Financial Stability Report - Second Semester 2020

December 2, 2020

BANCO DE MÉXICO

Introduction

- The Mexican economy and financial system are facing an unprecedented shock as a result of the pandemic.
- The shock has significantly affected economic activity, inflation and financial conditions in Mexico, although at different time horizons.
- Given the severity and duration of the shock, it becomes even more relevant to have a **stable and efficient financial system that fosters credit into the economy and allows for an adequate transmission of monetary and financial policies** to the rest of the economy.
- This edition of the Financial Stability Report describes:
  - ✓ The **current state of the financial system.**
  - ✓ The **evolution of the most important risks and vulnerabilities faced by financial institutions and the system as a whole.**
  - ✓ The **measures that have been implemented** to promote the sound development of the financial system and to preserve its stability under this complex economic environment.

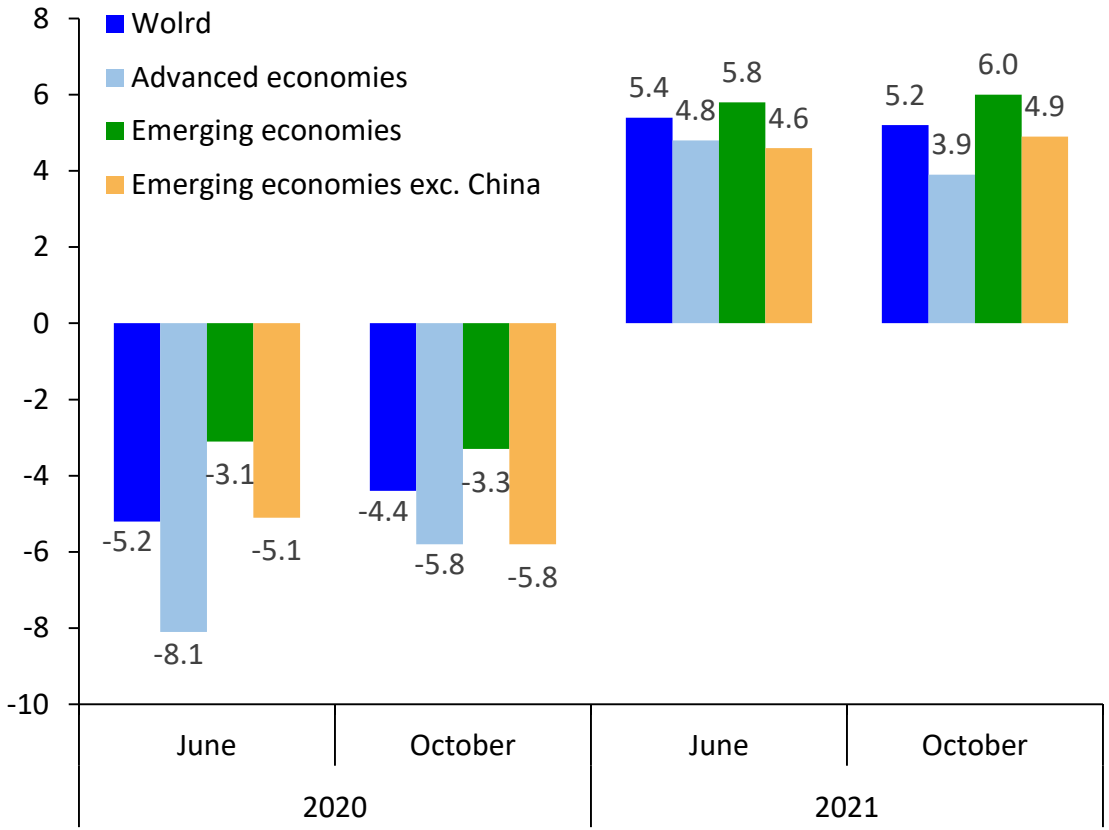
Contents

1 Global economic growth

Global economic activity has improved since May, although at a more moderate pace as of July and heterogeneously among countries. A sharp contraction of GDP in 2020 and a gradual recovery in 2021 are still anticipated, although with a high degree of uncertainty.

World GDP growth forecasts

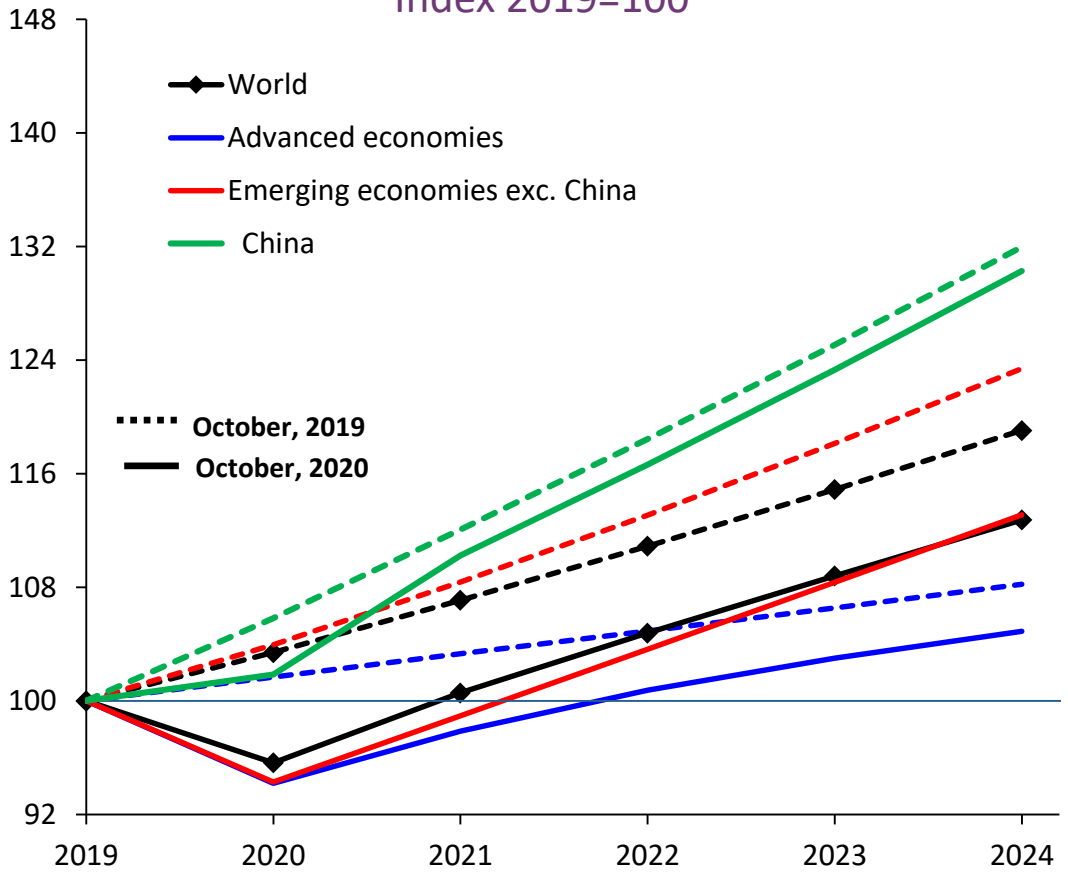
Percent



Data as of October 2020.
Source: IMF WEO October 2020.

GDP growth forecasts

Index 2019=100



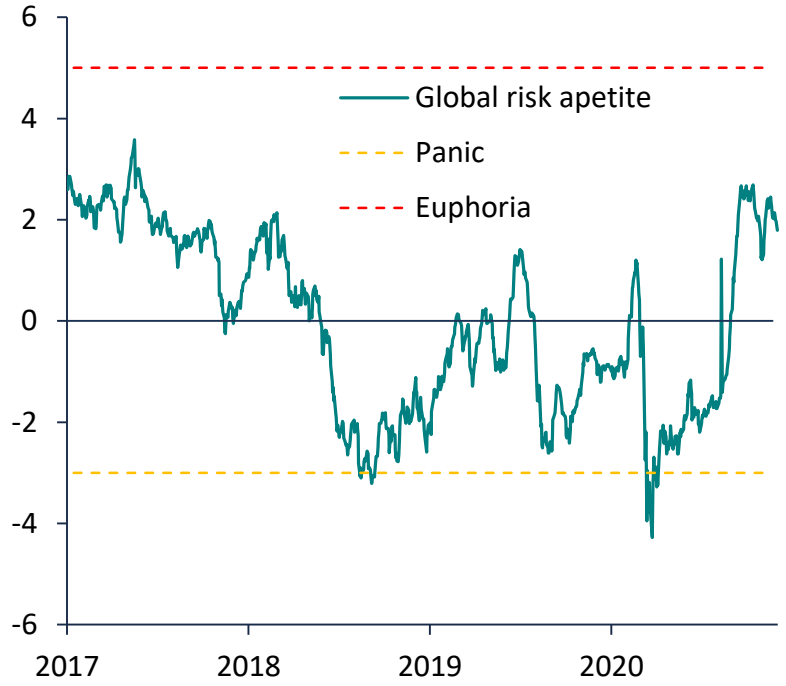
Data as of October 2020.
Source: IMF WEO October 2020.

2 Financial markets: advanced economies

Overall, financial markets have exhibited a positive behavior during the second semester and have experienced more moderate losses than those observed between March and May. Risk appetite has escalated, volatility has partially decreased, and stock and exchange rate indexes have improved, although an environment of uncertainty persists and future episodes of volatility cannot be ruled out.

Global risk appetite index 1/

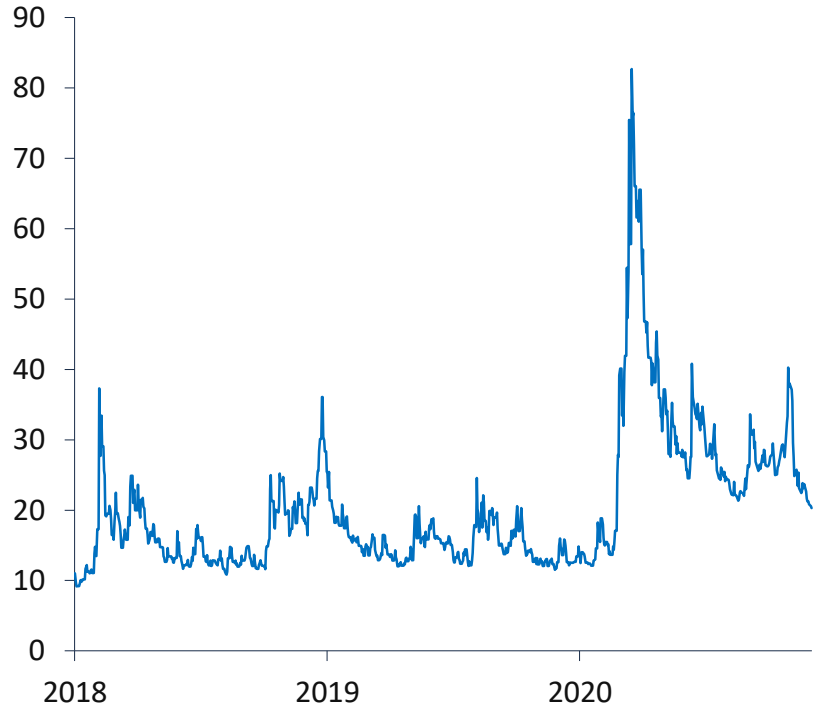
Index



Data as of November 30,2020.
Source: Credit Suisse.
1/ The risk appetite index compares various financial assets, taking into account that in periods of high appetite for higher risk assets, such as equity from advanced and emerging economies, these tend to have higher yields, while safe assets, such as US, euro area and Japanese government bonds, tend to have negative yields. Meanwhile, in periods of low risk appetite, the opposite occurs. In this context, the value of the index refers to the coefficient of a regression of the daily yield of 64 assets based on their volatility.

S&Ps 500 volatility index

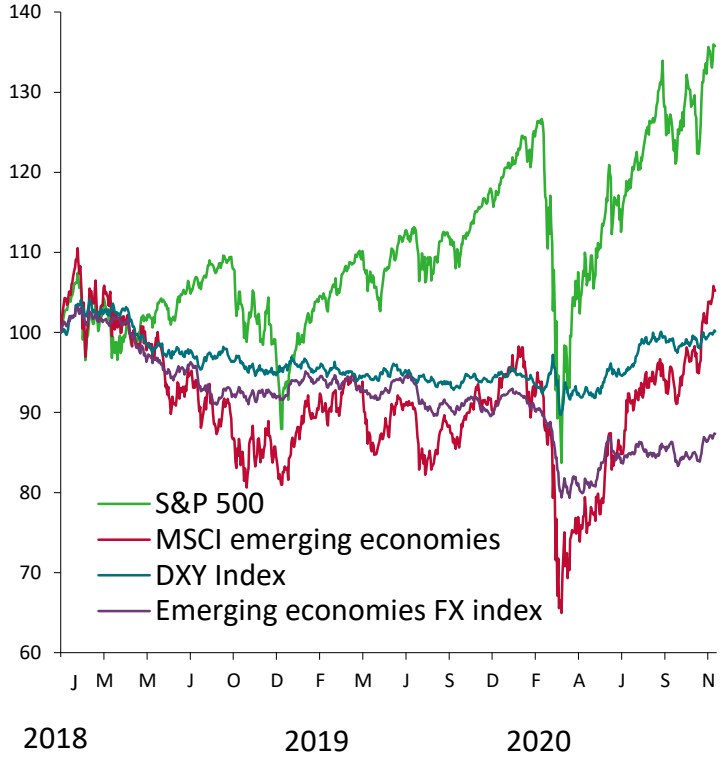
Annualized percent



Data as of December 1, 2020.
Source: Prepared by Banco de México with Bloomberg data..
1/ The emerging markets FX indices includes the following countries: Peru, the Philippines, Poland, Hungary, South Africa, Russia, Brazil, Colombia, Chile, Malaysia, India and Mexico.

Stock market and FX indices performance

Index Jan 2018 = 100



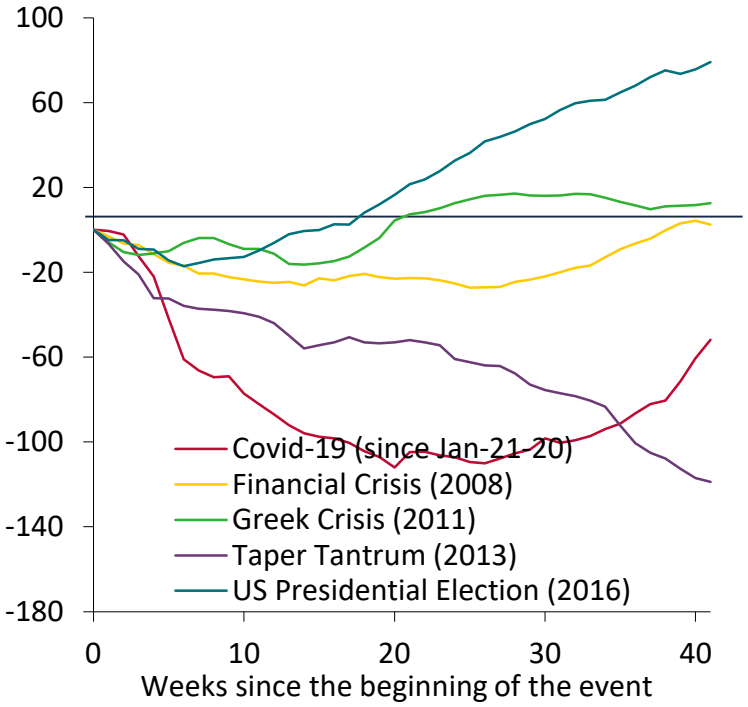
Data as of December 1, 2020.
Source: Prepared by Banco de México with data from Bloomberg.
1/ Emerging economies FX index includes: Peru, Philippines, Poland, Hungary, South Africa, Russia, Brazil, Colombia, Chile, Malaysia, India and Mexico.

❸ Financial markets: emerging market economies

During the second half of 2020, inflows by foreign investors to emerging market economies have been observed. However, as of today, net cumulative outflows were still registered, mainly influenced by the more accommodative monetary policy stances adopted. Domestic currencies in these countries have had mixed adjustments.

Cumulative flow of funds to emerging market economies after selected events (fixed income and equity)

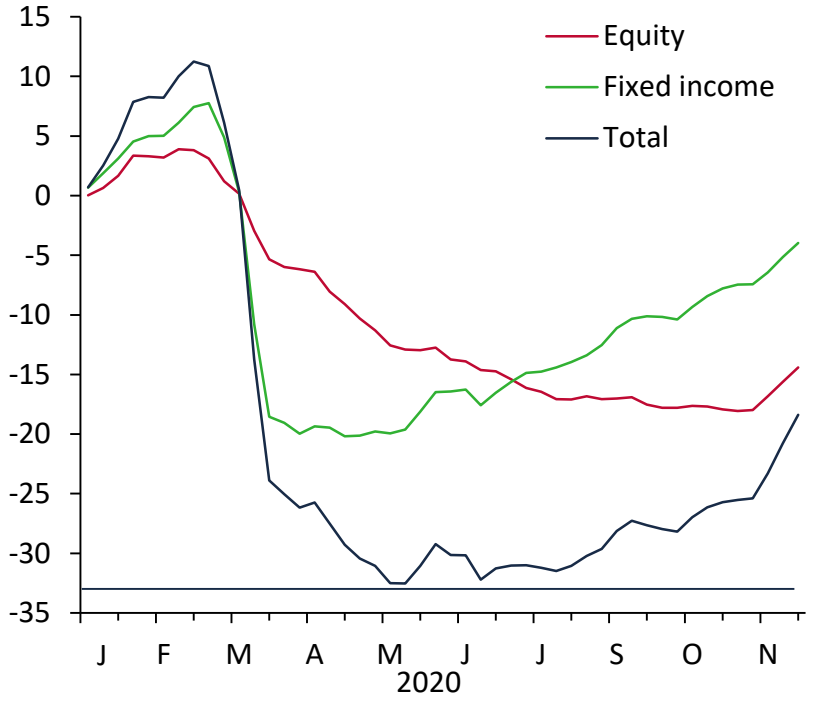
USD billion



Data as of December 1, 2020.
Source: Prepared by Banco de Mexico with data from EPFR.

Cumulative flow of funds to emerging market economies excluding China in 2020 [1/]

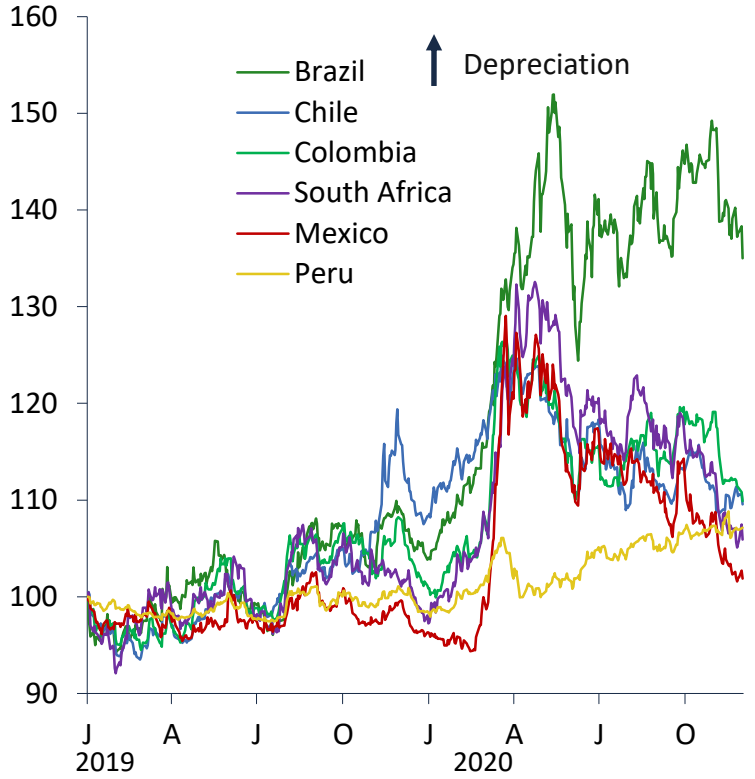
USD billion



Data as of December 1, 2020.
Source: Prepared by Banco de Mexico with data from EPFR.
1/ Includes funds used for the purchase and sale of stocks and bonds of emerging countries excluding China, registered in advanced countries. Flows exclude portfolio performance and changes in the exchange rate.

Nominal Exchange Rate against USD

Index 01-Jan-2019=100



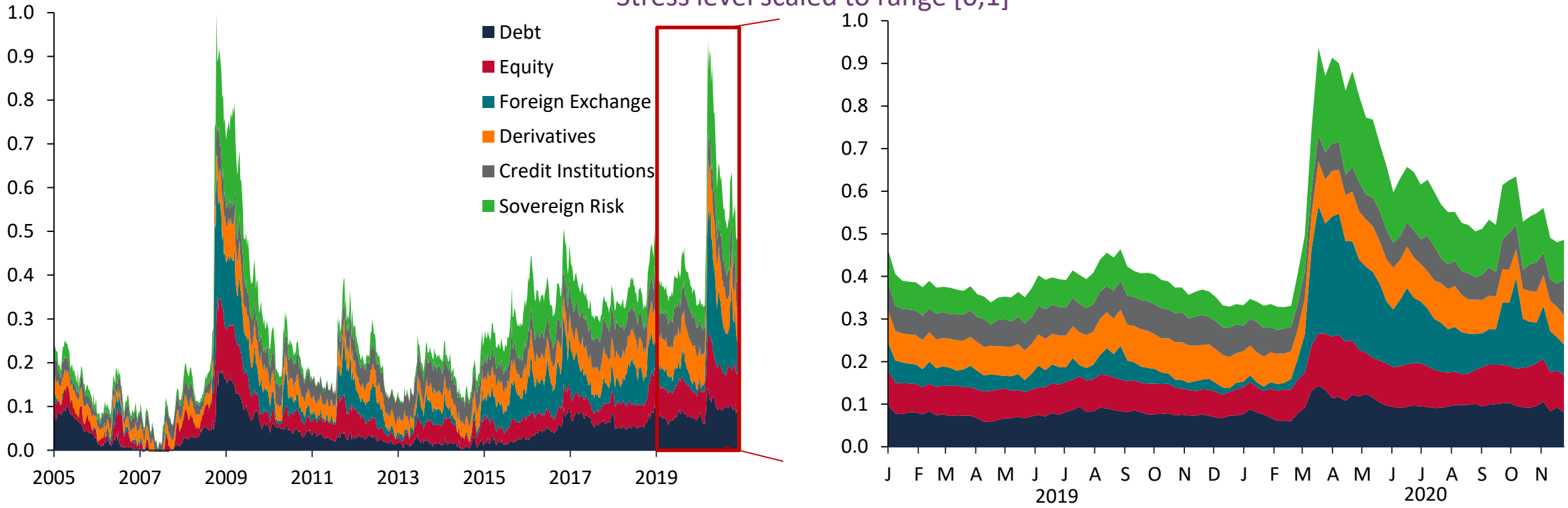
Data as of December 1, 2020.
Source: Bloomberg.

4 Mexican financial markets

The Mexican Financial Market Stress Index shows a partial reversal since the increase observed during March and April. However, it remains at levels higher than those observed prior to the beginning of the pandemic.

Mexican Financial Market Stress Index 1/

Stress level scaled to range [0,1]



Data as of November 28, 2020. Source: Banco de México.

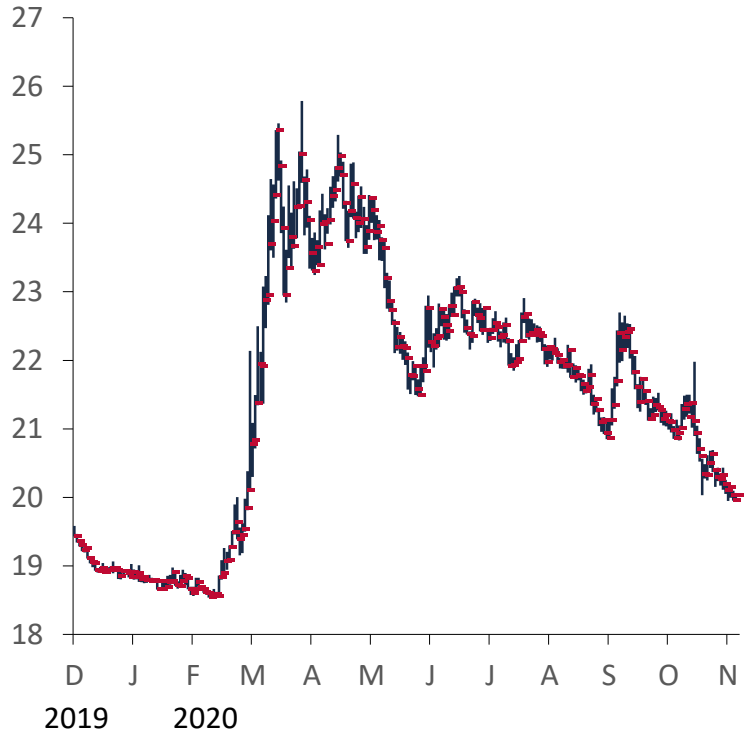
1/The index was estimated using a principal component analysis on 36 standardized variables of Mexican financial markets grouped into 6 categories (debt market, securities market, FX market, derivatives market, credit institutions, and sovereign risk). The total sum of the components yields an IEMF scaled to range [0,1]. A higher level of the index represents higher financial stress. **Debt market**: Peso/udi long term sovereign yield spread; long term / short term sovereign yield spread; Volatility of the long term sovereign yield; MX-US short term sovereign yield spread; Investment grade corporate short term yield spread; High yield corporate short term yield spread; Long term sovereign yield; Short term sovereign yield; MX-US long term sovereign yield. **Equity market:** Annual percentage change in the main Mexican Stock Exchange Index (IPC); Volatility of IPC´s daily changes; IPC's price to earnings ratio; IPC's price to book ratio; Implied volatility in IPC options; Naftrac´s (main stock ETF) bid ask spread. **Foreign exchange market:** Annual percentage change in peso/dollar spot; Volatility of spot peso/dollar's daily changes; Max-min spread in interbank spot peso/dollar; Bid ask spread in interbank spot peso/dollar. **Derivatives market:** Non-commercial net long term position in the CME peso futures; Peso/dollar forward spread; OIS spread; Peso/dollar basis swap spread; IRS swap sovereign yield spread; **Credit Institutions:** Financial sector beta; Yield volatility in short term bank market funding; CDS of foreign banks that own the largest banks in Mexico; Financial sector equity index / IPC; Government-banking funding (repo) rate; Max-min spread in bank funding rate. **Sovereign Risk:** Mexico's sovereign CDS; JP Morgan Corporate EMBI Mexico; JP Morgan Sovereign EMBI Mexico; Mexico' oil price; Foreign holdings of local sovereign debt.

4 Mexican financial markets

Overall, during S2-2020 domestic financial markets have exhibited a positive behavior associated with the improvement in international financial conditions, despite certain volatility episodes. Since the last Report, the Mexican peso has appreciated while interest rates have decreased relative to the levels registered in March.

Mexican peso trading range 1/

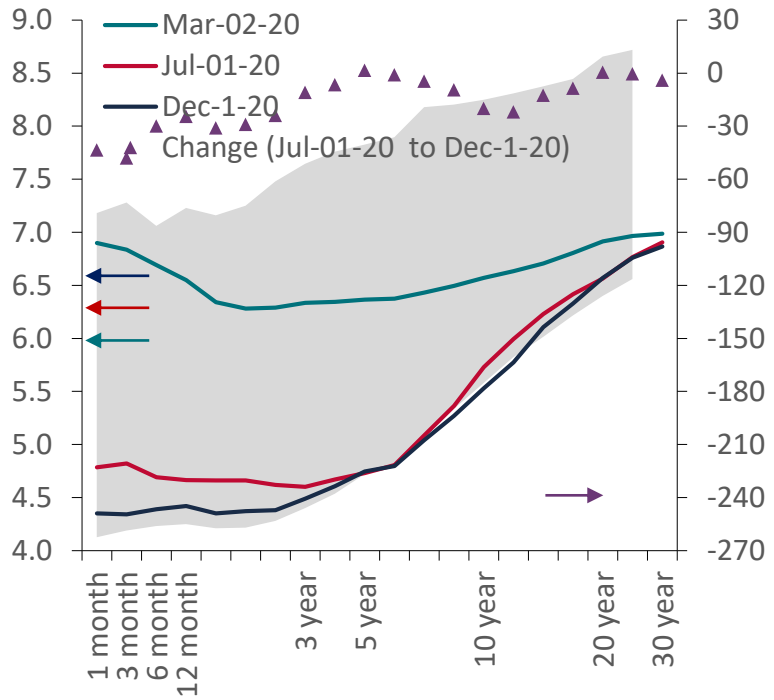
MXN/ USD



Data as of December 1, 2020.
Source: Bloomberg.
1/ Red lines indicate the exchange rate at closing time whereas blue lines indicate the trading range.

Government bond nominal yield curve 1/

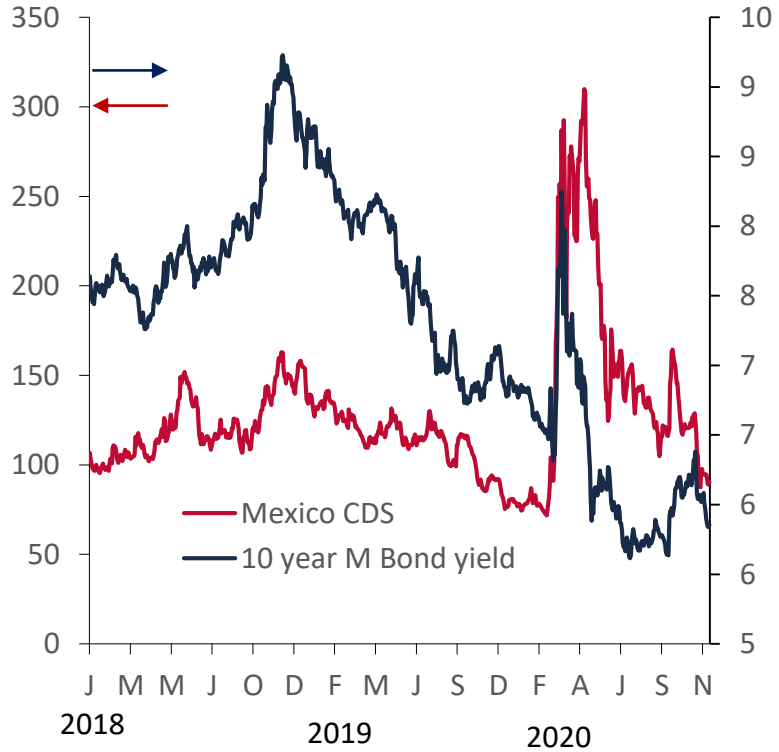
Percent and basis points



Data as of December 1, 2020.
Source: Prepared by Banco de México with PIP data.
1/ The gray area refers to the range of daily yield curves since December 4, 2019.

Mexico CDS and 10-year M bond yield

Basis points and percent



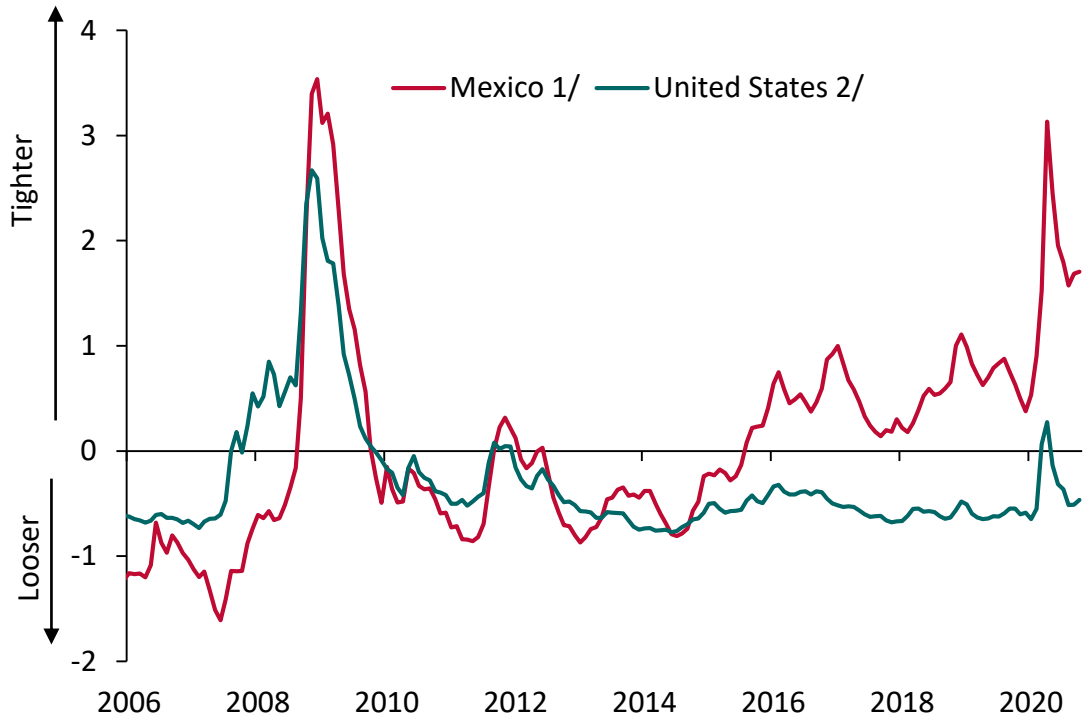
Data as of December 1, 2020.
Source: Bloomberg.

4 Mexican financial markets

Financial conditions have loosened after tightening in March, albeit they remain at higher levels than at the beginning of the pandemic. Both global and domestic financial conditions will continue to depend on the evolution of the pandemic.

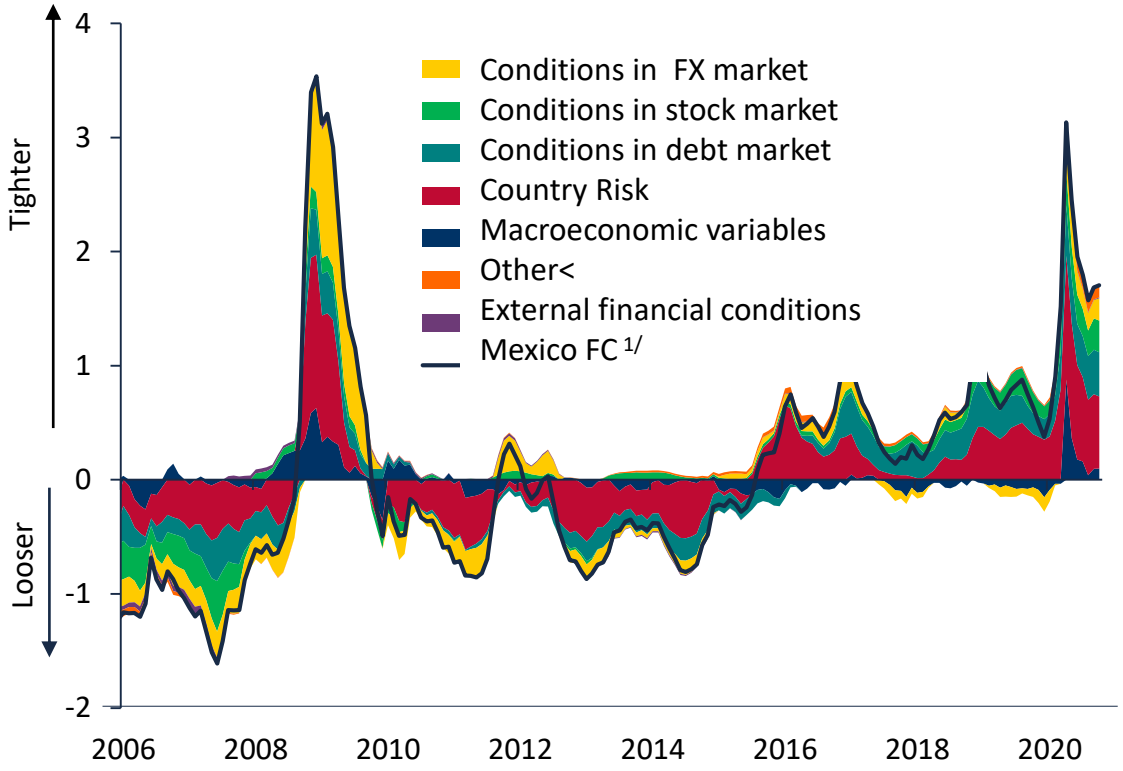
Financial conditions Index

Standard deviations and index



Mexican financial conditions index: contributions

Standard deviations



Preliminary data as of October 2020. Source: Banco de México.

1/ The ICF for Mexico was estimated with a DVT-FAVAR based on 16 financial and 2 macroeconomic variables: interbank spread, overnight bank funding rate, 10-year bond interest rate, slope of the yield curve, interest rate spreads of 3-month and 10-year US-Mexico bonds, spread between short-term corporate paper with high credit quality (AAA -AA) and 28-day TIIIE, EMBI+, CPI variation, CPI 90-day volatility, financial system beta, exchange rate variation, implied volatility in 3-month MXN/USD exchange rate options, financing gap, Mexican oil mix price, US financial conditions, IGAE and CPI annual variations. An IGAE forecast was used for the April and May estimate. Inflation figures for May correspond to the first half of that month. Standard deviations 2/ Refers to the mean deviation of the adjusted NCFI published by the Federal Reserve of Chicago. 3/ Does not include China.

5 Balance of macrofinancial risks

- The Mexican financial system, particularly commercial banks, were at a stronger position at the beginning of the pandemic as compared to previous episodes of financial stress. This was partly due to the policies and regulations implemented in previous decades.
- Given **the prevailing uncertainty** about the evolution of the pandemic and its impact on the economy, **certain risks could intensify and** affect the well-functioning of the financial system.
- This report considers the following financial stability risks:
  - ✓ A **less vigorous recovery of the global economy** than anticipated, mainly of the United States.
  - ✓ **Greater volatility in international financial markets and a rebalancing of flows** towards lower risk assets.
  - ✓ A **slower recovery of the Mexican economy**.
  - ✓ A downgrading of **sovereign and Pemex's credit ratings**.

Contents

New risks and measures implemented

- Although domestic economic activity has slightly improved, **the recovery has been moderate and heterogeneous across sectors**.
- In view of the **possible lengthy duration of the pandemic**, additional impacts on economic activity of some sectors could be expected, and thus the sources of income and the credit risk of the agents linked to those sectors would continue to be affected.
- Given the uncertainty, the **Mexican financial system** continues to face significant challenges related to:
  - ✓ *Markets' orderly operation.*
  - ✓ *Keep the flow of financing to the economy.*
  - ✓ *The containment of liquidity needs.*
  - ✓ *Adequate risk management and business continuity.*
  - ✓ *Mitigate the likely impact of economic activity and employment effects on the delinquency rates of credit portfolios.*

Measures implemented during the second semester of 2020

- Banco de México, in coordination with other financial authorities, has adopted several measures to respond to the challenges that have affected domestic financial markets and to improve their operating conditions.
- During the second half of 2020, adjustments were made to the framework of some measures, while their duration period was extended, in order to continue maintaining the sound development of the financial system and contribute to guarantee the flow of financing to the economy.
- These measures can be classified as:

  I. Measures to provide liquidity

  II. Measures to foster the orderly behavior of financial markets

  III. Measures to strengthen credit provision

Use of measures to foster an orderly behavior of financial markets, strengthen credit provision, and supply liquidity for the well-functioning of the financial system

	Date of rules' emission or modification	Number of contracts signed with banks	Size of programs		Usage			*Memo:*	
					Amount outstanding		Calls	Total amount allocated [6/]	
			(Billion MXN)	(Billion USD)	(Billion MXN)	(Billion USD)		(Billion MXN)	(Billion USD)
I. Measures to provide liquidity									
Reduction of Monetary Regulation Deposits (DRMs, for its acronym in Spanish)	04/11/2020	d.n.a.	50		50		d.n.a.	50	
Ordinary Additional Liquidity Facility (FLAO, for its acronym in Spanish)	04/11/2020	30	d.n.a.		0		d.n.a. 5/	0	
Increasing liquidity during trading hours [1/]		d.n.a.	d.n.a.		d.n.a.		d.n.a.	d.n.a.	
Government securities term repurchase window	28/09/2020	37	150		100		10	200	
Temporary securities swap window	28/09/2020	5	50		18.99		6	18.99	
Corporate securities repurchase facility (FRTC, for its acronym in Spanish)	28/09/2020	29	100		10.97		21	20.95	
II. Measures to foster an orderly behavior of financial markets									
Swaps of government securities	03/11/2015	d.n.a.	100		14.98		2	14.98	
Foreign exchange hedge program (billion USD) [2/]	30/03/2017	25		30		7.49	2		7.49
Financing in USD via credit swap line with the US Federal Reserve (billion USD)	19/06/2020	21		60		1.82	6		13.32
III. Measures to strengthen credit provision									
Financing to micro, small- and medium-size enterprises and individuals, via liberating DRM or tem repos [3/]	28/09/2020	3 4/	250		9.53		15	9.53	
Collateralized financing facility for commercial banks with corporate loans, to finance micro, small- and medium-size enterprises	28/09/2020	0	100		0		0	0	
Total measures implemented in MXN (billion MXN)			**800**		**204.47**		- -	**314.45**	
Total measures implemented in USD (billion USD)				**90**		**9.31**	- -		**20.81**

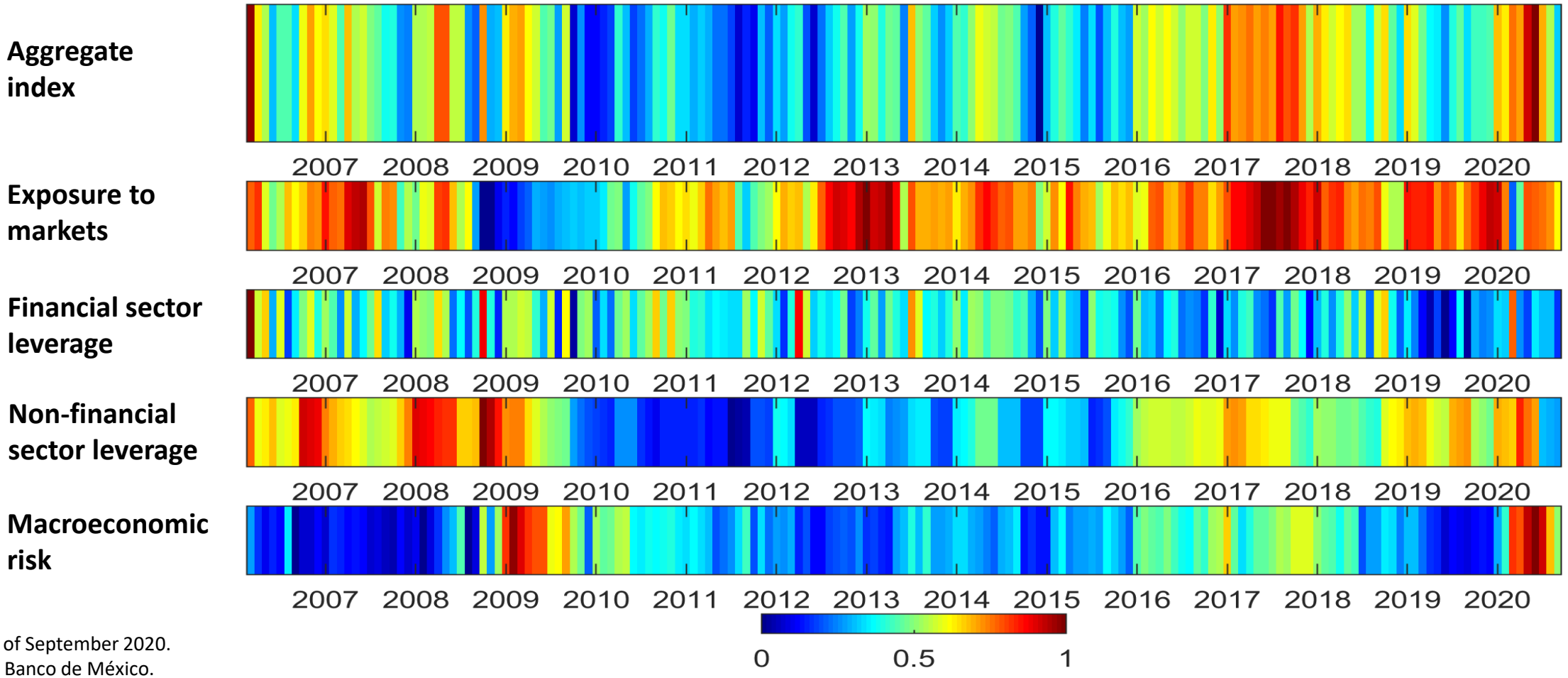
Figures as of November 30, 2020.
Source: Banco de México. d.n.a.: Does not apply. 1/ Excess intraday liquidity that is sterilized at the close of the interbank market through open market operations. The average from April 21 to November 30 is 119.47 Billion MXN. 2/ The additional amount used since announcing the increase in the program from 20 to 30 Billion USD on March 9, 2020 is 1,991 Billion USD. 3/ The contract corresponding to this facility must be re-signed to be in line with the modifications published in Circular 30/2020 of August 19, 2020. Prior to this modification, 13 contracts had been signed. 4/ The contract corresponding to this facility must be signed again to comply with the modifications published in Circular 35/2020 of September 28, 2020. Prior to this amendment, 14 contracts had been signed. 5/ The frequency of the calls is not reported, since the facility is activated at the request of the bank. 6/ Includes maturities and refinancing.

Contents

1 Heat map of Mexican financial system risks

The heat map of risks of the financial system slightly improved as compared to that of the previous Report.

Heat map of Mexican financial system risks [1/]



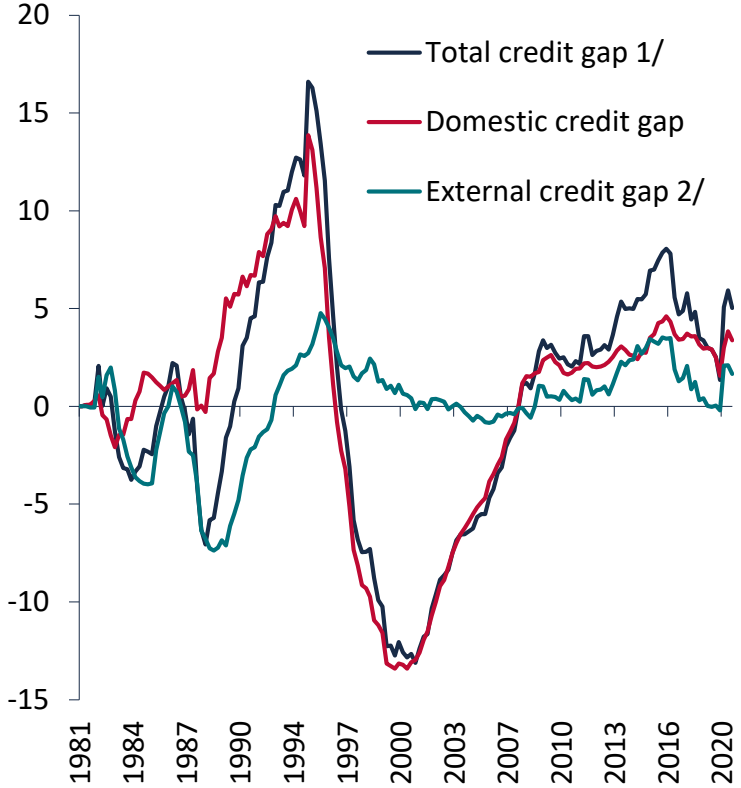
Data as of September 2020.
Source: Banco de México.
1/ For a description of the methodology, see Box 3: Heat maps of Mexican financial system risks, Financial System Report 2018. The category Risk of Market Exposure corresponds to the category Risk Appetite of the Financial System Report 2018.

2 Total financing to the non-financial private sector

As a result of the financial shock originated by the COVID-19 pandemic, financing to the non-financial private sector, particularly to firms, increased; however, it slowed down during the second and third quarters.

Credit gap by source

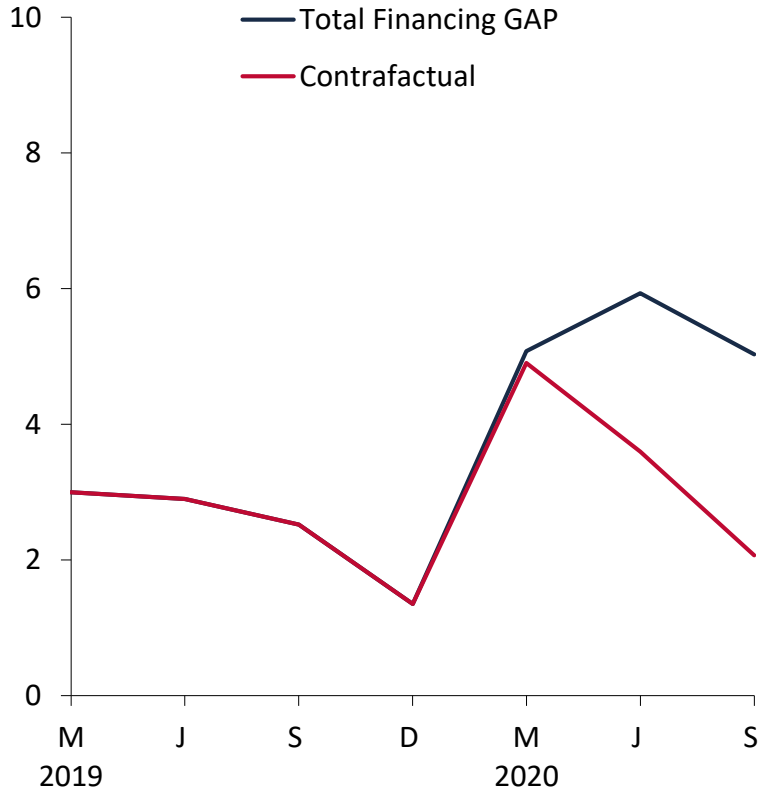
Percent



Data as of September 2020. Source: Banco de México.
1/ The credit gap is calculated as the difference between the credit-to-GDP ratio and its long-term trend. The long-term trend is estimated with a one-sided Hodrick-Prescott filter with a smoothing parameter of 400,000 using data from the fourth quarter of 1980.
2/ Data on external credit prior to 1995 was estimated as the difference between total credit and bank credit.

Total credit gap and its counterfactual 1/

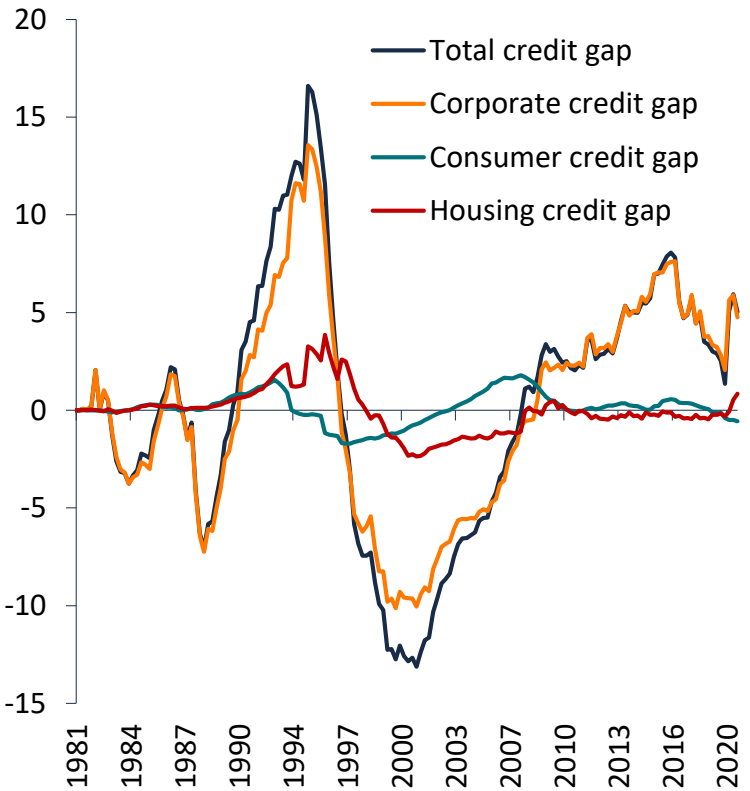
Percent



Data as of September 2020. Source: Banco de México.
1/ The credit gap is calculated as the difference between the credit-to-GDP ratio and its long-term trend. The long-term trend is estimated with a one-sided Hodrick-Prescott filter with a smoothing parameter of 400,000 using data from the fourth quarter of 1980. The counterfactual of the credit gap is estimated holding the level of GDP equal to that of December 2019.

Credit gap by sector 1/

Percent



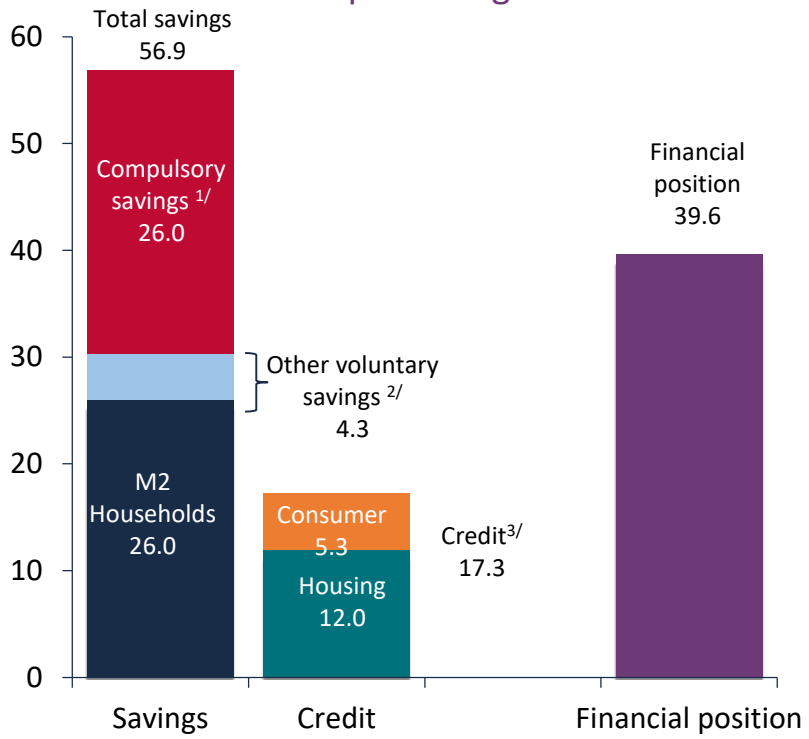
Data as of September 2020. Source: Banco de México.
1/ Data on corporate credit prior to 1995 was estimated as the difference between total credit and bank credit.

3 Households' financial position

During Q3-2020, households' financial position increased compared to that reported in the previous semester. This is mainly the result of the slowdown in financing to this sector, particularly consumer credit. Financial savings, on the other hand, moderated during this period.

Households' indebtedness relative to their financial assets

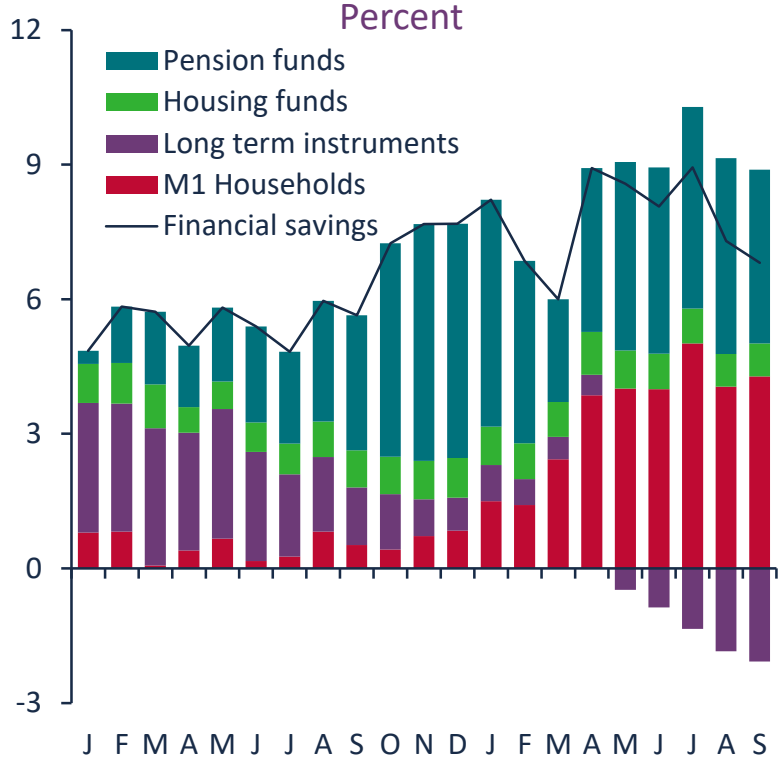
Balance as percentage of GDP



Data as of September 2020. 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.

Contribution to the real annual growth rate of Household financial savings

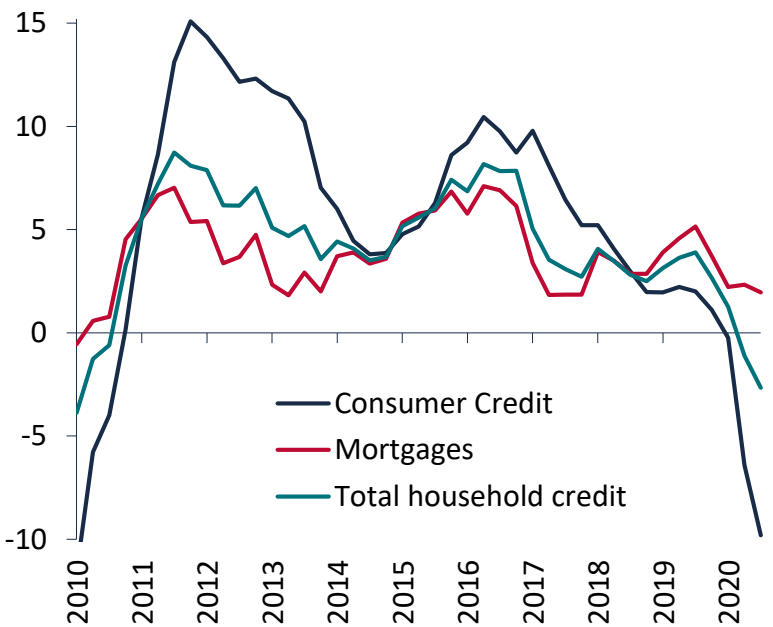
Percent



Data as of September 2020.
Source: Banco de México.

Household credit growth 1/

Real annual percentage change



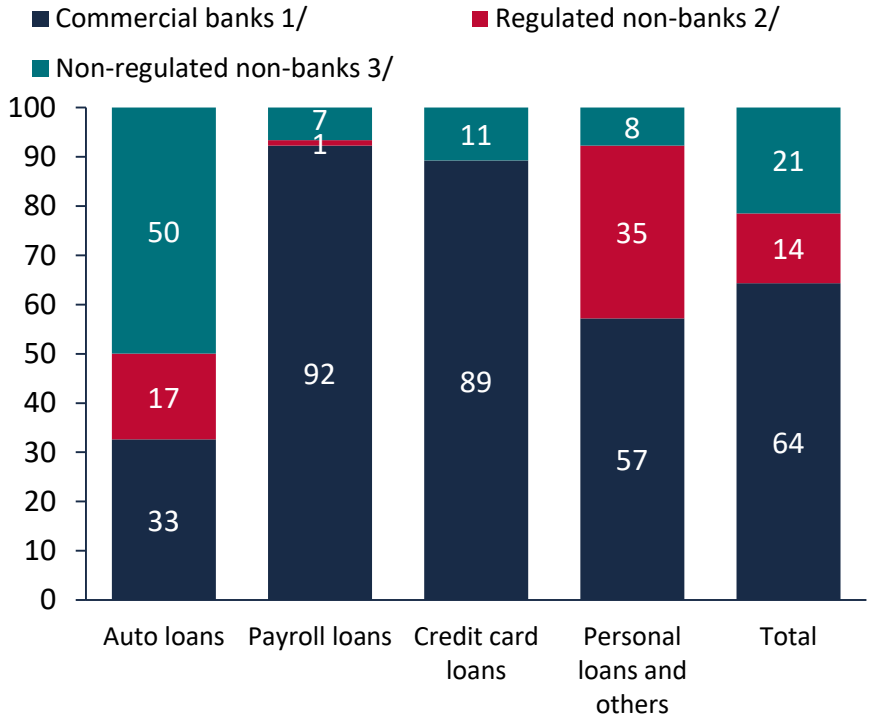
Data as of September 2020, except for figures for unlisted non-regulated Sofomes which are available as of june 2020. Sources: Banco de México, BMV and Condusef.
1/ Considers credit granted by the country's banks, regulated Sofomes with links with banks, Socaps, Sofipos and credit unions as well as financial 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 includes 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).

3 Households' financial position

Consumer credit granted by banks and their subsidiaries decreased for all types of credit. In general, the balances of different portfolios decreased, although, in some of them the reductions in the amounts of a relatively low percentage of loans had a greater impact.

Consumer credit by source

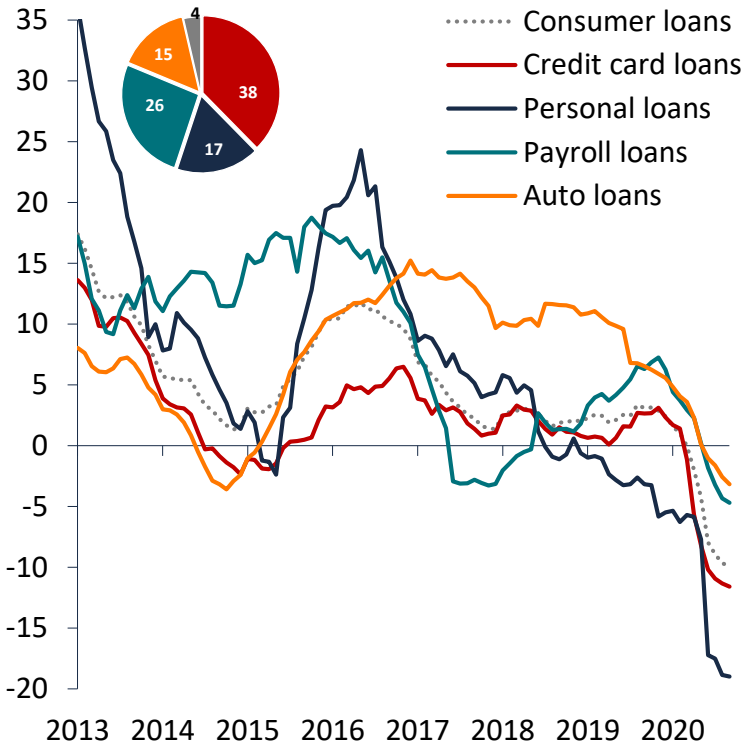
Percent



Data as of September 2020, except for unlisted non-regulated Sofomes where data is available as of June 2019. Sources: Banco de México, National Banking and Securities Commission (CNBV, for its acronym in Spanish) and Condusef.
1/ Includes credit portfolio of regulated Sofomes with links with banks.
2/ Includes portfolio of Infonacot in the segment of personal loans and others, which accounts for 1.3% of total consumer portfolio as of September 2020.
3/ Includes portfolio of non-regulated Sofomes, credit cards issued by department stores that report to the Mexican Stock Exchange (BMV for its acronym in Spanish) 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.

Commercial banks' consumer loan portfolio

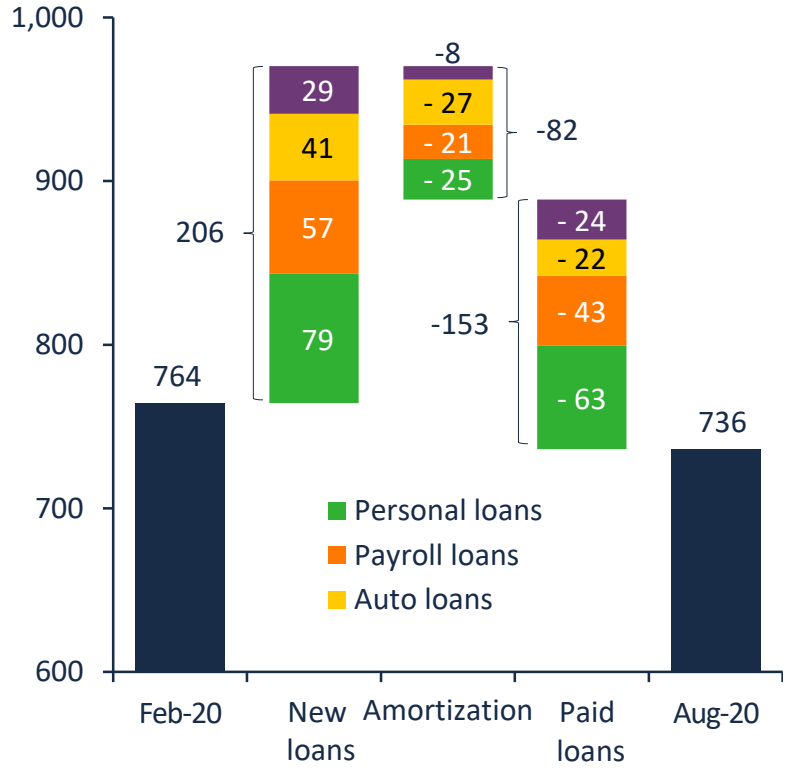
Annual real percentage change



Data as of September 2020.
Source: CNBV.

Changes in consumer loans, excluding credit cards from February to August 2020

Billion MXN



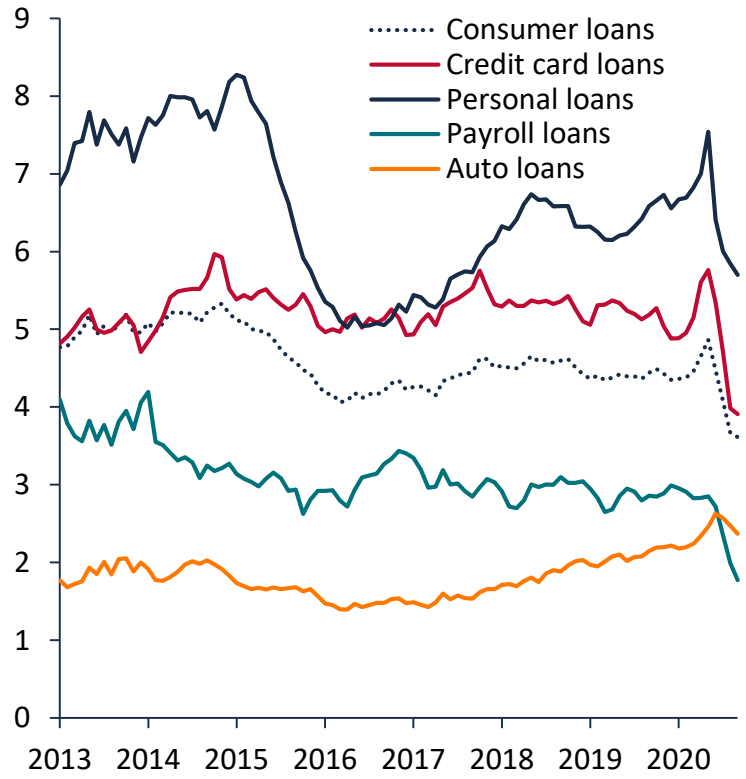
Data as of August 2020.
Source: Banco de México.
1/ Includes microcredits, loans to purchase durable goods, and other consumer credits.

3 Households' financial position

During Q3-2020, the delinquency rate index decreased for all segments of consumer loan portfolio, mainly due to banks' write-offs of non-performing loans. The adjusted delinquency rate index which does not reflect write-offs, decreased slightly in recent months. Delinquency rates on non-banking financial institutions' portfolio exhibited a mixed behavior.

Delinquency rate of banks' consumer loan portfolio 1/

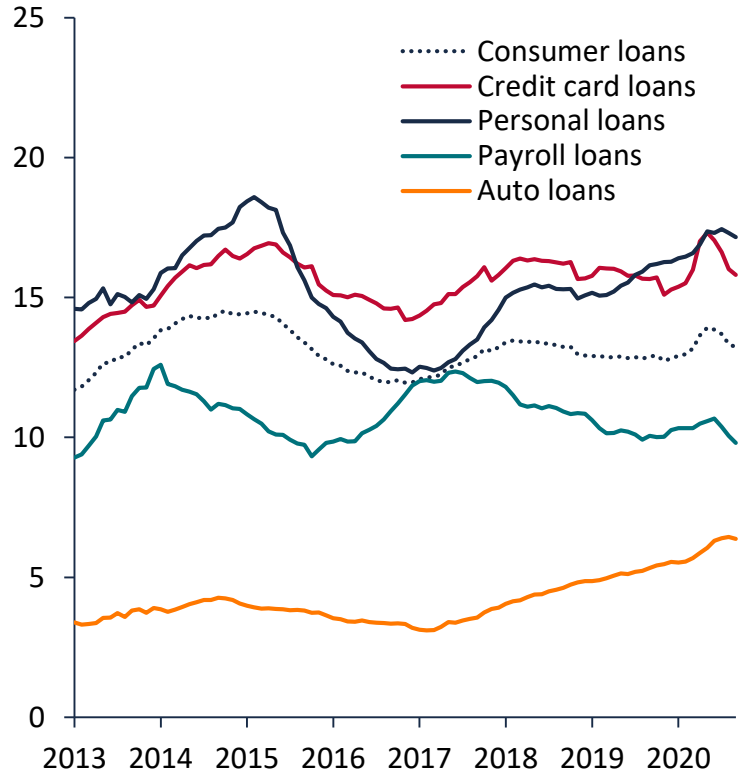
Percent



Data as of September 2020.
Source: CNBV.
1/ Includes regulated Sofomes with links to banks.

Adjusted delinquency rate of banks' consumer loan portfolio 1/

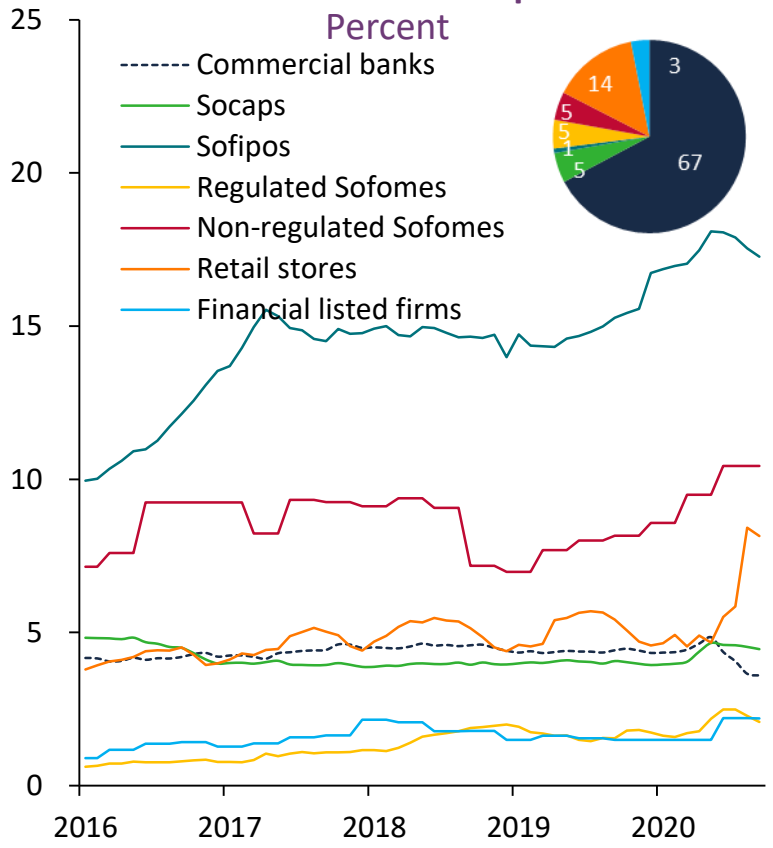
Percent



Data as of September 2020.
Source: CNBV.
1/ Includes regulated Sofomes with links to banks.

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

Percent



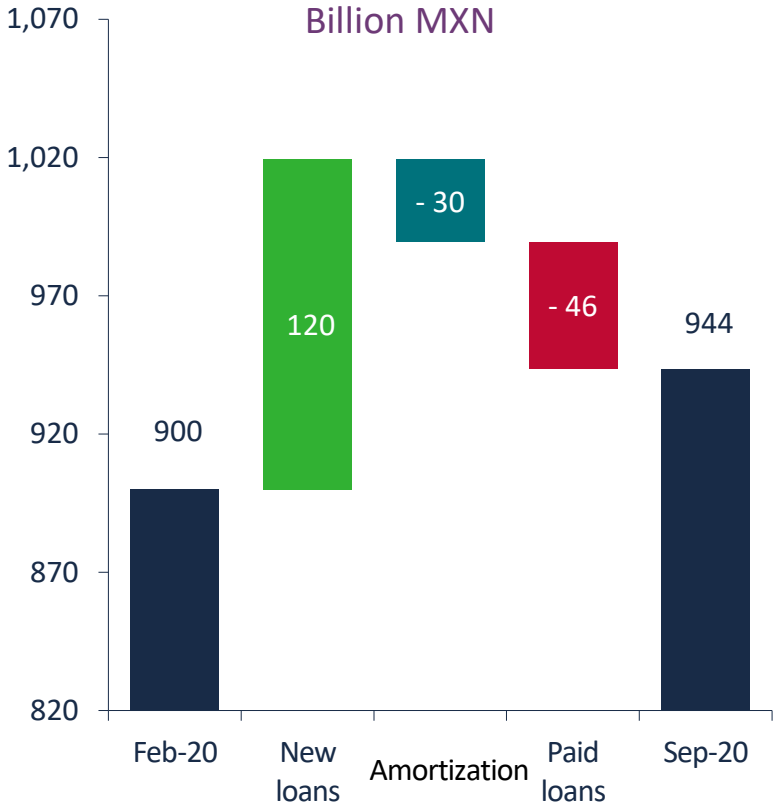
Data as of September 2020, while data of non-regulated Sofomes is as of June 2020. Source: Banco de México (SIE), BMV, Condusef and Credit Bureau.

3 Households' financial position

Housing credit continued to grow during Q3-2020. In general, housing credit conditions and delinquency rates remained relatively stable.

Changes in housing credit from February to September 2020

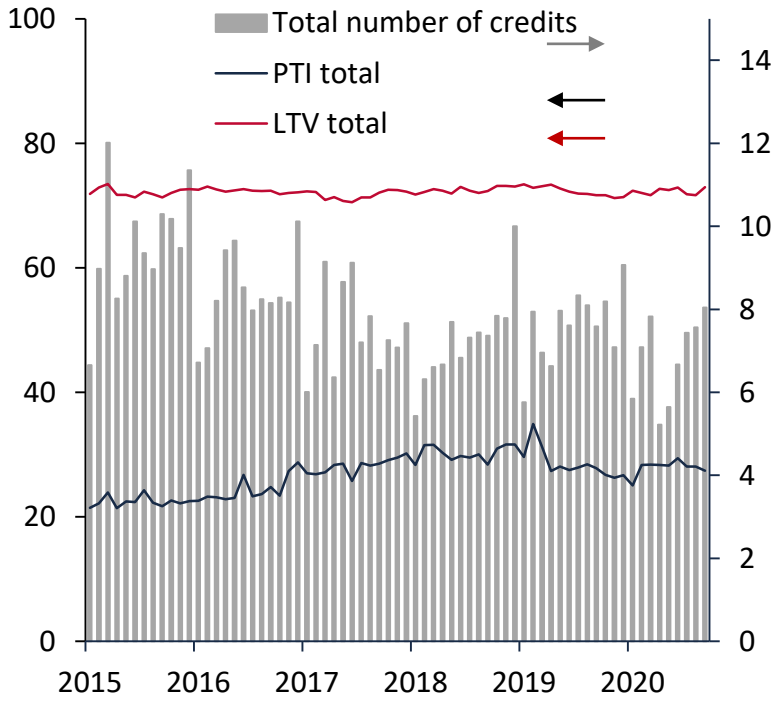
Billion MXN



Data as of September 2020..
Source: CNBV.

Housing total credits, loan-to-value ratio (LTV) and mortgage payment-to-income ratio (PTI)) 1/, 2/

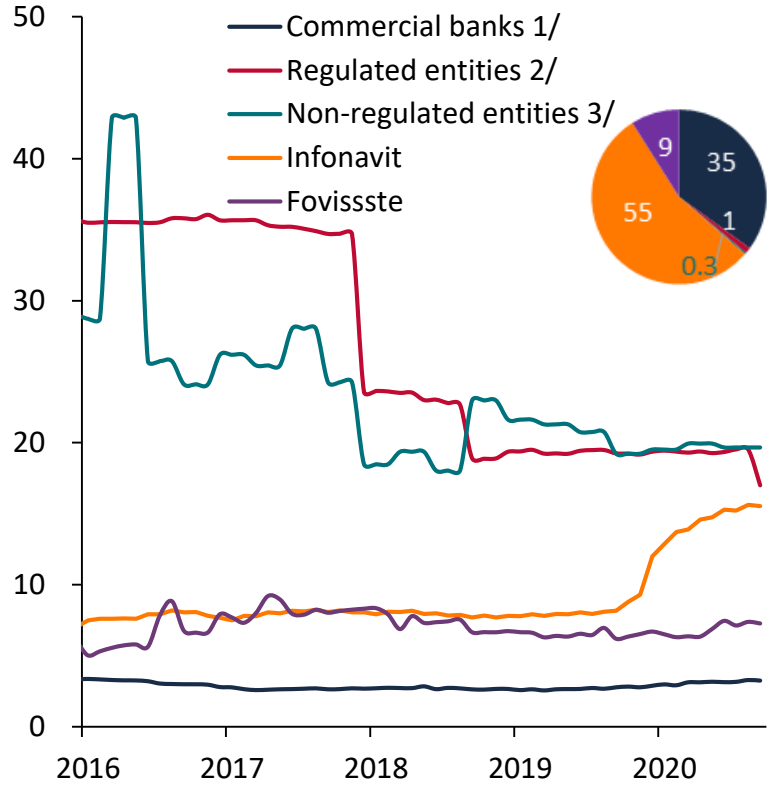
Number of credits in the month and percent



Data as of September 2020.
Source: CNBV.
1/ LTV refers to the ratio of the loan's amount to the property's value.
2/ PTI refers to the share of income destined for mortgage payments.

Delinquency rate on mortgages by type of entity granting credit

Percent

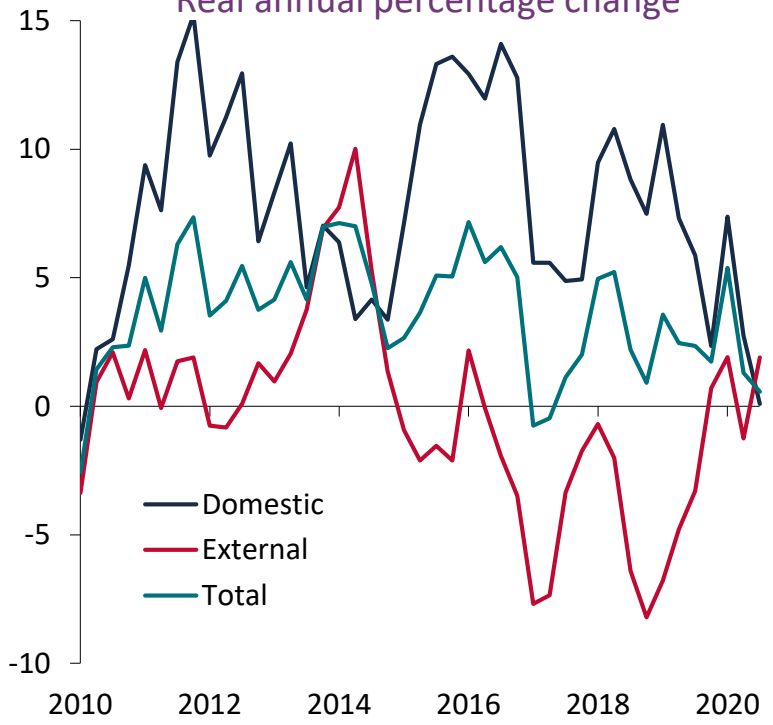


Data as of September 2020, while data of unlisted non-regulated Sofomes is as of June 2020. Source: Banco de México (SIE), BMV and Condusef.
1/ Includes credit portfolio of regulated Sofomes with links with banks.
2/ Includes credit portfolio of regulated non-bank financial entities, such as development banks, Socaps, Sofipos, and regulated Sofomes issuing debt.
3/Includes non-regulated Sofomes.

4 Private non-financial firms' financial position

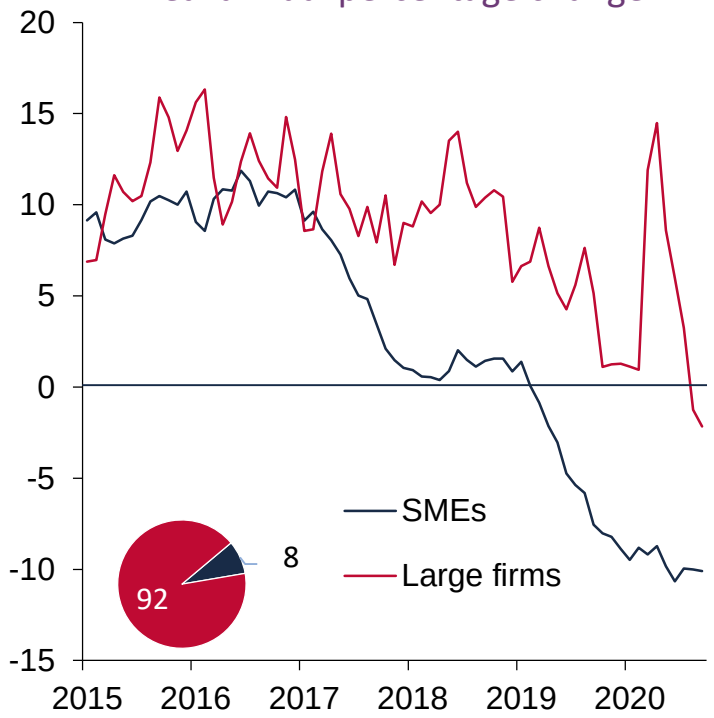
Total financing to Mexican private domestic non-financial firms has decelerated during Q2-2020 and Q3-2020. In particular, financing from domestic sources exhibited lower dynamism, while external financing increased, reflecting the improvement in external conditions.

Total financing to non-financial private firms 1/
Real annual percentage change



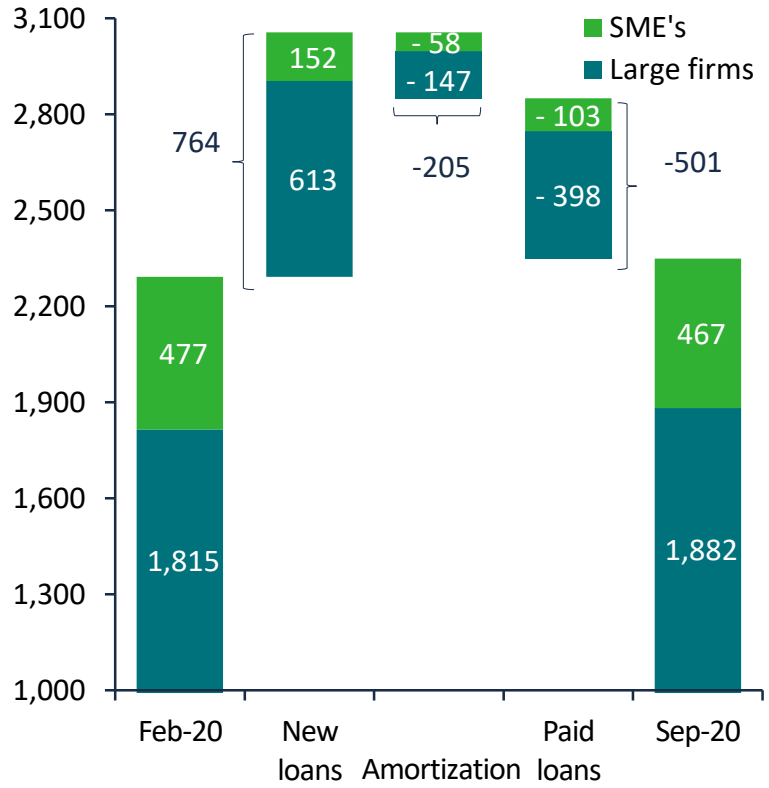
Data as of September 2020, except for unlisted non-regulated Sofomes which are as of June 2020. Source: Banco de México, BMV and SHCP.
1/Includes financing from suppliers, both domestic and external, to firms listed in Mexico's stock exchange. It also includes financing granted to firms by non-regulated entities, such as non-regulated Sofomes and financing granted by financial firms specialized in credit or leasing, which issue debt but are not financial entities under Mexican law. The growth series is adjusted to the beginning of available data of financing for non-regulated entities and regulated Sofomes for issuing debt in the period in which they appear in the sample (2015-2016). External financing data are adjusted due to the exchange rate effect.

Total financing to non-financial private firms by firm size
Real annual percentage change



Data as of September 2020.
Source: CNVB.

Changes in credit to private firms 1/
Billion MXN

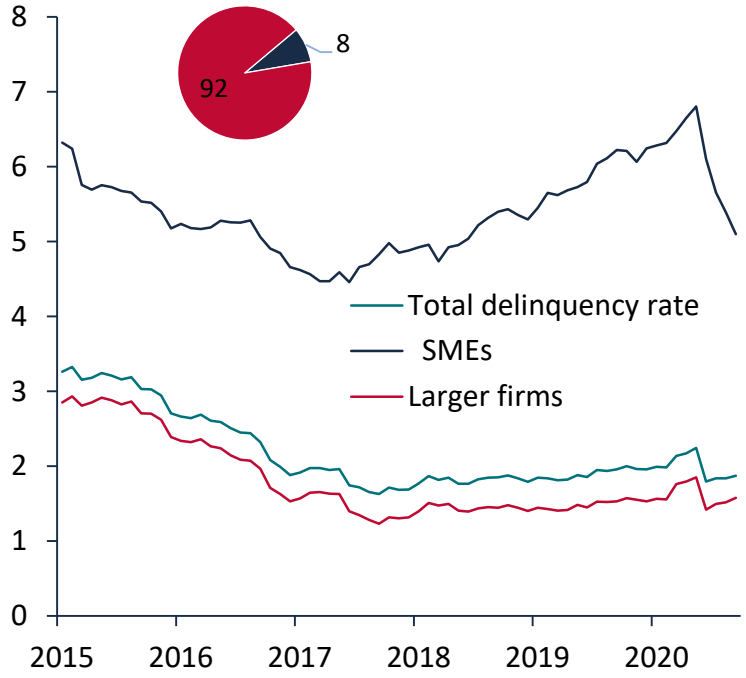


Data as of September 2020.
Source: CNBV
1/ Does not include credit by regulated Sofomes linked with banks, their subsidiaries and non subsidiaries.

4 Private firms' financial position

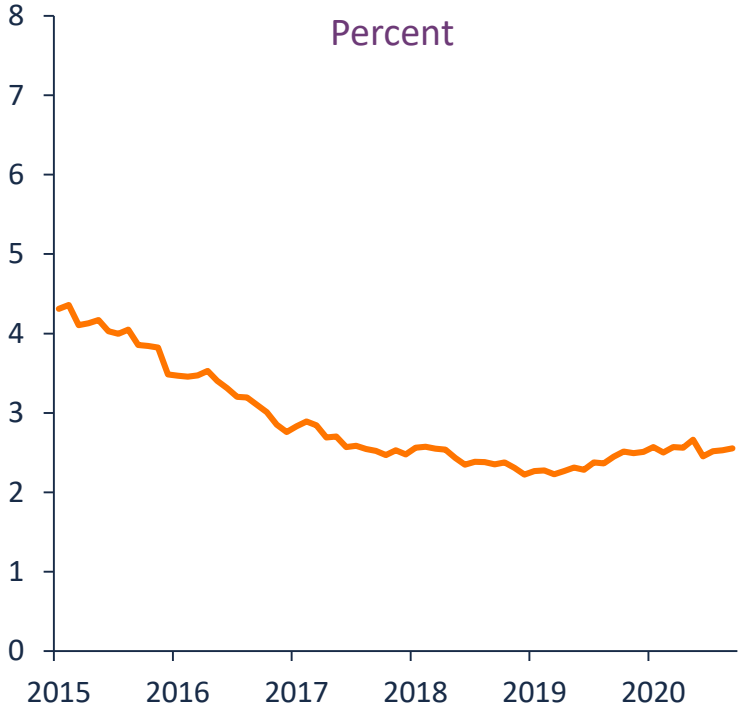
Delinquency rates on banks' loans to SMEs have decreased since June, partly reflecting banks' write-offs of non-performing loans. The delinquency rates of larger firms have remained stable in recent months, as also have the delinquency rates on commercial loans granted by non-bank financial entities.

Delinquency rate by firm size 1/
Percent



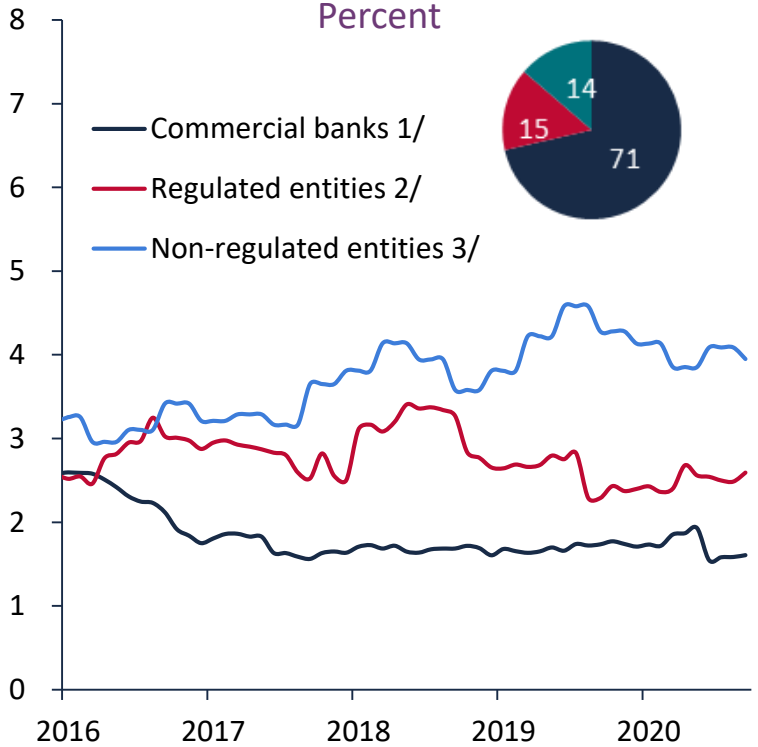
Data as of September 2020.
Source: CNBV.
1/ The pie chart shows the total percentage of portfolio by firm size.

Adjusted delinquency rate on banks' non-financial firms loans 1/
Percent



Data as of September 2020.
Source: CNBV.
1/ Non-performing loans plus delinquencies in the last 12 months divided by total portfolio plus delinquencies in the last 12 months

Delinquency rate on non-financial firms' loans
Percent



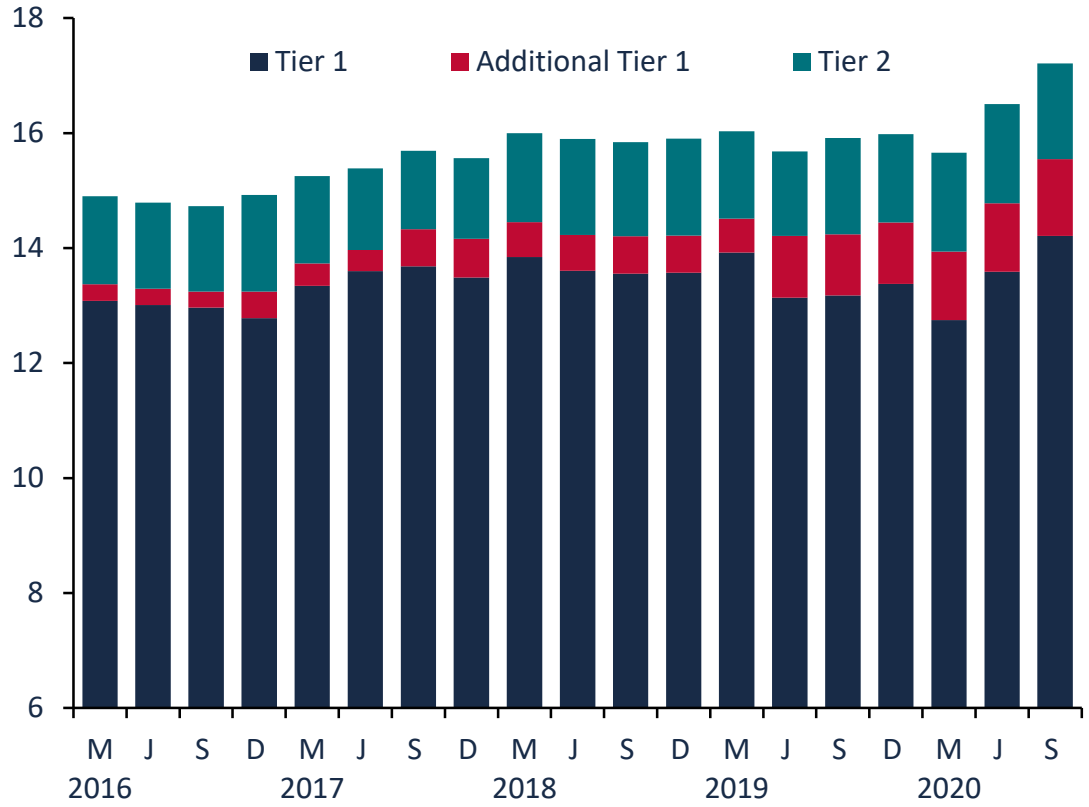
Data as of September 2020, except for unlisted non-regulated sofomes which are as of June 2020. Source: Banco de México (SIE), BMV and Condusef.
1/ Includes credit portfolio of regulated Sofomes with links to banks.
2/ Includes credit portfolio of development banks and regulated non-bank financial entities, such as Cooperatives (Socaps), Microfinance Cos. (Sofipos), Credit Unions and regulated Sofomes that fund via debt issuance in the local market.
3/ Includes credit portfolio of non-regulated Sofomes, as well as Financial Companies that grant credit in support of their core business, such as financial leasing or some financial areas of automotive companies.

5 Institutions: commercial banks

Between March and September 2020, commercial banks' capitalization levels rose, which is a key factor to address the environment of economic weakness and to sustain financing to firms and households.

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

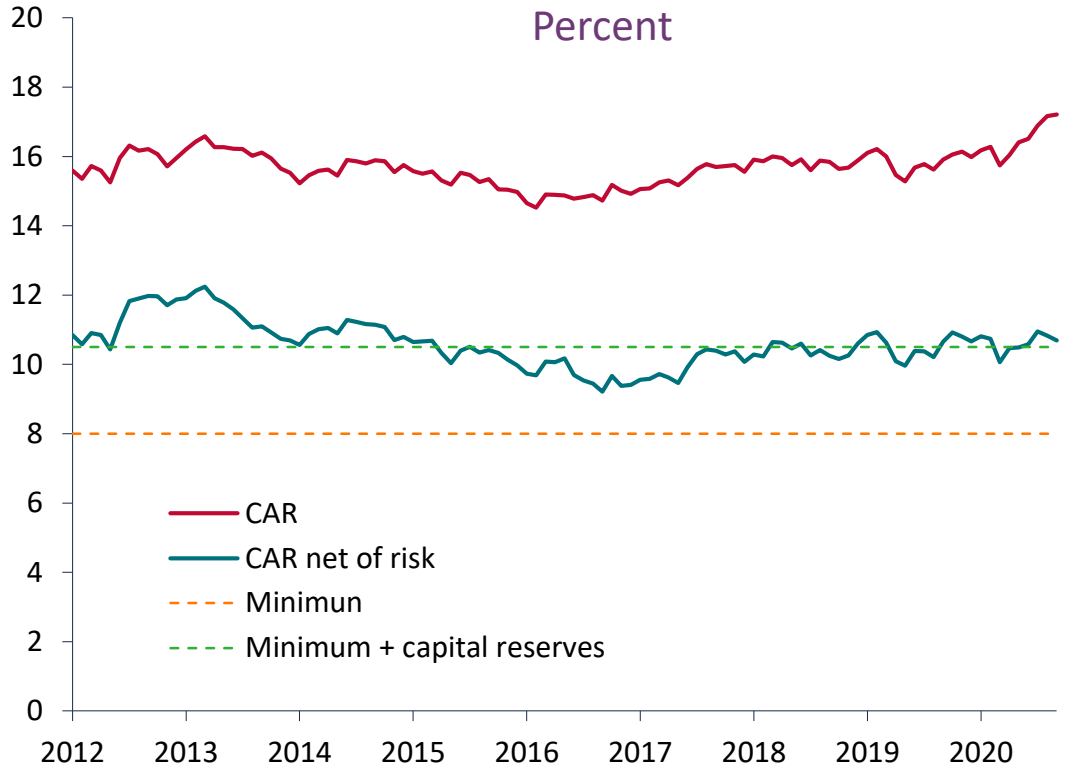
Percent



Data as of September 2020.
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 Tier 2 capital.

CAR net of risk 1/

Percent



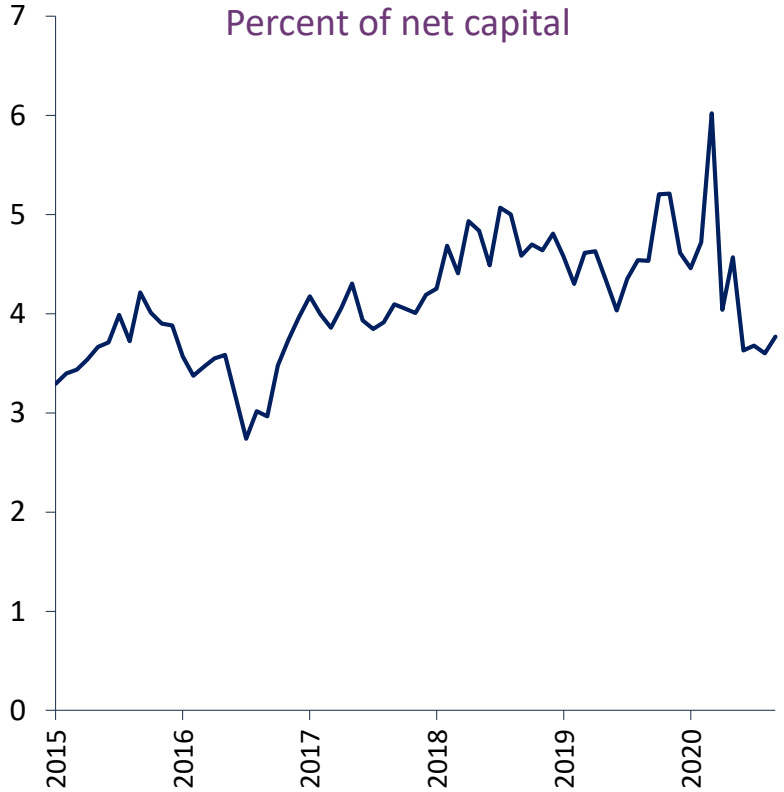
Data as of September 2020.
Source: Banco de México, CNBV and Credit Bureau.
1/ Estimated as the capitalization ratio that results from reducing the CVaR at 99.9% of both net capital and risk-weighted assets. This indicator assumes that credit portfolio has losses for an amount equal to the CVaR at 99.9%, 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%.

5 Institutions: commercial banks

Market risk for banks decreased significantly since March 2020, due to an increase in their portfolio exposure to short-term government bonds. Even though at the beginning of pandemic some institutions observed higher liquidity risk, starting from Q2-2020 the system's overall liquidity buffers increased, particularly for larger banks.

Conditional Value at Risk (CVaR) at 99.9% for market risk

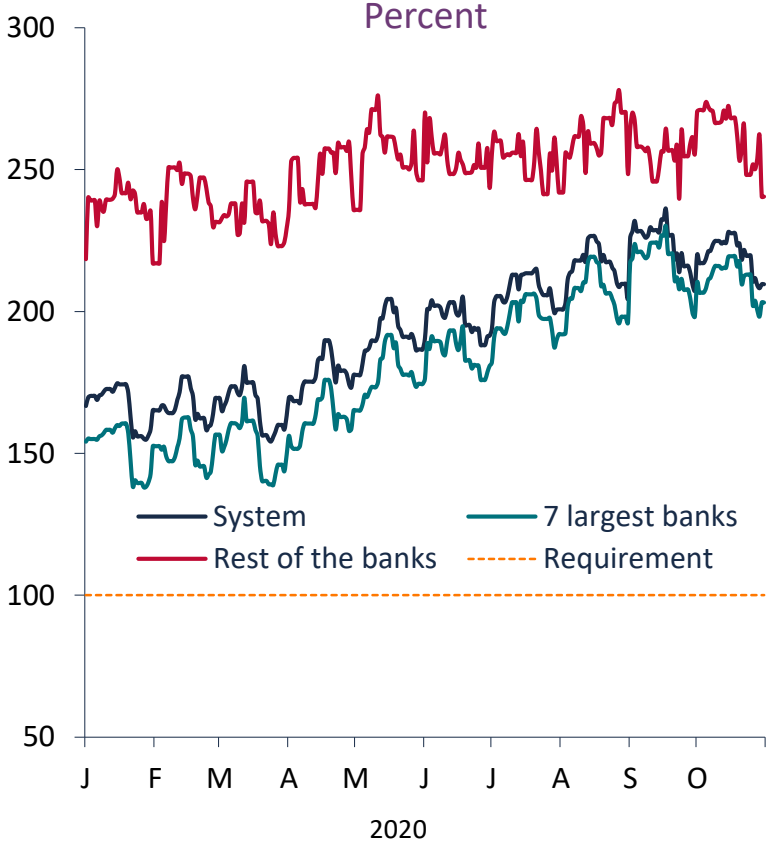
Percent of net capital



Data as of September 2020.
Source: Banco de México.

Liquidity Coverage Ratio (LCR)

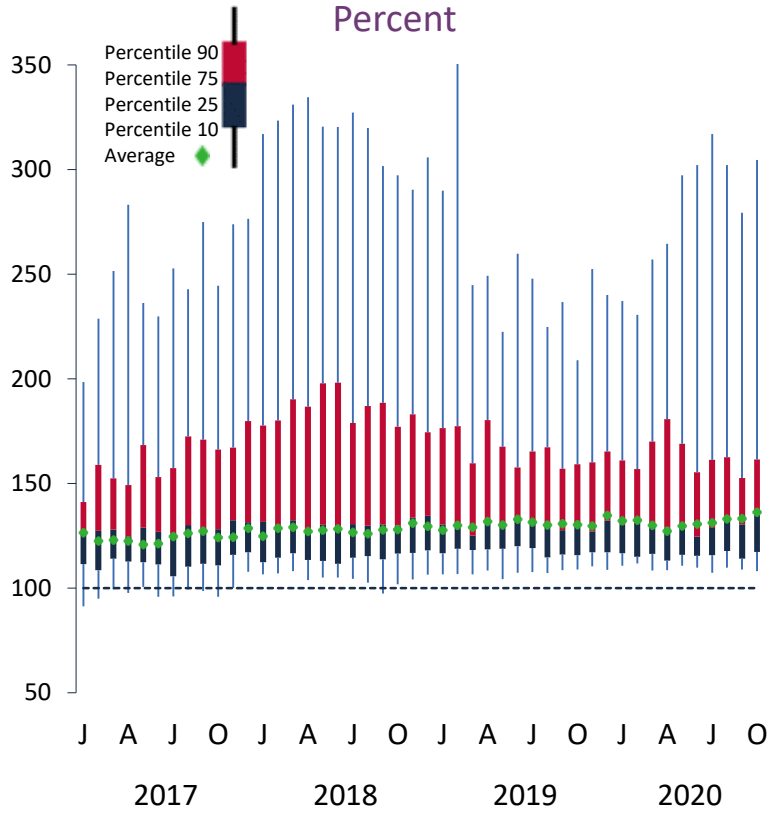
Percent



Data as of October 31, 2020.
Source: Banco de México.

Distribution of Net Stable Funding Ratio (NSFR)

Percent



Data as of October 2020.
Source: Banco de México.

5 Institutions: Results of Survey on Systemic Risk Perception S2-2020

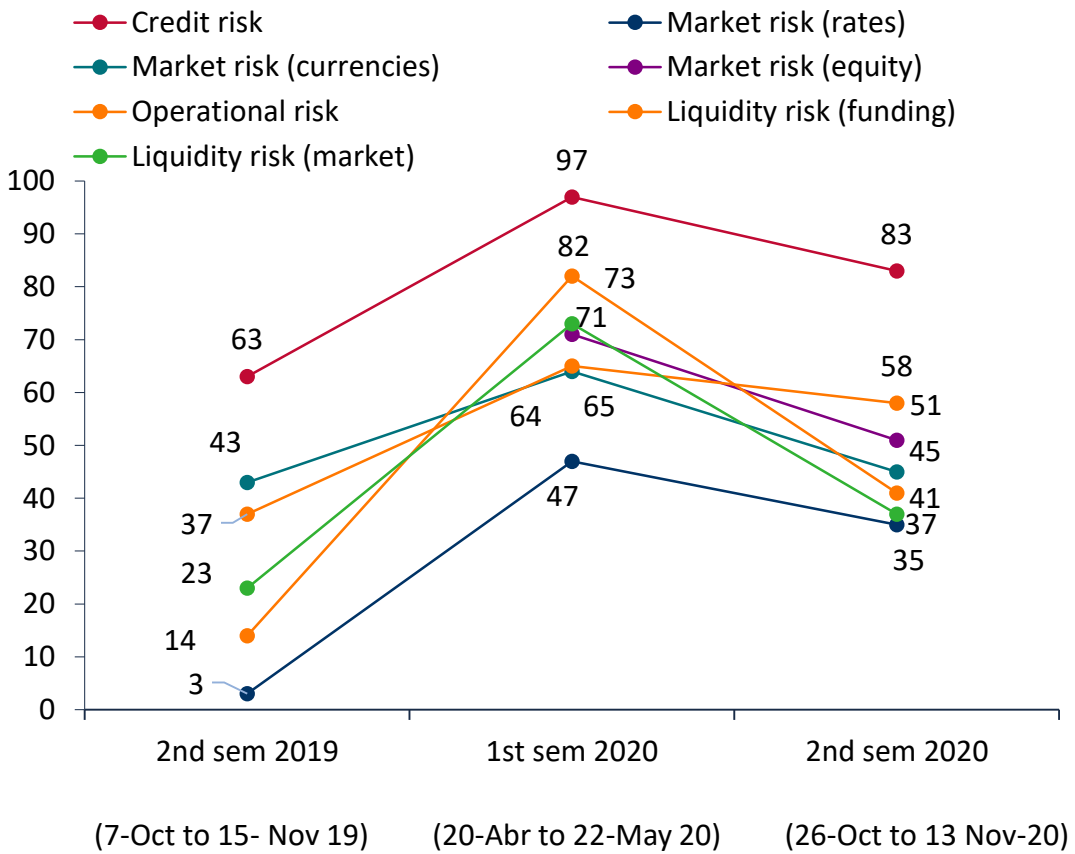
Risk perception decreased but is still at high levels

Main sources of financial system risks
Percent of total institutions

	Nov 2020	May 2020[1/]
External Financial Risks		
Deterioration of global economic growth outlook	78	84
Deterioration of foreign market conditions*	73	81
Proteccionist policies and deterioration of commercial agreements	63	70
Volatility in commodity prices	57	76
Disorderly changes in foreign interest rates	56	31
Domestic Financial Risks		
Deterioration of credit risk	70	39
Deterioration of the domestic economic growth outlook	68	70
Deterioration of public finances	56	46
Fiscal, financial and economic policies	52	49
Deterioration of domestic risk appetite	34	42
Non-financial Risks		
Cybersecurity and IT risks	78	70
Political, geopolitical and social risks	76	65
COVID-19 second wave	76	67
Violence and Insecurity	56	42
Deterioration of the rule of law and impunity	52	43

1/ 94 institutions participated in the survey. The most recent version of the survey was sent in October 2020 to 136 financial institutions (Afores, insurance companies, commercial banks, development banks, stock exchange companies and investment funds), from which the response was received from 83. *Exchange rate volatility, depreciation and lack of liquidity.

Expectations on the evolution of risks
Percent



Source: Banco de México.

6 Other risks: cyber risks and operational continuity risks

- Since the release of the last Report, some **cyber incidents** have taken place in the financial system. However, these incidents did not affect clients economically, neither did they affect significantly processes or resources of the institutions.

Month	Description	Affected Services	Clients affected
April	Ransomware in a commercial bank servers.	Internet banking	No impact
August	Ransomware in IT equipment of a bank's branch office.	Counter services	No impact
November	Ransomware in servers of a brokerage firm.	Funds dispersion	No impact
November	Ransomware in servers of a financial group.	Internet banking, FX operations, funds dispersion	No impact

- Hence, **cybersecurity measures had to be reinforced and monitored in more detail.**
- Banco de México continues implementing its operational continuity strategies in order to operate the infrastructures it is in charge of.

6 Other risks: environmental risks and investments sustainability

- In recent years, financial entities and authorities, including central banks, have accelerated the processes of **incorporating climate and environmental risks in their risk management systems**.
- This Report takes the first step in quantifying the **exposure of the country's financial institutions** to commercial credits that could be affected by **physical and transition risks**.
- In addition, despite the volatility observed in financial markets, **the issuance of green bonds** has increased compared to that registered last year.
- In its June meeting, **the Financial System Stability Council** analyzed and approved the operating rules of the Green Finance Committee.
- In the first meeting of the Green Finance Committee, the establishment of four working groups was approved:
  1. **Sustainable taxonomy.**
  2. **Better use coming from capital mobilization opportunities.**
  3. **ESG[1/] risks measurement.**
  4. **Information dissemination and implementation of ESG standards.**

1/ *ESG: Environmental, Social and Governance risks*

Contents

Credit stress tests to commercial banks

- The goal of these tests is to **assess the banking system's resilience** to specific macroeconomic and financial shocks.
- The scenarios considered **should not be taken as a forecast** of the expected performance of the economy, nor should they be associated with a probability of occurrence.
- These exercises are a **counterfactual and partial equilibrium simulation**, with the goal of evaluating and identifying the vulnerabilities of the **banking system overall**.
- The scenarios considered were intended to assess the **resilience of the system during a slow economic recovery,** starting from September and over 36 months,
- The emphasis of the stress lies on the **speed of GDP recovery**, rather than in the severe nature of the initial shocks, and uses as a starting point the most recent level of economic activity and available information as of September 2020.

Credit stress tests to commercial banks

	Scenarios	*Assumptions on macrofinancial variables*
A	**Less vigorous-than-anticipated recovery of global economy**	• **Shocks to Mexican economic activity generated by weaker aggregate demand.** • **Delay in economic recovery.** • **Lower level of investment and consumption.** • **Impact on GDP growth and on unemployment rates.**
B	**Slower recovery and higher volatility, with rebalancing asset holdings towards lower risk assets**	• **Contraction in the aggregate demand and supply.** • **Fall in GDP and increase in unemployment.** • **Exchange rate depreciation due to the climate of uncertainty.** • **Rebalancing asset holdings towards lower risk assets.** • **Upward pressure on interest rates.**
C	**Portfolio recomposition and adjustments to sovereign debt and Pemex's credit ratings**	• **Environment of uncertainty and high volatility.** • **Higher risk premia and upward pressures on interest rates.** • **Significant exchange rate depreciation.** • **Decline in investment and credit demand.**
D	**Historic scenarios**	• **The dynamics of the main variables observed during:** ➢ **The 1995 crisis (H1).** ➢ **The 2008 global financial crisis (H2).** ➢ **The volatility episodes of May 2013 (H3).**

Additional assumptions

1. *The exercise is common to all institutions and does not consider idiosyncratic problems related to credit origination.*
2. *It does not consider possible mitigation measures that could be implemented by the institutions in the exercise (counterfactual exercise of partial equilibrium and not general equilibrium).*
3. *Simulated stress scenarios are not associated with a probability of occurrence.*

The variables modeled in the scenarios are constructed considering the initial shocks previously described, and stem from a set of simultaneous shocks previously described. In particular, in a set of scenarios A, shocks fluctuate between -2.96 and 2.68 standard deviations with respect to historic values, highlighting a 2.12 s.d. shock in unemployment, a 2.68 s.d. shock in the exchange rate, and a -2.91 s.d. shock in the annual growth of IGAE. In the set of scenario B, shocks fluctuate for all variables between -3.55 and 4.87 s.d., highlighting a shock of 2.98 s.d. in unemployment, a shock of 4.87 s.d. in the exchange rate and a shock of -3.55 in the annual growth of IGAE. Finally, in the set of scenarios C shocks fluctuate between – 2.98 and 4.45 s.d. for all variables, highlighting a shock of 2.24 s.d. in unemployment, a shock of 4.45 s.d. in the exchange rate and a shock of -2.98 in the annual growth of IGAE.

Credit stress tests to commercial banks

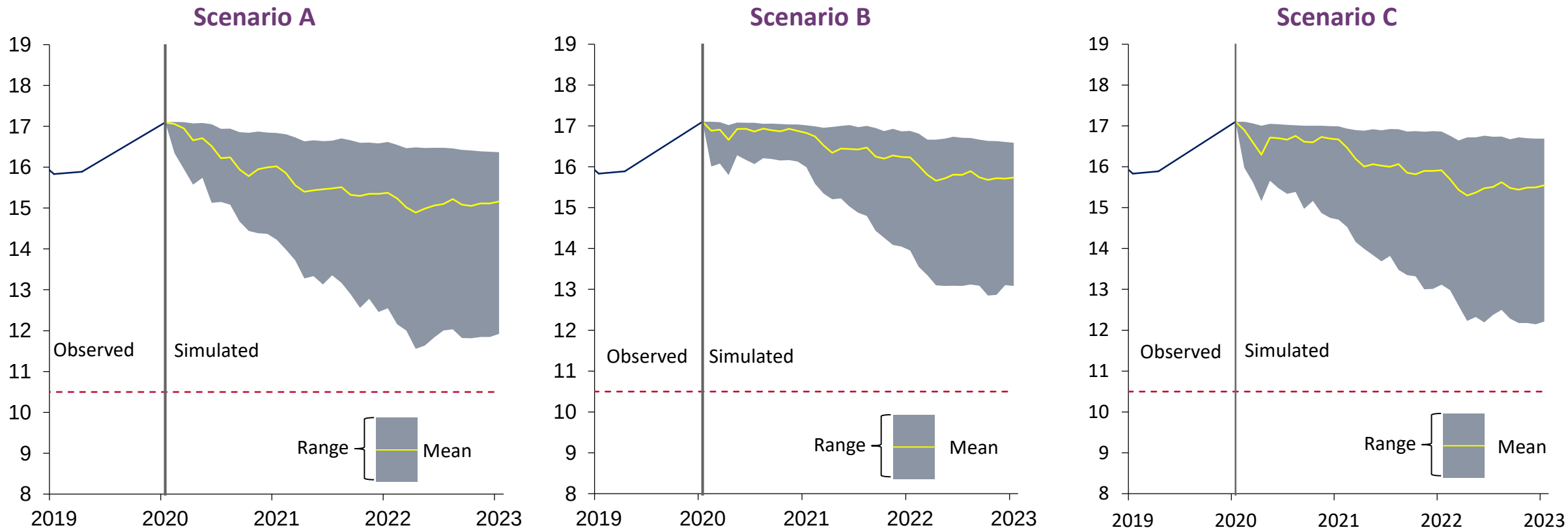
- Stress test results indicate the following:
  - **The banking system as a whole has capital levels that allow it to face different simulated scenarios for the domestic economy.**
  - At an individual level, certain banking institutions, representing a low percentage of total assets of the system, could have difficulties to maintain the minimum capitalization levels required for regulation in view of certain adverse scenarios.
  - As for leverage ratio levels, the system's levels would remain above the regulatory minimum of 3%.

Credit stress tests to commercial banks

Stress test results suggest that average capitalization levels of the system remain above the minimum, plus capital buffers, even in the most adverse scenarios.

Financial system Capital Adequacy Ratio (CAR) 1/2/3/

Percent



Data as of September 2020 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.

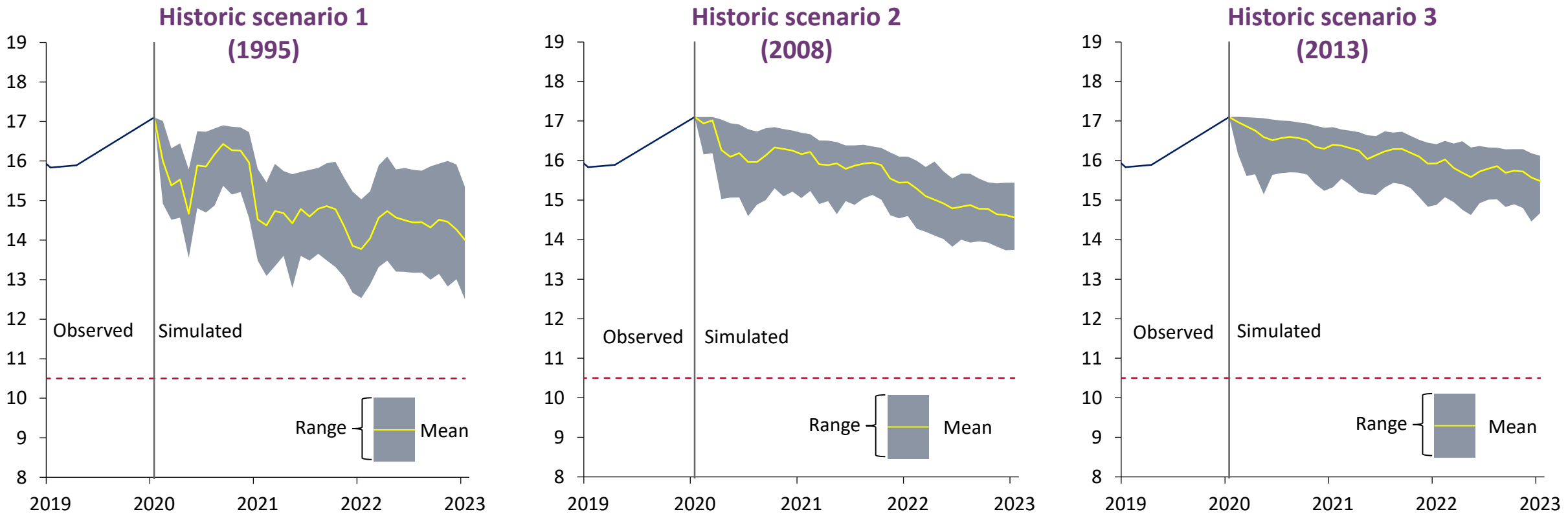
3/ Yellow lines represent the mean CAR of the system. The gray areas define the range of capitalization indexes observed in all simulations.

Credit stress tests to commercial banks

In the analyzed set of historic scenarios, the banking system would remain resilient, ending the stress horizon at levels above the regulatory minimum.

Financial system Capital Adequacy Ratio (CAR) 1/2/3/

Percent



Data as of September 2020 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.

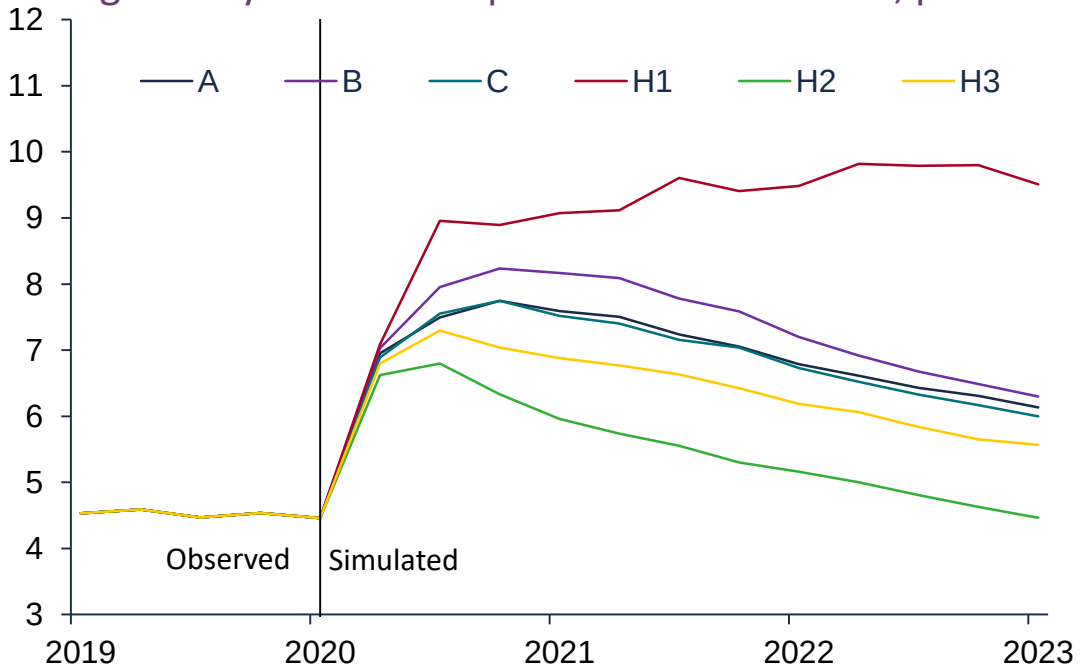
3/ Yellow lines represent the mean CAR of the system. The gray areas define the range of capitalization indexes observed in all simulations

Credit stress tests to commercial banks

The analysis suggests that banks whose capitalization levels were affected most significantly, were those that had the highest increases in their probabilities of default and that were more exposed to the most affected sectors.

Financial system's probabilities of default weighted by performing loans portfolio 1/

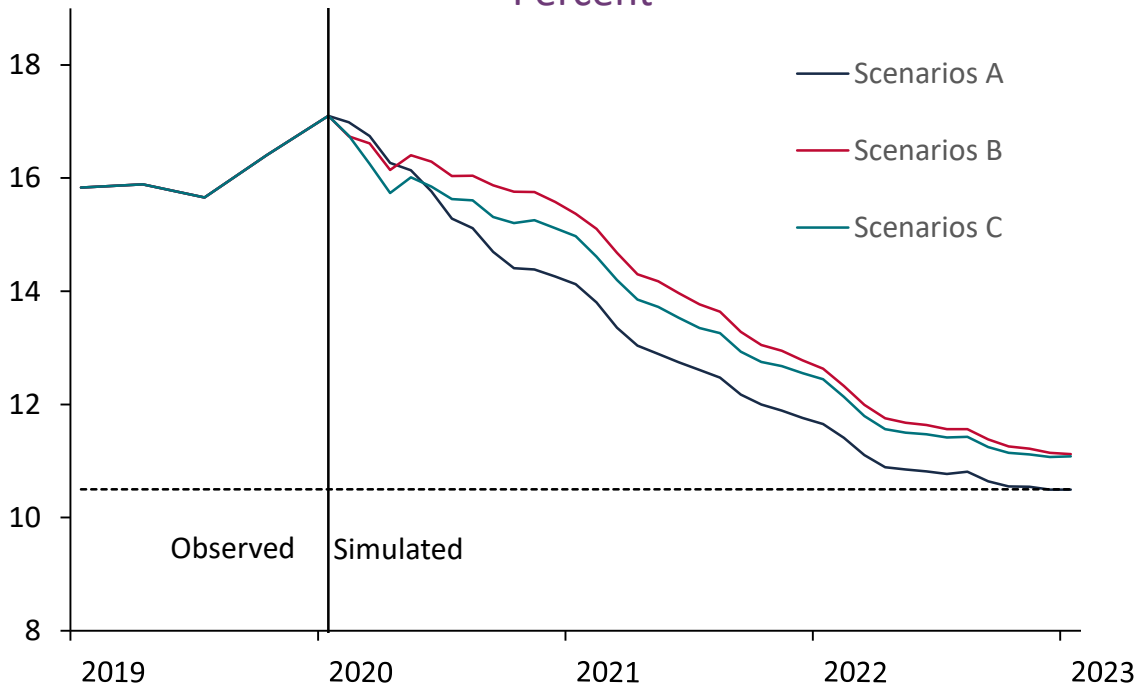
Weighted by the current portfolio of each bank, percent



Data as of September 2020 and 3-year simulations starting from such date.
Source: Banco de México.
1/ This impact is estimated from models developed to analyze differentiated sector impacts and from information on the exposure of banks to companies in these sectors.

Mean CAR of the system considering a concentration impact of 99% of losses 1/

Percent



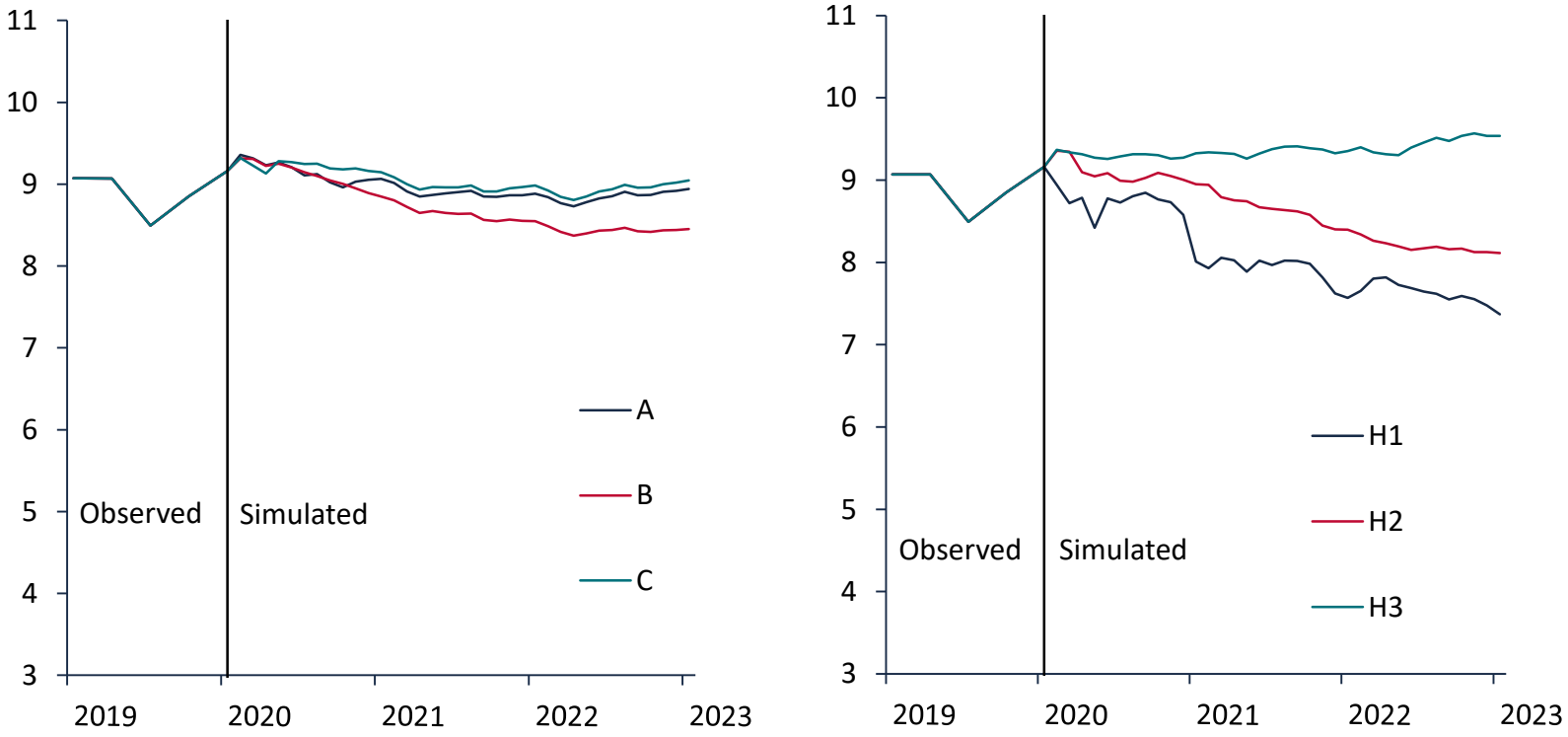
Data as of September 2020 and 3-year simulations starting from such date.
Source: Banco de México.
1/ Horizontal line represents minimum CAR plus capital supplements.

Credit stress tests to commercial banks

The test also considers the impact of scenarios on the leverage level of banks. In all scenarios, it remained above the regulatory minimum of 3% on average.

Financial system's average leverage ratio

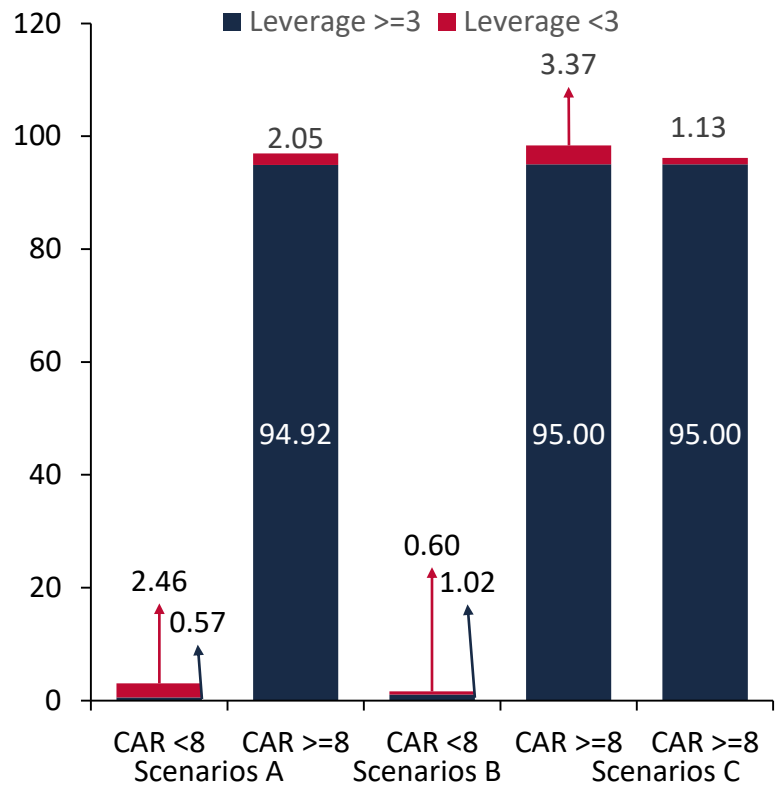
Percent



Data as of September 2020 and 3-year simulations starting from such date.
Source: Banco de México.

Average Capital Adequacy Ratio (CAR) and leverage ratio in stress scenarios

Percent of assets in the banking system



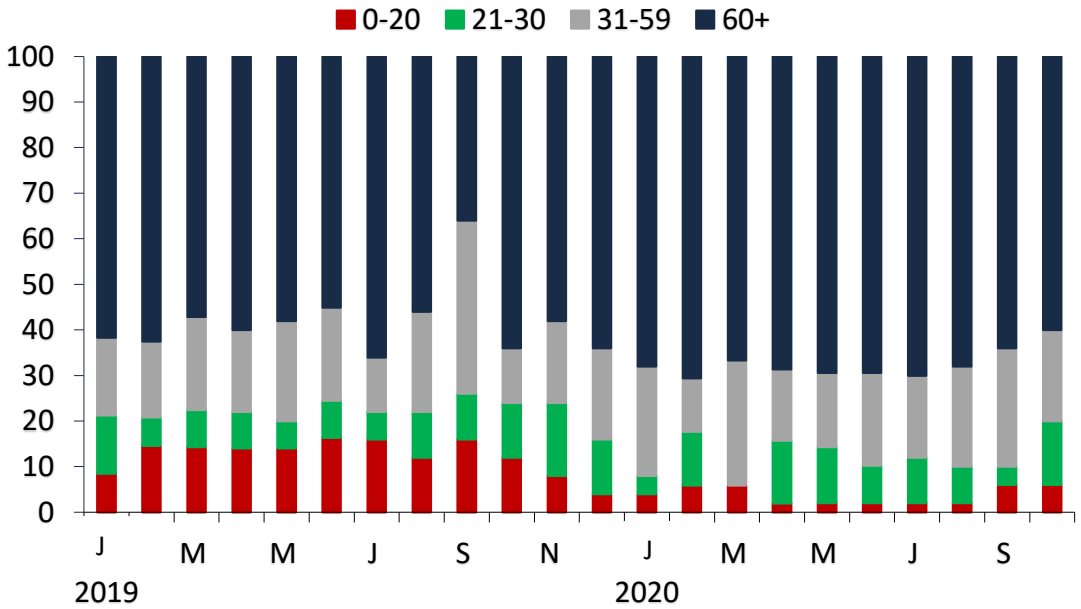
Data as of March 2020 and 3-year simulations starting from such date.
Source: Banco de México.

Liquidity stress tests to commercial banks

Around 80% of **banks would be able to cover their wholesale obligations**[1/] over a period of 30 days or longer, exclusively using available liquid assets without considering their inflows. Most institutions also have sufficient liquid resources to face unusually high deposit outflows (based on historical information),[2/] **for at least 30 days.**

Percentage of banks that could cover its liabilities under a severe stress scenario for different time horizons

Percentage of banks classified by buckets of number of days



Data as of October 31, 2020.
Source: Banco de Mexico.

Banks' assets by LCR estimated with the expected loss of deposits[1/ 2/ 3/]

Group	Criteria	Percentage of banks' assets
1	LCR ≤ 65	2.9%
2	65 < LCR ≤ 100	1.7%
3	LCR > 100	95.4%

Figures as of October 30, 2020.
1/ The data on total assets for commercial banks corresponds to those published by the CNBV at the end of October 2020.
2/ The impact on the value of liquid assets of the different stress scenarios proposed by Banco de México is incorporated.
3/ The exercise presented herein is performed on each bank based on an idiosyncratic shock, and does not evaluate the result in the face of a common macro-financial shock. This allows institutions to be stressed under those scenarios that would most affect them individually.

1/The most relevant assumptions made are the following: i) banks' debt issuance and financing from financial institutions aren´t renew and ii) that a percentage of demand and term deposits within the 30-day horizon are evenly distributed over a 30-day period.
2/ For each bank and type of deposit, an expected outflow is estimated using a 95% conditional VaR of the observed distribution of the monthly changes in the seasonally adjusted deposits amounts.

Contents

Final remarks

1. The economy and Mexican financial system are still facing a **complex environment** caused by pandemic-related shocks.

2. At the beginning of the pandemic, the financial system was in a solid position, with high capital levels, ample liquidity and low delinquency rates. After the impact of the pandemic on the economy, certain vulnerabilities and risks have increased:

   - Uncertainty over the effects of the pandemic on the credit portfolios of the most affected sectors prevails.
   - It is also necessary to closely monitor the sectors or segments that have been most affected in their income, and the risks of concentration in the financing sources for some institutions.

3. Although the financial system has shown resilience to the challenges faced, **certain risks could intensify over the next months**.

4. Banco de México will continue to closely monitor the evolution of Mexican financial markets and will continuously assess its operational conditions.

5. Looking ahead, the challenge will be to **maintain the strength of the financial system** so that it continues to perform its intermediation function and therefore contributes to a faster and more vigorous recovery.

Boxes

1. US monetary policy and global financial stability
2. TIIE funding rate and new reference rates
3. Evolution of financial system in view of adverse economic events
4. Macroeconomic and financial determinants of delinquency rates
5. Ratio between sovereign CDS and financing costs in the Mexican banking sector
6. Actions of development banks and other entities implemented during episodes of economic contraction
7. Popular credit and savings intermediaries
8. Impact of extreme temperatures on delinquency in agricultural businesses

Annexes

1. Disaggregated heat map of the Mexican financial system

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