Financial Stability Report

Second Half 2018

BANCO CENTRAL
DE LA REPÚBLICA ARGENTINA

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Foreword

As stated in its Charter, the Central Bank of the Republic of Argentina (BCRA) "has as its purpose the promotion of monetary stability, financial stability, employment and economic development with social equity, to the extent of its powers and within the framework of the policies established by the National Government." In general terms, financial stability exists when the financial system can provide services for funds intermediation, hedging and payments in an adequate manner, efficiently and continuously, even in stress situations.

For the financial system to contribute to economic development with social equity it is essential for there to be financial stability, as well as for the system to be deep and inclusive. These objectives guide the policies implemented by the Central Bank. If families are to entrust their funds to the financial system, it must ensure it protects the value of their savings by providing a positive real return, at the same time as the intermediation process remains sound and macroeconomic risks are adequately managed. A deep financial system allows producers and employers to obtain credit to invest, produce and hire, and families to purchase their home, a car, or finance other projects. By doing so, the financial system operates as a mechanism for promoting the welfare of economic agents and encouraging equity, providing opportunities for those with sound projects who lack the means to undertake them.

To promote the deepening of the financial system and protect its stability, the Central Bank exercises its powers as a regulator, supervisor and liquidity provider of last resort. In addition, it monitors the main developments taking place in the financial and payment systems, assessing potential risks, vulnerability factors and the strength of the sector in the face of potentially adverse scenarios.

In this context, the Financial Stability Report (FSR) is a six-monthly publication in which the Central Bank informs on its view of the state of the financial system, the initiatives adopted for its development, and assesses its stability. In the FSR the Central Bank places special emphasis on the identification and analysis of potential systemic risks and explanations of the actions taken to prevent or mitigate them. This publication is intended to assist agents in the economy to take decisions on the basis of more and better information, facilitating the appropriate management of their activity. The FSR is designed to be an instrument to stimulate debate on matters of financial stability, and in particular, on the Central Bank's actions in that field.

The next issue of the FSR will be published in May 2019.

Autonomous City of Buenos Aires, November 14, 2018

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Executive Summary

Since the publication of the previous Financial Stability Report (IEF) in May 2018, a more adverse context than forecasted in the baseline scenario finally held true. The main macroeconomic variables were affected by a challenging external context and an increasing perception of risk with respect to the vulnerabilities of the Argentine economy. As a result, the financial intermediation process has decelerated since the second quarter and the domestic capital markets have evidenced a lesser momentum. Despite the materialization of the risks faced, the financial system has shown clear signs of strength, kept relatively high levels of liquidity and solvency and maintained its capacity to provide its intrinsic functions of intermediation and provision of means of payment to the economy. This performance was facilitated by the prudential regulatory framework implemented by the Central Bank of Argentina (BCRA), which combines international standards on the topic with the lessons learnt from previous financial crises.

The tensions affecting the exchange market since late August have been accompanied by a strong acceleration of inflation and a significant change of prospects in terms of the domestic economic performance, which entered a recessive phase of the cycle. To lessen these financial tensions, the BCRA put into practice new policy measures with interventions in the exchange market that were supplemented by additional increases of the benchmark interest rates, rises in the minimum reserve requirements for financial institutions and a gradual reduction of the stock of LEBACs, within a context where the BCRA has ceased to make transfers to the Treasury. Added to these measures, there was an acceleration of the fiscal consolidation process together with a renegotiation of the agreement with the IMF executed in June, which allowed for increasing the fiscal resources available and for clearing up the doubts in place in the markets about the 2018-2019 financial program. Due to the increasing uncertainty during late August and its impact during September, the inflation targeting monetary policy scheme was replaced with a regime based on the control of monetary aggregates in early October. The BCRA committed not to increase the monetary basis until June 2019 which, in real terms, entails a reduction. Moreover, the BCRA defined intervention and non-intervention zones in the exchange market. This new system adequately combines the benefits of exchange rate flexibility to face adverse shocks with the possibility of limiting disruptive fluctuations of the exchange rate. Within this framework, the exchange market is calmer since October.

This combination of policies is expected to reduce uncertainty, recover the anchor on inflation expectations and resume the downward path in the change rate of headline inflation. Even though the starting point comprises high nominal interest rates, affecting the financial intermediation process, they are expected to go down as soon as a reduction is observed in inflation expectations. A more competitive real exchange rate will allow boosting the tradable sectors and will contribute to a reversal of the current account imbalance, together with the correction of the fiscal deficit. The economic activity is expected to start recovering gradually as from 2019 on a more sustainable basis in order to resume the expansionary phase of the financial cycle.

Considering the estimated baseline scenario after the implementation of the new policy measures and the soundness observed so far in the financial system, there should be extremely adverse deviations for the financial stability conditions to be significantly affected. With a relatively limited financial system, based on traditional (i.e. non-complex) intermediation, a limited maturity transformation, high liquidity and capital coverages and a regulatory framework in line with the

standards in place at global level, it is less likely that the risks taken may be subject to an additional amplified materialization. Even though, in the next few months, quality evolution of the banks' lending portfolio will continue to be partially conditioned by the performance of the economic activity and of the interest rates, the relative low levels of non-performance, both against our own historical record and those of other countries, should be highlighted. Particularly, mortgage loans, one of the segments with the highest growth pace in recent years (most of which are denominated in UVA) keep very low non-performance ratios. The reduced leverage of the private sector, the moderate exposure of banks to it and the high coverage levels with provisions and excess regulatory capital are signals of strength vis-à-vis a context of a potentially higher credit risk materialization. In this sense, the results of the sensitivity analysis for credit risk still show limited impacts at aggregate level –remaining unchanged against the results obtained in IEF previous editions– with an important level of resilience in the sector to hypothetically more adverse scenarios in terms of this type of risk (main balance sheet exposure).

The financial system shows significant levels of capitalization and its profitability has not experienced any sudden changes. Banks continued exhibiting a high coverage against liquidity risk in a context where deposits kept their relatively positive performance considering the adverse macroeconomic context where the sector operated, while bank lending lost momentum if compared to previous months. Banks' long position in foreign currency is relatively limited, with low dollarization in their balance sheets and with foreign currency exposures to sectors with income related to such currency, following the prudential regulation in force. The BCRA will continue monitoring the current sources of risk and the evolution of the financial system in the present context and will use the macroprudential policy instruments available, if required.

1. *Context*

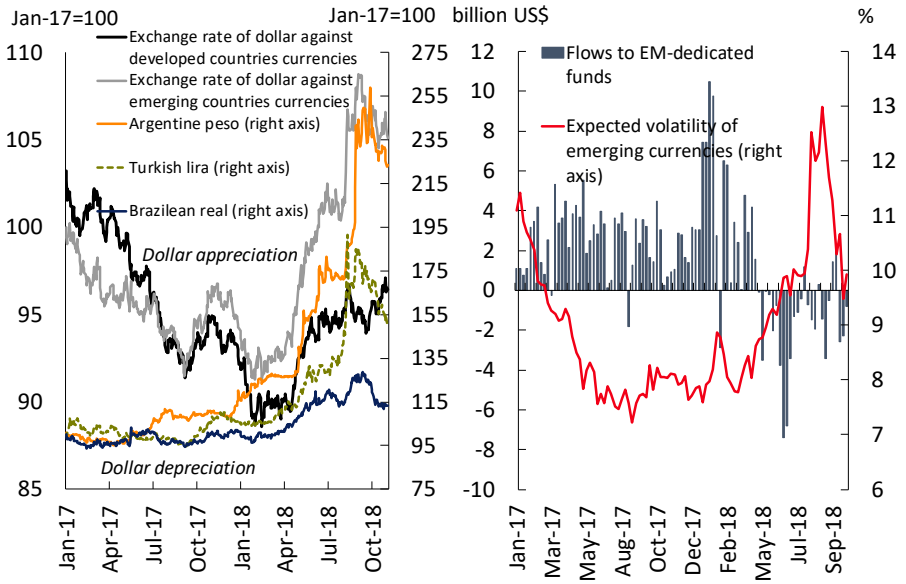
A challenging external context is still affecting emerging economies, in general, and Argentina, in particular, while a greater discrimination was perceived among investors, with an increased aversion towards countries with more vulnerable macroeconomic fundamentals, a situation that impacts especially on the exchange rate and the sovereign debt perceived risk. Vis-á-vis the current context, which impacts on financial markets and on the activity level (potentially affecting the banking sector as well), the Ministry of Economy and the BCRA have implemented new measures in recent months. For the purpose of reducing uncertainty, the fiscal convergence accelerated, a new agreement was negotiated with the IMF (whereby there was an increase in the fiscal resources available) and a new monetary and exchange regime was implemented. On the basis of these measures, a more stable context became noticeable as from October in the exchange market, while inflation is expected to go down –once the effect of the recent events dissipates–, and the economic activity is expected to start to recover in 2019, led by the tradable goods sector. So far, the financial system has shown significant signs of soundness, keeping an intermediation process with a remarkable resilience in the face of the adverse context where the sector operates (see Chapter 3). The evolution of the economic activity will continue to be monitored, in a context of high interest rates and lower financing for the private sector, notwithstanding some new issues of corporate bonds in the capital markets as from late October.

1.1 *International Situation*

1.1.1 *Foreign financial markets continue evidencing restrictive conditions for Argentina*

The international financial markets continued to face a challenging context in recent months, even though liquidity conditions are still relatively sizable in historical terms and the economic activity worldwide has shown a positive performance (including the main trading partners of Argentina). This challenging context impacted on the evolution of the exchange rate (AR$/US$) and on companies with debts abroad (companies that, in many cases, are also debtors in the domestic banking system). In addition, since it also impacted on the policy regime being applied (including the increase of interest rates), the context also conditioned the domestic environment where financial intermediation takes place.

Chart I.1. Assets Volatility and Dollar Price



Source: BCRA based on Bloomberg, JP Morgan and Standard Chartered

In fact, after the signs of tension during the first half of 2018, in the August-September period, a higher risk aversion became noticeable, which impacted on the assets of emerging markets, especially on fixed income instruments. As it had occurred in previous episodes of capital outflows, the currencies of emerging countries depreciated against the US dollar, while the expected volatility in these markets intensified (see Chart 1.1). Even though this deterioration was widespread, the impact was more marked on the currencies of countries undergoing a more delicate external and fiscal situation[1]. The international debt markets of emerging economies experienced an increase in the spread required for these instruments (even though they have recently improved) while new issues lost momentum.

As mentioned in IEF previous editions, tensions in the markets are due to several factors, among which the evolution of the United States' economy as well as its impact on the expectations about the gradual rise of the monetary policy interest rate, the yields of its sovereign debt and the evolution of the US dollar stand out. Eventually, these factors might give rise to new portfolio adjustments that may impact on the assets of emerging economies. Another risk factor is the potential intensification of the trade war between the United States and China. In this case, the perspectives related to foreign trade volumes and corporate costs may be especially affected and have an impact on global growth. Depending on the potential additional measures to be adopted, this context might affect financial and currency markets as well as commodity prices.

The situation in Europe also exhibits several sources of tension that might trigger a higher risk aversion in the markets or affect both trade and growth at global level.[2] Other factors with a potential impact on risk aversion include geopolitical issues (the recent tension between Turkey and Saudi Arabia) or the incidence of specific economies having a direct impact on Argentina (as is the case of Brazil amidst a political process that resulted in a higher volatility of its exchange rate in recent months). Finally, another factor that is usually mentioned in debates on risks worldwide is the boom of cryptoassets in recent years. So far, this phenomenon would not imply a source of systemic risk (see Exhibit 1).

1.1.2 *The deterioration of the external context and domestic vulnerabilities gave rise to changes in domestic policies*

The most stringent financing conditions in international markets, the outflow of capitals[3] and the volatility observed in the currency markets, together with the perception of vulnerabilities inherent in the Argentine economy, resulted in significant policy changes. Within a context of a higher perceived risk for Argentina's debt instruments in international markets (see Box 1), an agreement was signed with the IMF in June for access to a credit line. To clear up all doubts about the 2018-2019 financial program, a new agreement was reached by late September with this institution (resulting in an increase of the fiscal resources available). This new agreement entailed reinforcing the fiscal convergence (new measures to reach the zero primary fiscal balance in 2019) and adopting a new monetary and exchange regime.

Given the new exchange rate tensions during August –due to external and domestic factors–, the BCRA adopted a series of measures to mitigate the increasing pressure on the exchange market and its impact on inflation: rises of the benchmark interest rate, interventions in the exchange market, increases of banks' minimum reserve requirements, gradual reduction of LEBACs and elimination of transfers to the Treasury. Nevertheless, in the face of the evolution of the exchange rate and the risk of a higher disanchoring of inflation expectations, by early October (within the new agreement with the IMF), the BCRA implemented a new monetary policy regime based on a monetary base target supplemented with the definition of exchange rate intervention and non-intervention zones. In this sense, the aim is to combine the benefits of exchange rate flexibility with the possibility of limiting disruptive fluctuations of the exchange rate. As a

[1] For further information about the external context, the impact on the Argentine economy and the measures implemented, see Monetary Policy Report (IPOM) – October 2018.
[2] On the one hand, the concerns related to Italy and the potential contagion to the rest of the region, given the financial and commercial linkages. On the other, the negotiations over the UK Brexit process are still open, giving rise to a risk of a disorderly path if the parties do not reach an agreement in the terms required.
[3] According to the foreign exchange capital and financial account, portfolio investments by nonresidents started to exhibit negative net flows in April. These flows showed some improvement as from October.

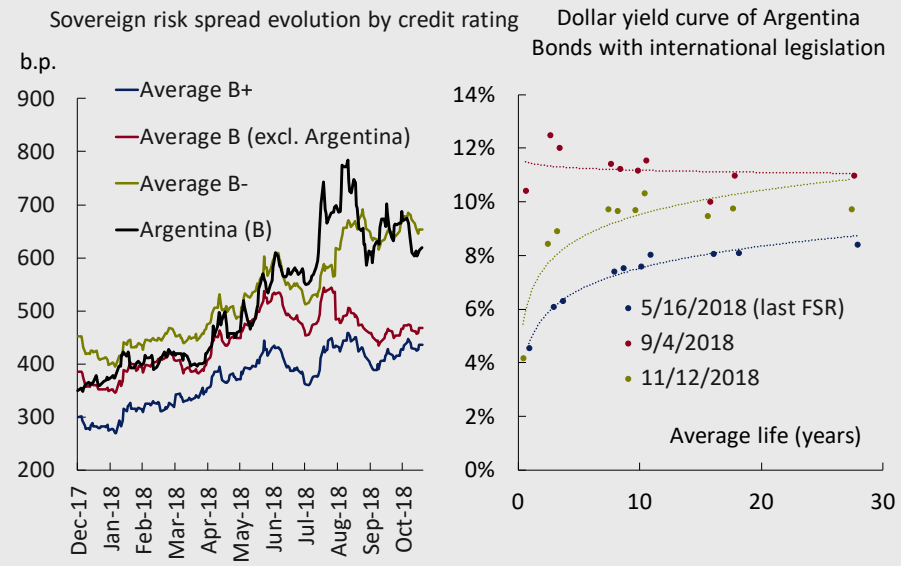
result, the exchange rate will act as an automatic stabilizing factor for employment and economic activity in case of domestic or external shocks.

This new monetary and exchange regime, the starting point of which is an exchange rate more consistent with the macroeconomic equilibrium (which, in turn, contributes to the adjustment of external accounts), is expected to strengthen the renewed calmness seen in the market as from October. Given the evolution of the exchange rate, the high interest rate context and the slowdown of the economic activity in recent months, the situation of companies and banks will continue to be monitored (see Chapter 3). The BCRA's assessment indicates that there should be extremely adverse deviations from the baseline scenario for the financial stability conditions to be significantly affected.

Box 1. Financing Cost of Argentina and Perceived Risk

Since the last edition of the Financial Stability Report (IEF), the cost of the risk from sovereign debt in dollars has gone up and access to international debt markets was interrupted (the last issue of sovereign debt was made in January 2018). Companies have also been impacted by the rise of financing costs (the last corporate issue in international markets took place in April 2018).

Chart 1.2 - Yields and Argentine Sovereign Debt Rating



Note: based on average of J.P. Morgan EMBIG and EMBI+ indicators.
Source: BCRA based on Bloomberg

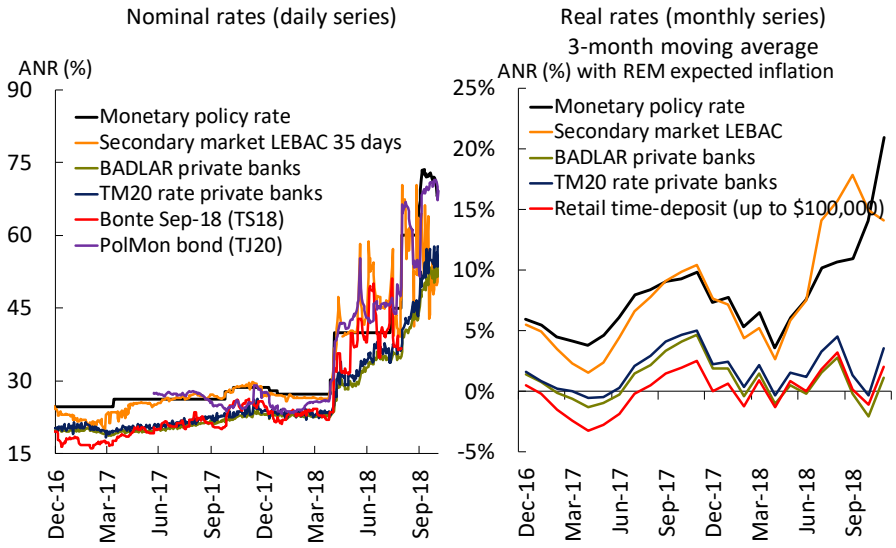
The spread of the Argentine sovereign debt (measured by the EMBI+) exceeded 780 basis points (bp) at the beginning of September, narrowing later on to around 600 bp in the first days of November. The rise was more marked for Argentina than for countries with the same credit rating, even exceeding the level of countries with lower ratings for several weeks (see Chart 1.2). This took place within a context in which 2 out of the 3 main rating agencies downgraded the outlook for Argentina. By mid-November, S&P downgraded Argentina's credit rating (to B from B+).

The higher perceived risk was also evident in the shape of the yield curve of instruments in dollars under international regulation, exhibiting higher yields for the shortest section at the times of greater tension (late August and early September). The negative slope in the yield curve in dollars was temporary and less marked than in previous situations of international financial crisis and periods of tension related to debt disputes. By early November, a rise was observed of around 160 bp against the levels in place at the time of the IEF last edition, thus indicating a relatively parallel movement of the yield curve.

1.2 *A less constructive domestic context for financial intermediation*

Considering the greater uncertainty relative to the situation in place until the previous IEF, the domestic context has conditioned the development of the financial activity in recent months (see Chapter 2). The new episode of nominal instability (as from late August) resulted in an important change in the forecasts about macroeconomic development, which had not been anticipated in the assumptions of the baseline scenario in place until the first months of 2018. As a result of the drought and the uncertainty created by the judicial investigation of corruption cases, added to the financial and exchange volatility, Argentina entered a recessive phase of the business cycle. At the same time, the successive rises of the exchange rate resulted in an increase of the inflation rate and posed the risk of disanchoring inflation expectations, which translated into successive rises of the benchmark interest rates (see Chart 1.3), among other measures adopted. As it will be explained in Chapter 3, this situation has had a limited impact on the ensemble of institutions so far (for instance, in terms of deterioration in the quality of the financial system loan portfolio).

Chart 1.3 - Benchmark Rates in the Domestic Markets in Pesos

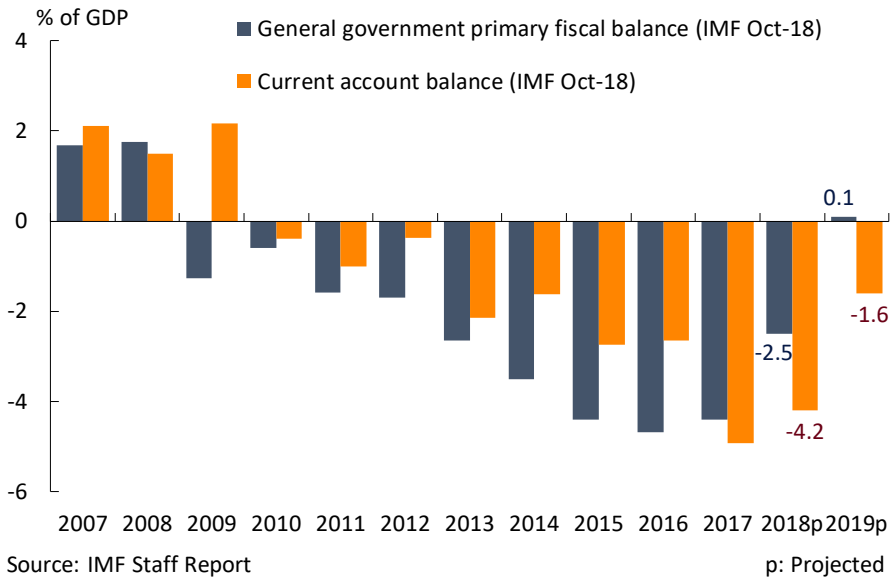


Note: Real rate calculations using beginning-of-month nominal rates, for 30-day placements. Source: BCRA, MAE and Bloomberg

As regards the fiscal situation, the new consolidation path, even more stringent than the previous one, will imply an accelerated reduction of the public sector's saving-investment gap, and this is one of the main determining factors of the current account deficit. The correction of the external and fiscal deficits will allow for a recovery on a more sustainable basis during 2019 than in the past (see Chart 1.4)[4]. Likewise, the importance of assessing the fiscal situation in terms of its effect on the financial system should be especially noted, taking into account credit exposure –which is currently limited– to the public sector.

[4] In turn, the national public debt accounted for 77.4% of GDP in the second quarter of 2018 (out of which 35.1 p.p. corresponded to debt with the private sector). According to the 2019 National Budget Bill, by December 2018, the national public debt would reach 87% of GDP (if liabilities of public sector agencies are not considered, the ratio goes down to 45% of GDP). Although the increase of this quotient during 2018 would imply a 30 p.p. rise in terms of GDP, a quicker convergence towards the zero fiscal balance is expected to contribute to a downward trend in the public debt ratio in the next years.

Chart 1.4 – Primary Fiscal Result and Current Account Balance



Source: IMF Staff Report p: Projected

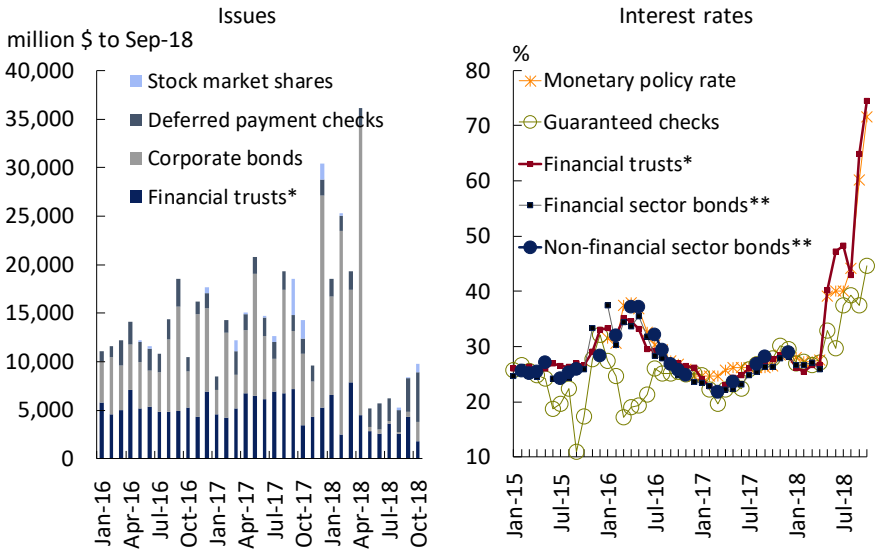
As regards the economic activity, during the second quarter, GDP fell 4% seasonally-adjusted, due to the impact of the drought that affected soybean and corn harvest[5]. During the third quarter, within a context characterized by significant exchange and financial tensions, the drop of the non-agricultural GDP might have deepened (even though it might be partially offset by the recovery of the agricultural sector). The contraction was widespread among the different sectors of GDP. For the near future, the macroeconomic forecasts included in the 2019 National Budget Bill consider a GDP drop in 2018 and a gradual recovery as from 2019 (this might have an impact on the performance of financial intermediation and the quality of banks' portfolio, see Chapter 2). The analysts taking part in the Market Expectation Survey (REM) also anticipate this path of gradual economic recovery.

In terms of prices, as mentioned before, the accumulation of significant exchange rate increases created more uncertainty and resulted in a rising inflation. Even though inflation expectations measured in the REM have gone up since the beginning of the exchange rate turbulence and are standing at high levels, it should be mentioned that the market still foresees a deceleration of inflation 12 to 18 months ahead. The monetary contraction resulting from the new monetary policy regime, together with the decreasing path of the primary deficit and the commitment to stop financing the Treasury, are expected to result in a drop of both inflation expectations and inflation levels in the next few months, giving rise to a scenario of lower interest rates.

Financing to the private sector through the domestic capital market has been particularly affected as from April (see Chart 1.5), with fewer amounts and higher interest rates. In real terms, the monthly average financing volume accounted for 25% of the value observed during the first four months of 2018. This drop mainly resulted from the corporate bonds market, which posted only a few transactions from May to late October, especially due to the interruption of issues by the financial sector (see Chapter 2).

[5] For further information about the evolution of the domestic economy, see the Monetary Policy Report (IPOM) – October 2018.

Chart 1.5 - Financing to the Private Sector – Domestic Markets



(*) Excludes housing and infrastructure financing. (**) to 18 months.
Source: BCRA based on BCBA, CNV, IAMC and MAV

Table 1.1 - Financial Indicators of Publicly-Traded Companies

			2014	2015	2016	2017	2018
Group 1	Companies with international bonds denominated in foreign currency	Leverage: Total liabilities / Total assets	0.68	0.74	0.74	0.68	0.72
		Liquidity: Current assets / Current liabilities	0.74	0.94	0.83	1.28	1.41
		Indebtedness: Financial liabilities / Operating income	1.95	3.48	2.11	4.12	3.79
		Debt burden: Financial costs / Operating income	0.54	0.63	0.54	0.53	0.62
		Profitability: Return on equity	18.92	22.49	28.87	31.89	42.34
		Cash conversion cycle (days): Inventory days+receivable days-payable days	-15	13	11	-49	-27
Group 2	Companies without international bonds denominated in foreign currency	Leverage: Total liabilities / Total assets	0.56	0.62	0.63	0.64	0.71
		Liquidity: Current assets / Current liabilities	1.22	1.13	1.19	1.27	1.23
		Indebtedness: Financial liabilities / Operating income	1.57	1.08	1.62	1.81	2.05
		Debt burden: Financial costs / Operating income	0.38	0.28	0.28	0.27	0.25
		Profitability: Return on equity	18.09	22.45	24.66	24.98	28.13
		Cash conversion cycle (days): Inventory days+receivable days-payable days	55	64	51	80	59

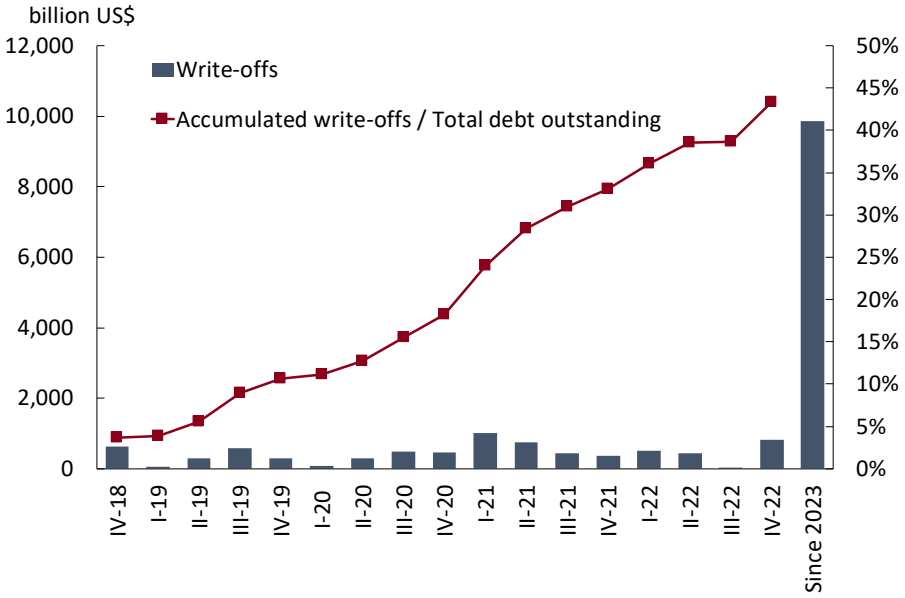
Note: Median values for each year and group of companies. Source: BCRA based on CNV and BCBA.

Within a context of higher exchange rate volatility and interest rate rises, upon analyzing the balance sheets of publicly-traded companies as of June 2018 (latest information available), the corporate sector shows a mixed performance in its financial ratios up to June (see Table 1.1). Until June, it posted a widespread but mild increase of its leverage ratio and, in the specific case of companies with bonds in dollars issued in international markets, there was an increase in the currency mismatch measured against their assets[6]. Nevertheless, several companies with international bonds have income in foreign currency (natural coverage) and the horizon of bond amortization in foreign currency is relatively clear for companies in the next few years, due to the refinancing of liabilities performed in the 2016-2017 period (see Chart 1.6). [7]

[6] Since Argentine companies have made no international debt issues since May 2018, no significant changes were recorded in the absolute level of the short position in foreign currency (liabilities minus assets in foreign currency), standing at around US$ 22.5 billion. Nevertheless, its level measured in terms of nominal variables in pesos went up. As a result of the lack of systematic information on income in foreign currency or on the exchange rate or on the use of derivatives, this measurement exhibits limitations that may imply an overestimation.

[7] For instance, until late 2020, bonds for around US$3.2 billion will reach maturity (18% of the total stock of bonds in foreign currency). Maturities from 2023 onwards account for over 55% of the total stock.

Chart 1.6 – Amortization Schedule for Coreporate Bonds in Foreign Currency



Source: BCRA based on CNV and BCBA

Exhibit 1 / Cryptoassets: Technological Innovation and Financial Stability

Due to the recent evolution of cryptoasset prices, the development of new financial instruments tied to them and the growing interest in the technology behind them, central banks and standard-setting bodies have started to discuss their nature, benefits and risks. Because of the interest expressed by G20 member countries in the meeting held in Buenos Aires in March, the Financial Stability Board (FSB) has analyzed, in 2018, the potential risks posed for financial stability by cryptoassets' quick growth. In the same line, the FSB has proposed a monitoring scheme based on metrics to timely identify potential macroprudential risks (FSB, 2018a and FSB, 2018b).

Supported by cryptography, the Internet and the Distributed Ledger Technology (DLT), cryptoassets are global networks that operate exclusively in the digital world, subject to a specific protocol which takes the form of a programming code, instead of being subject to the rules of a central operator.[8] DLT provides a shared spreadsheet (distributed ledger) that is similar to an accounting general ledger but, in this case, it is distributed among all the participants of the network, resulting in public, complete, unchangeable and secured records of transactions history. The key innovation is the implementation of a set of rules that aligns the incentives of users to create a payment/transfer technology without the need of a central authority (Nakamoto, 2008; IMF, 2016; BIS, 2018).

There is not one single and widely-accepted definition of cryptoassets. Nevertheless, given the range and complexity of their applications, it would be possible to make a preliminary categorization according to their economic role in each case. Generally speaking, cryptoassets are used as means of payment for the purchase and sale of goods and services; as investment, either through arbitrage or derivative financial instruments; or as a vehicle for financing investment projects (BaFin, 2017; UK Cryptoassets Taskforce, 2018).

Cryptoassets have a small capitalization level relative to the global assets market. The high prices seen in late December 2017 and early 2018 signaled a capitalization of around US$ 823 billion for all existing cryptoassets[9]. This capitalization value–even at its maximum historical peak– is still relatively small, since it represents only 1% of the assets market at global level. Nevertheless, cryptoassets exhibit individual capitalization levels in line with those of global financial institutions. For instance, upon analyzing the maximum individual capitalization reached by bitcoin, this value is similar to the capitalization level of companies like Visa and JP Morgan.

The volumes of cryptoassets being traded are growing considerably. In 2015 and 2016, both bitcoin and ether exhibited traded volumes below those of traditional assets such as Visa, JP Morgan or a fund linked to the price of gold (SPDR Gold Shares). During 2017, bitcoin almost doubled the daily volumes traded by JP Morgan, while ether reached the levels traded by Visa (see Chart A.1.1).

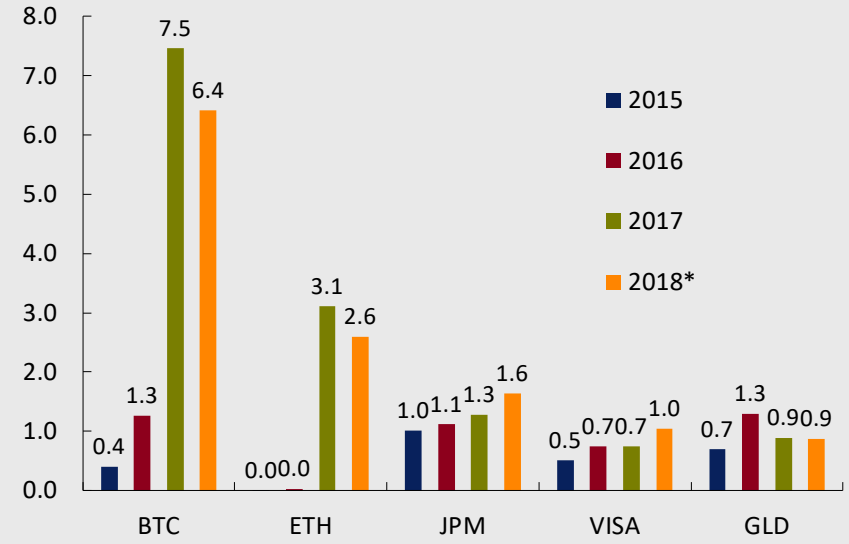
So far, there is no information indicating that commercial banks are holding cryptoassets[10]. This means that no direct linkages have been found between the formal financial system and the cryptoasset system. Therefore, the indirect linkages between both systems will be analyzed considering the correlation between the yield of cryptoassets and the yield of traditional assets. In particular, an annual correlation has been estimated of bitcoin yields and the Dollar Index Spot (DXY), the price of gold (GOLD) and the stock market index S&P 500 (SP500)[11] [12]. The level of correlation between cryptoassets and the traditional assets is rather low. In the first place, the correlations between bitcoin and the rest of assets under analysis seem to be low: in no case does the ratio exceed 0.3. In the second place, the correlation sign does not remain stable over

[8] Even though all cryptoassets use some sort of DLT, not all the applications of this technology entail the creation of these instruments.
[9] Source: CoinMarketCap
[10] For a further description of direct linkages, see, for instance, ESRB, 2016.
[11] Data cover from 2015 to 2018.
[12] Source: FRED, Federal Reserve Bank of St. Louis.

the different years. For these two reasons, it may be concluded that, at present, there is no linkage between cryptoassets and traditional financial assets.

Chart A.1.1 – Traded Volume – Daily Average

US$, in billion



Source: BCRA based on CoinMetrics and FRED data

In short, preliminary monitoring results indicate that, on the one hand, the cryptoasset system has reduced capitalization levels if compared to global asset markets even though, at individual level, they evolved at a fast pace in terms of the traded volume. On the other hand, no correlation has been observed between the yields of cryptoassets and some traditional assets. As a result, on the basis of the information available, it may be inferred that, at present, cryptoassets do not entail a source of systemic financial risk, even though their fast evolution requires strict monitoring.[13]

[13] Notwithstanding the implications in terms of financial stability, cryptoassets raise relevant policy challenges, such as the need of protecting consumers and investors, strengthening the integrity of markets and fighting money laundering, among other aspects. At domestic level, authorities have sought some balance between mitigating risks and vulnerabilities and precluding innovation. Nevertheless, the global scope of the cryptoassets network requires cooperation efforts in terms of the monitoring of these systems and the consistency of the regulatory approach to be applied. In this sense, the recent trend is characterized by the search of a coordinated approach to develop consistent regulatory frameworks in the different jurisdictions (IMF, 2018; ECB, 2018).

2. *Situation of the Financial System*

In a context of high foreign exchange tension, drop of the economic activity and inflation acceleration –resulting in the tightening of the BCRA's monetary policy—, the intermediation activity of the financial system decelerated markedly as from the second quarter of 2018, whereas it managed to preserve relatively high liquidity and solvency levels and a limited exposure to intrinsic risks. The changes in the composition of the system's balance sheet evidenced the effects of a relatively better nominal performance of deposits against loans. The performance of private sector deposits was relatively favorable considering the adverse macroeconomic context for the operations of the sector (see Chapter 1). Under the prudential regulatory scheme developed by the BCRA, these performances are consistent with a perception of strength in the financial system by the public (see Chapter 3). The growth of lending to the private sector started to weaken as from the middle of the second quarter of 2018. The financial sector continues to have high solvency levels, even though the regulatory capital compliance ratios declined in the second and third quarters of 2018 due to the effects of the increase in the risk-weighted assets (RWA) (resulting from credit exposures to the private and the public sectors) above the evolution of capital. The nominal profitability of the sector rose in recent quarters, mainly due to higher inflows from securities and to items related to exchange rate changes. So far in 2018, the nominal ROE year-on-year increase was lower than the rise of inflation. The sector still faces the challenge of improving its efficiency levels.

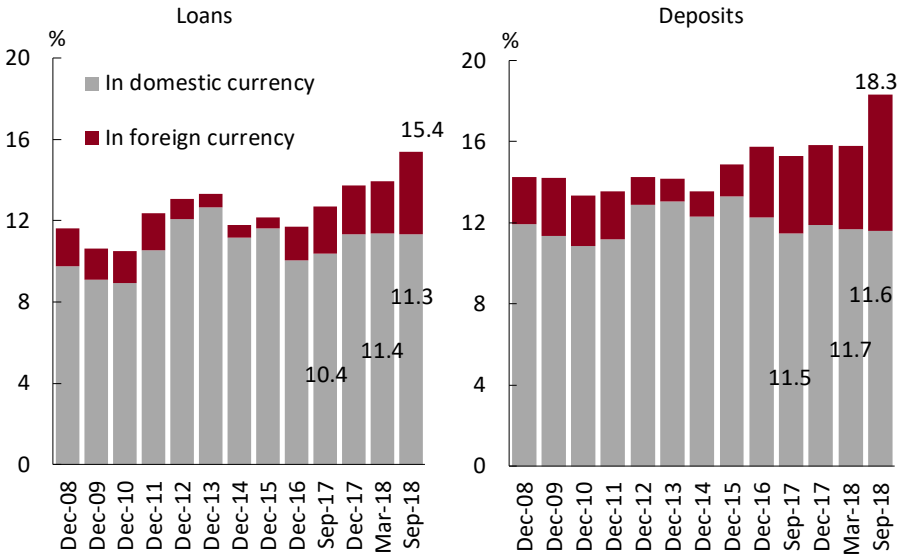
2.1 Lending deceleration and favorable performance of deposits vis-à-vis an adverse context

In a context of increasing volatility in the exchange market, higher inflationary pressures and drop of the economic activity in recent months (see Chapter 1), banks' financial intermediation with the private sector exhibited a relatively moderate performance in terms of both loans and deposits. From March to September, the growth pace of private sector deposits in pesos and in foreign currency decelerated, especially in the case of natural persons. A reversal of this performance started in October, evidenced by a significant rise in the private sector time deposits.[14] This was due to the measures adopted by the BCRA regarding the increases in the monetary policy interest rates and in the remuneration of the minimum reserve requirements for new time deposits, resulting in an improvement of the transmission mechanism between policy interest rates and borrowing interest rates.[15] In general, the performance of the private sector deposits as from the second quarter of 2018 must be interpreted as a positive sign of the perception by the public of the soundness and capacity of the financial sector to resist adverse shocks (see Chapter 3), as well as of the financial policy measures adopted so far.

The estimated levels for the private sector total loans and deposit ratios (including deposits in pesos and in foreign currency) in terms of GDP for the third quarter of 2018 show a year-on-year growth in a context of a significant depreciation of the peso and a drop in the economic activity. When considering deposits in domestic currency, only lending to the private sector recorded a moderate year-on-year growth in terms of the GDP (see Chart 2.1).

[14] For further details, see Monthly Monetary Report, October 2018.
[15] For further details, see Chapter 1 and Regulatory Annex.

Chart 2.1 – Intermediation with the Private Sector – As % of GDP



Note: Quarterly averages are considered. Third quarter of GDP is estimated. Source: BCRA and INDEC

Given the context and the policy changes, the balance sheet structure, which impacts on the configuration of risk exposures and coverages, exhibited some significant changes relative to the last edition of the Financial Stability Report (IEF – March 2018). On the assets side, there was a change in the level and composition of the financial institutions' higher liquidity assets resulting from the increases in the minimum reserve requirements and the measures adopted by the BCRA (see Table 2.1).[16] The share of the financial system assets not including monetary regulatory instruments went up in total assets to almost one fourth of the latter by the end of the third quarter of the year. LEBACs holdings of banks went down significantly relative to assets against the holdings in March, while LELIQs holdings rose in recent months. Lending to the private sector lost relative weight in the last quarters, reaching a share of slightly over 45% in September.[17]

Regarding liabilities, the share of private sector total deposits (in domestic and foreign currency) in the financial system assets increased slightly against their levels in March, and a change of composition was observed on the margin. In particular, there was a lower relative share of deposits in domestic currency in the balance sheet of the system due to the moderate evolution of such deposits in the third quarter and the significant rise of the nominal exchange rate. In turn, the share of public sector deposits relative to total assets increased in a year-on-year comparison. The abovementioned depreciation of the peso in recent months also led to a slight increase in the relative weight of the alternative resources of the system (corporate bonds, subordinated debt and foreign credit lines). In the special case of corporate bonds, vis-à-vis a context of more restrictive financial conditions, the institutions involved in this type of funding did not make any new issues from April to mid-October 2018 (see Exhibit 2).

[16] For a detailed description, see the Regulatory Annex.
[17] The drop in the share of lending to the private sector in banks' assets tends to be a performance commonly observed in the latest events of economic activity fall (such as those from 2005 onwards).

Table 2.1 – Balance Sheet – Financial System

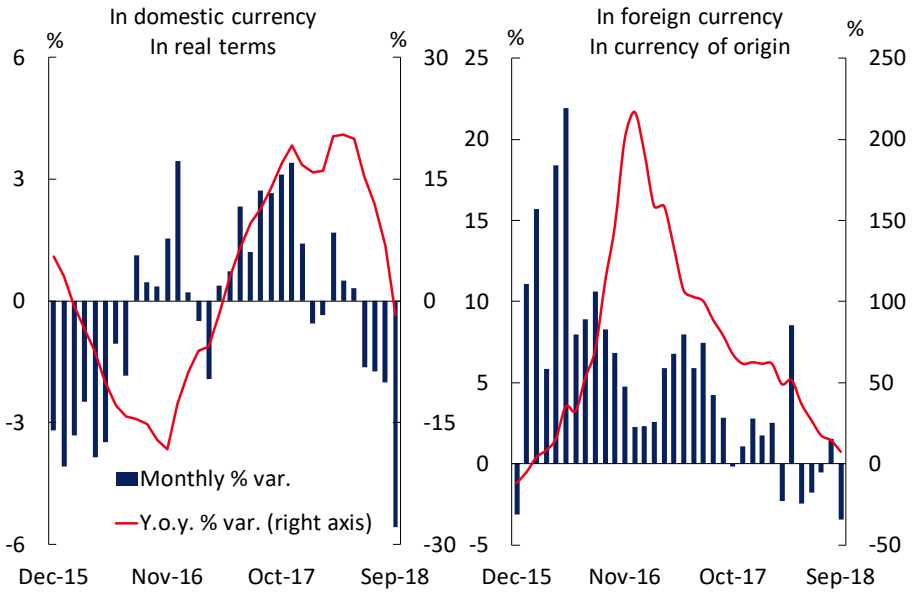
	In % of netted assets					Real y.o.y. var. of stock Sep-18
	Sep-17	Mar-18	Sep-18	Variation in p.p.		
				Sep-18 vs. Mar-18	Sep-18 vs. Sep-17	
Netted assets						**25.1**
Liquid assets	20	17	25	7.4	4.8	55.4
In domestic currency	9	9	12	2.8	2.4	58.0
In foreign currency*	11	8	13	4.6	2.4	-8.9
BCRA instruments	12	14	9	-5.0	-2.5	-0.8
LELIQ	0	3	8	4.7	7.6	-
LEBAC	11	11	1	-9.4	-9.4	-86.2
Repo	1	1	1	-0.3	-0.6	-34.4
Total loans to public sector**	9	10	11	1.1	1.8	49.7
Total loans to private sector	50	48	45	-3.2	-4.8	13.1
Loans to private sector in $	41	40	32	-7.5	-8.8	-1.7
Loans to private sector in US$	9	9	13	4.3	4.0	7.4
Other assets	9	10	10	-0.3	0.6	33.8
Netted liabilities						**28.0**
Public sector deposits	15	18	18	-0.0	2.5	46.2
Private sector deposits	59	54	56	1.1	-3.3	18.1
In domestic currency	44	40	34	-6.4	-10.2	-3.9
Sight	24	21	18	-3.5	-6.1	-7.1
Time	19	18	16	-2.6	-3.7	1.3
In foreign currency*	15	14	22	7.5	7.0	9.9
CB, SD and credit foreign lines	4	5	6	0.8	1.6	73.9
Other liabilities	9	10	10	0.0	1.1	40.5
Net worth	**13**	**13**	**11**	**-1.9**	**-2.0**	**5.3**

*Balance sheet variation in currency of origin

** Includes National Treasury Bond admissible for minimum cash integration

Source: BCRA

Chart 2.2 – Stock of Total Credit to the Private Sector (Domestic and Foreign Currency)

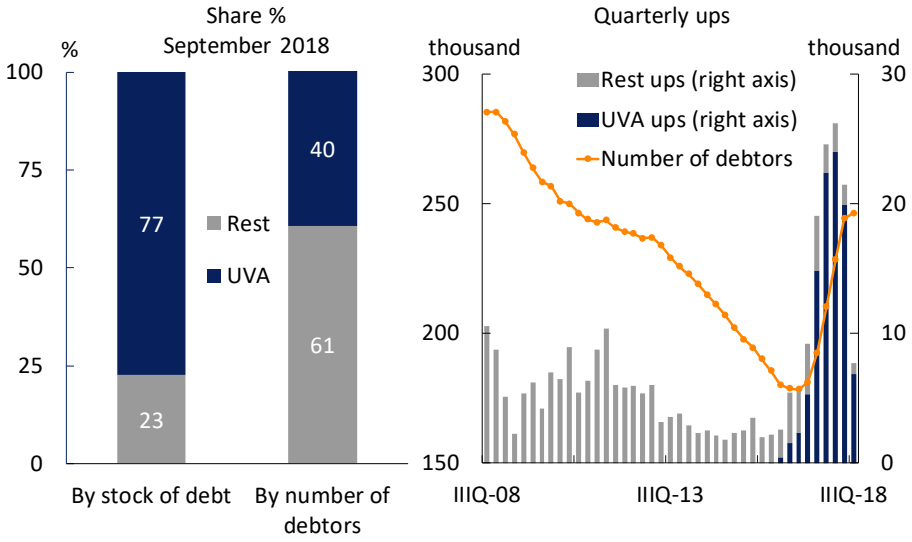


Fuente: BCRA

Regarding the evolution of the main items of the balance sheet in recent months, it should be noted that the growth of banks' stock of loans to the private sector lost ground and recorded an inflation-adjusted year-

on-year drop by the end of the third quarter of the year (see Chart 2.2). September marks a period of four consecutive months of real decline in lending. The deceleration in the year-on-year real growth pace of loans in domestic currency to companies and households was widespread among all groups of financial institutions (even though it was more significant in non-banking financial institutions and domestic private banks) and in all credit lines. Commercial loans in pesos posted year-on-year drops by the end of the third quarter, and impacted on the resources provided to both large companies and SMEs (see the regulatory framework applicable to the financing granted to this sector in Box 2). In turn, funds provided in foreign currency have shown a positive year-on-year growth —in currency of origin— as of September, and this performance was mainly driven by the commercial segment.

Chart 2.3 – Mortgage Loans to Natural Persons



Note: the calculation of "ups" is made by computing the CUILs of human persons that appear in the debtors' central office of each month (t) and that were not present in the previous month (t-1). Source: BCRA

Box 2. Regulation related to financing to Micro and SMEs

The Central Bank's regulation consists in a set of guidelines seeking to tackle several conflictive aspects of loans to Micro and SMEs, under the general framework of prudential regulation in force for the financial system. Within this set of rules, financing pertaining to the retail portfolio –including loans to Micro and SMEs of up to an amount equivalent to 1 million euros, in line with international standards on the matter— which, in general, tend to be more fragmented and provide greater credit diversification to banks, is subject to a 75% weight and it is lower than the weight applicable to aid provided to other type of companies (100% weight) (Minimum Capitals of Financial Institutions). In turn, the amount of the Minimum Cash regulatory compliance may be reduced depending on the weight of loans to Micro and SMEs in the institution's total credit to the private sector, with a maximum of 3.6 percentage points of the regulatory compliance in pesos. In addition, some specific measures have been implemented to facilitate access (Credit Risk Diversification and Credit Calibration), origination (Credit Management) and administration (Classification of Debtors) of financing to Micro and SMEs, resulting in a relative improvement of lending conditions.

Mortgage loans to households exhibited a relatively outstanding performance, even though as from June their monthly growth pace decelerated if compared with their performance in 2017 and early 2018, in a context of higher exchange rate volatility, increase in real estate prices (see Box 3) and some restriction on the margin by banks in terms of their standards for approval of these loans.[18] This lending accumulated a real year-on-year increase of 122% by the end of the third quarter of the year, mainly accounted for by UVA-

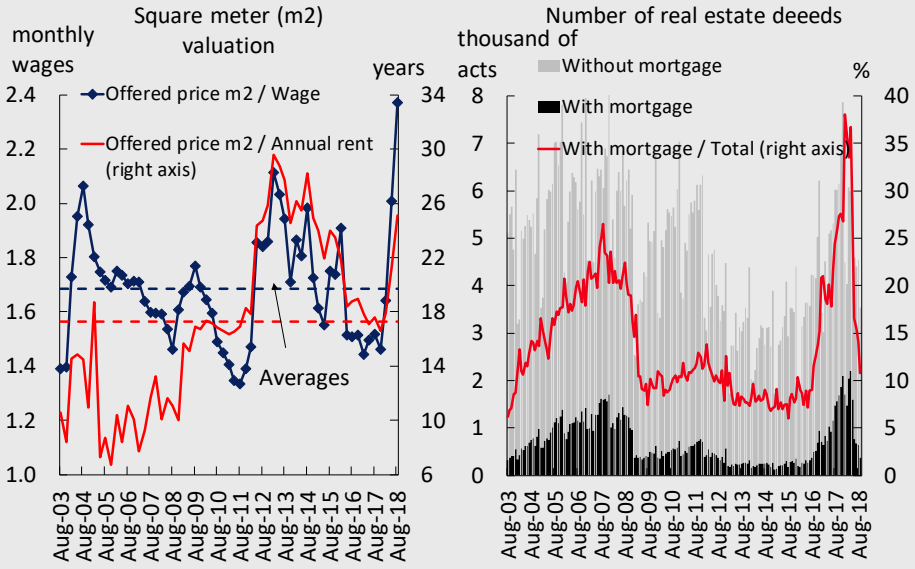
[18] For further details, see the Credit Conditions Survey – Third Quarter 2018.

denominated loans (see Chart 2.3). In recent months, banks continued to attract new mortgage debtors, even though at a slower pace than in the first quarter of 2018 (IEF previous edition).[19]

Box 3. House prices subject to macroprudential monitoring

The introduction of UVA mortgage loans in April 2016 has facilitated access to housing by reducing the initial requirement of income to become a credit holder. Since then, this type of lending has gained momentum and achieved a significant growth in real terms unseen in the last 25 years. As mentioned in the IEF corresponding to the second half of 2017, the follow-up of the real estate market and of the financing conditions is especially relevant to assess the restriction in access to housing, to analyze the macroeconomic context and, above all, to identify potential sources of systemic financial risks.

Chart 2.4 – Prices and Transactions in the Housing Market in City of Buenos Aires (CABA)



Source: UADE, Real Estate Report, CABA Association of Notaries, and Ministry of Labour, Employment and Social Security.

Upon the beginning of the period of sharp exchange rate volatility (May 2018), house prices measured in pesos at constant prices followed a sizable upward trend. Considering the price offered for houses in the City of Buenos Aires (CABA), relative appraisal indicators show significant increases, reaching high levels if compared to prices of recent years.[20] They stand within a range of high values in terms of both wages and lease payment (see Chart 2.4).[21] Since the offer price is generally expressed in foreign currency, the real depreciation of the peso against the US dollar in recent months explains, to a large extent, this effect. In this context, there were fewer purchase-sale transactions, including those subject to a bank mortgage loan (see Chart 2.4). The systemic financial risk related to this market is low, since bank mortgage loans to households account for only 3.7% of the financial system assets. In addition, the delinquency rate of this portfolio is also low (see Chapter 3).

In this market, the future evolution of prices and amounts will depend on the interaction of the different macrofinancial variables. It should be noted as well that this market exhibits a low leverage level (as of

[19] It is estimated that there were 7,600 new mortgage debtors (gross activations) in the third quarter of 2018, and 90% corresponded to new debtors of UVA-denominated loans. This figure stood below the estimated quarterly average of 22,500 new debtors observed in the previous four periods.
[20] Since the only data available correspond to offer price per square meter, such data must be used as price benchmark for houses.
[21] The first ratio is the quotient between the offer price in dollars of the square meter and the average wage of the private sector registered workers converted into dollars (wholesale exchange rate or exchange rate implied in blue chip swap between November 2011 and November 2015), while the second ratio is the quotient between the offer price in dollars of the square meter multiplied by 60 square meter, and the annual rent of a 3-room apartment expressed in US dollars using the same methodology indicated above.

September, mortgage loans to households accounted for around 1% of GDP) and has a relatively reduced maintenance cost (taxes and related services) and high transaction costs (for the purchase and sale). Likewise, there is a lag between the construction stage and the sale of a housing unit that qualifies for a mortgage loan.

The total number of natural persons who are debtors of the financial system as of September 2018 went down if compared to the level observed in early 2018 (see Table 2.2). In particular, there was an increase in the number of debtors of mortgage and pledged-back loans and a reduction in the remaining credit lines between March and September.

Table 2.2 – Number of Debtors in the Financial System. Natural Persons.
In units

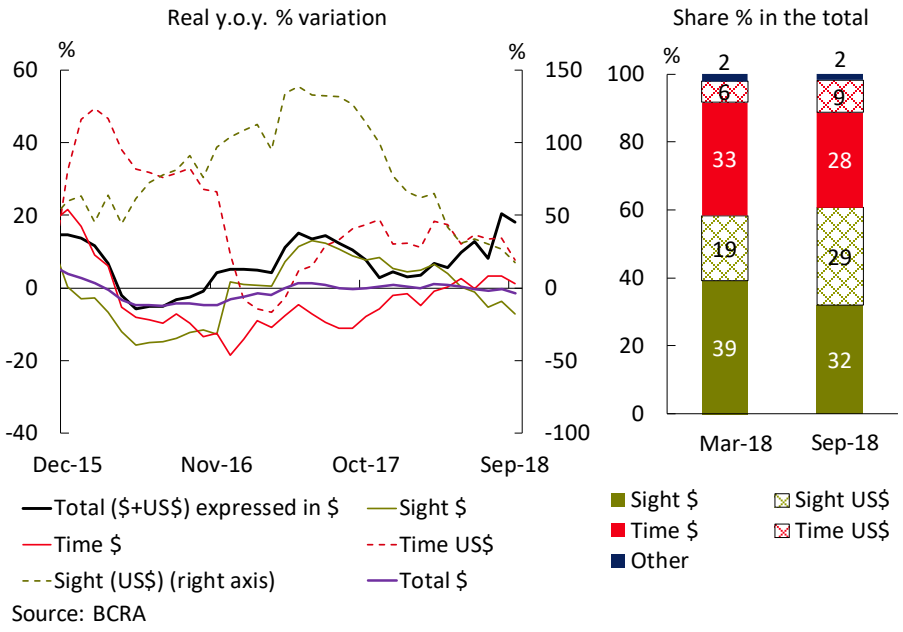
Type of loan	Dec-15	Dec-16	Sep-17	Dec-17	Mar-18	Sep-18	Var. Sep-18 / Dec-15
Mortgage	194,293	178,589	192,421	210,121	228,396	246,313	52,020
Rest	194,293	175,551	167,448	162,834	157,740	149,563	-44,730
UVA	0	3,049	25,084	47,506	71,437	97,705	97,705
Pledge-backed	430,726	414,599	482,363	501,322	535,587	545,787	115,061
Rest	430,726	414,599	480,949	493,765	509,021	497,395	66,669
UVA	0	0	1,414	7,759	27,453	49,997	49,997
Personal	4,982,916	5,276,440	5,484,924	5,546,890	5,772,529	5,318,114	335,198
Rest	4,982,916	5,276,440	5,399,436	5,425,732	5,627,555	5,191,852	208,936
UVA	0	0	85,488	121,158	144,974	197,980	197,980
Credit cards	9,590,911	10,239,463	10,128,884	10,364,931	10,468,593	10,322,498	731,587
Financial system	**11,374,041**	**12,119,444**	**12,218,519**	**12,425,191**	**12,628,855**	**12,359,647**	**985,606**

Notes: Information is consolidated at the individual debtor level, both within the same financial institution (if the same debtor has several lines of financing) and between entities (e.g. if the individual is a debtor in different entities at the same time). Financial entities regulated and supervised by the BCRA are considered (excludes Non-financial Credit Providers and Financial Trusts). Data in UVA until December 2017 are estimated. Source: BCRA.

As of September, private sector deposits in domestic currency declined in the year-on-year comparison if adjusted by inflation, mainly due to the performance of sight deposits (see Chart 2.5). In the face of the recent context of sharp depreciation of the peso against the US dollar and its resulting impact on inflation (see Chapter 1), the BCRA adopted a series of policy measures tending to stabilize the market and to control the abovementioned pressures on the price level. This resulted in higher remunerations for depositors and led to an increase in the stock of private deposits in real terms, especially time deposits, as from September and more markedly as from October.[22]

[22] For further details, see the Monthly Monetary Report, October 2018.

Chart 2.5 – Total Stock of Deposits of the Private Sector



Source: BCRA

Deposits in foreign currency followed a downward trend in recent months, temporarily interrupted from the last days of August to mid-September, due to the effect of the abovementioned context of exchange rate turbulences. The evolution of these deposits stabilized as from mid-September and then started to grow gradually.

Due to the market forecasts on the economic activity evolution (see Chapter 1), the performance of financial intermediation would be relatively weak in the last quarter of the year. According to the latest Credit Conditions Survey (ECC), the ensemble of institutions participating in the survey estimate that, in general, restrictive conditions will continue to prevail in the credit market in the last quarter of 2018.[23] This would be due to factors related to more restrictions on the supply side —more stringent credit standards— and to a lower demand for financial resources by companies and households. In turn, private sector deposits are expected to continue to have a positive performance in the short term, considering that exchange rate tensions have tended to stabilize and that fewer changes in prices are expected for the end of 2018 and in early 2019.

2.2 Nominal profitability grows within a context with higher inflation levels

In recent months, due to inflation acceleration and the resulting higher contractionary bias of the monetary policy, the usual profitability ratios of the financial system have recorded a nominal increase. From January to September, the results accounted for 3.8% annualized (a.) of assets (ROA) (see Table 2.3), up 1.1 p.p. against the figure of 2017. Profits of the financial system relative to its net worth (ROE) amounted to 33%a. in the first 9 months of 2018, up almost 6.4 p.p. against the same period of 2017.[24] This nominal increase was lower than the accumulated inflation rise between both periods.[25] In 2018, there is still a significant dispersion in terms of profitability among institutions.

[23] Credit Conditions Survey corresponding to the third quarter of 2018.
[24] The nominal ROE of state-owned institutions stood at 39%a. in the period (+12.3 p.p. y.o.y.) and at 30%a. in private banks (+3.3 p.p.).
[25] In this context, as from the publication of the IEF previous edition, the aggregate financial system would seem to show a decline of net worth in real terms (adjusted by dividends and capitalizations).

Table 2.3 – Financial System Profitability

Annualized (a.) - As % of netted assets	Annual				Quarterly									
	2015	2016	2017	2018*	IIQ-16	IIIQ-16	IVQ-16	IQ-17	IIQ-17	IIIQ-17	IVQ-17	IQ-18	IIQ-18	IIIQ-18
Financial margin	**11.8**	**11.4**	**10.1**	**10.7**	**12.0**	**11.2**	**10.6**	**9.5**	**11.0**	**10.5**	**9.4**	**10.3**	**11.0**	**10.8**
Interest income	12.6	12.5	10.5	10.8	13.4	12.8	11.2	9.9	10.4	10.6	11.1	10.5	10.8	11.1
CER and CVS adjustments	0.2	0.3	0.3	1.1	0.4	0.4	0.2	0.1	0.3	0.2	0.5	0.7	1.1	1.3
Foreign exchange price adjustments	0.8	1.0	0.8	0.9	0.7	0.7	0.9	0.4	1.0	0.9	0.9	0.7	1.2	0.8
Gains on securities	5.6	5.5	3.8	5.7	6.5	5.4	4.4	3.7	4.0	4.3	3.2	4.6	5.2	6.9
Returns on repo	0.1	0.2	0.5	0.3	0.3	0.2	0.1	0.9	0.9	0.2	0.2	0.5	0.2	0.1
Interest expense	-7.3	-7.9	-5.7	-8.2	-9.1	-8.3	-6.2	-5.4	-5.6	-5.6	-6.0	-6.8	-7.4	-9.9
Other financial income	-0.2	-0.2	-0.2	0.1	-0.1	0.0	0.0	-0.1	-0.1	-0.1	-0.5	0.0	-0.2	0.5
Service income margin	**3.7**	**3.3**	**2.8**	**2.2**	**3.4**	**3.4**	**3.2**	**3.0**	**2.9**	**2.7**	**2.8**	**2.2**	**2.3**	**2.2**
Loan loss provisions	**-0.9**	**-0.8**	**-1.0**	**-1.3**	**-0.8**	**-0.9**	**-0.9**	**-0.9**	**-1.1**	**-1.0**	**-1.1**	**-1.1**	**-1.4**	**-1.3**
Operating costs	**-7.7**	**-7.7**	**-7.1**	**-6.3**	**-8.0**	**-7.7**	**-7.6**	**-7.0**	**-7.3**	**-6.9**	**-7.4**	**-6.6**	**-6.3**	**-6.0**
Tax charges and other	**-2.8**	**-2.5**	**-2.0**	**-2.2**	**-2.7**	**-2.3**	**-2.5**	**-1.6**	**-2.4**	**-2.0**	**-1.9**	**-1.9**	**-2.5**	**-2.1**
Other comprehensive income (ORI)	**0.0**	**0.0**	**0.0**	**0.6**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.1**	**0.8**	**0.9**
Exchange differences on translation of financial statements	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.8	0.9
Total returns (ROA)	**4.1**	**3.6**	**2.7**	**3.8**	**3.9**	**3.7**	**2.8**	**3.0**	**3.0**	**3.3**	**1.8**	**2.9**	**3.8**	**4.4**
Resultado total / Patrimonio neto (ROE) - En %	**32.4**	**29.6**	**23.4**	**33.0**	**30.8**	**29.0**	**24.5**	**27.1**	**26.0**	**26.8**	**15.0**	**23.6**	**32.8**	**41.4**

* to September

Source: BCRA

In the third quarter of 2018, the financial system recorded the highest quarterly nominal profitability figure in terms of assets since 2015. In a year-on-year comparison, the increase was mainly due to the rise in the financial margin, driven by better results from securities and exchange rate differences, within a framework of increase in the nominal exchange rate. On the other hand, there were higher outflows from interest in the sector, due to higher interest rates on time deposits as a result of the BCRA's financial policy. These expenses went up 3.1 p.p. against their value in the first half of the year. Income from interest and CER adjustment increased slightly in aggregate terms, resulting from a reduced financial intermediation activity.

A more detailed analysis on the interest margin from transactions with deposits and loans reveals that the spread between the implicit lending interest rates and the implicit cost of funding for deposits lost 3 p.p. in the third quarter of the year against the previous period.[26] Due to the increase of benchmark rates and the changes in the minimum reserve requirement, the main reason behind the drop of the spread was an increase in the cost of funding for deposits that exceeded the increase in the implicit lending interest rates.[27] Nevertheless, in recent months, it has been observed that the spread in terms of the interest rates traded on the margin for loans to the private sector in pesos and for deposits of this sector also in pesos (in real terms in both cases) widened and stood above the figure recorded at the beginning of the year (see Box 6).

Likewise, administration expenditures in terms of the assets continued to follow a declining path during 2018.[28] Despite this trend, this heading continues to be high if compared to the figure recorded in the financial systems of the region. As already mentioned in IEF previous editions, the domestic financial system has sufficient room for improvement in terms of efficiency, especially if it takes advantage of economies of scale.

2.3 *The financial sector continues to have high solvency levels*

The regulatory capital compliance of the ensemble of institutions still stands significantly above the minimum requirement, even though it declined against the values recorded in early 2018 (see Chart 2.6). While private banks exhibited relatively minor changes in their solvency indicators, the greatest change was

[26] The implicit lending rate is defined as the quotient between the flow of accrued interest and the average stock of loans corresponding to the period under analysis. The implicit funding cost for deposits is defined as the quotient between the flow of accrued interest and the average stock of deposits adjusted by the minimum reserve requirement in the period. Data correspond to the non-financial sector. Implicit interest rates (ex post) are related to flows coming from transactions arranged in the past.

[27] Given the fact that loan transactions (largely at fixed rate) are generally arranged for longer terms than deposits, marginal changes in market interest rates tend to reflect relatively more quickly in the outflows from interest than in the inflows for this same concept in the Income Statement.

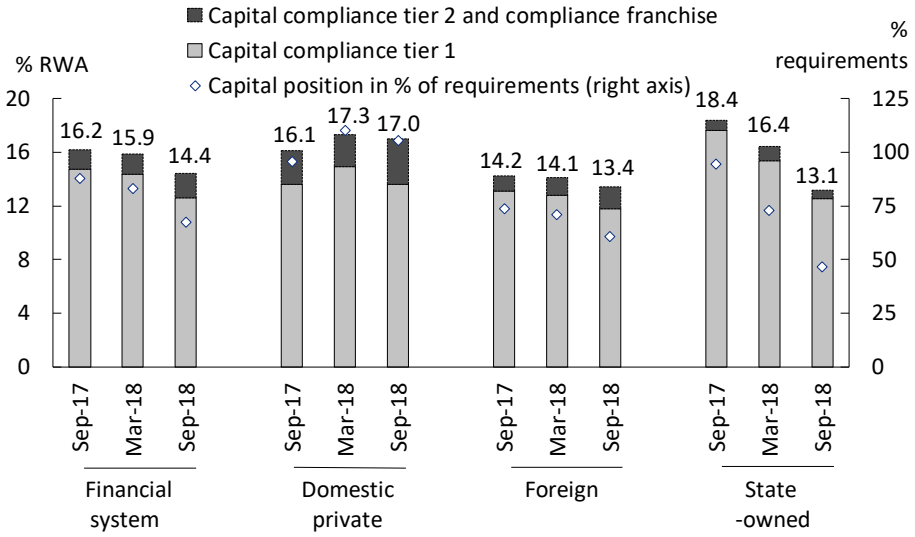
[28] In this respect, several indicators continue to show productivity increases in the financial system in recent months. For example, there is an upward trend in terms of relationship between the volumes traded (loans and deposits in real terms) and the number of employees for the different homogenous groups of banks.

observed in state-owned banks. The main reason behind the decrease in state-owned banks' ratio is the remarkable rise in their risk-weighted assets —due in part to the effect of the exchange rate rise on their credit exposures—, which was significantly higher than the expansion in regulatory capital compliance. The financial system Tier 1 capital compliance, with a better capacity to absorb potential losses, accounted for 88% of the total in September, and went down slightly against the figure included in the previous IEF. The excess capital compliance at aggregate level relative to the prudential minimum requirement was equivalent to slightly over 67% in the period, with an excess capital position in all homogenous groups of banks.

Considering Basel III regulatory capital buffers as minimum requirements, the ensemble of banks recorded an excess in Tier 1 core capital compliance (common shares and retained earnings) of 2.3% in September, which dropped against March.[29] It was observed that 61 out of the 77 institutions that currently make up the system cover such buffers in full (71% of total assets).

Leverage levels –a simple ratio between assets and net worth— are consistent with the values observed in other emerging economies and stand below those of developed economies (see Chart 2.7). Regarding the regulatory ratio from Basel recommendation, the Leverage Ratio of the system reached 8.5% as of September, standing significantly above international recommendations (3%).

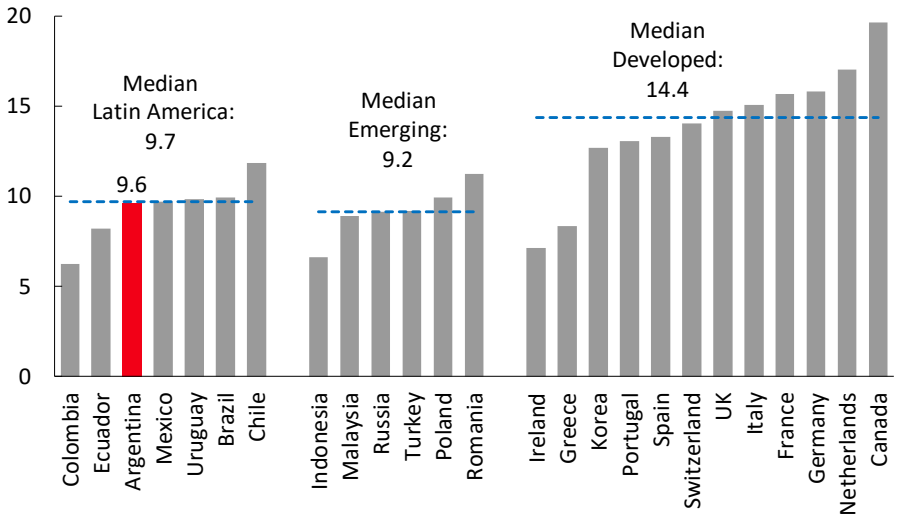
Chart 2.6 – Capital Compliance and Compliance in Excess of the Regulatory Capital (Position)



Capital tier 1: Basic net worth
Capital tier 2: Complementary net worth
Source: BCRA

[29] Capital conservation of 2.5% of risk-weighted assets (RWA), which is expanded by 1 p.p. in the case of banks defined as systemically important banks. According to the prudential regulations of the BCRA, the abovementioned buffers are not a minimum regulatory requirement. Non-compliance entails restrictions at the time of dividend distribution by the institutions (for further details, see the Consolidated Text on Profit Distribution). In the theoretical exercise presented here, the abovementioned buffers are assimilated to the traditional regulatory requirements.

Chart 2.7 – Leverage Level – International Comparison
Assets/Net Worth



Note: Data to 2018; except Brazil, Poland, Romania, Greece, Spain, United Kingdom(UK) and Germany to 2017.
Source: BCRA and IMF

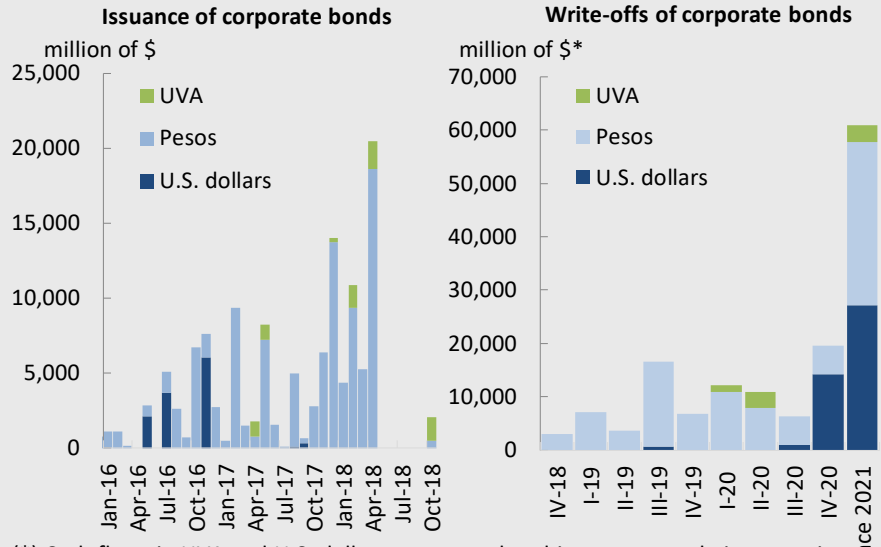
In the face of the challenges of the current macroeconomic scenario for the financial system, the abovementioned levels of excess capital should be especially underlined since, added to the reduced levels of credit exposure and non-performance, and the high coverage with provisions, they contribute to create a situation of relative strength for domestic banks. Chapter 3 includes the results of sensitivity exercises performed to provide a first approximation to their resilience if they had to face potentially extreme credit risk events.

Exhibit 2 / Funding of Banks through Corporate Bonds

From the end of April to mid-October 2018, there were no issues of Corporate Bonds by banks. In recent years, these institutions had been the main issuers of these instruments (see Chart A.2.1). By the end of October, transactions in the domestic market of Corporate Bonds have started once again. The banks had taken advantage of such window for financing, which resulted from the reopening of international debt markets in 2016, to improve their debt maturity profiles while, as from the second half of 2017, issues in the domestic market and in domestic currency started to accelerate given the lending prospects to the private sector. In fact, during the first four-month period of this year, banks received funding for around $41 billion through Corporate Bond issues[30].

The change in the demand for lending within a more challenging macroeconomic context and with high interest rates also resulted in repurchase transactions of Corporate Bonds issued by banks for a total amount of $4.3 billion as from the publication of the previous IEF. By the end of the third quarter of 2018, the banks' stock of Corporate Bonds amounted to around $147 billion (3% of total funding, liabilities plus net worth of the system or 5.4% measured as percentage of banks' funding with outstanding Corporate Bonds), out of which 2/3 is denominated in pesos. In turn, 30% is denominated in dollars and corresponds to five institutions, while the rest is denominated in UVAs. The stock of Corporate Bonds denominated in pesos decreased by over $8.5 billion as from May to around $97 billion as of the third quarter of 2018, in line with the maturities during the period and the abovementioned repurchases. In turn, there were no significant differences between the stocks of Corporate Bonds in UVA and in dollars, with low amortizations and repurchases; this means that the increase of indebtedness in domestic currency was due to the rise in UVA (nearly $950 million more) and the rise of the exchange rate (an additional amount of around $19 billion).

Chart A.2.1 – Issues and Amortizations of Banks' Corporate Bonds



(*) Cash flows in UVA and U.S. dollars were translated into pesos at their respective exchange rates on 9/30/2018.
Source: BCRA based on CNV and BCBA

As regards the amortizations' profile of all Corporate Bonds that banks post by the end of September, these flows are almost exclusively in domestic currency until late 2019 and amount to around $37 billion (equivalent to nearly 20% of total excess liquidity by late September of the group with outstanding bonds) (see Chart A.2.1). It is worth mentioning that, in the case of debt in foreign currency, there are no significant maturities of principal until the end of 2020.

[30] Transactions for terms to maturity between 12 and 18 months were closed at rates around 26%, within a context of a monetary policy rate largely standing at 27.25% in the first four months of the year.

3. *Stability Analysis*

Considering the deterioration evidenced in the operational context described in Chapter 1, as well as the situation of the financial system illustrated in Chapter 2, it is estimated that the stability conditions of the sector were resilient to the adverse shock suffered, in spite of the fact that the ensemble of financial institutions faced a certain materialization of some intrinsic risks taken. The effect observed has been limited as a result of low to moderate exposures to risks and high liquidity, provisions and capital, in an appropriate context of micro and macro prudential regulation. In relation to credit risk, even though the non-performing portfolio rose in line with the performance of macroeconomic conditions, this indicator recorded low readings both in terms of the domestic history and if compared to other economies. The sensitivity analysis for credit risk continued to show reduced impacts at aggregate system level, without significant changes relative to those obtained in previous editions of the IEF. The financial system liquidity went up as a result of the increase of banks' minimum reserve requirements and the deceleration observed in credit, whereas the private sector deposits maintained a favorable performance. The interest rate risk materialization was relatively low, given the scarce maturity transformation of the sector. The currency mismatch continued to be low, limited by prudential regulations.

3.1. Exposure to systemic sources of vulnerability with a downward trend

The exposure of the ensemble of domestic financial institutions to systemic sources of vulnerability is estimated to stand at a moderate level, with a downward trend relative to the assessment made in the previous edition of the IEF. Thus, on the one hand, systemic risks associated with common exposure, bilateral exposure or interconnectedness (see Exhibits 3 and 4 and results of the sensitivity analysis in this Chapter 3), and those related to the soundness of systemically important institutions, continue to be relatively low and without significant changes with respect to early 2018. On the other hand, taking into account the current phase of the financial cycle, a decrease is expected in the trend towards the accumulation of systemic risk derived from credit growth. Therefore, in the current context of risk materialization, it is relevant to follow up the conditions prevailing in the credit market, especially, the bias of the ensemble of banks with respect to the evolution of credit standards and terms applied to debtors.

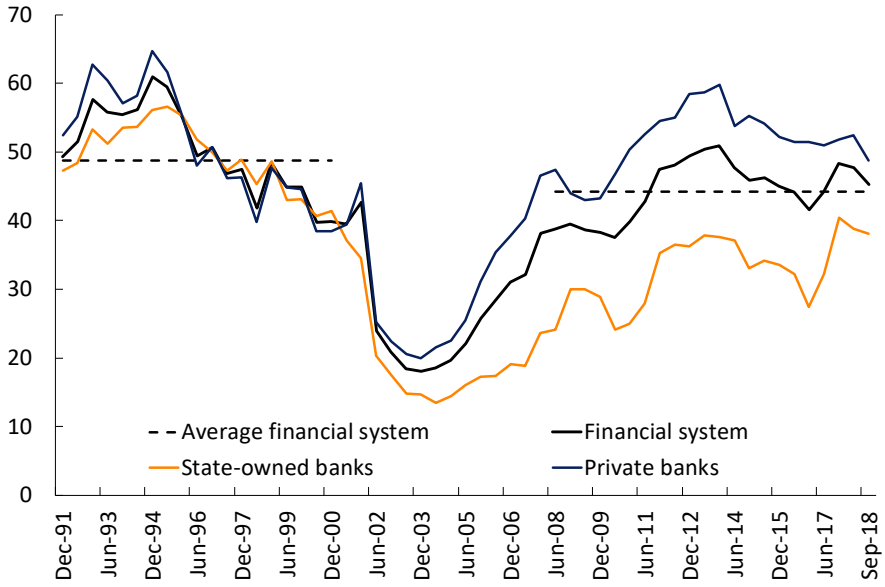
As regards the macro prudential regulation in force related to the Countercyclical Capital Buffer,[31] intended to address risks associated with an "excessive" growth of credit, the BCRA conducts, on a regular basis, an assessment of vulnerabilities taking into account a broad set of risk indicators.[32] In this respect, the latest information analyzed shows signs consistent with keeping the rate of such additional buffer at 0% as from December 2018.

3.2. Reduction of the financial system exposure to the private sector credit risk

In the last six months and on a year-on-year comparison, a reduction was observed of the gross exposure of the ensemble of banks to the private sector (see Chart 3.1). This performance was due to the drop of credit and the evolution of the other components of bank assets at an aggregate level (see Chapter 2). The reduction of the gross exposure occurred mostly in private banks and in lending to households. The levels of exposure to the private sector continued to be moderate —below 50% of total assets—, similar to the average of the last ten years. These values stand below the median recorded for the remaining countries of the region.

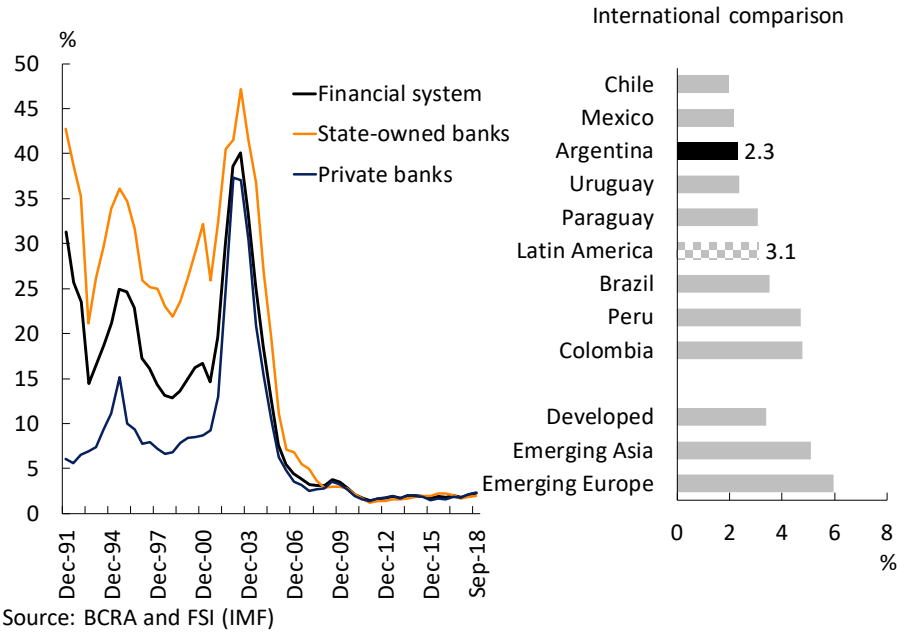
[31] See regulation on "Distribution of Results". This regulation is aligned with the Basel Committee's recommendations on this matter.
[32] In general terms, the local methodology weights the evolution of the credit/GDP ratio gap relative to its long-term trend (based on the international standard recommendation), the growth of GDP and its cycle, and quantitative and qualitative indicators about the relative strength of the supply and demand of credit, as well as asset valuation indicators. For further details on this methodology, see IEF I-2016.

Chart 3.1 – Gross Exposure to Non-Financial Private Sector
Credit to Private Sector in % of Netted Assets



Source: BCRA

Chart 3.2 –Private Sector Non-performing Loans by Group of Banks and International Comparison
Non-performing Financing / Total financing (in %)



Source: BCRA and FSI (IMF)

3.2.1. The non-performance of loans stands at a low level, with an increase in 2018, whereas the level of provisioning continued to be high

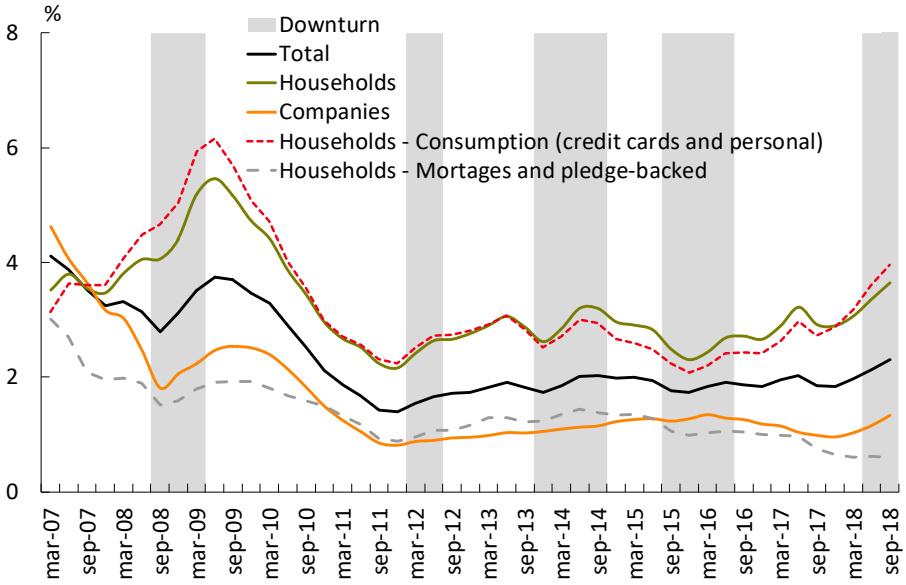
Non-performing credits in terms of lending to the private sector rose by 0.3 p.p. against the level of the IEF previous edition, up to 2.3% at the end of the third quarter. The current levels of delinquency ratio are low if compared to the levels observed in the last 25 years and also with respect to levels recorded in other

financial systems of the region and in other emerging or advanced economies (see Chart 3.2). This evolution of non-performing loans is consistent with the low level of indebtedness and of sectoral financial burden and with the relative prudence in generation of lending from the banking sector in the last two years.[33]

The total provisioning recorded by the ensemble of financial institutions continued to be high and exceeds the non-performing portfolio, accounting for 125% of such portfolio. The combination of low non-performance, limited gross exposure to the private sector and relatively high provisioning and capital (see Chapter 2) cause the financial system net exposure to credit risk (EPNRC) to remain at reduced levels.[34] As of September 2018, the EPNRC accounted for only 2.1% of the net worth, thus recording a slight increase in the last six months.

In addition, the reduced size of the financial system (see Chapter 2) and the scarce complexity of financial system operations —traditional financial intermediation and bias to transactional operations— are to be noted, since they limit the possibility of a significant amplification of an eventual risk materialization over the economy as a whole.

Chart 3.3 –Private Sector Non-Performing Loans by Segment
Non-performing Financing / Total financing (in %)



Source: BCRA

3.2.2. The increase of the non-performing loan ratio follows the performance of loans for consumption of households

In a context of deterioration of macroeconomic conditions, the increase observed as from the first quarter of the year with respect to the non-performing loan ratio was mostly explained by the segment of loans to households (+0.6 p.p. up to 3.6%) and, to a lesser extent, by the lending to companies (+0.3 p.p. up to 1.3%).[35] Within the segment of loans to households, the increase of the delinquency rate was driven by the performance of loans for consumption (see Chart 3.3). The non-performance ratio of pledge loans granted

[33] No process was observed for significant easing of credit standards during the period. For further detail, see Charts 1 and 4 of the latest edition of IIIT-18 – Credit Conditions Survey of the BCRA. In addition, in a context of inflation, and upon the usual practices for granting some lines of credit (French amortization system with fixed interest rate), there may be a marked downward trend of the burden of debt measured in terms of income of borrowers.
[34] The EPNRC is defined as the non-performing portfolio net of the estimation of provisions allocated to this portfolio (excluding minimum provisions corresponding to the performing portfolio), in terms of net worth.
[35] Taking into account the "lagged" denominator, the ratio increased as well (with lags of 3 and 6 months, +0.4 p.p. and +0.5 p.p. against the first quarter of 2018, respectively).

to households recorded a lower increase, whereas such ratio corresponding to mortgage loans remained low (0.2% for the aggregate of mortgage loans to households and 0.1% for UVA-denominated loans —for a detailed description of the recent evolution of inflation and wages see Box 4—).

Box 4. UVA-denominated Loans: Salaries, Inflation and BCRA's Regulations

In UVA-denominated loans, the residual capital owed is adjusted by inflation, and inflation is reflected through the adjustment of installments by the Reference Stabilization Coefficient (CER). When headline inflation exceed wage increases, this might lead to temporary stress periods on the debtors' payment capacity.[36] *To address this situation, the BCRA's prudential regulations concerning UVA loans includes the option for clients to extend the originally agreed term (up to 25%), and this option is triggered if the installment to be paid exceeds by 10% the value of the installment resulting from having applied a capital adjustment based on the Salary Variation Coefficient (CVS) as from disbursement of the loan.*[37]

Based on the latest public information available, it may be estimated that, until the end of August 2018, no UVA loan granted between April 2016 (when this line of credit was launched) and July 2018, had installments with values exceeding by 10% the value of installments calculated for the case of an adjustment based on the CVS.[38] *The evolution of inflation and of salaries during the last four-month period of the year might result in an adjustment based on CVS for some of the UVA-denominated mortgage loans granted.*

In case of such a scenario, the rules and regulations in force do not prevent banks from offering other alternatives to address such issue. Financial institutions might propose, for instance, a voluntary rule for their clients to establish a ceiling for the monthly installment (to avoid an eventual increase of the installment above 10% relative to the performance of salaries), whereas the amounts not collected on such monthly installments due to the effect of the stated ceiling would be capitalized. Thus, the debtor would pay the installment corresponding to the UVA-denominated installment until an eventual mismatch exceeding 10% between the UVA instalment and the CVS instalment occurred and, at that time, the debtor would pay the ceiling installment. Whenever this mismatch is reversed, the debtor would pay an installment below the ceiling installment established. Conditioned to the fact that the event would be temporary and would occur sufficiently far from the end of the loan term, the effect of the mismatch would be lessened with no need of extending the term of the loan.

With respect to mortgage loans, it is worth mentioning that vintages for the last two years for this type of operations –mainly UVA-denominated— have shown a better performance if compared to loans generated in previous years.[39] For example, the vintage of the second quarter of 2018 recorded an average non-performing ratio of only 0.04% by the end of the immediately subsequent quarter.[40] The other relatively recent vintages also maintain their non-performance ratio levels unchanged or record only a slight increase. In turn, recent vintages of mortgage loans, with a high share of UVA-denominated loans, also continued to post a sharp decrease in their non-performance ratio measured in cumulative terms.[41] For example, both in the non-performing curves for 9 to 12 months and those for 18 to 21 months, there was a substantial drop in the last quarters. These results would be impacted, among other factors, by the specific characteristics of UVA-denominated instruments (with an initial income/installment relatively lower given the amount of the loan), as well as the standards and terms applied by institutions upon disbursement of the loans.

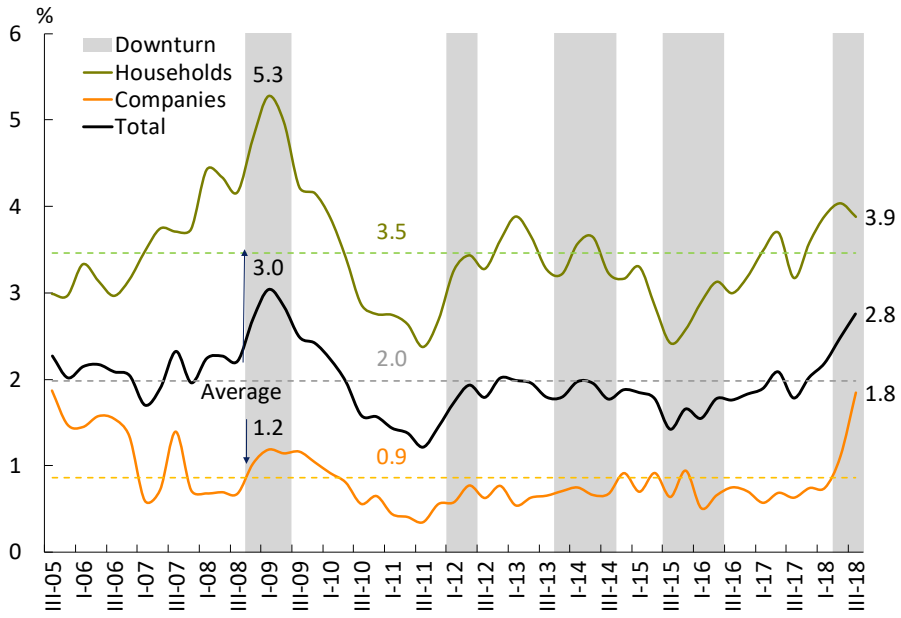
[36] For further details, see Section 3.1.4, IPOM – October 2018.
[37] For further development, see Box 6, IEF I 2018 and Consolidated Text of the BCRA's "Credit Policy".
[38] Latest CVS data as of August 2018, published by late October.
[39] For a methodological development in detail, see Exhibit 6 of IEF I 2018. The results obtained so far exhibited a promising performance of the most recent vintages of mortgage loans, with relatively very low delinquency levels. Later on, in the second quarter of the year and in a context of reduced economic activity, these results were confirmed in an Article published in the BCRA's Blog called "Ideas de Peso" (Information about the Argentine Peso) (*"¿Cambió significativamente la morosidad de los préstamos hipotecarios ante las recientes modificaciones en el contexto macroeconómico? Un análisis de cosechas"*- ("Has delinquency on mortgage loans significantly changed upon recent modifications in the macroeconomic context? Analysis of Vintages").
[40] The percentage is 0.03% for UVA-denominated loans exclusively, and 0.15% for other loans. A 92.8% of the stock of vintages originated in the first half of 2018 were denominated in UVAs.
[41] This entails considering loans as non-performing if at any time during their life they have been non-performing. A more in-depth analysis of the methodology is found in the above-mentioned Exhibit 6 of IEF I 2018.

Among loans to companies, the rise in delinquency showed the deterioration in the quality of the lending portfolio of all productive sectors except for loans to the primary sector, which maintained their non-performance ratio unchanged. In this respect, as already mentioned in the previous editions of the IEF, the possibility of changes in the materialization of credit risk for the financial system deriving from fluctuations in the peso-dollar nominal exchange rate is significantly low (see Box 5).

Considering various homogenous ensembles of institutions by type or model of prevailing business, and in line with the foregoing statements, the ensemble of private institutions specializing in loans to households and of a relative smaller size was the group recording the highest relative growth in delinquency ratios (with higher levels if compared to the remaining institutions).

Taking into account only the group of loans to the private sector that at every time post a performing credit rating (credit rating 1 and 2), so far in 2018, a slight deterioration is also observed in the portfolio quality. Whereas by the end of 2017, 97.1% of loans had credit rating 1 (performing) and 1.1% had credit rating 2, these percentages stood at 95.9% and 1.8% as of September 2018.

Chart 3.4 – Indicator of Probability of Migration to a Worse Credit Rating (IPM)
Quarterly Frequency of Debtors' Situation Deterioration by Stocks



The credit risk materialization was also evident in indicators that consider micro data, such as the indicator of debtors´ probability of migration to a worse credit rating or the frequency of worsening of the credit rating (IPM, see Chart 3.4).[42] This indicator rose during 2018 as regards loans to companies —reaching the maximum level within 10 years. The ratio corresponding to the household segment also went up throughout the year, maintaining the upward trend recorded since late 2015.

Box 5. Prudential regulation to address the risk of debtor's currency mismatch

As from 2002, Argentine laws establish that foreign currency deposits received by banks must be used, mainly, to fund debtors with their usual income coming from foreign trade transactions and related

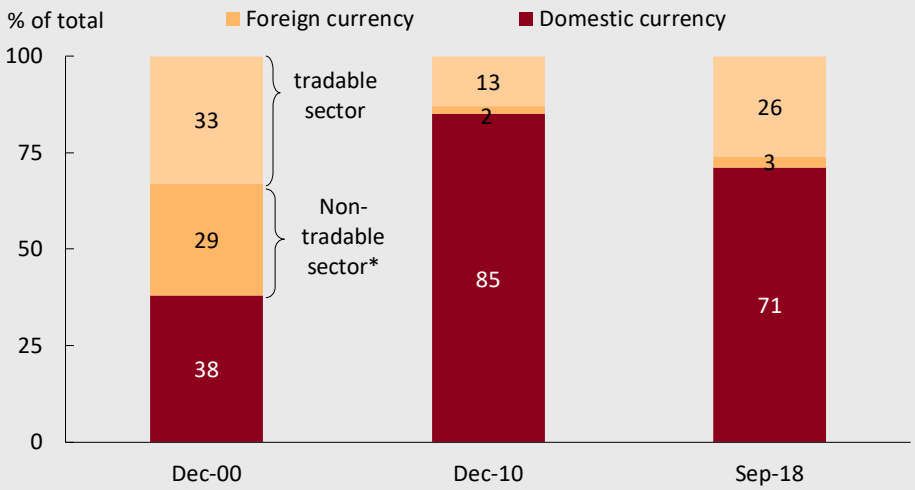
[42] The IPM is an estimate of the probability that a debtor's credit rating may worsen within a period of three months. The methodology is described in detail in IEF I 2017. The performance of the IPM was similar to that of the Estimated Probability of Default (EPD), which is defined as the ratio of loans going from a credit rating 1 and 2 (performing) to a credit rating of 3, 4, 5 and 6 (nonperforming), at the end of the period under analysis.

activities.[43] This macroprudential measure was intended to address one of the sources of risk in the domestic financial system, which exposed the balance sheet of the sector to exchange rate volatility.

To illustrate such systemic vulnerabilities, it is useful to mention that by the end of 2000 almost half of the bank loans to the private sector denominated in foreign currency (2/3 of the total of loans), corresponded to debtors not belonging to the tradable goods sector, the income of which was mostly not related to the exchange rate (see Chart 3.5). Against this backdrop, the depreciation of the domestic currency in 2002 resulted in significant stress on the payment capacity of debtors in foreign currency. Later on, a broad set of measures was adopted to address the effects on debtors and financial institutions, with a significant impact on society at large. The implementation of prudential restrictions on the use of foreign currency deposits had the purpose of reducing future adverse situations with a similar origin.

At present, more than 71% of total lending to the private sector is denominated in domestic currency. Almost 90% of the stock of loans denominated in foreign currency (26% of the total) is being channeled to the tradable goods sector of the economy, thus significantly reducing the potential risk of failure to pay related to exchange rate changes.[44] During the domestic impact of the international crisis that broke out in 2007, and despite the resulting depreciation of the peso-dollar exchange rate, the non-performance ratio of lending to companies posted only a slight and temporary increase. The same situation has been seen so far in 2018 since, upon the exchange rate increase, the levels of non-performing loans post limited rises against historically low levels.[45]

Chart 3.5 – Private Sector Loans



*Note: the proportion of the non-tradable sector is estimated on the basis of foreign currency loans granted to individuals and to the construction, gas, water, electricity and other services sectors.
Source: BCRA

As may be expected, it is possible to identify a significant statistical correlation among changes in the indicators of non-performing loans, the GDP and the real interest rate.[46] In this context, upon analyzing

[43] Executive Order 905/02, text according to article 63 of Law 26546. It was regulated by the BCRA through its "Credit Policy".
[44] Even though the remaining 10% is not directly channeled to the tradable goods sector of economy, pursuant to BCRA's rules and regulations, they must be linked to such sector and/or have their income related to the exchange rate.
[45] The total ratio of non-performing loans to companies reached 1.3% as of September 2018, going up only 0.3 p.p. since the beginning of the year. Specifically, the ratio for financing to exports was only 0.7% as of September, posting no significant changes since December 2017.
[46] Using quarterly data for the 2005-2018 period, we obtain an estimate of a simple credit risk model allowing for a first assessment of the sensitivity of the lending portfolio quality vis-à-vis activity level fluctuations. Specifically, the estimate analyzes the relationship between the rate of credit risk loss and the evolution of GDP and of the real interest rate. The natural persistence of the dependent variable led to the specification of a dynamic model. The results show that changes in the GDP have a statistically significant impact on the rate of credit risk loss even though, in economic terms, the impact would not be high for the financial system as a whole.

the behavior of the non-performance ratio of lending to the private sector during periods of drop in the economic activity level in the past,[47] it is observed that the relative rise of delinquency recorded in the last two quarters of 2018 is not substantially different from historical records.[48] Against this backdrop, and given the economic outlook for the rest of the year (see Chapter 1), it may be expected that the levels of non-performance ratios will continue going up on the margin.

In this context, it is relevant to consider the assessment of credit risk that has been conducted by the ensemble of institutions. Several indicators associated with standards of loan origination and with the terms of loans show that banks have recently tightened their conditions (wider spreads, for example), and this would be in line with the perception of an increase in credit risk indicators (see Box 6).

Box 6. New indicator on credit risk assessment

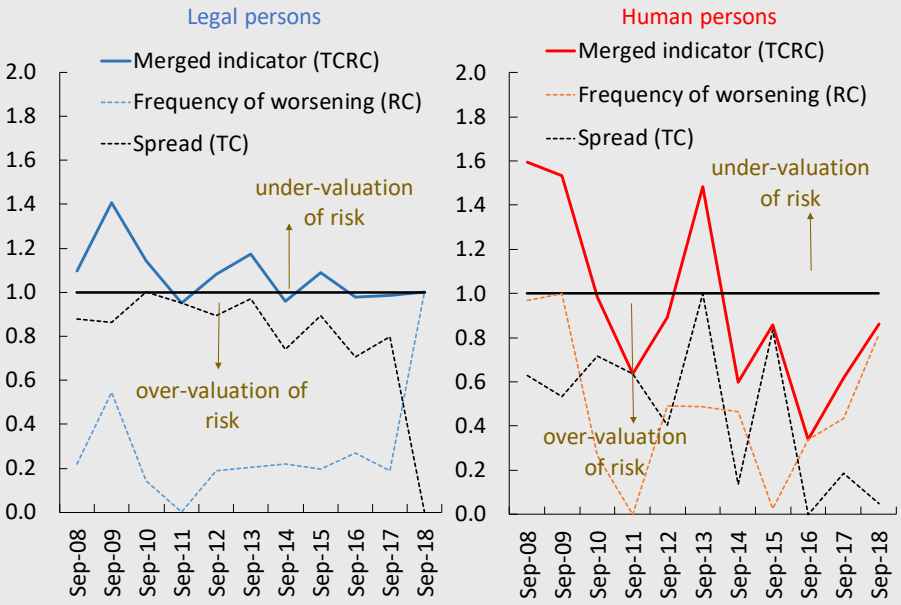
In order to explore aspects related to consistency in the assessment of credit risk by domestic banks, it is useful to monitor, on a joint basis, the standards of loan origination (EOC), the terms and conditions (TC) for granting of loans and the expected materialization of credit risk (RC).[49]

To address this issue, among a set of tools, an indicator is introduced, which combines a TC metric (spread) with an RC metric (IPM).[50] *For the construction of this indicator, the time series of these metrics are re-scaled (for the last 10 years) in the interval [0, 1]. For the IPM, the value 0 (zero) is taken at the minimum record within the period covered, while the value 1 (one) is taken at the maximum. In the case of spread, value 0 (zero) is taken at the maximum, while value 1 is taken at the minimum. Then, the re-scaled metrics are added, thus defining the TCRC indicator which, based on the construction, may take values in the interval [0, 2]. Maintaining the other factors unchanged, a level close to 1 of the TCRC corresponds to a situation in which the spread and the IPM are consistent with one another (a high spread accompanies a high IPM, or else, a low spread accompanies a low IPM).*[51] *As the values of TCRC become distant from 1, there might be certain bias to undervaluation (between 1 and 2) or to overvaluation of the credit risk (between 1 and 0). Changes of TCRC may also provide information, given that the other relevant factors are unchanged (for example, TC is not responding to RC rises).*[52]

Both the TCRC for natural persons and the TCRC for legal persons stood close to 1 in the third quarter of 2018 (see Chart 3.6). No significant changes were observed for legal persons against the same period of 2017. This means that the increases of transaction spreads (see Chapter 2) occurred consistently with rises in the metric related to credit risk (see Chapter 3). For natural persons, the TCRC was close to 1, in the zone of risk overvaluation. The positive correlation was more significant in the segment of legal persons.

[47] Experiences of the last 25 years are taken into account.
[48] This exercise takes into account the relative change of the non-performing loans ratio against a GDP fall of 1 p.p. (in other recessions). Then, the current performance of the ratio is compared to the median of past experiences.
[49] For example, during highly competitive periods, banks may excessively ease EOCs and/or TCs to gain market share, to the extent of even not to properly cover the associated RC. Or, upon a credit risk increase (RC rise), the lack of a proper adjustment in EOCs o TCs may finally impact on the financial institutions' balance sheets.
[50] To measure TCs, the spread used is the spread between (i) the average lending interest rate in pesos (in real terms) for loans to the private sector (analyzing natural and legal persons separately) and (ii) an estimate of the average funding cost of deposits of the private sector in pesos (in real terms); and to measure RC, we take into account the indicator of probability of migration or the quarterly frequency of debtors' situation deterioration (IPM, analyzing natural and legal persons separately). A similar indicator is found in the Financial Stability Report of the Czech Republic.
[51] Other factors impacting on the spread are the weight of operating costs, hedging of other risks, etc.
[52] See previous footnote.

Chart 3.6 – Estimated Combined Indicator of Spread and Frequency of Debtors' Situation Deterioration



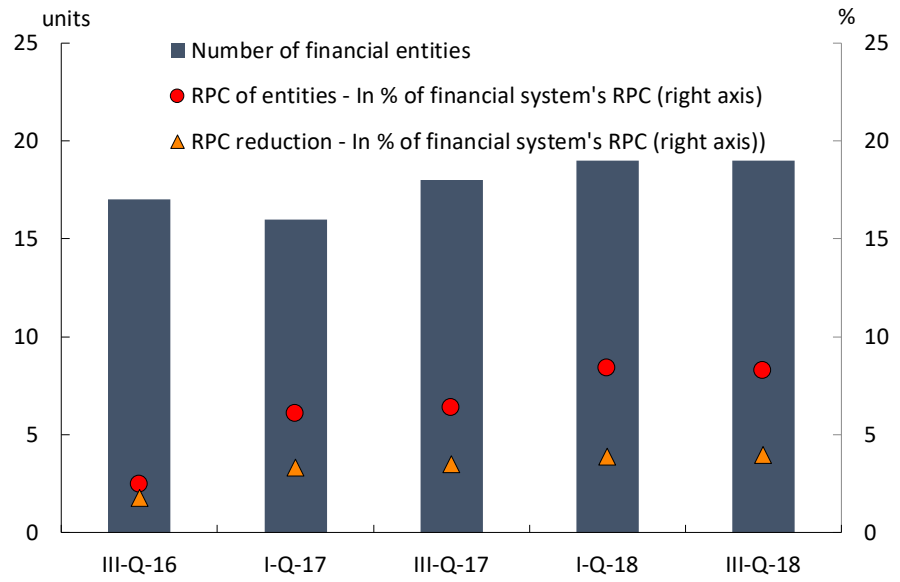
Source: BCRA

3.2.3. The results of sensitivity exercises for credit risk show potentially reduced impacts

For the purpose of monitoring the soundness of the financial system, the BCRA conducts on a regular basis several stress tests, both in terms of analysis of sensitivity and of scenarios.[53] Taking into consideration as whole the different sensitivity exercises performed by the BCRA, for the third quarter of 2018, it is observed that banks' level of capital, in excess of the regulatory requirement, would be high enough to face any credit risk adverse scenarios without significant tensions. In particular, there were no sizable changes against the results recorded in the IEF previous edition based on the exercise assuming a hypothetical rise of the delinquency ratio of each institution to the maximum levels recorded, for each one of them, during the 2008-2009 crisis (see Chart 3.7).[54] Following the simulated adverse shock, in the third quarter, the number of institutions posting a negative capital position would be 19 (jointly accounting for 8.3% of the total capital of the financial system before the shock). The aggregate balance sheet impact caused by the simulated failure in this ensemble of 19 banks would be limited (around 4% of the RPC of the system).[55]

[53] For further details of sensitivity exercises, see Financial Stability Report First Half 2016. In turn, the analyses of scenarios are conducted once a year, taking into account extreme adverse macroeconomic conditions.
[54] In this version of the exercise, it is assumed that the non-performance ratio of lending portfolio to the private sector corresponding to each institution rises from the current level to the maximum reached during the peak of the 2007-2009 international financial crisis and then, delinquent debtors fail to comply with the payment obligation, thus generating losses for loans not duly provisioned.
[55] It is worth considering that after the shock, the remaining institutions (58) would have an excess of capital (above the regulatory requirement) equal to 29% of the initial aggregate RPC of the financial system. In other words, the aggregate availability of regulatory capital after the shock is significantly higher than the balance sheet impact generated by failing entities.

Chart 3.7 – Results of Sensitivity Exercise B on Regulatory Capital
Information from institutions with a negative capital position following the shock



Source: BCRA

For the purpose of considering any "domino" effects among financial institutions, the potential impacts of such results were assessed taking into account interconnectedness within the call money market.[56] It is worth mentioning that, at systemic level, this market is reduced, as described in Exhibit 5, but it may provide relevant information as to systemic credit risk. Thus, out of the ensemble of 19 banks mentioned in the preceding paragraph, only 3 took funds from other 2 financial institutions in this call money market by the end of the third quarter. Continuing with this hypothetical exercise, it is assumed that none of the 3 banks taking funds would comply with their commitments for financial loans taken, thus causing a capital loss for the institutions that granted such resources.[57] According to the results obtained, as of September, none of the 2 institutions offering such type of loans would face capital shortfalls due to the adverse shock.

3.3. High coverage against liquidity risk

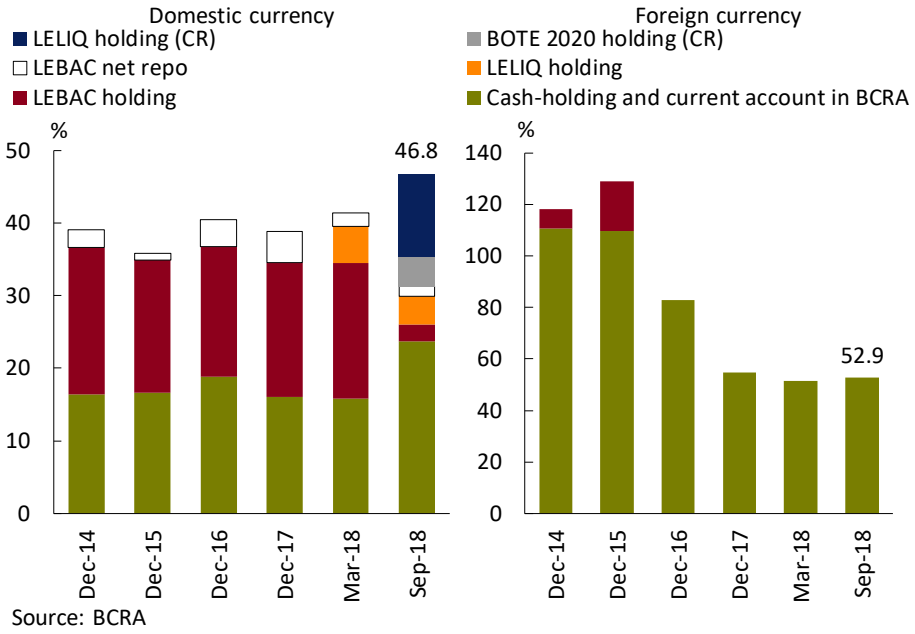
The indicators of exposure to liquidity systemic risk posted a dissimilar performance. In recent months, the concentration of total deposits rose moderately —mainly in state-owned banks—, in a context of lesser weighting of natural persons' deposits.[58] On the other hand, so far in 2018, the relative weight of short-term liabilities in bank funding lost ground.[59]

In a context of regulatory changes and monetary policy measures, and given the fact that deposits posted a positive performance in spite of the macro financial context during the last two quarters, the ensemble of banks continued exhibiting high coverage against liquidity risk. Higher liquidity assets in terms of deposits stood above the level recorded in the latest edition of the IEF. As stated in Chapter 2, the balance of current accounts held by banks with the BCRA and the securities admissible for calculation of the minimum cash requirements (LELIQs and BOTEs due 2020) gained weight in the liquid asset portfolio for the segment in domestic currency (see Chart 3.8). The composition of liquidity in foreign currency posted no relevant changes against March 2018, maintaining a liquidity coverage of around 50% of the total. In turn, the

[56] In this case, only direct spreading or contagion due to exposures on the side of assets is taken into account. In other words, the effect for an institution offering funds in the call market, if such institution maintains in its assets (credit) a bank that was severely affected by the credit risk initial shock deriving from the sensitivity exercise.
[57] It is worth mentioning that this analysis was conducted separately from the previous one. The result was analyzed based on the result of the credit shock and established on the current performance in the call money market.
[58] Concentration data as of June 2018, latest information available.
[59] At one month of residual term.

Liquidity Coverage Ratio (LCR), which measures the availability of high-quality funds in a hypothetical stress scenario, rose to 2.2 at the end of the first half of the year, going up 0.1 against the value recorded by late 2017.[60] Thus, the domestic financial system continued posting levels above international recommendations for this indicator (for 2018, the minimum suggested ratio was 0.9). In addition, as from this year, the Net Stable Funding Ratio (NSFR) commenced to be applied at domestic level. The purpose of this indicator is to provide banks with stable resources to finance their longer-term assets.[61] By mid-2018, the NSFR for the ensemble of banks stood at around 1.5, thus exceeding by almost 50% the levels recommended internationally.

Chart 3.8 – Level and Composition of Bank Liquidity by Currency
As % of Deposits



Source: BCRA

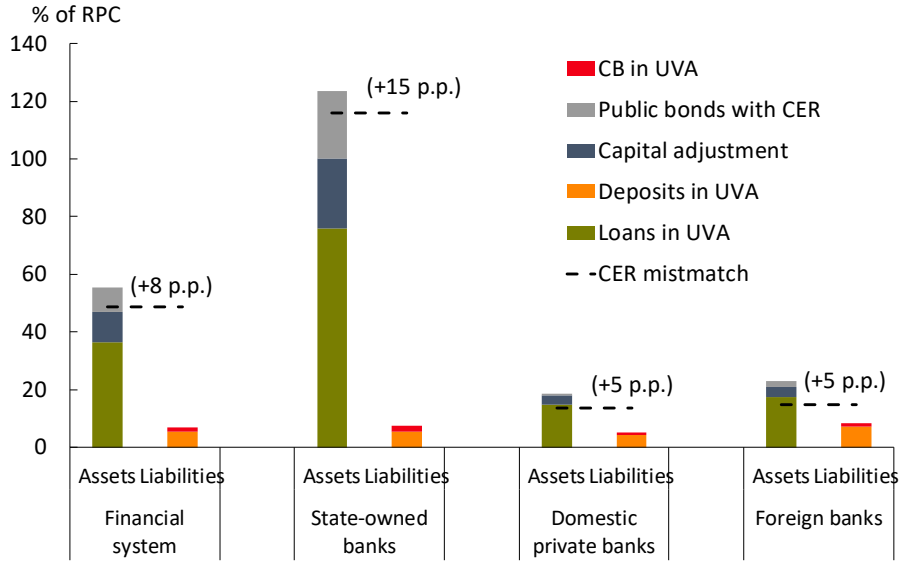
3.4. The UVA mismatch of the financial system went up slightly, even though there was a renewed boost in UVA-denominated deposits

As already stated in Chapter 2, UVA-denominated loans continued to increase in 2018, and have shown certain deceleration as from last June. As regards funding in UVAs, in recent months, deposits growth pace accelerated (from more reduced levels) and up to September there have been no issues of bank debt.[62] Taking into account the long position in UVAs, the rise of inflation in recent months resulted in the restatement of capitals and a wider gap measured in pesos. Consequently, this spread for the aggregate financial system accounted for 37.9% of the Adjusted Stockholders' Equity (RPC) in September, almost 10 p.p. above the level recorded in March 2018 (more than 50% of this increase was due to restatement of items by inflation).

When considering the other items of the balance sheet adjustable by CER (mainly government securities), the mismatch in terms of such items stands at around 48.7% of the RPC, 8 p.p. above the level recorded in March 2018 at systemic level. By ensemble of institutions, this mismatch continued to be explained mostly by state-owned banks (see Chart 3.9). Given the limited size of the CER long positions (including UVA) and the evolution of inflation and of interest rates (see Monetary Policy Report —IPOM— and Chapter 2), the associated systemic risks continue to be moderate.[63]

[60] Latest information available.
[61] The indicator is the ratio between the amount of available stable funding (ASF) and the amount of required stable funding (RSF).
[62] By late October and early November, 3 financial institutions issued corporate bonds denominated in UVAs (see Chapter 1).
[63] It is worth recalling that upon a UVA or CER mismatch, the financial system is exposed to currency risk and to real interest rate risk. With respect to currency risk, if the denomination of assets (UVA) differs from the denomination of liabilities funding them (pesos),

Chart 3.9 – Estimated CER Mismatch and its Components by Group of Banks
September 2018 – The mismatch change against March 2018 is stated in brackets



Source: BCRA and CNV

3.5. Reduced levels of exposure to foreign currency mismatch and maturity mismatch

The long position in foreign currency of the financial system stood at around 17.8% of regulatory capital (Adjusted Stockholders' Equity -RPC) in September, up 8.4 p.p. against the value stated in the previous edition of the IEF.[64] This increase mostly results from the effect of the restatement of the mismatch at a higher nominal exchange rate, when measured in terms of the RPC. The currency mismatch of the system is currently low, partly as a result of the regulation on Foreign Currency Net Global Position establishing prudential limits for this balance sheet mismatch of financial institutions.[65] As of September, the regulatory capital requirement related to exchange risk stood at 3.8% of the total requirement (2.4% of the RPC), up 1.3 p.p. against the requirement at the end of the first quarter (+0.9 p.p. in terms of the RPC). These changes were mainly related to the performance of state-owned banks.

Structurally speaking, banks exhibit a scarce maturity transformation focusing, in general, on transactional activities. In recent months, the lesser relative growth of loans with respect to deposits and the obligation to comply with higher minimum cash reserve requirements with respect to such deposits intensified the scarce maturity transformation. Given the rise of benchmark interest rates, the implicit cost of funding for deposits increased more than the implicit lending rate, thus reducing the interest margins accrued by banks

there may be different effects on balance sheet items (and consequently, on results) in case of fluctuation of the conversion unit (inflation). The real interest rate risk appears when, in addition, there is maturity mismatch (with different sensitivity for renegotiation of interest rates between assets and liabilities): long-term assets (such as mortgage loans) at a fixed interest rate, and short-term liabilities (such as deposits) at an interest rate which is renegotiated according to the fluctuations of the benchmark rate. In other words, the financial system is exposed to real interest rate rises. If the nominal benchmark rate would go up higher than inflation, the increase would be almost instantly mirrored in the interest rate of deposits, thus generating higher expenses, whereas the change of interest rate of loans would occur more slowly (due to the longer relative term). This would occur in a context in which the restatement of assets (by inflation) would generate income that, at least temporarily, would not offset the above-stated increase of expenses.

[64] The long position in foreign currency is defined as Foreign Currency Assets minus Foreign Currency Liabilities plus Foreign Currency Forward Net Purchases with no delivery of underlying asset (off-balance items). This indicator is used for analytical purposes and not in regulatory terms.

[65] See Consolidated Text on "Foreign Currency Net Global Position".

in their balance sheets (see Chapter 2). Given the low exposure, the materialization of interest rate risk posted a relatively limited balance sheet effect for the financial system.

By the end of 2017, the BCRA released some changes in the guidelines for interest rate risk management of the investment portfolio,[66] which became operative in the second half of 2018.[67] The capital adequacy for this risk must be explicitly considered in internal assessments of institutions (ICAAP —Internal Capital Adequacy and Assessment Process—). Beyond this standardized framework, the quantity and quality of capital must be assured taking into account the risk profile and appetite. Since this risk falls within Pillar 2 —Basel Committee—, the supervisor has full powers, if deemed necessary, to demand a readjustment of capital.[68]

[66] Communication "A" 6397.
[67] The information based on new guidelines will be available by the end of November (see Communication "A" 6561).
[68] Either by requiring additional capital or by forcing to reduce exposures, or a combination of both.

Exhibit 3 / Interconnectedness and Systemic Risk: An Analysis of Networks

The international financial crisis starting in 2007 shed light about the need to have a better understanding of how the linkages between the different economic players may entail risks for financial stability. Under some circumstances, the interconnectedness contributed to amplify the tension and led to an unprecedented level of contagion among banks, non-banking financial intermediaries as well as money and capital markets, even in cases where there was no direct linkage among them.[69] Later on, a series of surveys and methodologies went deeper into the analysis of financial systems interconnectedness, with a special focus on its linkage with systemic risk. With reference to regulation, policy-makers have sought to make progress in initiatives tending to mitigate the associated risks, while keeping the benefits of the interlinkages among institutions.[70]

The systemic risk factor associated with interconnectedness is related to the fact that a financial failure or distress in an institution may significantly increase the likelihood that other institutions may also have difficulties, given the network of contractual obligations and linkages where they operate, leading over time to a failure in the functioning of the ensemble of institutions that may eventually impact on the economic system.[71] It is possible to define two types of interconnectedness among financial entities: direct and indirect. The former refers to linkages among institutions through financial transactions, obligations and other agreements that are explicitly documented or which are directly observable. In turn, the indirect interconnectedness refers to the channels through which an institution in distress may affect another even when there is no direct linkage between them.[72]

Regarding the analysis of interconnectedness and systemic risk, there are several approaches that were developed by both the academia and the regulators. These methodologies include network analysis,[73] CoRisk measurement models based on market data, stress tests and simulation exercises, among others, to analyze direct and indirect interconnectedness.[74] The analytical methods on this topic used by the regulators in each country are varied and depend on the structure of their financial systems and the restrictions in terms of availability of relevant information. In general, it is advisable to tackle the analysis of interconnectedness and systemic risk on the basis of the different methodologies which, in addition, supplement one another.

In terms of direct interconnectedness, it is worth mentioning that there are opposite views in academic literature about the relation between the architecture of the financial system (or of a specific market) and systemic risk.[75] For example, in Allen and Gale, it is shown that upon an eventual adverse shock, the propagation of the shock critically depends on the interconnectedness pattern among banks.[76]

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[69] Espinosa Vega, M.A. and Solé, J. (2014). "Introduction to the Network Analysis Approach to Stress Testing". In Li Ong. "A Guide to IMF Stress Testing: Methods and Models". IMF.
[70] See, for example, Yellen, J. L. (2013), "Interconnectedness and Systemic Risk: Lessons from the Financial Crisis and Policy Implications Remarks," in American Economic Association/ American Finance Association Joint Luncheon.
[71] FBS-BIS-IMF (2009). "Guidance to assess the systemic importance of financial institutions, markets and instruments".
[72] An example of direct interconnectedness is the credit exposure between two banks (loans, funding), the relations arising from the use of the market infrastructure (payment system, clearing and settlement institutions), etc. An example of indirect interconnectedness is the exposure to common assets, due to losses for mark-to-market in a context of fire sales, etc.
[73] The purpose of this type of analysis is to measure and map the interactions and flows between a group of players called nodes or vertices, while the links or edges among them are the direct interactions; this is a tool used to study complex systems of different disciplines (physics, biology, social networks, etc.), under a common methodology. See Barabási, A.L. (2016). "Network science," Cambridge University Press.
[74] See Arregui, N., Norat, M., Pancorbo, A., Scarlata. (2013). "Addressing Interconnectedness: Concepts and Prudential Tools". No. WP/13/199), IMF and "Understanding interconnectedness risk" (2015), DTCC.
[75] For a survey on the discussion between network topology and systemic risk in interbank markets, see Hüser, A.C. (2015), "Too Interconnected to Fail: A Survey of the Interbank Networks Literature". SAFE WP 91.
[76] Allen, F. and Gale, D. (2000), "Financial Contagion", Journal of Political Economy, Vol. 108, No. 1, pages 1–33.

In a fully connected network (which is called "complete"), the impact of a shock lessens since every bank suffers a small loss and there is no significant contagion, resulting in a relatively robust structure.[77] Further works on this field have challenged the conclusion that "complete networks" are relatively more resilient. In Haldane, the concept of "robust but fragile" is coined, with reference to interbank networks, with the argument that the shock may be absorbed or not by a network, depending on the magnitude of the shock.[78] In turn, Gai and Kapadia[79] argue that a shock of any given size may have a very different impact depending on the node of the network that is affected.[80] On the other hand, more recent research papers tend to analyze shock propagation and contagion from the viewpoint of networks by considering the complex interactions among the players in the different markets (multilayers).[81]

On the other hand, from a regulatory perspective, especially relevant is the joint guidance provided by the Financial Stability Board (FSB), the Bank for International Settlements (BIS) and the International Monetary Fund (IMF) –as a response to a request by the G20— where an assessment framework of financial institutions, markets and systemically important instruments was provided.[82] In particular, the degree of interconnectedness is identified as one of the key aspects within the regulation in order to consider the systemically important institutions at global and domestic levels. In terms of prudential regulation, one of the international recommendations is the application of an additional capital requirement.[83]

In order to improve the approach on the macroprudential policy, the BCRA is working to develop a series of monitoring methodologies related to this potential particular source of systemic vulnerability.[84] The lines of work in progress include the use of network analysis and sensitivity exercises[85], as well as models based on market data (indirect interconnectedness). As part of this work, the BCRA seeks to characterize the financial interconnectedness architecture in Argentina, identify key elements and analyze the topology, as part of a first stage of work, and also study the propagation of shocks, both direct and indirect and for different markets and/or scope, and finally make policy recommendations. The most important limitations are the availability of data about counterparties in the different financial markets and the characteristics inherent in these markets (these are limitations related to depth that hinder the use of well-known methodologies, such as the models based on market data).

An application of the network analysis to the domestic market of interfinancial loans

As an example, some preliminary results and conclusions are included below about the application of the network analysis of the bilateral exposures in the call money market of Argentina. At this stage, the purpose is mainly to make a preliminary characterization of the type of interconnectedness in place in our recent past.[86] The data used come from the BCRA's Centralized System of Information Requirements (SISCEN)[87].

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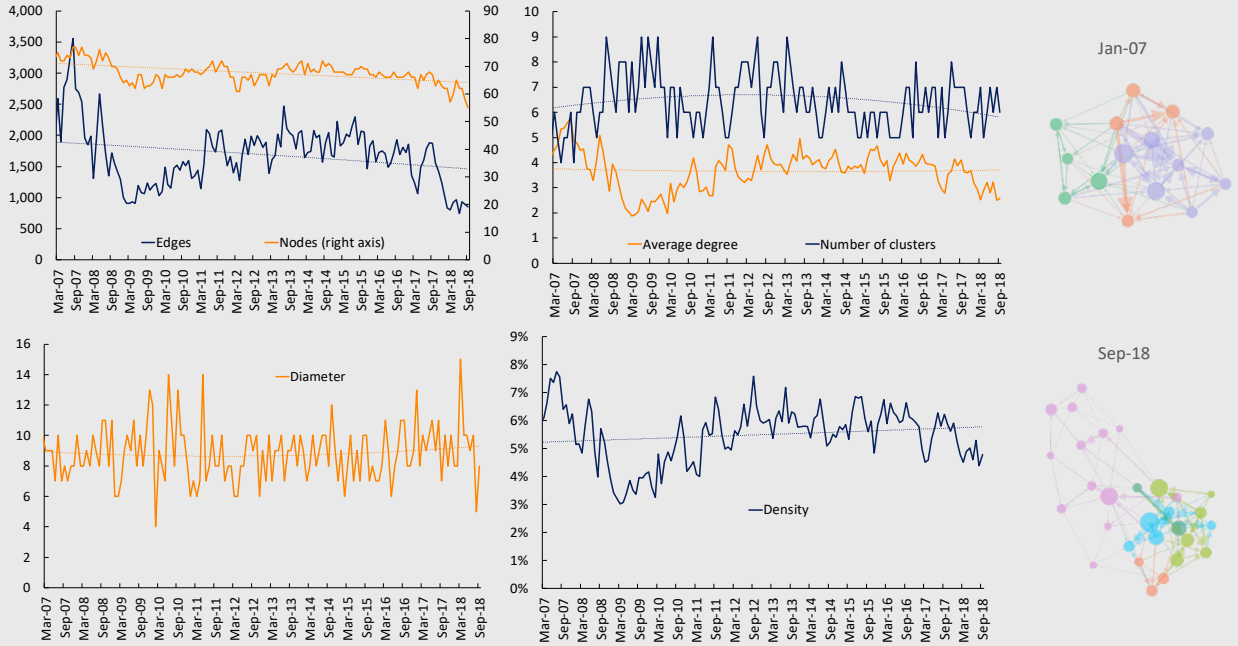
[77] In Freixas, Parigi and Rochet, a center-periphery structure is analyzed by identifying various contagion patterns based on the position of insolvency and the size of the debt (see Freixas, Parigi and Rochet (2000) "Systemic Risk, Interbank Relations, and Liquidity Provision by the Central Bank." Journal of Money, Credit and Banking, vol. 32, no. 3, pages. 611–638).
[78] Haldane, A. (2009). "Rethinking the financial network." Speech at the Financial Student Association, Amsterdam.
[79] Gai, P. and Kapadia, S. (2010), "Contagion in financial networks," in "Proceedings of the Royal Society of London A: Mathematical, Physical and Engineering Sciences", Vol. 466, pages 2401–2423, The Royal Society.
[80] Acemoglu et al. seek to reconcile these various perspectives by observing the different transition stages in terms of connectedness and size of the shock. See Acemoglu, D., Ozdaglar, A. and Tahbaz-Salehi A. (2015). "Systemic Risk and Stability in Financial Networks." AER, 105 (2): 564-608.
[81] Korniyenko, Y, Patnam, M., del Rio-Chanon, R.M., Porter, M.A. (2018) "Evolution of the Global Financial Network and Contagion: A New Approach", WP 18/113, IMF.
[82] FBS-BIS-IMF (2009). "Guidance to assess the systemic importance of financial institutions, markets and instruments".
[83] See BCRA. "Assessment Methodology for Domestic Systemic Important Banks".
[84] In terms of the regulatory framework for the Argentine financial system, it is worth mentioning that the regulation on "Credit Risk Diversification" is currently in force. It considers the limits for credit exposures among banks, and the purpose is to reduce, to some extent, the sources of contagion among them. These limits are established on the basis of the institutions' regulatory capital, depending on the type of entity and on the rating provided to them by the Superintendency of Financial and Foreign Exchange Institutions (*Superintendencia de Entidades Financieras y Cambiarias – SEFyC*). The abovementioned regulation will be adjusted soon according to the recommendations of the Basel Committee in terms of the treatment to be given to large credit exposures.
[85] According to the methodology suggested in Chan-Lau, J. A., Espinosa M., Giesecke K., Solé J., "Assessing the system implications of financial linkages," Chapter 2, GFSR, IMF (2009).
[86] See Anastasi, A., Elosegui, P. Sangiácomo, M. (2010) *"Determinants of the Loan Interbank Rate in Argentina", Working Paper,* BCRA, 95-125, for a description of the call market operation and its linkage with other markets and an econometric estimate.
[87] This database provides detailed information about the conditions of the daily transactions and includes participating institutions (grantor and recipient), amount, term, interest rate and currency, among others.

The analysis included monthly data from January 2007 to September 2018. It is worth mentioning that, in aggregate terms for the Argentine financial system, the total stock of the call market is relatively low (it accounts for 0.4% of the assets of the ensemble of financial institutions for the average of the last 5 years, with a monthly maximum value of 0.7% in December 2017). However, for some institutions at individual level, the importance of the call market is relatively higher. On the other hand, since late 2010, the secured interfinancial credits (repos) have exceeded the call market volume, even though there is no information available as to counterparties in repos.

Chart A.3.1 – Network Analysis Metrics and Graphs for the Call Market



According to the standard metrics in the network analysis, it is possible to see, for example, that there were between 55 and 77 nodes (participating institutions) in the period under analysis, with an average of 68 institutions (as reference, it is worth noting that the total number of institutions was 78 as of September 2018). It may be seen that the average degree –number of neighbors to which each node relates on average— decreases at times of tension (end of 2008-mid 2009, April 2018 onwards) (see Chart A.3.1). A similar behavior is observed in terms of density –number of effective links of a network (graph) relative to all possible linkages.[88] The diameter –maximum value of the shortest path between two pairs of nodes— remained relatively stable at 9 (median). It would seem that its variability increases at times of tension, which is interpreted in the same direction as the decrease in the average degree. It is worth noting that the amount of communities or clusters in the network also shows some stability, standing at 6 in the median for the period under analysis, which would be signaling that it is a structural variable depending on long-term processes.[89] The distribution of the network degree was analyzed from the side of the credit provider (out-degree) and from the side of the fund taker (in-degree). A preliminary conclusion indicates that, at times of tension, the distribution is more concentrated in both sides (provider and taker of funds). Chapter 3 of this IEF edition shows a first special application of the direct interconnectedness analysis based on the network structure. There, the sensitivity exercises are enriched in order to evaluate the robustness of the system to adverse credit risk shocks allowing for the spread of effects between entities. In the future, tests will be performed on changes in the network topology upon shocks or observed periods of tension, and the effects on the clusters will be analyzed. On the basis of the information available, the objective is to extend the analysis to the financial sector and incorporate other players.

[88] This measurement stands at around 5.5%.
[89] There is a high correlation between the number of edges and the metrics of average degree, density and clustering coefficient.

Exhibit 4 / First Cyber Exercise of the Financial System

In recent years, the traditional financial services have experienced a remarkable change in technological innovation and many of their processes have been digitalized. This has resulted in their increasing reliance on providers of technological services, creating a new layer of interconnectedness of the financial networks based on the technological infrastructure. Even though technology has offered new business opportunities for the sector, resulting in potential benefits for society at large (such as a better financial inclusion), it has also created new risk factors to be taken into account in financial activity monitoring.[90] In this context, there have been several well-known and serious incidents of cybersecurity.[91]

Considering the possibility that an incorrect use of technology and information systems may cause a disruption of the essential financial services and consequently threaten financial stability, several international forums are fostering different actions to tackle this issue adequately. At the G20 Meeting, in early 2017, member countries asked the Financial Stability Board (FSB) to adopt specific measures on this topic.[92] Thus, for the purpose of analyzing both the eventual systemic implication of cyber risk and the tools available to prevent and/or mitigate such risk, the FSB set in motion a series of activities among the participating jurisdictions.[93] There, it was detected that better tools were needed for the response to, and recovery from, cyber incidents of the financial sector. It was also confirmed that the simulation exercise was the most widely used practice to measure the level of both preparation and resilience in case of a cyberattack.

There is consensus about the usefulness of these simulation practices in this environment, since they promote better awareness and coordination among the different players of the system, leading to an improvement in the capacity of response and recovery upon a cybersecurity incident. There are several types of exercises, ranging from "table-top exercises" to "real life simulations". The former consists in recreating actions to be followed in case of a crisis simulated situation, previously coordinated and developed during a meeting. In turn, the second type involves role playing exercises, in which a real-time attack to IT infrastructure is simulated. These exercises recreate cyber incidents scenarios.[94]

At the beginning of 2018, the BCRA launched the first "cyber exercise" in order to have an overview of the cybersecurity domestic problem in the financial system. On this occasion, the exercise was developed with the voluntary participation of a group of institutions. The test performed consisted in a simulation with the characteristics of a "table-top exercise", for which a guide of events and actions to be tested was previously planned in an IT environment specifically adapted for this purpose. The test included the responses to such events –which may eventually result in crisis situations— and the communication inside each institution and among the participating institutions.

The "cyber exercise" promoted by the BCRA provided a first approach towards the capacities in place in terms of communication, coordination and response to a cybersecurity crisis among the participants of the financial sector. It was also useful for participants to analyze the level of preparation of their organizations. It is understood that this type of exercise provides relevant inputs to make progress in the preparation of a proposal for a cybersecurity strategy consistent with the current challenges.

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[90] In particular, it is possible to incorporate technological risk to the so-called operational risk. As defined by the Basel Committee on Banking Supervision in 2006, operational risk is the possibility that banks may suffer losses resulting from failures in their internal processes, the performance of their employees or their systems, or derived from external events. As a special case, the technological risk mainly entails any problem or failure in the information technology infrastructure or the systems used to support the financial institution's business.

[91] Examples of cyberattacks are the Bangladesh Bank in 2016, affected in U$D 81 million, the Ransomware Wannacry attack in 2017, which involved 250,000 computers in 150 countries, and the personal data security incident of Equifax in 2017, including 143 million records. See "Cyber risk, market failures and financial stability", Kopp, Kaffenberger and Wilson, IMF Working Papers 17/185.

[92] G20 Official Communique, Baden-Baden, Germany, March 17-18, 2017.

[93] They included, among others, a survey of the tools being used by the different jurisdictions to analyze cybersecurity vulnerabilities and the preparation of a common cybersecurity glossary for the financial sector.

[94] For example, distributed denial-of-service (DDoS) attacks, theft of financial service clients' information, fraud and other attacks to critical infrastructures.

4. *Payment System*

The BCRA seeks to contribute to more secured, faster and cheaper transactions, and to promote a context of higher levels of financial inclusion. To this effect, the monetary authority continues to encourage measures to foster a greater use of electronic means of payment as well as the spreading of information about them. Several indicators show that, since the IEF previous edition, the trend continues towards a higher use of electronic means by the population. In particular, in the aggregate of the first nine months of the year, the electronic means of payment (instant transfers and payments through low value clearing houses, as well as direct debits and credit and debit cards) recorded a year-on-year increase of 1.4 p.p. in terms of GDP to 43.7%.

Modernization of the National Payment System

The BCRA continues to promote different initiatives to increase the use of electronic payment systems, seeking to widen the universe of providers and the electronic payment alternatives. Thus, it has recently created the electronic check or ECHEQ. The enactment of Law No. 27,444 on Simplification and De-bureaucratization for the Productive Development of the Nation introduced a series of changes to the Act on Checks, which have allowed remedying the main inconveniences that hindered the implementation of the entirely electronic version of a check, such as the extension of the requirement of digital signature. As from Law No. 27,444, the digital signature may be replaced with any electronic means that ensures unequivocally the express will of the drawer, endorser or guarantor in each case, as well as the integrity of the document. Even more, the abovementioned law provides the framework for the ECHEQ to become a document subject to executory rights. Later on, it was regulated by the BCRA by means of Communication "A" 6578, which established that as from April 1, 2019, financial institutions may receive electronic checks for deposit or honor them when submitted to the cashier window for collection, even though the paper check format may continue to be used (see Box 7).

Box 7. The Electronic Check

The electronic check (ECHEQ) is a check issued by electronic means that may be drawn in favor of a natural or a legal person, and it falls under the regulation in force in all aspects applicable to this new method and also in all aspects related to clearing and settlement of instruments.[95]

In order to make the market more dynamic and facilitate the transactions between the parties, financial institutions are now obliged, as minimum conditions, to allow their clients to make deposits of checks that were electronically issued and to honor any ECHEQ submitted to the cashier window for collection. This means that the institutions that opt not to issue ECHEQs must be anyway well prepared to receive them for deposit or payment, and for their further crediting and collection.

The ECHEQ is intended to keep all the features of the traditional check, for example, it may be either common or for deferred payment, it is a document subject to executory rights and it is endorsable and without the limitations applicable to physical checks according to the current regulation ("one" for the common check, "two" for deferred payment checks). In fact, given that the scheme foreseen for the ECHEQ will provide greater traceability to current transactions, the possibility of unlimited endorsements has also been addressed.

The ECHEQ is expected to provide additional benefits such as the reduction of potential causes for check bouncing, especially those related to formal defects (for example, a signature that does not match the registered signature) or to aspects that render a check invalid (missing information, corrections not properly rectified, etc.), just to mention some of the situations that would be impossible in an electronically-issued check. In addition, the ECHEQ will facilitate check negotiation, which now may be

[95] Standards on "Regulation of the bank current account" and "National Payment System-Checks".

exclusively electronic and remote, will reduce its operational costs in terms of movement and verification of documents, and will speed up check discount in the capital markets.

The operation designed for the ECHEQ includes a proposal for the creation of a common repository, which will be managed, either exclusively or not, by the Low Value Automated Clearing House, currently in charge of check clearing. Financial institutions may consult the transmission chain in such repository and will be able to make timely controls for the detection of situations that may entail risks for the banks. To this effect, they will have to agree on how to implement the consultation in each case according to the corresponding profile. Consensus on the technical details of this model will be arranged through the Interbank Commission on Means of Payment of the Republic of Argentina (CIMPRA), where the design of the certificate to be regulated will also be agreed for the purpose of enabling civil actions in the event of ECHEQs bouncing.

The risks in the implementation of the ECHEQ are related to the creation of a centralized structure, if compared to traditional operations. In fact, due to internal failures in these new systems and to events of cyberattacks, the risks of the ECHEQ ecosystem are different from those of the traditional check, with which the new system will coexist. For this reason, the infrastructures to manage the ECHEQ repository system, and those in charge of all related processes, such as clearing or settlement, will be considered systemically-important financial market infrastructures and, therefore, they will be subject to the Principles for Financial Market Infrastructures of the Bank for International Settlements (BIS) to mitigate risk established in the regulations in force.[96]

In this new context, the use of electronic means of payment for the issue and negotiation of checks is a timely tool to increase the efficiency of transactions with checks within the National Payment System.

In order to continue contributing to the development and modernization process of the Argentine payment ecosystem, the recent creation of the Uniform Virtual Code (CVU) has sought to speed up the interoperability of the payment service providers (PSP) and the bank accounts. These relatively new payment services are not directly related to a bank account under the name of a client; instead, they operate through wholesale bank accounts under the name of a payment provider. Pre-paid cards and digital wallets are examples of these payment services. The extension of the tracking system of traditional bank accounts (via the Uniform Banking Code – CBU) to payment service providers facilitates the interoperability and traceability of these operations (see Box 8).[97] Under the new system, bank clients with a traditional account can make, from their home-banking service, a transfer to a person having an account in a digital wallet by entering the CVU, in the same way they currently make a transfer to another bank account using the CBU. The use of the CVU allows for identifying: a) that it is a transfer to a wholesale account, b) the payment service provider that is the holder of the account and c) the final recipient of the funds. Thus, the clearing house –through the data bases it manages– may relate the CVU with the CBU of the payment service provider, credit the wholesale account and report to the credited institution the wallet account data, which allows PSPs to reflect the immediate crediting of their clients' funds as soon as it occurs.

Box 8. Interoperability and inclusion in Payment Systems

Interoperability between different types of accounts is a global trend. Its implementation seeks to promote financial inclusion and competition. Interoperable payment systems allow the population to make payment transactions immediately and, in general, at a low cost. In this respect, payment services, and especially those provided by financial institutions, have been one of the main financial innovations of recent years and have grown at global level and also in Argentina.

Interoperability models may vary from country to country and may also have a wide range of interoperability forms within the same market. In this context, and taking into account the survey

[96] Communication "A" 5775.
[97] Communication "A" 6510.

performed by the CGAP (Consultative Group to Assist the Poor) on interoperability,[98] it is possible to identify two main approaches in the countries in their search for interoperability, in relation to their scope:

1. "Market-wide" approach: These plans intended for the entire market are comprehensive and are generally promoted by a regulator or a specific organization or association close to the Government or whose activity is related to banking or payment activities.

2. "Focused" approach: The plans are intended for a subset of providers who develop "focused" interoperability mechanisms. They are meant for specific use cases, especially from person to person, and do not foresee the participation of all Payment Service providers. These mechanisms are not commonly related to the widest banking infrastructure of a country and, in general, have the virtually universal support of mobile telephony operators.

According to the abovementioned survey, in a universe of 20 countries, six of them are pursuing a "market-wide" approach, whereby some type of central plan covers a majority of providers for a majority of use cases (Brazil, Ecuador, India, Jordan, Mexico and Peru). In general, there is a regulator or governmental organization that promotes the plan (National Payments Corporation of India, Peruvian Bank Association, etc.). On the other hand, four countries are pursuing a "focused" approach whereby a subset of nonbank providers have joined together to make their own arrangement, which is largely separate from mainstream banking and is focused on person-to-person interoperability (Indonesia, Madagascar, Tanzania and Thailand). The remaining 10 markets do not yet exhibit a dominant pattern; for these 10, a mix of these approaches may be happening simultaneously.

In the Argentine market, there are interactions between payment service providers and bank accounts, but their use is still in an incipient stage. In most cases, the cash-in/cash–out operations of a digital payment service cannot be made quickly. The mechanism aims at transactions between accounts of the same payment service provider and the transaction between bank and non-bank accounts is made under the same holder, even though this varies depending on the provider. The implementation of the Uniform Virtual Code (CVU) will speed up transfers between wallet accounts and traditional accounts, thus allowing for transactions between different holders as well as their immediate crediting.

The use of the CVU will be optional for payment service providers, and they will also be able to use it with one segment of clients only. Nevertheless, the development of this interoperability mechanism requires that the CVU may be processed by any financial institution and the CVU must have an alias as it is required for the CBUs. CIMPRA has been the space for consensus on the operational aspects of this implementation.[99]

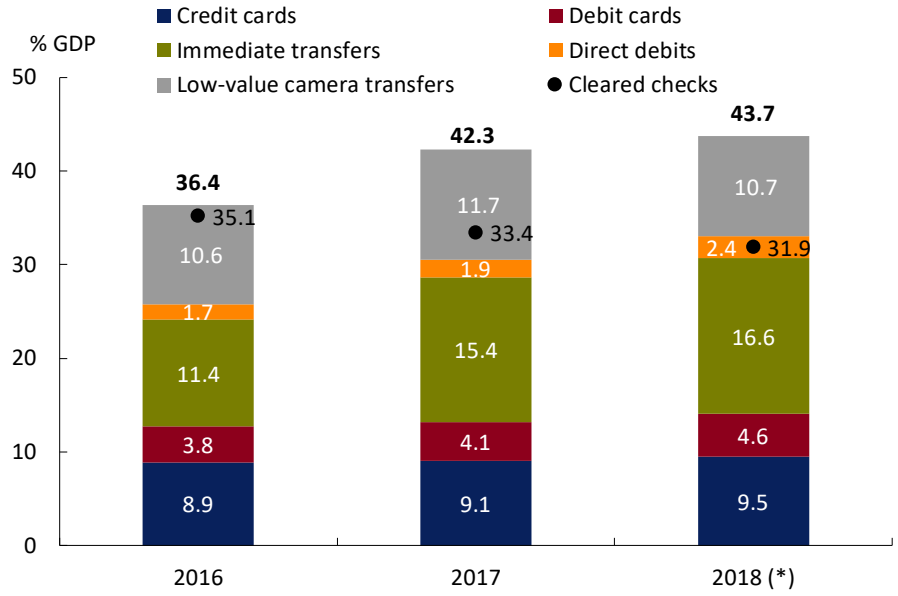
The measure is expected to facilitate the interaction already in place between traditional bank accounts and payment service providers' wholesale accounts, adding information to transactions, strengthening their traceability and enabling their instant operation.

[98] *Consultative Group to Assist the Poor —CGAP— (2016-12).* "Digital finance interoperability and financial inclusion: A 20-country scan."
[99] CIMPRA Bulletin No. 518.

Evolution of the National Payment System

In 2018, there was an increasing trend towards a higher use of electronic means of payment by the population. In this context, the amount of instant transfers relative to GDP stood at 16.6%a. in the aggregate from January to September 2018, up 1.2 p.p. and 5.2 p.p. against the same period of 2017 and 2016, respectively (see Chart 4.1). The remaining transfers made mainly by families (through the COELSA low value clearing house) accounted for 10.7% of GDP in 2018, in line with the values recorded in the previous two years. In turn, the volume of purchases with both debit and credit cards continued to grow and stood at 4.6% and 9.5% of GDP, respectively, slightly above the values recorded in recent periods. There was also a favorable evolution in the performance of direct debit transactions. In this context of increasing use of electronic means of payment, the value of check clearing in terms of GDP continued to go down, standing at 31.9% of GDP in the aggregate from January to September —down 1.5 p.p. and 3.3 p.p. against 2017 and 2016, respectively. Thus, electronic means of payment (instant transfers and payments through low value clearing houses, as well as direct debits and credit and debit cards) recorded a year-on-year increase of 1.4 p.p. in terms of GDP to 43.7%.

Chart 4.1 – Retail Means of Payment (excluding Cash)[100]
January-September, annualized, in terms of GDP

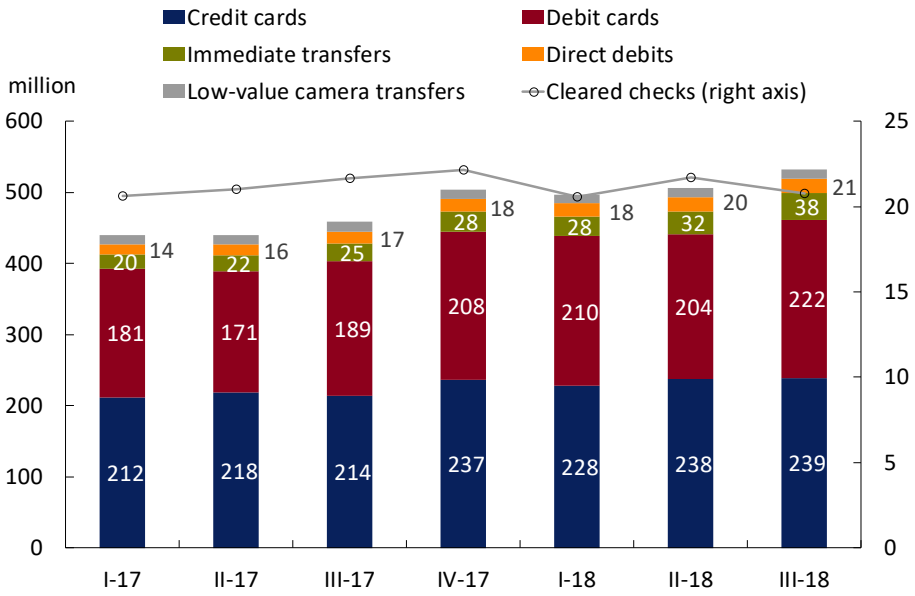


(*) estimated. Source: BCRA and INDEC

In line with the information provided in the previous paragraph, the gradual growth in the use of electronic means of payment by the population is also evident in the evolution of the number of transactions made with these instruments (see Chart 4.2). While the number of instant transfers grew 51% y.o.y. during the third quarter of 2018 (reaching a total of around 38 million), direct debits went up 24% y.o.y. in the same period (standing slightly below 21 million transactions). On the other hand, transactions with credit cards recorded a year-on-year increase of almost 12% in the third quarter of the year (totalizing almost 239 million transactions), while those made with debit cards grew 17% in the same period (to around 222 million). Conversely, transactions through the low value clearing house as well as the amount of cleared checks went down 5% y.o.y. (13 million and 21 million, respectively) as of the third quarter of 2018.[101]

[100] Operations not included. Withdrawals at ATMs and Retail Stores, Prepaid Cards, Wallets, Checks/Intrabank Transfers, Cancellation Checks, Debin, Wholesale Payments (MEP), USD Transactions.
[101] On the other hand, transfers made through the high value clearing house recorded a positive change of 18% y.o.y. (reaching a total of 19 million).

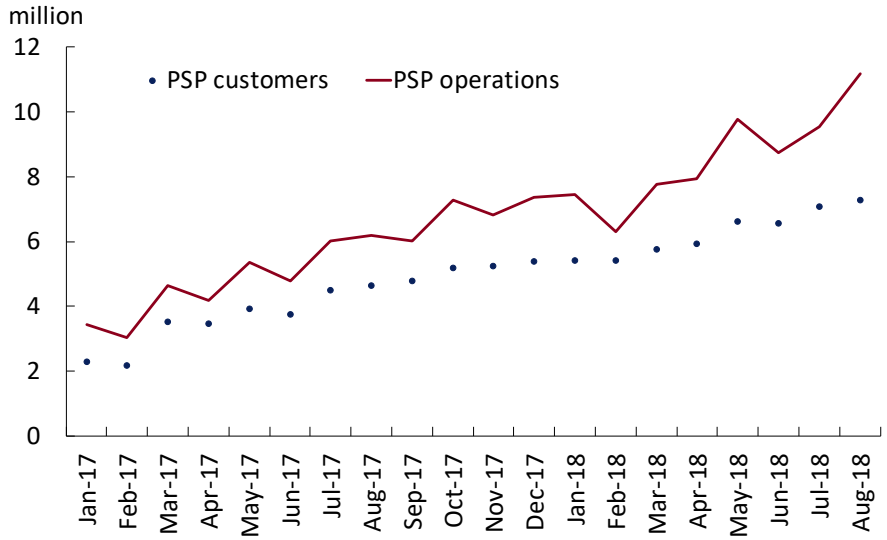
Chart 4.2 – Use of the Different Means of Payment - Share



Source: BCRA

It should be noted that mobile banking channels (BM), corporate electronic banking (BEE) and ATMs have shown a strong momentum in terms of the evolution of instant transfers. In turn, online banking (BI) has moved at a slower pace and recorded a slight reduction in its share, even though it still accounts for the largest amount of transactions of this type.

Chart 4.3 – Client Evolution – Payment Service Providers (PSP)



Source: BCRA

Lastly, it should be underlined that even though the number of transactions arranged through payment service providers is still incipient in the country, these transactions have recorded a sustained pace of growth in recent periods (see Chart 4.3), signaling their increasing depth among the electronic payment alternatives made available to the population.

Abbreviations and Acronyms

€: Euro
a.: Annualized.

AEIRR: Annual Effective Internal Rate of Return.

AFIP: *Administración Federal de Ingresos Públicos*. Argentina's Federal Tax Authority.

ANSES: *Administración Nacional de Seguridad Social*. Social Security Administration.

APR: Annual Percentage Rate.

ATM: Automated teller machine.

b.p.: basis points.

BADLAR: Interest rate for time deposits over one million pesos between 30 and 35 days for the average of financial institutions.

BCBA: *Bolsa de Comercio de Buenos Aires*. Buenos Aires Stock Exchange.

BCBS: Basel Committee on Banking Supervision.

BCRA: *Banco Central de la República Argentina*. Central Bank of Argentina.

BIS: Bank of International Settlements.

BoE: Bank of England.

Bonar: *Bonos de la Nación Argentina*. Argentine National Bonds.

CABA: *Ciudad de Buenos Aires*. Autonomous city of Buenos Aires.

CCP: Central counterparty.

CDS: Credit Default Swaps.

CEMBI: Corporate Emerging Markets Bond Index

CER: *Coeficiente de Estabilización de Referencia*. Reference Stabilization Coefficient.

CNV: *Comisión Nacional de Valores*. National Securities Commission.

CPI: Consumer Price Index.

CVS: *Coeficiente de Variación Salarial*. Wage variation coefficient.

D-SIBs: Domestic systemically important banks.

DEBIN: *Débito Inmediato*. Immediate Debit.

ECAI: External Credit Assessment Institution.

ECB: European Central Bank.

ECC: *Encuesta de Condiciones Crediticias*. Lending standards survey.

EMBI: Emerging Markets Bond Index.

EPH: *Encuesta Permanente de Hogares*. Permanent Household Survey.

EU: European Union.

Fed: Federal Reserve of US.

FGS: *Fondo de Garantía de Sustentabilidad*. Sustainability Guaranty Fund.

FSB: Financial Stability Board.

GDP: Gross Domestic Product.

IADB: Inter-American Development Bank.

IAMC: *Instituto Argentino de Mercado de Capitales*. Argentine Capital Markets Institute.

IBIF: *Inversión Bruta Interna Fija*. Gross domestic fixed investment.

IMF: International Monetary Fund.

INDEC: *Instituto Nacional de Estadísticas y Censos*. National Institute of Statistics and Censuses.

IPMP: *Índice de Precios de las Materias Primas*. Central Bank Commodities Price Index.

IPOM: *Informe de Política Monetaria*. Monetary Policy Report.

IRR: Internal Rate of Return.

LCR: Liquidity Coverage Ratio.

Lebac: *Letras del Banco Central de la República Argentina*. BCRA Bills.

LETES: *Letras del Tesoro en dólares estadounidenses*. US$ Treasury Bills.

LIBOR: London Interbank Offered Rate.

LR: Leverage Ratio.

m.a.: Moving average.

MAE: *Mercado Abierto Electrónico*. Electronic over-the-counter market.

MEP: *Medio Electrónico de Pagos*. Electronic Means of Payment.

MERCOSUR*: Mercado Común del Sur*. Southern Common Market.

MERVAL: *Mercado de Valores de Buenos Aires*. Executes, settles and guarantees security trades at the BCBA.

MF: Mutual Funds.

MoF: Ministry of Finance.

MoT: Ministry of Treasury.

MSCI: Morgan Stanley Capital International.

MULC: *Mercado Único y Libre de Cambios*. Single free exchange market.

NA: Netted assets.

NBFI: Non-Bank Financial.

NPD: National public debt.

NFPS: Non-financial national public sector's.
NW: Net worth.

OB: *Obligaciones Negociables*. Corporate bonds.

OECD: Organization for Economic Cooperation and Development.

OPEP: Organization of the Petroleum Exporting Countries.

p.p.: Percentage point.

PEN: *Poder ejecutivo Nacional*. Executive Branch.

PGNME: *Posición Global Neta de Moneda Extranjera*. Net Global Position in Foreign Currency.

PPM: *Plataforma de Pagos Móviles*. Mobile Payment Platform.

q.o.q: quarter-on-quarter.

REM: *Relevamiento de Expectativas de Mercado*. BCRA Market expectation survey.

ROA: Return on Assets.

ROE: Return on Equity.

Rofex: Rosario Futures Exchange.

RPC: *Responsabilidad Patrimonial Computable*. Adjusted stockholder's equity, calculated towards meeting capital regulations.

RWAs: Risk weighted assets.

S&P: Standard and Poors.

s.a.: Seasonally adjusted.

SEFyC: Superintendence of Financial and Exchange Institutions.

SME: Small and Medium Enterprises.

TCR: *Tipo de cambio real*. Real Exchange rate.

TN: *Tesoro Nacional*. National Treasury.

US$: United States dollar.

US: United States of America.

UTDT: *Universidad Torcuato Di Tella*. Torcuato Di Tella University.

UVA: *Unidad de Valor Adquisitivo*. Acquisition Value Unit.

UVI: *Unidad de Vivienda*. Dwellings Unit.

VAT: Value added Tax.

VIX: S&P 500 volatility.

WB: World Bank.

WPI: Wholesale Price Index.

y.o.y: year-on-year.