-to-GDP ratio and long-term trend
Percent

- Total credit-to-GDP ratio
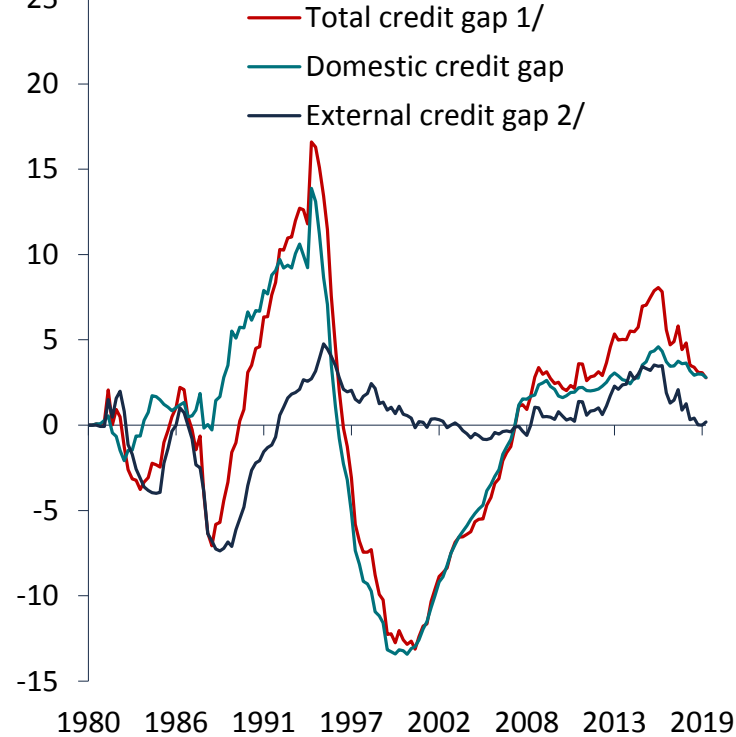- Long-term trend 1/
- Total credit gap 2/
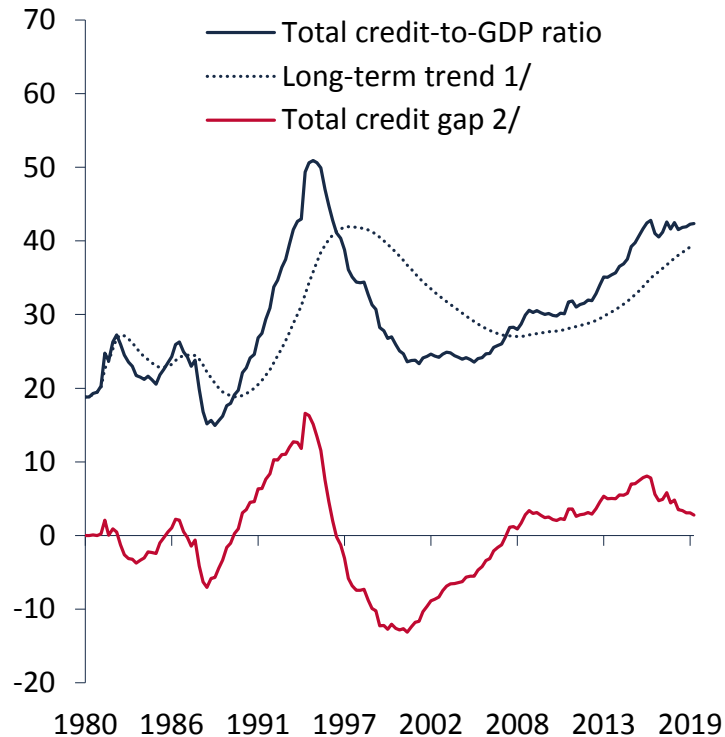
Data as of September 2019.
Source: Banco de México.
1/ The long-term trend is estimated using the Hodrick-Prescott filter with one tail with a smoothing parameter of 400.000, using data starting from Q4 1980.
2/ The credit gap is calculated as the difference between the credit-to-GDP ratio and its long-term trend.

Mexico's total, domestic and external credit gap
Percent

- Total credit gap 1/
- Domestic credit gap
- External credit gap 2/

Data as of September 2019.
Source: Banco de México.
1/ The credit gap is calculated as the difference between the credit-to-GDP ratio and its long-term trend.
2/ Before 1995, the external financing data were estimated as the difference between total credit and bank credit.

Financial cycle of the Mexican economy [1/ 2/]
Medium-term cyclical component, band-pass filter analysis
Percent of GDP

- Banking crisis
- Cyclical component of total credit/GDP
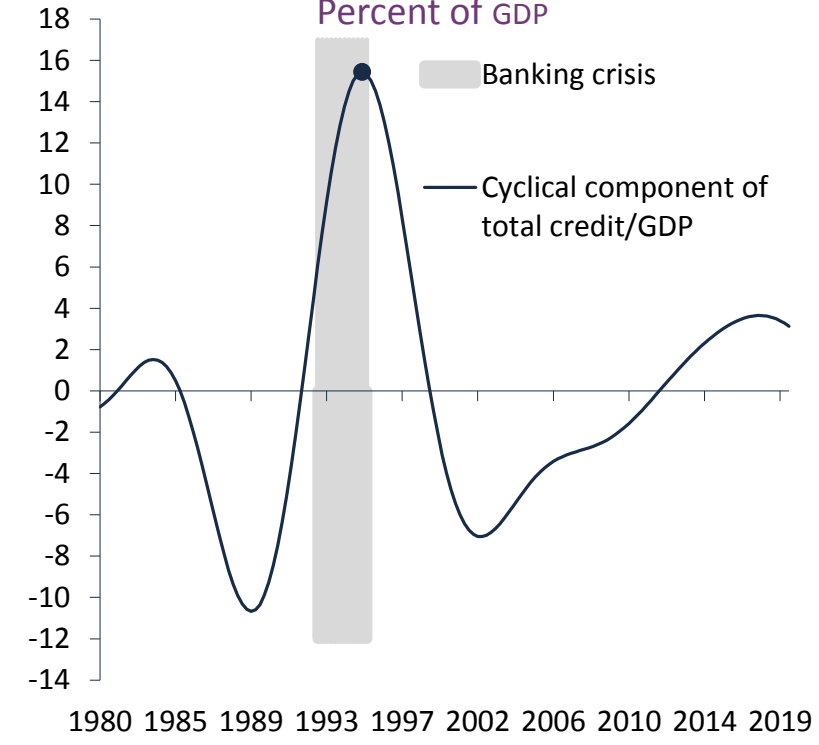
Preliminary financing data as of the Q3 2019.
Source: Banco de México, INEGI, Drehman et al. (2012) and Laeven and Valencia (2012).
1/ The medium-term cyclical component was obtained with a band-pass filter assuming that, in accordance with literature, financial cycles last between 8 and 30 years.
2/ Drehmann et al. (2012) and Borio (2014) show that peaks in the medium-term cyclical component of the credit-to-GDP ratio occur up to one year before or one year after the beginning of systemic banking crises. Using this result, the shadow area shows the time range delimited by one year before and one year after the beginning of the banking crisis in Mexico, which, according to Laeven and Valencia (2008, 2012 and 2018), occurred in 1994.

Aggregate households' leverage remained relatively stable during the second and third quarter of 2019. Housing credit picked up.

Households' indebtedness relative to their financial assets
### Balance in percentage of GDP
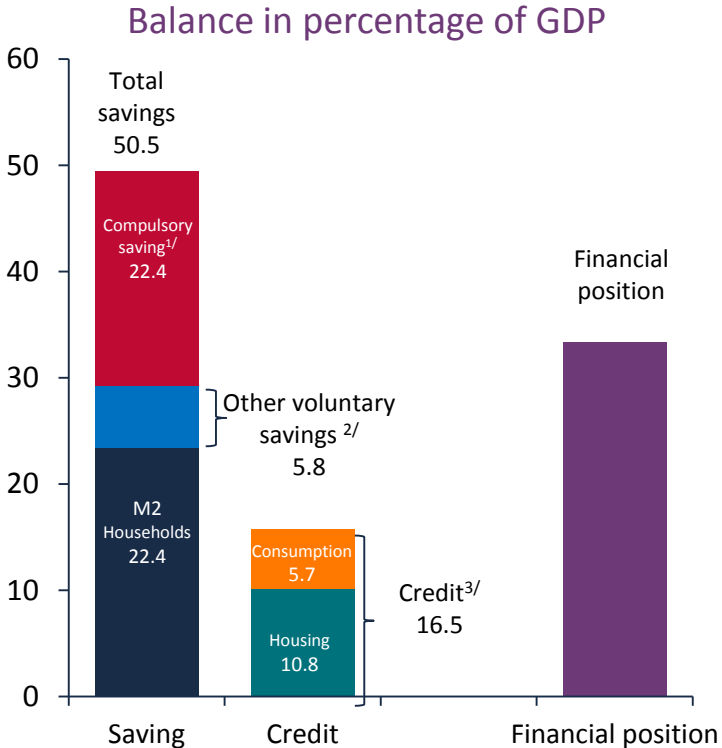
Data as of September 2019.
Source: Banco de México.
1/ Includes housing and pension funds.
2/ Includes public and private securities, securities issued by states, municipalities, public entities and state-owned companies, the National Infrastructure Fund (Fonadin, for its acronym in Spanish), and other bank liabilities held by households.
3/ Includes credit from commercial banks, development banks, popular loan entities and credit unions, and regulated Sofomes.

Household's credit
Percentage of total funding
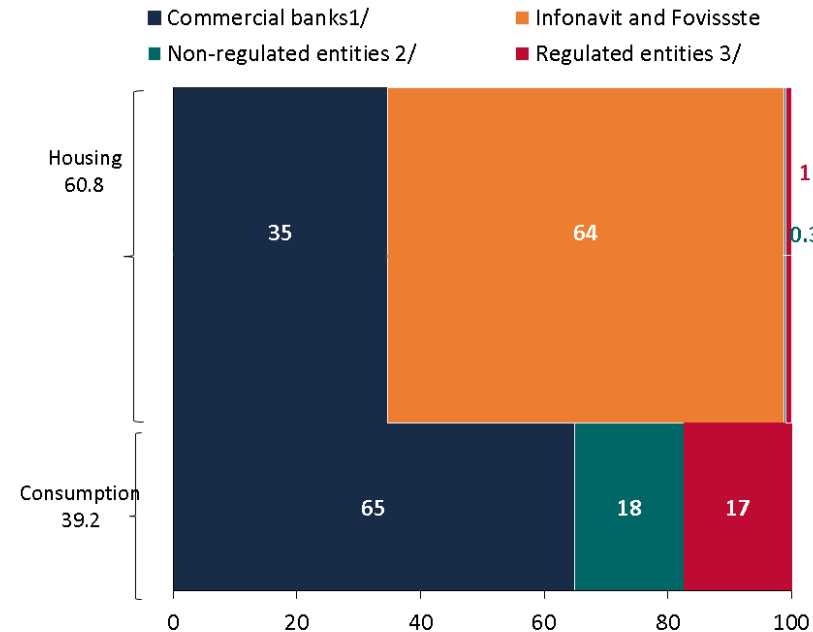
Data as of September 2019, except for figures for unlisted non-regulated Sofomes which are available as of June 2019.
Sources: Banco de México, Mexican Stock Exchange (BMV, for its acronym in Spanish), and Commission for the Defense of Financial Services Users (Condusef, for its acronym in Spanish)
1/ Includes the portfolio of regulated Sofomes that have a patrimonial link with a bank.
2/ Includes financing granted by non-regulated Sofomes, debt-issuing companies that grant financing (i.e. automotive) and credit granted by listed department stores to their customers.
3/ Includes development banks, Institute of the National Fund for Workers' Consumption (Infonacot, for its acronym in Spanish) as well as other regulated non-bank financial entities such as Socaps, Sofipos, and Sofomes regulated as debt issuers.

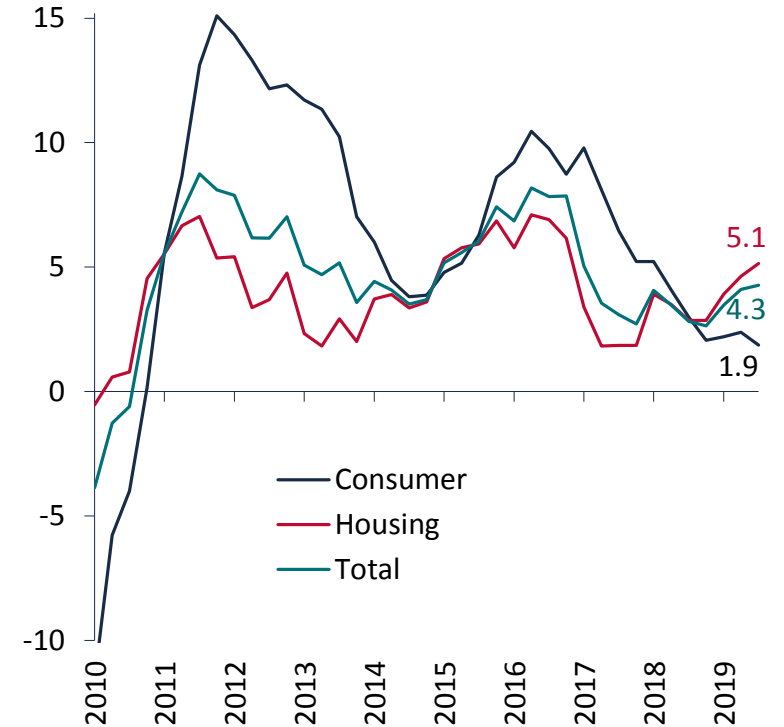## Growth of total financing to households [1]
Real annual percentage change

Data as of September 2019, except for figures for unlisted non-regulated Sofomes which are available as of June 2019.
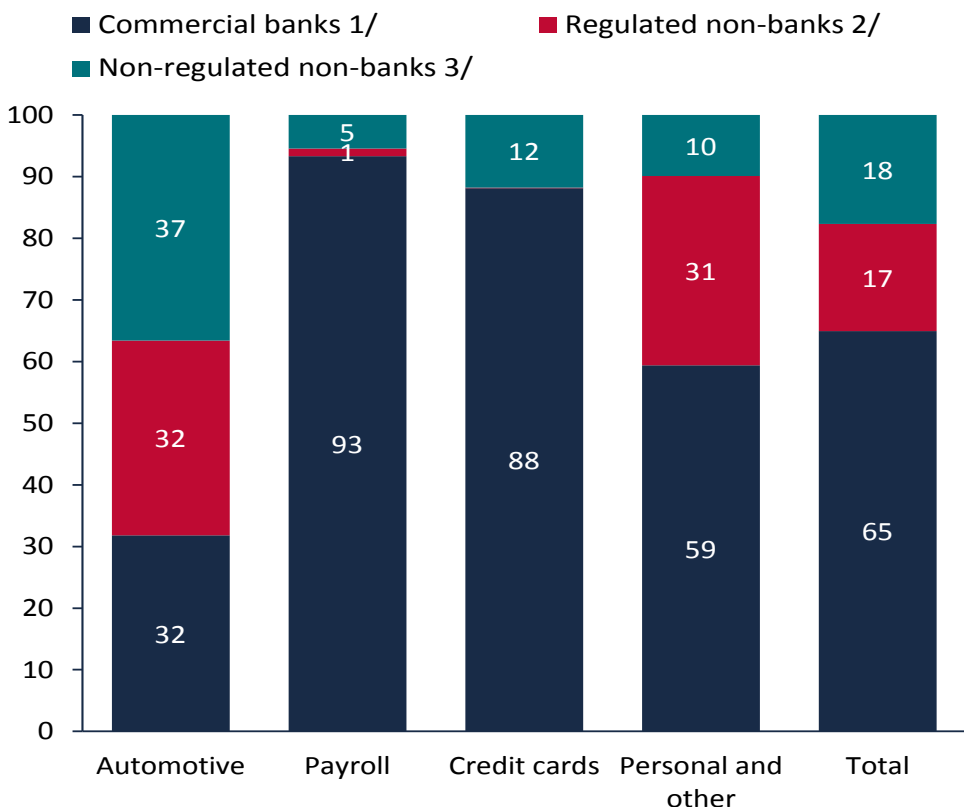Sources: Banco de México, BMV and Condusef.
1/ Considers credit granted by the country's banks, regulated Sofomes with links with banks, Socaps, Sofipos and credit unions as well as financial entities that legally disappeared such as Sofoles, leasing companies and factoring companies. For housing loans it also includes those granted by Infonavit and Fovissste. Consumer credit data include credit granted by the Institute of the National Fund for Workers' Consumption (Infonacot, for its acronym in Spanish). It also includes financing granted by non-regulated entities, such as non-regulated Sofomes and that granted by financial companies specializing in credit or leasing, which issue debt but are not financial entities under Mexican law. The growth series are adjusted to consider the beginning of availability of the data on financing by non-regulated entities and regulated Sofomes that issue debt in the period in which they appear in the sample (2015-2016).
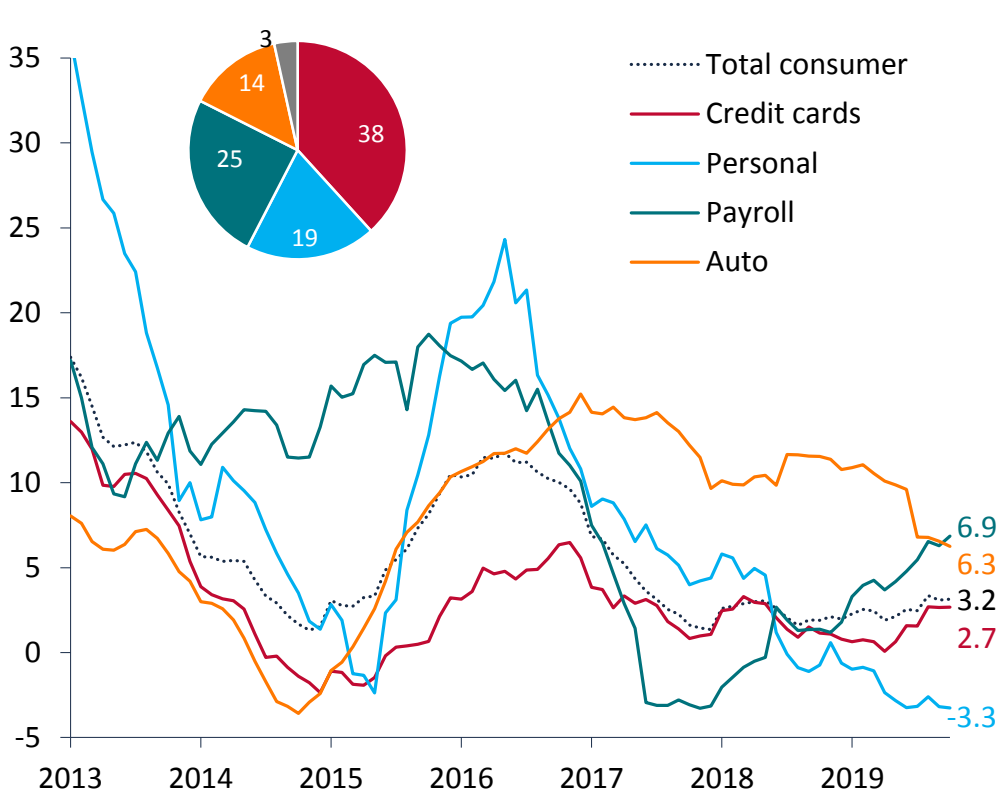
❸ Households' financial position

Although commercial banks are the major providers of consumer credit, the market share of other non-bank intermediaries is also relevant. The slight increase of consumer credit granted by banks is explained by the dynamics of payroll credit and, to a lower extent, by that of credit cards, while the segments of auto and personal loans have decelerated.

Consumer financing by type of originator
Percent

- ■ Commercial banks 1/
- ■ Regulated non-banks 2/
- ■ Non-regulated non-banks 3/

Commercial banks' consumer loan portfolio
Percent

- ······ Total consumer
- —— Credit cards
- —— Personal
- —— Payroll
- —— Auto

Data as of September 2019 for commercial banks, except for unlisted non-regulated Sofomes where data is available as of June.
Sources: Banco de México, National Banking and Securities Commission (CNBV, for its acronym in Spanish) and Condusef.
1/ Includes credit portfolio of regulated Sofomes that are entities related to a bank.
2/ Includes portfolio of Infonacot in the segment of personal loans and others, which accounts for 1.1% of total consumer portfolio as of September 2019. 3/ Includes portfolio of non-regulated Sofomes, credit cards issued by department stores that report to the BMV as well as financial companies that grant credit predominantly as part of their business line, such as financial leasing or some financial areas of automotive companies.
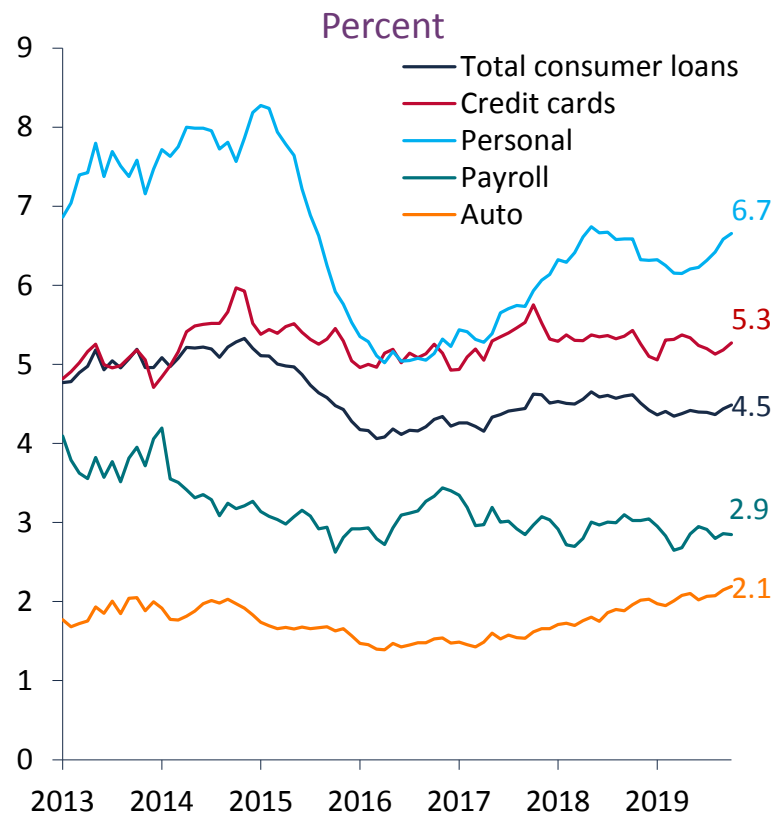
Data as of October 2019.
Source: CNBV.

❸ Households' financial position

The delinquency rate of bank's consumer loan portfolio has remained stable and at relatively low levels, although the steady increase in the segment of personal loans is noteworthy. As for non-bank financial entities, the delinquency rate of non-regulated Sofomes and department stores' loan portfolio increased this year, although in recent months it has stabilized.

Delinquency rate of banks' consumer loan portfolio [1]
Percent

Data as of October 2019.
Source: CNBV.
1/ Includes regulated Sofomes with links to banks.

Adjusted delinquency rate of banks' consumer loan portfolio [1]
Percent
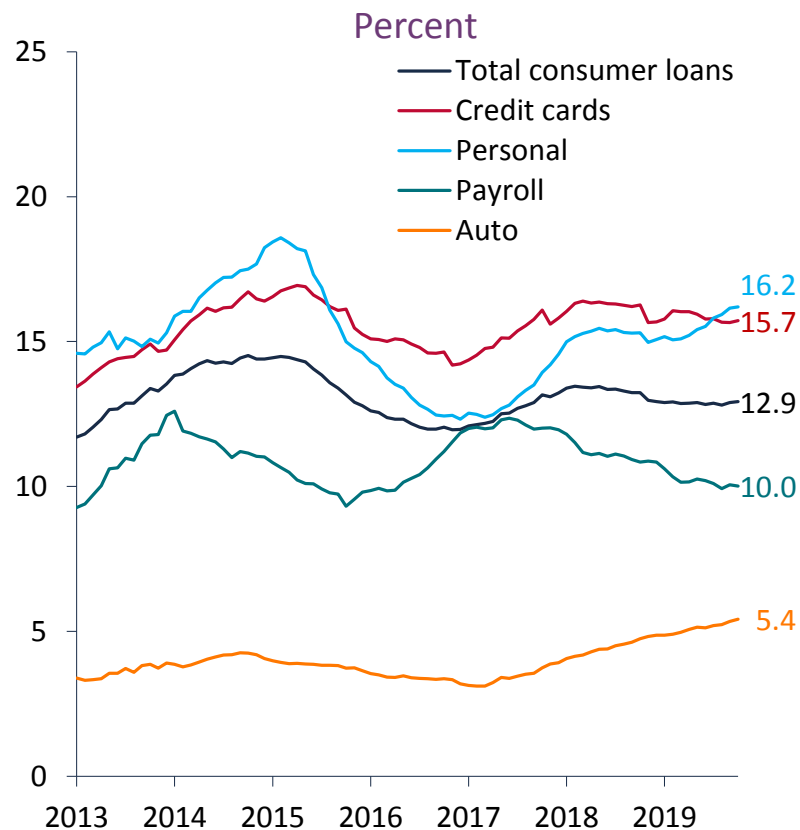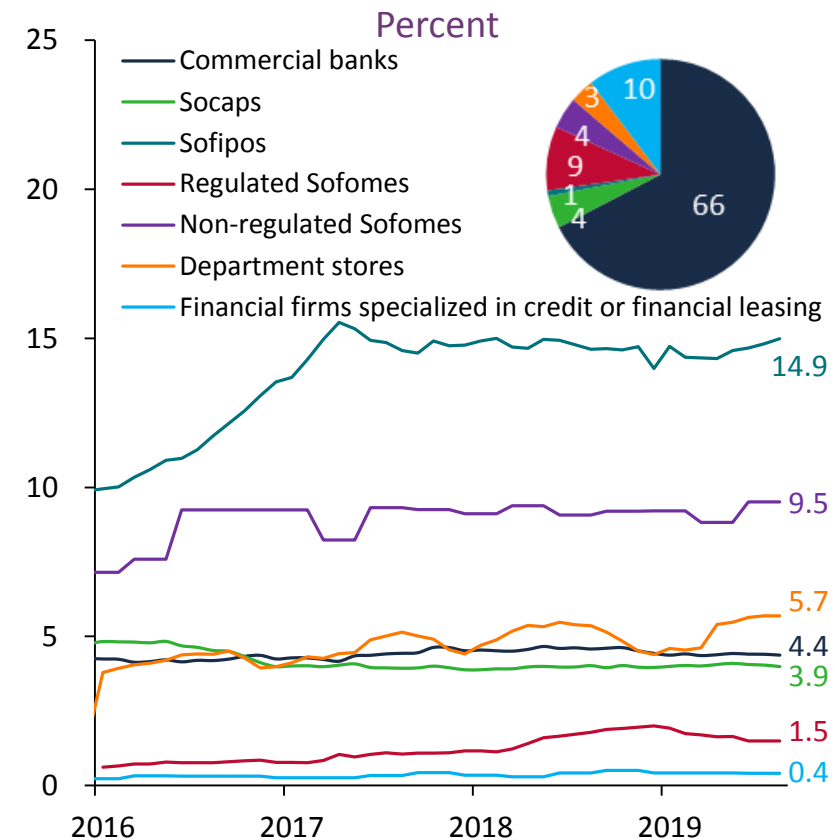

Data as of October 2019.
Source: CNBV.
1/ Includes regulated Sofomes with links to banks.

Delinquency rate of non-bank financial entities' consumer loan portfolio
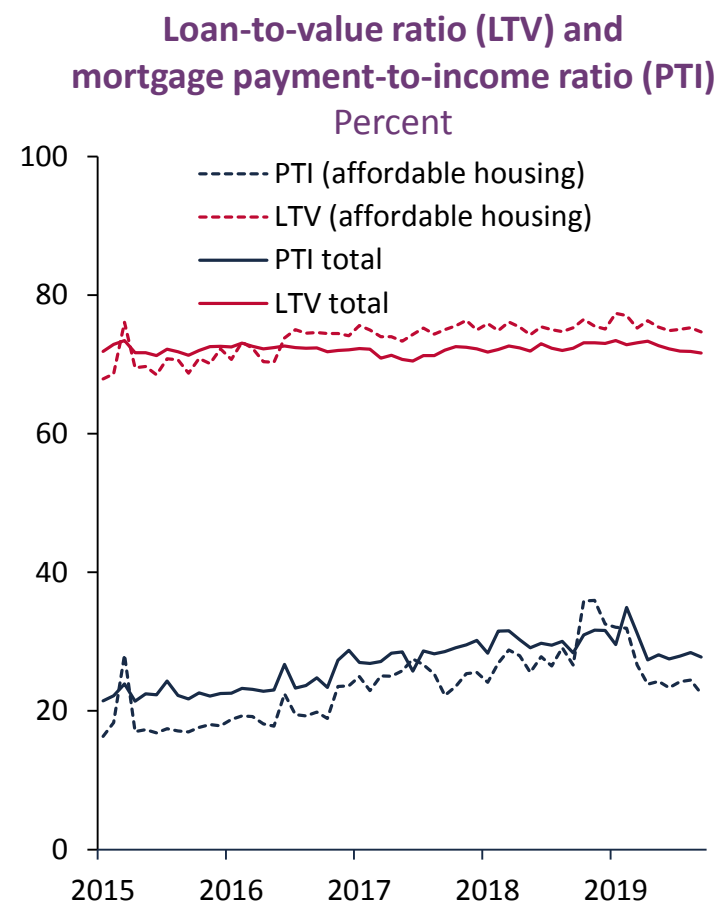Percent

Data of regulated entities is as of August 2019, while data of non-regulated entities is as of June 2019.
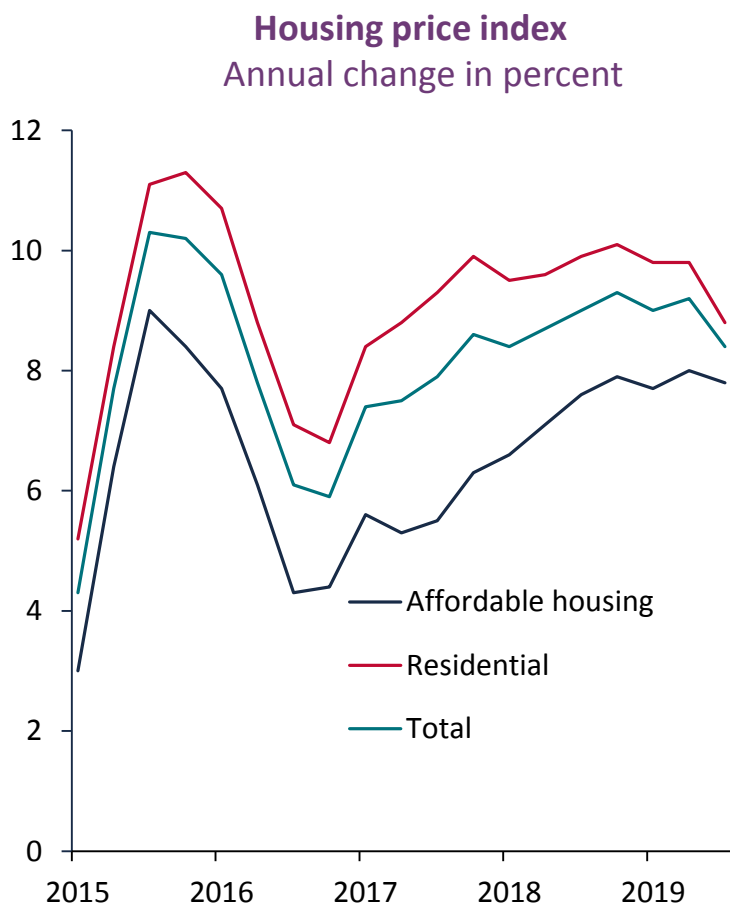Source: CNBV, BMV, Condusef and Credit Bureau.
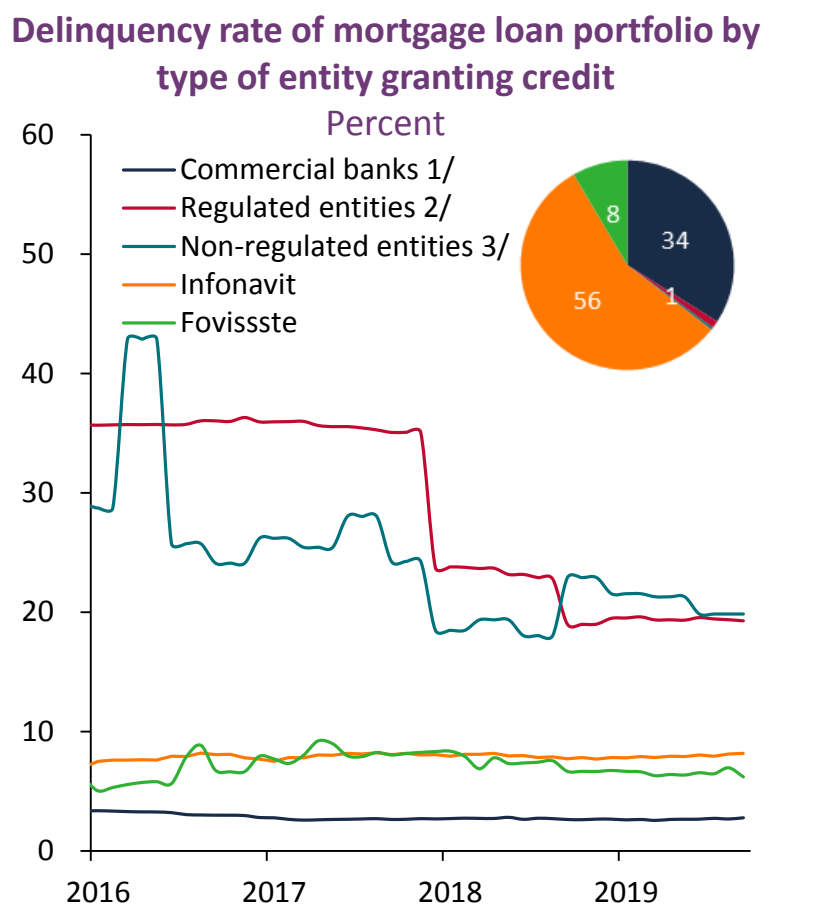
❸ Households' financial position

Mortgage lending has remained relatively stable. The delinquency rates of Infonavit, Fovissste and commercial banks' loan portfolio have remained at levels close to those observed in recent years, and although those of non-bank loans are relatively high, the corresponding balance is small with respect to the total.

Loan-to-value ratio (LTV) and mortgage payment-to-income ratio (PTI)
Percent

- - - - PTI (affordable housing)
- - - - LTV (affordable housing)
—— PTI total
—— LTV total

Data as of September 2019.
Source: CNBV.

Housing price index
Annual change in percent

—— Affordable housing
—— Residential
—— Total

Data as of September 2019.
Source: Federal Mortgage Society (*Sociedad Hipotecaria Federal*, SHF).

Delinquency rate of mortgage loan portfolio by type of entity granting credit
Percent

—— Commercial banks 1/
—— Regulated entities 2/
—— Non-regulated entities 3/
—— Infonavit
—— Fovissste

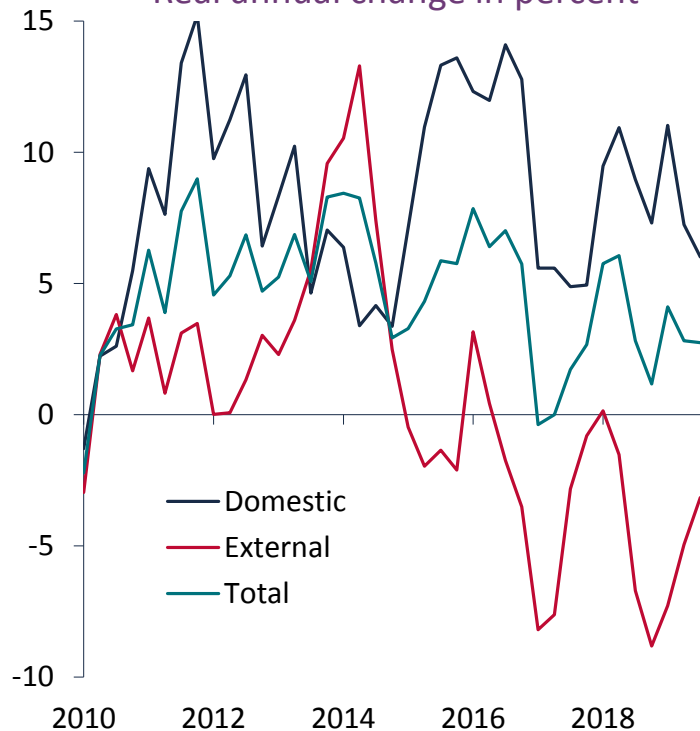Data as of September 2019, except for figures for unlisted non-regulated Sofomes and development banks, which are as of June 2019. Sources: CNBV, BMV and Condusef. 1/ Includes credit portfolio of regulated Sofomes that are related banks. 2/ Includes credit portfolio of regulated non-bank financial entities, such as development banks, Socaps, Sofipos, and regulated Sofomes issuing debt. 3/ Includes non-regulated Sofomes.

The growth rate of banks' credit to non-financial private firms has remained relatively stable. Financing from external sources continued to contract albeit at a significantly slower rate. This is mainly accounted for by loosening financial conditions in advanced economies, which was reflected in issuance costs.

Growth of total financing to non-financial private firms [1]
Real annual change in percent

Data as of September 2019, except for unlisted non-regulated Sofomes, that are as of June.
Source: Banco de México, BMV and the Ministry of Finance (SHCP).
1/ Includes financing from both domestic and external suppliers to businesses listed in Mexican stock exchange. It also includes financing to firms granted by non-regulated entities, such as non-regulated Sofomes and that granted by financial firms specialized in credit or leasing, which issue debt but which are not financial entities under the Mexican law. The growth series is adjusted to consider the beginning of availability of data on financing by non-regulated entities and regulated Sofomes issuing debt in the period in which they appear in the sample (2015-2016). External financing data adjusted by the exchange rate effect.

Firms' bond yields issued in international markets
Percent

Data as of December 2019.
Sources: Bloomberg and ICE-BofAML.
1/ JP Morgan Corporate Emerging Markets Bond Index (CEMBI) for Mexico. The average rating of Mexican issuers is BBB in the global scale.

Net quarterly issuance of long-term debt [1]
#### USD billion

Data as of November 2019.
Source: Banco de México, Bloomberg and Indeval.
1/ Constructed based on differences in the outstanding balance of each quarter. For debt issued in international markets, a single exchange rate was used (that of the previous quarter) to avoid for exchange rate effects.

Credit granted by commercial banks to non-financial private sector grew at a slower rate. This was due to the slowdown of credit to large firms and to the low dynamism of SMEs (small and medium enterprises). The delinquency rates of SMEs continued to increase.

Growth of financing to non-financial private firms by domestic sources
Real annual change in percent

Legend:
- Domestic banks
- Non-bank
- Debt issued
- Suppliers

Pie chart: 66, 14, 11, 9
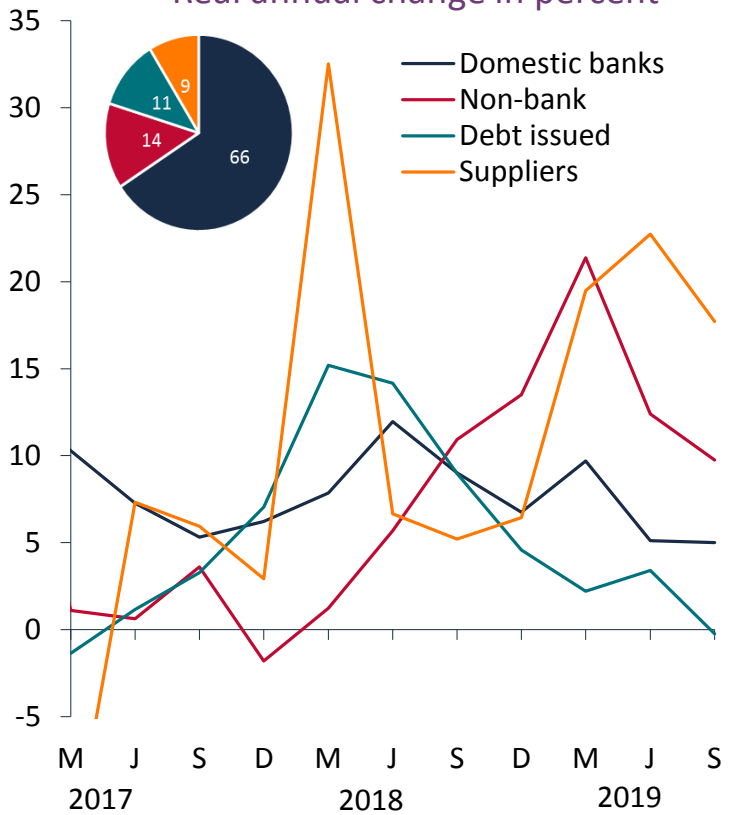
Data as of September 2019.
Source: Banco de México, BMV and Condusef.

Total credit granted by firm size
MXN millions

Percentile 90
Percentile 75
Average
Mean
Percentile 25
Percentile 10

Large →

SMEs Sep18, SMEs Sep19, Large Sep18, Large Sep19
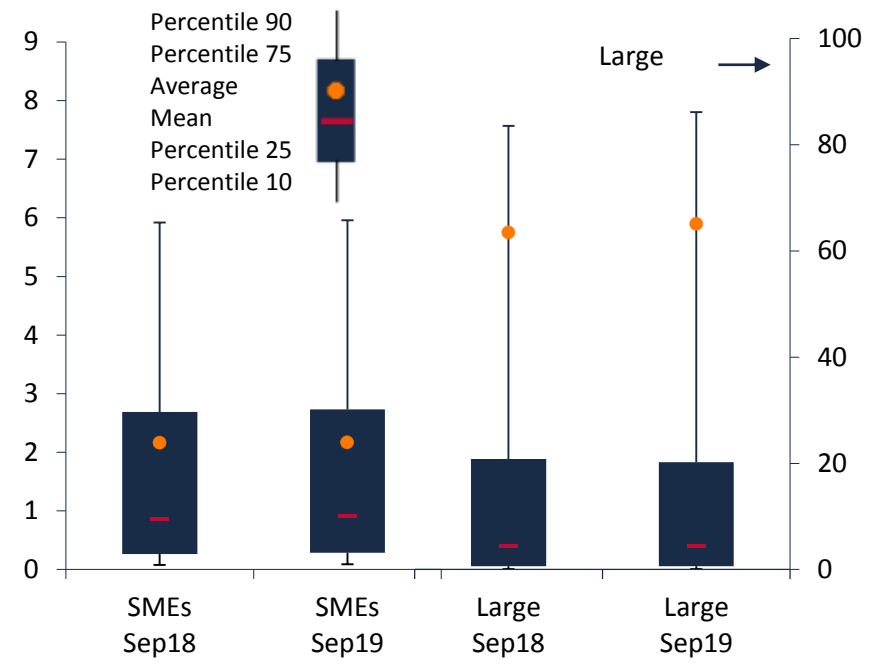
Data as of September 2019.
Source: CNBV.

Delinquency rate by firm size [1]
Percent

Legend:
- SMEs
- Large
- Total
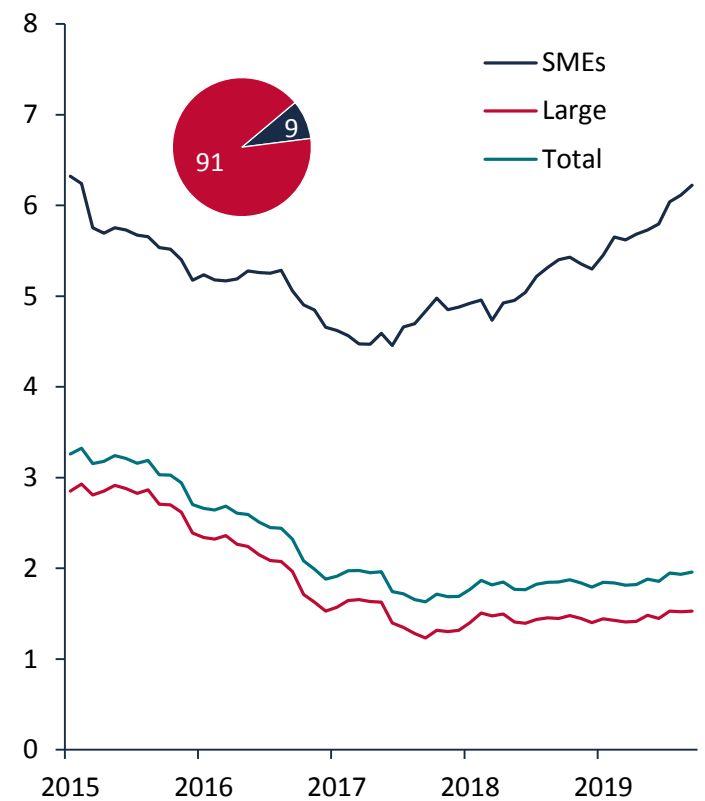
Pie chart: 91, 9

Data as of September 2019.
Source: CNBV.
1/ The pie chart shows the loan portfolio share by firm size.

Commercial banks have maintained high regulatory capital ratios, which has allowed them to increase their loan portfolio and to be in a better position to face adverse scenarios.

Structure of banks' Capital Adequacy Ratio (CAR)[1/]
Percent

CAR net of risk [1/]
Percent

Data as of September 2019.
Source: Banco de México.
1/ The capital adequacy ratio (CAR) is estimated by dividing the net capital by the risk-weighted assets. The net capital is the regulatory capital that includes the Tier 1, Additional Tier 1, and the Tier 2 capital.
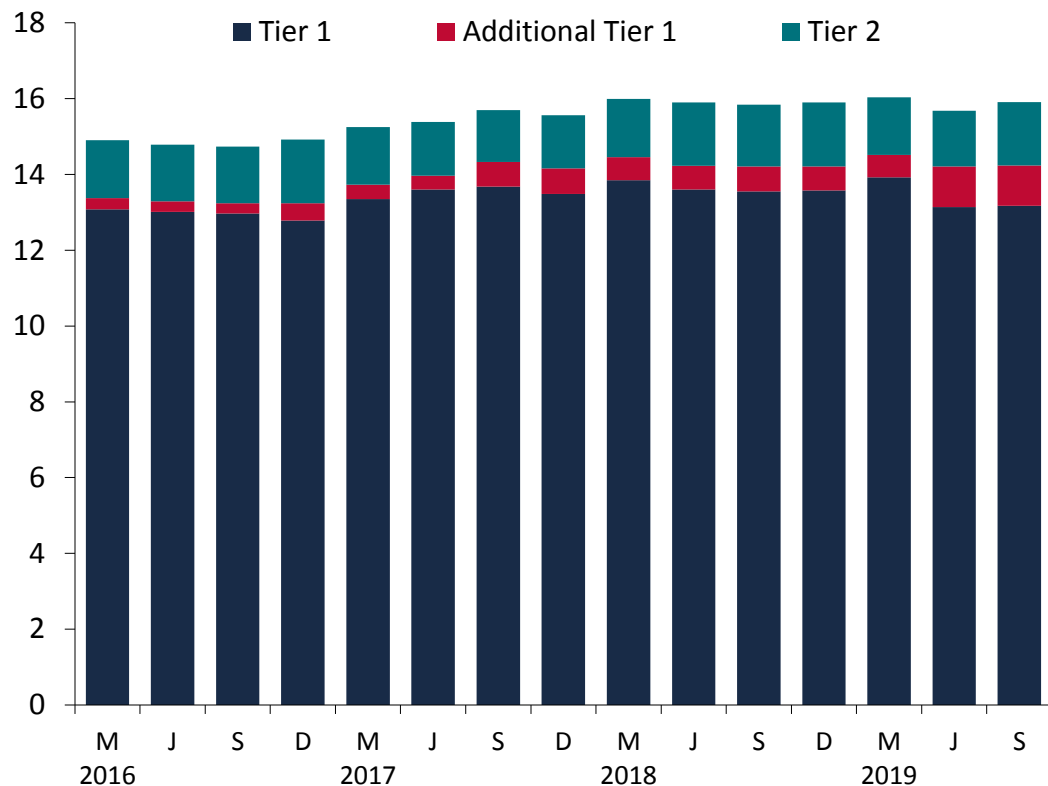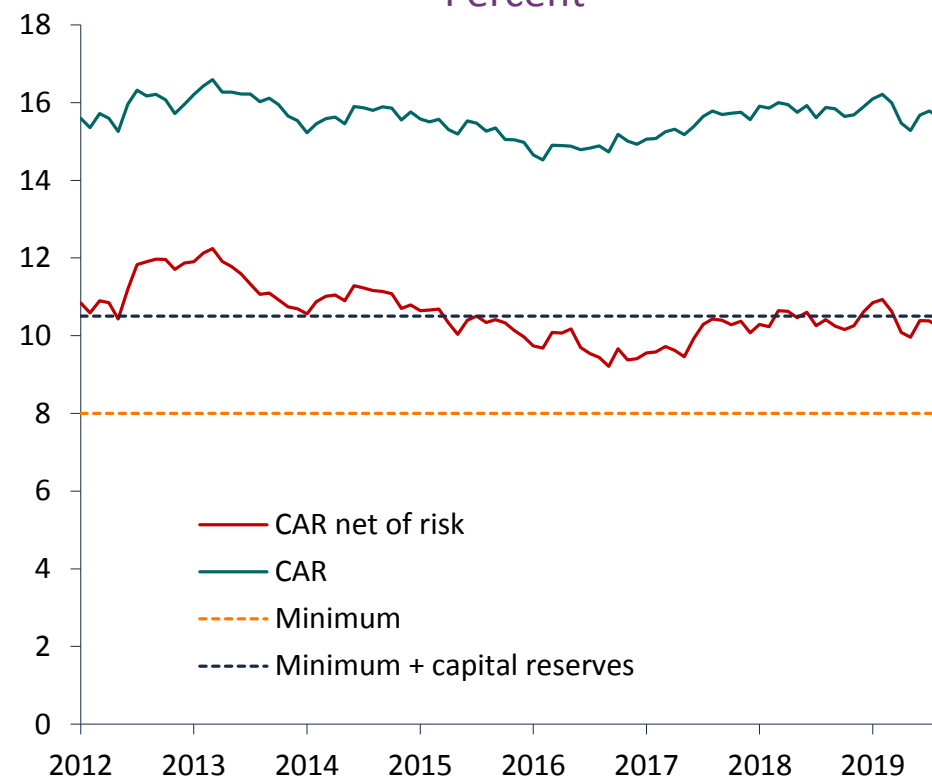
Data as of September 2019.
Source: Banco de México.
1/ Estimated as the capitalization ratio that results from reducing the CVaR at 99.9% of both net capital and risk-weighted assets. This indicator assumes that credit portfolio has losses for an amount equal to the CVaR at 99.9%, which the bank assumes as directly reflecting capital loss without affecting its reserves and that such portfolio is weighted in order to determine capital requirements at 100%.

The environment of greater volatility on the main financial market variables led to an increase in banks' market risk. Commercial banks continue exhibiting sufficient liquidity levels to cope with financial market stress episodes.

Conditional Value at Risk (CVaR) at 99.9%
for market risk
Percent of net capital

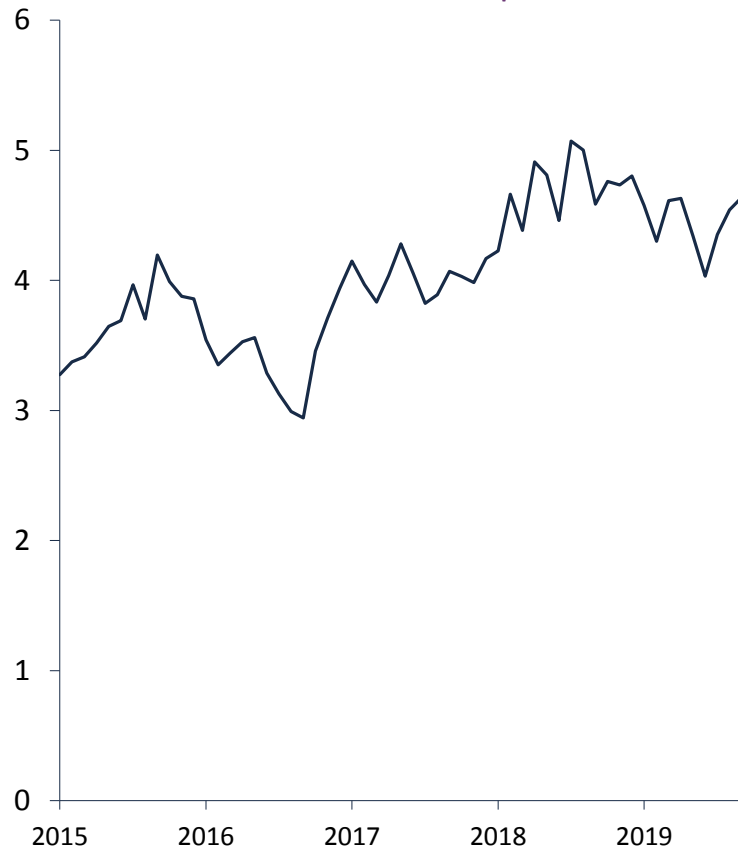Data as of September 2019.
Source: Banco de México.

Liquidity Coverage Ratio (LCR) [1/]
Percent

Bank	Value
Bankaool	418
BI Afirme	472
Inmobiliario	513
Intercam Banco	544
Mizuho Bank	596
Bancoppel	831
Azteca	903
Consubanco	1,788
Compartamos	2,125
Deutsche	2,397
Shinhan	3,511
Pagatodo	3,858
Dondé	5,020
Bank of China	19,728
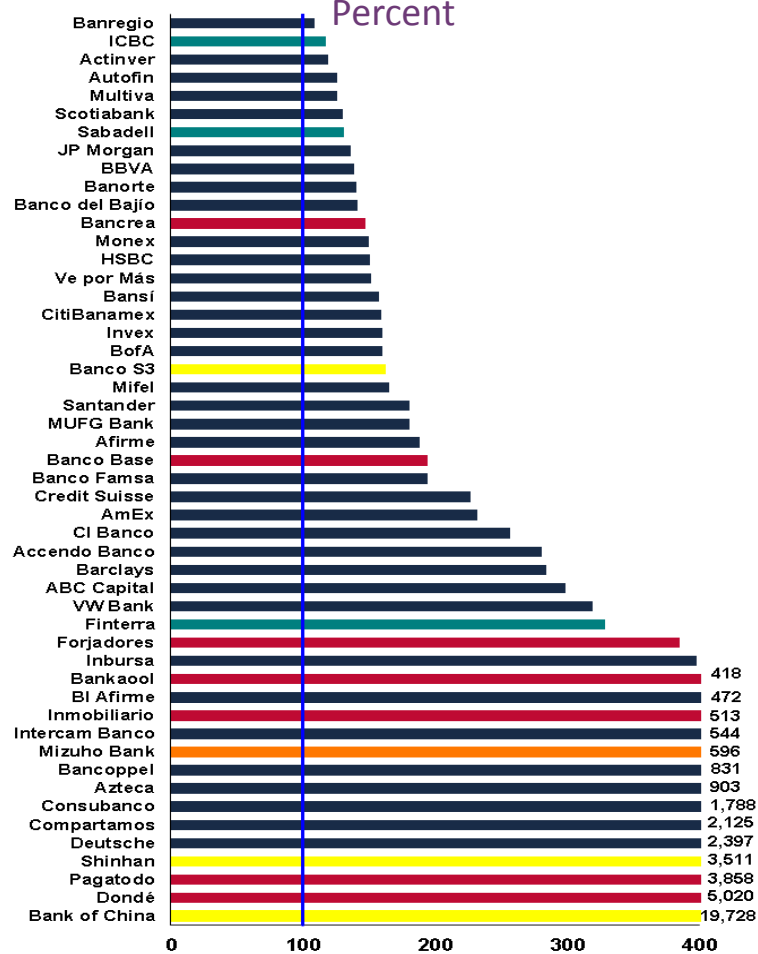
Data as of September 2019.
Source: CNBV.

Distribution of Net Stable Funding Ratio (NSFR)
Percent
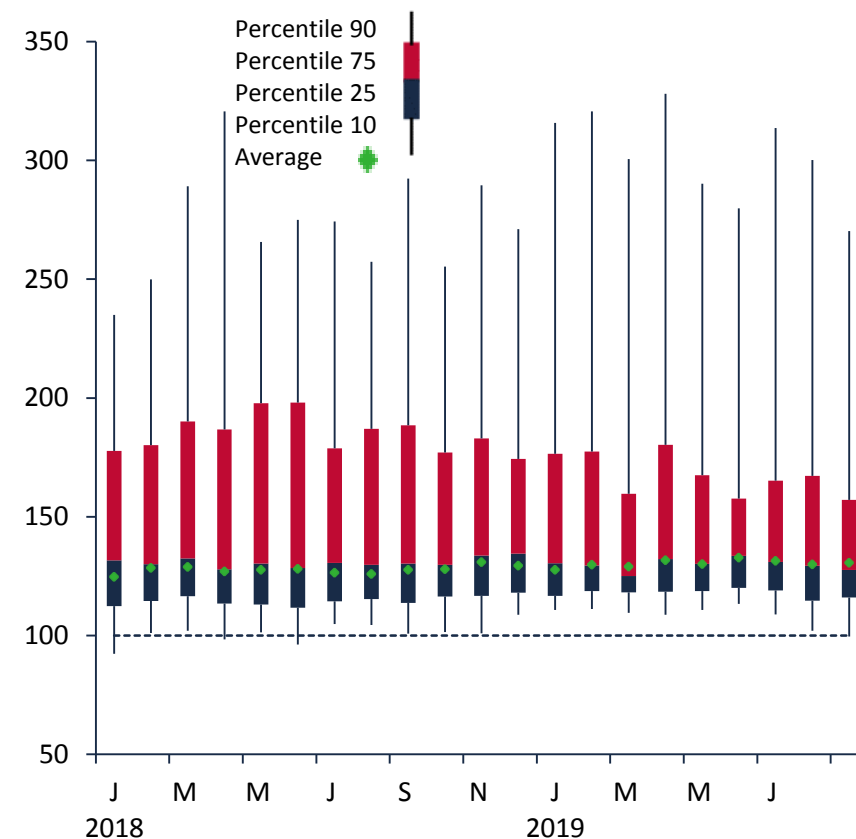
Data as of September 2019.
Source: Banco de México.

1/ The chart presents the quarterly average of LCR from July to September 2019, for each bank. In compliance with the current regulation, as of September 2019, banks marked in blue should satisfy a minimum LCR of 100% while banks in red, a minimum of 90%. Banks marked in turquoise, a minimum of 80%, banks marked in orange, a minimum of 70%, and banks marked in yellow, a minimum of 60%. Bank KEB Hana is excluded from the chart, given that, according to current regulation, it does not have to satisfy a minimum LCR as of now. It will have to do so starting February 2020.

❻ Other risks

Cyber risks

- Cyber risks are among the most relevant risks faced by Mexico's financial system, due to their potential for systemic impact and speed of contagion.

- During 2019, the number of IT security incidents, reported by financial institutions to the authorities increased.

- In this environment, Mexican financial authorities have continued to make progress along the three axes of the strategy developed to mitigate cyber risks:

    i. **Corporate governance:** Approximately 90% of commercial banks have formally appointed an Information Security Officer, accountable to the authorities (CNBV and Banco de México) for designing institutional strategies to reinforce security and incident response protocols.

    ii. **Preventive strengthening of IT infrastructure and systems**: Before the end of the year, the interconnection agreement will be formalized, which will strengthen safety requirements to operate with Banco de México.

    iii. **Incident response protocols**: Authorities and trade associations of the financial sector have signed agreements to exchange information within the IT Security Incident Response Group. Financial institutions have also put in place response groups that report such incidents to the competent authorities.

❻ Other risks

Environmental risks

- Risks related to **environmental degradation and climate change** could represent an important source of losses for the financial system, and, in extreme cases, could even have systemic consequences.

- Therefore, it is key for financial institutions to assume an active role conducive to absorb and mitigate such risks.

- In this regard, Banco de México has endorsed a series of initiatives to raise awareness of this challenge among Mexico's financial system participants:

  - ✓ By actively participating with other national and international entities in different training workshops and conferences on the subject.
  - ✓ By seeking out to increase statistical databases related to this issue.
  - ✓ By doing research on the dynamics of green financing.

Contents

Commercial banks' stress tests

Scenarios   **Assumptions**

A | **Economic slowdown due to lower global growth** →
- Slowdown of domestic economic activity and investment levels (short and medium terms).
- Negative impact on credit demand and higher unemployment rates.
- Decline in both global and domestic interest rates in the short term.
- Effect on banking sector's profits.

B | **Protectionist measures and geopolitical risks** →
- Exchange rate pressures.
- Inflationary pressures.
- Interest rates increases.
- Contraction of domestic economic activity.

C | **Greater volatility and reallocation of flows towards less risky assets** →
- Depreciation of the exchange rate and inflationary pressures.
- Portfolio restructuring and capital outflows towards less risky financial assets.
- Greater risk premia; interest rate increases.
- With a lag, investment contraction.

D | **Lower growth of domestic economy and lower investment levels** →
- Economic slowdown in the short term.
- Higher unemployment rates.
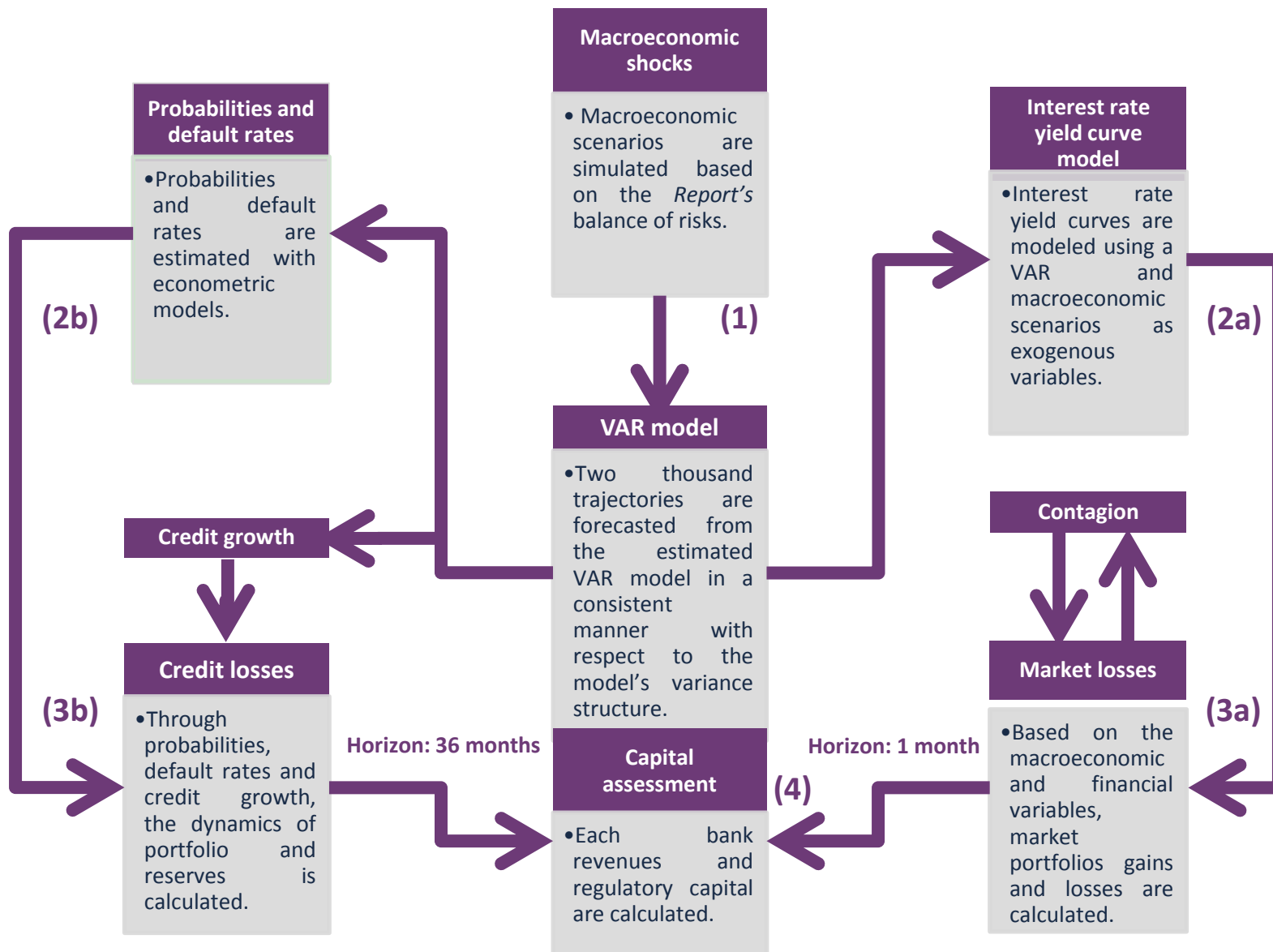- Decline in short-term interest rates.

E | **Historic adverse scenarios** →
- The dynamics of the main variables observed during:
  ➢ The 1995 crisis (H1).
  ➢ The 2008 global financial crisis (H2).
  ➢ The volatility episode in May 2013 (H3).

Note: The severity of the stress scenarios analyzed is due to the combination of simultaneous adverse shocks on all variables. In particular, in the set of scenarios A, shocks fluctuate between -2.53 and 3.51 standard deviations for all variables. The most outstanding are the shocks of 3.21 standard deviations in the exchange rate, a shock of -1.80 standard deviations in the annual growth of the nominal performing loans portfolio, and a shock of -2.53 standard deviations in the annual growth rate of IGAE. In the set of scenarios B, shocks fluctuate for all variables between -2.53 and 5.44 standard deviations, highlighting a shock of 5.44 standard deviations for the exchange rate, of 2.36 standard deviations for unemployment and of -2.53 standard deviations for the annual growth of the nominal performing loans portfolio. Similarly, in the set of scenarios C, shocks have a variation between -3.20 and 6.86 standard deviations for all variables, especially a shock of -2.13 standard deviations for the annual growth rate of IGAE; of 6.86 standard deviations in the exchange rate; and of -3.20 standard deviations in the annual growth of the nominal performing loans portfolio. Finally, in the set of scenarios D, shocks fluctuate between -1.70 and 4.05 standard deviations, with a shock of up to 2.11 standard deviations in unemployment, 3.32 in the exchange rate, and of -0.73 standard deviations in the 28-day Cetes rate.

Stress tests

Macroeconomic shocks

• Macroeconomic scenarios are simulated based on the *Report's* balance of risks.

(1)

VAR model

• Two thousand trajectories are forecasted from the estimated VAR model in a consistent manner with respect to the model's variance structure.

Probabilities and default rates

• Probabilities and default rates are estimated with econometric models.

(2b)

Interest rate yield curve model

• Interest rate yield curves are modeled using a VAR and macroeconomic scenarios as exogenous variables.

(2a)

Credit growth

Credit losses

• Through probabilities, default rates and credit growth, the dynamics of portfolio and reserves is calculated.

(3b)

Horizon: 36 months

Capital assessment

• Each bank revenues and regulatory capital are calculated.

(4)

Contagion

Market losses

• Based on the macroeconomic and financial variables, market portfolios gains and losses are calculated.

(3a)

Horizon: 1 month

❶ 2000 simulations per scenario were carried out.

❷ A 3-year horizon was used: from **September 2019 to September 2022.**

❸ The main financial ratios were calculated for each bank. **Special attention was given to maintaining capitalization ratio above regulatory minimum.**

❹ The simulated stress scenarios are not associated with probability of occurrence.

Stress tests

Derived from the analysis of the stress tests results it can be concluded that the financial system's average capitalization levels remain above regulatory minimum plus capital buffers, even in the most adverse scenarios.

Financial system Capital Adequacy Ratio (CAR) [1,2]

Percent

Scenario A · Scenario B · Scenario C · Scenario D
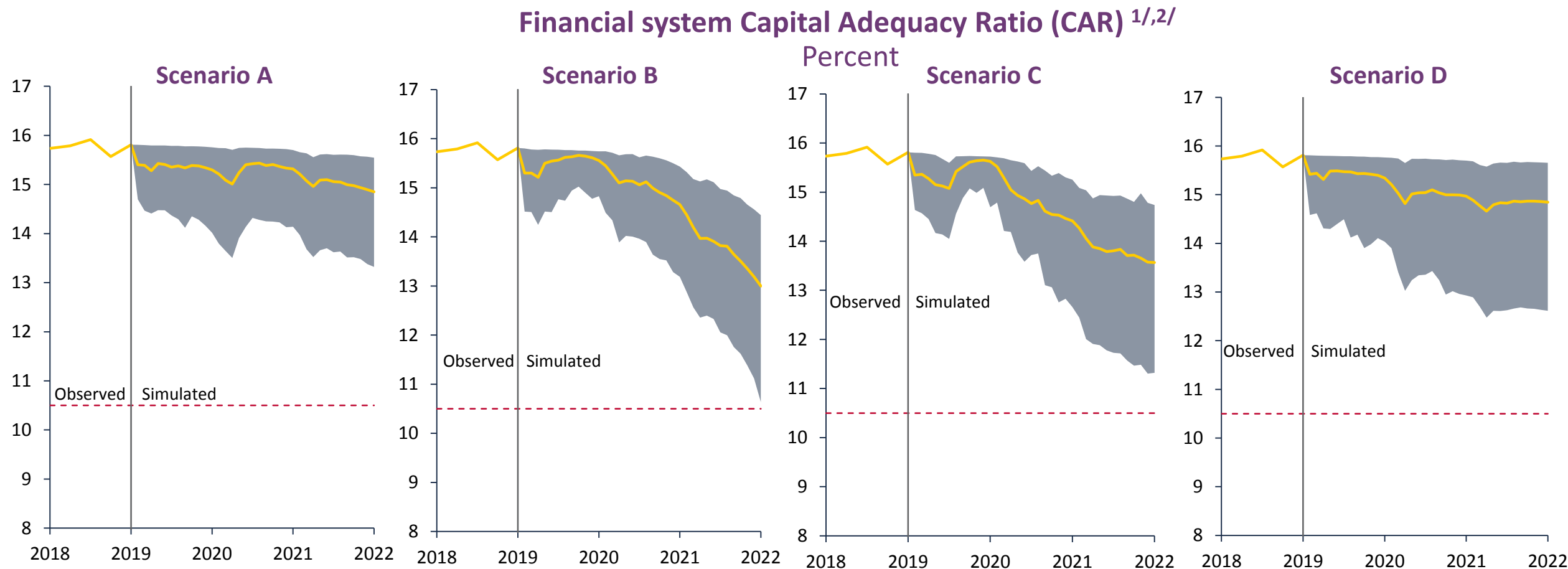
Data as of September 2019 and 3-year simulations starting from that moment.
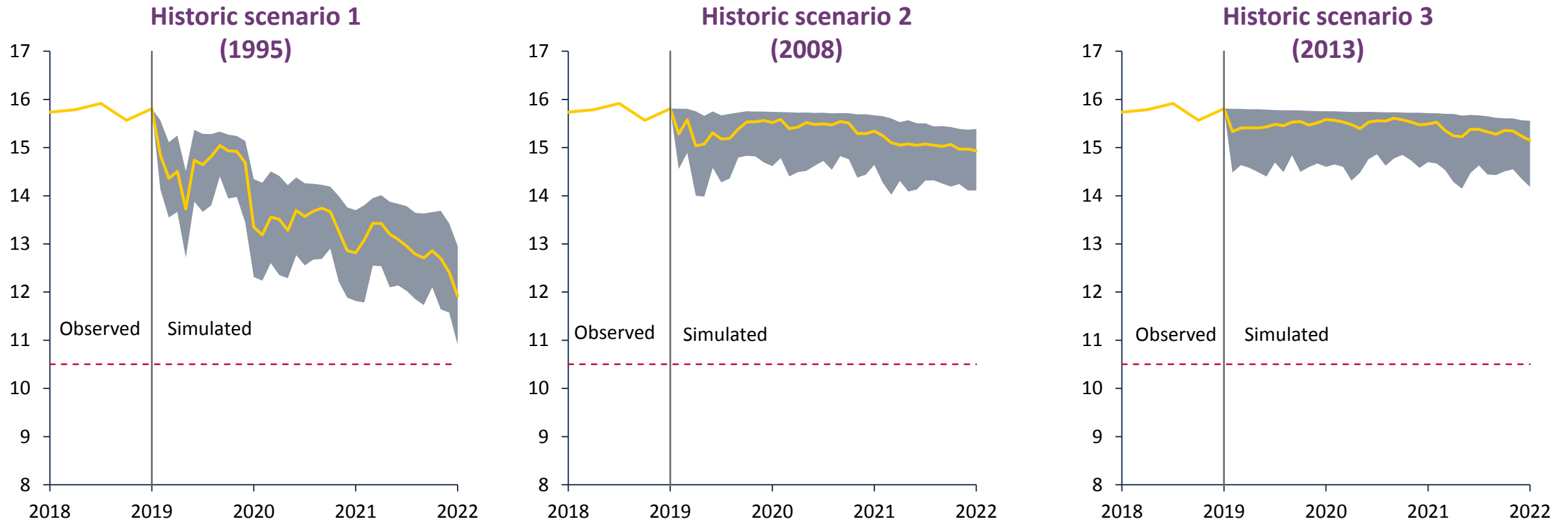Source: Banco de México.
1/ The horizontal line corresponds to the minimum CAR plus capital buffers.
2/ These results should in no way be interpreted as a forecast of the 3 years analyzed.

Stress tests

In the set of historical scenarios analyzed, the banking system would remain resilient, maintaining capital adequacy ratios above the regulatory minimum throughout the stress period.

Financial system Capital Adequacy Ratio (CAR) [1,2]
Percent

Historic scenario 1 (1995) — **Historic scenario 2 (2008)** — **Historic scenario 3 (2013)**

Data as of September 2019 and 3-year simulations starting from such date.
Source: Banco de México.
1 / The horizontal line corresponds to minimum CAR plus capital buffers.
2/ These results should in no way be interpreted as a forecast for the 3 years analyzed.

Stress tests

Stress scenarios affect banks in two ways: i) through higher delinquency rates (due to greater credit defaults) and, ii) through the banking sector's deleveraging process (decline in loan portfolio), which affects banks' ability to generate earnings.

Financial system probability of credit default [1/]
Percent
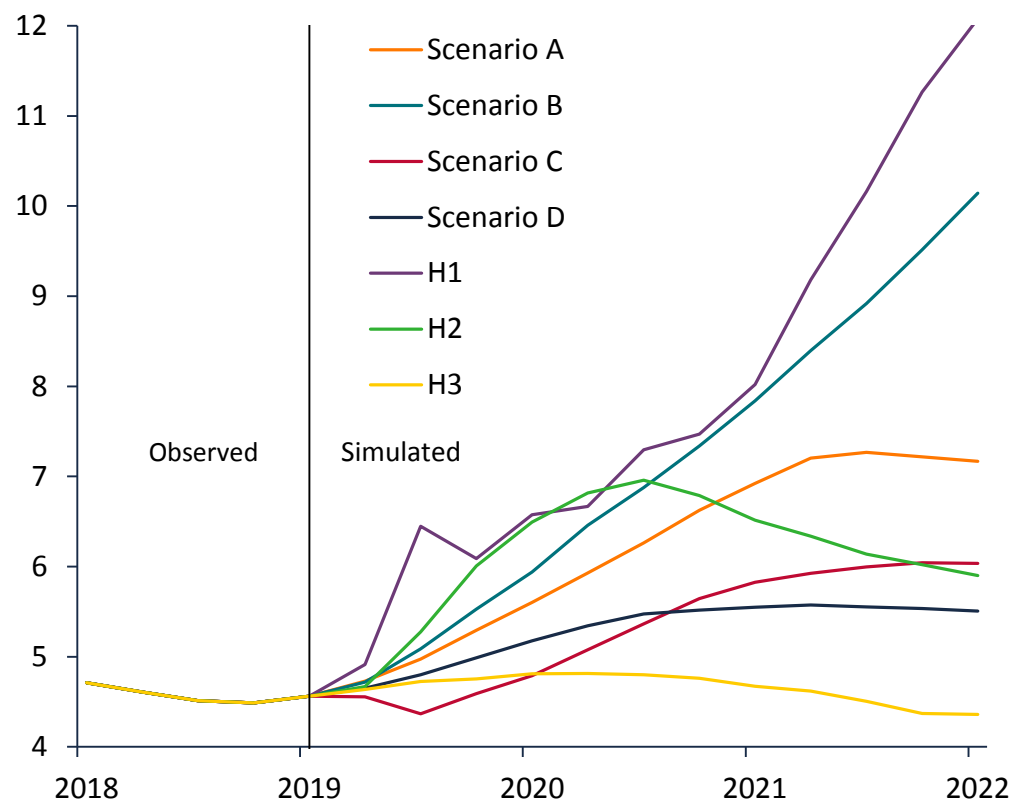
Average Capital Adequacy Ratio (CAR) and leverage ratio in stress scenarios
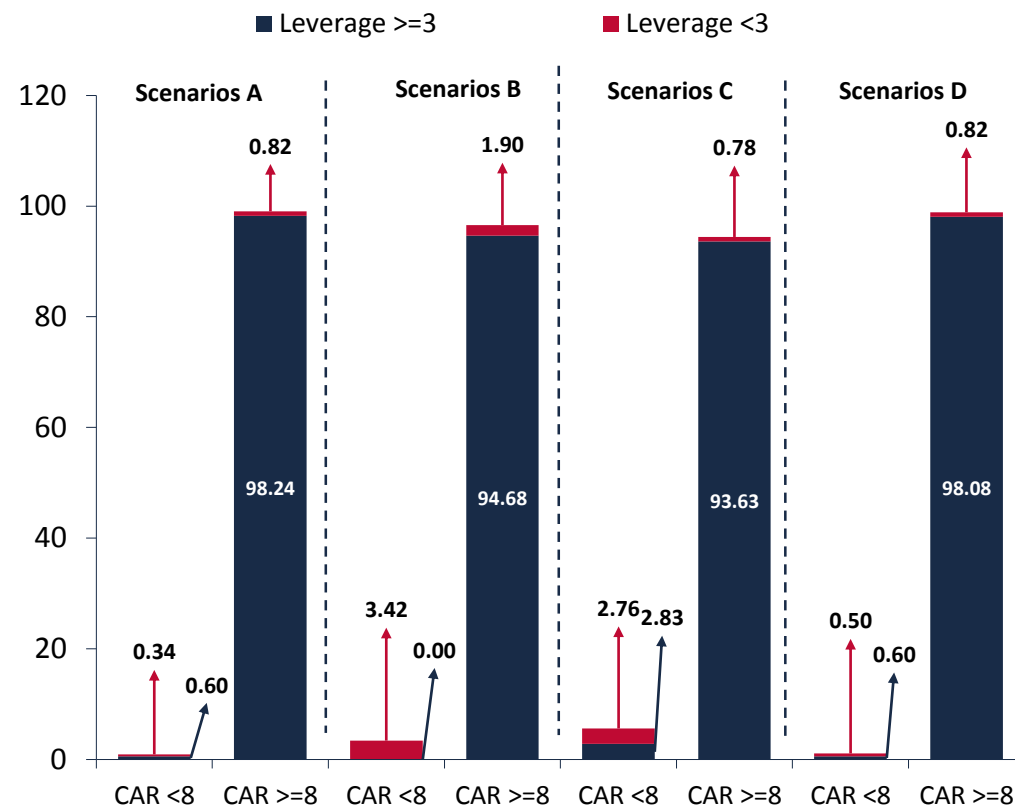Percent of assets in the banking system

Data as of September 2019 and 3-year simulations starting from such date.
Source: Banco de México.
1/ Weighted by the performing loan portfolio of each bank.

Data as of September 2019 and 3-year simulations starting from such date.
Source: Banco de México.

Contents

Macroprudential policy

- The Mexican financial system has been growing over sound foundations, on account of sustained efforts. The gradual improvement in regulation and supervision as well as prudent macroeconomic policy conduction have allowed for credit expansion, maintaining the system's solvency and liquidity, with moderate levels of aggregate risk.

- In this regard, prudent macroeconomic policy and efforts to preserve the principles of a sound macroeconomic framework, which contributes to maintaining financial stability, have allowed for:

  1 **Renewal of IMF's Flexible Credit Line (FCL):**

  ✓ The IMF Executive Board announced the approval of the Foreign Exchange Commission's request to extend the FCL two more years. In line with the strategy announced in 2017 to gradually phase out Mexico's use of the facility, the amount of the credit line was reduced.

  2 **Contingency measures:**

  ✓ As part of the discussions of the Mexican Financial System Stability Board, it was agreed to continue working on ensuring that institutions and authorities have contingency measures in place to deal with possible adverse scenarios and on reviewing the response and coordination mechanisms among authorities.

Macroprudential policy

- Additionally, in order to continue strengthening the prudential regulatory framework and limit risks to which the financial system is exposed, Mexican authorities have made progress in implementing certain regulations, in line with international standards and best practices. In this regard, the following regulations stand out:

1 **Better regulation of securities repurchase agreements and loans**
   - ✓ A proposal to amend the existing provisions for these operations was subject to a consultation process. After analyzing the comments received, Banco de México is currently in the process of drawing up a new project, which is to be implemented next year.

2 **Strengthening derivatives markets**
   - ✓ The consultation process on the proposal to establish margin requirements for derivatives transactions that are not cleared and settled through a clearing house was completed. Banco de México has made some adjustments to the regulation and the proposal is expected to be published next year.

3 **Strengthening the risk management framework of financial institutions**
   - ✓ The CNBV will send to the National Commission for Regulatory Improvement the project to modify the limits to the exposures that commercial banks maintain with a single counterparty or with counterparties representing a common source of risk. The regulation is expected to enter into force in 2020.

4 **New liquidity requirements**
   - ✓ The Net Stable Funding Ratio is about to be implemented.

Contents

1 Macrofinancial conditions

2 Financial system risks

3 Stress tests

4 Macroprudential policy

5 Final remarks

Final remarks

① The **Mexican financial system** has maintained a moderate expansion, without excessive risk-taking. The system as a whole, and, the banking system in particular, continue exhibiting adequate levels of solvency and liquidity and limited levels of risk.

② As for **the financial cycle of the Mexican economy**, information available up to the third quarter of the year suggests that it continued to slow down, maintaining the change in trend registered at the beginning of 2018.

③ In the aggregate, **households'** savings grew more than their indebtedness. However, total financing received by households, mainly that destined for housing, slightly increased.

④ As for **firms**, the growth rate of total financing to this sector remained relatively stable with respect to the observed during the first half of the year. The slower rate of growth of financing from domestic sources, both banking and non-banking, is noteworthy. External financing contracted, although to a lesser extent than in previous quarters.

⑤ **Delinquency rates** of both households and firms have overall been low and are subject to risks of lower growth of economic activity or employment.

Final remarks

⑥ **Commercial banks** are the main intermediaries of the financial system and have managed to retain high levels of capitalization and liquidity to cope with episodes of market stress.

⑦ **Stress tests** suggest that the banking system has sufficient levels of capital to cope with different macroeconomic and financial shocks.

⑧ As for **non-financial risks**, those related to cyber attacks and climate change have gained relevance and must continue to be assessed and mitigated.

⑨ It is important to preserve a stable, efficient and innovative financial system that can cope with an environment such as the one analyzed in this *Report*.

⑩ A sound institutional framework, adequate human capital, and financial regulation and supervision are required to preserve the financial system's stability and to protect the public's interests.

Boxes

1. **Effects of uncertainty on corporate lending**
2. **Financial conditions and growth at risk**
3. **Assessing the impact of international financial reforms on SMEs financing**
4. **Credit to the public sector and its effect on credit to the private sector**
5. **Evolution of the determinants of Pemex's credit risk**
6. **Biannual survey on systemic risk perception**
7. **Capital financing activities**

Annexes

1. **Disaggregated heat map of Mexico's financial system**