

PAYMENT SYSTEMS REPORT

AUGUST 2023





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Financial policy and objective of ensuring the continuity of payments

One of the objectives established in the Constitutional Organic Law (LOC) of the Central Bank of Chile (BCCh) is “to ensure the normal functioning of internal and external payments” To achieve this objective, the BCCh, permanently monitors, regulates and directly operates one of the payment systems, thus protecting its security and efficiency. These actions are part of the general framework of the BCCh’s Financial Policy, which is oriented to promote the stability of the overall financial system^{1/}.

Disclosure and transparency

The BCCh’s Payment Systems Report communicates to the general public, on an annual basis, recent trends related to the use of means of payment, financial market infrastructures, as well as the development and policy outlook, including the payments agenda of the BCCh^{2/}.

Initial considerations for reading this Report

Most of the world’s central banks have some mandate related to the payments system, as is the case with the BCCh, because the economy’s transactions require that the associated payments be safely and efficiently made. To this end, modern financial systems require the operation of Payment Systems that allow the coordinated and fluent operation of a wide range of means of payment, and a complex network of Financial Market Infrastructures (FMIs).

For the BCCh, fulfilling this part of its mandate is becoming increasingly challenging due to the growing diversity and complexity of the means of payment, which is driven by constant technological innovations.

Banks and other financial institutions assume legal, credit and operational risks when providing large volumes and diversity of means of payment to their clients. To manage these risks, the financial institutions participate in FMIs, which mainly provide rules and procedures, as well as risk mitigation mechanisms (e.g., collateral and participation requirements, among others).

Large-Value Payment Systems (LVPS) are a particular FMI that are generally operated by central banks, as they allow making large-value funds transfers, which result from the aggregate processing of all payments in the economy. In Chile, the BCCh directly operates the Sistema de Liquidación Bruta en Tiempo Real or Sistema LBTR (an RTGS system), which consist in a digital platform through which its participants transfer funds among each other in local currency and dollars of the United States.

A specialized section of the BCCh’s website contains a detailed review of key concepts to facilitate understanding of the operation of the Payment Systems and this Report^{3/}.

^{1/} See [Financial Policy Document of the Central Bank of Chile \(2020\)](#).

^{2/} Until 2020, part of the content of this Report was presented in the Chapter VI of the Financial Stability Report (FSR), in its second half editions.

^{3/} See Chapter IV of the Payment Systems Report 2022 ([PSR 2022](#)).

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* / Unless otherwise noted, the statistical cutoff date of this Payment Systems Report was 31 March 2023.



SUMMARY

Since the publication of our previous Report, both retail and large-value payment systems have remained dynamic, and advances in financial market infrastructures have consolidated. This dynamism is related to private sector initiatives and an appropriate regulatory framework that has been adapted to favor innovation while maintaining safety and efficiency standards. However, this same dynamism sometimes calls for the adoption of various measures to enable payments in general, and new business models in particular, to be carried out under suitable conditions of safety and efficiency.

Main developments of means of payments

The persistent increase in the use of digital means of payment deserves special mention. Digital payments are growing due to improved access to smartphones, new and more user-friendly technologies that enhance the users' experience, as well as new services provided by incumbent players and Fintech companies. Digital payments amounted to 110% of annual GDP, of which 68% correspond to Electronic Funds Transfers (TEF in Spanish). Card payments account for the largest number of transactions, reaching 11 million per day and representing more than half of households' consumer spending. Debit cards rank first as the most widely used payment instrument.

This important development is possible thanks to the consolidation of the payments market and the entry of new participants. Most recently, the use of different means of payment and payment systems has increased, new participants have entered the markets for acquiring and issuance of payment means, and advances in Financial Market Infrastructures (FMIs) have been consolidated.

New acquirers and sub-acquirers have entered the market after the implementation of the Four-Party Model (4PM), thus contributing to a significant boost in the acceptance of cards. This has also resulted in a drop in Transbank's market share. The adoption of the 4PM has also allowed the entry of non-bank issuers of prepaid cards that reach more card holders and increase competition, although their use is still moderate.

However, the continuity and consolidation of this development process still needs to solve some persistent frictions, especially regarding the fees that the bigger acquirer charges the merchants. The new market organization will continue to generate changes in the interactions among the different players that participate in this payment system. The full-fledged entry in operation of the new institutionality to set limits to the interchange fees is a step in that direction. Going forward, it will be necessary to facilitate the creation of new business models, advancing in the universal acceptance of the growing number of prepaid cards and foster interoperability among the full array of means of payment.



At the same time as this significant increase in volume and diversity of digital payments, and a rise in preferences for debit cards, cash payments have returned to pre-pandemic utilization levels, mostly in some specific population segments. The National Survey on Cash Usage and Preferences (ENUPE in Spanish) shows that the number of users that most frequently resort to cash is slightly below that of debit cards. It also has identified for several years certain frictions in the distribution of banknotes that may affect the conditions of access to lower-denomination bills.

Financial Market Infrastructures (FMI)

The network of Financial Market Infrastructures available in the country appropriately sustains the operation of the financial system. In the Large-Value Payment Systems (LVPS), the payments that Sistema LBTR processes annually are 40 times the GDP, and the interbank payments settled in pesos (Sistema LBTR in local currency or Sistema LBTR MN in Spanish) rose 15% in 2022, mainly explained by the settlement of the peso leg of peso/dollar spot FX operations. In addition, the operations between the BCCh and the banking entities carried out during the pandemic continue to be reflected in high payment levels in the Sistema LBTR MN with 75% of the total, although a decrease of about 19% is observed for the period 2021-2022.

FMIs that process stock exchange transactions, such as the Securities Settlement Systems (SSS) and Central Counterparties (CCP), have performed in line with the level of activity in their respective markets. The transactions processed by these FMIs account on average for between 40% and 70% of the total amounts traded in their markets, respectively, so there is still potential for greater use of these FMIs. Meanwhile, in the over-the-counter (OTC) interbank derivatives market, there has been an increase in clearing activity, highlighting the international recognition obtained by the Chilean CCP from the European Securities Market Authority (ESMA).

November 2022 marked the start of the full-fledged operation of the Integrated Derivatives Information System (Sistema Integrado de Información de Derivados or SIID-TR in Spanish), thus concluding the process of gradual trial run for the various participants reporting to the Repository. According to available data in the BCCh's SIID-TR, as of March 2023, there are close to a million derivatives contracts for US\$8.6 trillion^{1/}, where banks account for nearly 85% of the reported activity. Maintaining the quality of the information reported to the SIID-TR is one of the main challenges facing this infrastructure.

The payments agenda of the BCCh

The new Strategic Plan of the BCCh assigns special importance to the development of means of payment and payment systems, for which several initiatives are envisaged in the short and medium term. The Payments Agenda is part of the initiatives of the BCCh's 2023-2027 Strategic Plan, where one strategic objective is "To contribute to the development of efficient and inclusive means of payment" with a focus on strengthening the cutting-edge nature of financial policy, in line with changes in technology and user preferences, adapting the regulatory framework and infrastructure.

^{1/} To avoid confusion with the nomenclatures of numbers in English and Spanish, throughout this document the term "billion" is used to mean one thousand million or a 1 with 9 zeros, and "trillion" is used to mean a million millions, that is, a 1 with 12 zeros (translator's note).



As part of this Agenda, as far as retail payment system are concerned, the incorporation of the first Retail Payments Clearing House (CPBV in Spanish) by the end of 2023, and its forthcoming entry into operation, will be a milestone. It will be the first instant payment system in Chile with clearing and settlement of payments according to best standards, thus providing greater security to the system and benefiting its users. TEF and payment card transactions are currently cleared through companies linked to the banking system and major international card schemes. In 2022, the BCCh issued the CPBV regulation, a flexible regulatory framework that allows the operation of payment systems managed by the private sector, in order to achieve greater convergence with international standards, in terms of access conditions and risk mitigation.

Regarding the regulatory framework for payment cards and equivalent systems, regulatory changes are presented to address the challenges and new business models in the field of retail payments. These adjustments consider the regulation of on-us models recognized by the Fintech Law, the update of the framework applicable to Payment Service Providers (PSPs), and the terms under which the so-called cross-border acquiring may be developed, seeking that new advances in this industry may be incorporated into the local market under appropriate safety conditions. These changes continue an ongoing effort of the BCCh to adapt its relevant regulation, as it happened in the past with the implementation of the 4PM in 2017 and the redefinition of prudential requirements in 2020.

In the financial market infrastructure area, the convergence towards international regulatory standards continues. It is worth mentioning the international recognition recently obtained by a Chilean Central Counterparty mentioned above, which would encourage the future participation of European entities and their subsidiaries; the release of the BCCh's SIID-TR system, with prospects for further progress with new timely and useful statistics for the market and possible expansion to other underlying assets; as well as the creation of Clearing House for Large-Value Payments in Foreign Currency, expected by the end of 2023.

Additionally, the BCCh continues to study and monitor trends, changes in the payments industry locally and globally, and the evolution of relevant legislation. In the short term, the BCCh is preparing the regulation of payment initiators in coordination with the Financial Market Commission (CMF) for the implementation of the open finance framework, and of digital assets as means of payment, based on the powers granted by Law N°21.521 (Fintech Law). Moreover, based on the prospective approval of the Bill to Strengthen the Resilience of the Financial System and its Infrastructures, the extension of access to the BCCh's payment systems and liquidity facilities to certain non-bank financial institutions and FMIs is proposed, and possibilities for the development of cross-border payments are foreseen, and with them the internationalization of the peso. Finally, the analysis and exploration of the implications of issuing a central bank digital currency continues.



I. MAIN DEVELOPMENTS OF MEANS OF PAYMENTS

Digital payments are still on a fast-growing trend, both through the use of cards and electronic funds transfers. At the same time, the implementation of the Four-Party Model (4PM) in the card market has facilitated the entry of new participants: acquirers and sub-acquirers that allow expanding the number of stores that accept being paid with cards or equivalent systems, and non-bank issuers of prepaid cards that reach more people and enhance competition. However, the continuity and consolidation of this development process still requires resolving the frictions that persist, particularly the uncertainty regarding the fees charged by the larger acquirer to retailers. In this sense, the entry into full operation of the institutional framework for setting limits on interchange fees contributes to reducing these frictions. Going forward, it is necessary to facilitate the development of new business models, advance in the universal acceptance of the growing number of prepaid cards, promote interoperability among the various means of payment, and ensure appropriate distribution of banknote denominations in ATMs according to the needs of users. Some of these advances require adapting legal and regulatory frameworks, while others involve the active role of the market agents themselves.

EVOLUTION AND TRENDS IN THE MEANS OF PAYMENTS USAGE

Since last year's Payment Systems Report, the use of digital means of payment continues to increase, in terms of both the amount and number of transactions. Several factors are contributing to this increase, such as improved connectivity and access to smartphones, new technologies that facilitate the users' experience, such as contactless payments and the use of QR codes, plus payment buttons associated with e-commerce, as well as new services provided by incumbent players and Fintech firms.

Of particular relevance in the increase in the use of digital means of payment is that of **Electronic Funds Transfers (TEF) (Figure I.1)**. As of March 2023, digital payments accumulated, in 12 months, 5,292 million transactions, for a combined amount of UF 8.71 billion (roughly US\$ 339.27 billion), equivalent to 110% of GDP^{1/}. Currently, the TEF are the most used digital payment method in terms of amount, with 68% of total digital payments^{2/}. Between March 2022 and March 2023, the digital means of payment showing the highest growth in the number of transactions are prepaid cards (207%), followed by TEF, and bank debit and credit cards with 25%, 20%, and 20% growth, respectively (Table I.1)^{3/}. In contrast, the sharp decline in checks payments continues in terms of both the number and the amount of transactions, which, over the past 12 months, have been less than 10% of GDP.

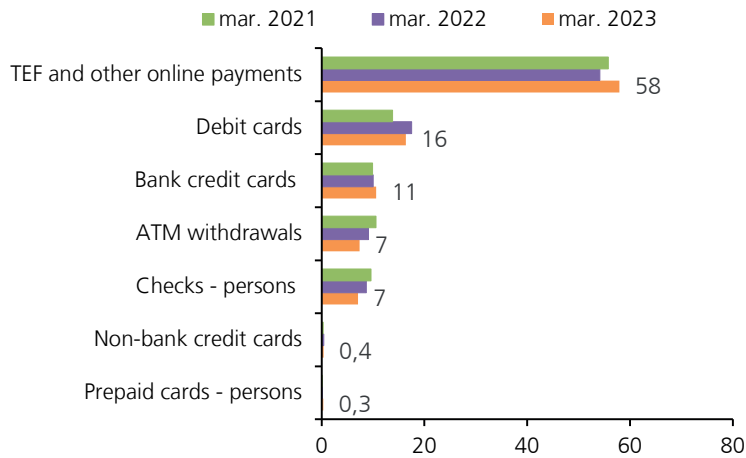
^{1/} UF stands for Unidad de Fomento, the inflation index for the Chilean economy, currently equivalent to CLP\$35.579 by March 2023.

^{2/} Considers all the payments shown in table I.1, except for checks and ATM withdrawals.

^{3/} Considers the period between March 2022/2023.



FIGURE I.1 USE OF PAYMENT METHODS (*)
(percent of amount traded)



(*) The information about non-bank cards and ATM withdrawals contains data of businesses and persons. The data presented is the sum of the 12 months prior to March of each year.

Source: Central Bank of Chile based on CMF data.

TABLE I.1 RETAIL PAYMENT TRANSACTIONS (*)
(12-month sum)

Products	Number of transactions (millions)			var. (%)		Amount (millions of USD dollars)			% GDP
	mar. 21	mar. 22	mar. 23	22	23	mar. 21	mar. 22	mar. 23	mar.23
Checks - persons	19	17	15	-11	-21	30.031	35.384	28.356	9
Funds transfers and other online payments - persons	862	1.066	1.337	25	25	174.877	220.628	223.694	76
Debit cards - persons	1.579	2.628	3.149	20	26	43.313	67.226	63.357	21
Bank credit cards - persons	500	642	749	17	20	29.071	38.442	39.355	13
Non-bank credit cards	15	23	27	20	-15	962	1.574	1.558	1
Prepaid cards - persons	3	9	29	207	-	247	536	1.311	0
ATM withdrawals	320	359	366	2	-4	33.068	37.185	29.676	10
Totals	3.298	4.745	5.672	20	16	311.570	400.974	397.307	129

(*) The information about non-bank cards and ATM withdrawals contains data of businesses and persons. The data presented is the sum of the 12 months prior to March of each year.

(**) Variation in the number of transactions. The annual average variation of the number of transactions over the past six years 2017-2022, does not include prepaid cards because they began operating in December 2019.

Source: Central Bank of Chile based on CMF data.



The average amount of personal TEF continues to outperform all other digital means of payment.

In March 2023 it reached US\$175, maintaining a decreasing trend over time. In other words, TEF are increasingly being used for lower payments amounts (Table I.2). It is worth noting that as of March 2023 there were nearly 23.9 million sight accounts (annual growth of 0.5%) and 7.7 million current accounts (annual growth of 22%).

TABLE I.2 AVERAGE AMOUNT OF TRANSACTIONS USING DIGITAL MEANS OF PAYMENT (*)
(US dollars)

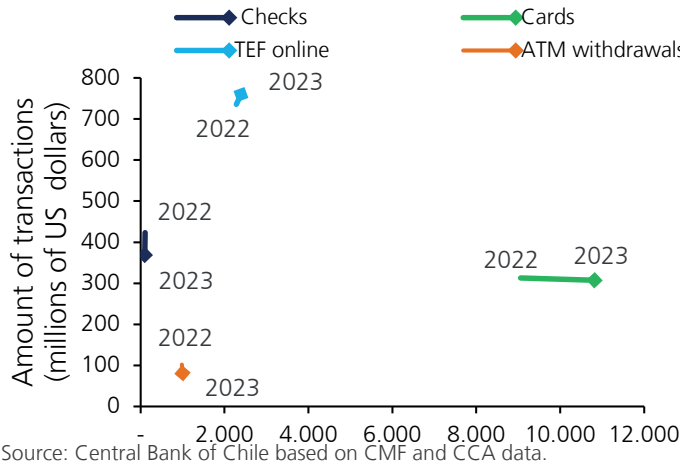
Products	Average transactions (Amount/Number of transactions)							
	mar. 16	mar. 17	mar. 18	mar. 19	mar. 20	mar. 21	mar. 22	mar. 23
Fund transfers and other online payments - persons	425	438	438	301	227	203	207	175
Debit cards - persons	27	27	28	26	22	27	27	20
Bank credit cards - persons	72	69	71	65	51	59	61	54
Non bank credit cards	42	44	48	49	57	65	69	57
Prepaid cards - persons						77	57	45

(*) The information about non-bank cards and ATM withdrawals contains data of businesses and persons. The data presented is the sum of the 12 months prior to March of each year. The exchange rate considered is the annual average (up to March in 2023). Source: Central Bank of Chile based on CMF data.

Considering both individual and business payments, on aggregate there were no major differences in the number of daily transactions with the different means of payment, either in amounts or in the number of operations. Checks were the only instrument that decreased in both the number of transactions and the amounts transacted, while payment cards showed the greatest increase in the number of payments for this period (Figure I.2).

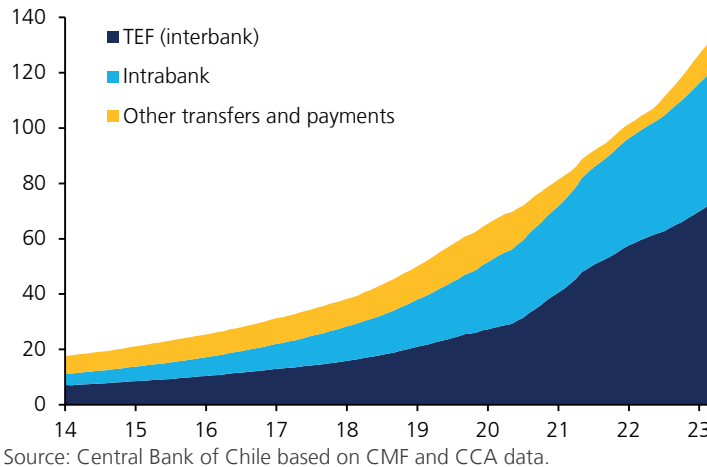


FIGURE I.2 AVERAGE DAILY TRANSACTIONS WITH SELECTED PAYMENT INSTRUMENTS
(vertical axes values, horizontal axis number of transactions)



Total amounts of online TEF are on the rise, maintaining the momentum gained during the pandemic, and represent 76% of GDP as of March 2023^{3/}. The latest available information shows that, on average, 132 million electronic funds transfers were made by individuals in the 12 months to March of this year, of which 55% were interbank transfers, 36% were intrabank transfers made between accounts in the same banking institution, and the remaining 9% were other transfers and payments (Figure I.3). This means that, on average, each person aged 15 years or older made 7.6 electronic funds transfers per month^{4/}.

FIGURE I.3 NUMBER OF INTERNET TRANSFERS AND PAYMENTS – NATURAL PERSONS
(12-month average; millions of transactions)



^{4/} On-line TEF correspond to those in which the payment of funds to the beneficiary is made instantly, upon receipt of the order, without it needing to be previously programmed. Thus, mass payment processes (e.g. batch), such as the payment of salaries, are not considered on-line TEF.

^{5/} That is, 17,481,559 persons, male and female, calculated for 2023 using National Institute of Statistics (INE in Spanish) estimates.



More than half of household consumer spending is paid with some type of card, with debit cards leading the way. The use of payment cards, measured as the fraction of household consumption paid with these instruments, has grown practically every quarter. Thus, while in the first quarter of 2013 it was 24%, in the same period of 2023 it reached 52.6% (Figure I.4). However, most recently, there has been a decline in the share of household consumption paid by credit cards, with a negative variation of 7% in the first quarter of 2023 compared to the first quarter of 2022. One of the reasons for this decrease is the high comparison base between 2020 and 2021. Meanwhile, bank and non-bank credit cards also decreased their use in the first quarter of 2023 with variation rates of 21% and 71%, respectively, compared to year-before levels, which is equivalent to reductions in their shares in terms of number of transactions by 6.2% and 7%, accordingly (Figure I.5).

FIGURE I.4 CARD USE (AMOUNT) OVER HOUSEHOLD CONSUMPTION (*)
(quarterly, percent)

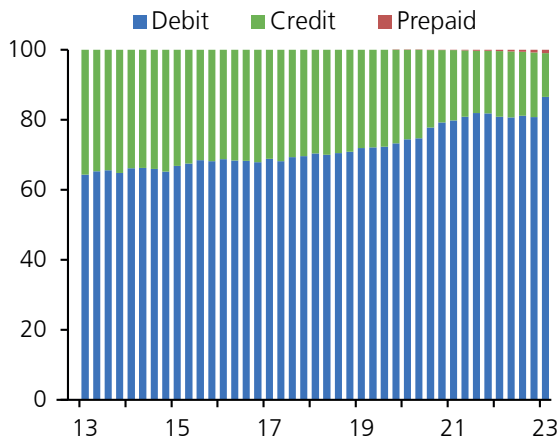
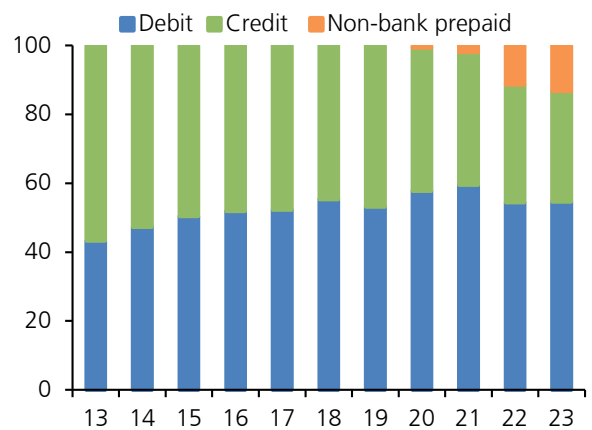


FIGURE I.5 SHARE OF NUMBER OF OPERATIONS BY CARD TYPE (*)
(quarterly, percent)



(*) The data contain information of businesses and persons.
Source: Central Bank of Chile based on own and CMF data.

In the last three years, a large number of prepaid cards have been issued. However, despite the higher number of cardholders, their actual use as a means of payment is still rather low. This may be related to the fact that it is a relatively new product, which still presents challenges for its universal acceptance by merchants. The number of valid non-bank prepaid cards is over six million, which represents 13% of the total number of cards issued as of March 2023 (Figure I.6), and may be explained by the ease of obtaining them, since in many cases they can be obtained digitally. In terms of transaction amounts, although they are growing at an average annual rate of 233% (Figure I.7), they account for less than 1% of the total number of payment card transactions^{5/}.

^{5/} Average growth rate in 2021-2022 for amounts in millions of US dollars.



This may be related to the competition that prepaid cards have with credit and debit cards, which usually offer a wider range of financial services; and to the fact that there is a significant number of merchants affiliated to the larger acquiring network that, while taking other types of cards, are yet to accept prepaid ones. This means that a prepaid card holder cannot be sure whether the card will be accepted at the time of purchase, which may discourage its use. Although in recent years there has been significant progress in the acceptance of prepaid cards—around 75% of merchants affiliated to an acquiring network will accept them— there is no obvious reason why a merchant would take credit and debit cards but not prepaid cards, considering that the costs associated with the latter are not higher and the number of cardholders with access to this means of payment is growing steadily.

FIGURE I.6 SHARE IN THE NUMBER OF CARDS IN THE SYSTEM (*)
(annual, percent)

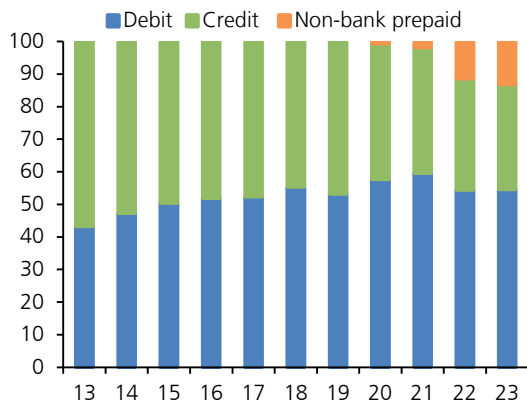
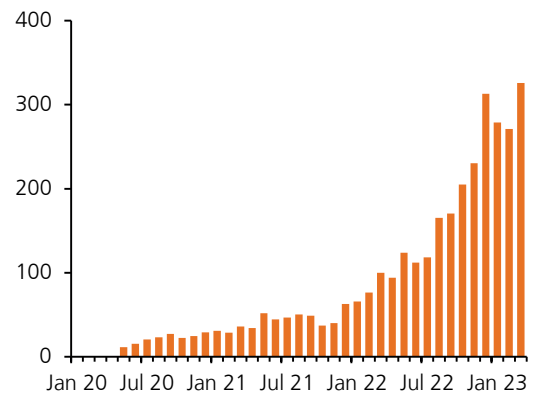


FIGURE I.7 TRANSACTIONS (AMOUNT) OF NON-BANK PREPAID CARDS (*)
(millions of US dollars)



(*) Data up to March 2023. The data contain information of businesses and persons.
Source: Central Bank of Chile based on own and CMF data.

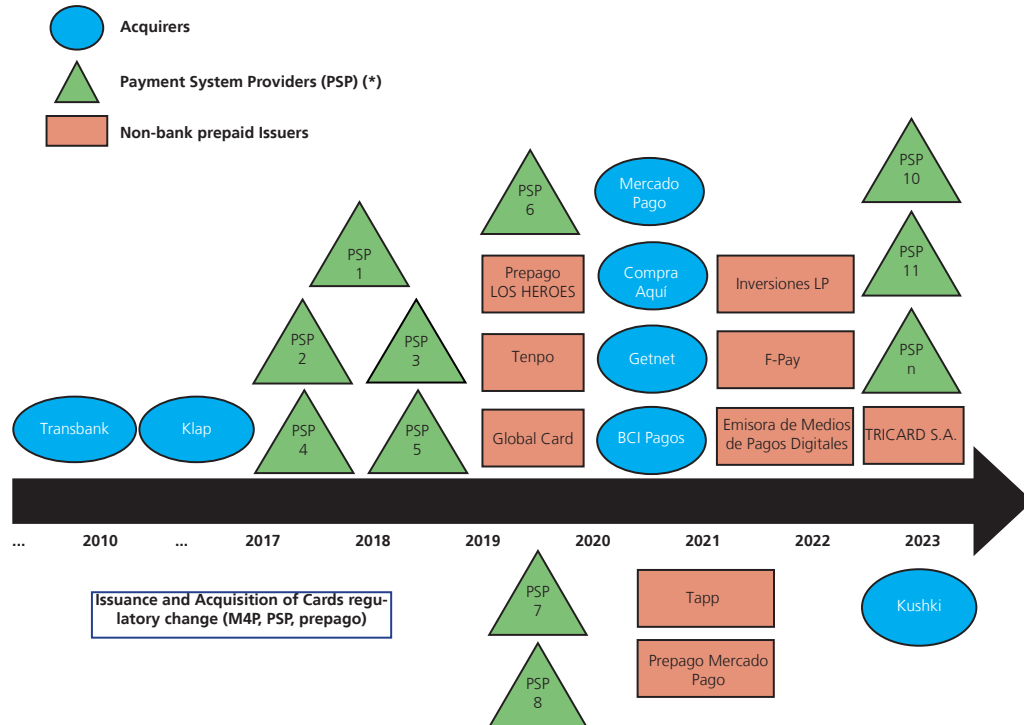
Following the 2017 regulatory changes to enable 4PM operation, new acquirers and sub-acquirers have entered the market (Diagram I.1), which has contributed to a significant increase in card acceptance, especially in physical establishments. More than 420,000 physical establishments accept payment cards, as do approximately 17,000 online ones. The increase in stores accepting payment cards is clear, especially after the beginning of the pandemic (57% annual growth since 2020). For example, while in 2018 there were 180 thousand ID numbers within the card payment system, in 2022, as new acquiring and sub-acquiring networks were added, their number rose to more than 1.2 million (Figure I.8).

The entry of new acquirers and sub-acquirers has also affected negatively Transbank’s market share, but it continues to be the main player in this market. Before the implementation of the 4PM, the main acquirer concentrated practically all payment card transactions in the country. Currently, the situation has changed significantly, since the entry of new competitors has led Transbank-managed transactions to account for 82% of the total, in terms of amount, a share that should continue to decrease



in the coming years, to somewhere between 50% and 60% by 2025^{7/}. Accordingly, based on information provided by the Ministry of Finance in the context of the operation of the Electronic Family Wallet (Bolsillo Familiar Electrónico in Spanish), it is possible to observe that approximately 71.5% of purchases with this instrument were made in stores affiliated to the Transbank network, 12.8% to Klap and 10% to Getnet^{8/}.

DIAGRAM I.1 EVOLUTION OF PARTICIPANTS IN PAYMENT CARD OPERATION AND ISSUANCE



(*) The date of release and quantity of PSPs (Payment Service Providers) are merely referential, but there are more than 20 entities of this kind.

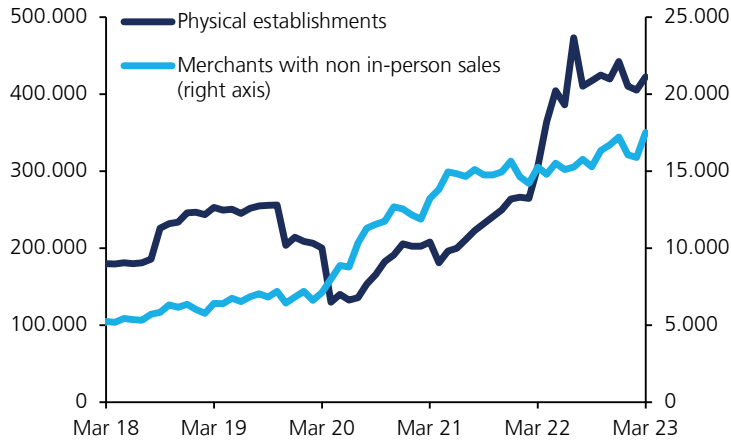
Source: Central Bank of Chile.

^{7/} Source: 2022 Transbank Integrated Report.

^{8/} Presentation before the Senate Finance Committee on June 20, 2023.



FIGURE I.8 ESTIMATION OF MERCHANTS THAT ACCEPTED PAYMENT CARDS
(number, monthly)



Source: Central Bank of Chile based on CMF data.

In parallel, significant progress has been made in the area of interoperability in card payments, as a result of active efforts by market players and in line with requirements arising from court decisions. In general terms, interoperability in means of payment, as a technical aspect, consists mainly in enabling users to pay seamlessly across different payment systems ([Boar et al., 2023](#))^{9/}. Interoperability, thus construed, has allowed new participants, both acquirers and issuers, to connect and communicate with existing retail payment systems in Chile. Notwithstanding the above, court rulings have identified interoperability as a necessary condition for the full implementation of the 4PM, and that this required the adoption of the 3DS authentication protocol by all card issuers^{10/}; allowing for the use of the “no interest installments” for all acquirers^{11/}; and the connection of all issuers to the brands’ switch. The CMF has verified the state of progress in all these aspects. From the BCCh’s perspective, interoperability is a necessary condition to ensure the correct coverage of card payments, as well as to encourage the participation of new acquirers and issuers, other networks and related entities, such as PSPs. Increasing the degree of interoperability makes it easier for payments to be made independently of the payment service provider, resulting in greater efficiency and a better experience for the consumer.

^{9/} A practical example of interoperability would be, that a customer of bank A can easily make withdrawals at bank Z’s ATMs; the customer of bank B can transfer funds to bank Y’s accounts; and cardholders of non-bank issuer C can use their cards in merchants affiliated to bank acquirer X’s network.

^{10/} “Three Domain Secure, 3DS”, protocol that corresponds to an authentication mechanism driven by the card brands for non-face-to-face transactions. The authentication of a transaction with this mechanism requires that both the acquirer and the card issuer have adopted this technology.

^{11/} Payment card features that allow cardholders to pay for their transactions in installments. They differ in who assumes the financial cost of this credit. As the name indicates, in one case it is borne by the store and in the other by the card issuer.



Cash payments show similar levels of preference as before the pandemic, especially in some particular segments of the population. At the same time, certain frictions in its distribution have been identified that may affect access conditions. The [National Survey of Cash Use and Preferences](#) (ENUPE in Spanish) conducted annually by the BCCh seeks to study trends in people's use of means of payment, as well as their preferences for banknotes and coins^{12/}. In its most recent version, the ENUPE shows that the preference for the use of cash in 2022 recovered its pre-pandemic level and is slightly below that of debit cards. In addition, the survey shows that ATMs are important for the provision of cash, and that there is a higher degree of satisfaction with the supply of higher denomination banknotes than with lower denominations, which generates problems; for example, in the delivery of change in shops. Box I.1 presents some of the main results of this survey.

^{12/} As this is a survey, it reflects the perceptions of the respondents and, therefore, may differ from the administrative data reported by financial institutions to the CMF.



BOX I.1:

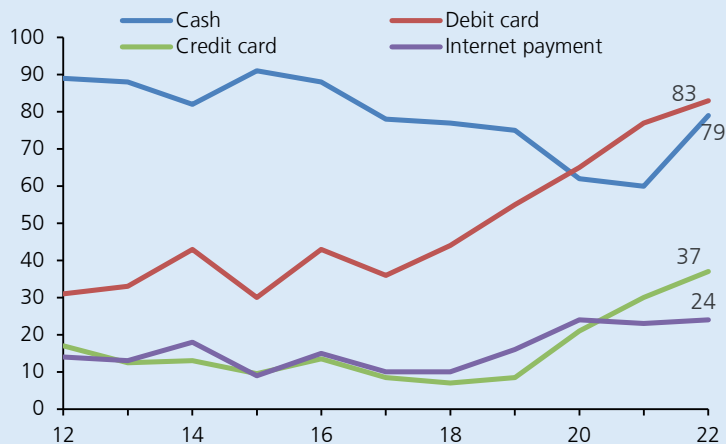
Trends in the use of cash in Chile

This Box presents the main recent trends in the use of cash in the country, as well as some of the frictions people face in obtaining it. As in other countries, in the past few years Chile has seen an increase in the possession and use of digital means of payment, against a reduction in the use of other instruments, such as cash and checks ([Cabezas and Jara, 2021](#)).

Recent trends

In line with the increased digitization of the economy, the frequency of use of cash had been declining since 2015, giving way to payment with cards and digital means, but a recovery was seen in 2022. According to information from the National Survey of Cash Use and Preferences (ENUPE), from 2012 to 2016 cash concentrated between 80% and 90% of the population's use, then declined to 75% to 78% in the years prior to the Covid-19 pandemic, reaching a minimum of 60% during 2021. Although in 2022 cash usage rebounded to its 79% level of 2017, it remains to be seen whether this obeyed to a reversal of the previous trend or was a transitory phenomenon. Alongside this, card utilization has risen steadily since 2017, especially debit cards, and in 2020 surpassed cash for the first time (Figure I.9)¹.

FIGURE I.9 ¿HOW OFTEN WOULD YOU SAY YOU USE THESE MEANS OF PAYMENT? (*) (percent)



(*) Includes answers "Every day" and "More than once and up to five times a week."

Source: ENUPE 2022, Central Bank of Chile.

¹/ It is important to bear in mind that the ENUPE measures people's preferences, in particular the percentage of people answering that they use a given means of payment every day and between one and five times a week, but it does not reflect administrative data.



Based on the survey, it is possible to identify the specific segments of the population and business lines where cash is preferred. In sociodemographic terms, preferences for cash payments are expressed by people over 60 years of age, of low socioeconomic level, and from the northern and central zones of the country (table I.3). Also, for payments up to CLP\$10,000, cash is the preferred means of payment; and it is also the preferred means of payment at farmers' market and on public transportation, preferably in regions outside the capital (Table I.4). More recently, the number of people who report using cash in retail trade and, to a lesser extent, to pay for home utilities has risen (Figure I.10). This preference for cash can be partly explained by the perception that individuals have of the low cost, convenience and user friendliness of this means of payment (ENUPE). These sociodemographic preference factors, along with the fact that cash is key to maintaining the payment chain in situations of natural disasters, make it convenient to maintain the cash supply chain in the country, alleviating the existing cash-related frictions.

TABLE I.3 SOCIOFEMOGRAPHIC COMPARISON BY PREFERRED MEANS OF PAYMENT

Items	Debit Card	Cash	Electronic funds transfer	Credit Card
Preferred	42,9%	42,5%	8,9%	4,7%
Age (*)	52,5% (18-29)	67,9% (+ 60)	13,3% (30-35) 10,1% (18-29)	-
NSE (**)	High	Low	-	-
Zones (***)	48,2% (Santiago)	56,4% (North)	-	7,6% (Central)
	46,3% (South)	53,9% (Central)	-	5,0% (Santiago)

(*) In parentheses, age associated with the preferences of use.

(**) NSE= Socio-economic level.

(***) In parentheses, the zones of preference of means of payment use. Note that the country is broken down into the zones North, Center, Santiago (Metropolitan Region), and South.

Source: ENUPE 2022, Central Bank of Chile.

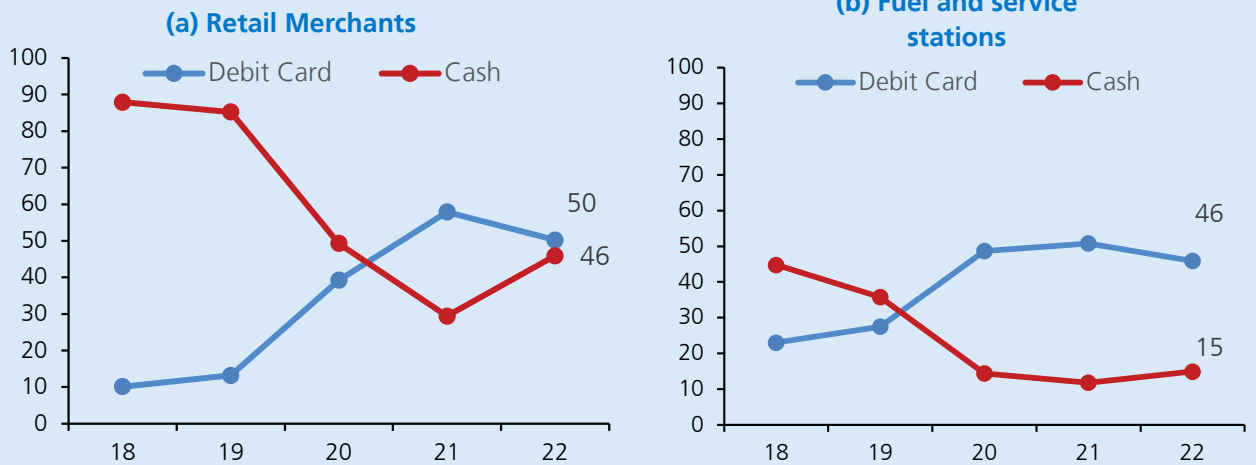
TABLE I.4 PREFERRED PAYMENT METHODS BY INDUSTRY
(percent, year 2022)

Industry	Credit Card	Debit Card	Cash
Retail/Department stores	14	69	15
Retail merchants	50	50	46
Farmes' market	0,4	4	86
Fuel stations	6	46	15
Payment of basic services	2,2	30	33
Public Transport	0,8	8	56

Source: ENUPE 2022, Central Bank of Chile.



FIGURE I.10 CASH UTILIZATION PREFERENCES BY TYPE OF ESTABLISHMENT
(percent)



Source: ENUPE 2022, Central Bank of Chile.

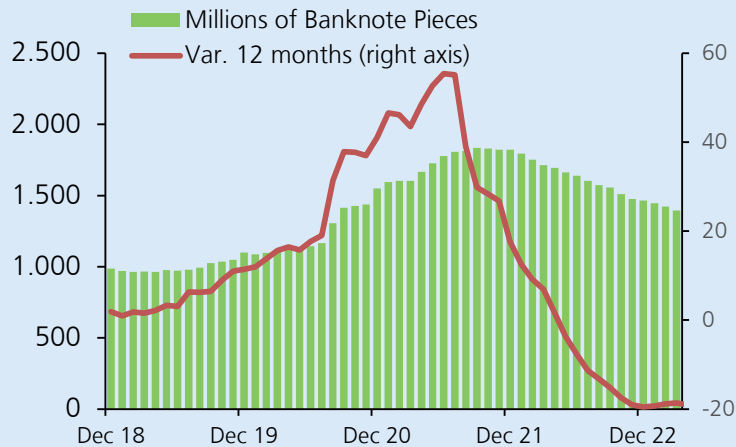
Meanwhile, the public stock of banknotes, reflecting cash needs, increased significantly during the pandemic, as in other countries, but it was not accompanied by an increase in payment transactions during the period. Demand for cash, reflected in the average annual growth rate of the public stock of banknotes, increased significantly from the last quarter of 2019 and peaked in mid-2021, which coincides with periods of high uncertainty and the authorization of pension savings withdrawals and government subsidies^{2/}. More recently, the annual variation has declined by around 20%, but the stock of banknotes is still greater than it was before the pandemic (Figure I.11). However, this increase in the stock of banknotes was not necessarily associated with an increase in face-to-face cash payments, but rather with the function of money as store of value. This is so because the public stock of banknotes in value terms increased 93% between October 2019 and December 2021, equivalent to an increase from 5% to 7.8% as a percent of GDP. Relatively similar trends were reported in other countries, including Australia, Canada, the United States and Mexico, to name a few^{3/}.

^{2/} At that time, the stock of banknotes in circulation exceeded 1.8 billion banknotes in circulation, for a total amount of CLP\$18.125 trillion.

^{3/} See [Guttman et al. \(2021\)](#), [Chen et al. \(2022\)](#); [Foster and Greene \(2021\)](#) and [Banco de México \(2021\)](#).



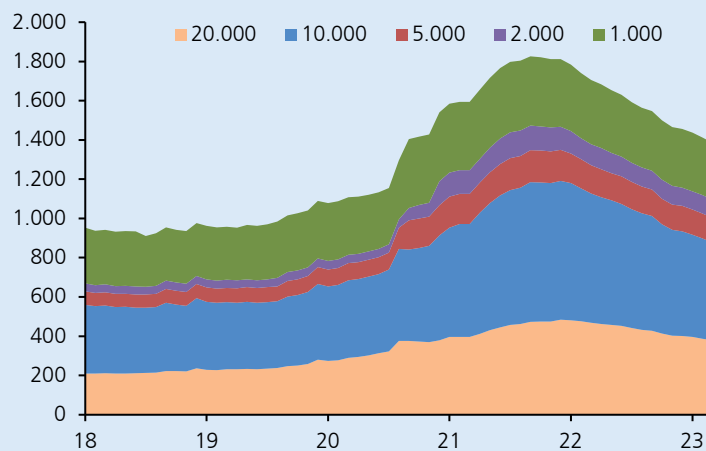
FIGURE I.11 STOCK OF BANK NOTES IN CIRCULATION
(millions of pieces, percent variation)



Source: Central Bank of Chile.

The composition of the different denominations in the banknote stock has remained relatively stable, while the number of banknotes has been decreasing since the end of 2021. In March of this year, CLP\$1,000 banknotes accounted for 21% of the public stock, a figure that contrasts with 30% in January 2018. In turn, CLP\$20,000 bills went from representing 22% to 27% of the stock in the same period. For the other denominations the changes have been smaller (Figure I.12).

FIGURE I.12 BANKNOTES IN CIRCULATION BY DENOMINATION.
(millions, monthly)



Source: Central Bank of Chile.



Access to cash

The preferred way for individuals to obtain cash is through ATM withdrawals. The 2022 ENUPE shows that 80% of people access cash through ATMs, another option being correspondent banking such as BancoEstado's Caja Vecina, although in recent years the number of ATMs has been relatively stable at around 7,500, in 2013 there were more than 9,000 (Figure I.13). This decrease is partly explained by criminal acts that affected ATMs (Alarcón and Yañez, 2015), which subsequently led to the reinforcement of security measures and amendments to the minimum physical infrastructure requirements for equipment, as well as greater regulation of the requirements for the transfer of securities. Thus, from an ATM access perspective, usually used as a measure of financial inclusion, Chile has 30% fewer ATMs per 100,000 inhabitants than OECD countries (48.8 and 63.4, respectively), while the ratios were equivalent in 2013.

FIGURE I.13 ATMS IN THE NATIONAL TERRITORY
(number, annual)

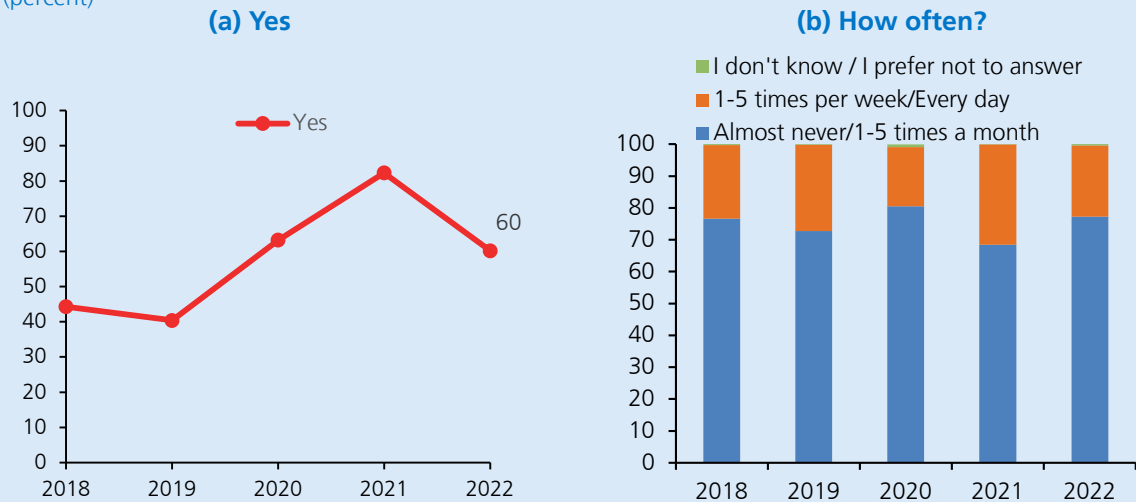


Source: Central Bank of Chile based on CMF data.

Increased demand for safety conditions, the rising cost of transporting valuables and availability requirements may explain that ATMs tend to be stocked with higher denomination bills, which generates friction in cash access and usage. Currently, high denomination bills account for the highest proportion of the drawers that feed the ATMs. Accordingly, as previously mentioned, cash is mainly used for transactions of less than CLP\$10,000, and this situation produces frictions that are visible in, for example, difficulties for retailers to give change to their customers, and especially affect low-income people and those who continue to depend on cash as a means of payment. Along these lines, 60% of the people surveyed in the last ENUPE reported having had problems receiving change due to a lack of bills or coins once to five times a month, which results in higher degrees of dissatisfaction with the denominations of bills obtained from ATMs than before the pandemic (Figure I.14 (a),(b)).



FIGURE I.14 IN THE PAST SIX MONTHS, HAVE YOU EXPERIENCED SITUATIONS WHERE THERE WERE NO COINS OR BANKNOTES AVAILABLE TO GIVE YOU CHANGE WHEN MAKING A PURCHASE IN A RETAILER (percent)



Source: ENUPE 2022, Central Bank of Chile.

Given their importance of ATMs as a channel for access to cash, it is crucial that they meet the needs of users, which includes distributing more lower denomination banknotes. The supply of banknotes in their different denominations is carried out by the BCCh according to the demand of commercial banks, which finally use different distribution channels until they reach end customers and stores. Therefore, modifying the distribution of bill denominations in ATMs requires modifying the balance of the aforementioned elements that have an impact on the current situation. In particular, regulators and the private sector should look for alternatives that appropriately reconcile the availability of ATMs (and/or alternative distributors of cash to end-customers) with the costs of supplying them, without affecting safety standards.



II. FINANCIAL MARKET INFRASTRUCTURES

Since our previous Report, the Financial Market Infrastructures (FMIs) have functioned properly, reflecting both the level of market activity and the proper management of financial safeguards.

With respect to payment systems, the growth of payments based on Electronic Funds Transfers (TEF in Spanish) has been reflected in large amounts of interbank payments settled in the Central Banks of Chile's real-time gross settlement system (Sistema LBTR). Meanwhile, the incorporation of the first Retail Payments Clearing House (CPBV in Spanish) for this means of payment, estimated for the end of 2023, will allow the settlement of such payments on a net basis, which will reduce the amounts settled in the Sistema LBTR for this concept. This is an important milestone in terms of access facility and compliance with standards and risk mitigation, which will strengthen Chile's fast payment system.

FMIs that process Stock Exchange transactions, such as the Securities Clearing and Settlement Systems (SSS) and Central Counterparties (CCPs), have processed operations in line with the level of activity of these markets. Additionally, in the over-the-counter (OTC) interbank derivatives market, there has been an increase in clearing activity, where worth noting is the international recognition obtained by a Chilean CCP by the European Securities Market Authority.

Finally, with respect to Sistema LBTR, to which aggregate economy-wide payments between banking participants converge, its activity tends to return to normal from the unusually high levels observed since 2020, mainly linked to payments and financial operations related to the exceptional measures adopted during the pandemic, consistent with what has been observed in other central banks.

FINANCIAL MARKETS AND THEIR INFRASTRUCTURES

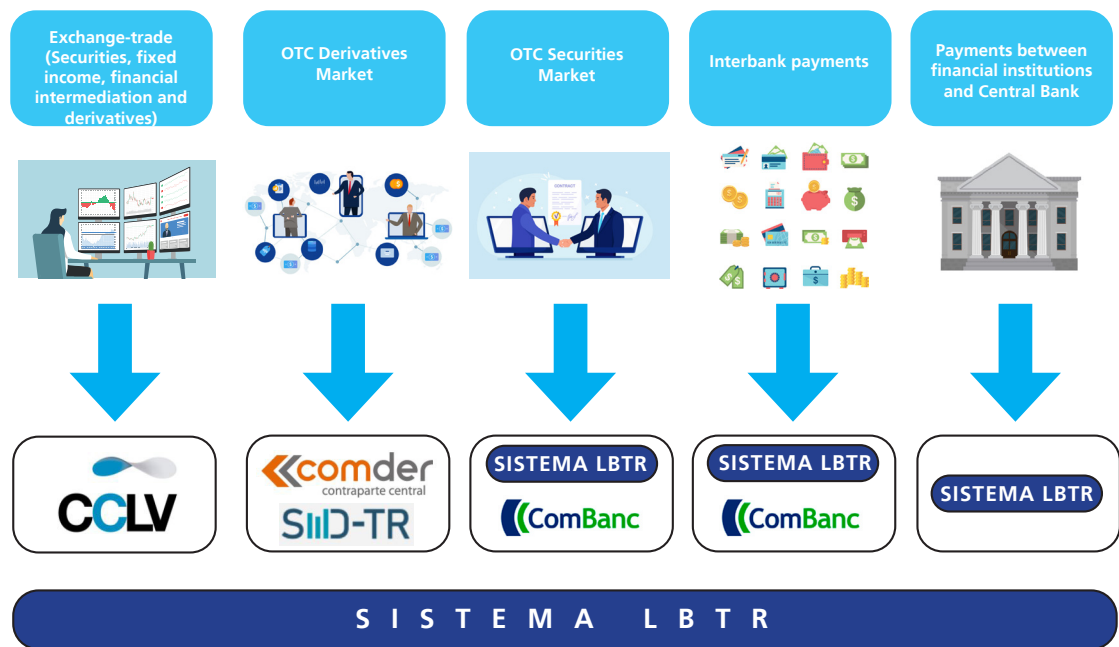
The activity of FMIs is a reflection of the dynamics among the different local financial markets, their operations and payments, which in turn are generated from the various transactions of the economy's agents (Diagram II.1). FMIs play a central role in the proper functioning and robustness of the financial system by processing (recording, accepting, clearing and settling) transactions in different financial markets, making processes more efficient and allowing for appropriate risk management. As mentioned in the Payment System Report 2022 (PSR 2022), there are five internationally accepted types of FMIs: Large-Value Payment Systems (LVPS), Central Counterparties (CCP); Securities Clearing and Settlement



Systems or Clearing Houses (SSS); Central Securities Depository (CSD); and Trade Repositories (TRs)^{1/}.

There are institutions operating in Chile that fulfill the role of each of the five types of FMIs, covering the different markets. Within the scope of stock markets, with respect to the clearing of fixed income instruments and financial intermediation, there is an SSS, and for securities and exchange-traded market derivatives there is an CCP, both operated by CCLV, Contraparte Central S.A., which belongs to the Santiago Stock Exchange. In OTC derivatives markets, a CCP operates that clears a large part of the interbank peso/dollar Non-Deliverable Forward (NDF) contracts, called ComDer, Contraparte Central S.A. Regarding the recording of transactions involving OTC derivatives, the BCCh operates a TR called Sistema Integrado de Información de Derivados (SIID-TR). All transactions cleared through the aforementioned infrastructures are settled through Sistema LBTR (an RTGS system) operated by the BCCh, and through the Depósito Central de Valores (DCV in Spanish), a central securities depository, in the case of a settlement in financial instruments.

DIAGRAM II.1 FINANCIAL MARKETS AND THEIR INFRASTRUCTURES



Source: Central Bank of Chile.

^{1/} For more information on the main concepts and definitions applicable to this chapter, see chapter IV “Key concepts of payment systems” in Informe de Sistemas de Pago 2022 (PSR, 2022).



Over-the-counter securities transactions, the foreign exchange market and electronic funds transfers are not currently cleared through specialized infrastructures for these markets or transactions. In the case of the OTC securities market, cash payments from these transactions are channeled through the LVPSSs, i.e., either through the Large-Value Payments Clearing House (ComBanc S.A.) on a deferred net settlement basis or directly through the Sistema LBTR on a gross settlement basis, while securities payments are made through the DCV^{2/}. Other markets, such as transactions from the spot exchange market involving payments in local currency, or transactions involving payments made with electronic funds transfers (TEF), are now directly channeled as interbank payments through the LVPSSs. However, for these last two types of transactions, specialized payment systems are currently being implemented that will allow clearing these operations and subsequently settling them in Sistema LBTR, under proper risk management standards^{3/}.

Finally, FMIs play an important role in the settlement of monetary and financial operations carried out by central banks. In this regard, all transactions between financial institutions and the BCCh through the Open Market Operations System (SOMA in Spanish) platform are finally settled in cash in the BCCh's RTGS System, either through the participating banking institutions or through the DCV in case of delivery of financial instruments.

The rest of this chapter presents a follow-up of each of the aforementioned infrastructures' activity according to the respective market where they operate.

INFRASTRUCTURES SPECIALIZED IN TRANSACTIONS WITH RETAIL MEANS OF PAYMENT METHODS

Online TEF and payment card transactions are currently cleared through companies linked to the banking system and major international card schemes. In particular, TEF are currently processed by an entity called Centro de Compensación Automatizado (CCA) an automated clearing house (ACH), which aggregates the transactions and reports the gross amounts of interbank payments, which are subsequently settled in Sistema LBTR or through ComBanc, in proportions of 75% and 25% in the year 2022, respectively. Payments in this regard in Sistema LBTR exceed US\$1.9 billion on average per day (Figure II.14^{4/}). In turn, payment card transactions are currently cleared by international card brands (Mastercard, VISA, and others), and subsequently settled through a private settlement bank, so that settlement does not occur directly at the Sistema LBTR level.

^{2/} ComBanc's Switch service operates in OTC market transactions, which allows its participants to buy and sell these financial instruments under the Delivery versus Payment (DvP) modality, through the provision of a platform that connects participants with the DCV and the SPAVs (Sistema LBTR or ComBanc CCAV), enabling the synchronization of the delivery of securities at the DCV with the payments made at the LVPSSs.

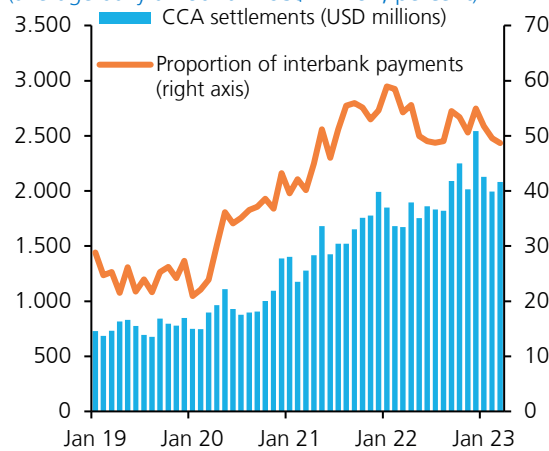
^{3/} Clearing House for Large-Value Payments in Foreign Currency (CCAV FX in Spanish) and Retail Payments Clearing House (CPBV), explained in this chapter and chapter III.

^{4/} In addition, payments channelled through CCA may be sent for pre-clearing through the Large-Value Clearing House, operated by ComBanc, before being settled in the Sistema LBTR. For 2022, ComBanc cleared MMUSD 650 of interbank payments for this concept.



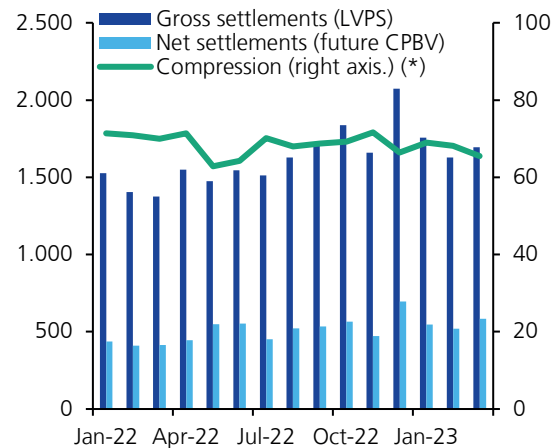
Considering the growing importance of digital payments with TEF and cards, the BCCh issued in 2022 a Retail Payments Clearing House (CPBV) regulation, in order to achieve greater convergence with international standards (PFMI)^{5,6/}. Although CCA is a regulated banking support company subject to the supervision of the CMF, its operations must be adapted to follow international standards applicable to Financial Market Infrastructures. One consequence worth mentioning of the CPBV regulation for TEF on large-value payments is that the current gross settlements made by CCA through Large-Value Payment Systems (LVPS) will fall by around 70%, which will imply a substantial improvement in terms of reducing the financial risks associated with the respective settlement processes of this type of transactions (Figure II.2). In the case of card payments, despite being regulated on the basis of the requirements applicable to issuers and operators of these means of payment, in accordance with the regulations issued by the BCCh, the management of transactions between issuers and operators (i.e. acquirers) coordinated by the card branding schemes must be incorporated into the regulatory perimeter. The progress of the implementation of this project is presented in Chapter III of this Report.

FIGURE II.1 INTERBANK PAYMENTS OF SISTEMA LBTR FROM CCA SETTLEMENT NTERBANCARIOS DEL SISTEMA LBTR POR LIQUIDACIONES DE CCA
(average daily amount in US\$ million, percent)



Source: Central Bank of Chile.

FIGURE II.2 GROSS VS NET CCA SETTLEMENTS
(billions, percent)



(*) The compression index refers to the ratio between the value of the net balances settled in a clearing house after the bilateral and multilateral netting processes and the total number of clearing orders accepted.

Source: Central Bank of Chile based on data from Sistema LBTR, CCA and ComBanc.

The clearing of checks and ATMs is currently performed through their respective interbank clearing houses, which to date are not mandatorily subject to CPBV regulation. Currently, retail payment transactions made via checks and other documents, and transactions made through automated teller

^{5/} Chapter III.H.6 of the BCCh's Compendium of Financial Regulations (CNF). For more information, see Financial Stability Report (FSR) first and second half 2022, and PSR 2022.

^{6/} PFMI are the [Principles applicable to Financial Market Infrastructures](#) issued by the Committee on Payment and Settlement Systems (CPMI) and the International Organization of Securities Commissions (IOSCO) in 2012. The regulation considers the PFMI applicable to Retail Payment Systems; in particular, it provides a clear regulatory framework for their operation (principle 1), guarantee mechanisms in case of default (principles 3, 4, 5, 7 and 13), and settlement of balances in BCCh currency (principle DIs 8 and 9), among others.



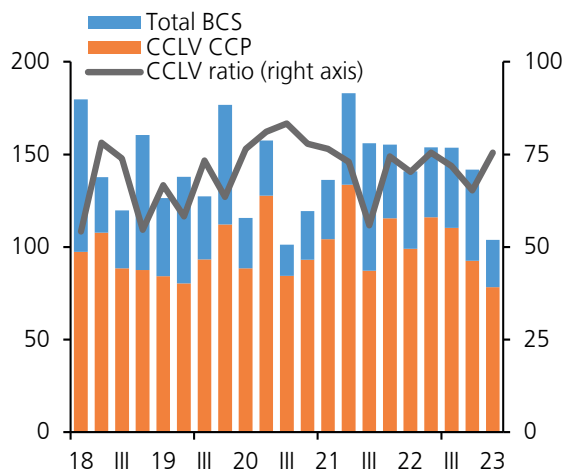
machines (ATMs), are cleared through specialized clearing houses, the Check Clearinghouse and the ATM Clearinghouse, respectively, which are ruled by the BCCh and supervised by the CMF. In 2022, these clearing houses combined processed \$383 billion of daily transactions, subsequently settling in the Sistema LBTR in local currency (Sistema LBTR MN) an average daily value of \$67 billion (Diagram II.2 and Table II.1). As part of the second phase of CPBV regulation, the incorporation of the clearing of these means of payment to this regulatory scheme will be assessed, in order to adopt risk management standards in accordance with their quality as market infrastructures. (see Chapter III of this Report).

INFRASTRUCTURES SPECIALIZED IN FINANCIAL MARKETS

Securities Market

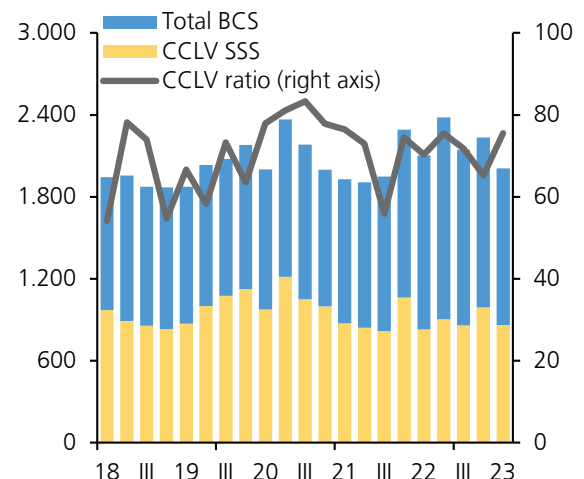
FIMs clearing and settling fixed income and securities transactions have performed in line with local capital market activity. The fall in the amounts traded on the Santiago Stock Exchange (BCS in Spanish) securities market is directly reflected in the decrease in the amounts cleared by CCLV CCP (Figure II.3). This is mainly explained by the drop in the amounts traded in shares, which account for 90% of the decrease between the first quarter of 2022 and the same quarter of 2023, and, to a lesser extent, by the decrease in the amounts traded in Investment Fund Shares (CFI in Spanish), which had an impact by extension on the activity of the clearing house. Meanwhile, the amounts of Fixed-Income and Financial Intermediation Instruments cleared by the CCLV clearing house (SSS) have remained constant during 2022 (Figure II.4).

FIGURE II.3 STOCKS AND INVESTMENT FUND SHARES
(average daily amounts in billions, percent)



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

FIGURE II.4 FIXED-INCOME INSTRUMENTS AND FINANCIAL INTERMEDIATION
(average daily amount in billions, percent)



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

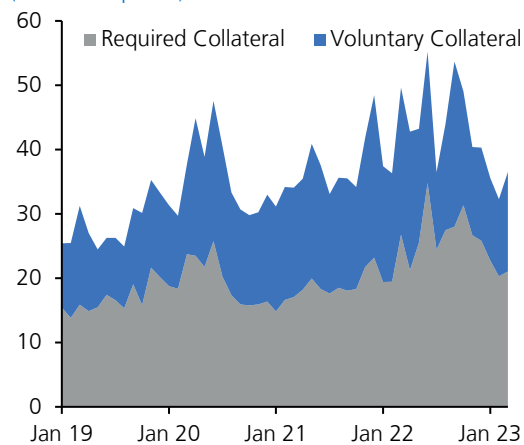
However, although economic activity is reflected in the processing trend of the different FIMs, they account for an average of 40% and 70% of the total amounts traded in these markets, respectively. The amounts of Fixed-Income and Financial Intermediation instruments cleared by CCLV (SSS) continue to be a smaller proportion of the total amounts traded on the Stock Exchange (Figure II.4), a trend that has been intensifying since 2020. The main reason for this is that the bulk of the transactions



is traded outside this infrastructure’s acceptance hours and must be settled bilaterally on a gross basis between the counterparties. With respect to the amounts cleared of securities by CCLV CCP, there was an increase in the amounts accepted in the clearing house during the period as a proportion of the total amount traded in this market (Figure II.3)^{7/}.

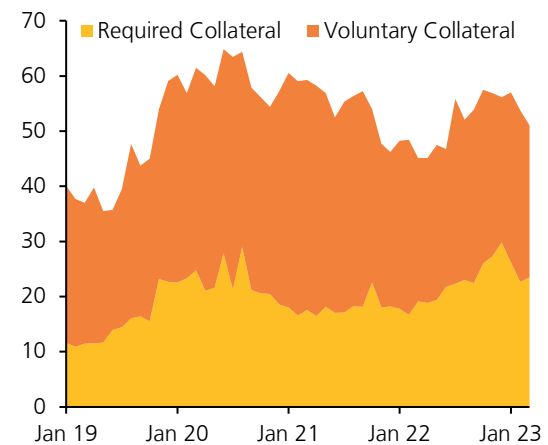
With respect to CCLV’s credit risk management, there is an appropriate level of guarantees, which correlates positively with the level of transactions accepted in both clearing houses. The guarantees required from each CCLV participant are meant to cover at least the losses resulting from replacement risk that could materialize in the event of the participant’s default under normal market volatility conditions. In this regard, the collateral required is positively correlated with the estimated debt positions, which are related to both the amounts accepted and the volatility of market risk factors that affect the prices of the accepted instruments. In addition, participants continue to provide voluntary guarantees in excess of the required levels to hedge against possible events of high volatility. (Figures II.5 and II.6).

FIGURE II.5 PARTICIPANTS’ COLLATERAL CCLV CCP (BILLIONS OF PESOS)
(billions of pesos)



Source: CCLV.

FIGURE II.6 PARTICIPANTS’ COLLATERAL CCLV SSS (billions of pesos)



Source: CCLV.

Spot Foreign Exchange Market

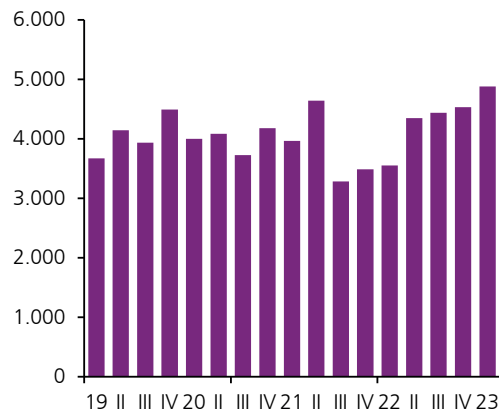
During the first quarter of 2023 there was an annual increase of 37% in spot foreign exchange market activity among entities in the Formal Foreign Exchange Market (MCF in Spanish), where 95% of the operations negotiated were peso/dollar operations (Figure II.7). These operations are mostly negotiated through electronic transactional platforms in which the MCF entities participate and are subsequently settled in the payment systems. Because settlement must be made in two different currencies, it does not take place simultaneously, i.e. one counterparty in the transaction delivers the currency it sells, but does not simultaneously receive the currency it buys, because its counterparty may

^{7/} Not all instruments traded on the BCS are accepted by CCLV. The equity instruments (Stock and CFI) accepted by CCLV CCP correspond only to those with normal cash settlement condition (T+2), so those with a payable today (T) and tomorrow (T+1y) must be settled on a gross bilateral basis between the counterparties. The same applies to Fixed-Income and Financial Intermediation Instruments with a normal spot settlement condition, or to all those trades traded outside CCLV’s acceptance hours.



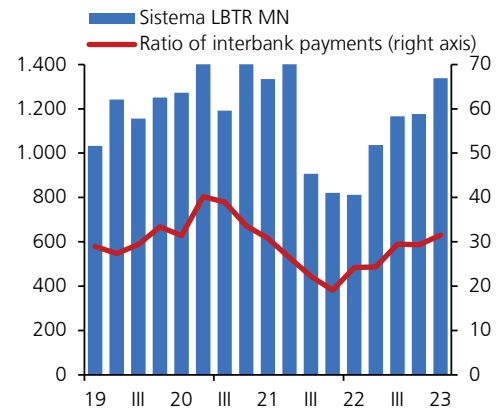
pay the other currency at a later date, exposing the former to settlement risk (Box II.1)^{8/}. The settlement of the payment in pesos of the transaction can be cleared through ComBanc or settled directly through the Sistema LBTR. Since the last Payment Systems Report, the increase in spot transactions in the Sistema LBTR was reflected in a 65% annual increase in interbank payments in local currency in the first quarter of 2023 (Figure II.8). Regarding transaction platforms, in August 2022 the BCCh introduced additional access requirements for its participants, as well as requirements in the area of operational risk mitigation to be verified by MCF entities using such platforms, effective September 2023^{9/}.

FIGURE II.7 AMOUNT OF SPOT OPERATIONS IN FORMAL FOREIGN EXCHANGE MARKET (average daily amount, USD billion)



Fuente: Banco Central de Chile.

FIGURE II.8 AMOUNT OF SPOT OPERATIONS SETTLED IN SISTEMA LBTR (*) (daily average in USD billion, percent)



(*) Corresponds to the peso tranche of a spot transaction settled in the Sistema LBTR MN system valued in USD.

Source: Central Bank of Chile.

During the last few years, different BCCh regulations have sought to set standards that ensure greater transparency and risk management in the foreign exchange market. In 2021, a regulation was developed that provides a framework for peso/dollar spot transactions to be channeled in an orderly, centralized and secure manner through a Clearing House for Large-Value Payments in Foreign Currency (CCAV FX)^{10/}. This clearing house manages settlement risk through a collateral system and payment coordination mechanisms with a payment versus payment (PvP) standard. This ensures that the CLP leg is only settled once the USD leg is also settled. The first entity to adhere to the regulatory framework applicable to CCAV FX is ComBanc S.A., currently the sole operator of a CCAV in local currency (CCAV MN in Spanish). For the latter, it has proposed a clearing house project, which is in line with the requirements of the published regulations^{11/}.

Derivatives Market

The third quarter of 2022 saw a recovery in the number of derivative contracts accepted at ComDer, especially foreign exchange derivatives (Figure II.9), which is mainly attributed to the recognition

^{8/} The international standard (PFMI) is that these transactions must be settled simultaneously, i.e. under a standard against payment or PvP. See Box II.1 for a discussion of this issue.

^{9/} "The Central Bank amends the rules governing access to and operation of the Formal Foreign Exchange Market (MCF)."

^{10/} The regulation can be found in Chapters III.H.5 and III.H.5.2 of the CNF in Spanish.

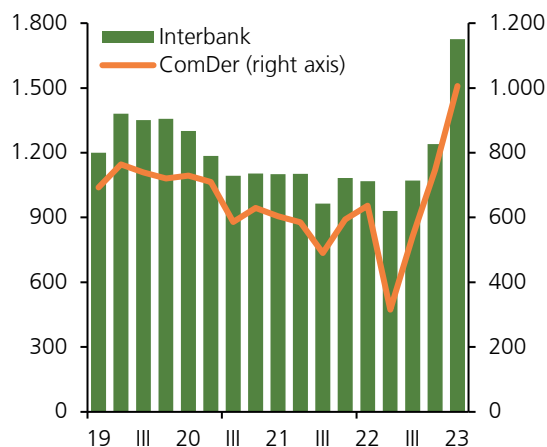
^{11/} For details on the progress and implementation of this regulation, see Chapter III.



of this infrastructure as a Qualified Central Counterparty (QCCP) by the European Securities and Markets Authority^{12/}. The amounts of foreign exchange and inflation derivatives cleared by this FMI grew quarterly by 72% and 35%, respectively, in the period immediately following its qualification as a QCCP in August 2023^{13/}. In addition, the increase in ComDer activity is explained by a greater dynamism in the peso/dollar market during the period, as a result of the increased foreign exchange activity of the BCCh and cross-border interest rate derivatives between local and non-resident banks, which implied greater access to dollar liquidity by banks, ultimately affecting the foreign exchange derivatives market (Figures II.13 and II.14).

ComDer's credit risk is well managed, with balance levels in margin accounts in line with the activity of the Central Counterparty. During the period, there was a decrease in the balances in April 2022, coinciding with the quarter of lowest activity of the clearing house and, therefore, of low exposure per participant (Figure II.10). It shows its sharpest increase in July 2022, the month of highest observed volatility of the US dollar, which increases the margin requirements as the price of the US dollar is the main risk factor of the Non-Deliverable Forward (NDF) USD/CLP instrument (Figure II.11).

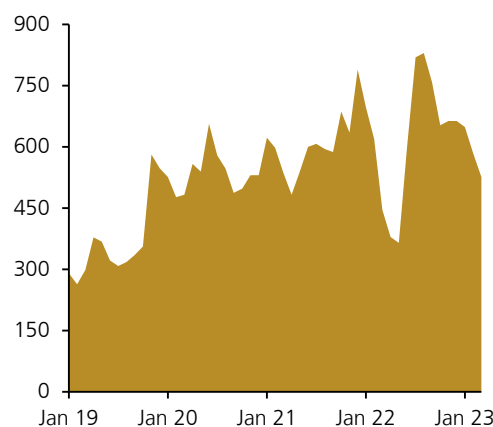
FIGURE II.9 CURRENCY DERIVATIVES TRADED BY LOCAL BANKS - NDF USD/CLP (*)
(daily average, USD billion)



(*) Non-deliverable Forward (NDF).

Sources: ComDer y SIID-TR.

FIGURE II.10 BALANCE IN MARGIN ACCOUNTS CURRENCY CLEARING SERVICE
(monthly average, USD million)



Sources: ComDer.

INTEGRATED DERIVATIVES INFORMATION SYSTEM (SIID-TR)

In November 2022, the Integrated Information System on Derivatives Transactions began to operate on a regular basis, thus concluding the gradual trial run process for the different participants reporting to the Repository. (Figure II.11)^{14/}. In this way, a process that began in 2019

^{12/} The European authority is the European Securities and Markets Authority (ESMA).

^{13/} It is important to visualize that the fact that a private entity may have been granted this qualification by the European regulatory authority is related to an extensive process to strengthen the regulation of financial infrastructures in Chile, in which the CMF, the Ministry of Finance and the BCCh have participated intensively in recent years. Chapter III provides more on this process and the status of QCCP.

^{14/} The marginal accounts that participants must set up as part of the CCP's financial safekeeping mechanisms group together amounts associated with instrument maturities, excess guarantees and initial and variation margins, and are therefore associated with the participant's exposure and contract maturities.

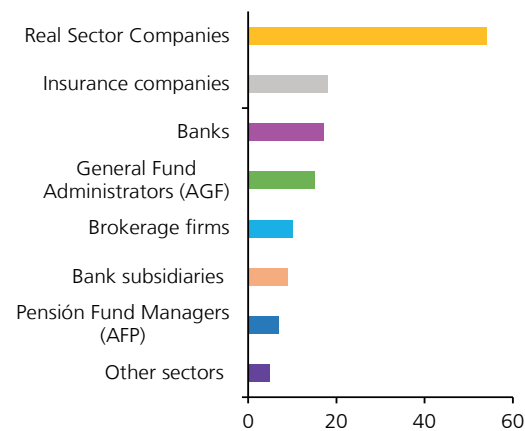


with the enactment of the regulations governing this infrastructure culminated^{15/}. The SIID-TR has updated information on derivatives contract transactions in the Chilean market, whose underlying assets are exchange rates, interest rates, inflation hedges and fixed-income instruments^{16,17/}.

According to information available in the BCCh's SIID-TR, as of March 2023, there are almost one million derivatives contracts for US\$8.6 trillion. These contracts are mainly exchange rate derivatives (69.9%), followed by interest rate derivatives (21.4%), inflation (UF vs. Chilean peso) and to a lesser extent, derivatives on fixed-income instruments (Figure II.12).

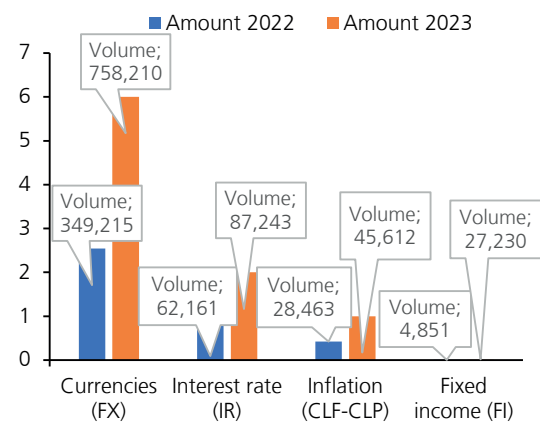
The banking sector, which represents close to 85% of the derivatives market activity reported in the SIID, had a total outstanding position of US\$1,344 billion at the end of the first quarter of 2023. Its outstanding portfolio is dominated by interest rate operations, with about 51% of the total, followed by exchange rate and inflation derivatives with 26% and 23%, respectively. In terms of activity, between January 2022 and March 2023, the majority of transactions involved exchange rate derivatives (69%), because most of these are traded in the short term (up to 90 days) and are constantly renewed. Transactions in interest rate and inflation derivatives accounted for 23% and 8%, respectively.

FIGURE II.11 ENTITIES REPORTING TO SIID-TR (number)



Source: Central Bank of Chile based on data from SIID-TR.

FIGURE II.12 CONTRACTS REGISTERED IN SIID-TR (USD trillion, number of contracts)



Source: Central Bank of Chile based on data from SIID-TR.

^{15/} The participants are entities supervised by the CMF (Stock Brokers and Securities Agencies, General Fund Managers and Insurance and Reinsurance Companies), Pension Funds, firms in the corporate sector and other residents that trade financial derivatives locally and/or internationally. As for banks and their subsidiaries, they report their complete derivatives portfolio, while the financial entities supervised by the CMF report the derivatives carried out with the external market, as well as the operations on exchange rates (FX) agreed in the local market. Pension funds, corporate companies and other residents report their cross-border derivatives.

^{16/} Currently, SIID-TR disseminates more than 1000 daily and monthly series on financial derivatives, with historical data since January 2022, for the three most relevant markets or underlying assets, through the [SIID-TR portal](#), thus contributing to market transparency.

^{17/} For a detailed description of the SIID-TR, see [Box II.3 of the 2022 PSR](#). For an analysis of progress in the development of Financial Market Infrastructures, see Chapter III herein.

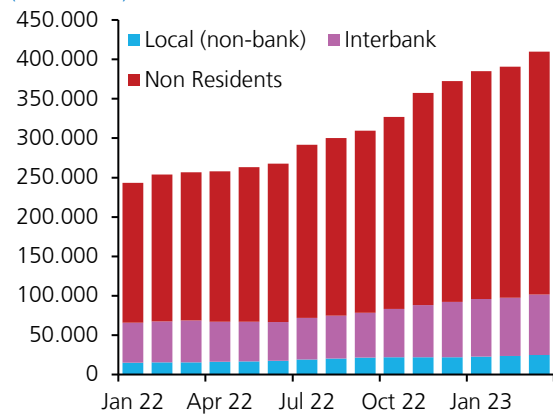


The external sector is the main counterparty in transactions carried out by banking companies, with close to 80% share in interest rate and fixed-income derivatives. With respect to interest rate derivatives, foreign investors show a growing participation in Interbank Swap Rate, with a total position (“open interest”) of 308 trillion Chilean pesos at the end of March 2023 (Figure II.13). These agents take positions with respect to the local interest rate structure; in particular, they take positions for the two-year horizon, through forward purchases or sales of the nominal variable rate, based on their expectations of the future path of the Monetary Policy Rate (TPM in Spanish).

New daily series of exchange rate derivatives by sector and currency pairs provide a broader view of what is happening in the foreign exchange market. This facilitates the identification of specific transactions such as, for example, the foreign exchange intervention of forward sales initiated in July 2022 by the BCCh (included in the group of Other sectors) or the net position held by non-residents in peso/dollar derivatives is relevant in the monitoring of the situation, being considered an important driver in the evolution of the peso/US dollar parity (Figure II.14).

Maintaining the quality of the information reported to the SIID-TR is one of the main challenges of this Infrastructure. This is due to the nature of these types of operations, which are subject to permanent modifications in their financial conditions, market valuations and guarantees used. At the same time, further progress is expected to be made in the transparency pillar, with new statistics that are timely and useful for the market, and with the forthcoming publication of a new Monthly Derivatives Market Report that will describe its evolution in greater detail. Finally, the SIID-TR is planned to be expanded to other underlying assets, such as derivatives on commodities and derivatives on equities and stock indices.

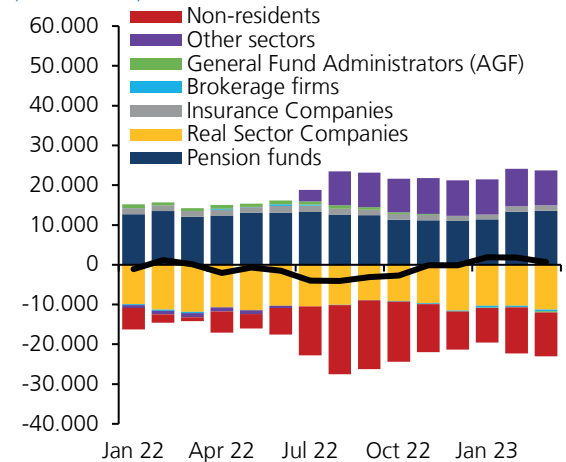
FIGURE II.13 TOTAL INTERBANK SWAP RATE POSITION OF BANKS BY COUNTERPARTY SECTOR (*) (CLP billion)



(*) Total position refers to gross position, also known as “open interest,” which adds together purchases and sales.

Source: Central Bank of Chile based on data from SIID-TR.

FIGURE II.14 NET USD/CLP DERIVATIVES POSITION OF BANKS BY COUNTERPARTY SECTOR (*) (USD million)



(*) Net position: purchases minus sales

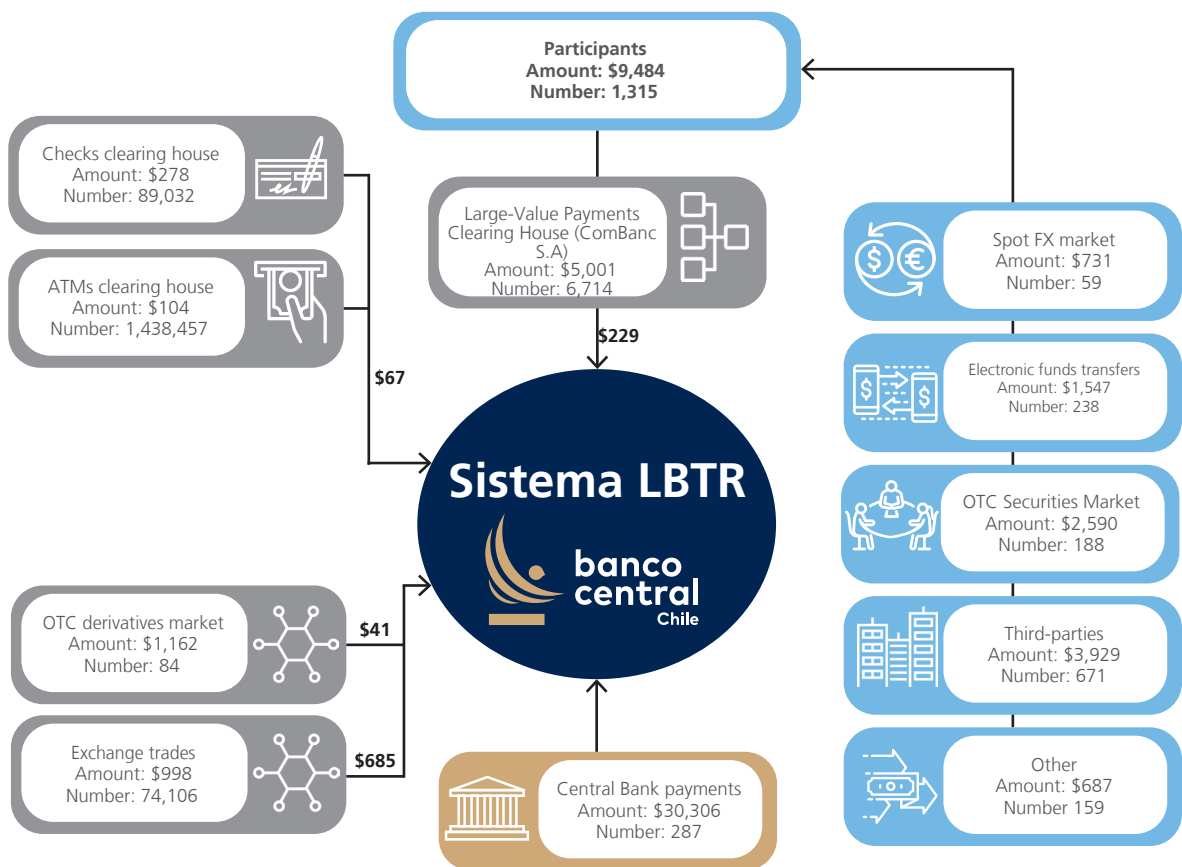
Source: Central Bank of Chile based on data from SIID-TR.



LARGE VALUE PAYMENT SYSTEMS (LVPS)

In Chile, aggregate payments between financial institutions are finally settled through the real-time gross settlement system (Sistema LBTR) operated and managed by the BCCh. As shown in Diagram II.2, the payments settled by this system can be grouped according to three main categories: payments from net balances obtained by clearing houses and central counterparties; payments from the RTGS system's own banking participants; and, finally, payments from operations between the Central Bank and banking institutions.

DIAGRAM II.2 PAYMENTS SETTLED IN SISTEMA LBTR (AVERAGE DAILY AMOUNTS IN CLP BILLION, NUMBER OF TRANSACTIONS)
(average daily amounts in CLP billion, number of transactions)



Source: Central Bank of Chile.



The operations that the BCCh carried out with banking entities during the pandemic continue to be reflected in high levels of payments in the Sistema LBTR in local currency, although a downward correction of around 19% was observed in 2021 and 2022 (Table II.1). This decline is explained by a normalization of the BCCh's own operations with the market. On the one hand, the exceptional measures carried out since 2020 as a response to the COVID-19 pandemic increased settlements under the standing deposit facility (FPD in Spanish) during 2020 while, on the other hand, the subsequent withdrawals of pension savings led to an increase in settlements under deposits to the technical reserve account during 2021¹⁸. During 2022, both effects decreased, although high levels of FPD payments persist (Figure II.15). Along these lines, it is expected that in future reports this downward trend will continue, approaching its pre-pandemic values. On the other hand, the same downward trend is observed in the Sistema LBTR in US dollars (Sistema LBTR USD), reflecting lower payments between the BCCh and the banks, for the same reasons mentioned above (Table II.2).

TABLE II.1 AVERAGE DAILY VALUE SETTLED IN SISTEMA LBTR
(CLP billion)

	Annual					Quarterly		
	2019	2020	2021	2022	(%)	I.2022	I.2023	(%)
Participants	8.393	11.074	9.757	9.486	-12	8.641	8.770	1
Interbank	2.530	2.428	2.570	2.966	6	2.458	3.366	37
Third-parties	2.584	4.212	4.461	3.930	6	3.516	3.561	1
Settlement of OTC securities	3.279	4.435	2.726	2.590	-39	2.667	1.843	31
Clearing Houses Settlements	930	1.043	972	1.021	-7	972	1.033	6
ATMs and Checks clearing houses	75	70	78	67	12	67	56	-17
CCLV CCP	34	34	41	44	21	43	29	-32
CCLV SSS	570	679	597	641	-12	588	701	19
ComDer	27	37	43	41	17	36	25	-32
ComBanc	224	223	213	229	-5	236	222	-6
Payments with the Central Bank	6.837	27.766	37.238	30.307	34	31.287	27.419	-12
Total Payments Sistema LBTR MN	16.160	39.883	47.968	40.814	20	40.900	37.223	-9

Source: Central Bank of Chile.

TABLE II.2 AVERAGE DAILY VALUE SETTLED IN SISTEMA LBTR USD
(USD thousand)

	Annual			Quarterly		
	2021	2022	(%)	I.2022	I.2023	(%)
Participants	31.526	33.724	7	32.105	28.762	-10
Interbank	22.818	21.373	-6	20.276	18.111	-11
Third-parties	626	425	-32	288	451	56
Check clearing house	8.082	11.926	48	11.540	10.200	-12
Payments with the Central Bank	7.015.244	2.371.889	-66	2.935.126	1.591.006	-46
Credit+Deposit	1.824.692	1.076.080	-41	1.225.396	801.858	-35
Overnight deposit movements	5.002.100	1.126.615	-77	1.562.954	663.691	-58
Other payments	188.452	169.193	-10	146.776	125.458	-15
Total payments Sistema LBTR USD	7.046.770	2.405.614	-66	2.967.230	1.619.768	-45

Source: Central Bank of Chile.

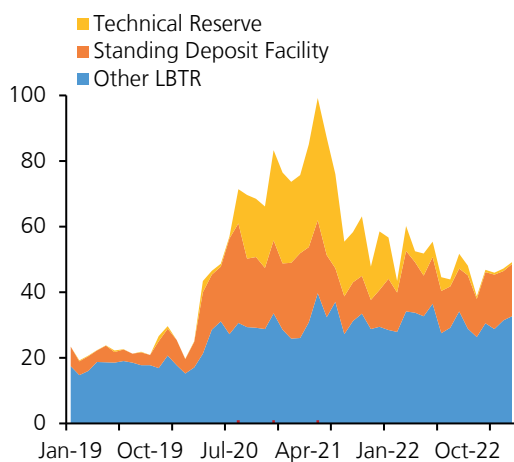
¹⁸/ It refers mostly to measures such as the Financing Facility Conditional on Increased Lending (FCIC in Spanish) and, but not as much, to the purchase of bank bonds and repurchase of BCCh debt.



Meanwhile, interbank payments settled in the Sistema LBTR MN grew by 15% in 2022, a trend that intensified in the first quarter of this year, reaching 37% more compared to the same quarter a year before. This rise is mainly due to the increase in the peso/dollar spot market operations in which, as explained in the preceding section, financial institutions settle the peso leg of such operations in the Sistema LBTR through the banks (Table II.1)¹⁹.

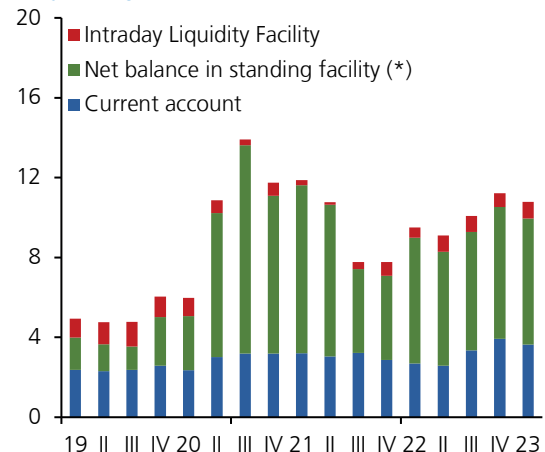
During 2022, the available liquidity of the Sistema LBTR participants remained at its average levels reached during the pandemic, after the exceptional measures that provided greater liquidity to banking institutions. Since an appropriate level of liquidity needs to be maintained by the Sistema LBTR participants so that they can settle their payments on a gross basis, it is important for the BCCh to monitor on an ongoing basis to ensure that these levels are adjusted to the banks' needs in order to mitigate liquidity risk, for which various indicators can be used (Box II.2). In addition to the payments received by counterparties during a Sistema LBTR operating cycle, the main funding sources of a participant correspond to the balances held in the current account at the BCCh plus the BCCh facilities it can access, which include intraday and permanent liquidity facilities. During the period, the use of liquidity sources remains stable and there is a higher proportion of use of permanent deposit facilities by bank participants, to the detriment of intraday liquidity facilities and resources in current accounts. (Figure II.16).

FIGURE II.15 AMOUNTS PROCESSED BY SISTEMA LBTR(1) (daily average, USD billion)



(1) Considers settlements in pesos and dollars. Vertical lines show months in which pension savings withdrawals were approved.
 (2) Permanent Deposit Facility.
 Source: Central Bank of Chile.

FIGURE II.16 LIQUIDITY IN SISTEMA LBTR MN (DAILY AVERAGES, CLP TRILLION) (daily averages, CLP trillion)



(*) The balance in permanent facility corresponds to the difference between the permanent deposit facilities and the permanent liquidity facilities required by the banks.
 Source: Central Bank of Chile.

Interbank payments processed through clearing orders in the Large-Value Payments Clearing House, managed by ComBanc S.A., increased by 12% in 2022 from the previous year (Figure II.17). This increase is consistent with the surge observed in interbank payments in the Sistema LBTR. In addition, the proportion of payments processed by ComBanc in relation to total large-value payments

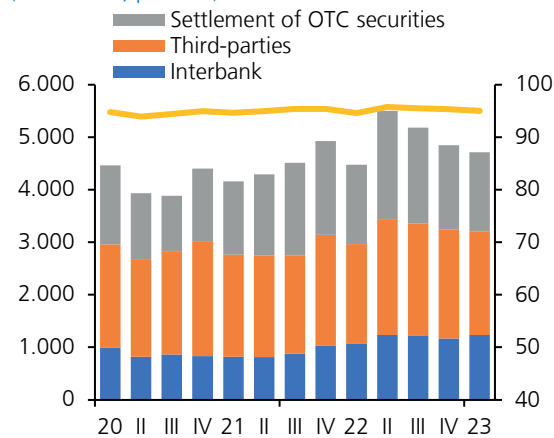
¹⁹/ For further details, see section "Spot Foreign Exchange Market."



(ComBanc + Sistema LBTR) has remained at around 40%, even rising to 50% in the last quarter, mainly influenced by OTC securities settlement payments.

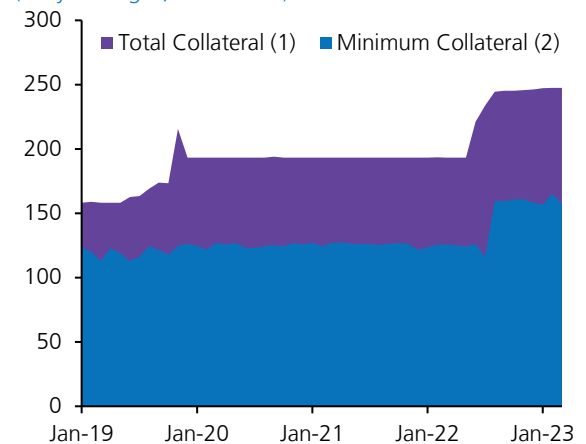
Because payments made by ComBanc involve credit risk, unlike the real-time payments of the Sistema LBTR, the regulation requires a minimum level of cash collateral from participants, a level that was raised during 2022. In the last amendment to its internal rules in July 2022, approved by the BCCCh, the collateral requirement for hedging positions in ComBanc was increased, consistent with the updated CCAV regulations and international recommendations^{20/}. Specifically, this implied that ComBanc had to modify the minimum values of mandatory guarantees required from banking participants involved in CCAV cycles, to cover at least the sum of the two largest net debit balances^{21/}. The CCAV guarantees are intended to ensure the settlement process, in the event that one or more participants lack sufficient resources to cover their final debit positions, in a given operating cycle. In practice, the increase in the minimum guarantee requirement placed it approximately 30% above its previous levels, exceeding the minimum guarantee requirement (Figure II.18).

FIGURE II.17 DAILY AVERAGE VALUE CLEARED BY COMBANC
(CLP billion, percent)



Source: ComBanc and Central Bank of Chile.

FIGURE II.18 COLLATERAL OF COMBANC'S PARTICIPANTS
(daily averages, CLP billion)



(1) Balance in Deposit Accounts for Extraordinary Settlement (CDLE).

(2) The two largest debit balances settled per day in the Sistema LBTR are used as a proxy of the minimum collateral.

Source: Central Bank of Chile.

In operational terms, during 2022 the availability of the Sistema LBTR was above the minimum continuity target of operational availability. During the second half of 2022, some service extensions were observed, mainly at the request of participants and clearing houses. The availability of the Sistema LBTR, measured as the proportion of time that the system is operational with respect to the total time of a normal business cycle, was 99.99%, i.e. above the target of 99.8%, which is in line with the international standards required. However, this index does not consider events in which the clearing houses delay their settlement with respect to the established schedule or when the Sistema LBTR

^{20/} Chapter III.H.5 del CNF.

^{21/} Previously, the regulatory requirement was to cover 1.15 times the CCAV's largest net debit balance.



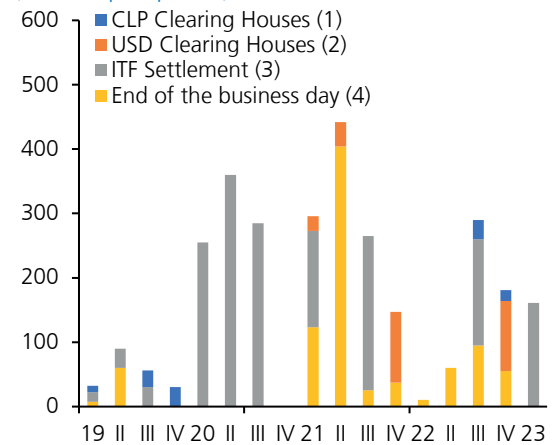
must extend the funds transfer instructions (ITF in Spanish) schedule or the close of business hours, at the request of a participant or clearing house (external), or for any reason determined by the BCCh due to the operation of an internal system or the performance of a test (internal). During 2022, there were requests for specific extensions for the settlement of ITF and delays in the settlement of clearing houses due to the live release of the new DCV Evolution platform (DCVe) in August 2022, together with other cases associated with operational reasons of the systems managed by the clearing houses and the BCCh (Figure II.19). In order to properly align the incentives in terms of extension requests by external parties, in 2022 an additional charge was introduced in the Sistema LBTR fee for extensions of trading hours originated by requests from one or more participants, in case of technical problems or failures attributable to them and affecting their connection capacity, whose application will be subject to prior approval by the BCCh.

TABLE II.3 EFFECTIVE OPERATING AVAILABILITY VS FMI TARGET
(percent)

	Target	Effective
Sistema LBTR	99,80	99,99
ComBanc	99,70	100,00
CCLV	99,95	99,81
ComDer	99,50	100,00
DCV	99,97	99,99

Source: Central Bank of Chile based on data from ComDer, ComBanc, CCLV and DCV.

FIGURE II.19 DELAYS AND EXTENSIONS OF SISTEMA LBTR MN
(minutes per quarter)



- (1) Delays in ATMs and check and Large-Value clearing houses.
 - (2) Delays in USD check clearing houses.
 - (3) Extensions of settlement hours for interbank transactions (ITF) starting at 17:00 hours for the Sistema LBTR USD and 17:30 for the Sistema LBTR MN
 - (4) Extensions of BCCh operating hours (Sistema LBTR).
- Source: Central Bank of Chile.

In turn, the settlement of the USD Check Clearinghouse in the Sistema LBTR USD generally performed well during the period, with delays in settlements as was the case in the fourth quarter of 2022. Starting in 2021, the settlement in the Sistema LBTR USD of the US dollar balances resulting from the clearing of checks in US dollars in the Check Clearinghouse was made mandatory. In the fourth quarter of 2022, there were two delays in the settlement of this clearing house due to insufficient funds in US dollars from certain participating banks at the established settlement time. Such a situation at least generates delays in the system's business closing process and could be prevented by implementing a Check Clearinghouse in accordance with CPBV standards, including guarantees and procedures to cover the outstanding debit balance. Additionally, in this clearing house, there were also requirements for specific extensions in the Sistema LBTR USD for the settlement of ITF for the live release of DCVe (Table II.4).



Regarding operational risk management indicators in the rest of the FMIs, during the year 2022, availability indexes above their own targets were observed for ComBanc, ComDer and DCV. In the case of CCLV, although it obtained an indicator slightly below its target level, it had no impact on the normal functioning of its operations. (Table II.3).

FIGURE II.17 DELAYS AND EXTENSIONS OF SISTEMA LBTR USD
(minutes per quarter)

Year	Quarter	Clearing Houses (1)	ITF Settlement (2)	End of the business day (3)
2022	I	0	0	0
	II	0	0	20
	III	0	30	39
	IV	110	0	0
2023	I	0	35	0

Source: Central Bank of Chile.



BOX II.1

Settlement Risk of FX market in Chile

The daily trading volume in the global foreign exchange (FX) market, equivalent to around US\$7.5 trillion, generates high interdependence between markets and payment systems around the world (BIS, 2022)^{1/}. When these transactions involve the physical delivery of foreign currency, they are exposed to settlement risk, i.e. the risk that one of the parties involved in the currency exchange does not deliver the owed currency at the time of payment^{2/}.

The materialization of settlement risk in the FX market can cause significant losses and pose a potential threat to financial stability. For this reason, the central banks of the world's major economies—jointly with the private sector—have been working for decades to reduce FX settlement risk. In practice, there are different settlement mechanisms to mitigate this risk, such as bilateral netting and the use of other payment versus payment (PvP) systems such as local FX clearinghouses and the Continuous Linked Settlement (CLS) system, or others available, especially in Asia and Europe (BCBS, 2013)^{3/}. Typically, these mechanisms are characterized by conducting clearing prior to settlement as they have a PvP at the time of settlement^{4/}.

According to the latest BIS Triennial Survey 2022, FX operations involving physical delivery at the global level are mostly settled through some mechanism with risk mitigation. However, almost one-third of the traded volume in the FX market with global physical delivery is still exposed to settlement risk (Glowka and Nilson, 2022). The settlement risk is so persistent because existing PvP mechanisms are unavailable in certain jurisdictions or currencies, or are not suitable for certain transactions, or are too expensive for some participants (Bech et. al, 2019; Glowka and Nilson, 2022)^{4/}.

In Chile, the notional amount traded in the FX market (spot and derivatives) is more than seven times the annual GDP, totaling US\$2.2 trillion in a year, of which 39% is exposed to settlement risk (Table II.5 A)^{6/}. More than half of these transactions are non-deliverable forward (NDF) derivative transactions, which by definition are not exposed to settlement risk as they do not involve the exchange of foreign currency. On the other hand, the settled amount of FX transactions involves the physical delivery of foreign exchange and is therefore potentially exposed to settlement

^{1/} This market includes both derivatives and spot market transactions. A trillion is a thousand billion.

^{2/} Settlement risk in the FX market is also known as Herstatt risk in reference to the bankruptcy of Bankhaus Herstatt in 1974 that gave rise to the BIS Basel Committee on Banking Supervision (Galati, 2002).

^{3/} The CLS is an international payment system constituted as a special-purpose bank in the United States and as an infrastructure in the United Kingdom. It is supervised by the Federal Reserve and the cooperative supervision of the central banks of the 18 currencies included in the system. It has been in operation since September 2002. Regarding the steps currently being taken by the BCCh for Chile's incorporation into CLS, see Chapter III, section "Developments in cross-border payment systems" below.

^{4/} Under the PvP mechanism, the final payment of one currency occurs if and only if the final payment of the other currency has been made already.

^{5/} In many of these economies, the use of correspondent banking as a settlement mechanism prevails. Under this scheme, a bank (foreign correspondent) holds deposits belonging to other local banks and provides payment and other services to such local banks.

^{6/} The depth of the foreign exchange market in Chile, measured as the ratio of notional volume traded in a year to GDP, is higher than the average of emerging economies, although lower than that of more advanced economies' (Villena and Hynes, 2020).



risk^{4/}. These operations are mainly explained by spot market transactions (Table II.5 B).

More than 40% of the total FX operations by physical delivery settled in Chile correspond to operations between counterparties in the Formal Foreign Exchange Market (MCF in Spanish) (Table II.5 C)^{8/}. In Chile, these transactions are settled bilaterally between the parties involved through traditional correspondent banking arrangements, which implies that they are exposed to settlement risk, since there is no direct coordination between the payment of the two currencies involved. In practice, the local currency leg of such transactions is cleared and settled through the large-value payment systems (Clearing House for Large-Value Payments in Local Currency (CCAV MN) and the Sistema LBTR), while the foreign currency leg is settled through correspondent banks in the jurisdiction of the respective currency. This situation could change in the short term with the start-up of the Clearing House for Large-Value Payments Clearing House in Foreign Currency (CCAV FX), scheduled for the end of 2023, which will allow the clearing of interbank peso/dollar spot transactions following the PVP standard, synchronizing the clearing of both legs of each transaction, in addition to having a design that will allow the settlement in the respective Sistema LBTR under this same standard ([FSR, 2020](#)).

Meanwhile, more than one third of settlements in the FX market with physical delivery in Chile are made with counterparties from the real sector and other financial institutions that are not part of the MCF (Table II.5 C)^{9/}. These operations are traditionally settled using credit lines and under the scheme where the bank first receives the amount traded, which protects it against counterparty risk. However, these operations are also exposed to settlement risk, for the same reasons described above. In addition, since these counterparties are non-bank counterparties, they need to indirectly access the CCAV FX or other infrastructure that could provide the clearing and settlement service in the future.

FX market transactions with physical delivery made with non-residents, which historically accounted for an average of around 5% of the total settled, increased their relative importance in 2022, up to 10% of the total. The participation of non-residents as counterparties in the FX market with physical delivery is directly related to the possibility of the Chilean peso being used internationally ([FSR, 2020](#)). To the extent that this trend continues, the settlement risk of these operations may be mitigated, either through the indirect operation of non-residents in local infrastructures, or via the potential incorporation of the peso into the CLS ([FSR, 2019](#); [FSR, 2021](#)).

Within the “Other” counterparty, settlement transactions between local banks and the BCCh stand out, and most recently represented 7% of the total settlement of FX market transactions

^{7/} Clearing operations consider those that involve only a single payment at the time of settlement, e.g., NDF (non-deliverable forward). Physical delivery operations consider those involving two or more payments at settlement, e.g., spot, forward, FX swap and Cross-Currency Swap.

^{8/} The MCF is made up of banks and other financial institutions with BCCh authorization to participate in it, mainly brokerage firms and securities dealers. In practice, nine financial institutions in the MCF account for more than 80% of the volume settled in this market.

^{9/} The real sector and the financial sector that are not part of the MCF represent 21% and 20% of the counterparties of the total amount settled (spot plus physically delivered derivatives). Even the real sector accounts for more than 40% of the transactions settled in physically delivered derivatives.



with physical delivery. These transactions, while they can be settled through the Sistema LBTR in US dollars since 2019, are not settled through a PvP mechanism as such^{10/}. In any case, as these operations are settled within the local infrastructure of the Sistema LBTR, their operational, credit and settlement risk is smaller compared to traditional settlement through correspondent banks^{11/}.

Briefly said, operations in Chile are mostly settled through traditional correspondent banking arrangements, exposed to settlement risk, although several initiatives promoted by the BCCh could contribute to mitigating it. The future implementation of the CCAV FX will allow the centralized clearing of interbank spot-dollar transactions following the PvP standard for more than 40% of the physically delivered transactions currently performed. Additionally, the incorporation of PvP standards at the gross settlement level in the Sistema LBTR would contribute to mitigate this risk. Besides, the advancement of the peso's internationalization agenda will contribute to increase the participation of non-residents in the FX market with physical delivery, which in principle could increase the amount exposed to settlement risk of local agents. However, this risk could be mitigated to the extent that international agents can settle these transactions through local or international PvP mechanisms, either as participants in the CCAV FX or through the possibility of clearing the Chilean peso in the CLS.

^{10/} It should be noted that the BCCh is currently analyzing the possibility of introducing the PvP standard at the gross settlement level into the Sistema LBTR.

^{11/} All in all, the total volume of these operations is rather limited as a fraction of total settlements in the system (see Chapter II herein).



TABLE II.5 FOREIGN EXCHANGE MARKET IN CHILE

	2007-2011	2012-2016	2017-2021	2022
A. Notional amount traded a/				
Total b/	1.414.384	2.073.085	2.060.018	2.227.608
of which: by clearing c/	51%	54%	57%	61%
of which: by physical delivery d/	49%	46%	43%	39%
B. Amount settled e/				
Total b/	759.096	1.039.333	958.609	957.609
of which: spot	91%	92%	92%	92%
C. Percent settled by counterparty				
Intra-MCF f/	50%	52%	52%	43%
Other financial g/	22%	18%	19%	20%
Real sector	18%	21%	17%	21%
Non-residents	4%	5%	6%	10%
Others h/	6%	4%	6%	7%

a/ The notional amount traded considers local currency transactions in exchange for foreign currency of FX and spot FX derivatives of the Formal Foreign Exchange Market (MCF in Spanish). Spot transactions do not include those corresponding to derivatives spot transactions.

b/ Millions of US dollars.

c/ Clearing transactions consider those that involve a single payment at the time of settlement, e.g. NDFs.

d/ Physical delivery transactions include those involving two or more payments at the time of settlement, e.g. Spot, Forward, FX Swap and Cross-Currency Swap.

e/ The amount settled considers physical delivery transactions settled during the period, and may differ from the physically delivered amount traded given the settlement terms given the terms involved with derivatives.

f/ Considers transactions between members of the MCF, which includes banks and other entities authorized by the BCCh to trade in it.

g/ Pension Funds Managers (AFPs), Insurance Companies, Brokerage Firms and General Fund Administrators (AGF).

h/ Includes transactions with the Central Bank and the Treasury.

Source: Central Bank of Chile.



BOX II.2

Network Analysis applied to Sistema LBTR

In modern economies, money transfers between financial institutions are carried out through Large-Value Payment Systems (LVPS) which, by using technological platforms operating under strict regulatory standards, allow transactions to be carried out efficiently, safely and without disruptions. From the perspective of central banks, LVPS has implication over the implementation of monetary policy and the financial stability promotion. In Chile, the most important LVPS is the Sistema LBTR (the Central Bank of Chile's RTGS system) and is regulated, managed and operated by the Central Bank of Chile (BCCh).

RTGS systems minimize settlement risk, since the payment is only transferred if the paying participant has sufficient funds in its current account at the Central Bank. However, as they require liquid money in the short term, these systems generate liquidity risk exposures: the participant will not be able to settle a payment if it lacks the funds, even if it expects to have them at a later date. To the extent that this payment is of greater value and is relevant for a larger number of recipient participants, the risk to the stability of the financial system and the overall economy increases. For this reason, central banks around the world, including the BCCh, directly operate RTGS systems and provide a set of tools that traditionally allow their participants to manage their liquidity risks appropriately^{1/}. In this context, network analysis has emerged as a useful tool for central banks to guide their management in this area. This Box reviews the application of this kind of exercises to the local banking system and its potential for future development.

If a participant defaults on its payments, it may directly affect the available liquidity of LVPS counterparties that were expecting to receive them. In a worst-case scenario, this could cause a liquidity shock in the large-value payment system that could temporarily hinder or stall the payment chain. Based on their potential to generate liquidity stress in the Sistema LBTR, either because of the liquidity they provide to other entities or because of their degree of connectivity in the payment system, it can be said that there are participants in the payment network with a higher incidence or greater relative importance in the network. In this sense, the participants with the greatest potential to generate stress are those that provide more liquidity to the Sistema LBTR, to a greater number of counterparties.

A payment network is formed among the participants of an RTGS system in which payment interactions take place, that are relevant to understand their relative importance within the network. Network analysis makes it possible to identify participants with greater relative importance in the payment system, through the construction of indicators that consider both the value of the

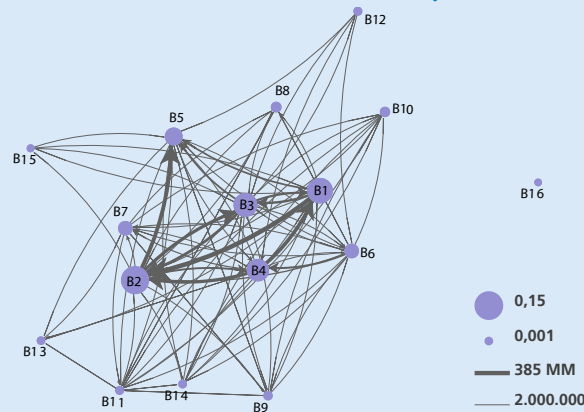
^{1/} Entities participating in the Sistema LBTR are required to have robust risk management systems to prevent and mitigate this type of exposures. The BCCh has a number of mechanisms to mitigate liquidity risk in the Sistema LBTR, including liquidity facilities for participants through interest - and non-interest bearing loans, the possibility of maintaining payments in a waiting queues in the event of temporary unavailability of funds, access to information on balances and movements, settlement of payments with the BCCh at times favorable to the banks' management (credits at the beginning of the business cycle and debits at the end of the day, allowing the participants to have more funds available during opening hours), the possibility of using cash reserve ratio funding during the day to settle transactions (allowing them to meet the requirement by depositing them at the end of the cycle), among other mechanisms defined in the regulations governing the Sistema LBTR.



payments that the participant transfers to the system and their degree of scope, measured through the Value Index (VI) and the Proximity Index (PI), respectively, among other relevant metrics^{2/}. While the VI indicates the proportion of the value of payments made by a bank with respect to the total number of payments settled in the RTGS system, the PI quantifies the number of nodes (banks) existing between the bank making the payment and all the other participants in the system, which allows visualizing the degree of connection of the bank with respect to the rest of the network^{3,4/}.

Under this approach, it is possible to build a Relative Importance Index (RII) in the Sistema LBTR, which can be represented as the product between the Value Index and the Proximity Index^{5/}. The position of the participants in the network according to their RII can be visualized in Diagram II.3. Note also that the width of the arcs is proportional to the total value of the payments transferred from one bank to another.

DIAGRAM II.3 SISTEMA LBTR PAYMENT NETWORK
(Relative Importance Index (RII) in the Sistema LBTR for one day)



Source: Sistema LBTR.

(*) Bi denotes Bank i participant in the Sistema LBTR. Arc width varies according to settled amounts.

^{2/}The relevant literature offers a series of additional tools that allow this type of analysis, e.g., LSI (Liquidity Spreading index), Conway's model, Contagion Velocity Indexes and cluster studies, among others. There are also other types of analysis that address the study of the payment network as a whole and not at the participant level (e.g., density index, reciprocity, diameter, or average distance).

^{3/}The distance represents the number of connections that separate one bank from another. For example, if during the day Bank 1 transfers a payment to Bank 2, and Bank 2 to Bank 3, the distances from Bank 1 to Bank 2 and Bank 3, correspond to 1 and 2, respectively.

^{4/}For any bank i, the value index and the proximity index (VI and PI, respectively) correspond to:

$$IV_i = \frac{\text{Payments settled by Bank } i}{\text{Total payments settled}} \quad IC_i = \frac{1}{D_i} \frac{1}{n-1}$$

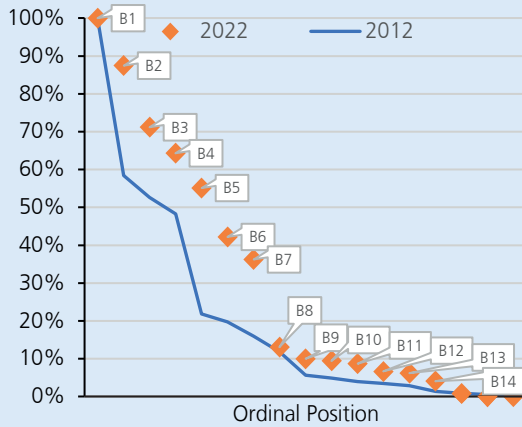
Where D_i is the average distance between Bank i and the rest of the participants, I_i is the number of participants with which Bank i connects either directly or indirectly, and n denotes the number of participants in the network.

^{5/}A similar application of this methodology is observed in the document "Topology of the Hungarian Payment System" (Central Bank of Hungary, 2006). Among other research that analyzes the importance of systemic banks in local LVPS from a network analysis there is Baek et al. (2014), Soramäki et al. (2007), Becher et al. (2008), Prepper et al. (2009), Boss et al. (2009) and Embree and Roberts (2009).



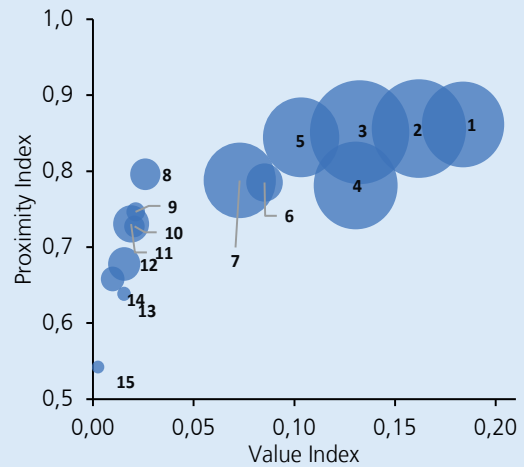
The RII in the Sistema LBTR improves its distribution over time. Figure II.20 shows how the RII is distributed among the different participants in the Sistema LBTR, ranking the banks in descending order from the highest to the lowest index, with bank 1 as 100% and the rest as a proportion of it. In 2012, the bank with the highest RII (bank 1) was considerably distant from the runner-up (bank 2), whose RII was equivalent to 58% of the RII of bank 1. However, this distance shortened substantially in 2022, when bank 2's RII reached 87% of bank 1's.

FIGURE II.20 DISTRIBUTION OF RELATIVE IMPORTANCE INDEX IN 2022 AND 2021 (proportion of Bank 1 index)



(*) Bi denotes Banco i participant in the Sistema LBTR.
Source: Central Bank of Chile.

FIGURE II.21 INDEX RELATIVE TO TOTAL ASSETS (stock of assets for one month of 2022)



(*) Nro. i denotes Banco i participant in the Sistema LBTR.
Source: Central Bank of Chile and CMF.

This change in the RII's distribution suggests that the Sistema LBTR is a payment network in which the concentration of liquidity risk has tended to decrease. This is so because this risk is distributed among a greater number of participants with similar RII levels. Likewise, in the period analyzed, there is a greater number of interconnections, which can be seen as an additional resilience factor in that the liquidity shortage derived from the unavailability of one participant can be covered by the rest. In part of the literature reviewed, the latter is in contrast with the possibility that more interconnections could also involve a greater risk of propagation in the network in the event of problems in one of the participants.

The magnitude of the value and proximity indexes is generally related to banks' size, measured as a function of the value of their assets, although exceptions are identified. It is these exceptions that are particularly interesting to identify through the methodology proposed in this Box, since it is possible to note the relative importance of entities with respect to their impact on the payment system, beyond the most common metrics such as banks' total assets. For example, Figure II.21 illustrates that the banks located in the upper right quadrant are also the biggest banks, with the exception of bank 7, which, while bigger than bank 5, has a lower VI and is located in the



upper left quadrant. The opposite occurs with bank 6, whose size is more or less equivalent to banks 8, 10 and 12, but which nevertheless has higher indexes, with a higher VI, which is more than 3, 4 and 6 times that of those banks of a similar size.

Identifying the participants of greater relative importance in the Sistema LBTR network is important for guiding the monitoring of payment flows among participants. The proper identification of these participants may constitute an additional tool for the BCCh to monitor and manage liquidity risk in the Sistema LBTR, anticipating liquidity needs arising from the unavailability of a participant. Likewise, it could also provide an additional tool for analyzing and identifying local systemic banks^{6/}. Methodologies such as network analysis are quite useful to achieve this objective, as they consider both the characteristics of the participant and their relationship with the other participants in the network. It is expected that future reports will deepen the analysis of the results obtained, for example, from the perspective of the main factors underlying the relative importance of banks in the network, other than the size of their assets.

^{6/} The systemic importance of banks is evaluated in Chile by the CMF with the favorable opinion of the BCCh following BIS recommendations and in accordance with the provisions of the General Banking Act (Chapter 21-11 of its Recopilación Actualizada de Normas (RAN) - Updated Compilation of Standards). This assessment comprises four factors (size, substitutability, interconnectedness and complexity), each of which is constructed based on a number of additional sub-factors. The analysis presented in this Box relates to the substitutability dimension.



III. DEVELOPMENT AND POLICY OUTLOOK: THE PAYMENTS AGENDA OF THE CENTRAL BANK OF CHILE

This chapter reviews the main initiatives and policy matters that constitute the Payments Agenda of the Central Bank of Chile (BCCh), to promote the development of payment systems, in line with technological changes and user preferences, adapting the regulatory framework and infrastructure. This Agenda is part of the initiatives of the 2023-2027 Strategic Plan of the BCCh, contributing to the strategic focus of strengthening the cutting-edge nature of financial policy^{1/}.

It is worth emphasizing the developments in infrastructure for fast payments, which will allow the operation of the first Retail Clearing House in Chile specialized in processing Electronic Funds Transfers, as well as the capacity of payment initiators as fast payment boosters.

At the same time, the challenges and new business models in the area of retail payments have promoted adjustments to the BCCh regulations applicable to the issuance and operation of payment cards. In the area of Financial Market Infrastructures (FMI), positive results of the long-standing work of incorporating regulatory standards by the financial authorities have materialized, allowing Chile to have the first internationally recognized Central Counterparty, and a Clearing House for Large-Value Payments in Foreign Currency. With the approval of the Bill to Strengthen the Resilience of the Financial System and its Infrastructures, access to the payment systems and liquidity facilities of the Central Bank of Chile will be extended to certain non-bank institutions and FMIs, and there are possibilities for the development of cross-border payments and, with them, the internationalization of the peso. Finally, the BCCh continues to study the implications of issuing a central bank digital currency (CBDC).

STRENGTHENING THE FINANCIAL INFRASTRUCTURE FOR FAST PAYMENTS

International advances in the development of fast payment systems

Globally, the gradual incorporation and use of fast payment systems in different jurisdictions continues and deepens. As discussed in the previous Report, fast payment systems have been consolidating in the main jurisdictions, a trend that continued in 2022^{2/}. Among the major jurisdictions that have most recently implemented this modality, the United States stands out with the incorporation of FedNow last July; and Croatia with the recent incorporation of the European Target Instant Payment System (TIPS), last June.

^{1/} [Strategic Planning - Central Bank of Chile](#)

^{2/} See Chapter III, Payment Systems Report 2022, for an overview of the evolution of fast payment systems.



Fast payment systems have several benefits, particularly for end users. In a fast payment system, the transmission of the payment message and the availability of funds for the recipient occur in real-time, as close as possible to a 24/7 basis^{3/}. This enables these systems to complete payments in a timely manner, at an appropriate speed, and when needed. This feature allows for greater flexibility of payments to individuals, firms and governments, in addition to speeding up commercial or productive processes that require the funds to be readily available to execute them^{4/}. To some extent, a fast payment shares properties with cash, becoming a payment option; for example, where cash is scarce or unavailable and without the costs and risks of carrying or handling. In addition, the instant availability of funds enables individuals to improve the planning, efficiency and execution of their payments and, in the case of merchants, they can also improve and streamline their cash flow and liquidity management^{5/}.

Having funds available instantly for the end users does not necessarily mean that aggregate payments among financial institutions are made in the same way. In a significant number of systems, financial institutions accumulate credit exposures among themselves (financial obligations) for payments that are instantly made available to users. In these cases, clearing houses play a fundamental role, as they allow the financial institutions that offer accounts or means of payment to users to record reciprocal obligations between them in a secure and efficient manner, in order to subsequently settle (pay) exclusively a net balance at the end of each payment cycle (of a given number of hours or days duration). The “deferred” settlement of these net balances takes place in Large-Value Payment Systems (LVPS), normally managed and operated by central banks^{6/}.

High processing capacity LVPS are increasingly being used to enable financial institutions to massively settle one-to-one payments. Central bank-operated LVPS commonly work on a gross and real-time settlement basis (RTGS systems). Historically, they were reserved exclusively for large-value payments but in a rather limited number of transactions, based on payments from financial institutions. These types of payments are not processed through clearing houses and, therefore, demand more liquidity for financial institutions. However, they have the advantage of eliminating the credit risk implicit in the accumulation of obligations through each payment cycle.

New technologies and increased processing capabilities have enabled some central banks to instantly settle massive of retail payments. In this sense, it is possible to make payments instantly available to users at the same time as they are settled one by one among financial institutions.

An intermediate model involves maintaining clearing houses capable of closing clearing cycles with high frequency, allowing several payment cycles each day. The advantage of this modality is that it allows for a more appropriate balance between credit risk and liquidity management among financial institutions.

Around the world, it is possible to find different designs or schemes of fast payment systems based on deferred or instant settlement modalities and the involvement of public and private entities in the clearing and settlement process. Although the settlement of payments or obligations in an instant payment system always takes place in the LVPS system, generally operated by a central bank,

^{3/} Definition of fast payment systems by the BIS (2016, 2021) and The World Bank (2021). This definition takes the perspective that a prompt or fast payment secures a credit of final funds to the receiver, i.e., final funds are funds received, to which the receiver has unconditional and irrevocable access.

^{4/} In particular, processes where factors such as counterparty risk of the originator or liquidity constraints of the payee are relevant.

^{5/} Although not inherent or exclusive to these systems, fast payment system schemes are built on new technological infrastructures that have the potential to generate complementary innovations that facilitate them and generate benefits to payment service providers, in addition to facilitating the recording of information about the components of a payment, facilitating cross-border payments and promoting financial inclusion. For a deeper dive into the benefits of fast payment systems, see BIS (2016).

^{6/} For a discussion about systems according to their settlement mechanism, costs, benefits and risks, see BIS (2021).



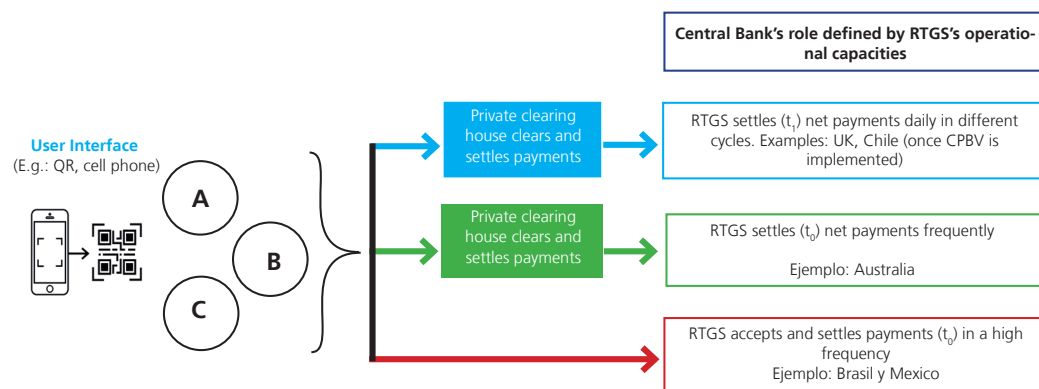
the clearing process can be carried out by a private entity or by the central bank itself^{7/}. This may occur due to various country-specific factors, such as the regulatory framework, the state of development of their FMIs, or the role of private involvement in payment systems, to name a few.

Accordingly, three operating models can be distinguished (Diagram III.1). In the first model (blue line), a private payment system is responsible for the complete clearing process (acceptance, verification and disposal of funds, accumulation and netting) and, subsequently, for the disposition of the net balances to settlement, which usually takes place in low-frequency daily cycles and on a deferred basis in the large-value payment system, usually RTGS systems managed by central banks. Examples of this modality are the Immediate Payment Service (IMPS) and Unified Payments Interface (UPI) in India, Fast and Secure Transactions (FAST) in Singapore, Zengin in Japan and the Fast Payment System (FPS) in the UK.

In the second model (green line), a private payment system handles the clearing, which includes a process of acceptance, verification, and disposal of funds, but without an accrual or netting process. Instead, payment orders are sent individually for gross settlement in real time to a RTGS system, which has the capacity to receive a large number of transactions at high frequency. This is the case of the New Payments Platform (NPP) in Australia or the SEPA Instant Credit Transfers (SCT Inst) in Europe. Both models base their processing and clearing on private institutions.

Finally, in the third model (red line), a system operated by central banks is the one that settles and accepts payment orders in a gross manner and in real time at high frequency, dispensing with private participation. This is the case of Interbank Electronic Payment System (SPEI) in Mexico, Pix in Brazil, Target Instant Payment System (TIPS) in Europe and FedNow in the United States.

DIAGRAM III.1 ALTERNATIVE MODELS OF FAST PAYMENT SYSTEMS ACCORDING TO THE ROLE OF THE CENTRAL BANK AND PRIVATE PAYMENT SYSTEMS



Source: Central Bank of Chile.

^{7/} Typically, obligations or payments are settled in RTGS systems, either in the same system as large-value payments or in a special retail system



Fast Payments in Chile

Since 2008, the Chilean banking system has had a payment processing system with fast payment features applied to Electronic Funds Transfers (TEF). Based on instructions from the banking supervisor, since 2008 banking institutions have been processing TEF as instant payment, i.e., making the funds immediately available to the recipient, which has been recognized internationally^{8/}. For this purpose, they use an Automated Clearing House (ACH) called Centro de Compensación Automatizado (CCA), that is a banking business support entity (Sociedad de Apoyo al Giro - SAG), which processes and clears TEF from the banking system and, currently, from 4 non-bank players^{9/}. Under this scheme, TEF are received by payment service providers, both bank and non-bank, and are processed by CCA instantaneously. Thereafter, CCA reports their accumulated gross bilateral debit balances to the institutions for settlement by each participant through a large-value payment system of choice (ComBanc or Sistema LBTR), in two daily cycles each business day.

The current TEF processing scheme has grown exponentially, with a wide use in the country; however, it requires further convergence with international standards for FMIs. TEF processing throughout its operation has been large-scale and continuous, without significant operational failures, honoring payments and obligations between banks. However, from a risk management standpoint, it maintains important gaps and lags that prevent it from qualifying as a fast payment system in accordance with FMI standards. First, the processing of TEF is not regulated as a payment system that recognizes the finality and irrevocability of such payments or transactions. Therefore, they lack internal regulations to identify the clearing house administrator, rules or public conditions of participation, operation processes, and an established extraordinary settlement process. Additionally, being a deferred settlement system, it has credit risk that is not mitigated by financial safeguards (i.e. guarantees or pre-funding), a risk that grows bigger during weekends and holidays.

From the users' standpoint, the instant payment system in Chile presents opportunities for development. The interface or front end is designed and managed by each participating institution and requires manually uploading the necessary data to make each transfer, which means that the local TEF system cannot be integrated with advanced payment applications. These lags are estimated to be increasingly relevant, considering the ever-stronger growth of TEF in Chile.

Despite the gaps indicated, given the degree of development and performance of the private sector in the processing of TEF and other payment systems, it was considered appropriate to move forward in upgrading the standards on the existing design. Regarding systems management and payment processing, Chile has private sector operators (i.e. ComBanc and CCA) that have given proof of good performance and have acquired high standards and expertise over the years. In particular, in terms of TEF, Chile's fast payment standard is higher than other jurisdictions that have moved towards this type of system. Additionally, due to the proliferation of checking and sight accounts easily accessible to the population, mainly explained by BancoEstado's "RUT" (personal ID) accounts, TEF have grown and offered an alternative means of payment. More recently, the increase in the opening of accounts for prepaid cards, which are also enabled for TEF, will contribute to this trend. Meanwhile, the role of the public sector has focused on the supervision, regulation and monitoring of payment systems by the CMF and the BCCh, as well as the operation of an RTGS system by the latter, which processes large-value payments.

^{8/} Following a ruling by the Superintendency of Banks and Financial Institutions (SBIF in Spanish), which mandated banking institutions to dispose of funds immediately in an TEF as from 1 January 2008 (Banking Circular No. 3,400, which amended Chapter 1-7 "Electronic transfer of information and funds" of the Updated Compilation of Standards).

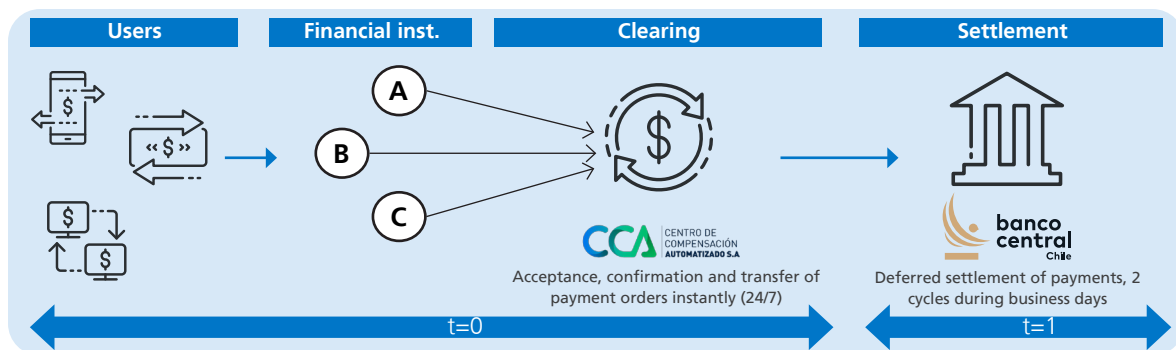
^{9/} CCA is owned by three local banks, namely BCI, Santander Chile and Banco de Chile. For TEF activity processed by the CCA, see Chapter I herein



Accordingly, the BCCh decided to assume the role of innovation catalyst by implementing a flexible regulatory framework that allows the operation of payment systems managed by the private sector through the Retail Payments Clearing House (CPBV) with appropriate financial safeguards and that operates as a complement to the Sistema LBTR. This regulation stipulates that payment orders originated in transactions carried out with means of payment such as payment cards or electronic funds transfers, must be cleared through a CPBV^{10/}. As a central part, the regulation requires the existence of an internal regulation of the clearing house approved by the BCCh, and supervision by the CMF, in which processes are detailed, safeguards are established and roles are identified, such as that of the clearing house administrator or the type of participants and extraordinary settlement protocols^{11/}. Under this regulatory scheme, given the characteristics, operation and development status of the market, the central bank's role as a catalyst of innovation through regulation is prioritized, in addition to its role as operator of the RTGS system to settle these transactions, resulting in feasible modalities such as those present in India, the United Kingdom or Australia, where the private sector plays a role in the clearing and settlement of these transactions.

Consistent with the importance of TEF in for retail payments, the first CPBV that will start operating by the end of this year will process this type of transactions and will be managed by the Centro de Compensación Automatizado (CCA) an Automated clearing house (ACH) , in compliance with the BCCh regulation. In this regard, the BCCh has already granted its approval to the Operating Regulations or internal rules of this Clearing House in June and is currently in the process of obtaining the operating authorization from the CMF. Through the operation of this CPBV, payments coming from TEF will be cleared through this infrastructure and subsequently settled in the Sistema LBTR on a deferred net basis, as compared to the current gross bilateral settlement, with financial safeguards, such as collateral requirements for its participants and the establishment of extraordinary settlement processes and operational continuity safeguards, among others (Diagram III.2)^{12/}.

DIAGRAM III.2 PROCESS OF CLEARING AND SETTLEMENT OF TEF IN THE CPBV OPERATED BY CCA



Source: Central Bank of Chile.

^{10/} Chapter III.H.6 of the Compendium of Financial Regulations (CNF in Spanish). The regulation defines clearing as the process of communication, conciliation and determination of final positions that will be subject to the corresponding settlement process. In addition to cards and TEF, it applies to any other payment operation that generates cash credits or debits in current accounts, sight accounts or accounts with provision of funds.

^{11/} The clearing entities or processes must be completed before March 2024, so upon them being issued, the BCCh began working with the private sector for the future implementation of these clearing houses. Initially, the regulation established a period of 18 months for the entities to enter the regulatory perimeter. However, in June 2023 this period was extended to 26 months, in order to ensure appropriate implementation.

^{12/} For details on the importance of the current gross settlement of payments from TEF in LVPS, see Chapter II herein.

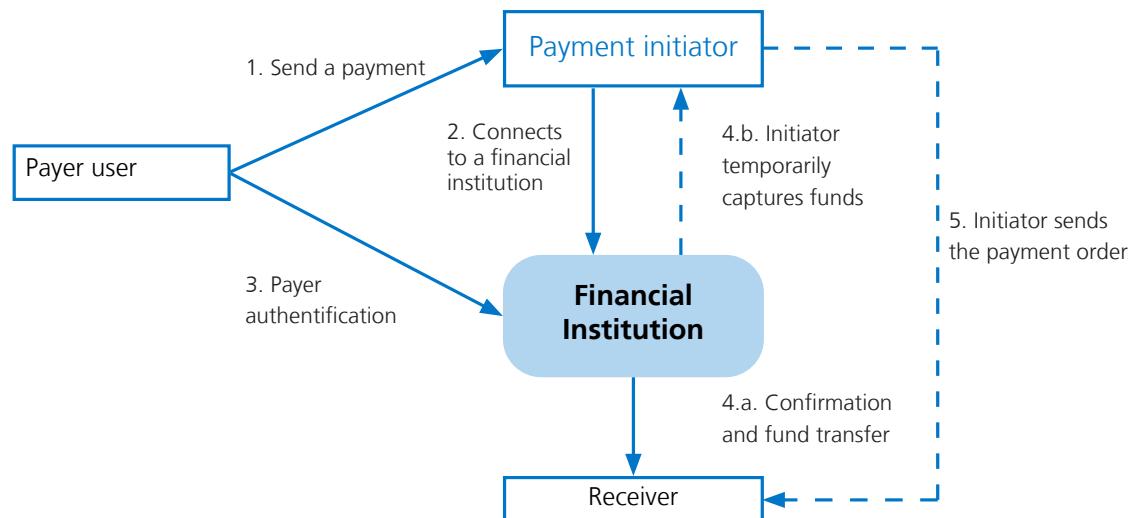


Upon the TEF CPBV becoming operational in accordance with this first regulatory phase, Chile will have a fast payment system compatible with international practices and standards. After almost 15 years of instant TEF processing from the banking system, in 2023 international standards of the Principles of Financial Market Infrastructure (PFMI) will be observed along with a framework for fast payment systems, with a design similar to that of the United Kingdom (FPS) and India (UPI). This new situation invites to reflect on future enhancements to the current clearing and settlement models such as, for example, to incorporate high-frequency payment processing. However, moving towards mass payments accepted and settled directly in the Sistema LBTR requires a more complex cost-benefit assessment, including the assessment of the associated risks.

Payment initiators as fast payment enablers

Payment initiators are entities that allow customers of financial institutions to instruct funds transfers without necessarily logging into the systems of their account service provider. Payments initiation is a service that is usually included in the frameworks of open finance systems, which pursue objectives such as increasing financial inclusion, competition and innovation, based on the consented use of customers' financial information. In this context, payment initiators offer new payment options for individuals and firms, opening up new opportunities for inclusion and lower costs, especially for the underbanked segments (see [BCCh, 2021](#); [CMF, 2023](#)). Diagram III.3 shows how the payment initiator works, considering cases of direct payment to the beneficiary and intermediated payment.

DIAGRAM III.3 FUNCTIONING OF PAYMENT INITIATOR (*)



(*) Dotted line shows the case of the payment initiator receiving funds from the client and, under the Fintech Law, will be regulated by the BCCh.

Source: Central Bank of Chile.



The explicit authorization by individuals initiating a payment, security, reciprocity and cooperation among the participants in the payment ecosystem are fundamental to the functioning of this activity. The architectures for authenticating, transferring and validating transactions rely on standards for the safe exchange of information; for example, through the application programming interfaces (APIs) that allow initiating payments, permitting limited access to authorized information, under the entity's authentication and user consent verification protocols^{13/}. Different operational modalities for the payment initiator exist for this purpose, one of them is to order the payment without leaving the environment (e.g., website, app, or interface) of a service that hires it, providing a better experience and design of the means of payment; and the other is to incorporate an external application to validate the payment ([BIS, 2021](#)). Under either of these modalities, it is very important to have the appropriate safety standards to protect the data and payments involved.

The success of open finance schemes in general, and of payment initiators in particular, depends on several variables. The degree of adoption of payment initiation services depends on, among other factors, the availability of the service, its adaptation to the needs of consumers and firms, the users' experience and, ultimately, the benefit or added value they perceive. A relatively similar situation occurs with other services in the open finance system, which should help people to make wiser financial decisions when taking out a loan or purchasing insurance, for example. One of the first jurisdictions to implement open finance systems was the UK in 2018, where to date there are more than 200 open finance firms. A recent report about Open Banking stated that in that jurisdiction/nation country the adoption of open finance for payments has grown considerably, given that at least 10% of users who have made digital payments have done so through the open finance system, and with more than 20 million payment transactions in March 2022 (a 10% annual growth).

The Fintech Law grants powers to the CMF and the BCCh to regulate the initiation of payments. At present, there are entities that provide payment initiation services, but outside the regulatory perimeter, so aspects such as access to and use of customer information by payment initiators are not regulated. This situation will change in the coming months, once the CMF issues the regulations implementing the open finance framework established in this Law. The BCCh, in turn, has the power to regulate payment initiation, to the extent that the entities that carry out this activity access and temporarily hold client funds. The CMF will begin the process of drafting the rules related to the open finance system during the second half of 2023, and the BCCh will do the same for payment initiators.

Finally, payment initiators can enhance the use of TEF to make payments, which would enhance competition among the different payment cards. Once the rules for payment initiators to be issued by the CMF and the BCCh, come into force, payment initiation will be carried out with greater safeguards than at present, which should contribute to boosting users' confidence and encourage finding innovative solutions. At the same time, the aforementioned entry into operation of the CPBV will make the clearing and settlement framework for these transactions more robust, improving the operation of the fast payment system currently in place and making TEF a more competitive means of payment.

^{13/} APIs (Application Programming Interface) allow limited access to information and establish protocols for authentication of the entity and user consent confirmation.



CHALLENGES AND NEW BUSINESS MODELS FOR RETAIL PAYMENTS

There are new business models that were not necessarily contemplated or adequately addressed in the general regulatory framework for the issuance and operation of payment cards. Innovation in retail payment methods is commonplace, which includes not only technological aspects such as the form or device with which a payment is initiated but sometimes also new business models. For this reason, the BCCh monitors the evolution of the market and permanently reviews its regulations in coordination with the CMF, which plays the supervisory role, so that new developments in this industry can be incorporated into the local market under the proper safety standards.

This is how some non-banking entities have requested—or are in the process of obtaining— authorization to issue prepaid cards and thus capture resources from the public to develop on-us payment systems, where payments are made mainly between people who are part of the system in question. Another business model that is being implemented in the country is the so-called cross-border acquiring, in which firms from Chile establish affiliate merchants located abroad so that payments for their goods or services made with cards of customers located domestically are processed and settled by those firms, instead of using the services of an acquirer in the country where those merchants are located. None of these business models is contemplated in the current regulatory framework.

Defining final limits to the interchange rates is a significant step forward to grant more certainty for the operation of the card system. Pockets of uncertainty remain, however, with respect to the fees of the main acquirer, which has repercussions on the rest of the system and poses challenges for the universal acceptance of prepaid card. Different BCCh reports have emphasized the importance of certainty regarding the fees applied in the payment card market, so every participant can make decisions that contribute to the significant development that this market has seen since the adoption of the Four-Party Model in 2017. More recently, the establishment of definitive limits on the interchange rates is without a doubt a very important step in that direction (see Box III.1). Moreover, Transbank made a formal request to the Tribunal de Defensa de la Libre Competencia (TDLC), competition and market authority, an authorization to implement a new fee system for merchants. In as much as the Tribunal dictates, either authorizing this system or a different one that can effectively be implemented in reasonable time and factors in the new reality of this market, it would clear one of the main sources of uncertainty, which has an impact on different agents of the system. Another long-standing challenge is resolving the problem of universal acceptance of prepaid cards, as described in Chapter I.

Some of these challenges can be or are being addressed by financial regulators. First, the BCCh's regulatory framework is being adjusted to accommodate the innovative business models described above. Thus, the Bank published in consultation adjustments to its rules on the Issuance and Operation of Payment Cards in order to regulate the on-us models recognized by the Fintech Law, especially to ensure that this does not foster the fragmentation of the payments market^{14/}. Additionally, the BCCh will regulate the terms under which the so-called cross-border acquiring may be carried out, contributing to greater legal certainty and taking safeguards to ensure that its execution does not jeopardize the normal operation of the payment system^{15/}.

However, financial regulators do not have the attributions to resolve every challenge facing this market. Quite obviously, an important part of these challenges is related to fees and competition conditions, for which there is a specialized institutional framework with powers to address these issues, and where financial regulators can provide background information and present their opinion in view of the respective mandates. As for the lack of universal acceptance of prepaid cards, financial regulators do

^{14/} This is by virtue of an express attribution granted it through the Fintech Law.

^{15/} The regulations in consultation on said amendments are open until September 22 and can be reviewed [here](#).



not have the power to request merchants to accept specific payment cards or the commercial conditions associated with them, so solving this problem requires an effort by the industry—in addition to those made in recent years— so that merchants expressly accept these cards that did not exist in the market when they were affiliated to the largest acquiring network, given the growing number of cardholders interested in using this means of payment.

The retail payment system is working well and is showing significant progress in different dimensions. It is important that this trend be maintained over time, which requires the coordinated efforts of the authorities and the private sector. Several indicators show the significant progress of the retail payment system in different dimensions, such as access, coverage and usage.

However, challenges remain, such as non-acceptance of some cards, difficulties in the distribution of low-denomination banknotes, or new business models not initially contemplated in the regulatory framework, as mentioned above. All this creates frictions that affect not only the financial institutions and businesses directly involved but also, more importantly, affect the users, who may see their payment options curtailed. The solution to these frictions is not always straightforward or simple; it involves having a comprehensive vision of the functioning of the payments ecosystem, coordination between authorities and also big efforts by the different players in the system. For its part, the BCCh continuously monitors these challenges and is committed to take every possible action to resolve them, in accordance with its mandate and legal attributions, and in coordination with the other financial authorities.

EXPLORING CENTRAL BANK DIGITAL CURRENCIES (CBDC) AND IMPLEMENTATION OF FINTECH LAWS

The BCCh continues with its process of analysis and exploration of the benefits and costs associated with the possibility of issuing a CBDC. Following the publication of its first preliminary assessment report in May 2022, the BCCh carried out various activities to gather experience and views from other central banks and multilateral organizations. In addition, it obtained opinions from the public, financial and payments industry participants, as well as from local and international experts and academics. The results of this exploration and steps ahead will be presented in a second report.

As for privately issued digital assets, the Fintech Law incorporates them into the regulatory perimeter in some dimensions. First, it includes a definition for crypto-assets or virtual financial assets as financial instruments, and entities that perform activities or provide services related to virtual financial assets, such as brokerage, custody and investment advisory services, will be regulated and supervised by the CMF^{16/}. Also, the Fintech Law authorizes the BCCh to use its powers in terms of payments for digital assets equivalent to electronic currency (stablecoins).

Currently, the BCCh is following up on the recommendations of international organizations and the experience of some jurisdictions that have dealt with this matter in order to define its approach when using its powers to regulate stablecoins. The Fintech Law incorporates the recognition of stablecoins as a possible means of payment issued by entities supervised by the CMF, and it is these stablecoins that the BCCh could legally regulate. In other words, the use of the most important international stablecoins, such as Tether or USD Coin, would not be regulated in the country unless the respective issuer is incorporated in Chile. As it is not evident that this situation will occur in the short term, although it could be that some issuer of means of payment already installed in the country

^{16/} Crypto-assets or virtual financial assets are a digital representation of units of value, goods or services—other than cash— whether in local or foreign currency, that can be transferred, stored or exchanged digitally.



decides to issue this type of assets, developing a new specific regulatory framework for these assets is not a priority in the short term for the BCCh. Notwithstanding the above, the BCCh will continue to review comparative experience and hold meetings with private sector agents that may have an interest in this matter.

ADVANCES IN THE DEVELOPMENT OF FINANCIAL MARKET INFRASTRUCTURES

The development of FMIs in Chile and the implementation of international regulatory standards by local authorities over the last 10 years have allowed Chile to be internationally recognized for the soundness of its infrastructures. Following international recommendations and assessments, in 2016 the BCCh and the Ministry of Finance requested an assessment on the compliance of local infrastructures and authorities with the Principles applicable to Financial Market Infrastructures (PFMIs). Based on the recommendations of this report, some initiatives and requirements were made, such as the disclosure of the degree of compliance or observance of the PFMI of the various infrastructures by the CMF and the BCCh; the creation of the first Derivative Trade Repository in Chile (SIID-TR); the reporting of information for the permanent monitoring of the progress status in the development of the infrastructures and the application of risk weightings equivalent to the local ones for foreign CCPs supervised by recognized jurisdictions, by the CMF, among others. The progress achieved has allowed all existing FMIs in Chile to be awarded the highest rating in the international monitoring of PFMI implementation and Authorities' Responsibilities carried out by CPMI/IOSCO^{17/}.

Thanks to these advancements, the regulatory framework applicable to the clearing and settlement of derivative instruments in Chile was recognized by the European Commission as a regulatory framework equivalent to the European one in June 2022. This provides the possibility to local Chilean CCPs to be nominated as a Qualified Central Counterparty (QCCP) by the European Securities and Markets Authority (ESMA). This qualification induces greater incentives for financial institutions to participate in a QCCP, especially for EU banks and their subsidiaries due to, for example, the application of credit risk weightings to exposed assets consistent with European CCPs. In June 2022, ComDer became the first CCP in Chile to be recognized with this international rating (see Chapter II).

Nevertheless, although Chile has an active network of FMIs operating in the different markets, it is possible to identify areas of pending development, either to improve their current operations or to align them with new international trends and developments. From the follow-up presented in Chapter II herein, it can be observed that there is still a significant percentage of the activity transacted in the different markets that is cleared and settled bilaterally, so there is still a potential space for greater use of FMIs. This is especially noticeable in the case of CCLV, mainly for the fixed-income and financial intermediation market, and for ComDer in the case of interbank foreign exchange derivatives. In addition, the clearing of foreign exchange spot transactions in the local market is carried out bilaterally with settlement risk, a situation that will be mitigated with the implementation of the Clearing House for Large-Value Payments in Foreign Currency (CCAV FX), discussed in Box II.1 and in the following section of this chapter. In the same vein, the clearing of retail payments, currently performed bilaterally and without a clearing house regulatory framework, will be performed in the CPBVs, as described in the first section of this chapter.

^{17/} The Committee on Payments and Market Infrastructures (CPMI) and the International Organization of Securities Commissions (IOSCO) have been conducting an annual Level 1 monitoring evaluation since 2013, where jurisdictions report on their progress regarding the adoption of legislation, regulations and policies that enable the implementation of the 24 PFMI, as well as the responsibilities of the authorities, within the regulatory framework that applies to Financial Market Infrastructures. Since 2021, [Chile presents the highest rating for each one of its Infrastructures.](#)



In those aspects where gaps exist, the BCCh, in coordination with the CMF, will continue to promote that most of the transactions in each market are processed through their respective FMI, in line with international recommendations.

Regarding the CPBV regulation, this provision explicitly considers its revision in the future, in light of the results obtained in a first stage. In this context, the BCCh plans in a second phase to evaluate its effects and adjust the regulation as necessary, with the objective of making it more efficient, suited to each clearing process and including other means of payment, depending on the performance and behavior of these clearing houses. The CPBV regulation, while complying with minimum standards, is flexible in its design of clearing schemes, with the purpose of recognizing the private's experience in this market. Although some time is required to see the results of the regulation, there are aspects to monitor and consider in the second stage of this regulation. One of them is the mandatory direct settlement of these clearing houses in the Sistema LBTR, the international standard for systemic clearing houses, with the resulting benefits in risk mitigation, transparency and traceability of payments. Another aspect to monitor will be the need to establish specific requirements to promote adequate interoperability among the different CPBVs, based on objective, public and non-discriminatory conditions and standards.

Finally, the need to include in the CPBV regulation the clearing processes of other retail means of payment, such as checks and ATM withdrawals, will be evaluated. Although these means are currently cleared by respective well performing clearing houses, they operate under a regulatory framework that does not follow international standards and that are present in the CPBV regulation^{18/}. This is particularly important in the case of the Check Clearinghouse, because the implementation of a more robust scheme would allow progress in key aspects for its modernization, such as an image-based clearing according to international practices, or the introduction of the digital check.

The Bill to Strengthen the Resilience of the Financial System and its Infrastructures (Resilience Bill) has the potential to foster and amplify the interaction of the BCCh payments system with new infrastructures and non-bank entities, thus promoting a more efficient and competitive market. The Resilience Bill considers the granting of current and settlement accounts in the Sistema LBTR to various non-bank entities and Financial Market Infrastructures, such as payment systems, and to non-bank financial institutions participating in the CPBV (i.e. nonbank deposit taking institutions, card acquirers, credit unions), considering the recommendation of international organizations and balancing international practice with the characteristics of the local financial market (Box III.2).

The approval of this Bill would contribute to the process of adapting the capacity of the Sistema LBTR to the challenges the future may bring. New participants entering the System will imply the definition and implementation of regulatory and operational developments, currently being evaluated by the BCCh. These advances also complement the development of the project to strengthen the financial infrastructure for fast payments, by allowing the inclusion of CPBV and their participants, thus permitting a safer and more efficient settlement of payments.

^{18/} Chapter II above examines the evolution of Checks and ATMs Clearinghouses



DEVELOPMENTS IN CROSS-BORDER PAYMENT SYSTEMS

In recent years, the BCCh has made regulatory advances and taken steps to promote greater depth, safety and resilience in the foreign exchange market, both local and cross-border. One of the BCCh's most important regulatory amendments in this area, which is part of an agenda for the internationalization of the peso, was to allow agents to carry out financial operations in pesos, for both off-shore and cross-border transactions (2021). This would boost competition and better price formation in the local foreign exchange market, foster greater demand for financial services from abroad to local agents and increase the availability of liquidity in foreign currency. In order to limit the risks inherent to foreign exchange transactions, an agenda has been promoted to strengthen FMI and promote their use, including the legal reform to recognize foreign payment systems and make their transactions on a firm and irrevocable basis (2016), a necessary condition for including the Chilean peso in the Continuous Linked Settlement (CLS) system. Also, the creation of new FMIs as payment systems that mitigate settlement risk and provide a more efficient use of foreign currency: Sistema LBTR USD and the Clearing House for Large-Value Payments in Foreign Currency (CCAV FX).

To enable the use of the peso by non-resident agents, correspondent accounts must be made available by the local banking sector. Despite the issuance of the regulatory amendment in 2021, to date local banks have not yet provided a correspondent account service in pesos to non-resident financial institutions, due to the lack for other complementary regulatory adjustments^{19/}. In this context, certainty regarding the framework of tax obligations for the operations of such accounts, is of utmost importance.

The Resilience Bill incorporates amendments to the tax legislation that contribute to the objective of facilitating the internationalization of the peso, complementing the BCCh's work in this area over the past few years. Due to the existing gaps in terms of tax matters mentioned above, the Bill defines the procedures by which the Chilean tax authority must register non-resident individuals, through a simplified procedure for obtaining the Taxpayer ID (RUT), and introduces powers for the tax authority to require information on non-resident agents holding correspondent accounts in pesos and their performed operations, which must be provided by local banks that offer such accounts.

The inclusion of the Chilean peso as an eligible currency in the CLS System would give the market a mechanism to mitigate settlement risk, especially for cross-border transactions. For the peso to be eligible for the CLS system, first it requires Chile being accepted as a jurisdiction with a minimum standard and also the possibility of grant CLS access to the Sistema LBTR as a participant, two aspects that do not require additional internal developments. Furthermore, it requires the existence of a peso correspondent market, which hinges on the Resilience Bill and the local banking sector. The entry of the peso into the CLS would mean being part of one of the most widely used cross-border currency payment systems (foreign exchange or FX) in the world and where the currencies of the most important developed economies participate, due to its impact on the mitigation of the settlement risk implicit in such transactions^{20/}.

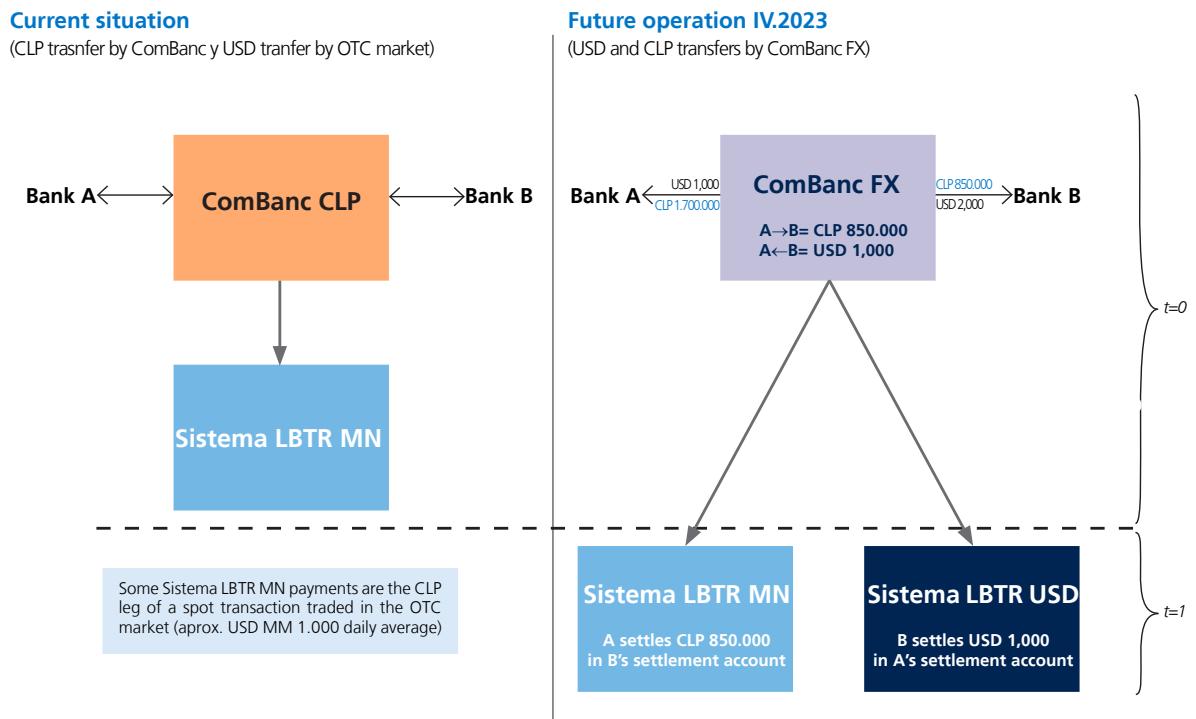
^{19/} The BCCh modified its Compendium of International Exchange Regulations (CNCI in Spanish) in January 2021 to allow non-residents to perform transactions in pesos, i.e. hold accounts, borrow and grant credit. In turn, the CMF in March 2021 modified the regulation of current accounts to make it easier for non-residents —not domiciled in Chile— to open accounts in our country.

^{20/} As mentioned in Chapter II herein, to mitigate settlement risk the internationally recommended standard is the use of payment versus payment (PvP) systems, as is the case of the CLS system, which ensures that a counterparty simultaneously receives and pays the currency it buys and sells, respectively. For more information on CLS and the work of the BCCh, see Box VI.1 in our Financial Stability Report for the second half of 2019.



The entry into operation of the first Clearing House for Large-Value Payments in Foreign Currency (CCAV FX), operated by the private entity ComBanc, is a milestone in the mitigation of the risks present in the local FX market. The CCAV FX will manage settlement risk through a system of collaterals and payment versus payment (PvP) coordination mechanisms, an internationally promoted standard for the proper settlement of foreign exchange transactions (Diagram III.4). In this regard, in May of this year, the BCCh approved ComBanc's Operating Regulations as administrator of the first CCAV FX in Chile, in accordance with the regulatory guidelines, and nowadays it is obtaining an operation authorization from the CMF.

DIAGRAM III.4 COMPARED MARKET PROCESSING SPOT USD/CLP MARKET



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

Source: Central Bank of Chile.

In terms of harmonization of messaging to facilitate cross-border payments, work continues across jurisdictions to implement the new ISO 20022 standard, promoted by SWIFT^{21/}. Different countries, including Chile, are implementing this new standard mainly in the area of local messaging in their respective payment systems, FMIs, and their participants, with their consequent associated benefits (Box III.3). Nonetheless, international organizations such as the Committee on Payments and Market Infrastructures (CPMI), visualize that the greatest potential of the standard applies to cross-border payments, allowing for faster, cheaper, more accessible and more transparent payments^{22/}.

^{21/} Society for Worldwide Interbank Financial Telecommunication. For more information about SWIFT, see Box II.2 in PSR 2022. (ISiP, 2022)

^{22/} "ISO 2022 harmonisation requirements for enhancing cross-border payments" (BIS, 2023).



BOX III.1

Setting Final Limits to card's Interexchange fees

Interchange fees (IF) are a key price for the functioning and development of the payment card market. IF remunerate card issuers and corresponds to a fraction of the fees that acquirers charge to the stores. Thus, high IF may encourage card issuance, but discourage card acquiring and acceptance by merchants; and the opposite may occur with low IF^{1/}. Thus, it follows that IF need to be able to balance these effects properly.

Last April saw the publication in the Official Gazette of the interchange fees limits that will apply in the next few years, which come with a significant reduction with respect to the existing ones. The Committee for the Fixation of Interchange Fee Limits ("Committee" or CTDI in Spanish), a technical and autonomous body created by Law No. 21.365, established a schedule to reduce the current IF limits gradually, to allow a gradual adjustment of market players to a system with regulated fees^{2/}. Thus, after an initial reduction in October 2023, IF will reach levels of 0.35% for debit cards and 0.8% for credit and prepaid cards in October 2024 (Table III.1). The transition to the definitive IF that will be in force as of October 2024 includes some additional restrictions, which are available on the Committee's website, together with the methodology used to calculate the limits^{3/}.

TABLE III.1 LIMITS TO INTERCHANGE FEES
(percent)

Type of card	Current IF	Stage 1 (oct. 23)	Stage 2 (oct. 24)
Debit	0,60	0,50	0,35
Credit	1,48	1,14	0,80
Prepaid	1,04	0,94	0,80

Source: Central Bank of Chile based on CTDI data.

It is difficult to determine exactly what will be the effects of the new limits on interchange fees for each participant in the payment card market. Although several countries have set limits on IF, each has its own idiosyncratic situations and therefore the effects in those countries will not necessarily be the same or of the same magnitude as those that should occur in Chile. Therefore, the impact study that the Committee undertook at the time of setting the definitive limits is of utmost importance. The following is a qualitative outline of the possible effects of this measure for each type of participant in the Four-Party Model:

- **The effect on acquirers will depend on the degree of pass-through to merchants.** A full pass-through of lower IF to merchants should have no material effect on acquirers, because IF are ultimately a revenue stream for card issuers, not for acquirers. However, if acquirers were

^{1/} For a more detailed explanation, see Box I.1 in Payment Systems Report (PSR, 2022), and Box IV.1 in Financial Stability Report of second half 2022 (FSR, 2022).

^{2/} Existent limits refer to the IF limits established transitorily by the Committee in February 2022.

^{3/} Website [CTDI](#).



to keep their prices to merchants unchanged, the lower IF would in practice increase their acquiring margin^{4/}.

- **The degree of pass-through of lower IF to merchants has an impact on the expansion of merchant networks.** IF corresponds to one of the costs that make up the charges that acquirers make to merchants for each card transaction they process (the others are branding costs and the acquirer margin). Assuming all other costs remain unchanged, all acquirers should be able to offer lower fees to merchants. To the extent that this actually happens, merchants that currently accept payment cards could face lower costs and pass them on to consumers, while those that do not accept cards, precisely because of the costs involved, could begin to accept them, which would ultimately allow them to expand their acquiring networks^{5/}.
- **Card issuers will receive less revenue from the use of their cards.** By construction, a direct effect of lower IF is a reduction in issuer's revenues for a given level of transactions. Of course, how to deal with these lower revenues will depend on each issuer, but evidence from other jurisdictions has shown that they are likely to be compensated through increases in fees or prices of other financial products^{6/}. On the other hand, the change in relative prices may lead to a change in the composition of the products that financial institutions offer to their customers, since the revenues associated with prepaid cards will be greater than those associated with debit cards, and it cannot be ruled out that the use of electronic funds transfers as a means of payment will be boosted, at least for transactions in which this service generates higher revenues than IF from debit cards.
- **Cardholders may have fewer benefits associated with the use of their cards.** Loyalty or rewards programs that provide card users with various benefits such as points to be used to purchase airline tickets or other products are now commonplace. Since part of these benefits are financed by IF received by issuers, it is possible that in the future these benefits will diminish along with the IF.

Beyond the specific effects on the different participants of this market, the Committee's ruling provides clarity on one of the fundamental variables for this market to operate. The magnitude of the effects on the different agents - and their responses to the new scenario - will have to be analyzed in detail by the Committee once the final fees are in place. However, knowing the value that this key price will have for the market's operation, and the fact that its implementation will be gradual, allows market agents to make better-informed decisions.

^{4/} Through a survey of retailers, [Wang, Schwartz, and Mitchell \(2014\)](#) find that capping the U.S. debit card interchange fee, known as the Durbin Amendment, had limited and uneven effects on debit card acceptance costs for merchants. Two-thirds of them reported no change; one-quarter reported an increase, especially for low amounts traded; and less than 10% reported a decrease in costs. The impact is also uneven across sectors.

^{5/} [Chang, Evans y Garcia-Swartz \(2005\)](#) find that in Australia, IF fixing resulted in a very small reduction in costs for merchants, and that this did not translate into lower prices for consumers.

^{6/} [Mukharlyamov y Sarin \(2019\)](#), find that in the United States banks lowered their interchange fee income as a consequence of the Durbin Amendment, but the reduction was almost entirely offset by an increase in fees or commissions on other products such as current accounts. Other authors find relatively similar results in the U.S. and in other jurisdictions.



BOX III.2

Extension of Central Bank's Payment Systems Access and Liquidity Facilities to Non-banking Entities

Currently, the settlement of payments through current and settlement accounts at the Central Bank of Chile (BCCh), as well as the granting of deposit or liquidity facilities (intraday liquidity, standing liquidity) and emergency liquidity by the BCCh, is legally restricted to banking institutions only^{1/}. This is consistent with international practices, as banks were the only entities traditionally performing the role of financial intermediation and providing payment services to the rest of the financial system. The settlement of payments at the Central Bank mitigates the credit risk between institutions, since it is carried out at the place where the money is issued (central bank money or reserves) in a gross manner and in real time, making it a standard worth recommending.

However, with the evolution of financial markets the growth of depository institutions such as larger Credit Unions, that can achieve systemic relevance and provide the same services as a bank, or the emergence of Financial Market Infrastructures (FMIs) that concentrate systemic risk and process sensitive operations of the rest of the financial system, such as payment systems and central counterparties, it became necessary to assess the extension of the mentioned central banking services to this type of entities^{2/}.

This has also been identified in the context of different international evaluations which, together with the BCCh's own assessment based on criteria such as financial stability, competition and neutrality of access, have deemed it convenient to extend the scope of the BCCh's provision of financial services to other financial institutions beyond banks^{3/}.

The Bill to Strengthen the Resilience of the Financial System and its Infrastructures (Resilience Bill), considers legal amendments necessary to improve the operation of financial institutions that are key to the system, as well as the level of responsiveness to financial stress situations by the financial system and authorities^{4/}. In particular, with respect to the dimension of initiatives that extend access to BCCh services to non-banking entities, adjustments are incorporated to the Constitutional Organic Law of the BCCh, as well as to other complementary laws, which would mainly allow for the following (Table III.2):

- i. **Extend the provision of financial services currently available to banks, i.e. access to current and settlement accounts, provision of facilities and emergency liquidity assistance (ELA), to systemically important credit unions that meet minimum size and equivalent prudential regulation.**

In particular, the Resilience Bill contemplates that credit unions meeting certain prudential and size requirements that attain systemic relevance may request access to services provided

^{1/} Accordingly, banks are the only entities that may open a Participant account in the Sistema LBTR operated by the BCCh

^{2/} Central Counterparties currently have access to settlement accounts at the BCCh granted by Law No. 20,345.

^{3/} "Report on the Observance of Standards and Codes (ROSC)" Chile (2016), conducted by the International Monetary Fund (IMF) jointly with the World Bank; "Technical Assistance Report on Central Bank of Chile Services to Non-Banking Financial Institutions" (TA on Access to Central Bank Services) of 2020; Financial System Assessment Program (FSAP) of 2021, of the IMF, which identify the main gaps with respect to the REPO market.



by the BCCh equivalent to those of banks, given that they fulfill an equivalent role in financial intermediation, and are entities that may take deposits from the public, just as banks do. This proposal goes hand in hand with other amendments proposed in the Resilience Bill aimed at strengthening the regulatory and supervisory framework of such entities, in terms prudential requirements, risk management and operational standards, which would be a necessary condition for access to BCCh infrastructure in similar terms to banks^{4/}.

ii. Extend the current account and settlement account facility to infrastructures such as Clearing Houses for Large-Value Payments (CCAVs) and Retail Payments Clearing Houses (CPBV), Central Securities Depository (CSDs) and to CPBV participants to settle their net positions in central bank money.

In the case of CCAVs, they are considered systemic payment systems since they process fund transfers and payments of large amounts and importance to the economy among participating banks. Additionally, equivalent access to settlement accounts will be granted to CPBVs and their participants (which include non-bank card issuers, acquirers, and Credit Unions) in order to improve the efficiency and security of retail payments' settlement process, in addition to allowing the promotion of this type of clearing house in the payment system under a defined regulatory framework with the corresponding benefits in efficiency and risk management, and also evaluating further innovations such as fast payments.

Finally, access to current and settlement accounts at the BCCh would be granted to central securities depositories for their important role in promoting the normal functioning of payments by coordinating and providing the necessary information for the financial settlement of the transactions carried out. Additionally, this would allow us to continue promoting the application of the Delivery versus Payment (DvP) standard in the market.

iii. Finally, the power to provide both deposit facilities and emergency liquidity assistance is extended to Central Counterparties (CCPs).

By granting these services, the existing conditions for local CCPs would be aligned with the situation of CCPs in other jurisdictions, where they are granted with this type of central banking financial services because of their systemic importance.

The BCCh constantly monitors the adoption of international standards, principles, and best practices for the development of more robust and resilient markets, following the recommendations of international organizations in the matter. It is believed that implementing these changes would provide financial markets with the appropriate toolkit and standards for risk mitigation and give the authorities additional instruments to better deal with episodes of financial disruption. Additionally, it will increase the interoperability of the Sistema LBTR with new infrastructures and non-bank entities of systemic importance, fostering a more competitive market and favoring innovation in the payments ecosystem.

^{4/} In the current discussion process in Congress, as of the close of this Report, the items referring to the credit unions have been rejected.



TABLE III.2 BILL TO STRENGTHEN THE RESILIENCE OF THE FINANCIAL SYSTEM AND ITS INFRASTRUCTURES (1)

	Current Account/ Settlement Account	Standing Deposit Facility	Intraday Liquidity Facility/Standing Liquidity Facility	Emergency Liquidity Assistance
Clearing Houses for Large-Value Payments (CCAV) and Retail Payments (CPBV)	✓			
Participants in CPBVs (banking entities, card issuers and acquirers, credit unions)	✓			
Central Securities Depositories	✓			
Central Counterparties (CCPs)	✓ (2)	✓		✓
Large Credit Unions	✓	✓	✓	✓

(1) Based on the message text Bill to Strengthen the Resilience of the Financial System sent to Congress for processing

(2) At present, the CCPs already have access to this service.

Source: Central Bank of Chile.



BOX III.3

Adoption of New ISO20022 standard at SWIFT and Implications for the Chilean Payment System

In order to contribute to the further integration and digitization of the payments industry in line with its rapid evolution, SWIFT is promoting the migration to a new international messaging standard known as ISO 20022, which creates a common global language that allows payment counterparties to communicate in real time, in a more automated and effective way^{1/}. It should be recalled that SWIFT is the largest global communication network, which allows the exchange of messaging for financial transactions (such as the purchase and sale of financial assets, the transfer of funds and exchange operations, among others) and is used locally in the Sistema LBTR managed by the BCCh, but also by commercial banks and other financial market entities and infrastructures.

Given that this is a major change, SWIFT established a convergence period for all entities using its network that includes three stages. The first stage starts in March of this year and allows to receive transactions using the new type of messaging; the second stage allows the voluntary sending of payment messages adopting the new standard; and by the third stage, which starts in November 2025, the receipt and sending using ISO 20022 will be mandatory (Diagram III.5).

DIAGRAM III.3 SO 20022 MESSAGING CONVERGENCE PERIOD
(according to SWIFT implementation timetable)



Source: Central Bank of Chile.

SWIFT defined two work streams to facilitate the adoption of the standard: i) adoption for Large-Value Payments Systems (LVPS+) and ii) adoption for Cross-border Payments & Reporting (CBPR+). Therefore, if an entity or infrastructure uses the SWIFT network for both large value payments and cross-border payments, it must implement this new standard in both systems. In Chile this change affects all financial infrastructures, including those operated by the BCCh, and all commercial banks, and its change is mandatory.

Expected benefits of this initiative

The new standard will bring better information and efficiency in the processing of payments in the economy. With the introduction of new data components, it will be possible to transmit information on payment instructions of higher quality and quantity compared to existing ISO versions. The current limitation in the amount of data translates into the number of fields and the maximum allowed

^{1/} SWIFT: Society for Worldwide Interbank Financial Telecommunication, for details, see [PSR \(2022\)](#).



length per message row, which causes manual processing of some payment messages as they require review by a person to verify compliance with the requirements. With the new standard, financial institutions will be supported in the task of guaranteeing secure and automatic payment processing in compliance with the required standards and also the requirements of each institution. This generates greater interoperability, efficiency in both local and cross-border payments and potential savings in processing costs, thanks to its contribution to the automation of messaging.

On the other hand, this standard will contribute to risk mitigation and the detection of eventual bad practices because more complete information on payments will be available, leading to more effective control and compliance processes. Correspondent banks or custodians will be able to offer an improved service to their customers, with the provision of enriched payment data in the bank statements allowing for the possibility of digital reconciliation (straight-through processing or STP). This will also contribute to more robust controls, for example, with respect to fraud prevention, since this standard adds new data fields in this area^{2/}. This increases the transparency of payments and contributes to the incorporation of automated analysis for the detection of fraud, money laundering or drug trafficking.

Main challenges

The adoption of ISO 20022 has a high impact on all the transactional systems of both the Central Bank of Chile and the financial institutions in the local and international market. The implementation of this standard requires adapting the payment message generation and processing module, whose migration process is complex and involves significant resources. Furthermore, this implementation must be coordinated with correspondent and custodian banks, in the case of cross-border payments, and with the entities that participate in the Chilean financial market, in the case of Large-Value Payment Systems. This is so because during the convergence period it is possible that data truncation may occur if all the systems involved are not modified, which entails a risk for all the agents and complications for the final beneficiary^{3/}.

Having this standard in place is very important for the financial market, due to its financial and operational effects. If a financial institution that uses SWIFT messages as a payment messaging service does not adopt this new standard or does not comply with the established deadlines, it may have adverse effects both at the financial level, by generating difficulties in the transfer of funds within or outside the country, and at the operational risk level, since payments would be made not automatically, but manually. In addition, it may cause failures in the bank reconciliation process, preventing control activities, since once communications at the international and national levels

^{3/} The new enhanced fraud data fields for messaging are "Purpose Code," "Account Holder Age," "Account Holding," "Account Turnover," and "Account Type. Source:" The payments association: "[ISO 20022: What are the real benefits of its adoption?](#)" (February 2023).

^{4/} Truncation means that if a bank sends a payment message under the new format and its counterparty has not yet adopted the standard in its system, the message will not be processed, or vice versa.



are stopped, a high cost would be incurred because it would not be possible to process transactions correctly along the payment chain.

The BCCh is actively working on the incorporation of this standard, which will start operating within the required timeframe. It is important to stress the importance for financial institutions to plan and carry out the necessary activities required to adapt their systems within the indicated timeframe and, in this way, guarantee that no inconveniences are generated for clients and final beneficiaries. To achieve this objective, the BCCh is working on adapting all its systems in coordination with all the financial institutions in the local market through the publication of circulars, informing the main activities and associated deadlines.



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