FINANCIAL STABILITY REPORT

Second Half 2020

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*/ The cuttoff date of this repot was Octobrer 28 of 2020

PREFACE

As established in its Basic Constitutional Act, the Central Bank of Chile (CBC) must "safeguard the stability of the currency and the normal functioning of internal and external payments." To carry out these tasks, the Central Bank of Chile is vested with diverse legal powers, such as extending emergency credit and determining regulations in matters affecting the financial system and international foreign exchange operations.

The Central Bank's focus in the area of financial stability is centered mainly on the well-functioning of the system and the Chilean economy's access to international financial markets. In this context, financial stability is said to exist when the financial system is able to operate normally or without significant disruptions, even in the face of adverse situations. The Central Bank's tracking of financial stability is complementary to that undertaken by the specialized supervisory entities; it serves as an independent element of analysis with respect to the supervisors' powers and functions in relation to the entities subject to their oversight.

The objective of the Financial Stability Report (FSR) is to provide information, on a semi-annual basis, on recent macroeconomic and financial events that could affect the financial stability of the Chilean economy, such as the evolution of the indebtedness of the main borrowers, the performance of the capital market, and the ability of the financial system and the international financial position to adapt sufficiently to adverse economic situations. In addition, the Report presents the policies and measures that support the normal operation of the internal and external payment system, with the objective of promoting general knowledge and public debate on the Bank's performance in fulfilling this function.

The Board

SUMMARY

Since the last Financial Stability Report (FSR), the Chilean economy has continued facing the global health emergency effects and its repercussions over the markets. Global financial conditions have remained favorable but both political and economic uncertainty about the evolution of the pandemic remain high, which has translated into higher sensitivity of markets to unexpected events. The local financial market has endured a particularly challenging conjuncture, partly due to policymakers implementing exceptional measures to support lending, liquidity and risk management. Despite these measures, there are relevant risks associated with a longer than anticipated prolongation of the real shock, or to local events, including changes to the legal framework that could hinder the functioning of financial markets, liquidity or solvency of financial institutions. Also, reduced equity among agents makes them more vulnerable when faced with scenarios of additional stress, this is due to increased liabilities, reduced assets, and diminished margins over the course of the past year. Thus, it becomes evident the need for an adequate balance between (i) maintaining favorable financial conditions for the economy; (ii) thorough monitoring and support to the financial system stability during stress episodes, and (iii) transitioning from restraining the impact of the crisis toward supporting the economic recovery.

Since the last Report, the global outlook has improved after a sudden drop in activity due to the Covid-19 health emergency, however, uncertainty persists due to the recent contagion resurgence. Although the coronavirus evolution has been heterogeneous among countries, its previous evolution permitted relaxing mobility restrictions in several jurisdictions. This translated into a more positive economic outlook with respect to the previous FSR. However, in recent weeks there has been a relevant coronavirus resurgence in the northern hemisphere, which has led to imposing restrictions, though not at the same level of stringency as seen before. The magnitude of the economic contraction has required maintaining, or even increasing, the wide array of macroeconomic and compensatory (or containment) financial policies already in place, it cannot be ruled out that they will remain active if lockdowns persist.

In order to counter the effects of the pandemic several central banks implemented unprecedented liquidity provision measures which have maintained financial conditions favorable in global financial markets. The intensity of the policy reaction has contributed to maintaining low interest rates for sovereign bonds in both emerging and advanced economies.

Nevertheless, financial markets remain volatile due to the uncertainty about the future evolution of the pandemic, the duration of the implemented measures, and the economic recovery outlook. The increased level of liquidity has boosted certain asset prices, e.g. stocks and commodities. However, there is high heterogeneity in funding costs among both countries and assets.

Moreover, the exceptional policy measures applied in Chile have helped mitigating the health emergency effects on the local financial market. In spite of the severity of the shock, the expansive stance of monetary policy, achieved through both conventional and unconventional measures, has contributed to maintaining favorable internal financial conditions. Among the unconventional measures, there is a purchase program for bank bonds and Central Bank bonds (BCP and BCU) which has acquired securities that amount to US$13,500 million, there is also the Credit Conditional on Lending Increase (FCIC in Spanish) phases I and II, and the Liquidity Line of Credit (LCL in Spanish), both aimed toward strengthening bank lending amounting to about US$28,600 million. These measures have supported low funding costs, keeping bank and corporate bond issuance flows active. In this context, local long term sovereign rates have remained low, meanwhile bank and corporate spreads have declined since the last FSR.

In addition, the Central Bank of Chile (CBC) had to put into action special measures in order to prevent abrupt financial market corrections due to local events. In particular, the asset liquidation process carried out by pension funds in response to the massive withdrawals from individual capitalization accounts approved by the National Congress in July, could have significantly increased market volatility. However, this portfolio adjustment had a limited effect, partly due to the measures both the regulators and the CBC undertook, and also on account of the portfolio management strategy followed by the pension fund administrators. In specific, the utilization of the Spot Purchase with Term Sale facility (CCVP in Spanish) reached a maximum of US$5,550 million, which corresponds roughly to 35% of the withdrawals. Even though these measures successfully smoothed out the short term adjustment of financial markets, they do not compensate the long term effects of the reduced household savings on the current and future income of retirees and over the entire economy.

In the current conjuncture, households are faced with difficulties for generating income which have stressed their financial position and have thus required the implementation of exceptional policy actions. During the past few months, due to the lockdown measures and the deterioration of the labor market, households have experienced a significant income reduction. This adjustment has been mitigated by a wide array of policy measures, among which stand direct transfers and subsidies to low and medium income families and payment moratorium. Thus far these policies have prevented default from materializing. Nevertheless, families have had to reduce expenditures and use their savings, for instance by withdrawing from their pension funds through the exceptional approval of this mechanism. This policy deteriorated the financial position of savers, in exchange for short term liquidity.

The financial difficulties of the firms, due to operations interruptions, have been partially countered by debt issuance and special lending facilities. Since the previous FSR, the firms have increased their indebtedness reaching 134% of GDP as of the cutoff date of this report. An increased demand for credit, since the onset of the social protests in 2019, has been heightened during the first quarter because of the health emergency. Small firms have encountered a positive response from local banks to their funds requirements, in turn banks are more willing to lend due to the operation of policies fostering liquidity, collaterals and regulation flexibility, all of the above jointly implemented by the by the Ministry of Finance, Financial Market Commission, and the CBC . Larger firms have increased their banking leverage while maintaining access to the bond market, with a preference toward more liquid assets either for precautionary motives or low opportunity cost. In this way, lending support and capital market depth have helped preventing both the closing of firms and a deterioration of the bank loans portfolio. Even so, more than half of the increase in corporate debt to GDP can be attributed to the peso depreciation and economic downturn.

Despite the tension inherent to the scenario and operational contingencies, the payment and cash distribution systems have functioned with normality. Since the last report no relevant interruptions have affected the large value payment system, despite the operational restrictions posed by the lockdown and the increased flow of activities associated to measures in response to the pandemic. During the period one cybersecurity incident was recorded, it affected a local bank, and it led to the activation of the contingency tools of the Real Time Gross Settlement system (LBTR in Spanish) to prevent operational disruptions. Regarding cash distribution, there have been no relevant difficulties despite the large demand increase seen in recent months and motivated by mitigation measures and pension funds withdrawals. Nevertheless, both current and view account balances are well above their historic averages.

In this context, a slower than expected recovery is perceived as a relevant risk, as it could hamper the policy reaction effectivity. Several mitigation policies were originally designed as a financing bridge for temporarily facing a drop in liquidity and income. However, the health emergency has lasted more than expected, thus generating a more profound economic downturn and labor market deterioration. A slow recovery is therefore an important risk factor since, besides its direct effects on activity, it would limit the effectiveness of policies in action since the onset of the pandemic. This would increase the exposure of financial markets, debtors and lenders, triggering financial turbulence and insolvency.

Local elements inherent to the economy add to the aforementioned, associated with legal reforms that could have undesired effects during a particularly sensitive conjuncture. Disruptive events in the political and economic environment could affect financial institutions and/or amplify potential global risk appetite reversions. Events of this sort are not included in the usual stress test exercises and could unfold scenarios even more extreme than the ones typically considered. Changes to the legal framework require special attention, or inadequately calibrated regulatory requirements to financial institutions. Policy measures that affect the liquidity and solvency of

lenders or institutional investors constitute an important risk, also pose a risk those initiatives that could compromise the flow of credit or the intermediation of resources between agents. Situations of this sort would limit the funding sources that those agents more affected by the health emergency require, particularly during the economic recovery phase.

Notwithstanding the contribution of the policy measures mitigating the effects of the pandemic, the maneuvering margins have tightened. Although the CBC has been able to act with efficacy in markets that have become more volatile, its margins of action could be smaller in those markets outside the regulatory perimeter or when faced with more permanent changes in investor portfolios. In particular, the CBC has instruments for attenuating transitory episodes of volatility, not for preventing the effects of structural or permanent changes. Meanwhile, the lending policies that have promoted low cost funding through special guaranteed have implied higher leverage, mainly among firms that fund themselves through local banks. This increases their vulnerability under sudden changes in the economic outlook.

Although an increase in lending has been essential to face the immediate impact of the pandemic, the higher leverage and lower capital margins make firms and lenders more vulnerable under more stressed scenarios. In a scenario with prolonged difficulties to generate income, liquidity problems can evolve into insolvency. The banking industry, although has been able to transit this emergency providing credit counter-cyclically, stepped into the pandemic with reduced capital margins with respect to previous episodes of distress and also with lower levels when compared with international peers. Loan moratorium does not eliminate credit risk, instead it defers the risk to the future. Thus, a prolongation of the health emergency would put additional pressure over the solvency and capital of the banking system. The exposure of banks to non-bank lenders, through commercial loans, remains a vulnerability provided non-banks usually exhibit higher risk credit and are highly exposed to agents relatively more affected by the economic downturn.

The policy reaction has required adapting the regulatory framework to face the health emergency and make room for facing future contingencies. The financial authorities, the Executive and the Congress have modified regulations and passed laws aimed to mitigate the negative effects of the economic downturn. Regarding laws, a miscellaneous project was enacted, it added flexibility to the issuance of convertible bonds in order to facilitate the funding of firms. Meanwhile, the CBC added new tools for improving its reaction during tension episodes. In this respect, the Flexible Line of Credit (LCL in Spanish) with the IMF, the funding lines with the Federal Reserve Bank of New York (FIMA) and with the People's Bank of China (PBoC), improve the liquidity management during stress scenarios in foreign exchange markets. Additionally, the constitutional reform that exceptionally allows the CBC to purchase Chilean sovereign bonds in secondary markets, enhances the flexibility of the CBC to face stress scenarios while preserving financial stability.

The financial authorities have continued to move forward on structural or long term initiatives. Regarding the CBC, this includes the modernization of its exchange market norms, the soon to be implemented Counter Cyclical Buffer (CCyB), and the improvements to financial market infrastructures which relate to the joint work with the banks and CLS to add the Chilean peso to this system. Likewise, the Financial Market Commission along with the CBC continue to move forward with the implementation of norms leading to the adoption Basel III within the framework of a new General Banking Act.

Moving forward, the necessity of continuous and sustainable access to credit, while maintaining a framework of management and evaluation of risks that preserves financial stability, puts forth the relevance and timeliness of recommendations this report has highlighted over the years. On the one hand, the lack of a consolidated debt registry remains to be a deficiency for the appropriate assessment of risks. Also, the use of collateral to hedge credit risk in the commercial portfolio constitutes a vulnerability, especially during events that affect the value of these guarantees. On the other, the effort to converge toward international solvency standards, by adapting the current banking regulation, is noteworthy. This includes aspects that refer to adjusting the dividends policy since they contribute to increase and improve the capital base, which in turn safeguards the system when faced with future contingencies.

Chile has a deep financial system, highly integrated with the rest of the world, as such it requires to strengthen its mitigation capabilities and to replenish the consumed financial margins. Local agents benefitted during many years of the improvements in external financial conditions without it increasing their financial risk levels, as shown in the Thematic Chapter in this report. However, the social protests initiated in 2019 and the health emergency have generated economic effects and policy responses that have reduced the financial margins that used to sustain this advantageous position. Toward the medium term, the main challenges relate to restoring these margins, such as a level of public debt coherent with income and expenditure flows, and an adequate capital level for the banks which is in line with the Basel III standards.

The safeguarding of a solid, credible and stable institutional framework is necessary for preserving the appropriate functioning of financial markets, which is imperative in the current context. As pointed out above, a deep financial system protects the economy from external disruptive events, while propitiating inclusion and welfare. In this conjuncture it is key having a resilient system due to the chance of a prolongation if the health emergency beyond current expectations, this scenario would delay the economic recovery and may require an extension of the mitigation policies past what was originally planned. In this sense, an institutional framework that maintains coordination between the branches of government, regulators, and supervisors, allows for adjustments in the body of rules that tend toward improved benefits for firms and families, while avoiding undesired side effects.

I. FINANCIAL MARKET TRENDS AND EXTERNAL EVENTS

In an international context that continues to be affected by the COVID-19 pandemic, the global economic outlook has recovered in line with the gradual reopening of the economy in many countries. Financial conditions have remained favorable thanks to unprecedented mitigation measures in the main world economies, which have swelled both public and private debt. There is still substantial uncertainty regarding renewed outbreaks and a slower-than-expected economic recovery, which has perpetuated volatility in the markets. Locally, the extraordinary measures have helped mitigate the pandemic's effects on financial markets. Additionally, the Central Bank of Chile (CBC) has had to implement special measures to avoid sharp corrections in financial conditions arising from local events. In recent years, there has been an increase in the perception of sovereign risk, due to a lower growth outlook and a weaker fiscal position.

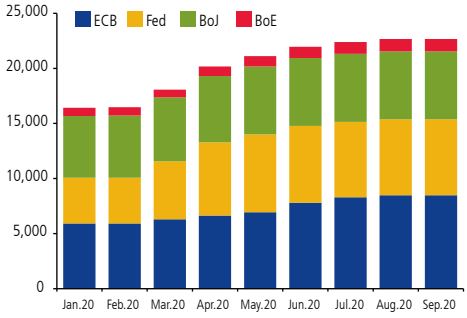
INTERNATIONAL FINANCIAL SITUATION

Since the last Financial Stability Report (FSR), the global outlook has recovered at the margin, in a context of unprecedented mitigation measures in the main world economies and the partial lifting of containment measures.

The global growth outlook has been revised upward slightly since the last FSR. In April, the IMF projected a GDP contraction of 5.9% in the United States in 2020 and growth of 1.2% for China, versus a 4.3% contraction and 1.9% growth, respectively, in its October Report. The reasons behind this improvement have to do with the reduction of COVID-19 contagion and death in much of the world, which has brought a gradual lifting of the associated containment measures. The resulting increased mobility of the population should lead to an improvement in services-related sectors. However, mobility restrictions have been reinstated in recent weeks, due to an increase in contagion in the Northern Hemisphere

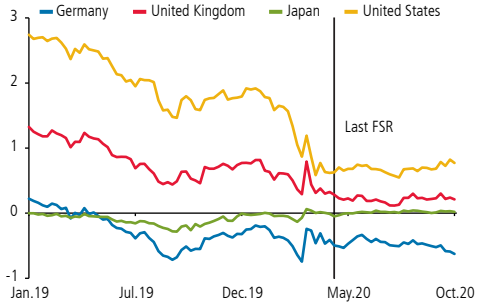
The depth of the crisis has required unprecedented monetary and fiscal stimulus plans in many economies around the world, including Chile. Different central banks have applied expansionary monetary policy, with historically low reference rates, together with new unconventional measures. In this sense, developed countries and some emerging economies have maintained different types of asset purchase programs. At the same time, several monetary authorities have implemented special facilities to stimulate lending, which, together with state guarantee programs, have allowed lending to behave countercyclically (IMF, 2020).

FIGURE I.1
Total central bank assets in developed economies in 2020
(billions of dollars)



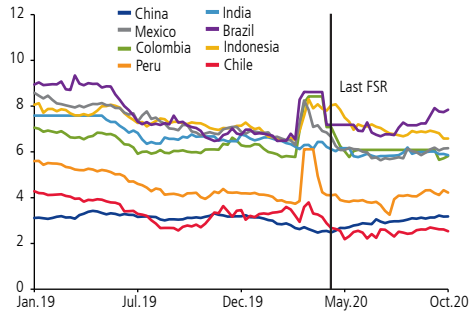
Source: IMF.

FIGURE I.2
Ten-year sovereign bond interest rates: Developed economies (*)
(percent)



(*) Weekly data.
Source: Bloomberg.

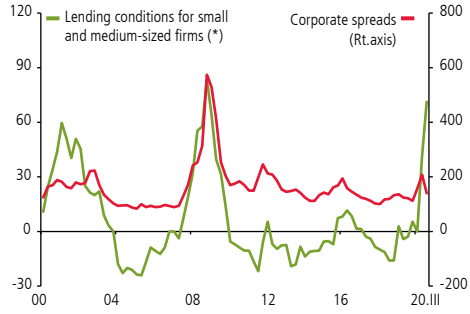
FIGURE I.3
Ten-year sovereign bond rates: Emerging economies (*)
(percent)



(*) Weekly data.

Source: Bloomberg.

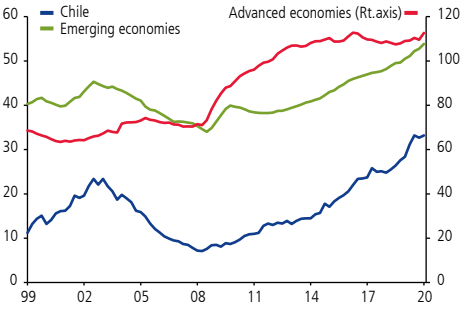
FIGURE I.4
U.S. lending standards and corporate spreads
(percent, basis points)



(*) Positive (negative) values indicate tighter (looser) lending conditions.

Source: Bloomberg

FIGURE I.5
Sovereign debt
(percent of GDP)



Source: Institute of International Finance (IIF).

These measures have expanded the total assets on the balance sheets of the world's main central banks, by over US$5.0 trillion thus far in 2020 (figure I.1). This growth mainly reflects asset purchases, as in the case of the U.S. Federal Reserve (Fed) and the Bank of England (BoE), whereas the European Central Bank (ECB) and the Bank of Japan (BoJ) have a combination of asset purchases and credit facilities. Finally, fiscal policies have focused on offsetting the income reduction of households and firms, which has implied higher sovereign debt at the global level.

The massive purchase of financial instruments has increased global liquidity and kept sovereign rates stable at around the levels of the last FSR.

The greater liquidity in the financial markets has been reflected in sovereign bond rates in developed economies, which have remained low in the second half of the year; a similar trend is observed in emerging economies (figures I.2 and I.3).

As a result of the massive purchase of financial instruments by central banks, certain risky asset prices are higher than would be expected in recession periods. For example, in the U.S. corporate bond market, the measures implemented by the authorities have managed to contain spreads, despite the economic contraction and financial agents' perception of tight credit (figure I.4). At the same time, global stock indexes have increased significantly since the cutoff date of the last FSR, mainly due to higher expectations generated by the slowdown in the contagion data and the quantitative easing policies implemented worldwide.

Nevertheless, economic opening has slowed in recent weeks, and some countries have partially reinstated lockdowns due to the uptick in the contagion rate, which could affect the markets and cause a reversal in risk appetite. In this context, price-to-earnings ratios, which are currently high in some stock markets, could fall sharply.

The emerging economies have also benefited from the greater liquidity at the global level, as reflected in low sovereign spreads despite reductions in credit ratings. However, exchange rate volatility remains high, and public debt has increased.

In the emerging economies, spreads have tended to decline since the last FSR, which reflects the various monetary and fiscal policies implemented to contain some of the adverse effects of the crisis. Foreign exchange reference rates are around the levels recorded in the first half of the year, although volatility is higher. With regard to nonresident financial flows, there have been moderate outflows of around US$160 million a month, on average, over the last six months, following the historical peak of US$1.4 billion in outflows recorded in March.

While the monetary and fiscal measures have helped mitigate the economic effects of the pandemic, the situation has lasted longer than originally budgeted, which puts more pressure on the growth of sovereign debt (figure I.5). In this sense, it is important to note that greater leverage tends to increase the domestic markets' sensitivity to external shocks (Lian et al., 2020). For Chile, public debt has grown at a similar rate to other emerging economies; however, the country's debt level—currently around 30% of GDP—is significantly lower than that of other economies.

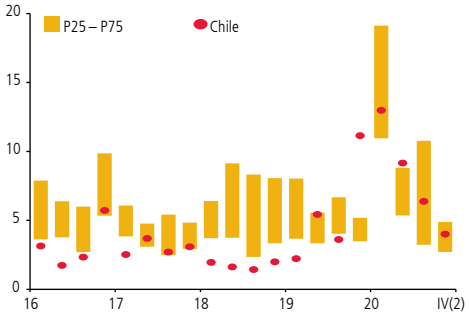
The volatility of emerging sovereign rates has diminished since the start of the pandemic and remains low (figure I.6). While the local economy has mirrored the reduction of its emerging peers, volatility remains near the median of the distribution, whereas in past years it was generally in the lower percentiles. This points to a reduction in the impact of some mitigators that have historically operated in the past, such as the behavior of institutional investors.

As a counterpart, the exchange rate volatility of emerging currencies remains high relative to 2019. This reflects the fact that while financial conditions are generally loose, uncertainty is still high at the global level (box I.1). Locally, exchange rate volatility increased significantly starting with the October 2019 social protests, rising outside the volatility range of emerging currencies before returning to average levels more recently (figure I.7).

Despite the favorable financial conditions, the lower yield on fixed-income assets puts pressure on the returns of institutional investors both globally and domestically.

The vulnerabilities associated with lower interest rates (the low-for-long scenario) highlighted in past FSRs continue to lurk beneath the surface in the current context of strong global monetary stimuli. In this sense, the current weakness could lead to a revision in the credit rating of numerous issuers, causing a deterioration of the fixed-income assets of the institutional investors, including the pension funds (FPs) and the life insurance companies (LICs). This could, due to regulatory requirements or investment mandates, potentially force them to sell off these assets (for example, if they fall below investment grade), which would put additional pressure on prices.

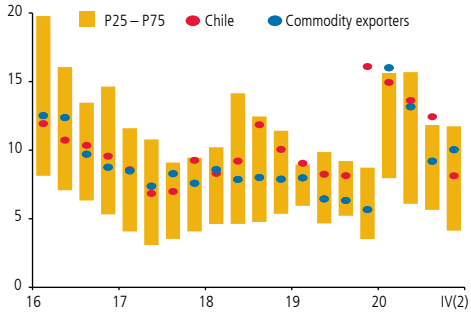
FIGURE I.6
Sovereign rate volatility in EMEs (1)
(basis points)



(1) Emerging market economies (EMEs) include Brazil, China, Colombia, Hungary, India, Indonesia, Malaysia, Mexico, Peru, Poland, Russia, and Turkey.
(2) Data through October 2020.

Source: Central Bank of Chile, based on data from Bloomberg.

FIGURE I.7
Exchange rate volatility in EMEs (1)
(annualized percent)



(1) EMEs include Brazil, China, Colombia, Hungary, India, Indonesia, Malaysia, Mexico, Peru, Poland, Russia, and Turkey. Commodity exporters include Australia, Canada, Norway, and New Zealand.
(2) Data through October 2020.

Source: Central Bank of Chile, based on data from Bloomberg.

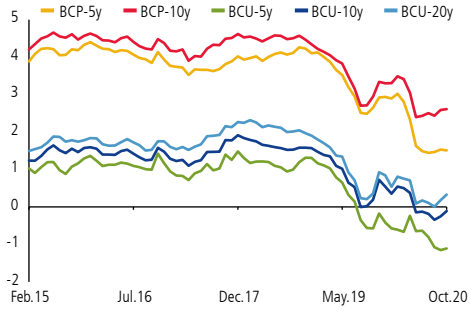
LOCAL FINANCIAL SITUATION

Since the last Report, the implementation of extraordinary liquidity and credit-access policies has kept financial conditions favorable.

The pandemic and the associated lockdowns caused a sharp contraction in economic activity in the second quarter of 2020. Despite the magnitude of this output contraction, local financial conditions have remained favorable, explained, in part, by the liquidity and credit-provision measures implemented by the Central Bank of Chile, the Chilean Financial Market Commission (FMC), and the Finance Ministry. In this context, with the monetary policy rate (MPR) at its effective lower bound and the unconventional measures anchored to it, the downward trend in local interest rates intensified in 2020, stabilizing in the most recent period (figure I.8).

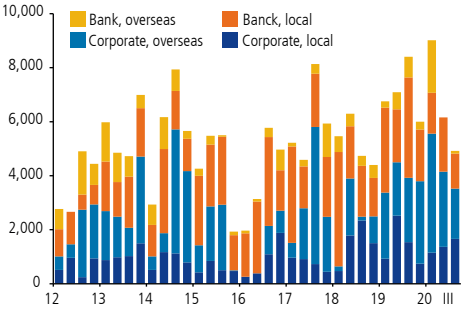
Bond issues have remained somewhat dynamic, especially local and overseas nonbank corporate placements. Bank bond issues have decreased, due to the availability of other sources of funding tied to Central Bank facilities, which has changed the composition of bank liabilities (figure I.9 and chapter III). The asset purchase programs implemented by the CBC contributed to stabilizing bank spreads at levels just below their historical average, after rising sharply in late 2019. Corporate spreads, in turn, have come down from the peaks recorded in early 2020, although they are still somewhat higher than their historical average

FIGURE I.8
Local sovereign interest rates
(percent)



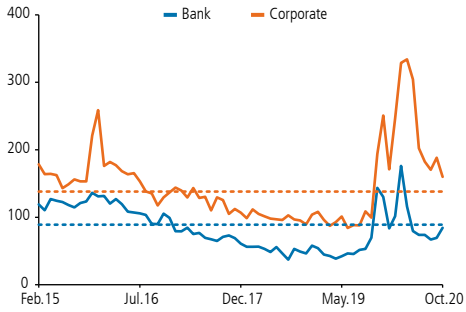
Source: Central Bank of Chile.

FIGURE I.9
Bond issues
(millions of dollars)



Source: Central Bank of Chile, based on data from the Santiago Stock Exchange and Bloomberg.

FIGURE I.10
Bank and corporate bond spreads (*)
(basis points)



(*) Dashed lines indicate the 2015–18 average of the respective series.

Source: Central Bank of Chile, based on data from the Santiago Stock Exchange.

and have a high dispersion across the different risk classifications (figure I.10). Deposit rates in the secondary market have stabilized at low levels for the different banks, with a limited dispersion among the different maturities, due in part to the window facility implemented by the CBC to buy time deposits in August and, indirectly, to the credit facilities available through the FCIC (chapter III).

Given the progression of the pandemic, the policies implemented in the first half of the year have been maintained, and some additional measures have been incorporated to face specific episodes of volatility caused by local factors.

In addition to the policies implemented in the first half to face the start of the pandemic (such as the dollar sales, FX swap, and repo programs, the CBC debt security buyback program, and the temporary suspension of PDBC issues), the CBC announced a set of measures in late July to safeguard the stability of the financial system. These included the purchase of bank bonds, a Special cash purchase/forward sale program (Programa CCVP), and the time deposit purchase window (table I.1). These measures contributed to soften the impact of the asset liquidation process implemented by the pension fund (PFs) in response to the massive withdrawal of pension resources.

This latter measure was approved by the National Congress in July, in order to offset the drop in income stemming from the lockdowns enforced to control the pandemic. This measure implied giving households liquidity in exchange for a reduction in their long-term savings. To date, nearly US$17.0 billion in pension savings has been withdrawn, which was financed through adjustments in the pension fund portfolio, mainly the sale of overseas assets and local bank bonds.

The measures implemented by the CBC to face this extraordinary event were oriented toward mitigating the potential impacts on the financial market. To contain the liquidity pressure on the pension funds, the Bank implemented the CCVP scheme to give the institutional investors temporary resources, through the simultaneous spot purchase and forward sale of instruments that the CBC had the legal authority to purchase, and thus to facilitate a moderate portfolio rebalancing. At the same time, the Bank implemented a definitive purchase program—at discount prices—of bank bonds and time deposits in the secondary market, which helped reduce their price volatility and thus contributed to conserving favorable funding conditions.

The Superintendence of Pensions (SP) also implemented a series of measures to facilitate the fund adjustments, such as relaxing investment limits on certain counterparties and instruments, and authorized the use of new investment instruments to enable the use of the CCVP tool, in order to simplify the portfolio rebalancing and asset liquidation process. Additional measures were designed to facilitate the operational logistics of the withdrawal through the availability of funds in the banking system, led by the FMC.

To support the functioning of the credit channel, the CBC implemented a second phase of the Conditional Financing Facility for Increased Loans (FCIC2), which provided resources to the banking system of up to US$3.9 billion per bank, where the amount authorized is calculated as a direct function of a given bank's granting of FOGAPE-COVID loans and credit to nonbank lenders. To date, this facility has

channeled nearly US$5.0 billion to the banks, in addition to the FCIC implemented in April (FCIC1). Together with the state guarantees and the regulatory adaptation by the FMC, it has promoted the countercyclical growth of lending, in contrast to the trend in past episodes of tension, such as the 2008 Global Financial Crisis (chapter III).

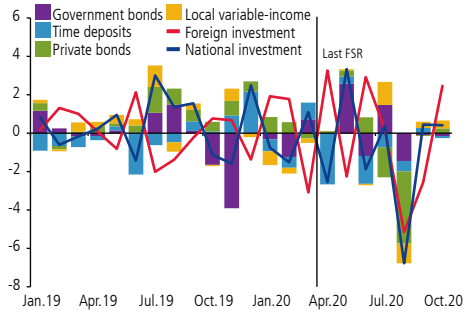
TABLE I.1
Main economic measures adopted

Objective	Entity	Area	Measure	Potential impact
Facilitate access to credit	CBC	People and small businesses	Conditional Financing Facility for Increased Loans (FCIC1). Program extension (FCIC2).	Increase credit and decrease the CAR.
	Finance Ministry	Small businesses	Credit line for working capital with state guarantee (FOGAPE) up to 3 months of sales. Reduce deductible for FOGAPE guarantee and increase maximum financing for firms with sales under 1,000 UF.	Mitigate credit risk of firms.
	FMC		Use of mortgage collateral to back loans to SMEs. Adjustments in the treatment of goods received in payment. For loan amounts guaranteed by the Treasury of Chile, CORFO, and FOGAPE, reduce the credit risk weight from 100% to 10% for the purpose of RWAs, replacing the legal provision that allowed a share of these guarantees to be considered as part of voluntary provisions that make up regulatory capital. Relaxation of timeline for implementing Basel III.	Mitigate credit risk of firms. Reduce provisions. Reduce capital requirements. Postpone start of new capital standards.
	Banco Estado	People and small businesses	Capital increase in order to increase lending.	Increase capital and loans. Ambiguous effect on CAR.
Liquidity provision	CBC	Commercial banks	Inclusion of corporate bonds as collateral. Extension of foreign currency sale program. Longer maturities for peso and dollar liquidity programs. Extension of the temporary suspension (90 days) of maturity mismatch requirements. Extension of the relaxation of the LCR limit.	Increase access to liquidity. Reduce regulatory requirements.
			Activation of Liquidity Credit Line (LCL). Special asset purchase program (BCP, BCU, bank bonds). Check Clearing House regulations incorporated a special protocol to implement actions in contingency situations.	Reduce short-term funding costs. Reduce long-term funding costs. Mitigate liquidity risk.
		SOMA participants	Special cash purchase/forward sale program (CCVP) for bank instruments. Effective only for rollovers. Purchase of time deposits. **Effective only through October.**	Reduce long-term funding costs. Reduce funding costs.
	Finance Ministry	People and businesses	Tax deferral or suspension. Microbusiness protection fund. Extension of the labor income protection program.	Mitigate credit risk of firms. Mitigate household credit risk.

(*) Green: new measures; Black: ongoing measures.

Source: Central Bank of Chile, based on data from the FMC and the Ministry of Finance.

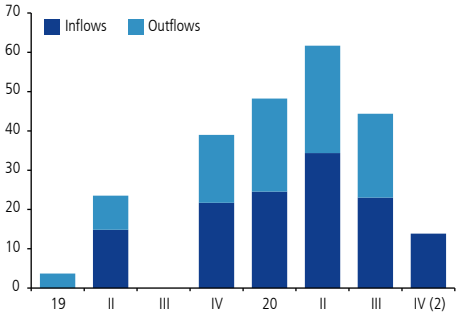
FIGURE I.11
Pension fund investment flows (*)
(billions of dollars)



(*) Net movements by instrument, including purchases, sales, redemptions, and drawings and excluding derivative maturities, rebates, dividends, and coupon cuts. Includes national bonds and ADRs traded overseas.

Source: Central Bank of Chile, based on data from the SP.

FIGURE I.12
Impact of recommendations to change between types of funds (1)
(percent of type E fund assets)



(1) Accumulated changes five days after the announcement, as a percent of assets in type E funds in the previous month.

(2) Data through 28 October 2020.

Source: Central Bank of Chile, based on data from the SP.

Since the last FSR, the institutional investment portfolio underwent a major adjustment, due to the sale of instruments by the pension funds to accommodate the withdrawal of pension resources and the trend among pension fund affiliates to make more frequent moves between fund types in response to recommendations by pension consultants.

Since August, the pension fund portfolio recorded net sales of nearly US$4.0 billion in private bonds, mainly bank bonds. There were also purchases and sales of local variable-income assets, alternately in different months, which have reached amounts of around US$1.0 billion. Most recently, national investment has increased, while foreign instruments continue to record net sales (figure I.11).

At the same time, private pension consultants have significantly increased the frequency of their recommendations in recent months, which are often reversed after just a few days. This has increased the volatility of some financial asset prices. Thus, in the past 12 months there have been about 24 different recommendations (figure I.12). This has caused the pension funds to sometimes behave procyclically, which exacerbates market movements with no apparent benefit for the affiliates. This trend weakens the pension funds' ability to soften the effects of external shocks, as was the case some years ago.

Like their international peers, the mutual funds and life insurance companies continue to record a low return on investment in a context of low yields on long-term assets.

The mutual funds (MFs) have partially recovered the levels recorded in the last FSR, but they are still exposed to interest rate volatility. In particular, the type 1 mutual funds (MF1) have maintained relatively stable equity levels, while the type 3 (MF3) and type 6 (MF6) funds have partially recovered their equity levels since the last FSR (figure I.13). The relative stability of the MF1 has occurred in an environment of low yields and low margins. Consequently, the search for returns at the margin makes them more sensitive to an unexpected upside shock in spreads. The MF1 funds have recently shown higher levels of rate risk: an increase in the spread of around 60 basis points (bp) would produce a massive revaluation,[1]/ on par with an 80 bp increase in June of this year. Similarly, the MF3 funds—in the event of a 100 bp rate shock—have a similar level of withdrawal risk to October 2019. Finally, in late 2019, the MF3 suffered withdrawals that were in the first percentile of the distribution, which have been reversed over the course of this year. However, higher-volatility scenarios could trigger a repeat of the withdrawal trend, which would put pressure on the fixed-income market.

In the case of the life insurance companies (LICs), there are several sources of liquidity and solvency pressure. First, activity has been slow in the annuity market, due in part to the deferral of new pensions and the lower relative return on annuities compared with the scheduled withdrawal option.[2]/ Second, their

[1]/ For more information on how the FM1 funds are valued, see Ahumada et al. (2011).
[2]/ The average annuity rate is 1.82%, while the scheduled withdrawal rate is around 3.91%. October 2020 data. Source: FMC and Superintendence of Pensions

portfolio yield could deteriorate in the current cycle, in particular for lower-rated overseas bonds and the local real estate sector. Third, the scenario of low long-term interest rates for a prolonged period continues to put pressure on their balance sheets Thus, in the last year, the LICs have generally increased their exposure to relatively riskier assets, notably adjusting their portfolio toward local private bonds and real estate assets, while reducing their positions in sovereign bonds and time deposits (figure I.14).

THREATS TO FINANCIAL STABILITY

The continuation of the economic shock continues to be the main risk for the local and international financial system. Thus far, the central banks have acted preemptively, but their framework for action decreases as resources are used.

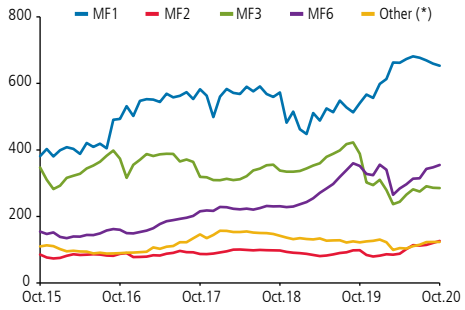
The extended persistence of low growth, in both Chile and the world, could deepen the effects of the pandemic and turn liquidity problems into solvency issues, which would represent a significantly more complex scenario due to the possible deterioration of financial conditions at the global level.

The various liquidity support measures implemented by central banks around the world, including Chile, have reduced market volatility and contributed to absorbing the shock and reallocating risk. However, these policies, whose magnitude exceeds the response during the Global Financial Crisis, reduce the institutions' capacity for action in the future. For example, as of August of this year, the CBC has devoted around 40% of its assets to the implementation of these policies (figure I.15). At the same time, a continuation of the real shock would reduce the effectiveness of the measures, which were designed to address temporary liquidity problems.

In this context, the exceptional situation also puts pressure on sovereign debt, due to the implementation of fiscal support programs. The growth of sovereign debt represents a vulnerability, given the spending pressures and the reduction in income-generation capacity, especially under a scenario of tighter financial conditions and the absence of an economic recovery. This situation would have a bigger impact on emerging economies that do not have a sufficient cushion to face more adverse scenarios.

A number of geopolitical events could cause a sharp correction in the global risk appetite, which would affect the funding costs of local agents. Internationally, various tensions could translate into extra pressure on global and emerging markets. First, the tension between the United States and China continues to weaken international trade. Second, the results of the U.S. election could lead to a legal dispute and vote recount, which could generate an additional level of uncertainty until the transfer of power. Third, the Brexit negotiations could increase economic uncertainty and market volatility. In the case of emerging economies, especially in our region, an intensification of the pandemic could cause the materialization of economic instability. Under that scenario, direct factors (i.e., trade or financial links) and indirect factors (i.e., informational) could trigger an increase in the perception of risk in the local economy, which would heighten our exposure to aggregate shocks (chapter IV).

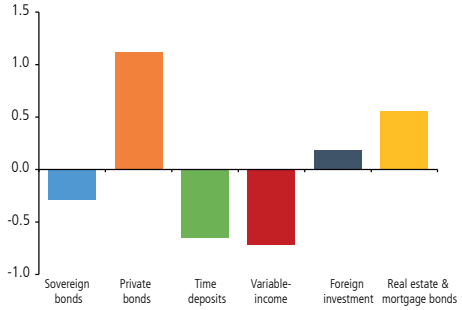
FIGURE I.13
Mutual fund equity
(millions of UF)



(*) Includes types 4, 5, 7, and 8 mutual funds.

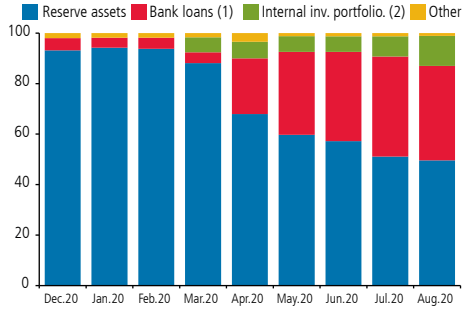
Source: Central Bank of Chile, based on data from the AAMF and FMC.

FIGURE I.14
Change in LIC portfolio, September 2020 versus September 2019
(percentage points)



Source: Central Bank of Chile, based on data from the FMC.

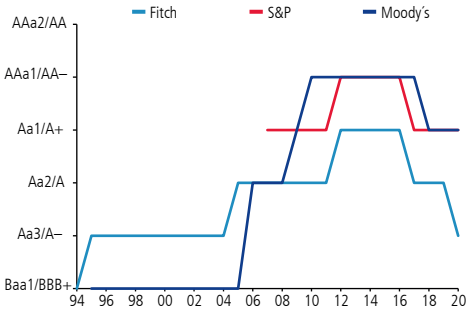
FIGURE I.15
Central Bank of Chile's asset composition
(percent)



(1) Includes FCIC, repos, and standing liquidity facility.
(2) Includes bank bond, time deposit, and CCVP purchases.

Source: Central Bank of Chile, based on data from the FMC.

FIGURE I.16
Sovereign credit rating for Chile
(rating)



Source: Central Bank of Chile, based on data from Bloomberg.

Additionally, institutional investors could become stressed if the pandemic continues for a long time and the low-for-long scenario of the past several years intensifies. Thus, if yields fall further, these investors could be forced to take on higher levels of risk to offset the lower returns. This phenomenon would especially affect long-term investors. In particular, it puts pressure on the pension funds and on the LICs whose business is centered on annuities, through the revaluation of their net long-term assets.

Diverse domestic factors could undermine the risk perception of Chile, with an impact on local financial stability.

The Chilean economy remains in the upper range of sovereign debt ratings among emerging economies. However, there are some factors that could worsen the sovereign risk perception going forward, thereby affecting the Chilean economy's financial conditions. In recent years, the steady increase in public debt and the deterioration of the fiscal balance have been accompanied by downgrades to Chile's credit rating (figure I.16).

Some local developments could affect the normal functioning of the financial markets. In particular, to address the economic effects of the pandemic, a series of additional measures has been proposed, aimed at alleviating the short-term financial difficulties of households and firms. However, some of these initiatives could have undesirable effects, such as hampering risk assessment and price setting (interest rates), affecting expectations, and reducing the capacity to face future contingencies, especially due to the evolution of the pandemic. This could be manifested as problems in the economy's resource allocation or a need to take corrective actions for externalities caused by the measures, eliminating space to address other pressing needs (box V.II).

Going forward, special attention must be given to changes to the regulatory framework or legal provisions that affect the normal functioning of the financial system. Thus, initiatives that affect the liquidity and solvency of lenders or institutional investors or that cause disruptions to the flow of credit or the allocation of resources in the economy could limit financing possibilities in a recovery phase.

BOX I.1
FINANCIAL CONDITIONS, UNCERTAINTY, AND ASSOCIATED RISKS

Introduction

The COVID-19 pandemic, like the social protests at the end of last year, has caused significant stress on financial aspects of the Chilean economy. Nevertheless, local financial conditions have remined favorable, due to extraordinary liquidity and credit-supply policies.However, volatility remains high in some markets. (chapter I).

This box identifies the aggregate risk and uncertainty levels in the local financial markets and looks at how they change during critical episodes. That analysis is based on the recent evolution of two indicators: the local stress index (LSI), which measures financial conditions in the foreign exchange and fixed-income markets; and the daily economic policy uncertainty index (DEPUC), which captures local uncertainty.

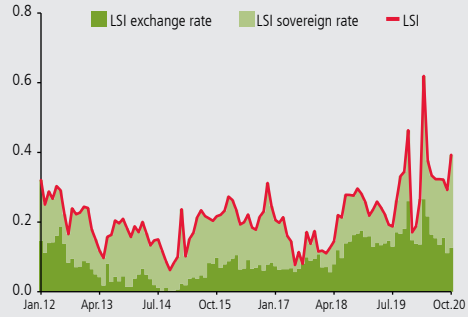
Financial conditions in foreign exchange and fixed-income markets

The local stress index (LSI) combines information from a set of variables that should capture the source of tension or stress in the foreign exchange market and the local secondary sovereign fixed-income market, in order to measure changes in financial conditions in those markets and identify the main vulnerabilities.

In the case of Chile, the LSI is constructed using the average of a set of four key variables for the foreign exchange and fixed-income markets, namely, volatility, spreads, liquidity indicators, and flows, following the methodology proposed by Holló et al. (2012). Thus, a deterioration of these variables would point to higher levels of stress, which will ultimately lead to a worsening of financial conditions in these markets.

According to the LSI for the local exchange market, financial conditions were low and below their historical average until early 2019, when the situation reversed due to medium-term funding costs (figure I.17). Most recently, the tension increased substantially in this market during the events of October 2019 and the pandemic, as a result of increased exchange rate volatility.

FIGURE I.17
Local stress index (*)
(index: 2018 average = 0.1)



(*) Lower (higher) index values indicate looser (tighter) financial conditions in the respective markets.

Source: Central Bank of Chile, based on the methodolgoy in Hollo et al. (2012).

With regard to local sovereign debt, the liquidity programs implemented by the Central Bank of Chile have contained the rise in interest rates. However, the conditions in this market tightened considerably in response to the sharp increase in sovereign rate volatility and, to a lesser extent, the lower participation of nonresident investors in this market.

Economic uncertainty

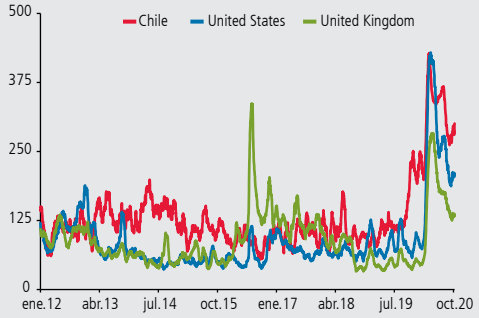
The daily economic policy uncertainty index (DEPUC) is a general measure of the perception of economic uncertainty based on the methodology developed by Baker et al. (2016). It is constructed based on tweets containing words related to the general economy, policy actions, uncertainty, or the current economic climate, published daily by the official Twitter accounts of various Chilean news and radio outlets from 2012 to date[1]/.

Intuitively, a higher coverage frequency for this set of words should reflect a higher degree of uncertainty on the part of

[1]/ This is known as the coverage frequency. Altig et al. (2020) use a similar methodology in the United States and the Untied Kingdomy.

agents regarding those issues, which can also be seen as a proxy for agents' risk aversion (Amstad et al., 2020) and thus for the local economy's vulnerabilities in this area[2]/.

FIGURE I.18
Daily economic policy uncertainty index (*)
(index: January 2012=100)



(*) 30-day moving average. Lower (higher) index values indicate a lower (higher) level of general uncertainty.

Sources: Becerra and Sagner (2020); www.policyuncertainty.com.

The evolution of the DEPUC suggests that since 2012, uncertainty has been low and relatively stable in the local economy (figure I.18). However, the materialization of the COVID-19 pandemic caused a significant increase in general uncertainty, which hit record levels in mid-May of this year. While this dynamic is also seen in other economies, local uncertainty was already high following the social protests in October 2019, based on the many news stories on developments in the local financial markets at that time (Becerra and Sagner, 2020).

Final reflections

The financial vulnerability of an economy is a multidimensional concept that requires a broad set of indicators for measuring and understanding its evolution over time.

The recent dynamics of the two indicators analyzed above suggest that while the general financial conditions in the local economy have improved since the last FSR due to the stimulus policies implemented, there are still high level of uncertainty and stress in key markets.

In particular, on the cutoff date of this Report, general uncertainty remains high relative to historical trends, based on news related to the development of the pandemic and the duration of relief policies implemented at the local and international levels , while volatility remains high in the foreign exchange and sovereign debt markets.

This situation represents a risk for the stability of local financial markets, to the extent that high levels of volatility and uncertainty could cause sharp changes in risk appetite, which would adversely affect the prices of various financial assets and thus limit financial access for households and firms.

[2]/ For more information on the words used in the construction of the DEPUC, see Becerra and Sagner (2020).

II. BORROWERS

Since the last FSR, economic activity has deteriorated with the materialization of the effects of the pandemic. In the case of firms, this scenario has translated into a reduction in revenue and an intensive use of the mitigation measures that have been implemented, leading to increased debt levels. Households, in turn, have been affected by the deterioration of the labor market. The resulting reduction in income has implied a deterioration of net savings and the use of the available support programs. While the policies that have been implemented have been effective in curbing the shock and its potential impact on the liquidity and solvency of many firms and households, they have also created a degree of vulnerability to more stressed scenarios, which would have to be faced from a weakened equity position. Consequently, the duration of the pandemic and lockdowns and the effectiveness of the applied measures will condition the materialization of risks.

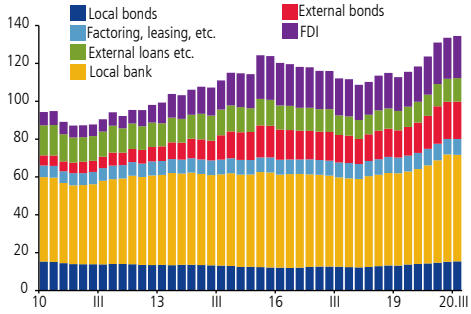
FIRMS

Since the last FSR, firms have faced significant financial difficulties due to the pandemic, which have been partially contained by the issue of debt and access to credit under favorable conditions. Consequently, their liquidity position has improved, but their leverage has increased.

Corporate debt reached 134% of GDP in September of this year, an increase of 3 percentage points (pp) relative to the first quarter (figure II.1). In the last year, debt grew 10.7%, which breaks down into 4.6% local debt and 6.2% foreign debt. The share of these components in total debt is 60 and 40%, respectively (table II.1).

A large share of the increased debt corresponds to exchange rate effects, especially in the foreign component. To isolate the valuation effects on the stock of debt, we calculate the annual change in the debt-to-GDP ratio, which was 13.7% in September of this year. This growth was explained—in decreasing order—by the depreciation of the peso, higher real local credit growth, and the drop in GDP (figure II.2).

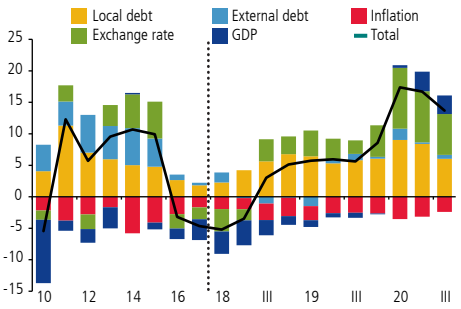
FIGURE II.1
Total corporate debt, by type of debt (*)
(percent of GDP)



(*) September 2020 estimated with preliminary data. Based on firm-level data with the exception of factoring, leasing, and other, securitized bond, and commercial papers. For more details on the series and metodologhy, see the figure set

Source: Central Bank of Chile, based on data from the FMC.

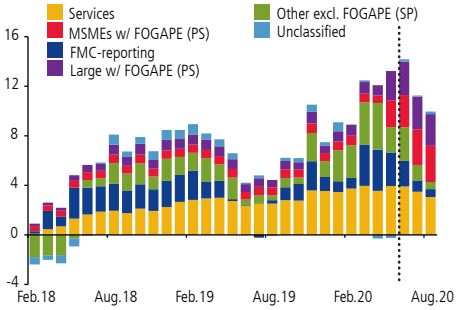
FIGURE II.2
Annual change in corporate debt-to-GDP ratio (*)
(percent)



(*) September 2020 data are an estimate of financing sources based on the data reported to date. External debt includes external bonds, external loans, trade credit, and FDI. Annual data through 2017; quarterly data thereafter. Exchange rate is the average of the last month.

Source: Central Bank of Chile, based on data from Achef and FMC.

FIGURE II.3
Contribution to the growth of local bank debt (*)
(real annual change, percent)



(*) Excludes individuals. The figure identifies firms in productive sectors (PS) that do not report to the FMC and that received FOGAPE loans between May and August 2020 and shows their contribution to growth before and after May 2020 (dotted line). Strata are calculated based on sales microdata for December 2019 (Form 29, IRS). MSMEs include firms that are not assigned to a stratum. Debt includes contingent loans and foreign trade credit. Definition of FMC-reporting firms includes direct subsidiaries.

Source: Central Bank of Chile, based on data from the FMC and IRS.

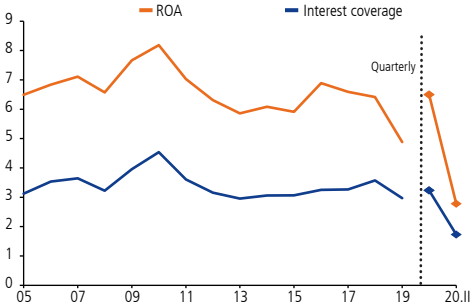
TABLE II.1
Sources of financing (1)
(real annual change, percent)

	2012 IV	2013 IV	2014 IV	2015 IV	2016 IV	2017 IV	2018 IV	2019 IV	2020 I	2020 II	Share	Contribution to growth
Local debt	7.2	6.9	1.8	3.8	1.9	1.4	8.3	7.2	11.0	7.4	59.6	4.6
Bank and other loans	9.4	7.3	2.9	5.4	1.1	0.8	7.9	6.7	10.6			
Commercial loans (2)	9.5	7.4	2.4	5.8	0.8	-0.2	7.9	7.1	11.6			
Factoring, leasing, etc. (3)	8.5	6.9	6.1	3.0	3.1	7.4	7.5	4.4	4.8			
Local publicly traded securities (4)	-0.8	5.3	-2.8	-3.3	5.6	4.0	10.2	9.4	12.6			
External debt (5)	9.4	26.7	27.3	22.2	-6.0	-5.2	3.8	11.1	26.9	16.0	40.4	6.2
Loans (6)	0.3	2.9	15.2	4.3	-8.1	-19.7	6.9	10.4	21.6			
Trade credit	-19.1	-0.7	-3.7	-1.2	-4.1	7.0	14.1	-4.2	-1.0			
Bonds	13.6	42.3	40.8	21.8	-7.2	-0.1	7.0	18.0	39.1			
FDI-related loans	36.0	48.4	33.1	37.8	-4.4	-4.1	-1.2	8.4	23.7			
Exchange rate	-7.7	11.0	15.8	14.9	-5.3	-4.5	7.1	13.0	25.7	7.6		
Total	**7.9**	**12.9**	**10.5**	**11.0**	**-1.5**	**-1.3**	**6.5**	**8.7**	**16.9**	**10.7**	**100.0**	**10.7**

(1) Based on firm-level data with the exception of factoring, leasing, etc., securitized bonds, and commercial papers. Excludes commercial student debt.
(2) Includes commercial loans to firms and individuals, foreign trade loans, and contingent loans. Excludes personal student loans.
(3) Factoring includes banks and nonbank institutions. Includes life insurance company debt (mainly leasing).
(4) Corporate bonds, securitized bonds with a nonbank underlying asset, and commercial papers.
(5) Converted to pesos using the average exchange rate in the last month of each quarter.
(6) Includes multilateral organizations.
(7) September 2020 estimated with preliminary data.

Source: Central Bank of Chile, based on data from the FMC.

FIGURE II.4
Historical evolution of indicators (*)
(times, percent)



(*) ROA: Earnings before interest and taxes (EBIT) accumulated in twelve months over total assets. Coverage: EBIT over annual financial expense. Consolidated data. Excludes state-owned firms and firms in the financial services and mining sectors.

Source: Central Bank of Chile, based on data from the FMC.

Among larger firms, overseas debt issues continued to be more dynamic than local issues, largely due to the funding of state firms. In the local market, corporate issues have been limited, in line with the slower economic activity and investment needs. In general, firms have maintained access to bond markets, prioritizing the holding of liquid assets, due to either precautionary motives or low opportunity costs (chapter I and Monetary Policy Report, September 2020).

With regard to local bank debt, commercial debt was highly dynamic in the second half of 2020, especially among small and medium-sized firms that typically only use bank financing. This group has received a positive response from the banking system, supported by the coordinated implementation of liquidity and guarantee policies and regulatory easing by the Finance Ministry, the Financial Market Commission (FMC), and the CBC. The greater growth of debt is mainly explained by the high volume of loans with the FOGAPE-COVID state guarantee and the favorable conditions, available since May of this year (figure II.3 and chapter III).

The large share of foreign direct investment (FDI) and the low currency mismatch of reporting firms continue to be the main mitigators of credit risk for firms' foreign debt.

In June 2020, 41% of the external debt of firms that report their financial statements to the FMC corresponded to loans associated with FDI, which—given the parent-subsidiary relationship—have a lower degree of enforceability than loans from a financial institution. Foreign exchange risk remains low despite the strong depreciation of the local currency in the last year, given that firms have a minimal currency mismatch. In fact, on aggregate, reporting firms

have a net asset position in foreign currency, at around 1% of assets. Thus, the foreign currency liabilities of this group represent around 10% of their assets, while their foreign currency assets correspond to 7%, and they have net asset position in derivatives of an additional 4%. In terms of distribution, the set of firms with a mismatch of over 10% of their assets does not exceed a tenth of the total assets in the sector.

The financial indicators of reporting firms deteriorated in the second quarter, in line with the drop in economic activity. Nevertheless, their liquidity indicators improved.

Firms' return on assets (ROA) was 2.8%, while interest coverage was 1.7 times, down from 6.5% and 3.2 times, respectively, one year earlier (figure II.4). There has not been a deterioration of this magnitude since the 1990s, and it is associated with the lower revenues deriving from the pandemic. This was reflected in a generalized reduction in earnings, despite the containment of financial expense relative to previous quarters.

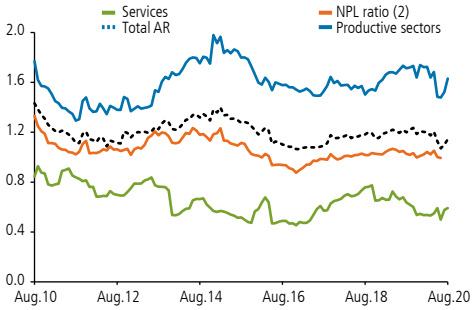
To gauge the size of this trend, the number of firms that recorded a drop in their interest coverage was quantified based on historical information from the individual financial statements of firms that report to the FMC.[1]/ The results show that in crisis periods, the number of firms that cannot cover their expenses increases significantly, and the current crisis has recorded the biggest increase in history. This is because even the largest firms, with assets of over CLP 1.0 trillion, have reported a drop in earnings.

Liquidity indicators, however, improved in the second quarter of 2020, because the firms' increased indebtedness was associated with an increase in their current assets. Thus, between late 2019 and the second quarter of 2020, cash flow increased from 1.5 to 2.1% (as a percentage of assets), driven by an increase in financing flows, from 1.5 to 3.1% of assets, and limited investment flows, which increased slightly from 3.5 to 3.8% of assets in the same period.

Business bankruptcies and liquidations and traditional default indicators have been stable, thanks to debt rescheduling and the current credit facilities.

Despite the significant economic contraction and the deterioration of financial indicators, there has not been a significant increase in the number of businesses that started bankruptcy proceedings. In particular, liquidations are concentrated in voluntary filings and people subject to the first-category income tax.[2]/ Moreover, the arrears rate (AR) has been fairly stable (figure II.5). These results reflect the mitigation measures implemented by the regulators, including facilities that support loan deferral by the banking system. These operations have been concentrated in firms that make up the banks' collectively assessed commercial loan portfolio, where around 40% of the loan stock has

FIGURE II.5
Arrears rate (1)
(percent of loans)

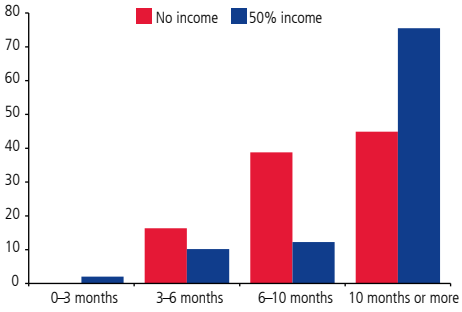


(1) Loans exclude contingent loans. The classification of economic activity is from a 2019 directory. The results are subject to change as the data are updated. Includes loans that are not classified by sector and personal loans.
(2) In the nonperforming loan ratio, loans include contingent loans, but not foreign trade credit.

Source: Central Bank of Chile, based on data from the FMC and IRS.

[1]/ The exercise used historical data from March 1991 to March 2020.
[2]/ At the same time, it is possible that the associated procedures cause a lag in the materialization of bankruptcies. The September Monetary Policy Report indicates that a substantial number of firms reported either a significant reduction in sales or no sales at all, which could point to a significant deterioration.

FIGURE II.6
Months of cash flow
(percent of total firms)



Source: Central Bank of Chile, based on data from the FMC.

been rescheduled. When given the possibility of deferring installment payments under favorable interest rate conditions, firms that have suffered a drop in revenue have rescheduled their payment obligations, thereby reducing their financial burden and increasing their payment capacity.

However, under a scenario in which the recovery is slower than currently projected, the temporary relief provided by this measure could lose its effectiveness. In that case, firms that rescheduled their loans could behave more in line with historical data for both Chile and other jurisdictions. That is, the probability of default decreases at the time of the deferral but increases with the passing of time. Thus, the potential increase in default of these firms will depend on the rate and magnitude of the economic recovery and on access to new facilities, in the event the scenario makes it necessary to extend or adjust them (box III.1).

STRESS TESTS ON FIRMS

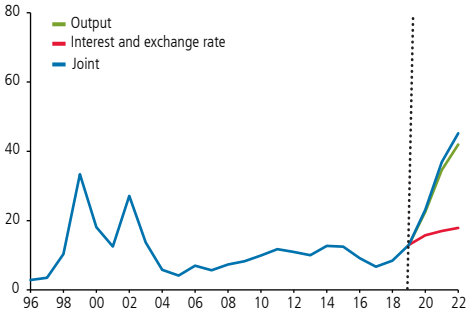
Stress tests, involving a prolongation of the low sales or a sharper output contraction than projected, indicate that even though liquidity has improved, a significant fraction of firms could see their debt repayment capacity and solvency compromised.

This section discusses various stress tests carried out to analyze the impact of different shocks on the vulnerability of corporations that report to the FMC and firms with only local bank debt: (i) liquidity position in the face of a drop in revenue; (ii) a reduction in profitability under a scenario that replicates crisis periods; and (iii) default in the banking system in the event of a drop in the credit quality of the portfolio.

To assess firms' liquidity position in the face of a prolongation of the low sales in the corporate sector, a stress test was conducted on reporting firms using data for June of this year. In the stress scenario, firms cease to take in revenue on the date of the baseline information, so as to measure the number of months during which they would be able to pay their expenses. The results for cash flow indicate that under the scenario described above, 16% of firms would only be able to cover their expenses for six months or less if they had no revenue. This share is significantly lower than the 53% reported in the last FSR, based on data for March (figure II.6)[3]/. At the same time, there was a significant increase in the number of firms that could cover their expenses for 10 months or more in the absence of revenue, from 7% in the last FSR to 45% currently. This improvement is due to an increase in the average liquidity position, despite substantial heterogeneity among sectors.

In an alternative exercise to assess the financial situation of the same group of reporting firms, the stress scenario is defined as an output contraction on par with the Global Financial Crisis, an increase in funding costs (25 bp annually on bonds and up to 150 bp annually on bank debt), and a 20%

FIGURE II.7
Firms with losses, by type of shock (*)
(percent of total assets)



(*) Based on annual individual firm-level data. Excludes state-owned, mining, and financial firms. The effects of the shocks are analyzed in a three-year horizon, starting at the dotted line. There are reporting problems in 2009 due to the transition from FECU to IFRS accounting standards. For more details on the series and methodology, see Espinosa et al. (2017).

Source: Central Bank of Chile, based on data from the FMC.

[3]/ In the stress test reported in the last FSR, the sample consisted of 30 reporting firms, whereas the current tests include 50 firms.

annual exchange rate depreciation. Under this scenario, and starting from the companies' balance sheet position in December 2019, corporate earnings are simulated to determine the share of firms that would incur losses (Espinosa et al., 2017). The results reveal a worsening of firms' financial position relative to the last FSR, which exceeds the deterioration recorded in prior periods of fragility. Specifically, the estimates indicate that 37% of firms that report to the FMC would record losses at year-end 2021 under the stress scenario described above, where almost all of this result is explained by the output shock (figure II.7). Thus, despite the better liquidity position, the continuation of the crisis could cause losses that impede the recovery of these firms.

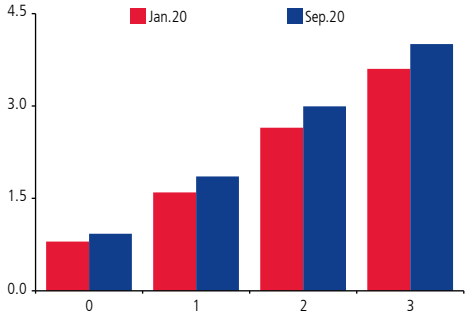
Among firms that depend exclusively on local bank financing, the current mitigation policies have helped keep risk indicators low, but new vulnerabilities could be generated under a scenario in which the crisis lasts longer than projected.

The various policies that have been implemented have mitigated the effects of the pandemic, reducing the risk of bankruptcy or business closure. These measures have helped resolve some liquidity problems, but at the same time they imply an increase in the firms' leverage. This increase would not represent higher risk if the drop in revenue were short-lived and the recovery dynamic. However, the prolongation of the pandemic beyond current projections could raise significant challenges, to the extent that the policy space has shrunk.

The increase in the debt level could expose the banking sector to higher default, in the event of a slower economic recovery scenario. In September, debt-at-risk (DaR) increased slightly for firms in the banks' individually assessed portfolio, relative to the last FSR.[4]/ This increase is explained by the banking sector's greater exposure to companies with lower credit quality. Consequently, the DaR could increase significantly in a stress scenario that assumes a generalized deterioration in corporate risk ratings due to an economic contraction—without taking into account mitigators such as state guarantees. In an intermediate scenario—with an increase in the default probability consistent with a rating downgrade of two notches—the DaR could reach 3% of GDP, versus 2.6% calculated for January (figure II.8). At the same time, the increase in the default probability is likely to be heterogeneous among firms. In particular, in a scenario in which the economic recovery is slower than expected, the default probability is estimated to be higher for more leveraged firms than for firms with a lower debt-to-sales ratio (box II.1).

In sum, the economic impacts of the pandemic cannot yet be quantified, given that events are still unfolding and the mitigators remain in place. The measures adopted by the authorities starting in March have been effective in increasing firms' liquidity and reducing the effect of lower output on default. However, the uncertainty surrounding the duration of the pandemic and the rate of the economic recovery remains high. The depth of the output contraction and

FIGURE II.8
Commercial debt-at-risk (*)
(percent of GDP)

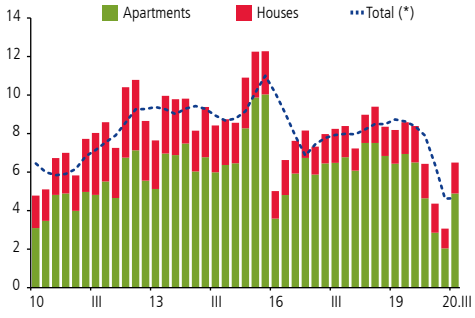


(*) The value of commercial loans classified in categories A1–A6 weighted by the equivalent default probability of different credit ratings.

Source: Central Bank of Chile, based on data from the FMC.

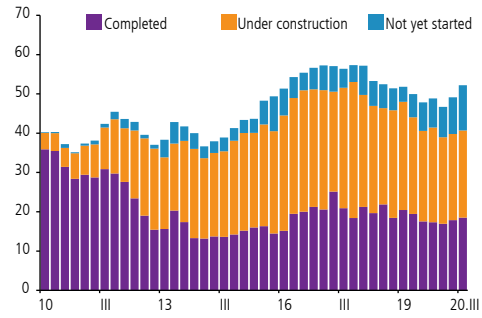
[4]/ The debt-at-risk exercise is based on the normal individually assessed portfolio, which represents 80% of the banks' commercial loans. Within this normal portfolio, debtors are given a risk rating that can be mapped with external rating agencies' classifications. By relating the latter to Moody's default probability measure, it is possible to weight the default risk of these firms, ob-taining the total debt-at-risk. For more details, see the FSR for the first half of this year.

FIGURE II.9
New home sales in Greater Santiago
(thousands of units)



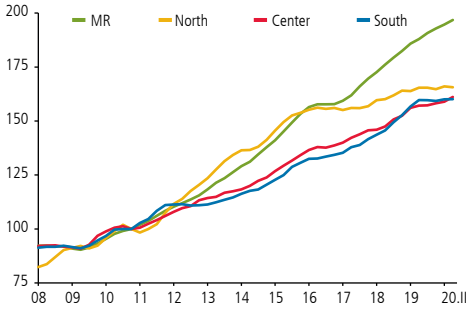
(*) Annual moving average.
Source: Central Bank of Chile, based on data from the CChC.

FIGURE II.10
Available supply of new homes in Greater Santiago
(thousands of units)



Source: Central Bank of Chile and CChC.

FIGURE II.11
Home prices by macro-region (*)
(index: 2010=100, 2020.Q1)



(*) Annual moving averages.
Source: Central Bank of Chile.

the debt expansion have increased the vulnerability of these agents and put pressure on the banks' balance sheet. Nevertheless, in the case of FOGAPE-COVID loans, the existence of state guarantees reduces the risk for the banking system, although it increases the state's contingent liabilities (box II.1). Going forward, it will be important to monitor the reactivation, its effects on firms' income, the withdrawal of the implemented policies, how firms respond when faced with paying their deferred loans, and the effects on the banking system and fiscal spending.

REAL ESTATE SECTOR

Since the last FSR, activity in the residential real estate sector has slowed due to the current situation, although there has been a degree of recovery in recent months.

As reported in the last FSR, the residential real estate sector continues to be less dynamic than in previous years, affected by both the October 2019 social crisis and the current pandemic and economic contraction. This context has forced companies in the sector to make adjustments in their operations, in order to face lower sales and project delays. At the same time, the slower economy and the deterioration of the labor market have increased slack (vacancies) and caused housing prices to become less dynamic, even falling in the rental market.

These trends heighten a vulnerability discussed in past Reports: namely, the high share of leveraged retail investors in the mortgage portfolio. Specifically, the deterioration of the labor market could affect not only those who directly lose their source of employment, but also those who depend on rent payments to service their mortgage debt. The deployment of mitigators has been effective in preventing this vulnerability from translating into massive default episodes.

With regard to the nonresidential real estate market, in particular, the prime office segment, the pandemic hit at a time of low slack, which attenuated the impact on rental prices. However, the increase in the share of remote work suggests a lower demand for physical office space, which could gradually become evident as rental contracts come up for renewal.

New home sales in the Metropolitan Region (MR) stabilized in the third quarter of 2020, with a slowdown in the growth of housing prices and a drop in rental prices.

Data from the Chilean Chamber of Construction (CChC) indicate that new home sales decreased 23% in the third quarter of 2020 relative to the previous year, which represents an improvement over the 64% drop in the previous quarter (figure II.9). Both the less dynamic second quarter and the partial recovery in the third quarter were strongest in the apartment segment.

With regard to the stage of construction of the units sold, the share that was close to delivery (completed or nearly completed) was stable at around 40%, while the sale of homes in the planning phase increased, reaching almost 30% of total sales. On the supply side, the number of available new homes in the

MR grew to over 50,000 units, mainly in the apartment market. Despite the increased supply, a large percentage is in the initial stages of construction (figure II.10), which should mitigate the liquidity needs of companies in the sector. However, the recent startup of projects that were put on hold, combined with the slower sales rate, could cause an aging of the stock, creating incentives for companies to offer discounts and thus putting pressure on prices.

As mentioned in the last FSR, the liquidity needs of the different companies played an important role in the current situation. Thus, the duration of the pandemic and the effectiveness of the business support measures will be key in the recovery of the sector. Market information suggests that there could be significant adjustments in investment levels, which should materialize gradually with the non-renewal of projects once those that are currently under construction are finished. Increased activity in the subsidized segment could offset this trend.

According to various sources, the growth of housing prices was stable at around 4% in real annual terms in the second quarter. This represents a slowdown from previous years, a trend that began at the start of the year. This pattern is similar for the different regions of the country and across different types of housing (figure II.11).

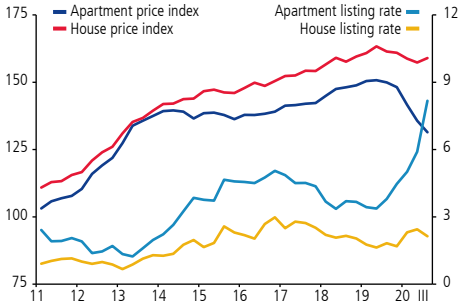
In the residential rental market, prices generally fell significantly in the third quarter, across communities and for all types of homes. These lower prices have occurred in a context of greater slack—as indicated by the listing rate, a measure of homes available for rent based on the number and duration of listings published on a website.[5]/ The higher listing rate is mainly concentrated in apartments and was driven by a longer duration of published ads (figure II.12). This trend of lower rental prices and greater market slack is found throughout the main conurbations in the country. The combination of lower rental prices and stable sales prices has reduced the gross profitability of the buy-to-rent strategy, which was under 5% in real annual terms in the third quarter—the lowest profitability level since 2012. The decline in profitability in recent years coincides with a period of falling lending rates and a generalized reduction in the profitability of different asset classes.

The recent deterioration of the residential rental market has diminished the payment capacity of mortgage borrowers who depend on rent to make their mortgage payments (leveraged retail investors). In this sense, the mitigators that have been implemented, such as the job protection program, the relaxation of the regulations on rescheduling installment loans, and the deferral of mortgage payments, have contributed significantly to alleviating these pressures and containing the default level.

Despite the substantial drop in mortgage interest rates, the banking system has adopted a more cautious lending attitude in the face of higher perceived risk.

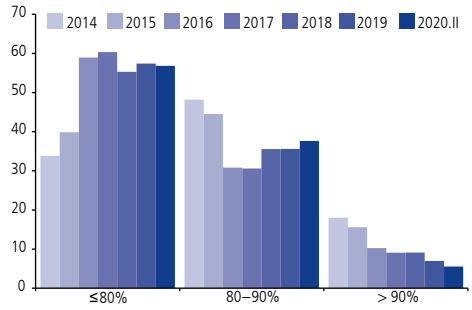
[5]/ www.mercadolibre.cl (Portal Inmobiliario).

FIGURE II.12
Rental prices and listing rate
(fixed-based index: 2007Q1=100, percent)



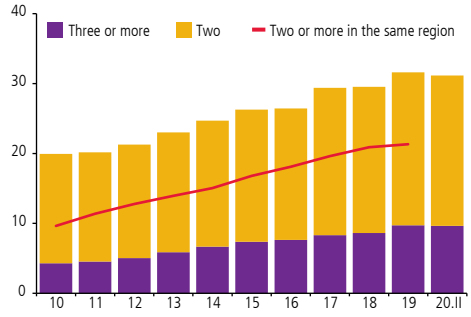
Source: Central Bank of Chile, based on data from www.mercadolibre.cl (Portal Inmobiliario).

FIGURE II.13
Loan-to-value ratio
(percent of mortgage deeds)



Source: Central Bank of Chile, based on data from the IRS.

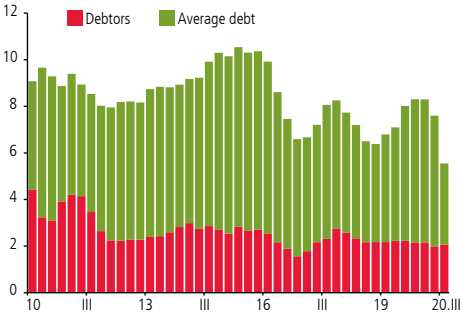
FIGURE II.14
Debt by number of loans and mortgage transactions per debtor (*)
(percent of total)



(*) December of each year. Bars: data on number of bank mortgage loans weighted by debt (FMC). Lines: data on number of mortgage transactions in a given region weighted by debt (IRS).

Source: Central Bank of Chile, based on data from the FMC and IRS.

FIGURE II.15
Bank mortgage debt
(real annual change, percent)



Source: Central Bank of Chile, based on data from the FMC.

The growth of mortgage debt continued to slow in the third quarter of 2020, to a real annual rate of 6%, driven mainly by smaller average loan amounts. This is in line with market information reporting a drop in the sale of higher-priced homes. Interest rates on mortgage loans have fallen in recent months, approaching the levels recorded in mid-2019 (figure II.15 and chapter III).

Data for June 2020 indicate that the share of loans with a loan-to-value (LTV) ratio between 80 and 90% increased slightly relative to 2019 (figure II.13). In the Bank Lending Survey (BLS) for the third quarter of this year, banks report that demand continues to weaken, while the loan supply remains somewhat tighter, in the face of higher perceived risk and a weaker economic environment.

The share of borrowers with more than one mortgage has decreased slightly since the end of last year, to around 30% of the stock of bank mortgage debt as of the second quarter (figure II.14). This is in line with the lower level of sales reported in recent months. Similarly, the share of borrowers with more than one mortgage-financed home in the same region was stable at around 20% of total mortgage customers at year-end 2019.

Among real estate companies that report to the FMC, contract cancellations increased almost 20% in annual terms in the second quarter of 2020, although the distribution was wider than in previous periods (statistical appendix). Among real estate and construction companies that do not report to the FMC, which are mostly financed by the local banking system, default indicators increased in the third quarter of 2020 .

In the nonresidential real estate market, office rental prices were stable, while the vacancy rate increased.

The vacancy rate for A/A+ offices was 4.8%. This is mainly associated with the scarce addition of new supply. For class B offices, the vacancy rate reversed its downward trend, settling at 7.3% (statistical appendix).

Due the scarce entry of new projects in recent years, this sector is in a relatively favorable position during the current pandemic in terms of market slack. However, the increase in remote work and the need for greater social distancing in enclosed spaces will bring changes and adjustments to this market, which will gradually become apparent as contracts come up for renewal.

In sum, activity in the residential real estate sector has been slower than in recent years. Although there have been some signs of improvement in recent months, market slack has increased significantly. The associated drop in rental prices and the increase in available units will cause liquidity pressure for leveraged retail investors. The main risk for the sector is that the pandemic will last longer than projected, which would push back the recovery and keep sales low. This would, in turn, make inventory management difficult, put downward pressure on prices, and affect the solvency of companies in the sector.

HOUSEHOLDS

In the current scenario, households continue to face a significant reduction in income due to the deterioration of the labor market. A wide range of relief measures have been deployed to mitigate the adverse effects of this situation.

Since the last FSR, household debt has continued the less dynamic trend started late last year, growing 2.4% in real annual terms in the second quarter of 2020 (table II.2) This is lower than the growth rate recorded in the same period of 2009. This downward trend has coincided with the implementation of lockdown measures, lower output, and uncertainty regarding the future of the pandemic, factors that together have reduced family consumption and, at the same time, increased their incentives to save for the future when possible.

The slowdown in mortgage debt intensified, with a real annual growth rate of around 6% in the third quarter (figure II.15). This trend is mainly explained by smaller average loan amounts, where growth rates have slowed in particular for mortgages over 10,000 UF (figure II.16). This is in line with the lower concentration of mortgage debt in recent quarters (figure II.14) and the reduction in sales of higher-priced homes.

TABLE II.2
Household debt
(real annual change, percent of GDP)

Indicador	2012 IV	2013 IV	2014 IV	2015 IV	2016 IV	2017 IV	2018 IV	2019 I	2019 II	2019 III	2019 IV	2020 I	2020 II	Cont. al crec.	Part.
Real annual growth															
Mortgage	**7.6**	**8.9**	**9.9**	**9.6**	**6.7**	**8.1**	**6.5**	**6.9**	**7.2**	**8.0**	**8.1**	**7.8**	**7.1**	**4.0**	**60.6**
Bank	8.3	9.1	10.5	10.6	6.6	8.3	6.4	6.8	7.1	8.0	8.3	8.3	7.6	4.0	55.3
Nonbank	2.5	6.9	4.7	1.1	7.9	6.4	7.8	8.4	7.4	7.9	5.7	2.6	1.9	0.1	5.3
Non-mortgage	**6.9**	**8.4**	**3.5**	**5.7**	**6.8**	**6.9**	**7.3**	**8.2**	**6.8**	**6.7**	**4.6**	**0.6**	**-3.9**	**-1.7**	**39.4**
Total	**7.3**	**8.7**	**7.1**	**7.9**	**6.7**	**7.6**	**6.8**	**7.5**	**7.0**	**7.5**	**6.6**	**4.7**	**2.4**	**2.4**	**100**
Relative to GDP															
Mortgage	21	22	24	25	26	27	28	28	28	29	30	30	31		
Non-mortgage (*)	17	18	18	18	19	19	20	20	21	21	21	20	20		
Total	**38**	**40**	**42**	**43**	**45**	**46**	**48**	**48**	**49**	**49**	**50**	**50**	**51**		

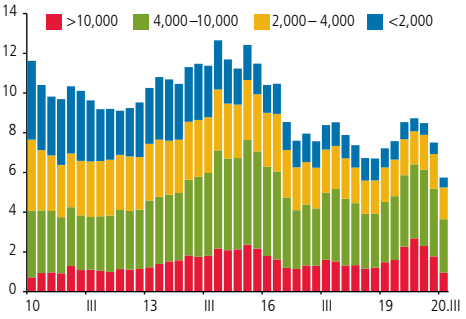
(*) Includes consumer bank debt; debt with retailers, family compensation funds (CCAF), and S&Ls; student loans (government-backed bank and Treasury loans, private bank loans, and CORFO); leasing and insurance companies; car dealerships; and the central government (FONASA, etc.). Starting in 2015.II, data for Cencosud are estimated based on Scotiabank's financial statements.

Source: Central Bank of Chile a base de información de la FMC, DIPRES, and SuSeSo.

Nonmortgage debt recorded a real annual growth rate of –3.9% in the second quarter. This contraction of debt in the household sector is mainly explained by the bank component (figure II.17).

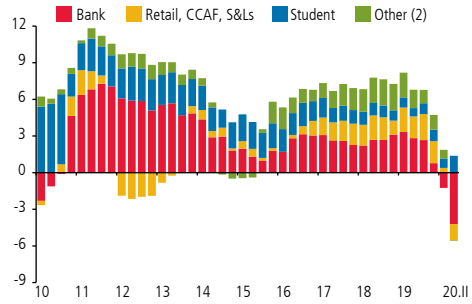
The lockdown measures to contain the pandemic have caused a major drop in employment and made it difficult for households to generate income. Lower-income households have been particularly hard hit. To face this scenario, households have used savings, reduced expenses, and deferred payments

FIGURE II.16
Mortgage debt by size of loan, in UFs
(real annual change, percent)



Source: Central Bank of Chile, based on data from the FMC.

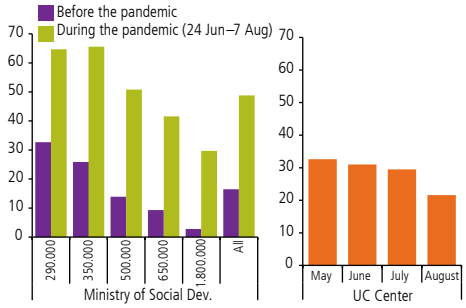
FIGURE II.17
Non-mortgage debt (1)
(real annual change, percent)



(1) As of the fourth quarter of 2019, the total stock of non-mortgage debt is made up of 20% bank consumer loans, 9% retailers, family compensation funds (CCAF), and S&Ls, 7% student loans, and 6% other
(2) Other includes leasing and insurance companies, car dealerships, and the central government (FONASA, etc.).

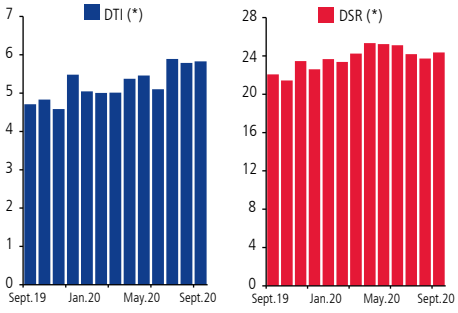
Source: Central Bank of Chile, based on data from the DIPRES, FMC, and SuSeSo.

FIGURE II.18
Households that cannot meet their expenses
(percent of households by group or date)



Source: COVID Social Survey (Ministry of Social Development) and COVID Employment Survey (UC Center).

FIGURE II.19
Wage earners with bank debt
(times, percent)



(*) DTI: Times monthly income. DSR: Percent of monthly income.

Source: Central Bank of Chile, based on data from the FMC and SuSeSo.

(box III.1), as well as increased their debt when possible. Surveys indicate that the fraction of households that are not able to meet their expenses increased significantly around mid-year. In particular, a survey carried out by the Ministry of Social Development between late June and early August showed that around half of households could not meet expenses, versus just 17% a year ago (figure II.18). At the same time, the longitudinal COVID employment survey by the UC Center shows an improvement in expense coverage between May and August, with a decline in households that could not cover their expenses from 33 to 20%. This coincided with the implementation of new family support measures and the lifting of lockdown measures.

The relief measures aimed at households have stabilized their financial burden, but their indebtedness has increased due to a drop in income combined with stable debt.

Relative to the last FSR, household debt has been stable at around 50% of GDP at the aggregate level. However, families' debt-to-income (DTI) ratio has risen, due to the reduction in the denominator and the effect of lower amortization for those who deferred their loans. Thus, the ratio increased from 5.0 to 5.8 times between March and September of this year, for the average wage earner with bank debt. At the same time, the deferral of loan installment payments has temporarily stabilized the household financial burden or effective debt service, which offset the lower income, so the debt service ratio (DSR) was relatively stable, at just under 25% of monthly income for the average debtor (figure II.19).

The direct support programs, subsidies, payment deferrals, and other measures have been widely used by households and have been crucial for mitigating the adverse shock and preventing a higher default level. In the case of mortgage rescheduling, this has led to an across-the-board improvement in the payment situation, bringing effective default indicators to historically low levels (figure II.20). This contrasts with higher bank provisions (chapter III), which implicitly incorporate the unmaterialized credit risk that could emerge once the deferrals expire and the borrowers must start making payments again. Both the international and local experience show that, historically, rescheduling has been highly effective at mitigating credit risk in the short term. However, default may eventually materialize, limiting future access to credit (Bergant and Kockerols, 2020; Córdova and Toledo, 2020). Thus, the application of a universal rescheduling policy, while reducing credit risk today, could translate into massive default episodes down the road, which would be very costly for both borrowers and lenders. This could affect the lending capacity of the banking system (box III.1).

The extensive deployment of mitigation measures has contained the increase in bank default among households.

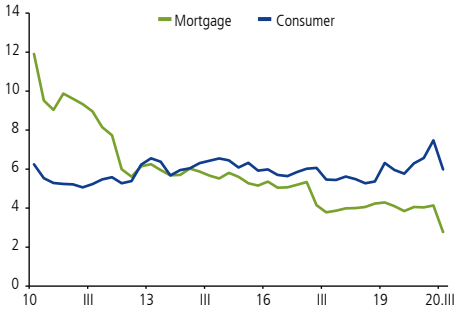
The consumer loan default rate has been around its historical average, with a recent decline that coincided with the withdrawal of pension funds in early August. Thus, as of September, around 6% of bank consumer loan borrowers had at least one unpaid installment that was more than three months past due. In contrast, mortgage default has followed its downward secular trend, reaching

historical lows of under 3% of bank mortgage borrowers in September (figure II.20). The implementation of relief policies has been effective in offsetting the loss of income and allowing the deferral of loan payments, which has prevented bank default.

The mitigators have been effective in supporting household finances during the crisis, but they could create vulnerabilities in the event the pandemic is prolonged. The use of long-term savings has eroded the net asset position of families, which will affect their financial situation in the future.

The withdrawal of a share of pension fund savings was approved by the National Congress as a one-time exceptional measure, in response to the drop in income experienced by many households. A large number of people have used this facility: as of the cutoff date of this Report, nearly 90% of pension system affiliates had applied to withdraw funds from their mandatory individual capitalization accounts. Around half of these affiliates have access to the banking system. Internal estimates for this group indicate that around 15% of the amount withdrawn from the capitalization accounts by people with debt in arrears in the banking system was allocated to regularizing the situation. A slightly larger share was allocated to some form of saving. Around half of the withdrawn funds was used for consumption, thus reducing the net saving of households by that amount. This reduction in pension saving produces a long-term impact through its effect on national saving and investment.

FIGURE II.20
Bank default rate by portfolio (*)
(percent of the number of borrowers)



(*) Three or more unpaid installments.

Source: Central Bank of Chile, based on data from the FMC.

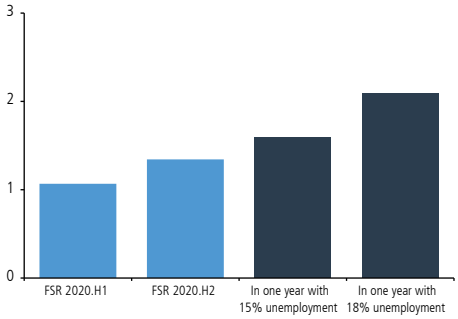
STRESS TESTS ON HOUSEHOLDS

The stress tests for analyzing the financial situation of households use two scenarios. In the first, the national unemployment rate rises to 15% in one year; in the second, the unemployment rate rises to 18% in one year. In both tests, job destruction is concentrated in the construction, trade, and other services sectors. These scenarios are not forecasts of the future direction of the labor market, but rather are designed to illustrate the importance of the income-loss channel for household finances and the associated effects on the banking system. At the same time, the tests are not entirely hypothetical, in that they reproduce, starting in the third quarter of 2020, the labor market trend recorded during the Asian crisis, starting in the first quarter of 1998.

In addition to the mitigation measures considered in the last FSR, the tests include the Job Protection Law, the pension fund withdrawal, the emergency family income, the middle-class relief transfer, and the rent subsidy. Under the scenario of lower net job creation, the mitigators tied to the Job Protection Law, the pension fund withdrawal, and the direct transfers have a larger relative impact.

The underlying model considers two phases. In the first, the individual job destruction probability is correlated with worker characteristics and the type of relationship with the employer. In the second phase, the corresponding default probability is correlated with the job-loss probability, income level, and other controls. This framework is used to carry out a simulation using administrative

FIGURE II.21
Household bank debt-at-risk (*)
(percent of GDP 2019)



(*) Household bank debt (consumer and mortgage) was 37% of GDP and 40% of total bank loans at year-end 2019.

Source: Central Bank of Chile, based on data from the FMC.

data on existing bank debt and employee-employer relationships in the second quarter of 2020 (Córdova and Valencia, 2020).

The results show that since the last FSR, there would have been a slight increase in household debt-at-risk , from 1.1 to 1.2% of GDP (figure II.21). Given the implementation of new mitigators since then, the stress scenarios give results with lower debt-at-risk than in the last FSR.

Under the higher unemployment scenario (18%), the share of vulnerable individuals (DSR over 40% of income) would increase substantially. This would translate into an increase in default on bank debt, with debt-at-risk rising from 1.2 to 2.1% of GDP over the course of one year, which is similar to the level recorded during the Global Financial Crisis. Under the lower unemployment scenario (15%), the effects on credit risk would be substantially lower. Specifically, debt-at-risk would reach 1.6% of GDP, a half a percentage point lower than in the higher unemployment scenario. The lower job loss is more effective at reducing the credit risk of the mortgage portfolio, while the consumer debt-at-risk increases proportionally more.

In sum, households—like the rest of the economy—continue to face an adverse macrofinancial scenario due to the pandemic, although the materialization of risks has not increased significantly. The extensive deployment of mitigation measures has been effective in this respect, preventing the occurrence of massive default. In the current scenario, the main risk is the prolongation of the pandemic and the resulting delay in the economic recovery. New support policies must be carefully weighed in terms of their current and future costs, given that the buffer has shrunk and there is the possibility of adverse effects that hinder the recovery.

BOX II.1
EFFECTS OF FOGAPE-COVID LOANS ON FIRMS DURING THE PANDEMIC AND THE ASSOCIATED RISKS

Introduction

One of the policy responses designed to address the consequences of the pandemic on the financial situation of firms has been to increase access to financing through the banking system, by reactivating and/or modifying existing programs. In particular, the Small Business Guarantee Fund (FOGAPE) is a state instrument that has been redesigned to address the current situation. The FOGAPE operates by guaranteeing a percentage of the principal on loans granted by financial institutions to eligible firms under certain standards, allowing firms with insufficient capital to access financing.

Law 21,229 entered into force on 28 April, strengthening the FOGAPE fund to provide state guarantees on bank funding of working capital credit lines, or "COVID-19 credit lines." As of 1 September, 243,942 loans, totaling US$10.941 billion, have been granted under this program[1]/.

These resources have given firms liquidity to meet their working capital needs during the pandemic, which has contributed to keeping them in business. However, as was to be expected, this has translated into greater indebtedness, given that firms have experienced a significant drop in sales over the course of the year. This increased leverage could potentially translate into default if the pandemic lasts a long time[2]/. This box describes the effects of the firms' increased leverage due to access to FOGAPE-COVID loans and quantifies the potential credit risk associate with the continuation of the adverse economic scenario.

Data

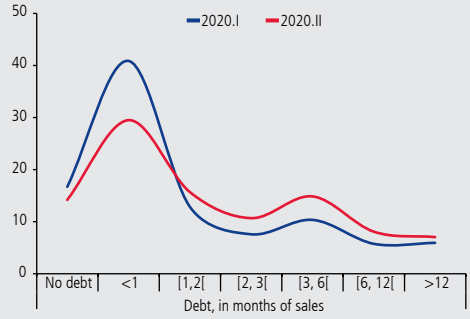
The analysis is based on firm-level microdata from FMC administrative records on debt and credit flows and from sales reported to the IRS on form 22. The analysis centers on trade, manufacturing, and construction firms that are financed primarily by local banks, which together represented 62% of total commercial bank debt to the productive sector in August 2020 and 84% of the flow of FOGAPE-COVID credit to productive sectors between May and August 2020.

Historical indebtedness and recent trends

As described in the September Monetary Policy Report, a large share of FOGAPE-COVID loans has been given to firms that have recorded a major drop in sales (Monetary Policy Report, September 2020, box II.2). While the policy has provided necessary liquidity relief, it has also led to a significant increase in the indebtedness of these firms, relative to historical patterns[3]/. This effect, which is part of the design of the measure, increases the firms' financial vulnerability to a scenario in which the economic recovery occurs later than expected.

The indebtedness distribution was relatively stable from 2012 to the first quarter of 2020. In June, however, there was a significant shift toward increased leverage, coinciding with the intensive provision of FOGAPE-COVID loans starting in May. Thus, the share of firms with bank debt exceeding one month of sales grew from 42% in the first quarter of this year to 56% in the second, almost entirely due to the higher debt level (figure II.22). This shift reflects firms' broad use of this program, which resulted in an unprecedented countercyclical trend in commercial loans (chapter III).

FIGURE II.22
Indebtedness distribution (*)
(months of sales, percent of firms)



(*) Indebtedness (in different currencies) of trade, manufacturing, and construction firms with local financing, divided by monthly sales.

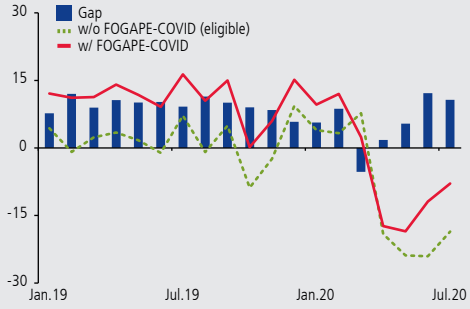
Source: Central Bank of Chile, based on data from the FMC and IRS.

[1]/ This Law increased the state guarantees to US$ 3 billion, to finance firms with annual sales of up to UF 1 million. For more information, see www.fogape.cl and www.hacienda.cl.
[2]/ For more information on the indebtedness of firms and its relationship with default, see the thematic chapter in the FSR, Second Half 2019, and Castro et al. (2019).

[3]/ This box uses the methodology described in Fernández and Vásquez (2019) to approximate indebtedness at the firm level. The estimation uses average sales (based on the VAT reported in IRS Form 22) in the last rolling year as the denominator and contemporaneous bank debt as the numerator.

While this increased leverage could constitute a vulnerability, it is important to note that the FOGAPE-COVID loans were given to firms with a better sales history that were up-to-date on their outstanding loans. A comparison of historical sales from 2019 to date for firms that received FOGAPE-COVID loans and eligible firms that did not receive them[4]/ shows that, on average, the former recorded higher growth through March 2020 (figure II.23). In March and April, sales fell for both groups, but the drop was proportionally larger among the firms that were given FOGAPE loans. This latter group also had a bigger sales recovery after they received financing[5]/.

FIGURE II.23
Monthly sales growth (*)
(real annual change, percent)

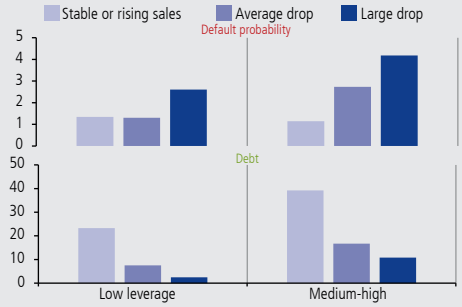


(*) "No FOGAPE-COVID (eligible)" corresponds to firms with annual sales of less than UF 1 million, which were eligible for a FOGAPE-COVID loan but did not receive one. "Gap" is the diference between firms with and without the FOGAPE loans. Includes trade, manufacturing, and construction firms, with local financing, that received a FOGAPE-COVID loan through August 2020.Source: Central Bank of Chile, based on data from the FMC y SII.

Relation between indebtedness, sales, and default probability in the trade sector

One of the sectors that has been hit the hardest by the pandemic is trade. These firms are mainly funded by banks, are representative of the total debt of firms, and have received a large share of the FOGAPE-COVID loans. This section provides a more detailed analysis of their payment capacity in a scenario of increased fragility due to low sales and high leverage.

FIGURE II.24
Distribution of default (upper) and leverage level (lower) and annual sales growth (*)
(percent)



(*) Default in one year (upper panel) and distribución of debt over the total (lower panel). The groups are separated by leverage segments (groups of bars, where low leverage is defined as less than three months of sales and medium-high comprises the rest) and annual sales growth (stable or rising sales: –2% and higher; average drop: a sales contraction of –20 to –2%; large drop: a contraction of over –20%). Indebtedness is calculated as debt over sales in the last 12 months. Default is defined as the current debt of firms that default in the coming 12 months and that today are not in arrears by more than 30 days. As of December 2010–2018; firms in the trade sector with local financing and sales of up to UF 1 million.

Source: Central Bank of Chile, based on data from the FMC and IRS.

There is a close relationship between falling sales, indebtedness, and default. Data for the 2010–18 period show that high leverage increases the probability of default during cyclical fluctuations, identified through sales dynamics. The default probability is concentrated in firms that recorded a large real annual contraction in sales (i.e., "large drop"), which was exacerbated among those that also had a higher indebtedness level (upper-right quadrant of figure II.24), where firms with a larger drop in sales have more than triple the default risk of firms with stable sales. At the same time, debt is mainly concentrated among firms that recorded real annual growth of sales (i.e., "stable or rising sales").

Finally, leverage and sales data are used to estimate bank debt-at-risk, defined as a firm's principal balance times its default probability. The analysis uses data for June 2020, covering trade-sector firms that qualify for the FOGAPE-COVID program and that have local funding. The results indicate that, on average, debt-at-risk—due to the higher leverage—would be around 2.5% of the sector portfolio, conditional on firms replicating their historical default patterns. However, it is important to note that the actual risk will depend not only on the factors mentioned above, but also on the evolution of the pandemic and the speed of the economic recovery.

[4]/ In addition to sales, eligible firms must meet reporting requirements, FOGAPE regulations, and the bank's lending policies. Applications that were rejected based on the latter (lending standards) represented 9% of the total operations through el 17 September 2020 (Source: ABIF).
[5]/ For more information, see Fernández and Vásquez (2020).

Conclusions

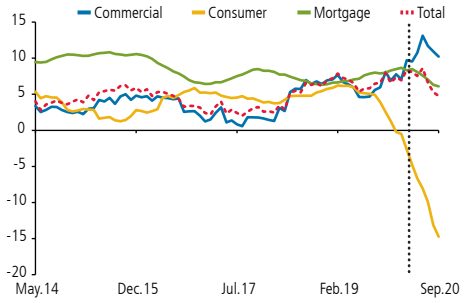
The state-guaranteed FOGAPE-COVID loans have allowed firms to cover their working capital needs during the pandemic. They have helped prevent a liquidity problem from becoming a solvency problem. However, this substantial credit flow has been provided in a context of low output, resulting in higher leverage, which has historically led to higher default rates.

This vulnerability has been mitigated by the risk profile of the firms that received the FOGAPE-COVID loans, which have a better credit and sales history than firms that did not receive the loans. Furthermore, the banks have increased their provisions to accommodate the expected impact on their balance sheets (chapter III). In a contrafactual scenario in which the loans had not been given, there would have been a greater deterioration of the commercial portfolio and a lower growth of loans.

Going forward, the main risk for the sector is that the pandemic will last longer than expected, which would push back the economic recovery. In this type of scenario, the narrower policy space will make it difficult to provide the necessary flow of credit. It is therefore crucial to monitor the credit risk of highly leveraged firms and the evolution of their sales in the coming months, given that it is precisely this group that has been the most financially vulnerable in past episodes of fragility.

III. LENDERS

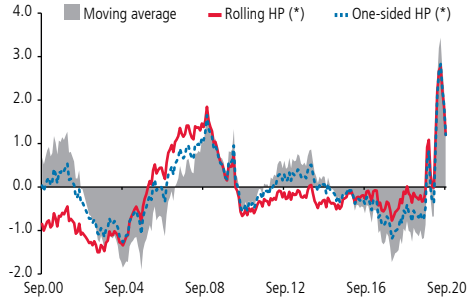
FIGURE III.1
Growth of loans (*)
(real annual change, percent)



(*) Based on individual financial statements. Vertical dotted line marks the cutoff date of the last FSR.

Source: Central Bank of Chile, based on data from the FMC.

FIGURE III.2
Gap between commercial loans and the IMACEC (*)
(number of standard deviations)



(*) Difference between the ratio of commercial loans to the IMACEC and its own trend, obtained using a Hodrick-Prescott (HP) filter with a lambda of 33 million in cumulative windows (one-sided) and 10-year moving windows (rolling) since January 1989.

Source: Central Bank of Chile, based on data from the FMC.

Bank lending has remained dynamic since the last FSR, with the exception of the consumer portfolio. In particular, the commercial portfolio has recorded strong growth despite the economic contraction, favored by the support measures implemented by the authorities. At the same time, credit risk provisions have increased, although the arrears rate has been stable. The banks' capital buffer is lower than in the past, but it has not deteriorated thanks to the capitalization decisions of some institutions and the effect of the state guarantees on risk-weighted assets. Stress tests reveal that a slower economic recovery could reduce the capital buffer significantly, which would limit the banks' capacity to continue sustaining credit growth. The banking system's exposure to nonbank lenders (NBLs) continues to represent a vulnerability, given their higher arrears rate and high exposure to agents that have been hit hard by the pandemic.

BANKING SECTOR

Commercial loans were more dynamic than in the last FSR, although they have recently slowed somewhat. The contraction of the consumer portfolio sharpened, while the mortgage portfolio slowed in recent months (figure III.1).

Since the last FSR, the commercial portfolio has performed countercyclically, far above its historical trend. This contrasts with past episodes of instability, when lending contracted significantly (figure III.2 and Monetary Policy Report, September 2020, box I.1). This dynamic performance is largely due to the implementation of special measures like the FOGAPE-COVID program and the Conditional Financing Facility for Increased Loans (FCIC), which mainly promoted financing for small and medium-sized firms. As of the cutoff of this Report, 13 banks have used FCIC1 and FCIC2 resources totaling around US$28.6 billion, and the volume of loans granted under the FOGAPE-COVID program reached US$11.0 billion. Thus, more than half of the portfolio growth rate in the recent period is explained by loans with a state guarantee (figure III.3), while the additional funds provided by the FCIC supported other loans and payment deferrals in the period.

Starting in July of this year, the growth rate of commercial loans began to ease somewhat, and the flow of loans declined substantially, mainly due to a slowdown in FOGAPE-COVID loans (figure III.4). According to the Bank Lending Survey (BLS) for the third quarter of this year, this at least partly reflects lower demand from large corporations and small and medium-sized enterprises (SMEs) (figure III.5). In particular, the banks signaled that in recent

quarters, loan applications slowed due to a reduction in investment, despite the increased funding needs for working capital in previous quarters. In the Business Perceptions Report (BPR) for this month, the surveyed firms expressed doubts about taking on new debt, given the persistent uncertainty about the recovery of the economy. Lending conditions remain somewhat tight, mainly due to the increased credit risk of borrowers in a climate of uncertainty, especially in sectors that have been hard hit by the pandemic (figure III.6 and November BPR).

The banking system's consumer loans[1]/ intensified the trend observed at the cutoff of the last FSR, going from a real annual contraction of 2.6% in the first quarter of 2020 to a real annual contraction of 14.7% in the third,[2]/ consistent with the downturn of the local economy and the deterioration of the labor market. This trend is similar to other periods of financial fragility, such as the Global Financial Crisis. In this regard, the results of the BLS for the third quarter of this year point to a reduced willingness to take on debt on the part of households and a tighter credit supply.

Mortgage loans have been less dynamic since the last FSR, with a real annual growth rate of 6% in the third quarter. This lower demand for mortgage financing, in a context of low interest rates, is attributable to the deterioration of the labor market and the lockdown measures, which reduced both home sales and mortgages (chapter II).

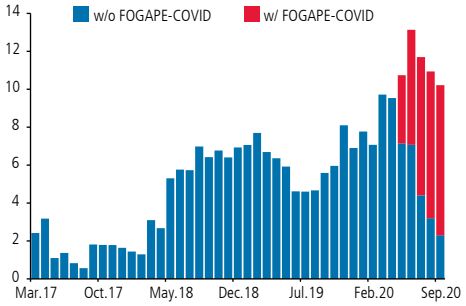
Since the last FSR, arrears were stable in the commercial portfolio and declined in the consumer and mortgage portfolios, despite the deterioration of the economy. Provisions increased, however.

The banking system's arrears indicators have not risen as in past periods of financial fragility, despite the deterioration of output and the labor market. In particular, arrears have been stable in the commercial portfolio and declined in the consumer and mortgage portfolios since the last report (table III.1). These trends reflect voluntary loan rescheduling, which has allowed borrowers to defer installment payments and thus reduced default. As of August, these deferrals, which were concentrated in the first month of the program, affected almost 7% of the commercial portfolio (37% of collectively assessed loans) and 39% of the mortgage portfolio, and they were focused on borrowers with larger principal amounts (figure III.7). Additionally, the recent reduction in household arrears coincided with the partial withdrawal of pension savings (chapter II).

However, the stock of specific provisions for the commercial portfolio—which considers a more forward-looking assessment—has maintained an upward trend since the last FSR, rising from 2.8% in March 2020 to 3.1% in September (table III.1). The banking system also increased the stock of additional provisions by more than US$180 million between March and September of this year. The substandard and nonperforming loan portfolios, which have a

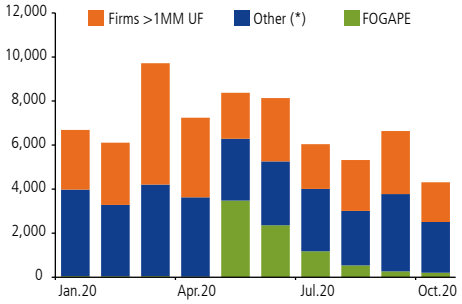
[1]/ Individual basis, excluding banking support services corporations.
[2]/ By product, credit lines recorded the largest real annual contraction, at over 40%, which reflects payment by people who took advantage of the early withdrawal of a share of their pension savings (see chapter I).

FIGURE III.3
Growth of commercial loans
(real annual change, percent)



Source: Central Bank of Chile, based on data from the FMC.

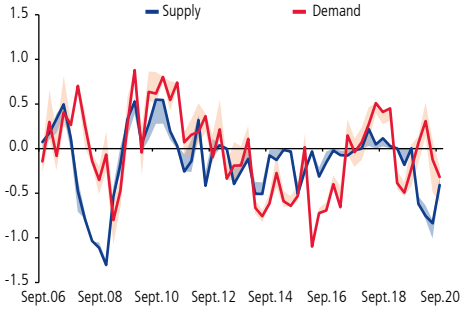
FIGURE III.4
Flow of commercial loans
(billions of pesos)



(*) Includes unclassified firms.

Source: Central Bank of Chile, based on data from the FMC.

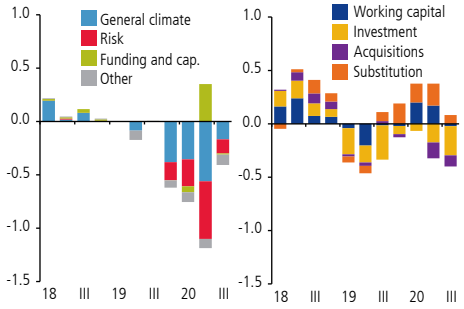
FIGURE III.5
Lending conditions for large firms (*)
(index)



(*) Net percentage of responses, weighted by the bank's share in the commercial portfolio. Positive values indicate looser supply and stronger demand; negative values indicate tighter supply and weaker demand. Jackknife confidence intervals.

Source: Central Bank of Chile.

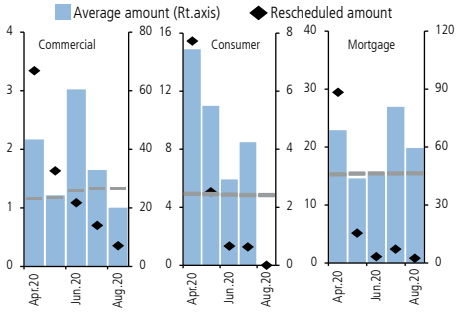
FIGURE III.6
Factors affecting lending conditions for large firms (*)
(índice)



(*) Net percentage of responses, weighted by the bank's share in the commercial portfolio.

Source: Central Bank of Chile.

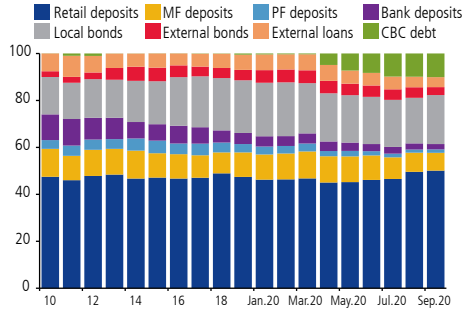
FIGURE III.7
Loan rescheduling by month (*)
(percent of portfolio, millions of pesos)



(*) Gray lines indicate the average amount in the total portfolio.

Source: Central Bank of Chile, based on data from the FMC.

FIGURE III.8
Composition of banking system liabilities (*)
(percent of liabilities)



(*) Excluding subordinated bonds.

Source: Central Bank of Chile, based on data from the FMC and Central Securities Depository.

higher level of risk within the individually assessed portfolio, have increased their share of the total portfolio from 5.9% in March to 7.1% in September 2020. At the same time, the FOGAPE-COVID program implied an increase in state guarantees, which offset the need to constitute higher provisions but represent a contingent liability for the Treasury. Taken together, the increase in loan loss provisions and the upward trend in additional provisions reveal an expectation of a deterioration in credit quality, as well as the banking system's greater exposure to riskier borrowers (box III.1).

TABLE III.1
Credit risk indicators (1)
(percent of respective loans)

Indicator	2016	2017	2018	2019	Mar.20	Sep.20	Avg.
Arrears							
Commercial	1.5	1.7	1.7	1.9	1.9	1.8	1.7
Consumer	2.0	2.1	1.9	2.3	2.3	1.5	2.1
Mortgage	2.7	2.4	2.4	2.4	2.4	1.8	2.4
Loan loss provisions							
Commercial	2.6	2.6	2.5	2.7	2.8	3.1	2.6
Consumer	6.3	6.4	6.4	7.1	7.1	7.1	6.6
Write-offs (2)							
Commercial	0.5	0.6	0.5	0.6	0.6	0.5	0.6
Consumer	**5.3**	**5.7**	**5.6**	**5.7**	**6.2**	**7.5**	**5.7**

(1) Individual basis, thus excluding subsidiaries and banking support services companies. Data for December of each year; average from September 2016 to September 2020.
(2) Annualized write-off ratio.

Source: Central Bank of Chile, based on data from the FMC.

With regard to bank funding, there was an increase in the share of the Central Bank of Chile (CBC) in the liability structure, due to the FCIC and the bank financial instrument purchase programs.

Within the liability structure of the banking system, there was an increase in the relative importance of CBC funding, as a result of the measures implemented to supply credit and liquidity to the financial system (figure III.8). The funding given by the CBC through the FCIC (approximately US$28.6 billion as of the cutoff of this FSR), the bank bond purchase program (close to US$6.0 billion), and the CCVP program represents around 13% of the banking system's liabilities, equivalent to 1.3 times system capital. These programs have contributed to keeping funding costs low.

The shares of time deposits held by mutual funds (MF), especially from smaller banks, and of debt instruments in the pension fund portfolios have declined in the funding structure of the banking industry. In the case of the pension funds, their decrease in the bank funding structure is due, in part, to the sale of instruments following the liquidation of a share of pension savings (chapter I).

The system's liquidity position continues to be higher than the regulatory limits. This is directly related to the measures adopted by the CBC, starting last November, to mitigate the effects of volatility in the financial markets. Thus, both the liquidity coverage ratio (LCR) and the residual term mismatch at 30 and 90 days are relatively comfortable for the different banks (figure III.9). In September of this year, the temporary relaxation of the minimum LCR and maturity mismatch requirements was extended (chapter V).

Profitability indicators continue to follow the downward trend observed in recent years, while the banking system's capital buffer remains low.

The decline in the annualized profitability of the banking system has intensified since the last FSR. Thus, in September 2020, return on equity (ROE) was 5.9%, and return on assets (ROA) was 0.4%, versus 11.7 and 0.83%, respectively, in the last FSR. This significant reduction, which started in the third quarter of last year, is explained, in part, by losses deriving from an accounting adjustment in one institution, the higher credit risk provisions, and the downward trend in the interest and indexation margin (figure III.10). The drop reduces the banks resource-generation and earnings-retention capacity and thus limits their solvency and their capacity to increase lending in the future. These lower bank profitability levels, which have intensified in the recent period, are also found in a large sample of countries (box III.2).

The system's capital adequacy ratio (CAR) increased from 12.5% in March to 14.0% in August of this year. An important share of this increase is explained by the increase in Tier 2 capital, in particular subordinated bonds and additional provisions. With regard to the latter, starting in April the FMC allowed a share of the state guarantees on commercial loans to be allocated to regulatory capital, but in August this ruling was replaced with a reduction in risk-weighted assets (RWAs). However, the capital cushion for sustaining credit growth or facing stress scenarios remains tight.

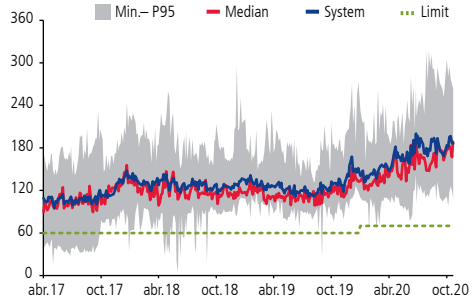
As mentioned in past FSRs, one way to increase the capital base is to reduce the distribution of dividends. In recent years, the banking system has distributed approximately 50% of distributable earnings. To illustrate the importance of the dividend policy, estimates indicate that if the distribution of earnings had been kept to the minimum (30%), the banking system would have had an additional cushion of 1 pp of RWAs for facing the current contingency. (figure III.11) (FSR, First Half 2016, box IV.1).

STRESS TESTS[3]/

The stress tests indicate that the banking system continues to have an adequate financial position for facing a larger output contraction than presented in previous FSRs. However, given the increase in credit risk, which exceeds the recent improvement in solvency, the estimated buffer after this scenario is applied would be minimal and lower than in past tests. Furthermore, the decline in the value of collateral could imply a considerable increase in bank losses in a more stressed scenario.

[3]/ Based on the methodology described in the FSR for the second half of 2013 and in Martinez et al. (2017). Both the analysis and the results are regularly reported to the FMC.

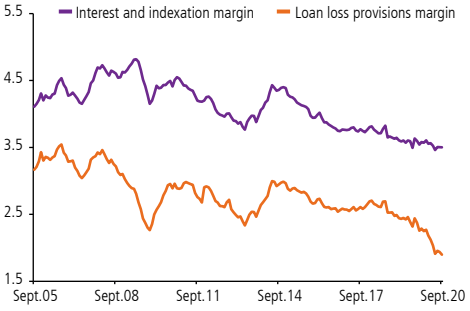
FIGURE III.9
Liquidity coverage ratio (*)
(percent of net outflows in 30 days)



(*) Calculated using individual bank data.

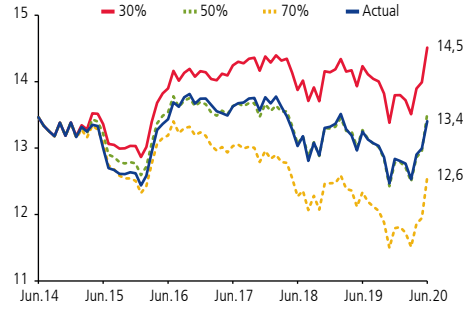
Source: Central Bank of Chile, based on data from the FMC.

FIGURE III.10
Financial operating income
(percent of total loans)



Source: Central Bank of Chile, based on data from the FMC.

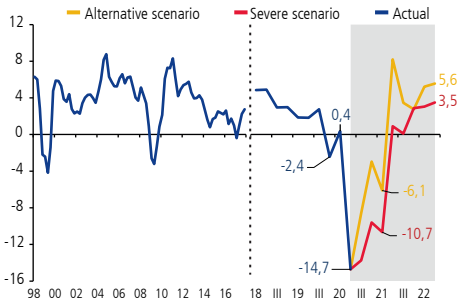
FIGURE III.11
Impact of minimum dividends on the CAR (*)
(percent of risk-weighted assets)



(*) The exercise assumes that dividends are only distributed starting in 2015, using actual risk-weighted assets.

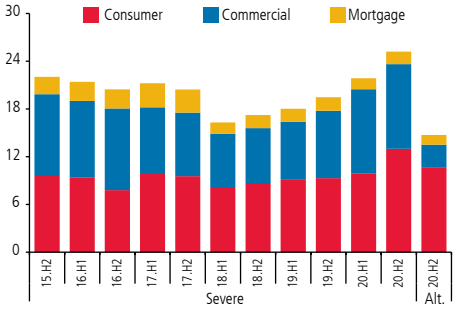
Source: Central Bank of Chile, based on data from the FMC.

FIGURE III.12
Annual GDP growth (*)
(quarterly data, percent)



(*) Seasonally adjusted data. The shaded area indicates the test window.
Source: Central Bank of Chile.

FIGURE III.13
System credit risk
(percent of Tier 1 capital)



Source: Central Bank of Chile, based on data from the FMC.

Stress tests evaluate the impact of credit and market risk under severe but plausible stress scenarios. These tests use macrofinancial and accounting data from the banking system for June 2020. Stress tests are an analytical tool that contribute to identifying financial strengths and weaknesses in the system at a given point in time.[4]/ Given their partial nature, they do not necessarily uncover all the effects of the scenarios analyzed. Consequently, they should not be interpreted as forecasts.

The stress scenarios assume that the economic contraction recorded in the first half of this year corresponds to the materialization of a stress scenario, which deteriorates more than considered in past stress tests. For the purposes of this Report, the severe scenario incorporates a significantly slower output recovery. Under this scenario, following the 14.7% annual contraction in the second quarter of this year, economic activity remains weak throughout 2021, and the recovery to pre-pandemic output levels occurs in a horizon of more than three years. In the alternative scenario—consistent with the risk scenario in the September Monetary Policy Report—positive growth rates are recorded starting in the second quarter of 2021, and pre-pandemic output levels are reached starting in 2022 (figure III.12).

With regard to the market variables, the severe scenario considers a shift in the spot and forward yield curves, with an increase of 300 bp in the short-term interest rate and 100 bp in the long rate, while the alternative scenario only considers a 250 bp increase in the long rate. The exchange rate depreciates under the severe scenario and appreciates under the alternative. Finally, both scenarios include exchange rate volatility equivalent to a 16% variation.[5]/

The results indicate that under the severe scenario, credit risk increases significantly, especially in the consumer portfolio, while market risk remains low.

The stress tests continue to show the upward trend in credit risk estimated in past FSRs, largely due to the significant output contraction (figure III.13). In particular, the increase in provisions reflects a deterioration in the quality of the loan portfolio in all segments, despite the reduction in arrears. Thus, the total potential loan loss under a severe scenario is estimated at 25.2% of system capital, versus 21.9% in the last test[6]/ (table III.2). In the alternative scenario, the risk would be around 14.7% of capital. In this case, the configuration, which is closer to the actual path, implies a similar risk level to the severe scenario in past tests.

[4]/ This tool estimates credit risk with a model that relates loan loss provisions, which reflect the cost of default in the banks' loan portfolios, with macrofinancial factors, such as output and interest rates. Market risk considers two types of exposure: currency and interest rates (disaggregated into valuation and repricing).
[5]/ A stressed VAR is used with 15-day movements in the exchange rate, at 99% confidence. Although this consideration is not included in tests prior to 2019.I, for comparative purposes it is included in earlier results as part of the total risk.
[6]/ Does not consider the effect of additional provisions.

TABLE III.2
Impact of stress tests on profitability
(percent of Tier 1 capital)

	16.H2	17.H1	17.H2	18.H1	18.H2	19.H1	19.H2	20.H1	20.H2	Alt. 20.H2
Initial ROE	**12.5**	**11.3**	**14.1**	**12.2**	**13.8**	**11.7**	**13.4**	**11.9**	**10.0**	**10.0**
Market risk	-1.2	-0.8	-2.6	-3.0	-2.8	-2.5	-2.5	-3.1	-3.1	-2.8
Credit risk	-20.5	-21.2	-20.5	-16.3	-17.2	-18.0	-19.5	-21.9	-25.2	-14.7
Margin	2.9	2.1	2.3	2.8	3.9	3.3	2.5	1.8	0.0	1.3
Final ROE	**-6.3**	**-8.7**	**-6.7**	**-4.3**	**-2.4**	**-5.6**	**-6.0**	**-11.3**	**-18.2**	**-6.3**

Source: Central Bank of Chile, based on data from the FMC.

Market risk, in turn, decreases in both repricing and valuation. Currency risk increases due to the larger mismatch in foreign currency, which exposes the system to sharp appreciations[7]/. Although market risk is low relative to credit risk, the different components together can represent over 6% of capital in some banks (figure III.14). Liquidity risk decreases, in line with the policies implemented during the pandemic.

The system's margins decrease relative to past tests, limiting the industry's capacity to increase its solvency and, therefore, reducing the cushion for absorbing the higher losses under stress scenarios.

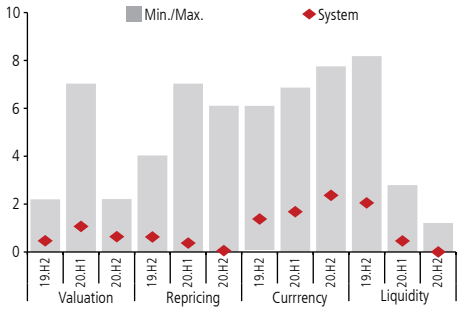
In comparison with the results of the last test (December 2019), the results show a reduction in initial profitability and margins, although capital levels are higher. The ROE is 1.9 pp lower (10.0 versus 11.9%)[8]/ and the CAR, 0.3 pp higher (13.0 versus 12.7%)[9]/. As a result, the test shows that the system's profitability would decline under the alternative scenario, and losses would be higher under the severe scenario. Thus, the system's ROE would drop to –6.3% of core capital under the alternative scenario and to –18.2% under the severe scenario. By institution, banks that together represent around 91% of the system's core capital would record negative profits in the severe stress scenario (89% in the last test); in the alternative scenario, 75% (figure III.15).

Despite the increase in the banks' initial capital adequacy, the greater risk exposure and the increased risk itself reduce the capital buffer and increase the system's vulnerability relative to the last test.

The reduction in solvency under the severe scenario, in relation to the initial distribution, is significantly greater than in the last test (figure III.16). This occurs despite the increase in initial capital levels in the majority of the banks, due to the greater risk exposure, given the significant output contraction. The results show that the distribution of the capital adequacy ratio (CAR) falls under the alternative scenario, although it is higher than under the severe scenario.

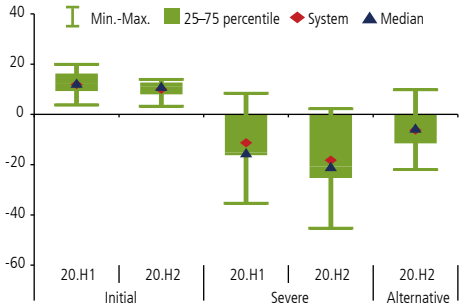
7/ An asset currency mismatch is exposed to an exchange rate appreciation, while a liability mismatch is exposed to a depreciation.
8/ The June value is adjusted for the deterioration of goodwill.
9/ The June value does not include the additional provisions from state guarantees as part of regualtory capital, so as to be comparable with the previous test.

FIGURE III.14
Market risk
(percent of Tier 1 capital)



Source: Central Bank of Chile, based on data from the FMC.

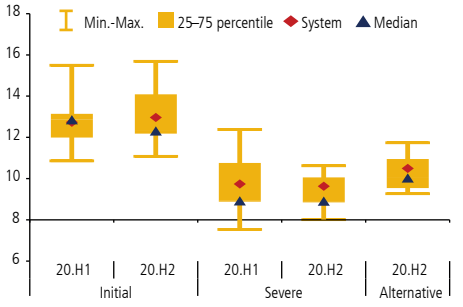
FIGURE III.15
Impact of different scenarios on ROE (*)
(earnings over Tier 1 capital, percent)



(*) Data weighted by the Tier 1 capital of each institution. Calculations do not include treasury, foreign trade, or retail banks. Minimums are the 1st percentile.

Source: Central Bank of Chile, based on data from the FMC.

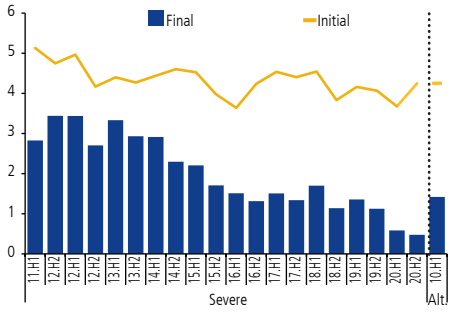
FIGURE III.16
Impact of different scenarios on the CAR (*)
(regulatory capital over risk-weighted assets)



(*) Data weighted by the Tier 1 capital of each institution. Calculations do not include treasury, foreign trade, or retail banks.

Source: Central Bank of Chile, based on data from the FMC.

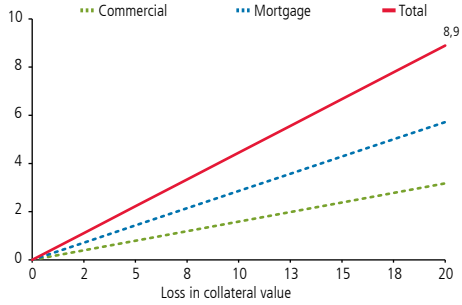
FIGURE III.17
Capital buffer under the severe stress scenario (*)
(percent of risk-weighted assets)



(*) Excess regulatory capital over the regulatory minimum. Based on the specific limits of each bank.

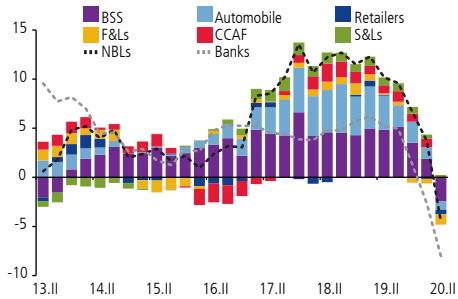
Source: Central Bank of Chile, based on data from the FMC.

FIGURE III.18
Credit risk from guarantees under severe scenario
(percent of Tier 1 capital, loss in collateral value)



Source: Central Bank of Chile, based on data from the FMC.

FIGURE III.19
Contribution to NBL loan growth
(real annual change, percent)



Source: Central Bank of Chile, based on data from the FMC and SuSeSo.

The set of banks that maintain a CAR over 10% represent 56% of system assets under the alternative scenario and 26% under the severe scenario (37% of the last test).

Thus, the system's capital buffer continues to follow a downward trend, which has steepened in recent months and which reduces the banks' capacity to withstand a prolongation of the weak economy (figure III.17). Additionally, it is important to note that the policies that have been implemented—which are aimed at mitigating the slowdown in lending, the higher credit risk, and the liquidity restrictions—have increased the banking system's exposure going forward and could limit its capacity to act.

The reduction in the value of collateral could significantly increase the banks' losses in a stress scenario.

Together with the increase in system provisions, the use of collateral to cover credit risk has continued to rise. As signaled in past FSRs, this greater dependence exposes the banking system to a loss in the value of the assets used as collateral, due to a possible reduction in prices or restrictions that affect asset liquidity.

In this sense, the usual stress tests on the banking system do not incorporate the effect of collateral coverage, but rather only consider loan loss provisions as a source for reducing profitability and solvency. If this assumption is relaxed and a 20% loss in collateral value is included, the system would incur additional costs of around 9% of capital, a value comparable to the other risk components. This could further weaken the banking system, especially in the case of banks that use this type of risk coverage more intensively (figure III.18 and table III.2).

Thus, legal changes that restrict or limit the liquidity of collateral could affect the value of the underlying assets and cause an additional deterioration in the banks' capital buffer. Banks would then face limitations on their capacity to maintain dynamic lending, thereby affecting households and firms.

NONBANK LENDERS[10]/

Nonbank lenders recorded a contraction in loans in the consumer segment, in line with the output contraction and the higher unemployment.

Nonbank lenders (NBLs) went from real annual loan growth of 6.6% in December 2019 to a contraction of 4.6% in June of this year. In consumer loans, the biggest drop was in banking support services corporations (BSS) and automobile finance companies: the former recorded a real annual contraction of 6.4% in the second quarter of this year; the latter, 4.1% in the same period (figure III.19). Taken together, NBL loans represent over 60% of the banking

[10]/Nonbank lenders (NBLs) grant loans to households and firms. NBLs include banking support services corporations (BSS), retailers, family compensation funds (CCAF), savings and loan associations (S&Ls), factoring and leasing companies (F&Ls), and automobile finance companies.

system's consumer loan market. In June 2020, retail credit card administrators constituted as BSSs represented 22.6% of NBL credit; automobile finance companies, 12.8%; family compensation funds (CCAF), 13.2%; savings and loan associations (S&Ls), 7.4%; and factoring and leasing companies (F&Ls), 2.2% (statistical appendix).

With regard to arrears in the consumer loan portfolio, the industry recorded a generalized deterioration in June 2020, especially for retailers and automobile finance companies (figure III.20). The profitability of NBL assets declined in the second quarter of the year, mainly due to a less dynamic loan portfolio and an increase in provisions, due to the deterioration in portfolio quality. The leverage levels of the NBLs has not changed substantially over the course of this year, with the exception of the BSSs and S&Ls, which recorded a slight increase (table III.3).

TABLE III.3
Profitability and leverage indicators (1)
(percent)

Indicator	2016	2017	2018	2019	Jun.20
ROA					
BSS	5.4	5.4	4.8	4.4	3.0
Retailers	2.8	2.3	0.7	-5.2	-1.4
F&Ls (2)	3.2	2.6	2.6	2.2	0.9
CCAF	0.9	1.6	2.2	2.5	1.3
S&Ls	2.7	3.8	3.8	3.6	2.7
Leverage					
BSS	29.0	27.6	18.3	18.8	17.8
Retailers	44.6	43.5	40.6	24.3	24.9
F&Ls (2)	20.5	17.2	16.5	17.1	18.2
CCAF	36.9	37.7	36.9	36.3	36.5
S&Ls	29.1	28.2	27.2	26.3	25.0

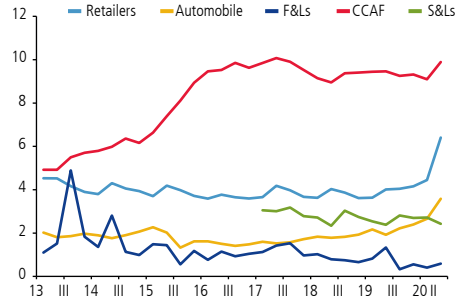
(1) ROA is calculated as earnings over assets; leverage, as capital over assets.
(2) F&Ls include automobile financing.
Source: Central Bank of Chile, based on data from the FMC and SuSeSo.

Thus, since the last FSR, the share of NBLs in household debt was stable. The banking system's indirect exposure to households through commercial loans to NBLs was also stable at around 1.6% of banking system assets through year-end 2019, and it declined to 1.3% in the second quarter of this year, equivalent to19% of system capital (figure III.21). With regard to the repeated recommendation to establish an integrated debtor registry that includes the NBLs, no progress has been made to date despite evidence that the current information asymmetry has contributed to the overindebtedness of some sectors. The lack of progress in this area is particularly serious considering the effect of overindebtedness on the well-being of households, as seen during the social protests.

RISK FACTORS

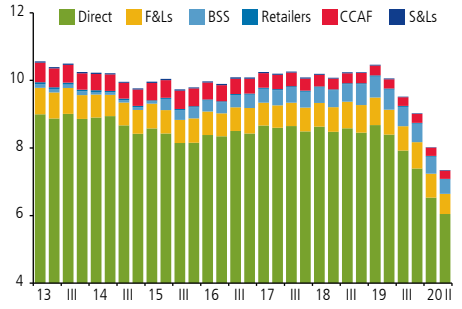
The quality of the banks' loan portfolio could deteriorate significantly if the economic downturn is more persistent.

FIGURE III.20
Arrears rate (*)
(percent of loans)



(*) Arrears of 90 to 180 days, except for the CCAFs. Retailers include the BSSs. For the BSSs, arrears were obtained using the consolidated and individual financial statements of the respective parent companies.
Source: Central Bank of Chile, based on data from the FMC and SuSeSo.

FIGURE III.21
Banking system exposure to the consumer segment (*)
(percent of system assets)



(*) Direct exposure includes consumer loans to households. Indirect exposure comprises commercial loans by the banking sector to retailers, F&Ls, CCAFs, and S&Ls, where F&Ls include the automobile segment.
Source: Central Bank of Chile, based on data from the FMC and SuSeSo.

One of the main risks facing our economy is a slower output recovery. This type of scenario would reduce the income of some firms that have initiated a partial recovery of operations and extend the difficulties of firms that have not been able to restart their normal activities (chapter II). At the same time, firms that took advantage of the rescheduling opportunity could have difficulty rolling over debt, resulting in a significant increase in default once the grace period is over and loan installments start to come due. Additional factors include the banks' greater exposure to more leveraged borrowers, the drop in their profitability levels, and interest coverage.

A worsening of the labor market would have a direct impact on the banks' consumer portfolio, especially in institutions with a less diversified portfolio, as well as an indirect impact through bank funding of NBLs. The banking system's exposure to NBLs continues to represent a vulnerability, given their higher arrears rate and high exposure to agents that have been hit hard by the pandemic.

The banking system's funding conditions could deteriorate if events require a sudden rebalancing of fixed-income portfolios.

Sudden portfolio adjustments, triggered by local or global events, could have a disruptive effect on domestic financial markets. Thus, if asset liquidation is concentrated in local market securities, in particular bank instruments, it could generate a significant increase in the banking system's funding costs, by reducing the possibility of rolling over liabilities (chapter I).

Massive and mandatory debt rescheduling in exceptional circumstances like the current crisis can limit the banking system's future capacity to provide financing to households and firms in the economic recovery phase.

In the context of the pandemic that has affected global output and the labor market, extraordinary measures were implemented to ease the financial burden of households and firms. For example, voluntary rescheduling by the banking system provides temporary relief from the pressure on default indicators, although it could become less effective in the medium term (box III.1 and chapter II). However, a potential implementation of massive and mandatory debt deferrals would drastically reduce the available liquidity, especially in institutions that focus on household lending, compromising their financial strength[11]/. At the same time, given the importance of interest payments in bank revenues, a possible interruption of this component, even partially or temporarily, would affect their capacity to build a capital buffer and to withstand losses, creating a restriction on lending to support the economic recovery phase.

The occurrence of operational risk events in the banking industry has increased in recent months.

[11]/ FMC, Análisis de Iniciativa Parlamentaria, presentation on 4 June 2020.

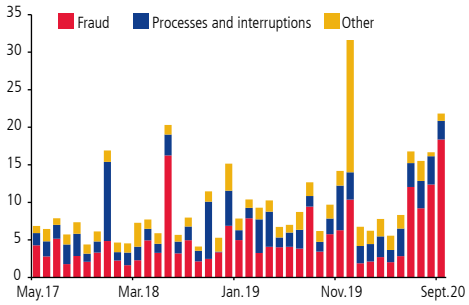
Losses from operational risk events increased in the third quarter of this year, mainly due to reimbursement for credit card and/or electronic transaction fraud, which the banks must assume under certain circumstances as of May (figure III.22). There was also a more recent event affecting in-person branch operations at one bank.

Additionally, the increase in remote work and in the number of online transactions increases cybersecurity risks. It is therefore crucial for the banking system to implement adequate internal control mechanisms to ensure operational continuity and mitigate discontinuity events.

The use of FOGAPE guarantees has supported a flow of credit that has mitigated the economic contraction, but it increases the contingent liabilities of the state.

A scenario in which the economic contraction persists for some time could increase credit risk significantly, especially in firms that have increased their leverage and that are unable to recover their sales (box II.1). This scenario could lead to the execution of guarantees, which would generate operating costs for the banking system and put additional pressure on the fiscal balance.

FIGURE III.22
Monthly losses from operational risk events
(millions of dollars)



Source: Central Bank of Chile, based on data from the FMC.

BOX III.1
LOAN DEFERRAL, VULNERABILITY, AND OUTLOOK

Given the magnitude of the economic shock caused by the pandemic, various institutions in many jurisdictions have implemented mitigation measures to offset the loss of income and liquidity. One of the most widely used policies among countries is the moratorium, deferral, or rescheduling of debt payments. In Chile, the FMC introduced an adjustment to the treatment of bank loan provisions in April of this year. Since then, over 550,000 operations have been rescheduled, equivalent to 28% of bank customers and 38% of the combined stock of mortgage and collectively assessed commercial loans.

This temporary regulatory change reduced the cost of rescheduling loan payments for banks and savings and loan associations (S&Ls) and reduced the financial burden of households and smaller firms, mitigating increases in credit risk in the short term. It also reduced the amortization flows received by lenders.

This box provides a characterization of borrowers who opted to reschedule their loans and describes the possible implications for their credit risk and future access to bank financing. The results indicate that there is a tension between the short-term gains in terms of reducing credit risk and the possible future negative effects on payment capacity when this type of measure is lifted. Thus, the banks could face an increase in credit risk in the future, which would further reduce their cushion and limit their capacity to maintain the growth rate of lending.

It is important to note that the risk described herein would be greater under a scenario in which the economic contraction lasts longer than expected, given that loan deferrals have been more widespread than before the regulatory adjustment and thus comprise individuals with diverse risk levels. Additionally, in contrast to pre-pandemic rescheduling, the current operations incorporate longer grace periods of up to six months.

Loan rescheduling in Chile

In this analysis for Chile[1]/, based on Bergant and Kockerols (2020), the sample period is divided into before and after the pandemic (and the regulatory change), in order to capture the different motivations and mechanisms for rescheduling loans in the two windows of time. As in Bergant and Kockerols, we consider three main specifications. The first aims to characterize the profile of people who reschedule their loans. The second analyzes the short- and long-term implications for default on the deferred installments. The third studies the relation between rescheduling today and the probability of obtaining credit tomorrow.

Results for borrowers

In the case of households, in addition to a dummy variable that identifies whether or not an individual reschedules a loan in a given window of time, the specifications include loan characteristics and the borrower's leverage, financial burden, number of loans, and credit history, based on data from the FMC. Individual demographic variables are also included, such as labor income, age, sex, and region.

The first model shows that borrowers who rescheduled at least one loan prior to April 2020 (when the regulatory change on bank provisions was introduced) have a higher probability of rescheduling in a subsequent period, while borrowers with a larger number of loans or higher leverage are more likely to reschedule at least one of them. Alternatively, people with a higher debt-service-to-income ratio also have a higher probability of rescheduling a loan. An important difference on estimating the model for the period after the April regulatory change is that a relatively larger share of rescheduled loans was not in arrears. This contrasts with the earlier period, when the loans were either already delinquent or in danger of becoming so.

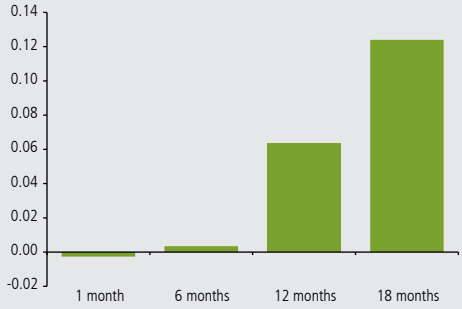
[1]/ For more details, see Córdova and Toledo (2020).

The second model shows that a risky borrower who already rescheduled a loan has a higher default probability than borrowers who have not previously rescheduled. There are two possible explanations for this: first, there could be selection bias, since these measures are given to individuals with a higher default risk in an attempt to prevent default (a practice known as evergreening); second, individuals may act strategically and reschedule knowing that they will default eventually.

Estimating at different horizons reveals that loan rescheduling slightly reduces mortgage default probability in the short term; the results are similar when consumer debt is included in the definition of default. In the long term, however, credit risk rises again, becoming statistically greater than zero after one year. After a year and a half, the additional default probability vis-à-vis someone who did not reschedule is 12% (figure III.23). This finding is in line with Bergant and Kockerols (2020), who report only short-term effects in terms of reducing the default probability.

Finally, with regard to access, loan rescheduling reduces the probability of obtaining a new loan in the coming year and a half. This finding is also reported by Bergant and Kockerols (2020), and it is in line with other studies showing evidence that banks that reschedule loans are less willing to lend to the same borrowers or accept new customers.

FIGURE III.23
Mortgage default probability of households that deferred loans, at different horizons
(marginal effects on probability)

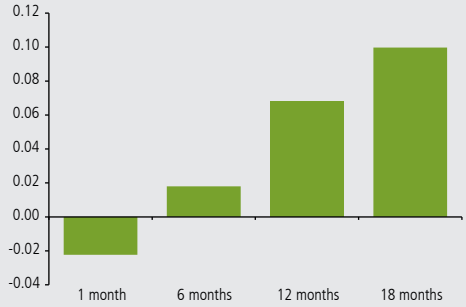


Source: Central Bank of Chile, based on data from the FMC and SuSeSo.

In the case of firms, the same exercises described for households were carried out using FMC data on the rescheduling of commercial installment loans, considering only firms that are financed primarily by local banks. The estimates also include a leverage indicator (debt over sales), credit history, economic sector, and number of employees as a scale variable (the latter two are from the IRS).

The main results indicate that firms that rescheduled in the past period have a higher probability of rescheduling in the future, while more leveraged firms are more likely to reschedule one of their loans. With regard to default, the same temporal pattern is found as for households, wherein rescheduling is effective at reducing credit risk in the short term, but the risk rises after six months (figure III.24). Finally, a positive relation is found with new credit, that is, firms that rescheduled have a higher probability of receiving a new loan. This is line with the findings of Bergant and Kockerols (2020), and it may be explained by the banks' business model in the case of firms, based on long-term underlying contractual relationships associated with successive projects that have varying degrees of success.

FIGURE III.24
Mortgage default probability of firms that deferred loans, at different horizons
(marginal effects on probability)



Source: Central Bank of Chile, based on data from the FMC y SII.

Debt-at-risk among borrowers

It is possible to identify borrowers who have rescheduled more than one loan since 2012. In the period after April 2020, nearly 13% of rescheduled personal loans corresponded to borrowers who had rescheduled at least one loan prior to April. For firms, the share is 20%. This recurrence is relevant given the evidence indicating that the default probability of these individuals is six times higher than that of first-time reschedulers. This stylized fact, combined with the default model in the previous section, can be used to compute a debt-at-risk statistic for the different portfolios, where debt-at-risk is defined as the default probability times the principal balance.

We define two extreme scenarios. In the first, people who recently rescheduled loans have the default probability implied by their individual characteristics. In the second, everyone who rescheduled has the default probability of recurring reschedulers.

The results indicate that for households, mortgage debt-at-risk would be between 0.3 and 3.0% of GDP, depending on the scenario. In the case of firms, commercial debt-at-risk would be between 0.1 and 0.4% of 2019 GDP.[2]/

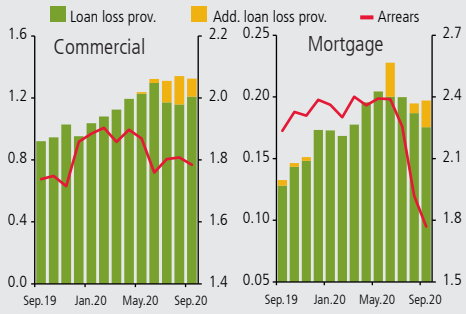
Effects on lenders

The banks' lending capacity could be limited by a number of factors: namely, liquidity problems, a smaller capital cushion, and increased risk. The policies implemented in response to the pandemic have injected resources into the financial system, thereby maintaining the flow of credit (table I.1). Nevertheless, these measures create vulnerabilities that could limit credit growth in the future. In particular, the evidence presented in the last section indicates that rescheduling loans could increase credit risk in the future and put pressure on banks' balance sheets. This could reduce the system's capacity to accommodate new demand for loans, to support a recovery phase.

In effect, the banks already appear to anticipate an increase in risk in their loan portfolios under a scenario of high unemployment and an economic contraction that lasts longer than projected. In particular, for the commercial and mortgage portfolios, loan loss provisions have increased significantly since October 2019, although arrears have been relatively stable or even decreased (figure III.25). In the consumer portfolio, despite the recent rescheduling, arrears rates have increased in conjunction with rising loan loss provisions and write-offs.

In this context, the analysis of the payment capacity of customers that took advantage of the rescheduling opportunity indicates that although the impact would be significant, the banks have increased their provisions to absorb the associated losses. However, this would reduce their capacity to provide new credit.

FIGURE III.25
Credit risk indicators
(over loans in each portfolio, percent)



Source: Central Bank of Chile, based on data from the FMC.

Final comments

The deferral and rescheduling of loan payments has been widely used as a mitigation policy both in Chile and in other jurisdictions during the current crisis. Locally, this measure has proven to be effective, limiting the occurrence of default. However, it is important to highlight the tension between this result and the possible future implications for financial stability, especially in a scenario of a prolonged economic contraction. The evidence indicates that rescheduling defers not only loan payments, but also credit risk, which could increase going forward. While the nature of loan rescheduling has changed since April, these results serve as a warning of the possible future cost of this type of mitigation measure. In this context, measures that distort debt repayment incentives or that put additional pressure on banks' balance sheets could exacerbate the vulnerabilities described above, which could limit the banks' future capacity to continue providing credit during the recovery phase.

[2]/ In contrast to the commercial debt-at-risk estimate presented in this box, the calculation in box II.1 considers a model that also includes indebtedness and sales growth at the firm level, among other variables. That model also focuses on trade-sector firms with sales of under UF 1 million, which use local financing.

BOX III.2
THE INTERNATIONAL BANKING SYSTEM DURING THE PANDEMIC

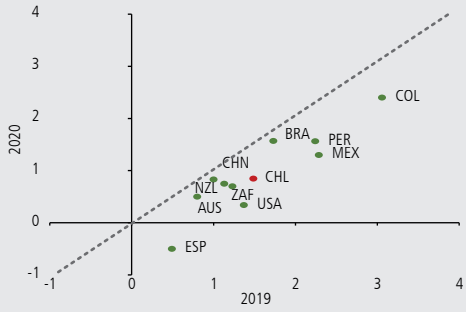
The COVID-19 pandemic and the social distancing necessary to control it have had a strong impact on both advanced and emerging economies. In response, the authorities have generated a wide range of monetary, fiscal, and credit policies to provide relief to households and firms. In this context, this box compares the evolution of the main bank indicators for a sample of countries through the second quarter of 2020. The results show that in general, profitability has declined, while loan portfolio quality and capital solvency have been stable in most of the sample. However, there are some differences with the local banking system.

Profitability

Since the start of the pandemic early this year, the profitability of the banking system has declined in several economies (figure III.26). Chile is around the average, while the lower end of the distribution is marked by the deterioration of the banking systems of Spain, the United States, and Australia. The generalized reduction in profitability is mainly explained by the increase in credit risk provisions and the reduction of interest margins. The latter, in turn, is due to expansionary monetary policy shifts among various central banks, in some cases—including Chile—accompanied by unconventional monetary policy programs, where credit facilities were explicitly linked to the passthrough of low interest rates to customers[1]/.

The decline in bank profitability is also reflected in the deterioration of expectations for the banking sector in the stock market (figure IIII.27). Since March of this year, the banking sector has recorded lower stock market returns than the total market in all the countries in the sample. Colombia, Mexico, Peru, and South Africa have simultaneously recorded a decrease in bank stock prices and growth in the total index.

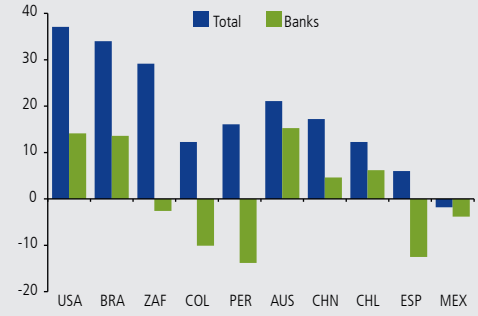
FIGURE III.26
Return on assets (ROA) (*)
(percent; data for the second quarter of each year)



(*) Sample of countries: Australia, Brazil, China, Colombia, Mexico, New Zealand, Peru, South Africa, Spain, United States, and Chile.

Source: Central Bank of Chile, based on data from the CEIC, IMF, FRED, and bank supervisors.

FIGURE III.27
Banking sector stock market returns
(percentage growth between March and October 2020)



Source: Bloomberg.

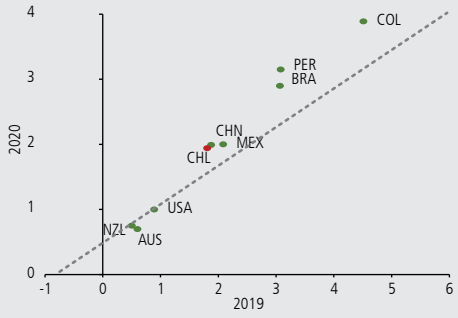
[1]/ Hardy (2020). Available online at www.bis.org/publ/qtrpdf/r_qt2009w.htm

Arrears

Portfolio arrears is of particular interest in the current risk analysis because the main negative effect of the pandemic could be an increase in unemployment for households and a drop in sales for firms, which could potentially lead these agents to default on their debt.

In the sample of countries, portfolio arrears during the pandemic is mixed, deteriorating in some banking systems and remaining stable or recording relatively marginal changes (10pb) in others (figure III.28).

FIGURE III.28
Portfolio in arrears over total loans (*)
(percent; data for the second quarter of each year)



(*) Sample of countries: Australia, Brazil, China, Colombia, Mexico, New Zealand, Peru, South Africa, Spain, United States, and Chile.

Source: Central Bank of Chile, based on data from the CEIC, IMF, FRED, and bank supervisors.

In the majority of the countries, the arrears rate has been stable, probably due to the credit policies implemented by the authorities in these countries. These policies, in general, have aimed at facilitating loan rescheduling, that is, the deferral of loan installment payments (Coelho and Zamil, 2020). Given that arrears rates should not increase during the deferral period, this indicator would not reflect the real payment capacity until loan installments come due again. A large share of rescheduled loans have a grace period of up to six months, so delinquency could increase starting in the third quarter of this year, to the extent that the economic contraction worsens or no new financial relief measures are generated.

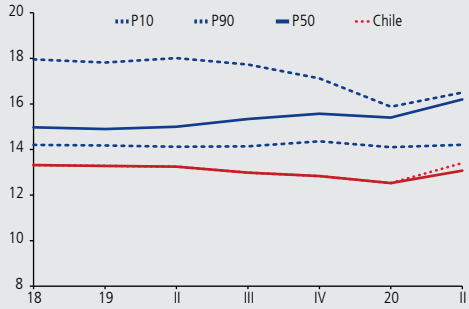
Capital adequacy

Bank capital requirements—and buffers—are fundamental for financial intermediation. Given that banks are exposed to default risk on their loans, the existence of a cushion allows them to absorb these losses during times of turbulence, without generating liquidity or solvency problems. Similarly, capital requirements allow banks to continue meeting their obligations to their creditors (savers) even during massive default episodes, as can happen in a crisis.

In the context of the pandemic, capital adequacy ratios have, in general, been stable in the different economies, declining somewhat in the first quarter of the year but recovering in the most recent period (figure III.29). Given the current crisis, the size of the capital buffer is notable in the countries in the sample, which have more space than Chile to reduce their capital levels and thus to absorb losses.

The implementation of various measures to mitigate the impact of the pandemic, together with macroprudential policies aimed at relaxing the banks' capital requirements (such as the lifting of some capital requirements, deferral of the implementation of the new standards, and the possibility of operating under regulatory minimums) should help ensure that the banking system's capital does not constitute a major limitation on its intermediation role. This will be particularly important both during the economic contraction and once the economic recovery phase is underway, as firms and households increase their demand for credit.

FIGURE III.29
Capital adequacy ratio (CAR) (1) (2)
(percent of capital over assets)



(1) Sample of countries: Australia, Brazil, China, Colombia, Mexico, New Zealand, Peru, South Africa, Spain, United States, and Chile.
(2) Dashed line does not take into account the regulation allowing the inclusion of part of the state guarantees in regulatory capital.

Source: Central Bank of Chile, based on data from the CEIC, IMF, FRED, and bank supervisors.

Conclusions

In the second quarter of 2020, there was a downward trend in profitability and a relatively stable performance in loan portfolio quality and capital solvency in most of the countries in the sample. As a result of the policies adopted by central banks and governments, aimed at alleviating borrowers' financial burden, the portfolio in arrears has not changed significantly in the banking systems.

However, there is a risk that the volume of defaults will increase considerably once the loan deferral programs end (box III.1). This could be amplified if the withdrawal of these programs does not coincide with the economic recovery or if the deterioration in the macroeconomic scenario persists longer than expected, given an unfavorable evolution of the pandemic.

In this context, the banking system's capacity to maintain an adequate flow of credit will be crucial for facing potential scenarios of further deterioration or economic recovery. To this end, the availability of a capital buffer is fundamental.

Finally, the evidence presented here calls attention to the need to maintain convergence with international standards and reinforce the capital buffer in our economy. In this sense, it is essential to continue pursuing the implementation of the General Banking Law, which adheres to the recommendations of the Basel III Accord (chapter V).

IV. EXTERNAL FINANCIAL CONDITIONS AND THEIR IMPACT ON LOCAL MARKETS

Over the last few decades, Chile has pursued a gradual, but continuous process of financial integration with the rest of the world. To maximize the benefits and minimize the risks associated with this process, it has been crucial to develop the local financial market and to put into practice an institutional and policy framework consistent with international standards. This chapter describes how this financial integration has allowed Chile to take advantage of favorable external financial conditions in recent decades without compromising its financial stability, highlighting the role of certain mitigators that have been key in the past and whose reinforcement represents one of the main challenges for the future.

INTRODUCTION

For small open economies, financial opening brings important benefits. It increases the investment opportunities for local agents and gives firms and governments access to better financing conditions, which allows them to boost domestic demand, particularly when sources of domestic savings are limited. In the case of Chile, the financial opening process initiated in the late 1990s was accompanied by a series of capital market reforms, built on the foundation of reforms to the pension system and bank regulation that emerged out of the crisis of the 1980s. As a result, the local capital market has achieved a degree of depth and financial integration similar to the economies of Australia, Canada, and Norway (IMF, 2016). This has contributed to diversifying the portfolio risk of local investors and increasing the share of households and firms with overseas investments—a distinctive feature of the Chilean economy in comparison with other emerging countries.

However, greater financial integration can also generate risks. These are generally associated with vulnerabilities or imbalances in the financial position of the government, banks, firms, and households. To address these vulnerabilities, it is essential to have an adequate financial infrastructure and policy framework (Agénor and Pereira da Silva, 2019). In the case of Chile, the policy framework comprises various elements, including the following: (i) independence of the Central Bank, so that it can meet its inflation target; (ii) a flexible exchange rate regime, which functions as the main shock absorber of sharp changes in external financial conditions; (iii) a fiscal policy based on a structural balance rule, which aims to preserve solvency and soften economic

cycles; and (iv) a financial regulatory and supervisory framework that favors the system's development under high performance and solvency standards (Central Bank of Chile, 2020).

As mentioned in past FSRs, financial conditions were favorable in international markets following the global financial crisis. While this allowed emerging economies to reduce their external financing costs, it also increased their financial vulnerabilities (IMF, 2019). In the case of Chile, several factors allowed local agents to benefit from these better external financial conditions, with a low level of risk. However, a number of challenges remain, while new challenges have arisen due to the impact of the pandemic and the policy response that has been implemented to address it. These include the need to recover the buffers used (e.g., public debt and bank capitalization), to continue reducing existing gaps (e.g., the adoption of the Basel III framework, the internationalization of the local currency, and the reduction in the cost of foreign exchange hedging), and to address new vulnerabilities that could arise (e.g., the geographic concentration of the external exposure of the nonfinancial corporate sector and the volatile behavior of pension fund managers' investment decisions due to movements by affiliates).

The remainder of the chapter describes the degree of financial integration and development achieved by Chile and discusses the impact of external financial conditions on domestic financial markets, highlighting the importance of mitigators in the Chilean economy. The final section discusses the main challenges that will be faced by the Chilean economy in the future, deriving from the recent events (local and external).

DEGREE OF FINANCIAL INTEGRATION AND DEVELOPMENT IN CHILE

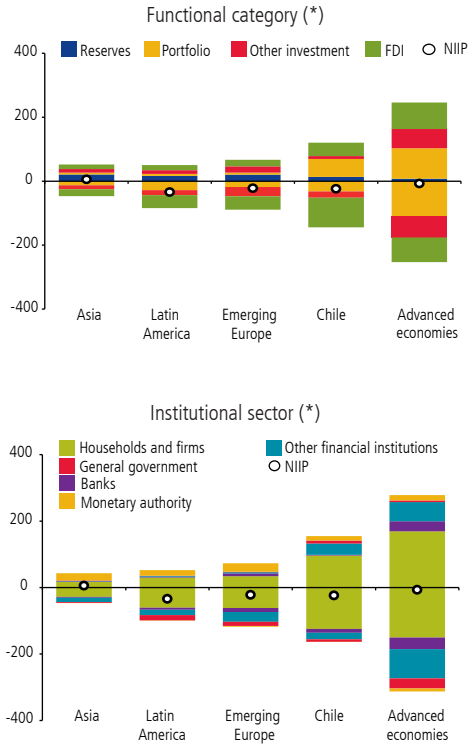
Financial integration generates great benefits, but not without costs.

One of the main benefits of financial integration is that it gives economies access to international capital markets at what are usually favorable financing conditions. This was the case following the Global Financial Crisis, and it translated into an expansion of the global financial cycle (box IV.1). This has a positive impact on investment and growth in the medium and long terms, which is particularly important for emerging economies with less developed domestic financial markets (Edwards, 2001; Quinn and Toyoda, 2008). Financial integration also makes it possible to diversify risk, which helps mitigate the impact of idiosyncratic shocks in an economy (Caballero, 2003). It also contributes to increasing the discipline and efficiency of the local financial system, in the presence of foreign financial institutions (Kose et al., 2009).

However, the international financial markets tend to be highly procyclical. That is, access is easy during boom times, but financial conditions can change very quickly in periods of stress (internal or external). Consequently, greater financial integration has the potential to increase volatility in these economies, exposing

them to external capital flows and the resulting pressure on the performance of local financial assets. In the case of economies with a floating exchange rate, this is manifested as greater exchange rate volatility, which is exacerbated in the case of economies with an undiversified production matrix and a strong dependence on commodity exports (Agénor and Pereira da Silva, 2019). Additionally, a high degree of foreign currency debt can result in an important level of unhedged positions and currency mismatches among the different local agents. In the event of a sharp currency devaluation, this vulnerability can wind up amplifying adverse cycles. Consequently, it is necessary to have well-developed local financial markets, which allow agents to balance their sources of long-term debt between local and foreign currencies, as well as providing options for hedging foreign currency positions.

FIGURE IV.1
International investment position,
(percent of GDP)



(*) Weighted average by GDP in current dollars. Positive values indicate gross assets; negative values indicate gross liabilities. For the classification, see the appendix. Data for December 2018.

Source: World Bank and International Monetary Fund.

Chile has achieved a high level of financial development and integration, founded on the implementation of a set of reforms over the course of several decades.

Over the past few decades, Chile has pursued a gradual yet continuous process of financial integration with the rest of the world. This process was initially based on strengthening the development and resilience of the domestic financial system, through the implementation of a range of financial system reforms. These included the reform of the Chilean pension system in the early 1980s, which contributed to the development and depth of the local capital market due to the substantial increase it generated in personal savings. Other key reforms that contributed to the development of financial markets and institutions include the bank regulatory and supervisory framework that arose as a consequence of the crisis in the early 1980s, the laws governing the securities market and corporations, and the series of capital market reforms (I, II, and III) that were implemented over the following decades (Berstein and Marcel, 2019).

The financial integration process was consolidated with the regulatory changes implemented in the early 2000s, following the adoption of the floating exchange rate regime in 1999. These included the elimination of capital controls, the authorization of cross-border foreign exchange derivative transactions, and the increase in overseas investment limits for the pension fund managers (PFMs) (Villena and Hynes, 2020). This process was planned starting in the late 1990s, when the domestic capital market had reached a level of development that would support advancing to a new phase of financial integration (Massad, 2001). Going forward, the financial integration and development process will require continuous adjustments to address new challenges that arise due to globalization. In this line, the CBC's current financial modernization agenda includes issues such as the strengthening of financial market infrastructures and the convertibility of the Chilean peso.

The degree of Chile's financial integration with the world is notable for the size of external assets and liabilities as a share of GDP, the large share of FDI, and the relative importance of private agents.

The international investment position (IIP) is an important tool for quantifying the degree of financial integration, since it measures an economy's foreign exposure. It includes both assets held by residents overseas and their liabilities to nonresidents. In terms of the size of the external balance sheet, Chile currently stands out among emerging economies for the amount of both accumulated assets and liabilities relative to its GDP. The composition of external assets and liabilities, in terms of both type of instrument and institutional sector, is relevant for evaluating the potential benefits and costs of integration. By type of instrument, Chile is notable for the FDI component, including both nonresident investment in the country and resident investment in other countries (figure IV.1, panel a). This category is more stable and less sensitive to disruptions in international financial conditions, in part because the investment horizon is long term (Contessi et al., 2013; Koepke, 2019). With regard to the international investment portfolio, there is a large share of international assets other than foreign exchange reserves. This differs from the trend in other emerging economies in Asia, Europe, and Latin America. Finally, other investment—mainly bank deposits and loans—is smaller in magnitude, which is a positive factor given that this category tends to be relatively more volatile.

By institutional sector, Chile has a relatively large share of private agents (households and firms) in both external assets and external liabilities, which represents another difference with other emerging economies (figure IV.1, panel b). In the case of other financial institutions—such as local nonbank institutional investors—the greater asset position is due to the pension funds. In contrast, the banks maintain a slight liability position, despite a high participation rate for foreign banks (figure IV.2).

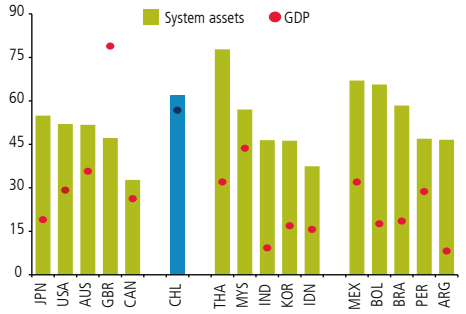
The above evidence is consistent with the de jure financial liberalization process that the Chilean economy has undergone in recent decades (Pasricha et al., 2018). This process includes the relaxation of restrictions on both capital inflows and outflows (figure IV.3). In the case of outflows, it essentially reflects an increase in the overseas investment limits of the PFMs, which has been critical for diversifying risk in these institutions.

Chile's financial development stands out for the depth of its financial markets and institutions.

Chile has a high level of financial development, which is unusual in the emerging world. In four decades, it has gone from being integrated almost exclusively through the traditional banks, to including a range of other market participants such as the pension funds, general fund managers, life insurance companies, and so forth.

The depth of the country's financial markets and financial institutions is particularly notable, as measured mainly through stock market capitalization and credit to the private sector as a percentage of GDP, respectively (Svirydzenka, 2016). Another strength is access to capital markets, measured by the number of debt issuers and other variables (figure IV.4). Additionally,

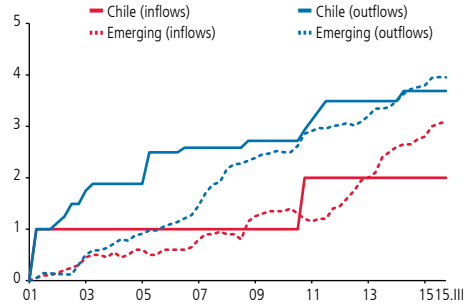
FIGURE IV.2
Foreign bank participation
(percent)



(*) Bars show the foreign bank share as a percentage of total banking system assets; dots show foreign banks' total assets as a percentage of the host country's GDP, in 2019.

Sources: Central Bank of Chile and Bank for International Settlements.

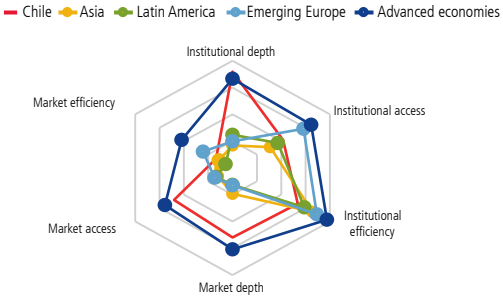
FIGURE IV.3
Net relaxation of capital controls (*)
(index)



(*) Net accumulated number of policies that relax capital inflows and outflows (i.e., policies that loosen minus policies that tighten). Sample of 20 emerging economies: Argentina, Brazil, Bulgaria, China, Colombia, Egypt, Hungary, India, Indonesia, Malaysia, Morocco, Mexico, Peru, Philippines, Poland, Russia, Saudi Arabia, South Africa, Thailand, and Turkey.

Source: Central Bank of Chile, based on Pasricha et al. (2018).

FIGURE IV.4
Depth, access, and efficiency of financial markets and institutions (*)
(percent)



(*) The depth of financial institutions is measured as the sum of domestic bank credit and institutional investors' assets, as a share of GDP; market depth, through market capitalization measures. Access to financial institutions is measured by the density of offices and ATMs relative to the size of the population; capital market access, by the number of issuers and the share of minority issuers. The efficiency of financial institutions is measured based on their financial statement ratios; capital market efficiency, by the volume traded on the stock market.

Source: Central Bank of Chile, based on data from the World Bank.

the banking system in particular is positioned among the strongest within the reference group of emerging economies, according to comparable international assessments. Finally, while the volume traded on the stock market is low relative to other economies, there have been important advances in recent years that should have a positive impact on market efficiency, such as the strengthening of the clearing and settlement process for foreign currency transactions (box VI.1).

In conclusion, financial integration provides important benefits for small open economies like Chile, by giving them access to international capital markets under generally favorable terms, making it possible to diversify risk, and contributing to greater discipline and efficiency in the financial system. However, it also exposes these economies to external financial fluctuations. Therefore, the international integration of these economies must be accompanied with the development of domestic markets and institutions and the implementation of sustainable macroeconomic policies that contribute to increasing market confidence. The path taken by Chile to achieve its current level of financial development and integration is fairly unusual, to the extent that households and the government increased their savings while international financial integration increased (Bennett, Loayza, and Schmidt-Hebbel, 2000). This was possible thanks to the structural changes carried out in recent decades. Thus, Chile currently has a financial system that is highly integrated with the world, with strong participation by private agents in that integration, a well-developed domestic financial market, and a macroeconomic policy framework that allows the economy to adequately withstand international market fluctuations.

IMPACT ON DOMESTIC FINANCIAL VARIABLES AND THE ROLE OF MITIGATORS

In recent decades, the most important channels for the transmission of external financial disturbances have been financial in nature, that is, fluctuations in capital flows and changes in the volume of foreign currency transactions. These are channeled either through portfolio changes by global investors (Bernales et al., 2020) or through the financial relationship between global banks and their subsidiaries (Cetorelli and Goldberg, 2012). The transmission could also come through real channels, in which case the international trade of goods and services becomes important for the transmission of disturbances in the terms of trade, through their impact on the valuation of local firms and the government's credit rating. Through these channels, changes in external financial conditions affect domestic financial conditions, including spreads, interest rates, exchange rates, stock returns, and volumes traded in primary and secondary markets.

For many small open economies like Chile, local financial conditions have remained relatively favorable, largely due to the liquidity and credit-provision measures implemented by the authorities (chapter I). However, a review of a broader set of factors—including, for example, sentiment indicators—reveals that there is a high level of uncertainty (box I.1). Additionally, it is important to note that the financial framework of the different economies makes a difference in the impact of the changes in external financial conditions on domestic markets.

In Chile, the exchange rate is the variable that absorbs most of the impact of sharp changes in external conditions; other local financial variables react less than in in the case of other emerging economies.

In Chile, the floating exchange rate is the primary shock absorber for changes in global financial conditions, such as might be produced by an unexpected increase in the U.S. monetary policy rate (figure IV.5). This gives the domestic monetary policy rate more room to move independently from external benchmarks, adjusting to the local economic cycle. Additionally, unexpected increases in the VIX index and significant drops in the terms of trade will also depreciate the exchange rate (Chen et al., 2016).

A one-standard-deviation increase in the VIX causes an immediate drop in the local stock market and increases the sovereign spread. However, these effects are smaller than the impact recorded in other emerging economies (figure IV.6).

Finally, available estimates indicate that a 100 bp increase in the U.S. ten-year sovereign rate raises the equivalent local bond rate by 35 bp, on average, in a three-month horizon (Saavedra and Sagner, 2020). However, it is important to note that this passthrough coefficient has varied over time, recently reaching around 50% (figure IV.7). These results are consistent with the international literature, which indicates that long-term interest rates are highly integrated in small open economies with mature financial markets and a floating exchange rate (Kulish and Rees, 2011).

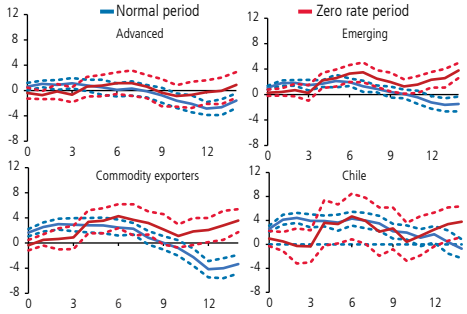
Financial integration allows residents to accumulate external savings, which can provide liquidity in times of crisis.

These resources help offset the effects of a sudden exit of nonresidents from the local financial market (Contreras and Pinto, 2015; Cifuentes and Jara, 2016). In Chile, the probability of offsetting capital flows has been high relative to other emerging economies (figure IV.8). This is due to the accumulation of external assets by the pension funds and sovereign wealth funds, which—in order to diversify share returns and comply with the fiscal spending rule, respectively—have played a stabilizing role in net capital flows. However, the stabilizing role of such funds depends on the nature of the shock, since those of domestic origin can trigger a contrary effect.

In Chile, the main mitigators of changes in external financial conditions include the floating exchange rate, the maturity of the financial market, and fiscal policy based on a structural balance rule aimed at preserving solvency and softening economic shocks.

Mitigators can be classified into two groups: first, automatic mechanisms (for example, the floating exchange rate, fiscal policy, and countercyclical monetary policy) or structural features of the financial system (for example, compliance with regulatory standards); and second, policies implemented under exceptional circumstances (for example, liquidity provision), whose power depends on the policy space.

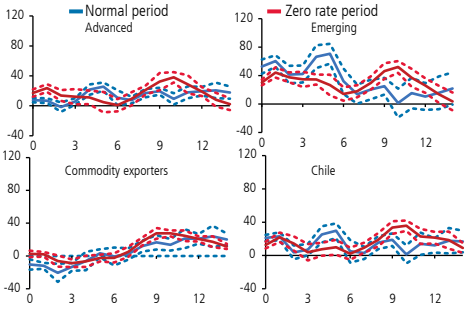
FIGURE IV.5
Effects of a U.S. monetary shock on nominal exchange rates in 12 months (*)
(percent)



(*) Includes 13 advanced economies (Czech Repupblic, France, Germany, Hong Kong, Israel, Italy, Japan, Netherlands, South Korea, Spain, Sweden, Switzerland, and United Kingdom), 21 emerging economies (Argentina, Brazil, China, Colombia, Ecuador, Honduras, India, Indonesia, Jordan, Mexico, Malaysia, Peru, Philipppines, Poland, Romania, Russia, South Africa, Thailand, Turkey, Ukrane, and Venezuela), four commodity exporters (Australia, Canada, New Zealand, and Norway), and Chile. Dotted lines show the confidence intervals (± 1 heteroskedasticity-corrected standard error, following Driscoll and Kraay, 1998).

Source: Central Bank of Chile, based on Jara andRamírez, 2020.

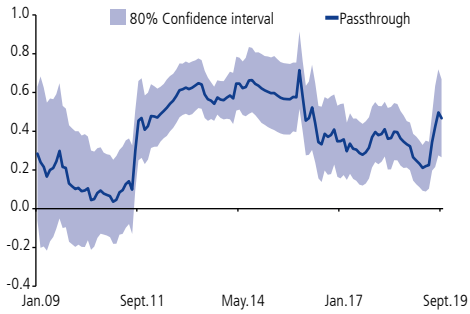
FIGURE IV.6
Effects of a VIX shock on spreads in 12 months (*)
(percent)



(*) Includes 13 advanced economies (Czech Repupblic, France, Germany, Hong Kong, Israel, Italy, Japan, Netherlands, South Korea, Spain, Sweden, Switzerland, and United Kingdom), 21 emerging economies (Argentina, Brazil, China, Colombia, Ecuador, Honduras, India, Indonesia, Jordan, Mexico, Malaysia, Peru, Philipppines, Poland, Romania, Russia, South Africa, Thailand, Turkey, Ukrane, and Venezuela), four commodity exporters (Australia, Canada, New Zealand, and Norway), and Chile. Dotted lines show the confidence intervals (± 1 heteroskedasticity-corrected standard error, following Driscoll and Kraay, 1998).

Source: Central Bank of Chile, based on Jara and Ramírez, 2020.

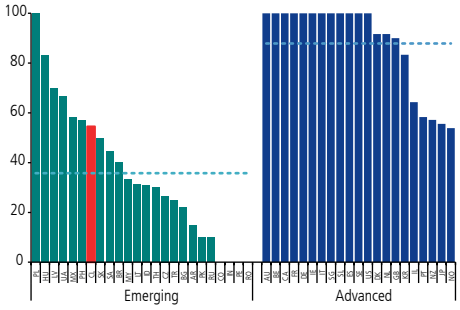
FIGURE IV.7
Passthrough coefficient from 10-year nominal U.S. Treasury note rates to 10-year CBC bonds
(coefficient)



(*) The passthrough coefficient is the ratio between the accumulated response of the local rate to a shock in its external counterpart and the response of the external rate to itself, both in three months. Calculated in 60-month rolling windows. VAR(1) model for the following variables, in levels: 10-year T-note yields, expected exchange rate depreciation, EMBI Chile, and 10-year BCP yields.

Source: Central Bank of Chile, based on Saavedra and Sagner, 2020.

FIGURE IV.8
Probability of offsetting sudden capital flow reversals (*)
(percent)



(*) The number of events in which capital flows increased or fell sharply and the number of simultaneous offsetting events in intenrational assets between 2000 and 2020.

Source: Central Bank of Chile, based on Cifuentes and Jara (2014) and Forbes y Warnock (2012).

The floating exchange rate regime has created incentives for agents to reduce their net foreign currency exposure.

The liberalization of capital outflows for the pension funds, subject to foreign currency hedging, contributed to the development of the foreign exchange derivatives market in Chile. Additionally, the implementation of the floating exchange rate regime brought with it a reduction in the currency mismatch of firms that have debt in dollars and use the peso as their functional currency (Fernández et al., 2020). This situation has been stable over the past couple of decades, mitigating the currency risk inherent in the increase in external debt. It is important to note that higher levels of exchange rate volatility, deriving from a free float, discourage the holding of currency mismatches, especially when it is possible to acquire financial hedging instruments in the domestic market (Albagli et al., 2020). Furthermore, current banking regulations limit the currency mismatch of banks, keeping this sector in an asset position in foreign currency. Stress tests that consider sharp changes in the exchange rate estimate the total potential loss for the system at less than 2% of Tier 1 capital (chapter V). Finally, the existence of the UF (unidad de fomento, an inflation-indexed unit of account) promotes the issue of medium- and long-term credit, such as mortgages, in this unit of account. This contrasts with the markets of other emerging countries, such as Croatia, Hungary, Poland, Romania, and Serbia, where this type of loan is denominated in foreign currency (Beckmann, 2017).

Chile has a mature financial system that acts as a mitigator of changes in external financial conditions.

A mature financial market provides access to diversified financing sources and regulatory structures, as well as higher-quality security rights (Burger et al., 2012), and reinforces the effectiveness of the floating exchange rate as a mitigator of external disturbances (Obstfeld, 2020). Chile is considered to be an economy with a mature financial system, similar to Australia, Canada, and Norway (IMF, 2016), and a consistent policy framework.

An example of the above is the role of domestic nonbank investors in the local sovereign debt market. Their high share of this market (over 80% of the long-term market) has contributed to reducing the volatility of long-term sovereign interest rates (figure IV.9). Recently, however, the volatile trends in the investment decisions of the PFMs—deriving from the massive movement of affiliates between funds—have generated significant portfolio adjustments by this type of investor, diminishing their ability to act as an effective mitigator (figure I.11).

Furthermore, banking systems with lower levels of risk—due to an appropriate financial supervisory and regulatory framework—give rise to lower sovereign spreads (figure IV.10). Numerous economies have introduced policies aimed at reducing exposure to the so-called international banking channel, such as surcharges for global systemically important banks. This lowers the possibility that developments in the parent company's home country will be transmitted to the host country through the subsidiary or affiliate or even through loans from large international banks (Cetorelli and Goldberg, 2012). In the case of Chile, as in other Latin American countries, the global banking system can only lend directly to the local market through subsidiaries established with local capital

and subject to the jurisdiction of the host country, which in itself is a mitigating aspect of bank regulation (Barth et al., 2013). However, this does not isolate the domestic banking system from other potential sources of contagion, such as regulatory arbitrage. Therefore, it is important to continue fine-tuning Chilean regulations, in line with international regulations (FSR, First Half 2018).

Another important mitigator in Chile is the existence of sovereign wealth funds, maintained by the government to comply with the countercyclical fiscal spending rule.

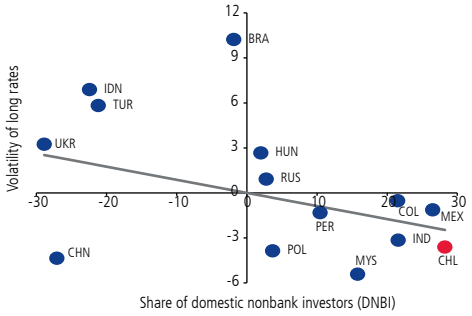
As a result of the implementation of the fiscal balance rule through the management of sovereign wealth funds, variations in the terms of trade, particularly the copper and oil prices, attenuate the effect of fluctuations in the nominal exchange rate between the Chilean peso and other currencies (Aizenman et al., 2014; Fornero et al., 2016). Likewise, this contains the effects of commodity price cycles on the domestic financial system, providing additional support for the maintenance of financial stability, and also reinforces the aforementioned stabilizing role of the sovereign wealth funds on net international capital flows.

Nevertheless, sudden changes in international financial conditions may require extraordinary measures.

The measures that may have to be implemented to address extraordinary situations aim to minimize the potential difficulties for economic agents to access external financing, as well as to reduce potential contagion to other local markets (for example, the money market). In these cases, the structural, policy, and institutional strengths described above may not be entirely sufficient to avoid contagion to the local financial markets, but they do increase the effectiveness of market interventions (IMF, 2020). In this respect, the CBC, in fulfilment of its financial stability mandate, has intervened in the foreign exchange market on nine occasions since the float was established in 1999. Some of these interventions have generated changes in the net international reserve position, while others have been implemented through swap operations. Moreover, in the context of the current pandemic, the Chilean monetary authority signed an agreement with the IMF for a flexible credit line totaling almost 9 points of GDP, for a period of two years.

Foreign exchange restrictions, such as bank reserve requirements, were frequently used as a mechanism for mitigating the transmission of external shocks prior to the implementation of the floating exchange rate. However, these restrictions were not compatible with the new regime, and their effectiveness was questionable, especially in a context of greater openness and financial and trade integration. Therefore, the CBC revised its foreign exchange regulations in the early 2000s to reflect this new reality and is currently in the process of making new regulatory changes to facilitate the convertibility of the peso, as part of the modernization of its foreign exchange regulations (box V.1). At any rate, the macroprudential policy framework allows the CBC to apply restrictions on capital movements, under exceptional circumstances and as necessary for the fulfillment of the Bank's objectives, in accordance with the provisions of its Basic Constitutional Act.

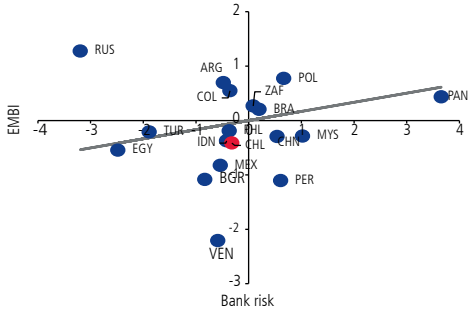
FIGURE IV.9
Share of domestic nonbank investors and volatility of long rates (*)
(percent)



(*) Relates the volatility of long rates and the share of domestic nonbank investors (DNBI) in the sovereign debt market, adjusted by the Frisch-Waugh-Lovell theorem, using specification (5) in Álvarez, Fernandois, and Sagner (2019).

Source: Central Bank of Chile, based on Álvarez, Fernandois, and Sagner (2019).

FIGURE IV.10
Sovereign spread and bank risk (*)
(percent)



(*) Relates the EMBI with a measure of bank risk. Both variables are adjusted by the Frish-Waugh-Lowell theorem and use specification (4) from Chari et al. (2020, table 5).

Source: Central Bank of Chile, based on Chari et al. (2020).

In sum, greater financial integration has given local agents access to favorable financing conditions, at the same time that the Chilean economy has developed its domestic financial markets. This, combined with the economy's macroeconomic and financial policies described above, has helped mitigate the risks associated with the financial opening process, with a vital role plaid by the floating exchange rate and the solidity of the institutional framework. Additionally, it is important to continue adapting to the policy challenges raised by changing domestic and international conditions.

FINAL COMMENTS AND FUTURE CHALLENGES

Chile embarked on the process of financial opening in the late 1990s, together with the deepening of its own financial system. These factors allowed local agents to benefit from the improvements in external financial conditions without increasing their level of financial risk. More recently, the social protests in late 2019 and the pandemic in 2020 have generated financial effects and policy responses that have deteriorated some of the mitigators described above. These will have to be strengthened and deepened, including recovering the buffers used (e.g., public debt and bank capitalization), in order to meet the important challenges that will arise in the future. These are in addition to the challenges that the country was facing before these events hit, such as continuing to reduce the existing gaps (e.g., the adoption of the Basel III framework, the internationalization of the local currency, and the reduction in the cost of foreign currency hedging) and addressing new vulnerabilities that could arise (e.g., the geographic concentration of the external exposure of the nonfinancial corporate sector and the volatile behavior of pension fund managers' investment decisions due to movements by affiliates).

Finally, as highlighted in past FSRs, the advances made in recent years, oriented toward strengthening the financial infrastructure, have reinforced the country's financial development. Important developments include the extension of the Central Bank's RTGS system to include dollar operations, the regulation of a large-value clearing house for peso-dollar spot transactions, and the development of a derivatives trade repository. Additionally, the future incorporation of the Chilean peso into the CLS System would constitute a strong signal of financial development, promoting the participation and competitiveness of the local foreign exchange market, and would also facilitate the provision of liquidity in foreign currency under global stress conditions.

BOX IV.1
THE GLOBAL FINANCIAL CYCLE

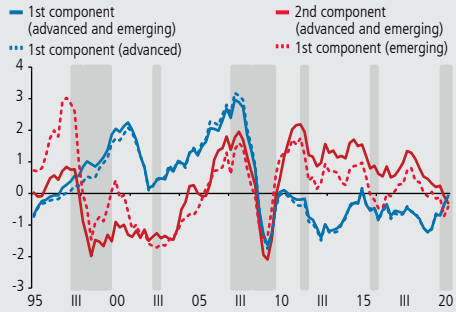
Several external financial conditions are important for determining the cost of external financing for local agents and their access to it. However, a subset of these variables explain a large share of the financial fluctuations observed in the international markets, which points to the existence of a global financial cycle (Miranda-Agrippino and Rey, 2015). This box summarizes the literature on this issue.

Among external financial conditions, one fundamental factor is U.S. monetary policy (both conventional and unconventional), which in turn interacts with the degree of risk aversion and the search for returns by international investors.[1]/ Changes in risk aversion, usually measured through shifts in the VIX volatility index, also have an impact on the balance sheets of international financial intermediaries, thereby affecting global liquidity (Bruno and Shin, 2015). Additionally, sudden changes in investors' perceptions of sovereign risk—in particular, when fiscal policy is perceived as unsustainable or when the rule of law is perceived as under threat—increase the cost of external financing and expose economies to the risk of financial contagion. Finally, the terms of trade are an important factor for emerging economies that are strongly dependent on commodity exports (Cashin et al., 2004).

After the Global Financial Crisis, the advanced economies sought to recover from the crisis through the implementation of unconventional monetary policies, which translated into massive purchases of long-term bonds and other financial assets.[2]/ This generated strong downward pressure on long-term interest rates in both developed and emerging countries (chapter I).

Furthermore, in recent decades there has been an increase in the synchronization of risky asset prices that affect the degree of leverage of the global banks, the dynamics of capital flows, and the growth of credit. This greater synchronization points to the existence of a global financial cycle (Miranda-Agrippino and Rey, 2015). Essentially, prior to the Global Financial Crisis, the common factor that explained, for example, the dynamics of capital inflows to emerging economies moved in conjunction with the factor that explained the dynamics of capital inflows to advanced economies (figure IV.11). This synchrony was even higher during the Global Financial Crisis, when nearly 80% of economies (emerging and advanced) recorded sudden changes in capital flows (statistical appendix). After the Global Financial Crisis, however, the two factors followed different trends, suggesting the existence of one strong global financial cycle for advanced economies and another for emerging economies.

FIGURE IV.11
Global financial cycle (*)
(standard deviations from the mean)



(*) First and second main components of capital inflows to advanced and emerging economies over GDP. Shaded areas indicate periods of financial stress.

Source: Central Bank of Chile, based on data from the International Monetary Fund.

Thus, from 2012 on, the emerging economies experienced a reduction in external financing costs due to the international financial climate, the commodity price boom, and the relatively low spreads (IMF, 2015; Chang et al., 2017). Nevertheless, this scenario has partially reverted recently, as a consequence of the pandemic. Going forward, this global financial cycle could be less favorable as the monetary and fiscal stimulus measures begin to be withdrawn, which would have a bigger impact on economies that have seen an increase in their financial vulnerabilities.

[1]/ There are several reasons for the predominance of U.S. monetary policy beyond the dollar's role as a store of value, given its use in (i) foreign trade, (ii) the cross-border sale and purchase of financial instruments, and (iii) the denomination of international claims and liabilities (Gopinath et al., 2020).
[2]/ In addition to an unprecedented expansionary conventional monetary policy, which in some cases even fell to negative levels.

V. FINANCIAL POLICY DEVELOPMENTS

TABLE V.1
Regulatory adjustments implemented to promote the flow of credit through FOGAPE

Date	Regulation	Modification
26 June	Finance Ministry modified FOGAPE regulation	Reduces the deductible for financial institutions that receive the guarantee and increases the maximum amount of financing for firms with sales of less than UF 1,000
21 July	FMC adjusted Compendium of Accounting Regulations	Requires financial institutions to report the percentage of the deductible on loans that have the FOGAPE guarantee and also report the loan loss provision constituted for the deductible.
21 August	FMC made changes to Chapter 12-1 of the banking regulations	"The risk weight on loans guaranteed by the Treasury, CORFO, and FOGAPE was reduced from 100 to 10% of the principal for the purposes of calculating RWAs. Changes were made to the provision that, until then, had allowed banks to include a share of the Treasury, CORFO, and FOGAPE loan guarantees as part of voluntary provisions that make up regulatory capital."

Source: Central Bank of Chile.

This chapter reviews the main international and local developments in financial policy. Since the last Report, the Bank continued to apply the measures to address the economic and financial consequences of the COVID-19 pandemic, while continuing to move forward actively on the implementation of the Financial Policy Agenda of the Central Bank of Chile (CBC) and other permanent financial regulation initiatives.

MEASURES TO ADDRESS THE IMPACT OF COVID-19

Because the pandemic has lasted longer than initially expected, most jurisdictions, including Chile, have maintained the various financial policy measures adopted in the first half of this year to mitigate the economic and financial effects, while also adopting new ones.

Main measures adopted in Chile

In Chile, the financial regulation response to the pandemic has been maintained and extended through coordinated actions by the different financial authorities. This analysis does not consider the exceptional liquidity-provision measures implemented by the CBC, which are described on the Bank's website.

Regulatory adjustments to facilitate the extension of FOGAPE loans

The FMC and the Finance Ministry have made regulatory adjustments, in particular to strengthen the effects of the FOGAPE loans (table V.1). As discussed in chapter 3, this program has been very important for maintaining the flow of credit in the economy.

The FOGAPE-related regulatory adjustments implemented by the FMC include, first, the amendment of the FOGAPE regulation on June 26, to incorporate the temporary legal changes that relaxed the requirements on applying for the fund's guarantees and the maximum interest rates that can be charged when the loans are granted by institutions with access to the CBC. Second, on July 21, adjustments were made to the FMC's Compendium of Accounting Regulations, requiring financial information reports to include the percentage of the deductible associated with loans that have the FOGAPE-COVID guarantee, as well as the provisions for covering the expected loan losses from these operations. Finally, on August 21, there was an amendment to the regulatory provision that had until then allowed a share of the guarantees from the

Treasury, CORFO, and FOGAPE, on loans originated by the banks, to be included in the voluntary provisions that make up regulatory equity. At the same time, the loans guaranteed by the Treasury, CORFO, and FOGAPE, were incorporated in category 2 of the risk-weighted asset classification, which lowered their risk weight from 100% to 10% of the principal.

The CBC, in turn, made regulatory adjustments associated with the investment of the FOGAPE resources, with the amendment of Chapter III.K.1 of its Compendium of Financial Regulations (CFR), allowing the use of derivative instruments to manage the underlying interest rate and exchange rate risks of the investments.[1]/

Extension of the relaxation of the bank liquidity regulation (CFR, Chapter III.B.1.1)

On 4 June, the Board voted to renew, for another period of 90 consecutive days, the exceptional and temporary measures on the management and measurement of banks' liquidity position, which was renewed again through 15 January 2021, in response to the persistence of the pandemic that led to the adoption of these measures (table V.2).

This suspension of the regulatory limit was applied to both contractual and adjusted maturity mismatches at 30 and 90 days. However, it was not applied to the liquidity coverage ratio (LCR), since the FMC, in its supervisory process, can assess potential deviations from the LCR requirement, exercising its supervisory discretion.

Incorporation of contingency protocols in the CBC regulation on the Check Clearing House in Domestic and Foreign Currency (CFR, Chapter III.H.1.)

On 4 August, the new regulation was issued governing the Check Clearing House in Domestic and Foreign Currency (CFR, Chapter III.H.1.), which incorporated a special protocol for implementing actions during contingency situations. The CBC has activated this protocol on two occasions, in response to difficulties that have arisen due to the social crisis and the pandemic. These events have affected the Clearing House's clearing and settlement processes due to the substantial physical, human capital, and logistical components involved.

The first activation of the new protocol occurred on 10 August, with the three-month suspension of the application of the individual limit of 50 million pesos for the submission of checks and other bank documents, issued by banks in domestic currency, for payment, clearing, and settlement in this Clearing

TABLE V.2
Regulatory adjustments implemented by the CBC

Date	Modification
August 4	New regulations were issued on the Check Clearing House in Domestic and Foreign Currency, incorporating a special protocol for implementing actions in contingency situations.
September 3	Temporary exceptional measures were renewed, for another period of 90 consecutive days, on the management and measurement of the banks' liquidity position, in resopnse to the persistence of the contingency situation that gave rise to the initial adoption of these measures.
September 24	Authorization was given for the investment of FOGAPE resources in derivative instruments, with the objective of hedging interest rate and/or exchange rate risk in the fund's investments.

Source: Central Bank of Chile.

[1]/ The investment of these instruments must be compatible with the limitations on the fund's indebtedness, contained in the FOGAPE Management Regulations issued by the Commission, and must also comply with the regulations on both financial and foreign exchange derivative operations issued by the Central Bank of Chile, contained in Chapter III.D.1 of the Compendium of Financial Regulations and Chapter IX of the Compendium of Foreign Exchange Regulations, or any regulatory provisions that could modify or replace it in the future.

House. The second activation was on 7 September, when it was decided that participants of this Clearing House can pay their net debit balance in dollars via interbank SWIFT transfers, against dollar current accounts maintained in their correspondent banks in New York. This measure will be applied for a period of three months or until the settlement of net debit positions in USD in this clearing house can be operationally processed through the RGTS system in dollars.

This new protocol was implemented in coordination with the FMC and includes mechanisms allowing both institutions to react and make joint decisions in the shortest time possible.

In the legislative arena, the withdrawal of a share of pension savings was approved in this half.

In July, a constitutional reform was approved to allow affiliates of the private pension system, governed by Decree Law DL 3,500, to implement a temporary, exceptional, voluntary, one-time withdrawal of 10% of the funds accumulated in their individual capitalization accounts for mandatory pension savings, with a maximum of UF 150 and a minimum of UF 35.[2]/ The Superintendence of Pensions relaxed the investment limits on certain counterparties and instruments and authorized the use of new investment instruments, in order to facilitate the liquidation of funds and the associated portfolio adjustment and thereby mitigate possible disruptions in the markets deriving from the massive sale of financial instruments. To support this asset liquidation process in the PFMs, the CBC announced a set of measures in July to safeguard the stability of the financial system: namely, the purchase of bank bonds, a special "CCVP" program for these same instruments, and the purchase of time deposits, as described in chapter I of this FSR.

Main measures adopted internationally to face the pandemic

As in Chile, there has been a major international response to the pandemic on the part of financial regulators and central banks. The main measures adopted involve loosening regulatory capital and liquidity requirements to ensure financial stability and thereby protect the real economy from even more severe damage than it is already suffering as a result of the lockdown measures to control the pandemic. These financial measures have continued to be implemented in many jurisdictions during the second half of the year, although the number has dropped.

The main measures adopted by different jurisdictions, published in the FSR for the first half of 2020, include those oriented toward reducing capital conservation (CCoB) and countercyclical capital buffers (CCyB), seeking to avoid a credit contraction by the banks and thus reducing the effect on financial activity. Additional measures have been implemented to loosen regulatory requirements on liquidity and on lending and/or default classification policies,

[2]/ In the event that 10% of the accumulated funds is less than UF 35, the affiliate can withrdraw up to that amount.

which have been widely adopted (table V.3). In the second half, the number of jurisdictions implementing regulatory relaxation measures has decreased, although the use of lending and borrower classification facilities remains more active.

In Chile, both the CBC and the FMC have taken an active role in the adoption of this type of measure, as detailed in the preceding subsection, implementing actions in the areas of bank liquidity requirements (mismatches), foreign currency reserve requirements, and the facilitation of the flow of credit to people and firms (FOGAPE). With regard to the CCyB, the regulatory implementation process has not been finalized, so it has not been considered within the set of possible measures.

In conclusion, the measures implemented by the different jurisdictions have tended to evolve in line with the pandemic. Thus, initially, there was a widespread adoption of measures focused on strengthening the financial system, where central banks have played a key role. Subsequently, once the possible regulatory relaxation measures had been taken to reinforce financial stability, jurisdictions have focused on implementing measures directed toward people and firms, in order to accelerate the economic reactivation.

TABLE V.3
Measures that loosen bank capital and liquidity requirements due to the COVID-19 pandemic
(number of jurisdictions)

	Measures taken by individual countries		
	Accumulated on 31 May	After 01 June (2)	Chile (3)
Reduction/loosening of liquidity requirements	18	7	Yes / CBC
Reduction of reserve requirements	16	3	Yes / CBC
Reduction of CCyB	14	0	No
Reduction of conservation or other capital buffer	17	2	No
Deferral of capital increases	10	5	Yes
Loosening of lending and/or default classification policies	25	14	Yes / FMC

(1) Excluding the ECB.
(2) Includes both old and new jurisdictions relative to the previous period.
(3) For Chile, the two periods are not disaggregated, as all measures remain in place.

Source: Central Bank of Chile, based on FSB, OECD, IMF, and Yale Tracker.

LONG-TERM FINANCIAL POLICY DEVELOPMENTS IN CHILE AND THE WORLD

The massive pandemic response by the country's financial authorities has not prevented these organizations from also moving forward on medium- and long-term developments. In this context, this section describes advances that have been made on the implementation of the CBC Financial Policy Agenda for 2020, as well as the main non-pandemic developments in other financial regulators and laws recently approved by Congress.

THE CENTRAL BANK OF CHILE'S FINANCIAL POLICY AGENDA

The Bank has continued to make progress on its Financial Policy Agenda with the new amendments to its foreign exchange regulations and advances on other important developments that should materialize in the current year.

Modernization of foreign exchange regulations

In the second half of this year, a public consultation was opened on the new amendments to the Compendium of Foreign Exchange Regulations (CFER), in order to expand the foreign exchange operations that can be conducted with Chilean pesos. This regulatory amendment will enter into effect on 1 January 2021 (see box V.1 for details).

Implementation of the countercyclical capital buffer (CCyB)

The General Banking Law (GBL), in Article 66 ter, gives the CBC the responsibility for the activation and deactivation of the CCyB. As described in the last FSR, the CBC is in the process of internally developing the documentation and market communication protocols on the main guidelines and factors that the CBC Board will take into account in implementing this tool.

The mechanisms for coordination, both internally and with the FMC, require moving forward quickly on this initiative, in particular so that the regulatory framework for the implementation of Basel III can be completed. Therefore, this documentation, which constitutes a good practice in transparency at the international level, is in the process of being developed, adopted, and adapted to the Chilean institutional context, and it will be published by the CBC before the end of this year.

The Central Bank's objective in the development and publication of this documentation is to provide the market with a greater degree of transparency on the use of this tool. Thus, the documentation will explain the strategic objectives that will guide the Board's decisionmaking, the set of economic and financial indicators that will serve as inputs for the analysis, the fundamental elements and general methodologies of the different quantitative models (theoretical and empirical) that will be used, and the role of qualitative analysis in reaching the final decision, always guided by the structural objectives of the CBC in relation to financial system stability.

The formal decisionmaking process will be channeled through the quarterly Financial Policy Meetings (FPMs). After the meeting, the Board's decision will be published in a formal communication that clearly specifies the level of the CCyB set by the Board, the main reasons behind the decision, the date on which the requirement will enter into effect, and the Board's view on the expected path of the CCyB in a medium-term horizon.

Regulatory developments to address the evolution of the retail payment markets

The CBC has continued working on the design of a regulatory framework for the clearing and settlement of retail payments, as reported in the last FSR, which should be published for public consultation in the coming weeks.

Additionally, the Bank has decided to review the prudential requirements for Payment Card Operators, taking into account the implementation of the four-party model. In particular, it should be possible to reduce the capital and liquidity requirements for these entities, without compromising the security level of the system. This would facilitate the entry of new entities in this market, which would have a positive effect on competition and give businesses more options in terms of acquirers.

Financial market infrastructures

As reported in past FSRs, the CBC has developed a series of regulatory initiatives in recent years to strengthen and expand the framework of financial market infrastructures in Chile. Details on these measures and the status of their development are provided in chapter VI.

Implementation of Basel III

The regulatory implementation of Basel III has continued to move forward. The FMC recently published the final versions of "the standardized methodology for the computation of operational-risk-weighted assets" and "the factors and methodology for banks and groups of banks classified as systemically important and the requirements that could be imposed as a result of this classification." Both regulations received the prior favorable assessment of the CBC Board, and they incorporate the main elements of the Basel III standards and international practice, with adaptations to take into account the specificities of the local market.

The FMC has also published the final version of other regulations aimed at implementing the Basel III standards, which do not require the prior favorable assessment of the CBC. These include the regulation establishing the basis for the supervision of additional Tier 1 capital in accordance with Articles 66 bis and 66 ter of the GBL, which correspond to the capital conservation buffer (CCoB) and the countercyclical capital buffer (CCyB), respectively; the evaluation of the banks' capital adequacy (known as Pillar 2) and the necessary adjustments for adapting it to the management and solvency classification regulations; regulations establishing deductions and accounting methods for the different components of regulatory capital; and regulations on the ratio between Tier 1 capital and total assets or leverage, as indicated in Article 66 of the GBL.

With regard to the Pillar 2 regulations, published in September, the supervisory review encompasses two processes. First, the banks conduct an annual self-assessment of their capital based on their internal capital objectives, strategy, and business plan. Second, the FMC evaluates capital adequacy for safeguarding the respective risk profile. If, as the result of these processes, it is found that a bank's risks are not sufficiently covered by the general capital requirement (Pillar 1), the FMC can issue a substantiated resolution requiring higher capital than the legal minimum for individual banks, which cannot exceed 4% of RWAs net of provisions.

In October, a public consultation was opened on the regulation known as Pillar 3, which promotes market discipline and transparency through the timely and substantial disclosure of information associated with the bank's profile. When this regulation enters into effect, the banks will disclose a single document that gives their related parties a reading of prudential parameters, including capital composition, leverage ratio, liquidity ratios, risk indicators, aspects of support costs, and so forth. This will improve the comparability of national and international banks.

The regulations on the issue of hybrid instruments (preferred stock and perpetual bonds) and on the calculation of credit- and market-risk-weighted assets must be published before December of this year.

FMC Strategic Plan

In September, the FMC presented its 2021–22 Strategic Plan, which aims to materialize the benefits of the integration of the financial supervision of securities, insurance, and banks in Chile. To this end, the plan contemplates diverse strategic initiatives that will strengthen the Commission's regulatory and supervisory capacities in order to safeguard the solvency of the supervised entities, ensure adequate market conduct, and reinforce consumer protection.

Regulatory initiatives include the design and implementation of an integrated regulatory process, a proposal for a law on conglomerates, the ongoing implementation of the Basel III standards, a future proposal for a law on bank resolution, and the strengthening of the regulatory framework for risk-based supervision of insurance companies.

With regard to supervision, the plan has the stated objective of strengthening and systematizing supervisory processes, which includes the design of an integrated supervision model, the implementation of a macroprudential risk management process, and the generation of a conglomerate supervision model.

With regard to market conduct and financial consumer protection, the plan contemplates the creation of a market conduct supervision policy on financial consumer protection and a supervision policy on transparency and integrity in the securities market. This would be accompanied by a strengthening of investigation and sanction capacities in order to support the achievement of these objectives.

Legal initiatives

The initiatives described in this section will allow the incorporation of important structural improvements in the financial system, although some will be prioritized or accelerated in view of the need to respond to the pandemic and the associated economic crisis.

In July, a constitutional reform was approved authorizing the CBC to buy and sell debt instruments issued by the Treasury. This faculty can only be exercised under exceptional, temporary circumstances, when necessary for the preservation of the normal functioning of the payment systems. It requires the approval of at least four Board Members, and the transactions must be carried out in the secondary market.

In October, Law 21.276 was passed, which amends three different laws (multipurpose bill) in order to safeguard the proper functioning of the financial market. This legal amendment introduces specific adjustments to Statutory Decree DFL 251 on insurance companies, Decree Law DL 3,500 on pension funds, and the Securities Market Law (SML).

In the case of DFL 251, the approved amendment makes capital reductions and the distribution of dividends conditional on compliance with solvency requirements and authorizes the FMC to change the limit on debt that is not subject to the additional technical reserve requirement, to 1.5 times the company's capital base. Additionally, it introduces provisions that facilitate companies' management of massive credit rating downgrades in the fixed-income instruments in their investment portfolio. With regard to DL 3,500, the amendment increases the range within which the CBC can set the pension funds' investment limit on alternative assets, raising the ceiling from 15 to 20% of the fund.

Finally, the SML amendment aims to facilitate administrative procedures to encourage firms to issue bonds in the local market, shortening the time for calling the shareholder and bondholder meetings for issuers of listed securities, and it allows issuers that are already registered in the FMC securities registry to opt for the automatic registration of debt securities.

Since the publication of the last FSR, the following laws have entered into force: Law 21,236, which regulates financial portability; and Law 21,334, which limits the responsibility of customers who use payment cards and electronic transfers in the event of loss, theft, or fraud. Both initiatives have been analyzed in past FSRs.

International developments

International organizations and the authorities in other countries continue to develop financial policy in areas that are unrelated to the pandemic. The CBC participates as a member of some of these international forums, such as the FSB Working Group on FinTech, the OECD Committee on Financial Markets, and the FSB's annual monitoring exercise on global financial intermediation, which is currently in preparation and whose updated results for Chile will be presented in the next FSR.[3]/ Recent developments include initiatives on cross-border payments, climate change, and various Fintech issues, which are discussed below. The CBC participates directly on all these issues.

Cross-border payments

One of the priorities for the G20 this year is to improve cross-border payments, including remittances. Given the standing of the G20, this initiative may have the greatest political support in this area to date. The objective is to make cross-border payments faster, cheaper, more transparent, and more inclusive.

The process started with a diagnostic study of the main frictions affecting cross-border payments. Five priority areas were identified, together with 19 building blocks for moving toward the stated objective. A very detailed roadmap was recently published for advancing on the issue.

[3]/ For a review of the methodology and main results for Chile from the last exercise, see FSR, First Half 2019, box V.2.

In general terms, one of the conclusions is that making progress in this area will require a multiplicity of factors and coordination among a wide range of public and private agents, as well as countries. Meeting the objectives will become more probable to the extent that more countries make coordinated progress on the largest possible number of building blocks.

Climate change

The authorities have continued to take actions aimed at understanding the financial risks and opportunities of climate change. As reported in the last FSR, the Superintendence of Pensions, the FMC, and the CBC, led by the Finance Ministry, have continued work on the Green Finance Committee. After releasing a joint statement and signing the Green Agreement in 2019, in conjunction with financial market associations, the agenda this year includes implementing and monitoring commitments to the Agreement, which are presented as a "2020+ Roadmap."

One of the objectives of this Roadmap is to generate the capacities through which the authorities and the industry can manage the risks and opportunities of climate change, develop green finance, and promote international cooperation in this area. In particular, the Green Finance Committee is working with the Climate Bond Index (CBI) to develop a classification (or taxonomy) of sustainable productive activities. This instrument defines productive activities according to their contribution to climate change, based on criteria established by the authority or international standards, promoting increased financial market transparency in the area of climate change, improving the allocation of resources, and correctly identifying the financial industry's exposure to the financial risks of climate change, among other benefits.

FinTech

The FSB has a working group on FinTech issues, and the CBC is one of the participants. The working group monitors and assesses financial innovations, primarily from a financial stability perspective. The group recently published two reports that were the subject of much discussion over the course of the year: "The Use of Supervisory and Regulatory Technology by Authorities and Regulated Institutions: Market Developments and Financial Stability Implications;"[4]/ and "BigTech Firms in Finance in Emerging Market and Developing Economies."[5]/

[4]/ FSB (2020a).
[5]/ FSB (2020b).

TABLE V.4
Main regulations passed during the FSR 2020.2 period)

Publication date	Organization	Document	Content
30 Apr 20	FMC	Circular N°2252	Treatment of provisions and reporting requirements for COVID-19 loans.
5 May 20	FMC	Circular N°2253	Extends the treatment of provisions and reporting requirements for FOGAPE-COVID-19 loans to include supervised savings and loan associations.
8 May 20	FMC	NCG N°412	Expands the scope of the knowledge-certification regulations to include receivables exchange brokers as requiring certification. Also loosens some provisions in the context of the COVID-19 pandemic.
25 May 20	FMC	Chapter B-1 of Compendium of Accounting Regulations	Allows financial institutions to use excess residential mortgage collateral to cover commercial loans to small and medium-sized enterprises.
26 May 20	SP	NCG N°267	Incorporates new investment alternatives for the pension funds, which will be able to add to their portfolio investments in the national assets of small and medium-sized firms and foreign gold certificates.
15 Jun 20	FMC	NCG N°30	Amends NCG N°30 to simplify the registration of debt and shares in the context of COVID-19, facilitating access to financing for firms that need to raise funds during the pandemic.
7 Jul 20	FMC	Chapter 20-10 of RAN (FMC banking regulations)	Provides guidelines and best practices on information security and cybersecurity for banks and other financial institutions, thereby reducing the gaps.
27 Jul 20	SP	Investment Regime	Implements an exceptional and temporary relaxation of pension fund investment regulations to facilitate the financial asset liquidation process.
4 Aug 20	CBC	Resolution 2326-01-200730	Replaces the regulation on the Check Clearing House in Domestic Currency in the country, substituting Chapter III.H.1 of the CFR.
10 Aug 20	CBC	Resolution 2331E-01-200807	Provides an exceptional and temporary relaxation of the Check Clearing House regulations, suspending the application of the individual limit of $50 million pesos for submitting checks to be cleared in this clearing house.
24 Aug 20	FMC	Chapter 12-1 of RAN	Changes the treatment of principal guaranteed by the Treasury, CORFO, and FOGAPE, which will be classifed as category 2 for the purposes of calculating RWAs.
28 Aug 20	FMC	NCG N°209 and N°318	Safeguards the solvency of the life insurance companies and adjusts the regulatory framework to international best practices.
1 Sep 20	FMC	Capítulo 8-38 RAN Bancos y Circular N°36	Allows banks and their factoring subsidiaries to discount invoices sold by third parties other than the originator.
3 Sep 20	CBC	Resolution 2337-04-200903	Renews the temporary and exceptional measures amending chapter III.B.2.1 on the measurement and management of banks' liquidity position.
7 Sep 20	CBC	Resolution 2337-05-200903	Recognizes a new Derivative Master Agreement for the local market, as well as a new complementary appendix. Replaces the appendix to chapter III.D.2 CFR.
7 Sep 20	CBC	Resolution 2337-06-200903	Provides an exceptional and temporary relaxation of the Check Clearing House regulations, allowing the payment of net debit balances in dollars via interbank SWIFT transfers.
14 Sep 20	FMC	Chapter 1-13 of RAN and new Chapter 21-13	Establishes a general framework for the evaluation of banks' capital adequacy and the possibility of setting additional capital requirements, as a result of the Pillar 2 process.
28 Sep 20	FMC	Chapter 21-12 of RAN	Defines operating procedures for the calculation, implementation, and supervision of additional capital charges (capital buffers), in accordance with the General Banking Law and Basel III standards.
5 Oct 20	FMC	Chapter 21-30 of RAN	Specifies the calculation of the leverage ratio (Tier 1 capital to total assets).
9 Oct 20	FMC	Chapter 21-1 of RAN	Estalishes guidelines for the calculation of regulatory capital, which must be used by banks to comply with the legal limits established in the GBL.

Source: Website of each institution.

TABLE V.5
Main regulations published for public consultation during the FSR 2020.2 period

Date	Organization	Regulation	Material and objectives
12 May 20	FMC	Simplification of the debt security registration process	Facilitates firms' financing options in the context of the COVID-19 pandemic, by simplifying the process for registering long-term debt securities.
3Jul 20	CBC	"New foreign exchange operations in national currency "	Authorizes new foreign exchange operations in national currency, subject to established reporting requirements.
24 Jul 20	FMC	Standardized methodology for calculating market-risk-weighted assets in the banking system	Improves internal capital management and risk coverage in the banking industry, in accordance with international standards and the recent amendment to the GBL.
24 Aug 20	SP	Regulation of cybersecurity management of the PFMs and UFM	Asks the Pension Fund Managers (PFMs) and the Unemployment Fund Manager (UFM) to implement a Security and Cybersecurity Management System for process optimization and the protection of information confidentiality, integrity, and availability.
5 Oct 20	FMC	Exemption from the registration requirement for specific listed securities	Exempts new types of listings from the registration requirement, in order to facilitate firms' access to financing through debt securities.
5 Oct 20	FMC	Promotion of market discipline and transparency through the substantial and timely disclosure of information	Establishes a standardized format for the disclosure of local banks' risk profile, liquidity position, and capital structure, to facilitate comprehension by the market and information users, allowing a better analysis and reducing information asymmetry among agents.

Source: Websites of each institution.

TABLE V.6
Main regulaions published for public consultation during the FSR 2020.2 period

Document	Title	Organization	Prudential regulation	Supervision	Transparency and governance	FinTech	Covid-19 response	Other
1	Principles for Operational Resilience	BIS-BCBS	*		*			
		BIS-BCBS[1]	*	*	*			
2	Capital Treatment of Securitisations of Non-performing Loans	BIS-BCBS	*					
		BIS-CPMI / G20			*	*		
3	Towards Monitoring Financial Innovation in Central Bank Statistics	BIS-IFC			*	*		
		BIS-IFC			*	*		
4	Measures to Reduce Conflicts of Interest in Debt Capital Raising	IOSCO		*	*			
		FSB	*	*	*	*		
5	Global Transition Roadmap for LIBOR	FSB			*			
		FSB						*
6	Roadmap to Enhance Cross-Border Payments	FSB						*
		FSB			*		*	
7	Report on the Use of Supervisory (SupTech) and Regulatory (RegTech) Technology by FSB Members and Regulated Institutions.	FSB	*	*	*	*		
		FSB						*
8	Evaluation of Too-Big-To-Fail Reforms for Systemically Important Banks (Public Consultation)	FSB	*		*			
		FSB						*
9	Financial Regulators Modify Volcker Rule	Fed	*		*			
		BIS - FSI	*					
10	Regulating RinTech Financing: Digital Banks and FinTech Platforms	BIS - FSI	*			*		
		ISDA			*	*		
11	ECB Intensifies Its Sork on a Digital Euro	ECB				*		

Source: Websites of each institution.

BOX V.1
FEWER RESTRICTIONS ON THE USE OF CHILEAN PESOS IN FOREIGN EXCHANGE OPERATIONS

As reported in past FSRs, the 2018–22 strategic plan of the Central Bank of Chile (CBC) contemplates the modernization and simplification of foreign exchange regulations. The second phase of this process is the expansion of cross-border capital flows (for example, loans, investments, derivatives, etc.) that can be conducted in Chilean pesos (CLP).

This relaxation will be incorporated in Chapter I of the CBC Compendium of Foreign Exchange Regulations (CFER), and it was published for public consultation in July. This box describes the proposed changes and some of the potential effects.

Description of the new regulatory proposal

The CBC has the authority, conferred by its Basic Constitutional Act (BCA), to dictate which foreign exchange (forex) operations must be channeled through the Formal Exchange Market (FEM). In exercising this authority, the CBC has established that the majority of forex operations associated with foreign assets and liabilities, such as cross-border derivatives, must be carried out exclusively in the FEM.

The BCA further establishes that forex operations that must be channeled through the FEM cannot be carried out in national currency or with goods, unless the CBC Board specifically authorizes it. To date, this authorization has been granted for some transactions, but the majority are still subject to the restriction of not being able to be conducted in CLP.[1]/ The proposed reform opened for consultation in July considers a timeline for liberalizing these restrictions, to be implemented in two phases starting in January of next year.

Relation between the regulatory proposal and the Central Bank's foreign exchange authority

The restrictions currently in force prohibit residents from directly investing in CLP overseas and nonresidents from directly investing in CLP in Chile. In other words, the regulation forces capital flows to be conducted in foreign currency.

The purpose, as also suggested by the experience of other countries that apply this type of measure, is to facilitate the potential application of capital flow restrictions, which were actively used by the CBC in the 1990s. As their financial development increases, countries tend to abandon this kind of restriction, while reducing the application of capital flow restrictions.[2]/.

Over the last 20 years, the CBC has moved toward a regime characterized by free capital mobility. This type of regime improves access to external saving and diversifies the risks facing the Chilean economy (Central Bank of Chile: Monetary Policy in an Inflation Targeting Framework, 2020). Furthermore, the literature finds only partial evidence on the efficiency of capital controls when they were applied in Chile (Cowan and De Gregorio 2007; Carriére and García 2013).

Following this logic, the CBC's authority to regulate foreign exchange has been protected in all the free trade agreements signed by Chile, to be applied exclusively in exceptional situations, for a limited period, when necessary for meeting the Bank's legal mandate.

It is important to emphasize that the proposed changes in no way restrict the CBC's authority to regulate foreign exchange, in accordance with its current policy orientation guidelines and in the context of its international commitments.

Finally, this measure solely affects the foreign exchange regulations issued by the CBC. Thus, the different economic agents must necessarily continue to comply with other legal requirements and regulations associated with these issues, such as the regulations issued by the FMC, the Finance Ministry's Financial Analysis Unit, and the IRS. Additionally, the fact of allowing certain forex operations to be conducted in CLP does not exempt the intermediaries from reporting the transactions to the CBC, when required.

[1]/ The Central Bank Board has authorized the issue of bonds payable in pesos by nonresidents and the investment in pesos by residents in foreign securities that are registered in the FMC foreign securities registry.

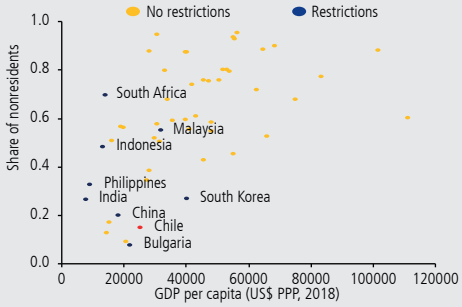
[2]/ In the OECD, two countries, in addition to Chile, report this type of restriction to the IMF

Potential effects on local markets

In general terms, forex buy/sell transactions can be domestic (between residents), cross-border (between residents and nonresidents), or between nonresidents.

Data compiled by the BIS on spot forex transactions show that in countries that report restrictions on the use of local currency in capital transactions,[3]/ the local spot markets tend to be highly dominated by domestic transactions (figure V.1).

FIGURE V.1
Share of nonresidents in local FX markets by per capita GDP and restrictions on the use of local currency in capital transactions



Source: Central Bank of Chile, based on data from the BIS, IMF, and World Bank.

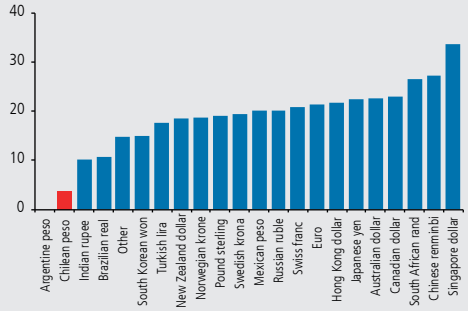
In the particular case of Chile, the current restriction makes it difficult for nonresident banks to hold correspondent accounts or credit lines payable in CLP with resident banks. This, in turn, impedes those nonresident banks from accessing funding in pesos outside of Chile, which ultimately inhibits the transaction of funds payable in CLP outside the country (or an offshore CLP market).

In this line, data on spot transactions by U.S. banks show that, among the reported currencies, the CLP is the second least traded currency in the U.S. offshore market, that is, between resident banks in the United States (figure V.2).

At the same time, the current restriction means that forex derivatives involving the CLP, where at least one of the counterparties is a nonresident, must be non-deliverable forwards (NDF).

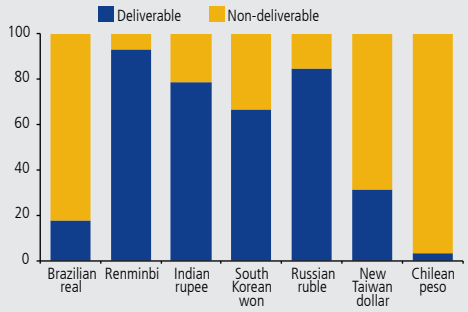
[3]/ Based on qualitative information from the IMF Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER).

FIGURE V.2
Spot transactions between U.S. Banks over total spot transactions of each bank
(percent, April 2020, exchange rate against the U.S. dollar)



Source: Central Bank of Chile, based on FX Volume Survey, April 2020 (Federal Reserve Bank of New York).

FIGURE V.3
Average volume of deliverable and non-deliverable forwards (*)
(percent)



(*) CLP: average daily contracts in October 2019; other currencies: average daily contracts in April 2019. CLP contracts only include derivatives contracted with the FMC.

Source: Central Bank of Chile, based on own and BIS data.

These characteristics of the local market could change in the future, as a result of the liberalization process.

In this sense, the possibility created by the new regulation, of allowing CLP transactions outside of Chile, gives nonresident banks the option of acting as counterparties in spot transactions with other nonresident entities and allows resident entities that are not participants in the FEM to buy and sell CLP outside of Chile.

This can broaden the range of available counterparties for trading in CLP, which has the potential to improve the prices associated with these operations, increase liquidity, and align the functioning of the local forex market with international

practices, thereby reducing the costs of investing or borrowing in CLP for nonresidents.

Moreover, allowing nonresidents to buy CLP derivates with physical delivery creates another way for actors to manage their currency risk, as is the case with other currencies (figure V.3).

Additionally, nonresidents could access new products payable in pesos, such as credit lines or current accounts, to facilitate their forex operations. With this type of product, for example, nonresidents' investment portfolios in Chile could be settled without necessarily being converted to foreign currency and repatriated to the country of origin, but rather could be settled in CLP either in Chile or overseas.

The regulatory change will also allow resident and nonresident debt issuers to seek funding in pesos in international markets.[4]/ This is especially important for giving resident firms access to nonresident lenders, without incurring currency risk.

The net effect of this measure will depend on whether, at the aggregate level, the increased facility for the international use of the CLP will attract nonresident participation as net creditors or net debtors in CLP positions, that is, whether they will hold external liabilities or assets from the perspective of residents.

To the extent that the CLP is used as an investment currency, its greater international use can be expected to cause an increase in residents' external liabilities, which could lead to exchange rate appreciations and reductions in interest rates denominated in CLP.

On the other hand, the growth of external liabilities associated with portfolio flows could increase Chile's exposure to capital flow reversals or the transmission of external shocks, which could ultimately heighten the volatility of financial asset prices. However, Chile has a solid macroeconomic position for facing such flows (see FSR, First Half 2020, box I.1).

Final reflections

This measure could have a significant impact in stimulating greater competitiveness and efficiency in the local financial markets, by removing barriers for nonresidents to participate in the local market.

The reduction of restrictions on the use of the CLP in cross-border transactions could improve the functioning of the local forex market, leading to a financial market that functions under the commonly accepted standards and practices used in developed financial markets.

However, it is important to note that this measure is a necessary but insufficient condition for promoting these objectives. Ultimately, there are many factors that are outside the scope of the CBC, such as nonresident demand for CLP positions, as well as legal or regulatory changes that depend on other authorities.

[3]/ Currently, residents and nonresidents can issue bonds denominated in local currency but payable in foreign currency.

BOX V.2
MEASURES TO FACE THE PANDEMIC AND THE ROLE OF THE FINANCIAL SYSTEM

The pandemic has generated a sharp drop in output and consequently reduced the income of businesses and households. To soften the impact, the authorities in different countries have adopted unprecedented policy measures, several of which are centered in the financial system. These measures are intended not only to address the immediate problems of individuals, but also to prevent long-term and domino effects that could amplify the original shock. Thus, the objective is to prevent a prolonged recession, which would have high social costs and repercussions on the financial system itself.

In a situation like the current crisis, reacting decisively is critical, as is adequately calibrating the measures that are implemented. In addition to ensuring their efficacy, it is important to avoid undesirable secondary effects that could end up compromising the solvency of the actors involved. These criteria have been central in informing the CBC's opinion on bills under discussion in the legislature, when invited to contribute to the debate.

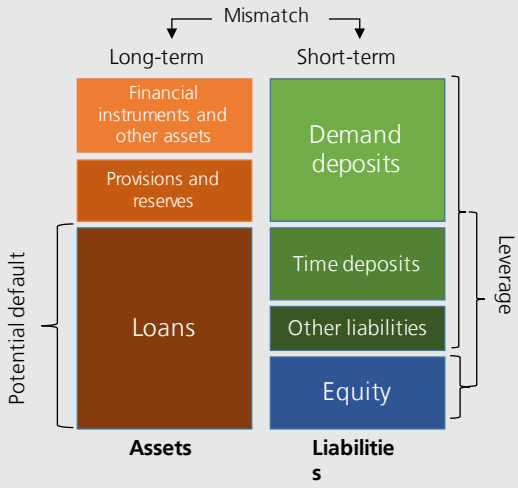
This box describes the characteristics of the financial sector that influence the final impact of any measure applied to it. Because the sector is crucial for the functioning of the rest of the economy, and given its complex structure, it is prone to the emergence of multiplier and feedback effects. These features must be carefully evaluated in the design of measures involving the sector.

Characteristics of the financial system

The financial system differs from other economic sectors in that it plays a key role in the intermediation of payments in the economy; it converts the savings of some into financing for others; and it diversifies risks (Berstein and Marcel, 2019). Given the different business models that coexist within the financial system, the institutions that make up the system are highly interrelated.

These interrelations show up on the balance sheet of institutions in the system. For example, banks' assets include loans that they give to their customers at relatively long terms, while their liabilities are largely deposits from the public, which are usually at very short maturities. This maturity mismatch plays an important role in the economy because it allows long-term investments to be financed with short-term savings, but this maturity transformation also represents a potential risk for the counterparties in the event of insolvency. Regulations aim to reconcile these two dimensions by establishing bank leverage limits, liquidity requirements, the constitution of loan loss provisions and capital reserves, and mandating continuous risk management (diagram V.1).

DIAGRAM V.1
Banking sector balance sheet and risks (*)



(*) Darker colors indicate longer maturities in the balance sheet sections (i.e., assets and liabilities).

Source: Central Bank of Chile.

Financial institutions are interrelated not only through direct transactions with other institutions, but also through the markets in which they participate. Thus, the financing structure weaves together the different agents. For example, the pension fund managers (PFMs) hold 46% of bank bonds, while the life insurance companies (LICs) hold over 40% of corporate bonds issued by firms that report to the FMC. Moreover, the PFMs and the LICs manage the savings of millions of individual affiliates (table V.2).

For example, institutional investors, mutual funds, and PFMs, which are entrusted with the savings and investments of households and firms, are very sensitive to regulatory limits, so it is necessary to maintain healthy liquidity and solvency ratios. If investment mandates change frequently or if there is a significant withdrawal from a portfolio, those limits are stressed, and the funds need to quickly rebalance their portfolio. In a small market like ours, this ends up affecting the prices of essential assets, like the currency and long-term securities. It also exposes the firms and institutions that are financed through these funds, which has consequences for the stability of our economy. It requires corrective actions, aimed at softening these movements, which are generally costly, especially in periods of greater tension. Additionally, the withdrawal of savings reduces the financial system's capacity for inclusion, affecting businesses and families. Finally, on aggregate, it ends up exposing the local economy to external financial markets, weakening the capacity to react to disruptive events at the world level.

TABLE V.7
Stocks by type of instrument, issuer, and holder
(US$ millions, 03 November 2020)

		Holder				
Instrument	Issuer	Banks	Mutual funds	PFMs	LICs	Other
LT sovereign bonds	Government	17,967	3,861	31,350	1,050	9,872
	CBC	587	237	95	96	374
PDBC	CBC	9,745	14,366	6,221	29	1,490
Bank bonds	Banks	13,273	8,804	26,553	6,446	2,772
Time deposits		4,078	21,715	6,427	1,535	9,075
Corporate bonds	Reporting firms	1,019	5,424	14,181	16,338	2,815
Stocks (*)	Reporting firms	-	510	10,047	484	-

(*) Data on stocks are for September 2020 for the PFMs and LICs and October for the mutual funds.

Source: Central Bank of Chile, based on data from the Central Securities Depository, FMC, and SP.

Legal requirements and the role of regulators

Given the complexity of the financial system, the various limits on the institutions' balance sheets have to operate preventively (before an incident arises), and they must be managed and supervised by specialized agencies, vested with specific competences and powers that allow coordinated decisionmaking.

When interventions in the financial system are used to try to resolve problems in sectors affected by an emergency, it is necessary to have a comprehensive understanding of the balance sheet effects on the directly affected institutions, as well as the effects on the rest of the system. Otherwise, undesirable secondary effects will be overlooked, ranging from interrupting the normal flow of credit and/or access to financial services, directly affecting the institutions' liquidity and solvency, to producing the opposite of the intended effect.

For example, in the case of the banking system, one of the measures currently under discussion is the suspension of seizure and auction in the event of default. This type of measure, together with those involving universal loan rescheduling,[1]/ aim to reduce the financial stress of borrowers in the short term, but they involve high direct and indirect costs for the whole system. In particular, lenders that cannot freely liquidate collateral must increase their loan loss provisions, which limits their capacity to give credit to people who need it.

Similarly, universal and mandatory loan deferrals reduce the banks' inflow of liquidity and constrains their risk management. In addition to hindering the role of fund provision, this restricts their capacity to honor their obligations with depositors. Measures of this sort also make it difficult for the banking system to accumulate capital to meet the solvency requirements established under current regulations, which are necessary for proper functioning. This is particularly complex with the coming implementation of the new Basel III banking standards, such that regulatory increases could potentially be met through a reduction in credit. Nevertheless, there are alternative measures for meeting the pursued objectives of the suspension of installment payments, but which avoid the undesirable effects, and some of these have been implemented. They include voluntary rescheduling, which is freely negotiated by the parties, as well as a more focalized suspension of payments, with the support of state guarantees.

Finally, another measure under discussion is related to eliminating default information from the credit registry used by lenders. The objective of this initiative is to give financial access to agents who are excluded due to past default. However, this

has a secondary effect of limiting the information available to lenders for evaluating their customers' risk. In the absence of reliable information, lenders choose to assume that a customer will behave like the average customer, which ends up translating into higher interest rates for all participants, as well as credit restrictions. The social costs generated are higher than the individual benefits.

Final reflections

The macroeconomic, financial, and fiscal measures that have been deployed during the pandemic are unprecedented, not only in Chile, but throughout the world. The adopted policies were subject to an in-depth assessment of the short- and long-term costs and benefits for the financial system as a whole. This type of comprehensive, coordinated assessment is necessary given the size, importance, and complexity of the financial system.

This is not to say that the financial sector should not be regulated or should not be subject to operational limits. On the contrary, given its nature, it is one of the sectors of the economy that most needs to be regulated. Nor does it imply that the sector should be free from demands that reduce earnings (for example, the Basel III capital requirements). Rather, what is needed is for measures to be duly formulated and calibrated prior to adoption, so as not to generate undesirable costs or consequences. Dialogue and cooperation among the different actors that take part in policy actions—the Executive, regulators, the National Congress, and the Central Bank—is essential for ensuring this objective.

VI. PAYMENT SYSTEMS

This chapter presents the main statistics on the payment systems and describes developments in financial infrastructure at the local and international levels.

LARGE-VALUE PAYMENT SYSTEMS

In Chile, the large-value payment systems (LVPS) are the real-time gross settlement (RTGS) system, which is managed by the CBC, and the large-value payment clearing house (CCAV), operated by Combanc. The RTGS system settles gross transactions in the accounts of each bank immediately upon receiving payment instructions, whereas Combanc nets the transactions for each bank at the end of the day and then settles them through the RTGS system.

LIQUIDITY AND RISK MANAGEMENT IN THE RTGS SYSTEM

Since the second quarter of 2020, liquidity has increased significantly in the RTGS system, due largely to dynamic activity in the LVPS in this period.

In the third quarter of 2020, the average daily payments settled directly through the RTGS system more than doubled relative to the same period of the previous year (+227% annually), explained, in large part, by dynamic activity in the LVPS, which together (CCAV and RTGS) processed and settled more than $55 billion a day, on average (+166% annually) (table VI.1).

By type of payment settled in the RTGS system, the biggest increases were in operations where the CBC acts as counterparty (+546% annually) and, to a lesser extent, transactions made by banks as representatives of their clients (nonbank issuer/receive) and delivery-versus-payment (DvP) transactions in the OTC securities markets[1/] (table VI.1, figure VI.1)

In the case of interbank payments, both those processed by Combanc and those settled directly in the RTGS system decreased relative to the third quarter of last year, which is consistent with the lower economic activity in recent months (table VI.1).

TABLE VI.1
Amounts processed and settled in the large-value payment systems (*)
(billions of pesos)

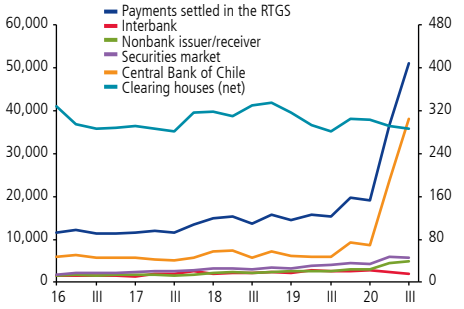
Indicator	Third quarter	
	2019	2020
Payments settled in the RTGS	15,613	51,096
Interbank	2,523	2,006
Nonbank issuer/receiver	2,880	4,946
Securities market	4,044	5,826
CCLV	626	806
ComDer	29	43
OTC securities markets (DvP)	3,389	4,978
Clearing houses (net)	282	286
Checks	46	31
ATMs	29	43
Combanc	207	213
Central Bank of Chile	5,885	38,031
Payments processed in Combanc	5,029	3,887
Interbank	1,213	866
Nonbank issuer/receiver	2,094	1,964
OTC securities markets (DvP)	1,722	1,057
Total settled in LVPS	20,642	54,983

(*) Daily averages for each quarter.

Source: Central Bank of Chile, Combanc, and ComDer.

[1/] DvP transactions are coordinated by the Switch service offered by Combanc, where the transfer of instruments in the Central Securities Depository (CSD) coincides with the cash payment, which can be realized directly in the RTGS system or through Combanc.

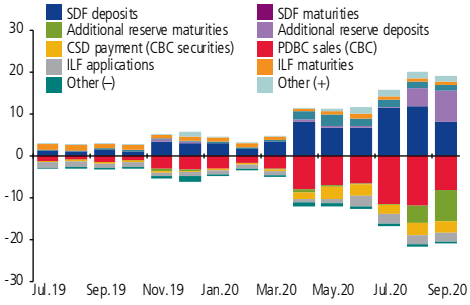
FIGURE VI.1
Amounts settled in the RTGS system (*)
(billions of pesos)



(*) Daily averages for each quarter.

Sources: Central Bank of Chile and ComDer.

FIGURE VI.2
Evolution of CBC payments settled in the RTGS system, by type of payment (*)
(billones de pesos)



(*) Daily averages for each month. SDF: Standing deposit facility; Additional reserves: reserva técnica (on deposits in excess of 250% paid-up capital); ILF: intraday liquidity facility; CSD: Central Securities Depository.

Source: Central Bank of Chile.

The increase in payments where the CBC acts directly as counterparty is related to the set of exceptional measures adopted to face the pandemic in 2020.

As indicated in chapter V of the last FSR, since April of this year the CBC has implemented new measures and expanded others, in order to provide liquidity to the financial market in response to the pandemic. These interventions, such as open market operations with CBC instruments, the purchase of bank bonds, and the FCIC and LCL facilities, are channeled through the banking system via the RTGS system.

In particular, the banks have been using the intraday liquidity facility and the standing deposit facility more actively. Second, payments related to the sale of Central Bank discount notes (PDBC) increased starting in April, which absorbed most of the greater available liquidity from the implementation of the aforementioned measures (figure VI.2).

Normally, increases in the standing deposit facility are inversely proportional to cash movements, the constitution of reserves, and compliance with additional reserve requirements (reserva técnica) (figure IV.3, left bar).[2]/ In 2020, however, the increased liquidity given to the banking system by the CBC is being managed by the banks through overnight deposits at the CBC, before being channeled, for example, to new loans. Other factors in the increased use of this facility include a probably temporary increase in additional required reserves and an intensification of open market operations (figure VI.3, right bar).

In particular, the increase in payments deriving from operations associated with holding additional required reserves since August (figure VI.2) is mainly related to the effects of the implementation of a legal amendment allowing people to withdraw 10% of their pension savings, which caused an increase in bank demand deposits.

Client-account transactions have increased at the same time that new nonbank participants have been incorporated.

In the case of client-account transactions (nonbank issuer/receiver), the growth is related to an increase in CBC operations with nonbank participants of the Open Market Operation System (SOMA), for both traditional liquidity provision and the special liquidity programs, such as the sale of securities in the primary market.[3]/

This increased activity also reflects the incorporation, starting in March of this year, of new nonbank participants, such as general fund managers, in the primary market for CBC debt securities, in order to give the financial market greater liquidity in times of stress.

[2]/ Banking regulations require banks to hold additional required reserves, known as technical reserves (reserva técnica), equivalent to the full value of deposits in excess of 2.5 times paid-up capital.
[3]/ All purchases of CBC debt in the primary market by nonbank financial institutions (such as stockbrokers, securities dealers, pension fund managers, etc.) are recorded as client-account transactions in the RTGS system.

OPERATIONAL RISK MANAGEMENT IN THE RTGS SYSTEM

Ensuring the operational continuity of the LVPS is a first-order concern for the CBC, directly related to its constitutional objective of safeguarding the normal functioning of the internal and external payment systems and, from a wider perspective, the stability of the financial system.

The specific operational availability objectives established by the CBC continue to be met satisfactorily, despite the complexity of managing operations during the pandemic.

The CBC has established two main objectives for the RTGS system in terms of operational security, in line with international best practices in this area: maintaining operational continuity of at least 99.8%; and having the capacity to resume operations within two hours, at most, of the verification of a service disruption. In 2020, the operational availability of the RTGS system was 99.99%, due to a specific incident in the third quarter that interrupted normal operations but was satisfactorily resolved in 10 minutes, thereby complying with the proposed operational availability objectives (figure VI.4).

With regard to the need to extend the operating hours for interbank settlements in the RTGS system, the CBC had to activate extensions more frequently in the first two quarters of this year (figure VI.5). This was mainly explained by the strong increase in operations between financial institutions and the CBC in the period, which caused some interruptions in operating procedures and/or platforms. All such interruptions were resolved immediately.

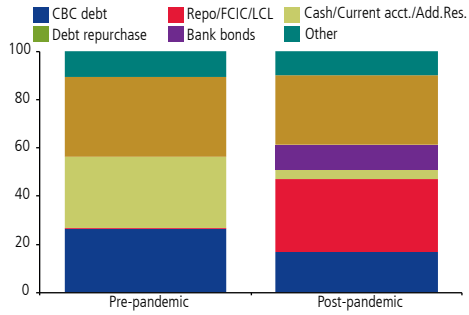
With regard to the cybersecurity event that affected one bank in the third quarter of this year, the RTGS system's contingency tools were appropriately implemented.

An operational incident that affected one bank in September 2020 required the CBC to use the contingency tools established for the RTGS system. Specifically, the decision was made to extend the settlement period for interbank operations in the system on two opportunities, for 45 minutes and 120 minutes, respectively (figure VI.5). Additionally, temporary operating platforms in the CBC building were provided for the direct operations of the affected entity, using physical spaces specifically designated for this type of situation in accordance with contingency protocols prepared by the CBC (the RTGS system's contingency room).

RECENT DEVELOPMENTS IN PAYMENT SYSTEMS AND INFRASTRUCTURES

In 2020, advances were made on the regulatory and supervisory framework of the payment systems to strengthen the clearing and settlement processes for foreign exchange operations, based on the application of international standards (box VI.1).

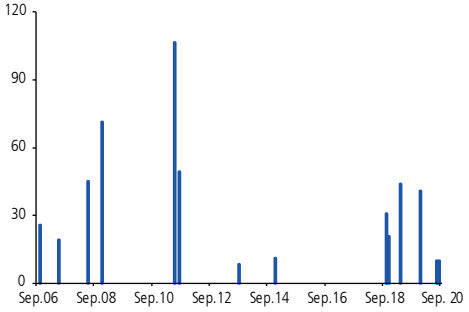
FIGURE VI.3
Standing deposit facility: CBC balance sheet components (*)
(percent)



(*) The pre-pandemic period considers the aggregate change from Nov.19 to Feb.20 (inclusive); post-pandemic, from Mar.20 to Sep.20.

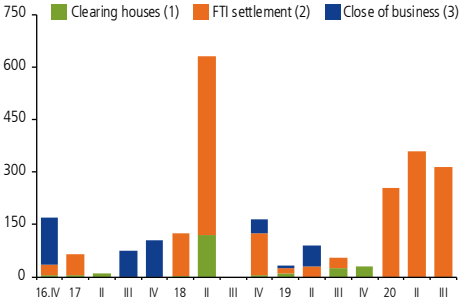
Source: Central Bank of Chile.

FIGURE VI.4
Service disruption in the RTGS system
(minutes per month)



Source: Central Bank of Chile.

FIGURE VI.5
Delays and extensions in the RTGS system
(minutes per quarter)



(1) Delays in the check clearing house, ATM clearing house, and large-value payment clearing house (CCAV).
(2) Extensions of the cutoff time for interbank operations (fund transfer instructions, FTI), after 17:30 hrs.
(3) Extensions of the closing time for CBC operations (CAS-RTGS), after 18:15 hrs.

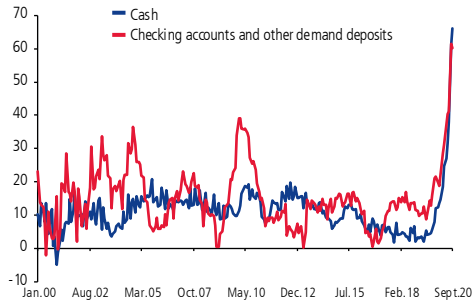
Source: Central Bank of Chile.

TABLE VI.2
Amounts settled in the RTGS system in USD (*)
(thousands of dollars)

	2020	
	II	III
Payments settled in the USD RTGS	1,952,551	863,912
Interbank	11,307	23,870
Own-account	10,557	23,510
Client-account	750	361
Central Bank	1,941,244	840,042

(*) Daily averages in each quarter.
Source: Central Bank of Chile.

FIGURE VI.6
12-month growth rate of cash and checking account balances
(percent)



Source: Central Bank of Chile.

Implementation of the RTGS system in dollars.

As mentioned in the last FSR, the regulation was published in December 2019 to extend the operations of the RTGS system to include interbank payments in U.S. dollars, and the mechanism has been available and operational for participants since March of this year (new Chaps. III.H.4, III.H.4.1, III.H.4.2, and the respective Operating Rules). The system currently channels interbank payments averaging US$24 million per day in the third quarter, although the majority of fund transfers in dollars correspond to payments deriving from operations with the CBC (table VI.2)

Improvements to the regulation of the Clearing House for Checks and Other Bank Drafts.

In early August, the regulations governing the Check Clearing House in Domestic Currency were amended and replaced with Chapter III.H.1 of the Compendium of Financial Regulations (CFR). The improvements allow the consolidation of the payment, clearing, and settlement of checks and other bank drafts in dollars, authorizing the settlement of a net debit balance in dollars in the USD RTGS system. Additionally, a special protocol was incorporated for implementing actions in operational contingency situations (chapter V).

Public consultation on the large-value payment clearing house for peso-dollar spot transactions.

To continue advancing the development of the payment systems for the correct functioning of the economy, and in accordance with its legal mandate to safeguard the normal functioning of internal and external payments, the CBC will improve and update the regulatory framework governing the large-value payment clearing house, to allow the settlement of interbank payments deriving from peso-dollar spot transactions, following international best practices and ensuring security and efficiency (box VI.1).

Launch of the Integrated Derivatives Information System (IDIS-TR).

Chile's first derivatives trade repository, which was designed in accordance with international standards, will begin operating in the last quarter of 2020. The implementation of this system will expand the framework of financial market infrastructures currently operating in the country.

As mentioned in past Reports, the CBC published the definitive regulations on the functioning of an Integrated Derivatives Information System (IDIS-TR) in July,[4]/ with the aim of closing the existing gaps in the implementation of infrastructures known as trade repositories (TR). This initiative seeks to expand the quantity and quality of information available on derivative transactions, following international guidelines for financial market infrastructures.

[4]/ New Chapter III.D.3 of the CBC Compendium of Financial Regulations and the corresponding operating rules (III.D.3.1).

Since the publication of the regulations, the CBC has been working on the development of essential technological and management aspects of the operations. These include providing access to granular data for the Financial Market Commission (FMC), in its role as supervisor.

The IDIS-TR began operating on 3 November of this year. As of that date, participants (currently banks) must submit information in accordance with the standards specified in the regulations.[5]/

The next phase of this initiative is to implement reporting by nonbank participants, planned for May 2021.

RETAIL PAYMENT SYSTEMS

The uncertainty associated with the COVID-19 pandemic and the policies to mitigate the impact have caused significant changes in the use of payment instruments over the course of the year.

During the half, public holdings of cash and checking account balances have grown to record levels. This trend intensified after the implementation of the policy authorizing the withdrawal of 10% of pension savings (figure VI.6).

This dynamic occurred in conjunction with a significant reduction in output and consumption in the economy, causing the velocity of money circulation in the economy to slow. This suggests that a large share of the balance held as cash or in demand deposits corresponds to savings, associated with a demand for money for precautionary purposes. (figure VI.7).

The lockdowns implemented in response to the pandemic led to less frequent use of automated teller machines (ATMs), while the average amount withdrawn increased significantly (figure VI.8).

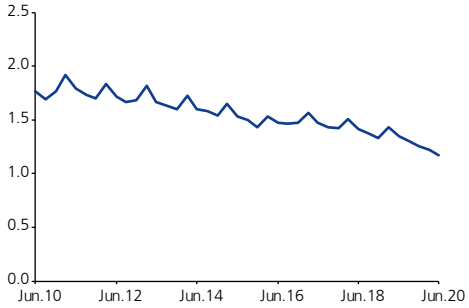
The strong growth in the demand for cash has represented a significant challenge in terms of distribution and the logistics of maintaining the operational continuity of money circulation. The challenge has been met through joint work with the banks and cash-in-transit companies, in order to guarantee the normal functioning of the payment chain all across the country.

At the same time, there has been a substantial decrease in the use of noncash payment instruments, with the exception of electronic transfers and Internet payments associated with remote purchases and payments (figure VI.9).

Similarly, total spending with payment cards as a share of household consumption broke the upward trend of the past several years, falling sharply in the second quarter of this year (figure VI.10).

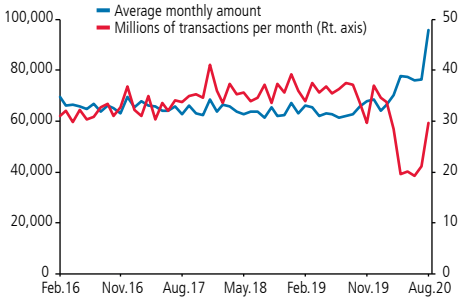
[5]/ The startup of the IDIS includes a six-month trial phase, during which participants submit test reports and the CBC can verify the adequacy of the connection and communication facilities, as well as the security and integrity of the information received.

FIGURE VI.7
Velocity of M1 money circulation
(Ratio of nominal quarterly GDP to average quarterly balances of M1 ccomponents)



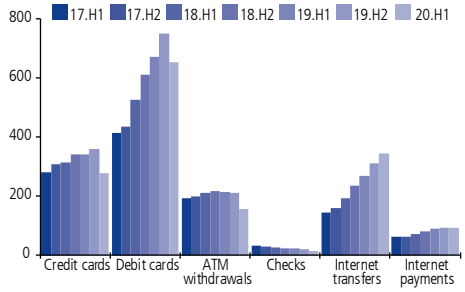
Source: Central Bank of Chile.

FIGURE VI.8
ATM withdrawals
(Average monthly amount and number of transactions in the month)



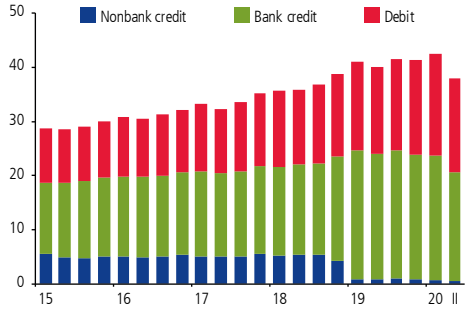
Source: Central Bank of Chile.

FIGURE VI.9
Use of noncash payment instruments
(millions of transactions)



Source: Central Bank of Chile, based on data from the FMC.

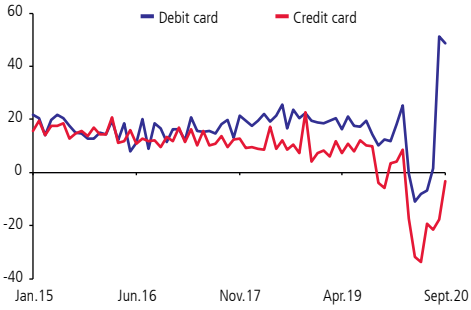
FIGURE VI.10
Total payment card expenditures (*)
(percent of household consumption)



(*) Ratio of total payment card expenditures in each quarter, without excluding cash withdrawals, to actual final consumption of households and nonprofit institutions, base year 2013 .

Source: Central Bank of Chile, based on data from the FMC.

FIGURE VI.11
12-month growth rate of payment card purchases made through Transbank
(porcentaje)



Source: Central Bank of Chile, based on data provided by Transbank.

Finally, after the implementation of the pension savings withdrawal policy, the downward trend in payment instruments reversed significantly, especially for debit transactions (figure VI.11).

The implementation of the four-party model in the payment card market has been affected by legal contingencies.

The implementation of a four-party model in the payment card market is an objective that has been promoted by the CBC and other public authorities (FSR, Second Half 2018, box VI.2). This model implies that acquirers and issuers operate via contractual relationships with international brands, and not via contracts signed bilaterally between acquirers and issuers.

In March of this year, Transbank made the contractual changes for implementing a four-party model for local payment card transactions, thereby terminating the historical local operating model in which card issuers delegated the acquiring process to Transbank. The implementation of this model implied, among other things, that Transbank had to start paying conversion fees to the issuers.

In this context, in April of this year, Transbank submitted a fee schedule to the Competition Tribunal (TDLC) for approval, incorporating the new reality associated with the four-party model. The approval process is still ongoing, and until it is resolved, the interaction between the conversion fees set by the brands and the fees charged to businesses in some sectors will have a negative impact on Transbank's income. Thus, while progress has been made in modernizing the payment market structure, there are still frictions between the different actors, which will probably require new actions by the authorities.

The TDLC recently opened a new judicial proceeding with the objective of issuing generally applicable instructions on competition conditions in payment card markets and, in particular, on the interoperability and revision of certain commercial practices and market incentives.

BOX VI.1
NEW INFRASTRUCTURES FOR FOREIGN EXCHANGE PAYMENTS

In recent months, the Central Bank of Chile (CBC) has undertaken regulatory developments to strengthen the regulations applicable to financial market infrastructures (FMIs), improving the clearing and settlement processes for interbank payments in foreign currency (FX) consistent with international standards.

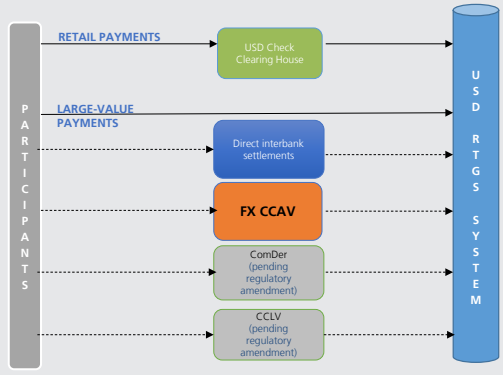
In late 2019, the CBC published regulations allowing interbank settlement in U.S. dollars in the RTGS system, with the incorporation of the new Real Time Gross Settlement System in Dollars (USD RTGS system).[1]/ Thus, a system is currently available for settling payments in dollars between local banks, which has lower operational, credit, and liquidity risk than traditional settlement through correspondent banks.

This infrastructure began operating in March of this year, gradually channeling interbank payments in dollars as participants have made the necessary adjustments to operate in the system, as well as settling all payments deriving from dollar operations between the banking system and the CBC (chapter VI).

In addition to the benefits in terms of risk and the contribution to the development of the financial market, the implementation of the USD RTGS system has made it possible to develop payment clearing houses and other FMIs that involve final settlement in dollars in the RTGS system, such that the volumes processed are expected to increase in the near future (diagram VI.1). In this line, the regulations governing the Clearing House for Checks and Other Bank Drafts in Domestic and Foreign Currency were published in August 2020, which specify that the net balances in dollars resulting from clearing processes in that clearing house will be settled in the USD RTGS system.[2]/

Furthermore, local central counterparties (i.e., ComDer and CCLV) could potentially incorporate procedures for the dollar settlement of some of their products through an account in the USD RTGS system, thereby increasing their international competitiveness. Finally, the Clearing House for Large-Value Foreign Exchange Payments (FX CCAV), whose regulations will be published for public consultation in the last quarter of this year, requires that net balances in dollars, deriving from the clearing of peso-dollar spot transactions accepted by the clearing house, be settled in the USD RTGS system.

DIAGRAM VI.1
Clearing and settlement of financial market infrastructures in dollars



Source: Central Bank of Chile.

New Clearing House for Large-Value Foreign Exchange Payments

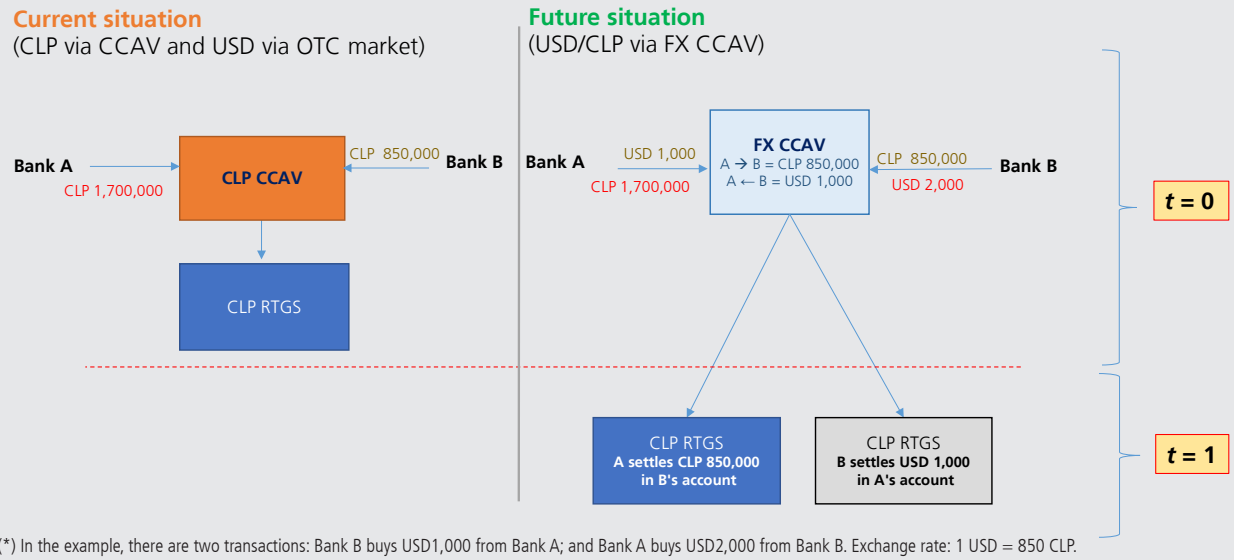
For payments deriving from peso-dollar spot transactions between local banks, only the peso leg is currently cleared in the large-value clearing house in domestic currency (CLP CCAV) operated by Combanc S.A., where the balances obtained are then settled through the RTGS system. The dollar leg of these transactions is not currently settled in an FMI, but rather is traditionally settled directly in a bilateral transaction between the respective correspondent banks.[3]/ This implies that the clearing and settlement of this type of transaction does not meet the international standard of payment versus payment (PvP);[4]/ that is, the payments corresponding to the dollar and peso legs are not settled simultaneously, which generates settlement risk.

[1]/ Chapters III.H.4.2 and III.H.4.2.1 (Operating Rules) of the Compendium of Financial Regulations.
[2]/ Chapter III.H.1 of the Compendium of Financial Regulations.

[3]/ With the recent startup of the USD RTGS system, the dollar leg of these transactions could also be settled in that system.
[4]/ Payment versus payment (PvP) is one of the internationally recommended standards for mitigating settlement risk in forex operations, as it guarantees the definitive transfer of the payment of one currency solely if the definitive transfer of the other currency is also made.

The implementation of the FX CCAV will allow interbank peso-dollar spot transactions to be settled in line with the PvP standard, synchronizing the settlement of the two legs of each transaction, as well as having a design that allows making the settlement in the respective RTGS system on the next bank business day under the same standard. To achieve the latter, the FX CCAV will verify the corresponding availability of funds for both currencies in the accounts of the RTGS system participants, prior to the settlement of the positions, in order to guarantee simultaneous settlement (diagram VI.2).

DIAGRAM VI.2
Incorporation of the FX CCAV (*)



(*) In the example, there are two transactions: Bank B buys USD1,000 from Bank A; and Bank A buys USD2,000 from Bank B. Exchange rate: 1 USD = 850 CLP.
Source: Central Bank of Chile

The new regulatory framework for the FX CCAV will also include improvements in terms of compliance with risk management standards in the CLP CCAV, comprehensively strengthening large-value settlement processes in both domestic and foreign currency.

Infrastructures for a global financial market

The process of modernizing the Central Bank's forex regulations includes modifications to the Compendium of Foreign Exchange Regulations aimed at increasing global financial integration, reducing barriers to cross-border financial transactions, and facilitating the international use of the peso (box V.1). This greater international integration of the Chilean financial market has the potential to increase the type and value of foreign currency transactions, which in turn would increase the associated risks, such as credit risk, liquidity risk, and expected losses.

The establishment of the USD RTGS system, as well as the future incorporation of the FX CCAV to the FMI ecosystem in Chile in 2021, represent the culmination of an important phase in the process begun by the CBC to develop FX clearing and settlement infrastructures, in order to support the international integration of the Chilean financial market. Another key process is the incorporation of the peso as an eligible currency in the CLS System, which will allow the clearing of spot and derivate transactions between the peso and 18 other currencies in an environment of high operational standards and risk-free settlement.[5/]

All of these new infrastructures will allow foreign exchange payments to be made within an equivalent framework to the system established for payments in domestic currency, taking into account international standards for risk management and adequately ensuring reliability and final settlement.

[5/] See FSR, Second Half 2019, box VI.1.

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GLOSSARY

Additional provisions: Bank provisions constituted in excess of the level determined through the application of their portfolio assessment models. The objective is to safeguard the risk of unpredictable economic fluctuations that could affect the general macroeconomic environment or the situation of a specific economic sector.

Application programming interface (API): A set of rules and specifications followed by software programs to facilitate communication between programs; an interface between different software programs to facilitate their interaction.

Arrears rate (AR): Also called portfolio in arrears. A measure of credit risk calculated as the ratio of loan installments that are past due by over 90 days to the total debt. For commercial loans to firms, the delinquent installments are past due by up to three years; for commercial loans to people, up to one year; for consumer loans, up to 180 days.

Asset adequacy testing (AAT): A requirement for the constitution of additional technical reserves by insurance companies that have inadequate asset flows relative to their liabilities from the sale of life annuities.

Assets received in payment: Assets received by a bank as payment for all or part of a liability in arrears.

Automatic bill payment: A service for paying bills automatically through a bank account on a preestablished due date specified by the user and offered by a merchant.

Banks, large: Banks with a large market share and wide diversification of operations (loans and derivative and nonderivative financial instruments).

Banks, medium-sized: Banks with a smaller market share but equally diversified operations as the large banks.

Basel III: A set of new capital and liquidity requirements for the banking industry, developed by the BIS with the aim of substantially strengthening the Basel II capital framework. The objectives include the following: raise the quality, consistency, and transparency of the capital base; strengthen risk hedging; introduce leverage limits; promote a countercyclical capital framework; and introduce a global liquidity standard. These requirements were implemented gradually through 2019.

BigTech: Large, established technology companies that are expanding their range of services to include the direct provision of financial services or bank-like products.

Brexit: The term used for the result of the referendum establishing that the United Kingdom will withdraw from the European Union, held on 23 June 2016.

Buy-and-hold investors: Investors that, due to the nature of their liabilities, pursue a passive investment strategy, in which they keep the instruments in which they invest in their portfolio for a long time, independent of the short-term price fluctuations in the market.

Capital adequacy ratio (CAR): A measure of a bank's financial soundness, measured as the ratio of regulatory capital to credit-risk-weighted assets.

Central counterparty (CCP): A clearing house that intermediates between counterparties to a bilateral contract, in one or more financial markets, acting as the buyer for all sellers and as the seller for all buyers in a given market, thereby guaranteeing the future execution of open contracts.

Central government: Institutions associated with the three branches of the state (executive, legislative, and judicial), as well as Law N° 13,196, the interest earned from recognition bonds and the oil price stabilization fund.

Central securities depository (CSD): A financial entity that provides securities accounts and central custody services and plays an important role in guaranteeing securities trade.

Clearing houses: Entities that settle financial instrument transactions between participating members, without acting as a central counterparty to the transactions.

Close-out netting: The process of early termination and settling, in the event of insolvency of one of the counterparties to multiple OTC derivative contracts under a single master agreement, through which all the contracts are reduced to a single net liability for one of the parties.

Compendium of Financial Regulations (CFR): A collection of regulations issued by the CBC, in the exercise of the powers and duties assigned in the Basic Constitutional Act to regulate the financial system and the capital market, and other legal regulations.

Conditional Financing Facility for Increased Loans (FCIC): Facilidad de Crédito Condicional al Incremento de Colocaciones. Special funding line for banks, which provides resources and incentives for banks to continue lending and refinancing loans to households and firms, especially those that do not have access to the capital markets.

Continuous Linked Settlement (CLS) System: A cross-border payment system for the settlement of foreign exchange transactions, which eliminates settlement risk via a payment versus payment (PvP) mechanism.

Contract for difference (CFD): An agreement through which the participants exchange the difference in the value of an underlying asset between the contract start and end dates. If the value increases, the seller pays the difference to the buyer. If the value decreases, the buyer pays the difference to the seller. The underlying assets can be currencies, commodity prices, stock indexes, interest rates, etc.

COVID-19: Infectious disease caused by the recently discovered novel coronavirus (SARS-CoV-2), which produces similar to the flu and in some cases Severe Acute Respiratory Syndrome. COVID-19 is currently a pandemic that is affecting many countries around the world, causing severe social and economic impacts.

Credit risk: The possibility that a bank borrower or counterparty will fail to meet its contractual obligation, whether in interest or capital.

Credit valuation adjustment (CVA): An adjustment that takes into account the risk of a deterioration in the credit quality of a counterparty to derivative or securities financing operations.

CuentaRut: A financial product offered in Chile by the Banco Estado, consisting in a demand deposit account with a debit card. The requirements for obtaining this product are relatively low: the customer is only required to have a current national identification card and meet the age requirement.

Currency mismatch: The difference between foreign currency liabilities and foreign currency assets, less the net position in derivatives (the difference between buy and sell positions in derivatives contracts). An alternative measure is calculated as the difference between external debt and the net derivatives position, scaled by exports minus imports.

Current assets: Resources owned by the firm that can be liquidated within a year.

Cyclically adjusted price-earnings (CAPE) ratio: Measure of the market value of U.S. securities. The ratio between the value of the S&P 500 index and the 10-year average net income after taxes, adjusted for inflation.

DAX: Stock index consisting of the 30 largest companies on the Frankfurt Stock Exchange.

Debt service ratio (DSR): Measures the payments that households must make to fulfill their consumer and mortgage loan commitments, as a percentage of their disposable income.

Debt service-to-income (DSTI) ratio: Measures household or individual indebtedness as a ratio of monthly or annual debt service payments to income.

Debt-to-income (DTI) ratio: Measures the debt held by households with different financial and nonfinancial entities as a percentage of their disposable income.

Default of 90 days or more: The total amount of a loan that is past due by 90 days or longer, even if only some of the monthly payments are past due.

Default rate (DR): The ratio between the number of borrowers with arrears of over 90 days and the total number of borrowers in the corresponding portfolio.

Delinquent loans: Loans with arrears of over 90 days from the maturity date. The full amount of the loan is considered delinquent for accounting data, versus the total debt for administrative data.

Direct investment company: A foreign direct investment company is a company that resides in one economy and in which an investor in another economy owns, either directly or indirectly, 10% or more of shares (or voting power) if the company is incorporated, or the equivalent if the company is not incorporated.

Direct investor: A foreign direct investor is an entity (an institutional unit) that resides in one economy and that has acquired, either directly or indirectly, at least 10% of the shares (voting power) of a corporation (company) residing in another economy, or the equivalent in the case a company that is not incorporated.

Emerging Market Bond Index (EMBI): An indicator calculated by JPMorgan that measures the return on government bonds issued by emerging market countries (sovereign bonds), with a specific structure and liquidity.

Eurostoxx 50: Stock market index covering the 50 largest companies in the Eurozone.

Expected shortfall: A risk measure that estimates the expected value of losses on an investment portfolio for a specified probability and time horizon.

External formal secondary market (EFSM): Market in which the financial instruments that are eligible for overseas investment by the pension funds must be traded, together with other investments that are made in international markets, without detriment to the pension funds' trading of securities from foreign issuers on a national formal secondary market, in accordance with the Securities Market Law.

Factoring: A financing operation in which accounts receivable are transferred to a financing company (the factor). These accounts are typically part of a firm's current operations.

Fair value assets: Fair value is understood as the price that a financial instrument would receive, at a given point in time, in a free and voluntary transaction between duly informed and independent parties. Bank accounting standards establish that certain assets must be reported at fair value, including held-for-trading securities, available-for-sale securities, and derivative contracts.

Federal funds rate (FFR): Monetary policy rate of the U.S. Federal Reserve.

Federal Reserve System (Fed): The U.S. Federal Reserve is the central bank of the United States.

Financial market infrastructures: Institutions that enable the effective operation of financial markets, including payments systems, central counterparties, securities settlement systems, central securities depositories, and trade repositories.

Financial Stability Board (FSB): An international organization that monitors and makes recommendations on the global financial system and has the mandate to promote international financial stability.

Financial Stability Board of Chile (FSB): The Financial Stability Board of Chile was created in 2011 to oversee the integrity and solidity of the financial system, providing the coordination and information-sharing mechanisms necessary for a preventive management of systemic risk and the resolution of critical situations

involving the exercise of the powers and authority of the economic superintendencies. The board is made up of the Finance Minister, who acts as chair; the Chairman of the FMC; and the Superintendent of Pensions. In addition, the CBC acts as a permanent advisor on all issues related to its functions.

Financial stability: The CBC defines financial stability as the state in which the financial system is able to fulfill its functions normally or without significant disruptions, even in the face of temporary adverse events.

FOGAPE: Small Business Guarantee Fund (Fondo de Garantía para Pequeños Empresarios). A state fund that guarantees a specified percentage of the principal on loans, leasing operations, and other financing mechanisms granted financial institutions to eligible beneficiaries.

Foreign private equity assets: Private equity is an investment in firms whose shares are traded not on the exchange, but rather directly among investors.

Formal Exchange Market (FEM) operators: A group of banks and currency exchange houses authorized by the Central Bank of Chile, to which they report all transactions.

Formal Exchange Market (FEM): The Central Bank of Chile has the authority to require that certain international exchange operations are carried out in the FEM, which is currently made up of banks and other entities authorized by the CBC.

Forward guidance: A communication tool used by central banks to signal their future monetary policy decisions in the medium term, so as to influence the expectations of economic/financial agents.

Four-party model: Industrial organization of retail payment markets comprising cardholders, merchants, Issuers, and acquirers, where issuers have contracts with acquirers and cardholders, and acquirers have contracts with issuers (and brands) and merchants.

FSB Working Group on Operational Continuity (FSBWGOC): A working group established in December 2016 by Chile's Financial Stability Board (FSB) with the objective of analyzing the operational risks of the payment system and its participants and proposing legal and regulatory changes as needed to mitigate these risks and their impact on the financial system.

FTSE 100: Stock market index covering the 100 companies with the highest market capitalization on the London Stock Exchange.

G20: An international forum for cooperation and consultation among developed countries and emerging economies, on issues related to global economic stability. Members include the seven most industrialized countries in the world (G7), Russia, the European Union, and a group of other economies, including Brazil, India, China, and South Africa.

G7: An international forum for cooperation and consultation among the seven largest industrialized economies in the world: Canada, France, Germany, Italy, Japan, United Kingdom, and United States.

Greenhouse gases (GHG): Gases in the atmosphere, either naturally occurring or present as a result of human actions, that absorb and emit radiant energy within the thermal infrared range on the Earth's surface, in the atmosphere, and in the clouds.

House price index (HPI): Estimated using a stratification or mixed adjustment method, based on anonymized administrative records from the Chilean IRS on actual transactions on new and used residences at the national level.

Indebtedness: Ratio of financial indebtedness, measured as Financial debt/(Equity plus minority interest).

Instantaneous payments: Payments that are transmitted in real time, where the settlement is final and the beneficiary has immediate access to the associated funds in real time (or close to real time). Instantaneous payment systems must be available 24 hours a day, 365 days a year.

Interest coverage ratio: The ratio of earnings before interest and taxes (EBIT) to financial expense.

Interest rate risk: Exposure to losses caused by adverse changes in interest rates, which affect the value of the instruments, contracts and other transactions recorded on the balance sheet.

International custodian: Custodian or securities depository with primary residence overseas.

Intraday liquidity facility: Financing granted by the Central Bank of Chile to banking entities through the RTGS system. This facility operates daily through the purchase of financial instruments with a repurchase agreement. The terms and conditions of these operations are contained in the Central Bank's financial regulations.

IPSA (Índice de Precio Selectivo de Acciones): Selective Stock Price Index covering the 40 largest companies on the Santiago Stock Exchange.

Lender of last resort: Under an instability or crisis scenario, the CBC is authorized to act as the lender of last resort (BCA, Article 36), providing credit to banks that, while solvent, are experiencing a temporary liquidity shortage. This type of loan can have a duration of up to 90 days, after which a loan extension would require the prior favorable assessment of the FMC and a unanimous vote by the CBC Board. This liquidity tool is not intended to be used to rescue troubled banks, but rather to help contain risks that would otherwise be propagated to the system and affect the general population.

Leverage: Measure of the banks' debt level over equity; used as a complementary tool to capital adequacy requirements.

Liquidity coverage ratio (LCR): A measure of bank liquidity designed to measure the short-term liquidity of banks under a systemic stress scenario. Defined as the ratio of high-quality liquid assets on the bank's balance sheet to its net stressed cash outflows in a 30-day window.

Liquidity credit line (LCL): Credit line activated by the CBC, with a cap equal to the average cash reserves in national currency of each bank. Access to and use of the LCL is subject to the same conditions of increased lending established for the Conditional Financing Facility for Increased Loans (FCIC), with the difference that the cap is equal to a given bank's reserves. The LCL will be available for a period of six months, with a maturity of up to two years.

Liquidity ratio: Official reserves in foreign currency over short-term liability financing needs in foreign currency.

Loan-to-value (LTV) ratio, aggregate: The ratio of a given loan (usually a mortgage) to the appraised or market value of the underlying asset. At the bank or system level, it is measured over the base of loan flows and is calculated as the weighted average (by loan amount) of the LTV of individual loans granted in a given period.

Loan-to-value (LTV) ratio: The ratio of a given loan to the value of the underlying asset purchased, usually a home.

Loans in default: Debtors and their loans for which there is little chance of recovery, due to a weak or null capacity to pay. This portfolio includes debtors who must undergo a forced debt restructuring, as well as any debtor with arrears of 90 days or more on the payment of interest or principal on a loan.

Low for long: A scenario in which interest rates remain below their historical average for a long period.

Market risk: The potential loss in value of the net positions held by a financial entity, as the result of adverse changes in market prices.

Master agreements for derivative contracts: Standardized contracts that allow the counterparties to establish the general terms and conditions for derivative transactions, establishing standard protocols, for example for defining default and transaction settlement procedures.

MF1: Type 1 mutual funds, which invest in short-term debt instruments with a duration of 90 days or less. This mutual fund invests in short-term debt securities and medium- and long-term debt securities. The duration of a Type 1 fund's investment portfolio must be 90 days or less. Shares are invested in short-, medium-, and long-term debt instruments.

MF2: Type 2 mutual funds, which invest in short-term debt instruments with a duration of 365 days or less. This mutual fund invests in short-term debt securities and medium- and long-term debt securities. The

duration of a Type 2 fund's investment portfolio must be 365 days or less. Shares are invested in short-, medium-, and long-term debt instruments.

MF3: Type 3 mutual funds, which invest in medium- and long-term debt instruments, with a minimum duration of over 365 days. This mutual fund invests in short-term debt securities and medium- and long-term debt securities. A minimum and maximum duration are defined for the investment portfolio. This information must be contained in the definition adopted by the fund, and it must be longer than 365 days. Shares are invested in short-, medium-, and long-term debt instruments.

MF6: Type 6 mutual funds, which can be freely invested. These funds are not classified under the definitions of types 1 through 5. The investment policy is unrestricted, but while they are not subject to regulated guidelines, they must establish internal regulations.

Mitigators: Elements within the financial system, or conditions among the agents that participate therein, that tend to reduce the impacts of a shock. For example, a regulatory framework and market practices that ensure that the banking system has healthy capital ratios, adequate provisions, appropriate liquidity ratios, and match levels that reduce exposure to possible currency or rate risks.

Multi-funds: A system in which pension fund managers offer a range of five different pension fund portfolios, which differ in terms of the share of the portfolio that is invested in variable-income securities, implying different levels of risk and returns.

Net international investment position (NIIP): The difference between the economy's external assets and liabilities, at the end of a given period.

Net stable funding ratio (NSFR): Defined as the ratio of the amount of available stable funding to the amount of required stable funding. This ratio must be, at a minimum, 100% at all times. Available stable funding is defined as the share of own and other resources that can be expected to be reliable over the horizon considered by the NSFR (one year). The amount of required stable funding for a given institution is a function of its liquidity characteristics and the residual maturities of its different assets, as well as its off-balance positions.

Nonbank lenders (NBLs): Nonbank entities that provide consumer, mortgage, and commercial loans, including retailers, family compensation funds (CCAF), savings and loan associations (S&Ls), automobile finance companies, life insurance companies, and leasing and factoring companies.

Nonperforming loan (NPL) ratio: A measure of credit risk, calculated as the ratio between nonperforming loans and total loans.

Nonperforming loans: Bank loans, or a fraction thereof, that are past due by up to 90 days from the maturity date. In the case of installment loans, only the amount of the past-due payment is considered, although the full amount of the loan could be transferred to the nonperforming portfolio if acceleration clauses are enforced.

Normal loans: Loans to debtors with the payment capacity to meet their obligations and commitments, for whom there is no sign that this condition will change, based on an evaluation of their economic-financial situation.

Office class (A+, A, B, C): Classification used to categorize offices according to their characteristics, from high to low. The characteristics considered are location, access, floor plan size, absence of pillars, ceiling height, access control, closed-circuit TV, security equipment, fire detectors and extinguishers, air conditioning, elevator speed, structured cabling, and whether the building has Leadership in Energy and Environmental Design (LEED) certification.

Open Market Operations System (SOMA in Spanish): Trading platform through which the Central Bank of Chile (CBC) interacts with authorized financial institutions, to implement monetary operations to increase or decrease bank reserves.

Operational risk: Exposure to losses deriving from deficient internal processes, personnel and systems or external events, including legal risks but excluding strategic and headline (or reputational) risk.

Output floor: Percent of risk-weighted assets calculated using a standardized approach, which establishes the floor of RWAs calculated for regulatory purposes.

Over-the-counter (OTC): A term used to describe the trading of financial instruments directly between two parties, without going through the organized securities exchanges.

Pension fund investment regime: Regime regulating specific investment issues for the pension funds, which by nature require more flexibility and detail, and setting investment limits that promote adequate fund diversification. The regime is elaborated by the Superintendence of Pensions and approved by the Technical Investment Board and the Ministry of Finance.

Prepaid debit cards: A physical, electronic, or computer device that has a unique identification system, tied to a fund provision account opened by the card issuer for the purpose of crediting sums of money deposited therein by the purchaser; and whose utilization as a payment instrument amounts to a financial liability for the issuer vis-à-vis the public or affiliated commercial establishments or services.

Principles of Financial Market Infrastructures (PFMIs): 24 principles developed by the Committee on Payments and Market Infrastructures (CPMI) and IOSCO, aimed at systematizing and diffusing international best practices and legal and regulatory standards applicable to financial market infrastructures.

Prior assessment report: The Chilean regulatory and supervisory framework comprises systems that require institutions to share their analysis and opinions. Under these mechanisms, for specific legally defined cases, the agency that is empowered to issue a regulation is required to first solicit the prior assessment of another agency. These technical, objective opinions are written from a macrofinancial perspective and are known as prior assessment reports or prior favorable assessments.

QR code: An image that contains a code communicating specific information that can be read using an electronic device, typically a cellular phone with a camera.

Foreign exchange reference rates: A sample of Latin American exchange rates.

Regulatory capital: Tier 1 (core) capital plus Tier 2 (supplementary) capital. The latter mainly includes subordinated bonds and additional provisions.

Reporting firms: Corporations that issue shares and debt securities and that are required to report their financial statements to the Chilean Financial Market Commission (FMC), following International Financial Reporting Standards (IFRS).

Residual short-term external debt (RSTED): External debt coming due within 12 months of a given date (that is, short-term external debt plus the current portion of long-term external debt).

Return on assets (ROA): Measured as the ratio of earnings after taxes, amortizations, and extraordinary items to total assets.

Return on equity (ROE): Measured as the ratio of earnings after taxes, amortizations, and extraordinary items to shareholders' equity plus minority interest.

Risk appetite: The quantity and type of risk that economic agents are willing to pursue, retain, or assume.

Risk-based capital: The higher capital level derived from a comparison of the capital necessary for maintaining debt ratios, the solvency margin, and the minimum capital required by Law.

Risk-weighted assets (RWA): Bank assets weighted on the basis of five risk categories, set forth in Article 67 of the General Banking Law. The ratio of regulatory capital to risk-weighted assets serves as a measure of capital adequacy (known as the Basel ratio), which is internationally accepted as a measure of bank solvency.

S&P 500: Stock index based on the market capitalization of the 500 largest companies that are publicly traded in the United States.

Secondary market: A market where financial assets are traded after issue. Every transaction implies a purchase/sale between investors.

Securities depository: Special-purpose corporation whose sole objective is to receive publicly offered securities and facilitate their transfer.

Shadow banking: Financial intermediation conducted outside the banking system.

Shocks adversos: Cambio exógeno que afecta negativamente en una o más dimensiones.

Spread: The excess yield of a given financial asset relative to the risk-free return, charged by investors for tolerating an additional risk level.

Standing deposit facility: Overnight liquidity absorption facility, where the CBC receives deposits in pesos, which earn interest after one day.

Standing liquidity facility: Overnight liquidity window, where the Central Bank of Chile purchases eligible financial assets in exchange for an amount in pesos, equivalent to the present value of the assets discounted at the current market rate for the day of the operation, less haircuts and margins. All operations include a repurchase agreement to buy back the instrument on the next bank business day. The Central Bank charges interest on the amount initially loaned in pesos.

SWIFT: The Society for Worldwide Interbank Financial Telecommunication is an international cooperative created and owned by banks, which operates a network that facilitates the exchange of payment orders and other financial messages, called FIN messages, between financial institutions (including brokers and securities firms) throughout the world. A SWIFT payment message is an instruction to transfer funds. The resulting exchange of funds (settlement) is effected in a payment system or by a correspondent bank.

Systemic risk: The risk that financial instability becomes so widespread that it affects the functioning of the entire financial system, to the point that economic growth and social well-being suffer significantly.

Targeted longer-term refinancing operations (TLTRO): Loans by the Central European Central Bank to European banks, with advantageous terms. Designed to refinance banks and reduce their dependence on the ECB.

Term spread: The excess yield charged by investors in exchange for holding a long-term bond to maturity, rather than in selling and reinvesting in a bond with a shorter-term series in the same time period.

Tier 1 capital: Paid-up capital plus bank reserves and period earnings, net of provisions for the distribution of dividends.

Trade repository: An entity that maintains a centralized electronic registry (database) of financial transactions.

Traditional assets: Fixed- and variable-income financial instruments, such as bonds and stocks, respectively.

Treasury bill (T-bill): A fixed-income security issued by the U.S. Department of the Treasury, with a maturity of up to one year.

Treasury bond (T-bond): A fixed-income security issued by the U.S. Department of the Treasury, with a maturity of 30 years. T-bonds were reintroduced in February 2006.

Treasury note (T-note): A fixed-income security issued by the U.S. Department of the Treasury, with a maturity of 2, 3, 5, or 10 years.

TYVIX: Implied volatility index a ten-year U.S. Treasury bonds.

Unemployment Solidarity Fund: Fondo de Cesantía Solidario (FCS). A common fund that provides unemployment benefits for eligible beneficiaries, which is financed through employer and Treasury contributions.

Vacancy rate: Measure of availability in the real estate market, approximated as the ratio of the square meters available for rent or sale, over the total current stock.

Value at risk: A risk measure that estimates the losses on an investment portfolio for a specified probability and time horizon.

Virtual currencies: Also known as digital currencies. A virtual or digital (i.e., not physical) token that has some, but not all, the characteristics of a currency and can also have the characteristics of a commodity or other asset. Called cryptocurrencies when their issue and transaction validation require cryptographic mechanisms.

VIX: Chicago Board Options Exchange (CBOE) stock volatility index, based on S&P 500 index options contracts (at one month).

Vulnerabilities: Conditions within the financial system, or among the agents that participate therein, that weaken their capacity to face a shock or that could magnify its effects.

Yield curve: The ratio of the yield or return of fixed-income securities to their maturity.

ABREVIACIONES

4PM: Four-party model.

AAT: Asset adequacy testing.

ABN: Notification of deposit in an overseas correspondent bank

Achef: Association of Chilean Factoring Firms.

ADR: American Depository Receipts.

AFC: Administradora de Fondos de Cesantía (Unemployment fund manager).

AM: Acquirer's margin.

APV: Voluntary pension savings.

APVC: Collective voluntary pension savings.

AR: Arrears rate.

AREAER: Annual Report on Exchange Arrangements and Exchange Restrictions.

BCA: Basic Constitutional Act of the Central Bank of Chile.

BCBS: Basel Committee on Banking Supervision

BCBS: Basel Committee on Banking Supervision.

BCP: Central Bank bonds denominated in Chilean pesos.

BCS: Bolsa de Comercio de Santiago (Santiago Stock Exchange).

BCU: Central Bank bonds denominated in UFs.

BdE: Bank of Spain.

BHIF: Banco Hipotecario Internacional Financiero (International Financial Mortgage Bank).

BI: Business Indicator.

BIC: Business Indicator Component.

BIS: Bank for International Settlements.

BLS: Bank Lending Survey.

BoE: Bank of England.

BoJ: Bank of Japan.

bp: basis points.

BSS: Banking support services corporation.

CAE: Crédito con Aval del Estado (Governmnet-backed student loans).

CAPE: Cyclically adjusted price-earnings ratio.

CAR: Capital adequacy ratio.

CASEN: Socioeconomic Characterization Survey.

CAT: Cencosud Administradora de Tarjetas S.A. (a credit card company).

CBC: Central Bank of Chile.

CBI: Climate Bond Index.

CBR: Conservador de Bienes Raíces (Real Estate Registrar).

CC: Retailers.

CCAF: Cajas de compensación y Asignación Familiar (Family Compensation Funds).

CCAV: Cámara de Compensación de Pagos de Alto Valor en Moneda Nacional (Large-value clearing house in domestic currency).

CChC: Cámara Chilena de la Construcción (Chilean Chamber of Construction).

CCLV: Cámaras de Compensación y Liquidación de Valores (Securities clearing houses).

CCP: Central counterparty.

CCVP: A Special cash purchase/forward sale program.

CCyB: Countercyclical capital buffer.

CEIC: CEIC Data Company.

CEMBI: Corporate Emerging Market Bond Index.

CF: Conversion fee.

CFER: Compendium of Foreign Exchange Regulations.

CFR: Compendium of Financial Regulations.

CGFS: Committee on the Global Financial System.

CLS: Continuous Linked Settlement.

COE: Critical operational events.

ComDer: ComDer Contraparte Central S.A.

COMEX: Foreign trade.

CORFO: Corporación de Fomento de la Producción (Production Promotion Corporation).

CPMI: Committee on Payments and Market Infrastructures.

CSD: Central Securities Depository.

D/G-SIFIs: Domestic/Global systemically important financial institutions.

DaR: Debt-at-risk.

DAX: Deutscher Aktienindex (German stock index).

DEPUC: Daily economic policy uncertainty index.

DFA: Dodd-Frank Act.

DIPRES: Budget Office.

DLT: Distributed-ledger technology.

DPF: Time deposit.

DR: Default rate.

DSGE: Dynamic stochastic general equilibrium.

DSR: Debt service ratio.

DSTI: Debt-service-to-Income ratio.

DTI: Debt-to-Income ratio.

DvP: Delivery versus payment.

DXY: Dollar index.

EBA: European Banking Authority.

EBIT: Earnings before interest and taxes.

ECB: European Central Bank.

EFR: Effective federal funds rate.

EMBI: Emerging Market Bond Index.

EME: Emerging market economy.

EMIR: European Market Infrastructure Regulation.
ENF: Loans to microbusinesses and SMEs over total commercial loans.
EPFR: Emerging Portfolio Fund Research.
EPU: Economic Policy Uncertainty Index.
ESG: Environmental, social and governance criteria.
ESRB: European Systemic Risk Board.
EZ: Eurozone.
F&L: Factoring y leasing
FCIC: Conditional Financing Facility for Increased Loans.
FDI: Foreign direct investment.
FDIC: U.S. Federal Deposit Insurance Corporation.
Fed: U.S. Federal Reserve System.
FEM: Formal Exchange Market.
FFR: Federal fund rate.
FI: Fixed-income.
FLESB: Forward-looking exercise on Spanish banks
FLI: Intraday liquidity facility.
FMC: Financial Market Commission.
FMI: Financial market infrastructures.
FOGAIN: Fondo de Garantía de Inversión (Investment Guarantee Fund).
FOGAPE: Fondo de Garantía para el Pequeño Empresario (Small Business Guarantee Fund).
FOMC: U.S. Federal Open Market Committee.
FONASA: Fondo Nacional de Salud (National Health Fund).
FPC: Financial Policy Committee.
FPD: Standing deposit facility.
FPL: Standing liquidity facility.
FPM: Financial Policy Meeting.
FSB: Financial Stability Board of Chile.
FSB: Financial Stability Board.
FSBWGOC: FSB Working Group on Operational Continuity.
FSI: Financial Soundness Indicators.
FSR: Financial Stability Report.
FTSE 100: Financial Times Stock Exchange 100.
FX: Foreign Exchange.
FXO: Foreign exchange operations.
G-SIB: Global systemically important banks.
G20: Group of Twenty.
G7: Group of Seven.
GBI: Government Bond Index.
GBL: General Banking Law.
GDP: Gross domestic product.
GFC: Global financial crisis.

GFSR: Global Financial Stability Report.
GHG: Greenhouse gases.
HFS: Household Financial Survey.
HLA: Higher loss absorbency.
HPI: House Price Index.
HQLA: High-quality liquid assets.
IAS: International Accounting Standards.
ICO: Initial coin offering.
IDIS: Integrated Derivatives Information System.
IFRS: International Financial Reporting Standards.
IFRS: International Financial Reporting Standards.
IIP: International investment position.
ILM: Internal loss multiplier.
IMF: International Monetary Fund.
INC: Annualized stock of loans.
INE: Instituto Nacional de Estadísticas (National Statistics Institute).
IOSCO: International Organization of Securities Commissions.
IPoM: Monetary Policy Report.
IPSA: Índice de Precio Selectivo de Acciones (Selective Stock Price Index).
IRS: Chilean Internal Revenue Service.
ISDA: International Swaps and Derivatives Association.
ITL: Income Tax Law.
JPL: Job Protection Law.
Latam: Latin America.
LCL: Liquidity Credit Line
LCR: Liquidity Coverage Ratio.
LIC: Life insurance company.
LSI: Local stress index.
LT: Long term.
LTV: Loan-to-value ratio.
LVPS: Large-value payment systems.
LVPSCP: Large-Value Payment System Contingency Protocol.
MC: Markets Committee.
MD: Merchant discount.
MF: Mutual funds.
MH: Mortgage bonds.
MiFID: Markets in Financial Instruments Directive.
MiFIR: Markets in Financial Instruments Regulation.
MINDHA: Ministry of Finance.
MoU: Memorandum of Understanding
MPR: Monetary policy rate.
MR: Metropolitan Region.

MSCI: Morgan Stanley Capital International.
NAFTA: North American Free Trade Agreement.
NBFI: Nonbank financial intermediation.
NBL: Nonbank lender.
NCG: Norma de Carácter General (General Regulation) of the Superintendence of Securities and Insurance.
NDF: Non-deliverable forward.
NGFS: Central Banks and Supervisors Network for Greening the Financial System.
NIIP: Net international investment position.
NMDaR: Non-mortgage debt-at-risk.
NMNBFI: Narrow measure of NBFI.
NPL: Nonperforming loan ratio.
NR: Nonresident.
NSFR: Net Stable Funding Ratio.
NSO: Net stressed outflows.
OCC: Office of the Comptroller of the Currency.
OECD: Organization for Economic Cooperation and Development.
OeNB: Oesterreichische Nationalbank.
OPB: Operating procedures for requesting fund transfers.
OR: Operational risk.
OTC: Over the counter.
PAC: Automatic bill payment.
PDBC: Central Bank of Chile notes.
PF: Pension funds.
PFM: Pension fund manager.
PFMI: Principles for Financial Market Infrastructures.
pp: percentage points.
PRC: Prudential Regulation Committee.
PS: Payment systems.
PVP: Payment versus payment.
QE: Quantitative easing.
RAN: Recopilación actualizada de normas (SBIF banking regulations).
RBA: Reserve Bank of Australia.
RBS: Risk-based supervision.
RC: Regulatory capital.
Repo: repurchase agreement.
ROA: Return on assets.
ROE: Return on equity.
RTGS: Real time gross settlement.
RUT: Chilean tax identification number.
RWA: Risk-weighted assets.
S&L: Savings and loan association.

S&P 500: Standard and Poor's 500.

SBIF: Superintendence of Banks and Financial Institutions.

SCH: Securities clearing houses.

SD: Subordinated debt.

SEC: U.S. Securities and Exchange Commission.

SELIC: Overnight interest rate of the Bank of Brazil.

SINACOFI: Sistema Nacional de Comunicación Financiera (National Financial Communication System).

SMEs: Small and medium-sized enterprises.

SML: Securities Market Law.

SOMA: Sistema de Operaciones de Mercado Abierto (Open Market Operation System).

SP: Superintendence of Pensions.

SRP: Self-regulation plan.

ST: Short term.

SuperIR: Superintendence of Insolvency and Restructuring.

SuSeSo: Superintendencia de Seguridad Social (Superintendence of Social Security).

SWIFT: Society for Worldwide Interbank Financial Telecommunication.

T-Bill: U.S. Treasury bill.

T-Bond: U.S. Treasury bond.

T-Note: U.S. Treasury note.

TBTF: Too big to fail.

TCFD: Task Force for Climate-Related Financial Disclosures.

TDLC: Tribunal de la Libre Competencia (Competition Tribunal).

TITRP: Technical interest rate for scheduled withdrawals and temporary annuities.

TLTRO: Targeted longer-term refinancing operations.

TR: Trade repository.

TT: Transbank.

TYVIX: Treasury Note Volatility Index.

UF: Unidad de Fomento, an inflation-indexed unit of account.

UK: United Kingdom.

USA: United States of America.

USF: Unemployment Solidarity Fund.

VaR: Value at Risk.

VAT: Value-added tax.

VI: Variable-income.

VIX: Chicago Board Options Exchange Volatility Index.

VXY: Chicago Board Options Exchange DXY Volatility Index.

WEO: World Economic Outlook.

WTO: World Trade Organization.

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