



Financial Stability Report

Second Half 2017



BANCO CENTRAL
DE LA REPÚBLICA ARGENTINA

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ISSN: 1668-5164
Online edition

Publication date | November 2017

Central Bank of Argentina

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Contents and Edition | Regulations Deputy General Management

Editorial Design | Communication Senior Management

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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 2018.

Autonomous City of Buenos Aires, November 15, 2017

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Executive Summary

Since the publication of the first-half of 2017 edition of the Financial Stability Report (IEF I-17), in last May, in a favorable macroeconomic environment (growth and disinflation), the performance of banking credit to the private sector consolidated markedly. Against that backdrop, the financial system maintained high liquidity and solvency levels, showing a significant degree of resilience in the credit risk test, without significant changes relative to IEF I-17. The aforementioned credit expansion is widely distributed among economic sectors, credit lines and offering banks, and displays longer terms—with UVA-denominated mortgage loans playing a significant role— as well as new debtors. Thus, the financial system became deeper after years of stagnation, though it remains in low levels in historical terms and compared to other countries.

The current process of expansion in the balance sheet of the financial system leads, naturally, to an expansion of exposures to traditional activity risks. Credit now has a larger weight in bank assets, and some mismatches are now broader (CER and interest rates). From a systemic view, said exposures remain in a low-moderate range, compared to high coverage margins at the aggregate level. This healthy growth in credit is leading to a gradual reduction of excess liquidity accumulated in banks. This reconfiguration should continue in the future, creating incentives for institutions to offer larger real returns to deposit holders, which would strengthen the deposit capturing process.

In the last three quarters, banks' profitability measures remained unchanged. The larger incomes stemming from the increase in financial intermediation with the private sector was compounded by the lower weight in administration expenditures, thanks to certain measures in terms of operational efficiency (though it remains low)). Against a backdrop of lower inflation levels and greater competition, the financial system will continue to face the challenge of adapting their business models and scales in order to enable an adequate dynamics in their solvency ratios. In that context, we should highlight the opening of markets to new bank share placements, which is helping strengthen system's capital base. This will make it possible to institutions to continue to expand their business with adequate coverage margins.

In line with what was announced in the IEF I-17, one of the main sources of risks to the financial system's stability (with a low likelihood in the next few quarters) is an eventual abrupt change in the external context, with a reduction in risk appetite, which would impact mainly through the financial channel. Facing that factor, we should highlight the relative soundness of sectorial balances, in which there prevail small currency mismatches and low leverage and debt burden levels, in the context of a floating exchange rate. As regards the local context, very marked negative deviations relative to expectations (very low likelihood) would be needed to compromise financial stability.

The financial system remains solid, in a framework of adequate regulation and oversight, which adopts the internationally recommended standards. Liquidity and solvency ratios remain high, but there are downward pressures, give the growth process launched. Against that backdrop, macroprudential monitoring becomes relevant, including the identification and assessment of systemic risks to an eventual buildup of vulnerabilities. The BCRA has macroprudential policy instruments at its disposal to act, should it be necessary.

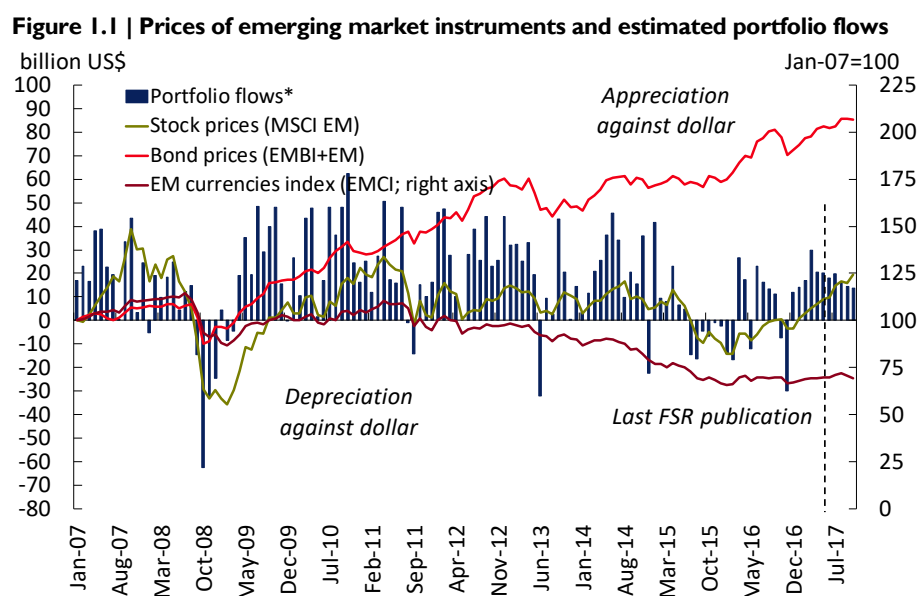
1. Context

The expected international and local scenarios continue to favor the expansion of financial intermediation in Argentina. In the last few months, the improvement in the country's credit conditions consolidated, with lower public and private debt risk margins in international markets and in the share placement operations carried out by several banks (given the expectations as regards sector expansion). However, several risk factors remain which could lead to stress events (with a low likelihood in the next few quarters) which would entail less access to capital through international markets and greater exchange rate volatility. Having said that, the Argentine economy has a series of features (relatively healthy sectoral balance sheets, exports which are not too concentrated in terms of destinations, the BCRA's strategy of international reserve accumulation, banks with low exposure to the public sector, for instance), which may reduce the potential effects of external sources of risk. As regards the evolution of the local economy, given the expansionary phase and the strength of the financial system, several very marked negative deviations from expectations (very low likelihood) would be needed for financial stability to be compromised.

International context

Transmission channels and recent evolutions

The international context could affect Argentina through the trade channel, given the evolution in global activity and the terms of trade, and through the financial channel, fundamentally conditioned by the risk appetite. In terms of these variables, the international context improved since the publication of the last IEF, in May.



* Portfolio flows to emerging markets, elaborated by the Institute of International Finance (IIF). Source: BCRA based on Bloomberg & IIF

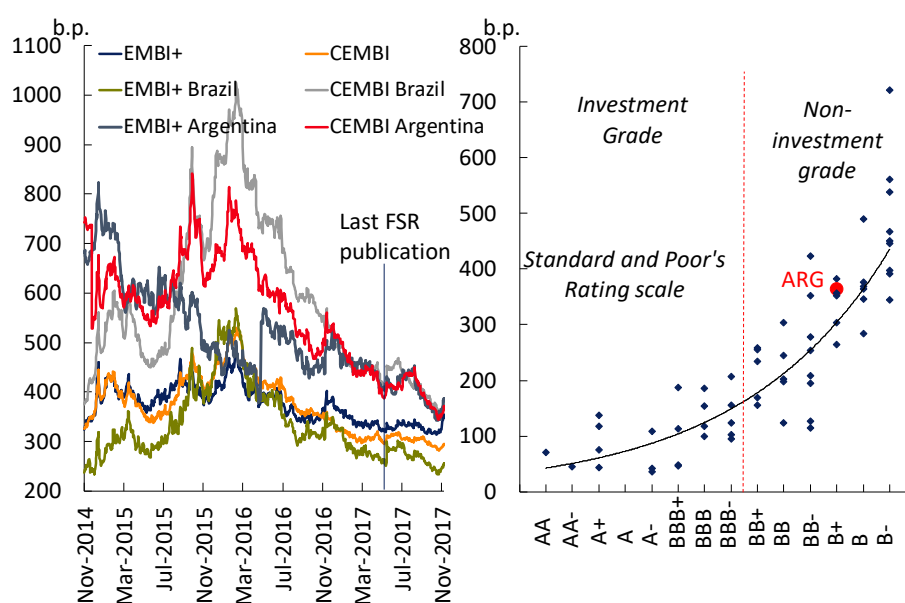
The reactivation of the world economy and of Argentina's main trading partners continued to consolidate, with a prominent place for the incipient recovery in Brazil¹. Terms of trade did not change substantially in the last few months, and remained near the average levels seen in 2013–2017. In financial markets, the

¹ According to the Central Bank of Brazil's System of Market Expectations, a year-on-year economic growth of 0.7% for 2017 and of 2.5% for 2018 is expected (-3.6% and -3.8% in 2016 and 2015, respectively). For more information, see [October's IPOM report](#).

scenario of ample liquidity, low expected volatility, advances in the main stock indices and restricted interest rates for long-term sovereign debt until early November continued. This enabled positive portfolio flows to continue towards emerging economies (see Figure 1.1), with record volumes in debt placement of these countries in international markets and improvements in the prices of bonds and shares.

Against that backdrop, and considering the positive macroeconomic prospects and the potential for new improvements in debt rating², the reduction in the risk differentials of Argentine securities was more significant than that seen in average in the group of emerging economies (see Figure 1.2). The risk associated to sovereign and corporate bonds of Argentina (measured by the EMBI+ and CEMBI) contracted and reached in mid-October levels of approximately 340-350 b.p., last seen in 2007.

Figure 1.2 | Argentine debt perceived risk



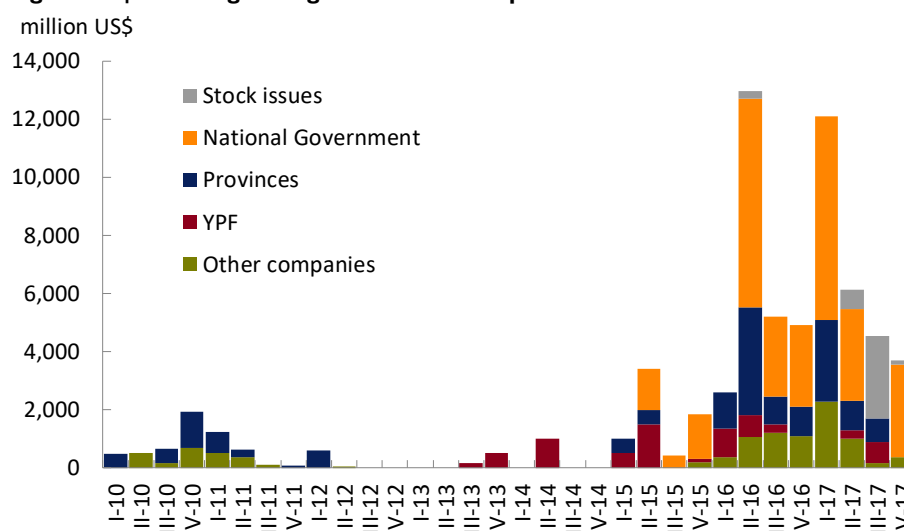
Source: Bloomberg

This enabled new debt placements in external markets, both by the national public sector and by the provinces and the corporate sector, though not as dynamic as the one seen in the first half of the year. Operations of this type are making it possible to access larger financing volumes and with longer maturities than the ones available in the local market³. Moreover, thanks to improvements in the stock indices and the lower cost of new share issuance, there were significant operations in the last months aimed at increasing capital in external markets, and additional transactions are expected for the next few months (see Figure 1.3). So far, these operations were carried out mostly by banks, considering the expected growth in the financial sector (see Chapter 2). As regards portfolio inflows to Argentina, in the exchange market, there continued to be an increase of net income linked to non-resident portfolio investments⁴.

² In late October, S&P increased the long-term foreign-currency sovereign debt rating to B+ (third rating increase since late 2015), mentioning a greater confidence on the government's political capacity to continue the implementation of its economic agenda.

³ For instance, for companies, the weighted average term of placement in international markets during January-October was of 7.6 years, while in the case of peso-denominated instruments in domestic markets, the average term was of almost 2.5 years.

⁴ See reports on ["Evolution of the Free and Single Foreign Exchange Market and Exchange Balance"](#)

Figure 1.3 | Financing through international capital markets

Source: BCRA based on BCBA, CNV, IAMC, MF and Bloomberg. Data to November 10, 2017 Note: excludes operations through debt swaps and refinancing of liabilities.

Main risks to financial stability

The scenario projected for the next months continue to be positive, with a sustained growth in the global economy and Argentina's trading partners, as well as relatively favorable credit conditions in external financial markets⁵. The most relevant source of systemic risk for Argentina would be the one operating through the financial channel: a sudden change in risk appetite (particularly for emerging market assets) in financial markets with a significant impact on the supply of external credit and entailing pressures on the exchange rate and an increase in its volatility. In that sense, it would manifest as a financing and/or currency risk, considering the limited mismatches existing in sectorial balance sheets⁶.

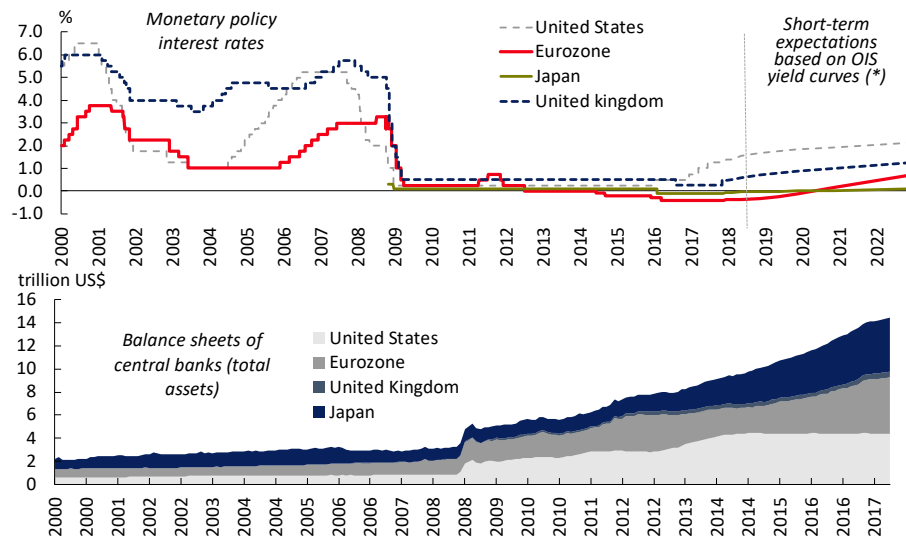
The factors which could trigger an abrupt negative change (a low-likelihood event) relative to the base scenario do not present substantial changes compared to the last edition of the IEF. Significant among these would be a sudden change in expectations as regards the monetary policy of the main developed economies⁷ (see Figure 1.4), which could affect risk appetite and portfolio flows towards emerging countries. The potential impact would be magnified after a lengthy period of positioning in risky assets (with valuations near the historical maximum for certain segments). Unexpected changes in trade and fiscal policies of major economies could also be a source of uncertainty. Another source of potential risk is related to geopolitical aspects. Emerging economies themselves could trigger a scenario change if perceptions change as regards the situation in major countries (such as China or Brazil).

⁵ For more information, please see the [October 2017 IPOM's edition](#).

⁶ The other source of systemic financial risk, which operates through the trade channel, though it has a smaller relative impact, is given by an eventual fall in demand for export goods (should it affect Argentina's trading partners). Eventually, this source could lead to the risk associated with the credit assumed by the financial system.

⁷ The Federal Reserve decided to raise its rate twice in 2017. A new increase is expected for the end of this year, as well as two hikes in 2018. In September, it was announced that the Federal Reserve will begin a gradual reduction in its asset holdings until the end of 2018. Expectations as regards the United States' monetary policy were not changed so far, after the announcement of the candidate for the chairmanship of the Federal Reserve. The European Central Bank projected a moderation in its rate of purchasing for October, while hinting at the possibility of keeping its interest rates unchanged for a prolonged period.

Figure 1.4 | Monetary policy of main central banks



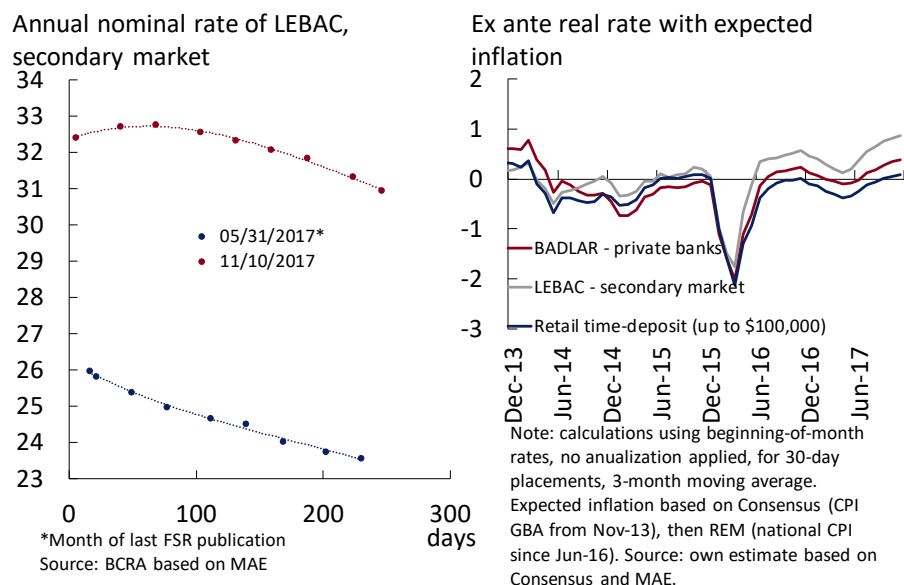
*Overnight Index Swaps.
Source: Bloomberg

Should access to finance abroad disappear, the options to finance the public sector would be limited. The corporate sector, even bearing in mind recent debt placement, shows a low vulnerability to risks of this type. This sector maintains relatively healthy balance sheets, with low leverage and debt burden, in historical terms and compared with other economies (see Exhibit 1). In the case of an increase in volatility caused by an extreme negative scenario, the BCRA’s floating exchange rate regime, which entails intervening in markets to accumulate international reserves, would create a larger buffer against disruptive effects. Given the country’s reinsertion in markets, the weight of this channel would increase, so adequate monitoring would be needed.

Local context

Local conditions also continued to improve in the last few months, paving the road for credit to continue to accelerate without compromising financial stability (see Chapter 2). Given the new macroeconomic configuration, it is expected for the economy to position itself in a growth phase for the next few years. This process is not free of risks, though. However, given the strengths of the financial system (see Chapter 2 and 3), stress tests show that local conditions should deteriorate to a very extreme degree —a very unlikely event— for it to have a substantial negative impact on banks’ solvency ratios (see Chapter 3).

Figure 1.5 | LEBAC interest rate curve and real rates

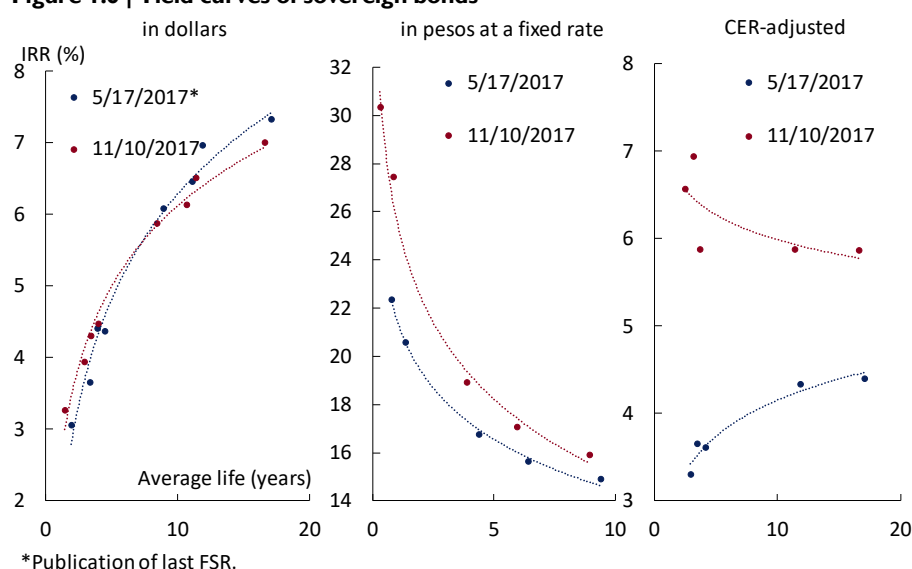


Note: calculations using beginning-of-month rates, no annualization applied, for 30-day placements, 3-month moving average. Expected inflation based on Consensus (CPI GBA from Nov-13), then REM (national CPI since Jun-16). Source: own estimate based on Consensus and MAE.

Economic growth has been consolidating⁸, is broad-based, and is creating jobs. Some of the most dynamic sectors are construction, financial intermediation, agriculture, fishing, and transportation and communication. For the future, given the ever more dynamic behavior of investment, it is expected for the upwards phase of this cycle to be broader than in previous episodes⁹.

Inflation continued to decelerate in the third quarter, though at a slower rate than the one sought by the BCRA, showing a certain degree of persistence in its core component. Thus, the BCRA decided in October and November to reinforce the anti-inflation bias of its monetary policy¹⁰. In previous months, the BCRA operated in the secondary LEBAC market, restricting liquidity conditions, which gave rise to yield increases and changes in the shape of its curve (see Figure 1.5). This was also reflected in the cutoff rates of these instruments' auctions. Pass-through to market rates implied, for instance, an increase in deposit interest rates, which caused an increase in expectations of greater real returns for investors¹¹. In the medium term, the disinflation process is expected to continue advancing, though at a rate slower than the BCRA would prefer, as shown by market projections (for instance, REM) and the negative slope of the fixed-rate peso-denominated Treasury bonds' yield curve.

Figure 1.6 | Yield curves of sovereign bonds



As regards the fiscal situation of the federal government, the primary deficit is of approximately 4% of GDP, an evolution that is consistent with the schedule of gradual reduction of the primary deficit (4.2% of GDP in 2017 and 3.2% for 2018). The net inflows associated with the Tax Amnesty Regime remained stable in real terms in the first few months of 2017 relative to the same period of the previous year. Primary expenditure expanded 1% in real terms during that period, particularly in the case of social transfers. In the future, special mention should be made of the recent announcement of a series of policy changes which comprise various dimensions (tax, labor, retirement and institutional). As regards the tax reform project, it would include, among other modifications¹², taxes on individuals' financial income, which is currently not

⁸ Based on available information, the third quarter should mark the completion of an annual period of growth of about 4%. This trend should continue in the last quarter, according to the ILA-BCRA leading activity indicator. See the [October, 2017 IPOM's edition](#).

⁹ Gross investment grew at a seasonally-adjusted 11.4% in the first half of the year, which is higher than the maximum level recorded in 2015, whereas private consumption grew at a seasonally-adjusted 6.2%. According to leading indicators, these trends continued in the third quarter. See the [October, 2017 IPOM's edition](#).

¹⁰ In order for inflation to approach levels consistent with target of $10\% \pm 2\%$ for 2018, between late October and early November, two increases in the monetary policy rate were applied, for a total of 250 basis points, to 28.75% (after the increase applied in April).

¹¹ In spite of that, the increase in term deposits remain restricted (see Chapter 3).

¹² For instance, lower corporate income taxes, a regime for faster reimbursement of VAT balances for long-term investments, the gradual implementation of a non-taxable minimum for labor contributions, the reduction of cascade taxes, the elimination of the real estate transfer tax, the establishment of a tax of capital gains realized through the sale of real estate not used for housing and changes in internal duties.

taxable (see Box 1). Moreover, the national government is projecting a reform of the coordination in the ordering of public accounts with subnational districts.

Box 1. Individuals' financial income tax

A tax reform bill was recently submitted to Congress, which, among other changes, provides for taxation of individuals' financial income. It sets rates of 15% for yields of placement in foreign currency and UVA/CER (without taxing change differences or updates) and of 5% for yields of peso-denominated placements, with a non-taxable minimum¹³. The current treatment is used for shares. In principle, current exemptions in Argentina are an exception relative to the situation in other countries (see Exhibit 2).

This change's impact on banking and capital markets' rates should be limited. This is due to the fact that entities (which are already tax) and foreign individuals¹⁴ (who have high elasticity to changes in yields) comprise together the bulk of the base of investors in market instruments (such as LEBAC, public securities and common investment funds). There could be, given the establishment of a new set of relative prices for individuals, a change in the composition of portfolios in this segment. Thus, final effects by asset type will depend—besides the specifications of the bill ultimately approved and its promulgation—of each asset type's elasticity for the different investor types. Immediately after the announcement of the bill's guidelines, no changes were recorded as regards the price of financial assets that would point out substantial modifications in portfolios.

With the goal of covering 2018 financing needs, it is expected for government placements in international markets to become relevant once again¹⁵. Risks identified in the debt market remain limited, with the dollar-denominated bond yield curve showing contraction in longer-term rates. In the local market, the yield curve of peso-denominated instruments adjustable by CER moved upwards relative to the situation described in the last IEF, as did the curve of peso-denominated fixed-rate instruments (see Figure 1.6). It should be noted that the level of debt remains low. National public debt represented 51.2% of GDP as of March 31, 2017 (of which 20.1 p.p. refer to debt with the private sector).

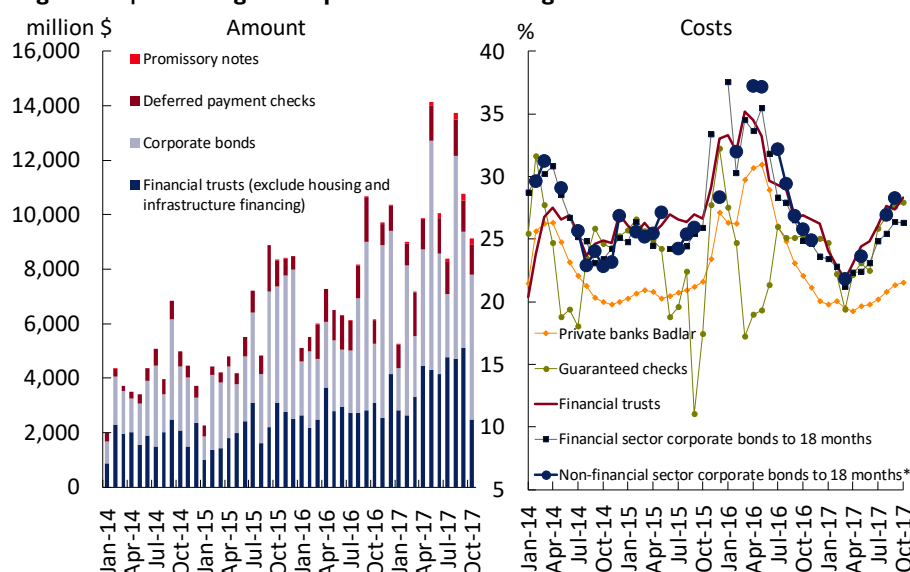
In a favorable economic context, in the last few months financing for the private sector through capital markets was more dynamic¹⁶ (see Figure 1.7). These developments happened in parallel to the upward trend of financing cost seen since April, accompanying the increase in the policy rate. The improvement of the rate of growth of fixed-rent instruments' amounts was boosted by placements by financial trusts.

¹³ The rate for the yield of peso-denominated instruments without adjustment clauses could be increased based on the prevailing economic conditions (until it converges around 15%).

¹⁴ Foreign entities are already taxable (although public securities, LEBAC and outstanding bonds are non-taxable). Now, most of foreign individuals operations would be taxable.

¹⁵ Since the publication of the last IEF the government placed debt abroad for almost US\$6 billion, with longer financing terms, the placement of bonds in different currencies (dollar and euro) and the diversification of investors in terms of origin as aspects to be highlighted. In the local market, a 3-year coupon peso-denominated bond was placed, following the policy rate. Moreover, placements of dollar-denominated bills continued. New repo operations with investment banks were also carried out.

¹⁶ Outstanding bonds, financial trusts, deferred-payment checks and stock promissory notes.

Figure I.7 | Financing to the private sector through debt instruments

(*) Excludes YPF issues and other issues applied to subparagraph "k" in 2015. Source: BCRA based on IAMC, CNV and BCBA

In the current phase of the financial cycle, there is a broad potential margin for the capital market to supplement its activity with the group of banks, for instance, providing funding and collaborating with the process of mitigation of risks associated with credit extension (see Chapter 3). For these operations to have a significant effect, it is necessary to advance the disinflation process and deepen the markets¹⁷. It should be mentioned that, recently, the National Executive submitted a bill for a Productive Financing Law to Congress, which includes various modifications to the local capital market.

In spite of the progress in the construction of a fixed-rate peso-denominated government security yield curve, so far, placements in peso-denominated bonds by the financial sector are dominated by variable-rate instruments, and for short terms (a weighted average of about 30 months for operations carried out since June). There were very specific operations in peso-denominated inflation-adjustable instruments (which enable banks to reduce their CER/UVA and term mismatches), which took place before the increase in the yields of CER-adjusted debt recorded since mid-May¹⁸. An option for banks to manage liquidity risks and mismatches would be the securitization of the mortgages they originate, transactions which have not been used in Argentina for several years, for these underlying assets. A greater development of the derivatives market would also facilitate risk management¹⁹.

With better economic prospects and the potential for a market reclassification (from “frontier market” to “emerging market”) in 2018, the Merval in real terms accumulates a significant increase in 2017 and is near its maximum levels²⁰. This positive behavior was coupled by bank shares’ valuations (see Box 2). The lower cost for share placement led to several operations in the primary market (local and international), particularly by financial entities (see Figure 1.8). The opening of this capital-accumulation mechanism for the local financial system is fundamental facing the expected process of deepening in intermediation levels (see Chapter 2).

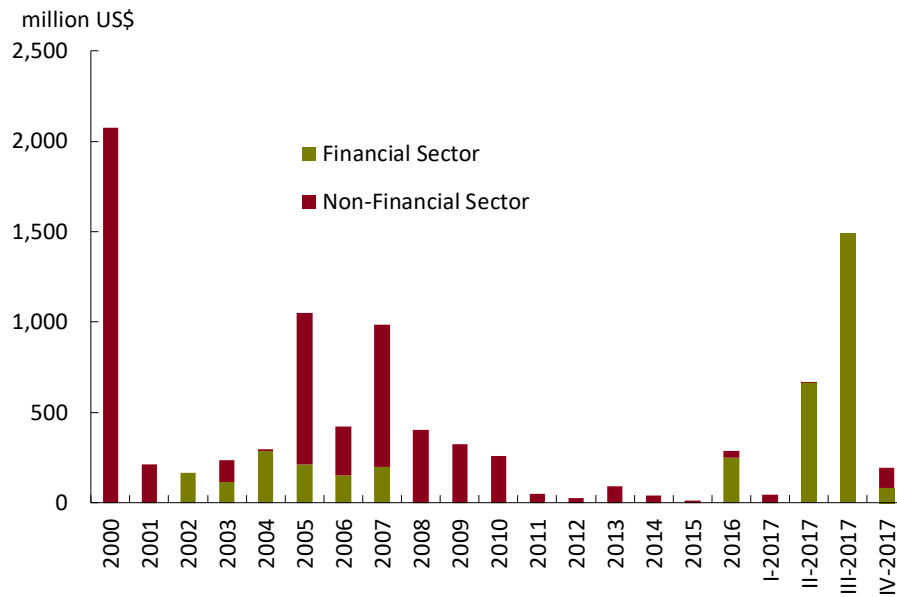
¹⁷ Recently, the National Securities Commission authorized new investment alternatives (common investment funds in different currencies) and financing (simple outstanding bonds for SMEs), and also created new categories (global investment advisor agent).

¹⁸ Since the issuing of UVA- or UVI-denominated outstanding bonds was authorized, there were two bank placements.

¹⁹ In the second half of the year, the launch of LEBAC futures should be highlighted.

²⁰ More recently, in the last few trading days there was a certain degree of profit-taking.

Figure I.8 | Equity issuance of Argentine companies

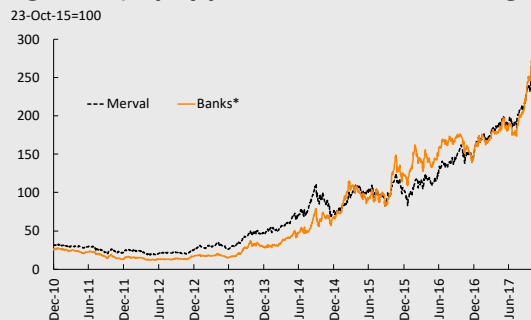


Source: IAMC and BCBA

Box 2. Bank share prices

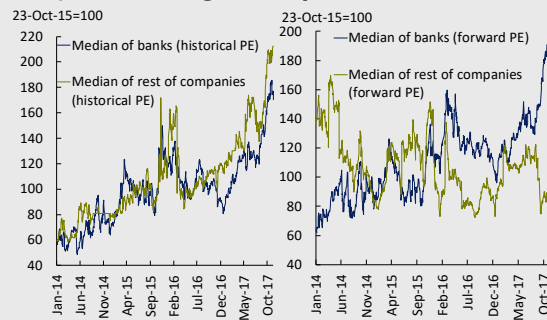
Since the last IEF was published, banks' shares continued to grow, reinforcing the trend of the last two years. With the improvement in macroeconomic prospects, this trend was similar to the one seen for Merval (see Figure 1.9). The relative increase in the price of bank share portfolios caused an increase in the ratio of price to recent earnings (historical P/E ratio), one of the measures most used to monitor valuations in stock markets. The increase of this measure for banks was similar to then one observed for the rest of the listed companies (see Figure 1.10). This development is probably capturing expectations of future increases in the earnings of financial entities, and a decrease in their volatility. Bearing in mind the market estimations for expected earnings for the next 12 months, the P/E forward ratio for financial entities shows an upward (albeit volatile) trend, which is clearer than that of the remaining companies considered²¹. This is consistent with improvements in expected earnings for the next 12 months, which are slightly more marked for the rest of Merval than for banks.

Figure I.9 | Equity prices



(*) Stock prices average of Banco Hipotecario, Banco Macro, Banco Patagonia, Banco Santander Río, Banco Francés and Grupo Financiero Galicia. Source: BCRA based on Bloomberg

Figure I.10 | Price earnings ratio by share



Note: Historical PE based on 12-month past earnings for 5 banks and 21 companies. PE forward based on next 12-month estimated earnings for 3 banks and 12 companies. Source: BCRA based on Reuters

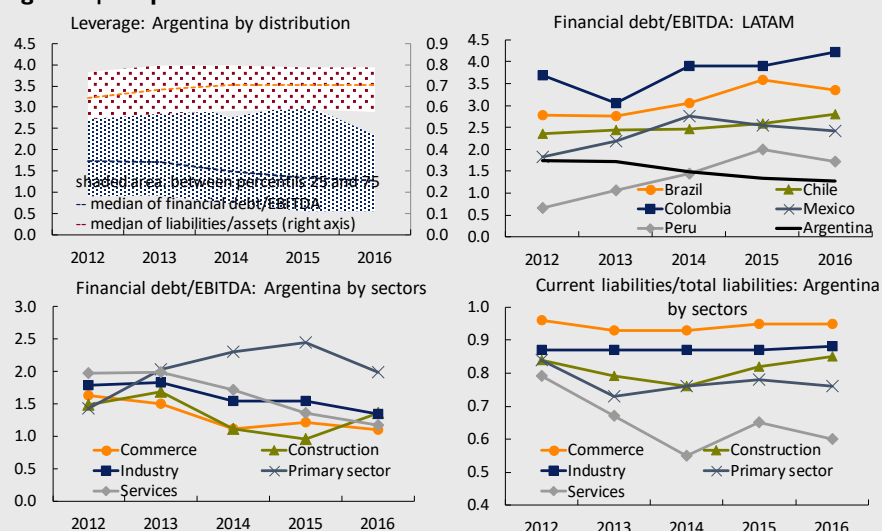
²¹ Estimations published by Reuters. The number of companies with earning estimations reduces the size of the sample and could make it less representative.

Exhibit 1 / Leverage and debt burden of companies with access to bank credit

The level of leverage in the Argentine non-financial corporate sector has remained relatively stable in the last three years, while the capability of repaying financial debt with operational income has improved in the last five years. Both estimations are taken from a new balanced database with asset information of over 300 Argentine companies, all relatively large, with local and international debt²² (see Figure 1).

This type of analysis is important for the assessment of systemic vulnerabilities, considering the expectations that debt levels in the sector will increase and facing the possibility of a (low likelihood) scenario of abrupt increases in financing costs (see International context). Given the local environment of disinflation, greater economic predictability and improvement in access to credit, it is expected for companies to accelerate their investment decisions, with greater flexibility for their choice of capital structure.

Figure 1 | Corporate indebtedness



Source: BCRA based on SEFyC, BCBA and Bloomberg. Panel data for 2012-2016 built from: Argentina: financial statements of 304 companies with debt outstanding in various domestic banks or public offering of securities. Rest of countries: financial statements of public offering companies (202 brazilian, 129 chilenean, 5 colombian, 87 mexican y 34 peruvian).

Moreover, based on available information from a commented sample, in aggregate terms, Argentine companies would show a capacity to repay financial debt relatively more comfortable than regional peers²³. That is to say, the time needed for the median Argentine company to repay its financial debt with income is less than half than the time needed in Mexico, Chile or Peru. The low level of debt of Argentine companies stems from a greater use of their own funds, which in turn was caused by various factors, of which the persistence of a volatile macroeconomic environment and high inflation were the most important.

Only the primary sector shows financial debt/EBITDA ratios²⁴ comparable to those of other companies in the region²⁵. Within that sector, agricultural companies and companies which produce food and beverages show the highest levels of financial debt relative to their operating income. As regards the rest of the sectors, the subsector of electric power stands out among those with the highest financial debt/EBITDA ratio.

²² This panel database for 2012–2016 was developed based on data provided by the Superintendencia of Financial and Foreign Exchange Institutions about companies included for having several open lines in local banks and data about listed companies. The database aggregate information shows, for relevant variables (e.g., leverage), values which are very similar to those observed in broader databases (such as that of the federal tax administration agency, AFIP, though that one has a greater lag in terms of data availability).

²³ Given the availability of information, the international comparison used data of listed companies in each country compiled by Bloomberg.

²⁴ Profits before interest, tax and depreciations.

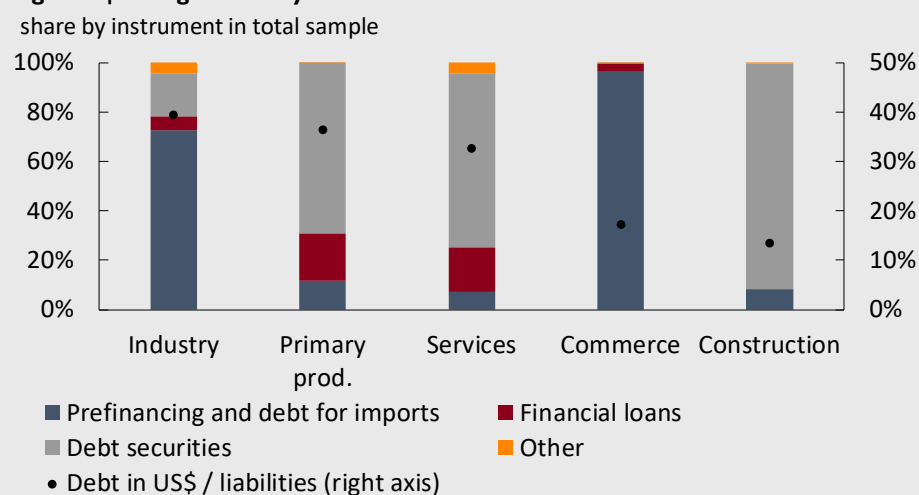
²⁵ The construction sector shows an increase in 2016, according to the behavior of two specific companies.

Argentine companies are relatively more exposed to financing risks than companies in the rest of the region, particularly those which fund themselves in the local market. The short-term liability/total liability ratio for the median Argentine company is almost twice that seen in Brazil, Colombia, Chile, Peru or Mexico. Primary sector companies, which have higher financial debt/EBITDA ratios, have, however, a lower liability concentration in the short term than the sample sectors, as they resort more to long term debt instruments. On the other end of the spectrum, we have companies from the commerce and industrial sectors.

As regards foreign-currency debt, working with a cross-section sample of almost 600 companies for 2016²⁶, the industrial, primary production and services sectors have the highest foreign-currency debt/total liability ratio (see Figure 2). For the primary and services sectors, this debt is accounted for almost exclusively by debt securities (70%) and financial loans (20%), while in the industrial sector, pre-financing and import-related debt account for over 70%. As was mentioned in the last IEF, companies with debt securities are relatively larger and, in general, received dollar income from some of their activities.

In summary, an increase of corporate debt is projected, amid more favorable conditions and better economic prospects. Facing that scenario, companies have relatively low levels of debt, with the ones from the primary sector (which generally produce tradable goods) having the higher debt, due to their use of long-term and foreign-currency instruments. The industrial sector, in turn, presents a manageable level of debt in terms of its operating income, though it appears relatively less robust, due to the concentration of short-term financing and foreign-currency lines.

Figure 2 | Foreign currency indebtedness. Year 2016



Source: BCRA based on SEFyC and BCBA. Cross-section data for 2016 built from financial statements for 583 companies with debt outstanding in various domestic banks or with public offering of securities.

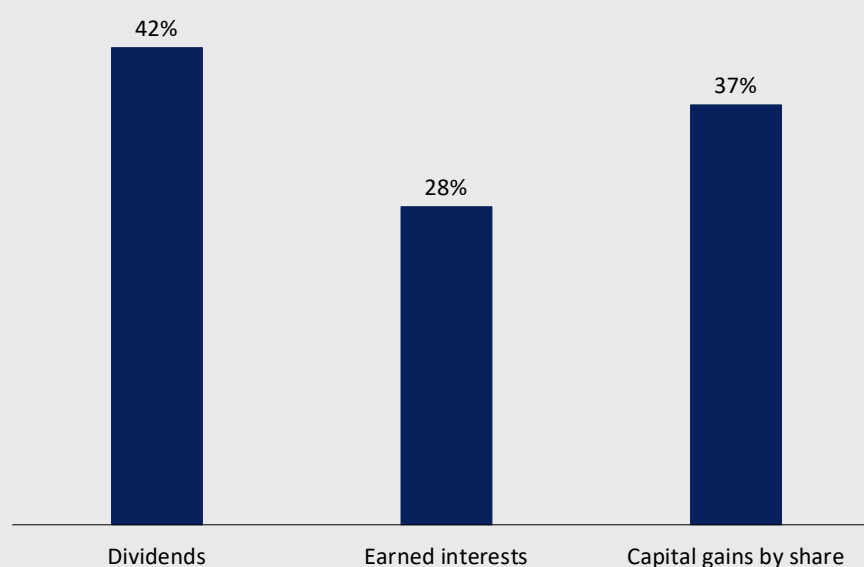
²⁶ This database is of the cross-section type, and covers companies which closed their financial year during 2016 (which implies a greater number of observations than the panel database), based on data provided by the Superintendence of Financial and Foreign Exchange Institutions about companies surveyed for having several open lines in local banks and data on listed companies.

Exhibit 2 / Corporate income tax around the world

While most countries have no financial income taxes as such, said income is taxed almost without exception. Financial operation income are included in the traditional income tax frameworks and, while there are differences between the categories taxed in each country, all share the fact that they include some sort of financial income as taxable without exception (income from bonds, dividends from shares, interest on deposits, etc.).

In the case of OECD members, the average maximum rate of taxes on corporate income is about 24%, while in the case of individual income it is of 42%²⁷. However, specifically, what would be considered “financial income” is included in these taxes, contributing to equality in the tax system and encouraging the reinvestment of profits (the average rate applied to distributed dividends, is currently above 40%, see Figure 1).

Figure 1 | Average rate applied to the OECD countries



Source: Ministry of Treasury

In most countries, interest and yields of public securities are taxed as ordinary income at the overall rate for individuals (see Table 1). In Chile and Colombia, only real interest (that is, not including price increases) is taxed. In the US, interest from public state or municipality securities is exempted. In Peru and Paraguay they are exempted.

In Canada, the US, France, Switzerland and Chile, interest from bank deposits are taxed at the overall rate of the income tax, while in Japan and Spain a differential rate of 20% and 27%, respectively, is established. In Brazil, interest from savings accounts is exempted, while in Peru all interest from bank deposits is exempted. Just as in the case of public securities, Chile and Colombia only tax real interest.

²⁷ See KPMG <https://home.kpmg.com/xx/en/home/services/tax/tax-tools-and-resources/tax-rates-online/individual-income-tax-rates-table.html>

<https://home.kpmg.com/xx/en/home/services/tax/tax-tools-and-resources/tax-rates-online/corporate-tax-rates-table.html>

As regards capital gains from the sale of shares, it is more common for a different rate to exist, which is generally lower than the one applied to income tax. In particular, long-term capital gains usually receive a more favorable fiscal treatment, as in the case of the US, in which a reduced rate of 20% is applied. In Latin America, rates are 15%, 10%, 5% and 2.4% in Brazil, Colombia, Peru and Uruguay, respectively. In Chile and Mexico, income of this type is exempted.

Finally, in Germany, Belgium, Spain and the US, dividends are taxed just as other income. In Peru and Uruguay, a withholding tax is applied which completes the taxation of corporate income when it is distributed among shareholders, while in Australia, Canada, Great Britain, France and Mexico, there are specific provisions which tend to reduce the company/shareholder double-taxation phenomenon. In Brazil, Colombia, and Venezuela, income of this type is not taxed.

Table I | Financial income tax around the world

Income	Exempted	Taxed with overall rate	Taxed with a specific rate
Bank deposit interest	Peru. Only savings accounts: Brazil, Venezuela. Up to a certain amount or with deductions: Belgium, the Netherlands, India, Mexico.	Australia, Canada, US, France, Mexico, Switzerland. Only real interest: Chile, Colombia.	Germany, Belgium, Spain, the Netherlands, Japan, United Kingdom. Term-based: Brazil, Uruguay.
Public securities' interest and yields	Mexico, Peru, Uruguay, Venezuela. Exemption for state and municipality securities: US. Only certain bonds: India.	Australia, Belgium, Brazil, Canada, United Kingdom, Switzerland. Only real interest: Chile, Colombia, US, France, India.	Germany, Spain, the Netherlands, Japan.
Capital gains	Belgium, Switzerland.	Chile, Mexico, Venezuela. Special treatment for long-term investments: Australia, Canada, US, France, India	Brazil, Colombia, Spain, the Netherlands, Peru, United Kingdom, Uruguay. Special treatment for long-term investments: Germany, Japan.
Dividends		Japan. Special treatment for local companies: Australia, Belgium, Brazil, Canada, Chile, Colombia, US, Mexico, Switzerland.	Germany, Spain, the Netherlands, India, Peru, United Kingdom. Special treatment for local companies: France, Uruguay, Venezuela.

Source: Professional Council of Economic Sciences of the Autonomous City of Buenos Aires, 2013.

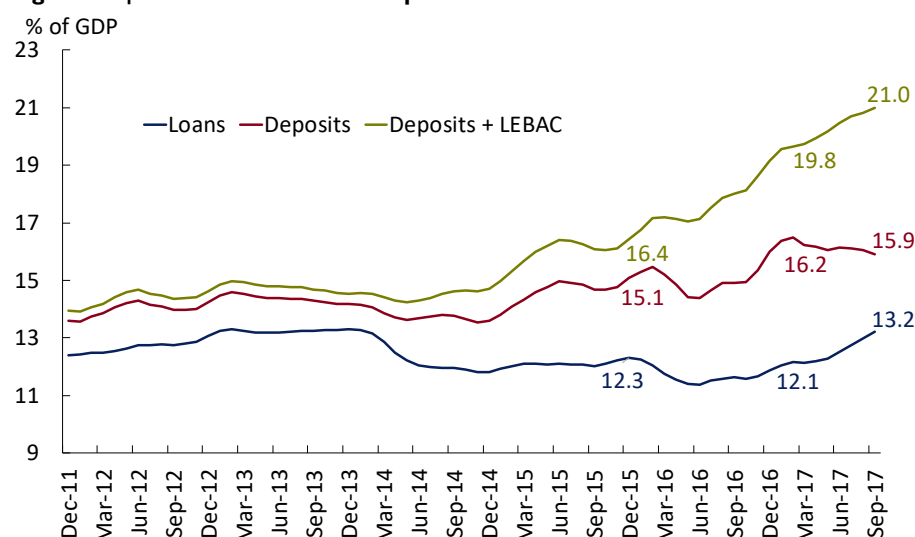
2. Financial system situation

Unlike the last edition of the IEF, given the context of disinflation and economic growth, bank credit is expanding at relatively high rates and is beginning to gain depth as a share of GDP. Private sector deposits have not followed this trend, in part because of the effects of the ample liquidity in the balance sheet of the financial system. It is expected, however, that saving channeled through banks to pick up, given the higher demand of funding caused by the growth in credit. Facing the increase in exposure to risks inherent to the intermediation process, institutions as a group retain high solvency levels, thanks to their profitability and their share placements during the period. The path of profitability reduction launched in late 2015 is interrupted since the second quarter of this year, given the higher intermediation volumes, the stability in interest rate margins and the relative reduction of expenditures. It is expected for the downward pressure on profitability to continue, because of the disinflation process and the higher level of competition, which means institutions still have the challenge of improving their efficiency and keeping adequate levels of solvency in the current expansionary phase of the business cycle.

Financing to the private sector becomes more dynamic

Given the new macroeconomic configuration, banks' intermediation activity showed an improvement relative to the situation described in the last IEF (published in May). In the last few months, total financing to the private sector grew markedly. Its ratio to the GDP grew over 1 p.p. and reached 13.2% (see Figure 2.1). Company and household deposits, in turn, fell slightly as a share of GDP in the last few months, to 15.9%²⁸. It should be mentioned that, unlike the last decades, and thanks to the policy change started in late 2015, we may be looking at a certain synchronicity between the economic and the financial cycles (see Box 3).

Figure 2.1 | Intermediation with the private sector – As % of GDP



Note: Quarterly averages of both the numerator and the denominator are considered. LEBAC from the private sector (excludes banks and non-residents).

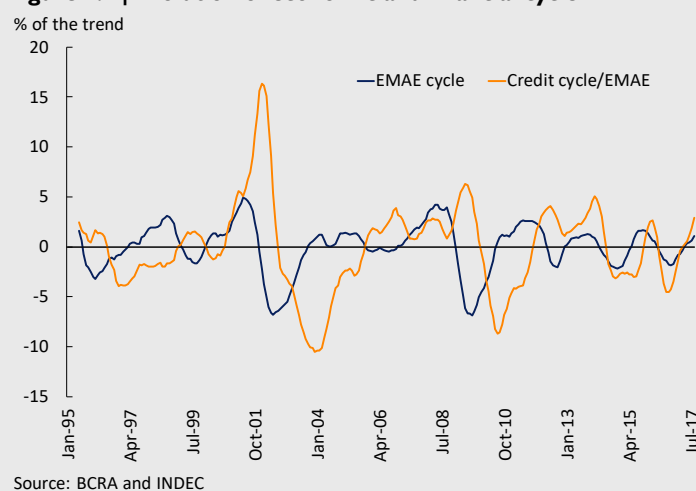
Source: BCRA and INDEC

²⁸ If we includes LEBAC held by the non-financial private sector, this ratio increases to 21% of GDP as of September, 2017 (1.2 p.p. more than in March), accounting for almost half common investment funds.

Box 3. Financial cycle and economic cycle

Cycles can be described in terms of frequency (how often they recur) and their width (how much they deviate from their long-term trend)²⁹. In the case of Argentina, in the last 20 years, the financial and economic cycles have been inherently variable in terms of these two traits³⁰ (see Figure 2.2). Both cycles show sudden and marked contractions, but which tend to revert relatively fast, giving rise to expansion periods which are longer than contraction ones. In recent history, the financial cycle of Argentina has tended to show greater width and certain lag relative to the economic cycle. This is a difference with what usually happens in advanced economies, in which the financial cycle is longer than the economic one. Since 2016, a greater correlation between both cycles can be observed.

Figure 2.2 | Evolution of economic and financial cycle



The financial system's balance sheet expanded over 2017, with important composition changes, against a backdrop of adequate compliance with prudential regulatory requirements. As of September, the netted-out assets³¹ increased 42.1% year-over-year or 14.6% year-over-year in real terms, accelerating relative to the previous IEF. Private sector credit amounted to 50% of total assets, with an increase of almost 8 p.p. relative to the level seen in March, 2017 (see Table 2.1). On the other hand, in the last six months, there was a decrease in the relative weight of liquid assets and holdings of monetary regulation instruments. Bank financing to the public sector—in its three levels—currently accounts for 9% of the total system assets. Said level is low in historical terms, in part, due to the prudential regulatory framework implemented by the BCRA. Said framework was recently modified with the goal of including even stricter limits (see Box 4).

²⁹ In this exercise, the cycle is measured as the difference between the monthly value of the variable and its long-term trend, computed using the Hodrick-Prescott filter with a 14400 lambda, seeing as they are monthly series.

³⁰ A measure of the financial cycle is the gap between credit granted to the private sector (under all possible mechanisms, not just the banking one) as a share of GDP and its long-term trend. Within the macroprudential policy approach, this variable is one of the measures used to assess systemic financial risk (see Chapter 3). For the cycle of private sector credit, it is necessary to include the stocks in the balance sheets plus the stocks in off-balance accounts, financial trust funds whose underlying assets are bank credits, and the financing of the companies which issue non-bank credit cards. The series used coincide refer to the log deflated values. For the product cycle, the monthly EMAE is used as a proxy for GDP. See more details about the economic cycle in the [October, 2017 IPOM's edition](#).

³¹ Assets exclude accounting double-counting caused by repurchase, term and cash agreements to be clear.

Table 2.1 | Balance sheet – Financial system

	In % of netted assets					Real y.o.y. var. of stock Sep-17
	Sep-16	Mar-17	Sep-17	Variation in p.p.		
				Sep-17 vs. Mar-17	Sep-17 vs. Sep-16	
Netted assets						14.6
Liquid assets	20	25	20	-5.0	-0.6	11.4
In pesos	12	9	9	-0.0	-2.5	-9.5
In foreign currency*	9	16	11	-5.0	1.9	52.6
Instruments of BCRA**	15	15	12	-3.5	-3.1	-8.8
Total credit to public sector	8	9	9	0.7	0.8	25.7
Total credit to private sector	48	42	50	7.8	2.4	20.5
In \$	41	36	41	4.8	-0.3	13.8
In US\$*	6	6	9	3.0	2.7	79.2
Other assets	9	9	9	0.1	0.3	19.2
Netted liabilities						15.6
Public sector deposits	13	21	15	-5.6	1.6	28.4
Private sector deposits	61	56	59	2.7	-2.1	10.6
In pesos	51	43	44	1.2	-6.8	-0.7
Sight	25	22	24	2.1	-1.2	8.9
Time	25	20	19	-0.9	-5.6	-11.2
In foreign currency*	10	13	15	1.4	4.7	84.4
CB, SD and foreign credit lines	3	3	4	0.9	1.0	48.7
Other liabilities	9	9	9	0.7	0.3	18.7
Net worth	14	11	13	1.3	-0.8	8.1

*Variation of stock in currency of origin. **Includes holding and repo with the BCRA. Source: BCRA

Box 4. Regulatory changes on banking exposure to the public sector

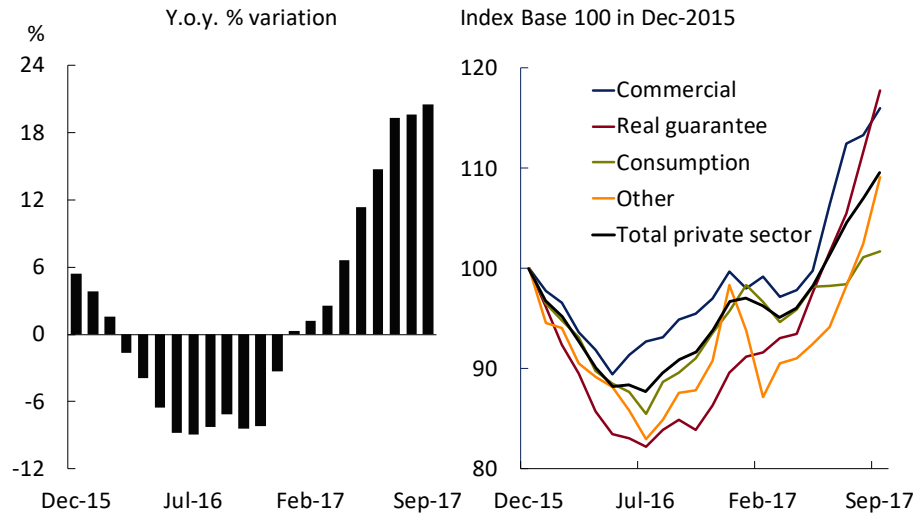
In order to continue strengthening the prudential framework in terms of exposure of banks to the public sector, this institution recently established new parameters to authorize banks to accept debt from provincial and municipal governments, setting more strict limits to this exposure. Communication “A” 6270, which came into force last August is aligned with the provisions of the Fiscal Responsibility Law. On the one hand, it keeps part of the requirements this institution must consider before authorizing institutions to finance a local government (for instance, than the request for debt is considered by the Finance Ministry and that said debt has a guarantee of income). On the other, a new aspect is the significant reduction of the debt service/income ratio required from provincial/municipal governments to obtain the BCRA’s approval: it went from 40% to 20%. This ratio, which used to compute only the debt with the financial system with collaterals, includes since Communication “A” 6270 was issued all debt assumed abroad and debt assumed with the financial sector which lacks collateral.

Starting in 2017, and with particular intensity in the last few months, bank financing to the private sector has grown in real terms significantly and without interruptions (see Figure 2.3). As of September, the balance of loans to that sector grew 49.4% year-over-year or 20.5% year-over-year if we adjust by inflation, the largest variation in the last five years³². Compared to the situation described in the last IEF, all credit lines had a positive evolution adjusted by inflation, particularly the segment with real collaterals (mostly

³² Loans channeled through public and private national banks were the most dynamic, accounting for two-thirds of the year-over-year increase in financing for the private sector.

mortgage loans) and the commercial segment (mostly pre-financing for exports). This took place in a context of reduction of active interest rates.

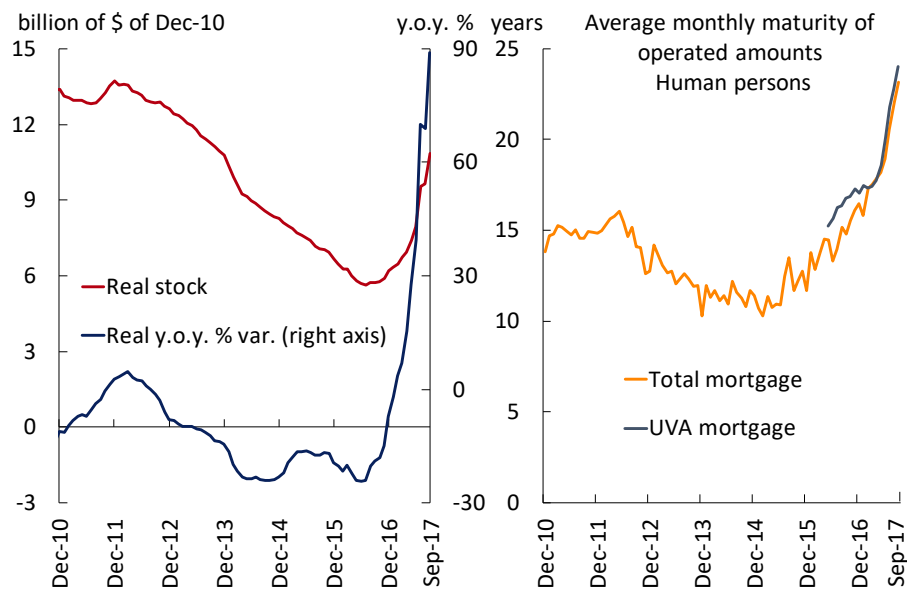
Figure 2.3 | Stock of total credit to private sector. In real terms



Note: Commercial includes: overdraft, promissory notes, financial leasing and pre-financing to export. Real guarantee: Mortgage and pledge-backed. Consumption: Credit cards and personal loans. Source: BCRA

The low level of household debt (see Chapter 3), coupled with existing housing needs and the implementation of various policies by the BCRA (see Regulatory Annex), among which the UVA-denominated loans stand out, accounted for much of the performance of mortgage lines (see Figure 2.4). Loans of this type for individuals increased considerably their average term, from almost 12 years at late-2015 to over 23 years by the end of the third quarter of 2017. For the aggregate financial system, since the launch UVA-denominated loans in April, 2016, until early November, 2017, loans of this type amounted for over \$54.8 billion, of which 69% are mortgage lines.

Figure 2.4 | Stock of mortgage credit to households



Source: BCRA

The greater level of intermediation seen in mortgage loans to families was also reflected in the increase in the number of debtors in the segment, reaching a total of almost 192,422 as of September, 2017 (see Table 2.2). Complementarily, debtors with personal and pledge-backed loans also increased in the year.

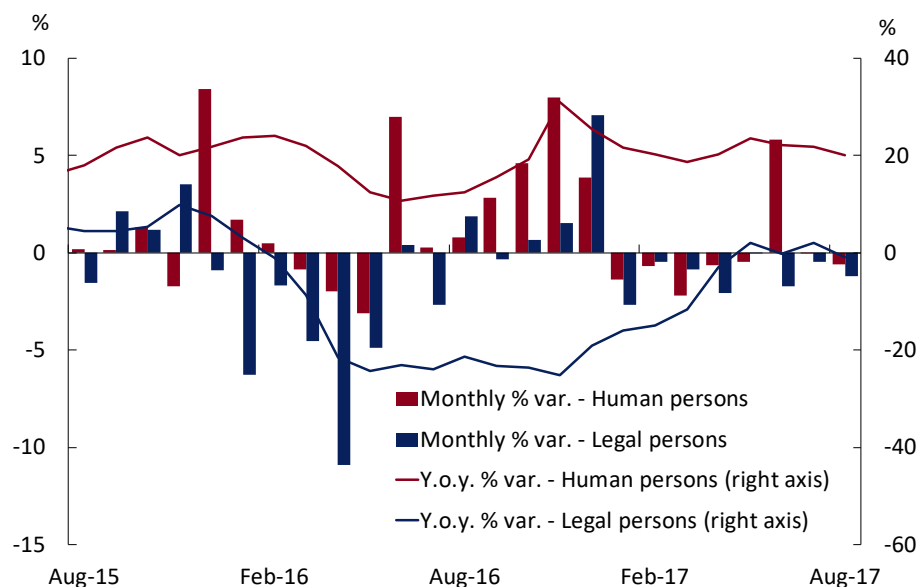
Table 2.2 | Number of debtors in the financial system. Human persons – In units

Type of loans	Dec-15	Sep-16	Dec-16	Feb-17	Sep-17	Var. Sep-17 / Dec-16
Mortgage	194,293	180,085	178,595	178,086	192,422	13,827
Pledge-backed	430,728	403,556	414,685	428,287	482,317	67,632
Personal	4,982,919	5,191,095	5,280,071	5,372,623	5,471,169	191,098
Credit cards	9,590,931	10,062,104	10,268,963	10,324,550	10,128,620	-140,343
Financial system	11,374,213	11,902,552	12,122,901	12,226,697	12,218,097	95,196

Notes: The information is consolidated at the individual debtor level, both in the same financial institution (in case the same debtor has several financing lines) and between entities (eg if the individual is debtor in different entities at the same time). The financial entities regulated and supervised by the BCRA are considered (excluding non-financial credit providers and financial trusts). Source: BCRA

In a context in which there remain high liquidity levels (albeit decreasing), and in which passive interest rates in real terms are still to consolidate in positive territory, so far in 2017, total deposits from the private sector are growing at a slower rate than that of loans. It is projected that these relative behaviors will continue in the short term (see Box 5). Private sector placements accumulated a nominal increase of 37.2% year-over-year as of September, which is equivalent to 10.6% year-over-year when adjusting for inflation, a performance which is mainly explained by individuals' deposits (see Figure 2.5), and in particular within them, foreign currency deposits (with a year-over-year increase of 84.4% year-over-year³³)³⁴. Private sector deposits accounted for 59% of funding in September: an increase of 2.7 p.p. relative to March and a decrease of 2.1 p.p. compared with the level seen a year ago³⁵.

Figure 2.5 | Stock of private sector deposits. Real % variation



Source: BCRA

³³ Variation in currency of origin.

³⁴ As of September, total peso-denominated private sector deposits recorded a slight real year-over-year fall, of about 1%.

³⁵ In the meantime, between March and September, public sector deposits reduced their relative weight for total funding.

Box 5. Interaction between the evolution of credits, of liquid assets and of deposits

Assuming that loans will continue to expand significantly in the next few years, it would be relevant to analyze possible dynamics as regards the structure of the system's balance sheet. Thus, the following is a 3-year projection of the balance sheet, assuming different rates of real growth of credit³⁶, which are contrasted with a projection of deposits³⁷. In particular, if credit continues to be more dynamic, the increase in deposits should be insufficient to satisfy funding needs. Thus, institutions will continue to reduce voluntary liquidity up to a "lowest tolerable" level³⁸. Once that source of funding is depleted, for credit to grow at the assumed level, an additional source of resources would be necessary: for instance, for deposits to grow above initial projections.

Given the balance sheet's configuration, it is possible to obtain, for different credit trajectories and "lowest tolerable" liquidity levels, a general idea as to when (threshold) will the system need a stronger growth of deposits (see Table 2.3). For instance, if credit were to grow at a real 1.2% per month³⁹, and banks were unwilling to let their voluntary liquidity in pesos be lower than 20%⁴⁰ of deposits, it is estimated that the threshold would be reached at mid-2019. That date moves forward (back) the higher (lower) credit growth is, and the higher (lower) the "lowest tolerable" level of liquidity is.

Table 2.3 | Estimation of voluntary liquidity exhaustion moment

		Minimum voluntary liquidity threshold* - In %			
		10	15	20	25
Real monthly var. of private credit \$ (in parenthesis average y.o.y. var. of private credit \$ / GDP) - In %	0.8 (0.8)	-	-	-	Apr-20
	1 (1)	-	Sep-20	Mar-20	Apr-19
	1.2 (1.3)	May-20	Mar-20	Jun-19	Sep-18
	1.4 (1.6)	Nov-19	Jun-19	Dec-18	Jun-18
	1.6 (2)	Jun-19	Mar-19	Sep-18	Apr-18
	1.8 (2.3)	Apr-19	Nov-18	Jun-18	Apr-18
	2 (2.7)	Dec-18	Sep-18	May-18	Mar-18
	2.2 (3.1)	Oct-18	Jul-18	Apr-18	Mar-18

* LEBAC (repo + holding) / Private deposits in \$

Source: BCRA

In general, it can be seen that in the short term, the aggregate financial system⁴¹ has enough excess liquidity to sustain the increase in credit without resorting to different funding sources, or making an additional significant effort, in terms of interest rates, to capture deposits.

Financial system's credit to the private sector could be expected to continue on an expansionary phase during the next few years. With the consolidation of the process of economic growth (with a significant boost from investment and, particularly, construction), and the continuation of the disinflation process, a favorable scenario would be created to continue deepening credit to the productive sector and households (particularly, mortgage loans). In this sense, at the international level, there is important empirical evidence

³⁶ This considers loans in pesos granted to the private sector. It assumes trajectories with a constant monthly real rate of growth, which goes from 1% to 2.2% (from April through October, 2017, the average monthly real rate was 2.2%).

³⁷ This takes into account private sector peso-denominated deposits. This projection is consistent with macroeconomic projections and monetary aggregates based on the BCRA's econometric models. Besides, an additional set of simplifying assumptions is adopted as regards bank reserve requirements, evolution of the rest of the assets and liabilities in the balance sheet, and lack of capital contributions and dividend distribution.

³⁸ This uses a measure: LEBAC (repos + holdings) / private sector peso-denominated deposits. For this indicator, we also consider a range of minimum values, which go from 10% to 25%. As of September, this measure is at 28%.

³⁹ In the last 15 years it is possible to distinguish two sustained credit growth stages with real monthly rates of approximately 1.1% (between early-2010 and late-2013) and 1.6% (between late-2003 and late-2007).

⁴⁰ During the sustained credit growth periods it was observed that the financial system reduced liquidity levels, reaching a minimum of about 20% towards late-2013.

⁴¹ It should be considered that the threshold analysis at the individual entity level may show different situations.

that shows a strong association between sustained disinflation processes and significant credit growth (see Box 6).

Box 6. Disinflation processes and depth of the financial system

In general, it is observed that disinflation process tend to have a positive impact on a country's social and economic structure, which frequently derives into a favorable effect on the economy's growth⁴². One channel, for instance, is that related with the redistributive improvement created. Moreover, in contexts with lower inflation, sources of uncertainty are reduced, which enables households and companies to make better saving and investment decisions. In this line, it would be possible to posit that these events are associated with improvements in the level of financial intermediation, making credit allocation more efficient, with a positive impact on the economy's aggregate supply and demand. A valid question, then, would be: Is it possible to observe, empirically, that economies going through a "sustained" disinflation process see a significant increase in their credit/GDP ratio?

The following is a simple evidence-based description —which covers from mid-1960 to the present— of the association between international disinflation experiences and credit deepening. The information presented here does not attempt to deal with complex statistical aspects, but only to show correlations based on cases compiled in the World Bank's database⁴³. The analysis considered all economies about which there is information, while special attention was given to those with a moderate credit depth— lower than 25% of the GDP— and with two-digit initial inflation levels⁴⁴. Based on that group, financial intermediation performance was then assessed, particularly the credit/GDP ratio. This analysis was disaggregated contemplating the initial inflation level and the different intensities of the disinflation process seen in periods of 4 and 6 years after the disinflation process' beginning.

The data observed show that disinflation experiences in economies with a moderate depth of credit to the private sector, said credit performed significantly well, with increases in the credit/GDP ratio which in some cases are of 1 p.p. per year on average, in GDP expansion contexts (see Table 2.4)⁴⁵. Moreover, in general, the rate of increase in the depth of credit tends to accentuate in relatively longer disinflation episodes.

Table 2.4 | Disinflation processes. International evidence

Initial inflation	Reduction in inflation between points of the period	4-year period				6-year period			
		Events	Annual growth of GDP - average (%)		Y.o.y. var. of Credit / GDP (in p.p.) - Average	Events	Annual growth of GDP - average (%)		Y.o.y. var. of Credit / GDP (in p.p.) - Average
			Previous year	During the event			Previous year	During the event	
Between 100% and 30%	Up to half	12	2.7	3.4	0.57	5	1.2	2.6	0.13
	More than a half	47	2.8	6.4	0.38	39	3.3	5.7	0.82
Between 30% and 10%	Up to half	98	4.7	4.6	0.76	77	3.4	4.4	0.83
	More than a half	79	5.0	4.7	0.90	64	3.8	4.8	0.99

Source: World Bank

The system's operational structure remained on its trend towards expansion during 2017. The number of branches in the country grew to 5,385 in September, growing 1.3% relative to the same month last year. In turn, the number of ATMs, self-service terminals and other automatic devices increased 6.1% year-over-year, and reached 20,652 units (see Box 7). It should be pointed out that, in 2017, the BCRA continued to promote the deepening of access to financial services throughout the country, taking measures to simplify

⁴² For a review of the international empirical evidence about the short-term relationship between decreases in inflation levels and the variation in the level of economic activity, see the note published by the BCRA about [Disinflation and growth](#).

⁴³ [World Development Indicators](#).

⁴⁴ Only events with initial annual inflation levels of more than 10% and less than 100%.

⁴⁵ This trend can also be observed when considering the whole group of economies, not only those with a credit/GDP ratio below 25%.

the mechanisms to open branches, as well as to encourage the reduction of operating costs they must face (see Box 8).

Box 7. Measuring financial inclusion in Argentina

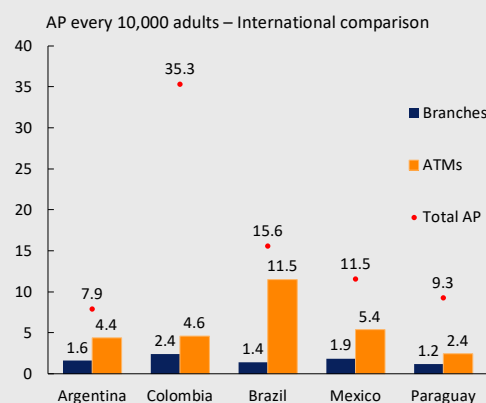
The BCRA, in the context of its goal of promoting economic development with social equality, has as one of its main objectives that of encouraging the population's "financial inclusion"; that is, to broaden the levels of access to and use of financial services. To that effect, it is necessary to begin by analyzing the state of financial inclusion in the country, developing specific measures for the different components (access, use, and quality).

It is necessary to focus in the dimension of access to financial services, which are key for financial inclusion, seeing as the number of coverage of access points (APs) define the user's possibilities of using financial services. In our country, APs are bank branches, ATMs, self-service terminals and automated locations. As of September, 2017, the financial system had a total 26,037 APs at national level, distributed in the 23 provinces and the Autonomous City of Buenos Aires (see Table 2.5). Almost half of all the APs of the country are in two jurisdictions: the Autonomous City of Buenos Aires and the province of Buenos Aires, with marked differences in terms of distribution at the provincial level.

Table 2.5 | Access Points (AP). Distribution of AP by province, adult population and surface

Province	AP	% AP	% population	% surface
Buenos Aires	7,885	30%	39%	11%
CABA	4,980	19%	9%	0%
Santa Fe	2,651	10%	8%	5%
Cordoba	2,513	10%	8%	6%
Mendoza	946	4%	4%	5%
Entre Rios	804	3%	3%	3%
Tucuman	623	2%	4%	1%
Salta	531	2%	3%	6%
Chaco	476	2%	2%	4%
Misiones	460	2%	2%	1%
Neuquen	455	2%	1%	3%
Rio Negro	451	2%	2%	8%
Chubut	415	2%	1%	7%
Corrientes	413	2%	2%	3%
Santiago del Estero	332	1%	2%	5%
San Luis	304	1%	1%	3%
San Juan	301	1%	2%	3%
Jujuy	300	1%	2%	2%
La Pampa	300	1%	1%	4%
Santa Cruz	265	1%	1%	9%
Formosa	180	1%	1%	3%
Tierra del Fuego	164	1%	0%	1%
La Rioja	155	1%	1%	3%
Catamarca	133	1%	1%	3%
Total	26,037	100%	100%	100%

Source: BCRA and INDEC



Source: AFI, except for Colombia whose data was obtained from the 2016 Financial Inclusion Report of that country.

If we consider APs per inhabitant, Argentina currently has 7.9 APs per every 10,000 adults (see Table 2.5). If we break that down by type of PDA, we see there are 1.6 branches and 4.4 ATMs per every 10,000 adults, levels which are still below those seen in other countries in the region.

Another indicator used to measure access to financial services refers to the number of administrative units with at least one access point. An initial analysis was performed measuring by department (see Figure 2.6) the number of APs relative to the adult population, and revealed that: (i) 97.3% of departments –out of 527– has at least one APs per every 10,000 adults; (ii) 12 departments (2.2%) have no APs; (iii) approximately 78% of the adult population lives in departments with between 1 and 9.99 PDAs per every 10,000 adults; (iv) only 100 departments, in which 22% of the adult population lives, has more than 10 APs per every 10,000 adults. These access indicators show that there is still much room for Argentina to continue to deepen and improve society's access to financial services.

Figure 2.6 | AP per every 10,000 adults and population and surface coverage

Number of AP per every 10,000 adults	Number of departments	% Population	% Surface
0	12	0.2%	1.8%
less than 1	2	0.5%	0.0%
between 1 and 5	165	28.6%	25.8%
between 5 and 10	248	49.2%	44.0%
between 10 and 20	91	19.3%	27.6%
between 20 and 50	8	1.6%	0.8%
more than 50	1	0.6%	0.0%

Note: each stratum does not include the upper limit
Source: BCRA and INDEC

Box 8. Measures to promote the expansion of the branch network

Since the publication of the IEF I-17, the BCRA implemented a set of measures to promote the expansion of the infrastructure needed to provide financial services. In particular, by removing paperwork and unproductive costs, these actions significantly reduce the time needed to open a branch (the paperwork for which could occasionally take more than a year).

The following stand out among them:

- The reduction of the requirements to open branches: it is only necessary to meet minimum security standards ([Com. "A" 6275](#)).
- The unification of the different types of institution operating houses into "branches", authorizing them to carry out all banking operations ([Com. "A" 6271](#)).
- The modernization of minimum physical security requirements, adapting them to the risk of each unit's operating risk ([Com. "A" 6272](#)).

Profitability and solvency performance

As was mentioned in Chapter 1, inflation continued to decelerate in the third quarter of 2017. Given the interaction between the process of disinflation and the composition of the financial system's balance sheet, particularly its funding, there remains the challenge for banks of ensuring adequate levels of profitability and solvency⁴⁶. That is, lower inflation levels will continue to reflect decreasing benefits of taking funds from transactional deposits and lending them at a higher nominal rate. Even more, a context of greater competition, together with a higher retribution in real terms to depositors, will add downward pressure to profitability. Against that backdrop, financial institutions should seek efficiency gains to correctly accompany the process of re-composition of financial intermediation currently taking place.

⁴⁶ For more details, see the [first half of 2017 edition of the Financial Stability Report](#).

Unlike the situation described when the last IEF was published (May, 2017), when the aggregate financial system's profitability was showing a decreasing trend which began in late 2015, in the second and third quarters of this year, institution's profits tended towards stabilization. The financial system's ROA—return on assets—reach an annualized rate of 3% during the second quarter of 2017, a level similar to that of the first period of the year, increasing to an annualized rate of 3.2% in the third (see Table 2.6). In spite of this performance in the margin, profitability in the January-September aggregate (2017) amounted to 3.1% of system-wide assets, while in 2015 and 2016 it reached 4.1% and 3.6%, respectively.

Table 2.6 | Financial system profitability

Annualized (a.) - As %a. of netted assets	Annual			Quarterly							
	2015	2016	2017*	IVQ-15	IQ-16	IIQ-16	IIIQ-16	IVQ-16	IQ-17	IIQ-17	IIIQ-17
Financial margin	11.8	11.4	10.4	12.8	12.1	12.0	11.2	10.6	9.5	11.0	10.6
Interest income	12.6	12.5	10.3	12.8	12.8	13.4	12.8	11.2	9.9	10.4	10.6
CER and CVS adjustments	0.2	0.3	0.2	0.2	0.4	0.4	0.4	0.2	0.1	0.3	0.2
Foreign exchange price adjustments	0.8	0.9	0.8	1.5	1.4	0.7	0.7	0.9	0.4	1.0	0.9
Gains on securities	5.6	5.5	4.0	5.6	6.0	6.5	5.4	4.4	3.7	4.0	4.4
Returns on repo	0.1	0.2	0.7	0.2	0.1	0.3	0.2	0.1	0.9	0.9	0.2
Interest expense	-7.3	-7.9	-5.6	-7.6	-8.4	-9.1	-8.3	-6.2	-5.4	-5.6	-5.6
Other financial income	-0.2	-0.1	-0.1	0.1	-0.2	-0.1	0.0	0.0	-0.1	-0.1	-0.1
Term operations in foreign currency	0.1	0.0	0.0	0.3	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Rest	-0.3	-0.1	-0.1	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
Service income margin	4.2	3.8	3.5	4.2	3.6	3.9	4.0	3.8	3.5	3.6	3.6
Loan loss provisions	-0.9	-0.8	-1.0	-1.1	-0.7	-0.8	-0.9	-0.9	-0.9	-1.1	-1.0
Operating costs	-7.7	-7.7	-7.1	-7.8	-7.4	-8.0	-7.7	-7.6	-7.0	-7.3	-6.9
Tax charges and other	-3.3	-3.1	-2.7	-3.3	-3.3	-3.2	-2.9	-3.0	-2.1	-3.1	-3.0
Income tax	-2.0	-1.7	-1.4	-2.0	-2.0	-1.9	-1.6	-1.4	-1.5	-1.5	-1.3
ROA	4.1	3.6	3.1	4.8	4.3	3.9	3.7	2.8	3.0	3.0	3.2
ROE	32.4	29.6	26.6	38.5	35.4	30.8	29.0	24.5	27.1	26.0	26.6

* up to September.
Source: BCRA

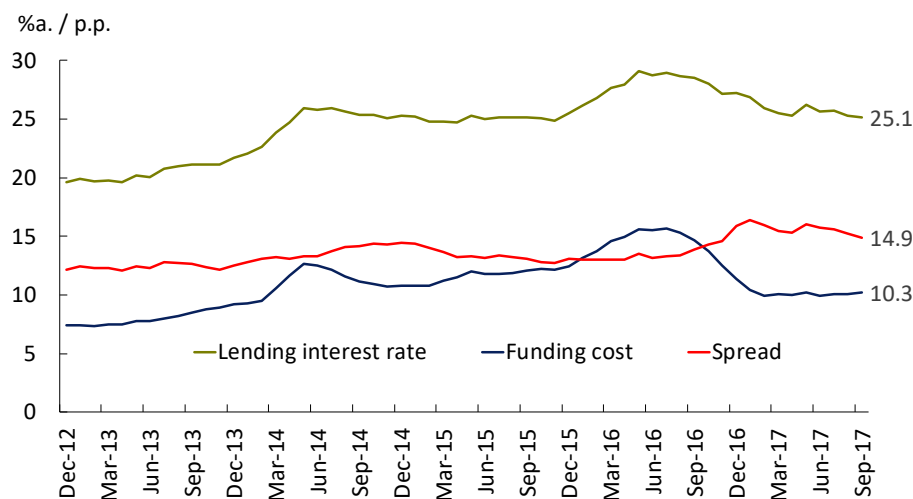
The financial margin of banks increased slightly in the last two quarters of 2017. When compared to the first quarter of the year, there is a recovery of interest income in terms of assets, mostly brought about of the sustained positive performance of credit to the private sector. On the other hand, the financial margin picks up the re-composition in valuation differences obtained by institutions facing the evolution of the nominal peso-dollar nominal exchange rate observed in the period. These movements more than offset the slight increase in interest-related financial outlays, in a scenario with relatively higher interest rates paid for fixed-term deposits (a movement which was in part offset by a certain reduction of the latter's weight in the total). In turn, while the period saw a strengthening of the anti-inflation bias of monetary policy (see Chapter 1), results for public securities and repos remained without significant changes in the last quarters, due to the reduction of the portfolio for these instruments.

In this context, it observed that the differential between the implicit active interest rates and the funding cost implicit via deposits—both denominated in pesos—of financial institutions increase slightly in year-over-year terms as of September, 2017⁴⁷, going from a level of approximately 13.9% to 14.9% (see Figure 2.7). This year-over-year increase was originated in a relatively-more-pronounced reduction in the cost of funding via deposits in pesos relative to the fall in the active interest rate in the same period. The former was affected by the increase in the weight of transactional deposits, while the latter was conditioned by an increase in the share of longer-term credits⁴⁸. However, if the maximum value observed in early 2017 is considered, throughout this year institutions have been gradually reducing this implicit rate differential.

⁴⁷ It is interesting to explore the evolution of this rate differential in order to better interpret the results generated in the process of traditional financial intermediation. In this sense, the implicit active rate is defined as the coefficient between the annualized quarterly flow of accrued interest and the average balance of loans in the period. The implicit cost of funding via deposits is defined as the coefficient between the annualized quarterly flow of paid interest and the average balance of deposits, adjusted by reserve requirements. The data refer to the non-financial sector. Implicit interest rates (ex post) are linked to flows originated in operations agreed in the past and incorporate information which was unknown when the transaction was carried out, such as the level of debtor compliances or potential decreases in credits, among other dimensions. In turn, (ex ante) actual interest rates reflect more efficiently the conditions of the environment at the time of the transaction, such as market competition, changes in macroeconomic variables, expectations, etc.

⁴⁸ In fact, an exercise which keeps constant between the period's ends both the composition of funding and the share of credit by term, the differential should remain relatively constant in the year-over-year comparison.

Figure 2.7 | Estimation of implicit interest rate* and implicit funding cost by deposits* - Items in domestic currency – Financial system. 3-month mobile accumulated



Lending interest rate: (Income flows from loans + Adjustment flows from loans with CER) / Average regular stock. Funding cost: (Flows of expenses for deposits + Flows of adjustments for deposits with CER + Flows of expenses destined to SEDESA) / Average of deposits net of reserve requirements. Source: BCRA

The profits by services generated by banks have stabilized around an annualized 3.6% of assets, both in the second and the third quarter of the year (slightly above the level of early 2017). Besides this evolution in margins, this income source for banks amounted to an annualized 3.5% of assets so far in 2017, below previous years. It should be considered that the policies launched by the BCRA continue to encourage greater competition in the financial system. As a supplement to the set of de-regulation efforts launched in 2016 and early 2017⁴⁹, in the last few months, the BCRA relaxed the regulations on institutions' supplementary activities, giving banks the possibility of entering the "fintech" market (see Exhibit 3). It is expected that, in a context with more dynamic credit and a broadening of the financial products provided to companies and households, profits by services should consolidate as an income source.

Loan loss charges show a very slight increase in the margin, hovering around an annualized 1.1%/1% of assets in the second and third quarter of the year. This evolution takes place in a context in which banks have begun to gradually broaden their debtor base, with loan loss ratios which remain low (see Chapter 3).

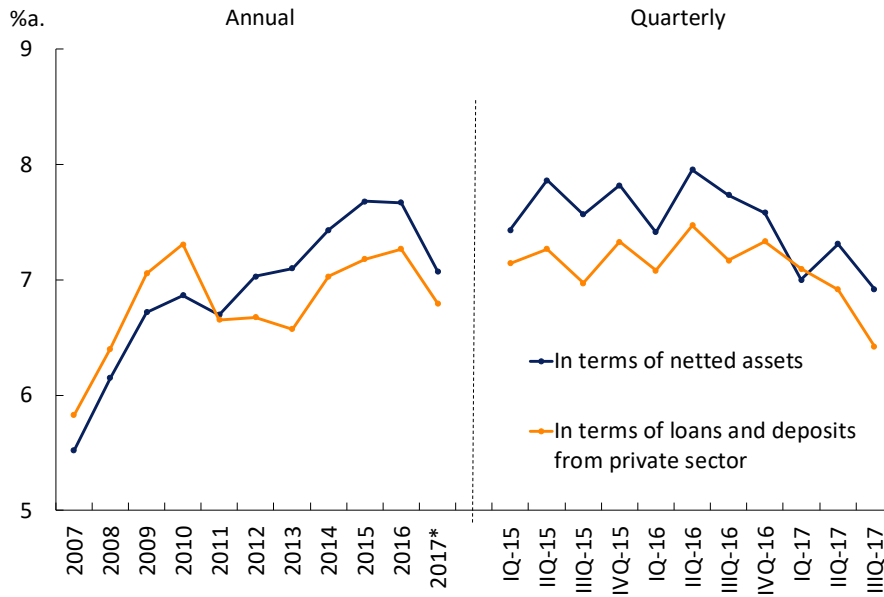
In 2017, banks' operating costs continued on the downward path which started in the second half of last year (see Figure 2.8). However, they remain high in historical and international terms. Thus, in the third quarter of the year they reached an annualized 6.9%, taking the January-September aggregate to an annualized share of 7.1% of assets, below the ratios of the three previous years⁵⁰. The value observed for operating costs in the aggregate of 2017 remains well above those of other countries in the region (between 2% and 3%⁵¹). As regards efficiency gains by local banks, which are crucial in the current context, according to estimations of the BCRA there is ample room for improvement, in productive terms and terms of economies of scale (see Exhibit 4). In this sense, it should be noted that the BCRA accompanies this process promoting the reduction of institutional costs and the use of new technologies (see Box 8, Regulatory Annex, and Chapter 5 of previous IEF editions).

⁴⁹ See [IEF I-16](#), [IEF II-16](#) and [IEF I-17](#), for greater detail.

⁵⁰ It should be considered that the value of operating costs in the 2017 aggregate could eventually increase, due to the still-needed adjustments linked to wage negotiations in the banking sector, particularly the contingent component linked to the evolution of inflation.

⁵¹ See Chapter 2 of the [IEF II-16](#).

Figure 2.8 | Operating costs – Financial system

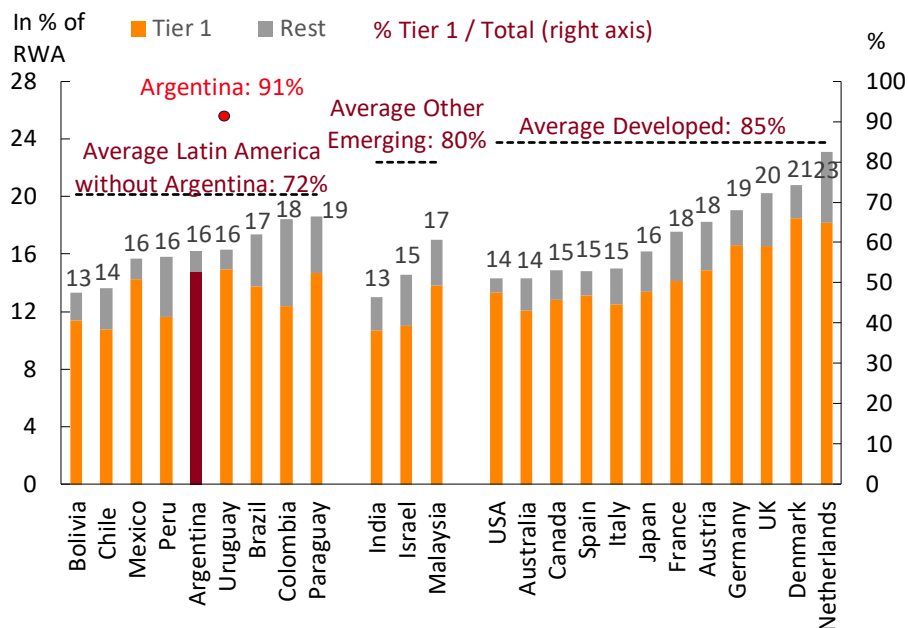


* To September. Source: BCRA

Robustness in the composition of local bank capital

At the end of the third quarter, the financial system continued to post relatively comfortable levels of solvency, slightly inferior to the one seen six months before (that is, when the IEF I-17 was published), picking up the effects of the expansion of credit to the private sector. The financial system’s capital compliance totaled 16.2% of risk-weighted assets, almost 0.7 p.p. below the level in March, an evolution seen in all bank groups. Tier 1 capital, which has the best capacity to absorb eventual losses, accounts for over 91% of the total. This value is higher than the one observed in other Latin American economies (in which the average is 72%) and developed countries (in which the average is 85%) (see Figure 2.9). In the current context of strong sectorial expansion expectations (which involves need of funding and greater exposure to risk in the balance sheet), capital expansion decisions are being made in a growing number of institutions (see Box 9).

Figure 2.9 | Level and composition of capital compliance

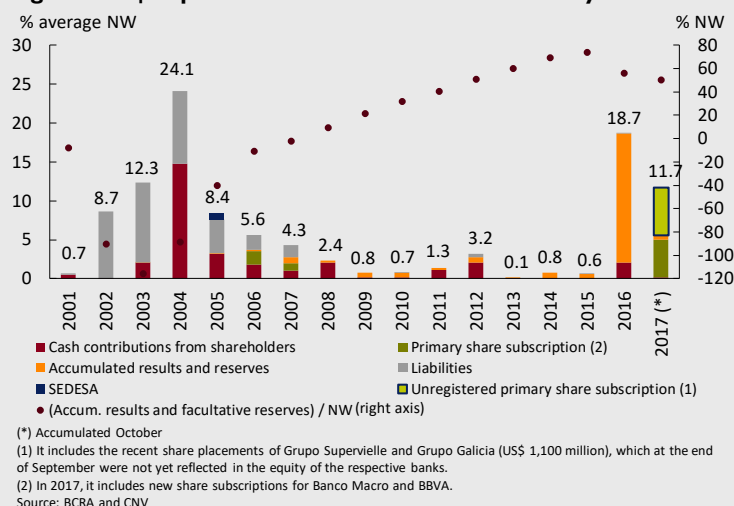


Note: Data to Sep-17 for Argentina; Latest available information (2016/2017) for the rest countries. Source: BCRA and IMF

Box 9. Bank capitalization decisions

After the reconfiguration of macroeconomic policy, banks have started to readapt their strategies to expand their capital base. During the exchange restrictions period, and as a response to the regulatory framework for accessing the exchange market and for the distribution of dividends, many banks decided to accumulate the profits they obtained, thus significantly increasing the share of those funds in terms of net worth (reach almost 75% in late 2015) (see Figure 2.10). Between 2011 and 2015, at the aggregate level, the annual average of new capitalization was of only about 1.2% of the bank's net worth, in a context in which no entity decided to expand its capital and underwrite new shares in the market. This behavior changed in 2016. In that year, the National Government decided to carry out a significant capitalization of profits from previous years in a state-owned bank, among other lesser operations. So far in 2017, several banks have made primary issues in the market, announcing that said resources will be used to finance their organic growth business strategy (expanding credit) and to analyze the potential for strategic acquisitions of other entities, aimed at broadening scales and improving efficiency. These underwritings account for almost 5% of the average net worth of the system this year, a value which increases by an additional 6 p.p. if we consider the placements by the financial groups which own the banks—much of the resources will be channeled towards them.

Figure 2.10 | Capitalization decisions of the financial system

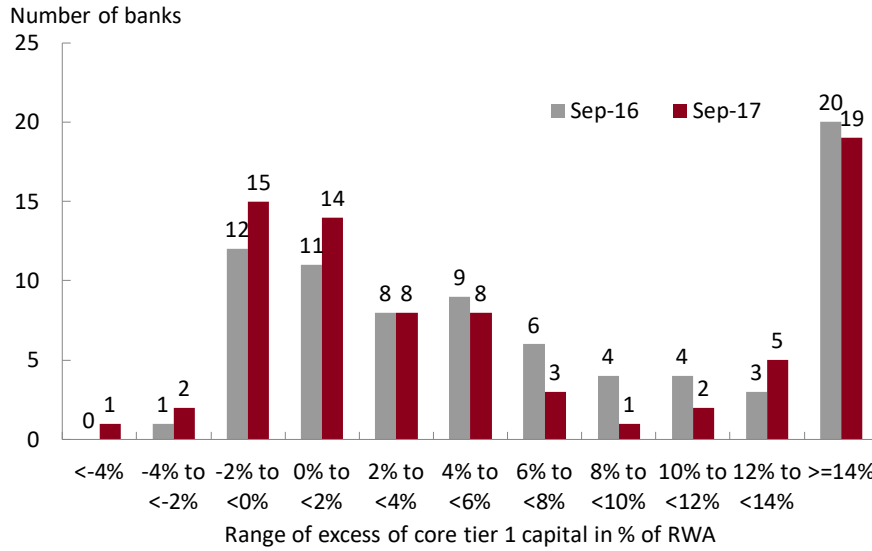


When dealing with the theoretical exercise of incorporating regulatory capital margins as minimum requirements⁵², banks present an excess of compliance of Tier 1 core capital—ordinary shares and retained profits— of 4.5% of risk-weighted assets (it was 5.1% a year before). Eighteen institutions failed to cover all margins as of September, 2017, while most of the aforementioned group (15 out of the 18) have values close to those stipulated by existing margins—less than 2 p.p. away from the risk-weighted assets needed to cover margins—⁵³ (see Figure 2.11). This situation gives rise to restrictions to distribute profits for the institutions which fail to completely cover margins.

⁵² Capital conservation buffer of 2.5% of risk-weighted assets, which is expanded by 1% in the case of the five systemically-important banks. Margins are not a minimum regulatory requirement. Lack of compliance entails restrictions to dividend distribution (Ordered Text about [Profit distribution](#)).

⁵³ The 15 aforementioned entities which are nearer to meeting margins (less than 2 p.p. away from covering margins) amount a bit more than the 24% of the total assets. The three remaining entities (more than 2 p.p. away from covering margins) amount to approximately 9% of the financial system's assets.

Figure 2.11 | Estimation exercise of core tier I capital excess, including capital margins



Source: BCRA

The Leverage Coefficient⁵⁴ for the financial system increase moderately in the first half of 2017, reaching 10.1% in June —last available information—, a value which is consistent with that observed in the last few years. This measure is well above international recommendations (3%).

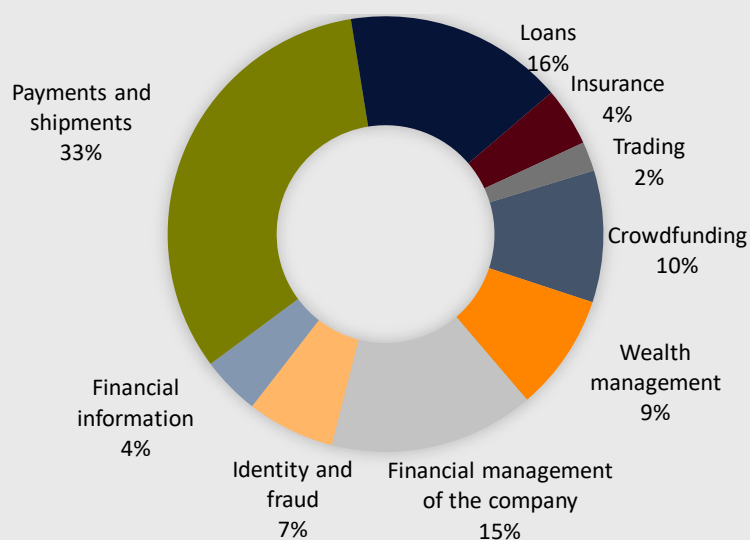
⁵⁴ Ratio of the capital best-suited to absorb losses and a broad exposure measure.

Exhibit 3 / “Fintech” companies and provision of financial services

Financial technology, or fintech, companies are changing the provision of financial services. These companies make use of advances in information technology and improvements in communication infrastructure to provide services through electronic or digital channels⁵⁵.

Even though the application of technology in the financial industry is not new, the greater promotion and development of fintech companies began in 2010 in the US and the UK. However, these phenomenon currently involves economies with different levels of per capita income (with several successful cases, for instance, in African countries). In the case of Latin America, fintech firms are experimenting with various business lines, including payment solutions, alternative financing platforms, digital versions of pre-existing categories (banks, digital insurance companies, firms devoted to trading assets and securities markets), companies which develop technology for financial institutions (security and digital identification, fraud prevention, biometric data, etc.), alternative scoring platforms for credit rating assessments, management of personal finances (platforms to compare financial and debt management services), management of business finance (e-billing, digital accountancy, financial management and business intelligence and collection) and wealth management, among others⁵⁶. In the Argentine case, the areas with the greater number of companies are payment solutions, alternative financing and management of business finances (see Figure 1).

Figure 1 | Fintech firms in Argentina – Composition



Note: distribution based on number of companies.

Source: data published by Finnovista for the year 2016 and supplemented by own surveys.

As regards payments solutions, the most prominent in Argentina are e-wallets and the use of electronic money stored in cell phones⁵⁷. The transformation of physical money into electronic money these solutions imply affords the user a safer way to store money, the possibility of transferring funds to geographically-distant people (remittances), and a record of transactions. The impact of well-being is more significant when it involves unbanked people. From the point of view of public policies, these e-money accounts make it possible to target subsidies or apply differential tax rates based on the type of consumer.

⁵⁵ Such as mobile apps and web sites.

⁵⁶ Inter-American Development Bank and Finnovista (2017). Fintech: Innovaciones que no sabías que eran de América Latina y el Caribe.

⁵⁷ For more details, about the evolution and innovations in the payments system, see Chapter 4.

In terms of new financing alternatives, two types of fintech companies are present in Argentina: those which use their own capital to provide consumer financing or working capital, and those which offer platforms to connect people which are looking for financing with people looking for ways to invest their savings (crowdlending). In both cases, the loans are managed through mobile apps or web sites⁵⁸. Technologies of this type make it possible to connect borrowers with lenders, with the capacity to process several requests without affecting the service provided as one of their main attributes. These new channels are trying to reduce as much as possible the physical presence of the parties (for instance, through electronic signature of a contract). They also introduce innovations in scoring methods or credit rating, which use the user's behavior in social media, e-commerce platforms or electronic payment systems.

So far, the financial conditions seen among some fintech companies imply short terms and reduced amounts for consumer loans⁵⁹. In the case of working capital loans', terms extend from 2 months to 4 years, with amounts ranging between \$30,000 and \$1,500,000. Moreover, the cost of financing changes and tends to be higher in consumer loans, with effective annual rates above those of credit card financing or of personal loans with a financial institution. The financial cost of working capital tends to be, in general, significantly lower than that of consumer loans, and closer to the interest rates of the financial system.

The emergence of fintech companies has led to a series of debates, both at the international and the local level. One of these refers to which type of relationship will prevail between banks and fintech companies in the future: an associative-complementary situation, or one of competition-substitution. In this sense, international experience shows that even though financial entities did not respond immediately to the appearance of these new players, they later did so through the development of their own fintech arms, through complaining about the different regulatory charges faced by financial institutions, and/or by cooperation strategies with fintech companies. At the local level, starting in January, 2017, the BCRA allowed banks to have shares in fintech companies⁶⁰.

Seeing as the presence of fintech companies has potential effects both on financial inclusion and on financial stability, a debate has begun as regards the challenges they entail in regulatory terms (though no significant progress has been made in international regulation in this regard⁶¹). This discussion includes, for instance, the issue of which regulation should be applied: that which affects financial institutions or a new regulatory framework adapted to the sector's qualities⁶². In the Argentine case, with the goal of not discouraging innovation processes which could lead to benefits for consumers, as long as these companies do not perform financial intermediation, are not subject to that activity's regulations. Moreover, users who decide to make use of consumer loan services provided by fintech companies are protected by Law 24,240 (Law on Consumer Protection in its Chapter VIII). Also, the Law of Entrepreneurs was passed recently, whose Title II regulates the collective financing of shares (crowdfunding equity), leaving its regulation in the hands of the National Securities Commission.

⁵⁸ In the first case, the platforms, after the user's request for funding, report without delay the conditions under which the loan would be granted. In the second case, the user publishes his or her request for funding, specifying the features of the project for which the loan would be used, and the requested financial conditions. Then, savers in the same platform can bid to provide funds to the projects seeking financing. These savers, labeled "investors", can allocate the share of capital they deem convenient, within the limits set forth by the fintech company in order to diversify risks.

⁵⁹ In some cases, when the fintech company has at its disposal consumer loans with higher amounts, it can be seen that the financing term is also extended simultaneously, up to between 1 and 3 years.

⁶⁰ Initially introduced by Communication "A" 6154 in January, 2017, which was then replaced by Communication "A" 6277.

⁶¹ The Financial Stability Board has defined a work agenda (see "Financial Stability Implications from FinTech"). The BIS, in turn, has generated a discussion document with observations and recommendations as regards the treatment of the fintech sector by banking supervisors ("Sound Practices: Implications of fintech developments for banks and bank supervisors").

⁶² In Latin America, only Mexico has advanced in the development of a fintech bill which compiles the experiences of countries such as England and Canada with the subject.

Exhibit 4 / Efficiency measures in the Argentine banking system

One way to analyze the efficiency of financial institutions is by applying the technique of Data Envelopment Analysis (DEA). Applying this tool to the data of Argentine banks shows that potential profits from efficiency gains could be significant for the different groups of entities. Eventual benefits would expand, if the comparison included Latin American banks.

To assess efficiency is to compare the observed relation between the combination of inputs and outputs with the optimal relation. Ideally, the optimal relation would be defined based on two elements: a value allocation, based on preferences or priorities, and information about production possibilities. Normally, neither element is available, so data are used to approximate the ideal relationship between inputs and outputs and infer the technology.

In the last edition of the IEF, we presented various methods to estimate an “efficiency frontier” and the concept of Benchmarking⁶³. This technique aims at measuring each institution’s efficiency in terms of those with the best performance throughout the period. DEA is particular, non-parametric and deterministic benchmarking technique, with computes the efficiency frontier using linear programming⁶⁴. The DEA technique, graphically, is illustrated as the identification of an efficiency frontier in a space of inputs and outputs, and the measure of inefficiency for each unit is the distance relative to that frontier⁶⁵.

Two DEA approaches for Argentine institutions

Two approaches were used: a) an “intermediation approach”, in which banks interact with the rest of the economy, employing funds and producing financing, services, and net results; b) and a “cost approach”, in which banks employ wealth and physical capital and incur in administrative and other expenditures to obtain intermediation and service margins. Both approaches value outputs and inputs based on the prices implicit in financial information. That is, the valuation of outputs and inputs is not social, but monetary⁶⁶.

Quarterly data were used for the period between December, 2004, and March, 2017. As the methodology assess management in a specific context, it should be mentioned that during the first part of the period (the normalization period after the 2001/2 crisis) results reflected losses which had activated, some banks funded themselves with BCRA assistance and exceptional prudential and valuation rules were in place. Towards the middle of the period, minimum and maximum values were set for some interest rates, a share of credit was targeted, and foreign exchange flows were restricted, affecting the behavior of savers, parties requesting credit, and banks. The establishment of state control over pension funds and the international crisis had an impact in the banking business in 2008/09. In the last stage, banks have gone through a period of normalization of the exchange market, disinflation, and a significant FX inflow, which was channeled gradually towards credit⁶⁷. In that context, the inefficiency for each institution and quarter is measured against the best observation in the sample of banks with local operations.

For the exercises, institutions were grouped into public banks (group 1 or 2, based on the bias towards retail business) and into other regional financial institutions, universal banks, smaller institutions focused on

⁶³ See [IEF-I 2017](#) for an introduction to the subject and literature references. See Balzarotti, V. (to be published).

⁶⁴ One of the DEA’s advantages is that it requires no assumptions as to the functional form of the frontier nor as to randomness, and only needs very general assumptions about technology (see Charnes et al., 1978). On the other hand, the distance between an inefficient unit and an efficient one is interpreted exclusively as inefficiency.

⁶⁵ The most widely-used efficiency measure is that suggested by Debreu and Farrell, which measures whether it is possible to (proportionally) reduce inputs without changing the output or set of outputs.

⁶⁶ The use of two options makes it possible to posit different exercises based on the different configurations. For instance, the first approach makes it possible to assess the impact of a change in the relative price of investments/loans. The second approach, instead, makes it possible to measure how much intermediation assets could increase without modifying expenditures.

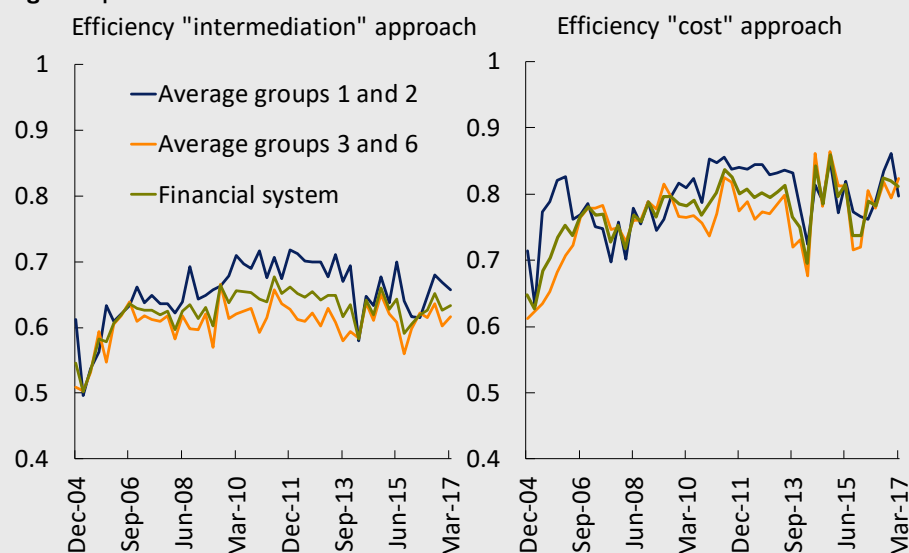
⁶⁷ Funds associated to the Tax Amnesty Regime, which reduce efficiency as measured in these approaches.

retail credit and national wholesale banks (groups 3–6)⁶⁸. The prices of inputs and outputs were estimated based on each group's median.

Results

After an initial stage with a tendency towards improvement (until 2007/2008), the system's levels of inefficiency ((1-efficiency) fluctuate during the period and show in early 2017 average levels of about 35% in the intermediation approach and 20% in the costs approach (Figure 1)⁶⁹.

Figure 1 | DEA results



Source: BCRA

It is possible to compute how much output could increase without modifying inputs (a way of partially improving efficiency). According to the costs approach, banks could, as a group, increase their intermediation assets by 20% without modifying expenditures (administrative, by liquid capital or physical capital). Repeating the same analysis with the intermediation approach, it is estimated that banks could increase their loans and services by approximately 10% without modifying inputs. It is also possible to estimate potential efficiency gains of a theoretical merger of institutions from the same homogeneous group⁷⁰. Theoretical mergers in this exercise would create potential gains for all groups. Efficiency by learning would correct almost all estimated inefficiencies, with the exception of the group of entities very focused on retail businesses and local wholesalers, which would receive an additional gain from the increase in scale. Harmonization gains are not significant in any group⁷¹.

As a supplement to the analysis, banks from Chile and Peru were included⁷². Using the intermediation approach, the Argentine system shows a greater inefficiency (55% against 35% with the local sample). Additionally, it is estimated that about 40% (in terms of assets) of local institutions would operate in the range of scale with increasing yields, that is, they could create efficiency by increasing their scale.

⁶⁸ Institutions being reorganized were excluded, as well as others with particular business models (foreign wholesalers and specialized financial companies). Of the remaining group, we excluded 1% of the most extreme results, in order to avoid particular circumstances affect results, as they are measured relative to the best in the sample.

⁶⁹ If a stricter treatment is given with public sector and judiciary deposits, due to seeing them as "privileged" funding (in terms of the lower likelihood of the depositor's migrating or the lower required yield), banks which have in them a significant source of funding lose efficiency compared with the rest in a significant percentage.

⁷⁰ Said gains can be broken down into learning gains (each unit adjusts to the best practices among its "peers"), harmonization gains (which measures the result of adjusting inputs and products to the optimal combinations) and scale.

⁷¹ Considering the heterogeneity of inputs and products, the hypothetical mergers are between homogeneous banks.

⁷² So far, Chile and Peru. This exercise should be carried out bearing in mind that implies assuming that rules, relative prices and the general context are equal as well.

3. *Stability analysis*

Bearing in mind that the risk factors identified in the context analysis and the evolution and composition of the balance sheet (which define risk exposures and liquidity coverage margins, provisions, and capital), it is estimated that the financial system maintains a relatively sound position, with a significant degree of resilience against extreme credit risk events. This global assessment shows no significant changes relative to that of the last edition of the IEF. Facing an improvement in the operational context, risk exposures are increased (even moderate-low) due to the deepening of financial intermediation with companies and households (which are not too indebted). Credit is gaining relevance in the financial system's balance sheet, gradually increasing certain asset mismatches (UVA and interest rates), while adjusting the high liquidity and capital buffers. The sources of systemic vulnerability (excessive credit growth, leveraging, interconnectedness, risks in systemic entities, among others) remain under control. Coupled with the accumulation of risks inherent to a growth stage, in the medium term, the financial system has the challenge of adapting to an environment of disinflation and greater competition.

Exposure to systemic risk factors continues to be low

The group of local banks has low exposure to the main sources of systemic risk. The reduced size of the banking sector, coupled by its moderate concentration, the inexistence of complex financial products and services, and the low degree of interconnectedness between institutions contribute to this situation. As regards the potential procyclicality of the financial system, following the Basel Committee's recommendations, the BCRA defined a countercyclical capital margin (see box 10).

Box 10. Definition of the rate of the countercyclical capital margin⁷³

This regulation aims at mitigating the cyclical risks associated mainly to an excessive credit growth. Its design leads financial institutions to accumulated "capital buffers" in strongly-expansionary period to be used in contractive phases. Thus, it follows a two-pronged goal: to reinforce the solvency of financial institutions and to smooth the credit cycle. Given its nature, this regulation requires a constant review of the conditions which define their level. One of the main indicators used to that effect, based on international recommendations, is the credit/GDP ratio's gap to its long-term trend. Besides, local methodology analyzes the growth of GDP and its cycle, and quantitative and qualitative measures about the strength of the supply and demand of credit.

The BCRA set in April, 2016, a rate of 0.00% for the countercyclical capital margin applicable to exposures in Argentina (Com. ["A" 5938](#)), which is reviewed quarterly. The last information analyzed shows signals consistent with keeping the rate at 0% in December, 2017.

In terms of depth of credit in the economy, while it increased recently (see Chapter 2), it is still well below the levels seen in other economies in the region (see Figure 3.1). Besides, the importance of the largest banks within the financial system is low compared to other countries. For instance, the private sector credit held to three largest banks at the local level is a third of total bank credit to the private sector: a level lower than that of other Latin American countries. That is, in other countries in the region, the largest banks account for a greater share of credit and, in turn, have a greater relevance for the economy.

⁷³ See [IEF I-2016](#) for greater detail on the methodology.

Figure 3.1 | Depth of credit to private sector and credit concentration in large banks – International comparison


Note: The LAD (latest available data) of Credit / GDP corresponds to 2017, except Brazil (2016) and Mexico (2016). The LAD for share % in the credit of the 3 main entities are taken for 2017 (all cases). Source: IMF, Central Banks and Superintendencies of Financial Institutions

As regards the identification of systemically important institutions at the local level, and following international guidelines, the BCRA determined⁷⁴ that five financial institutions must keep an additional capital conservation margin of 1% of risk-weighted assets. Bearing in mind the monitoring of the assessment of this group of institutions, while there is a certain degree of disparity between individual soundness indicators, they show on average levels close to those of the aggregate financial system (see Table 3.1). It should be pointed out that this group of banks showed in 2017 a greater degree of relative dynamism in financial intermediation.

Table 3.1 | Domestic systemically important banks (DSIBs) indicators

	Dec-15		Dec-16		Sep-17	
	DSIBs	Financial system	DSIBs	Financial system	DSIBs	Financial system
Profitability and solvency						
ROA*	4.8%	4.1%	4.0%	3.6%	3.0%	3.1%
Efficiency**	250%	196%	225%	188%	210%	182%
Capital compliance / RWA	16.1%	13.3%	18.6%	16.7%	18.4%	16.2%
Credit risk (private sector)						
Y.o.y. var. of credit in real terms	5.5%	5.4%	-1.9%	-3.3%	26.4%	20.5%
Credit / Assets	38%	45%	34%	42%	44%	48%
Non-performing financing / Total financing	1.5%	1.7%	1.4%	1.8%	1.6%	1.8%
Provisions / Non-performing financing	176%	148%	170%	137%	178%	140%
Liquidity and funding						
Y.o.y. var. of private sector deposits in real terms	15.3%	14.7%	11.0%	5.0%	14.4%	10.6%
Liquid assets (with LEBAC) / Deposits	48.1%	46.7%	48.9%	49.0%	40.3%	42.6%
Foreign currency risk						
Foreign currency mismatching / RPC	28.0%	21.9%	24.5%	19.5%	19.7%	14.2%

* Annualized result / Netted assets. Accumulated in the year.

** (Financial margin + Net service income - Loan loss provisions) / Operating costs. Accumulated in the year.

Source: BCRA

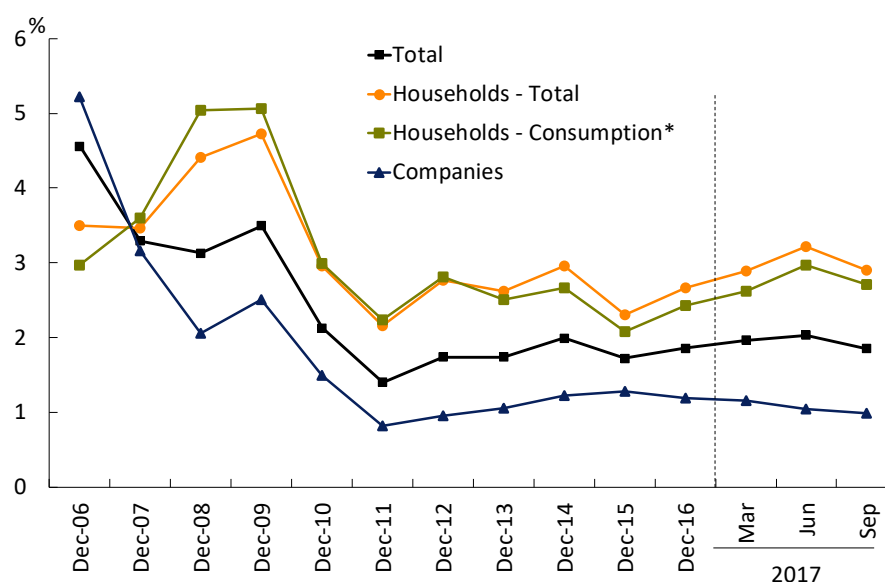
⁷⁴ For greater detail on the determination of domestic systemically-important institutions (D-SIBs), see [HERE](#). As of September, the five systemically-important institutions accounted for 52% of the sector's total assets.

Starting from moderate levels, banks increase their exposure to credit risk

The expansion of private sector credit in the last six months gave rise to an increase in the financial system's gross exposure to this sector (see Table 2.1 in Chapter 2), while it still remains below the maximum levels seen in previous years. This pattern was shared by all groups of institutions, with a greater increase in public banks. In turn, growth in gross exposure to private sector was attenuated by a year-over-year fall in the level of debtors' credit concentration⁷⁵.

The nonperforming ratio was of about 1.8% in the first quarter of 2017, a level similar to that shown in the last IEF (see Figure 3.2). This posting is low, both compared to the average of the last 10 years and to other financial systems. The level of provisioning remains high⁷⁶.

Figure 3.2 | Private Sector Nonperforming Loans
Nonperforming Loans / Total Financing (in %)



*Note: includes personal loans and credit cards. Source: BCRA

The increase in the financial system's exposure to the private sector in 2017 was accounted for both by the household segment (+2.9 p.p. of assets, to 22.5%) and by the company segment (+3.8 p.p. of asset, to 27.4%), picking up the effects of the expansion of financing lines (see Chapter 2). Nonperformance in household loans represented 2.9% of the total balance, above the level seen in 2016, but slightly lower than the level of mid-2017 (-0.3 p.p.). In particular, delinquency is relatively lower in investment-focused lines, especially mortgage lines (see Box 11). In the case of the productive sector, delinquency reached 1% of the balance, with a slightly-decreasing trend.

⁷⁵ It is estimated that financing for the 100 top debtors of the private sector accounted for 15% of total private sector financing in mid-2017: 3.3 p.p. below the level of the same period in 2016.

⁷⁶ Excluding minimum provisions — according to regulations — on the regular portfolio, provisioning would be equal to 85% of irregular financing.

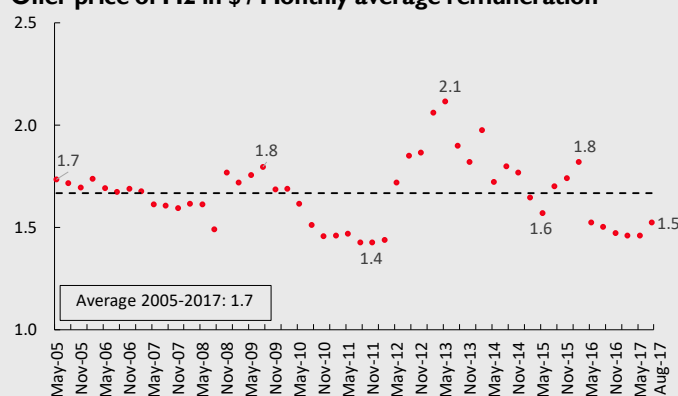
Box 11. The local mortgage market and the price of housing

One of the lessons of the international crisis of 2007/08 is that episodes with significant increases in mortgage financing to households—which often come with periods of looser granting criteria—, in scenarios of marked increased of leverage and of the price of real estate, can boost the economies' systemic vulnerability. That is, the conditions of financial stability are at risk, eventually creating tensions both on the households' financial situation and in the public sector, facing changes in macroeconomic conditions.

Considering the aforementioned lessons, the BCRA monitors the current expansion of the local mortgage market, a trend which is being boosted by the favorable macroeconomic conditions and for the greater access of the population with housing needs to this market. This monitoring shows that the level of mortgage credit granted to households remains very low, accounting for less than half a point of the GDP (this value hovers around 10% of GDP in economies such as Mexico, Bolivia, and Brazil, and surpasses 20% of the GDP in Chile). Moreover, the low leverage of households in general and through mortgages in particular, makes the financial burden they face very low as well (see Figure 3.4) and the level of delinquency very reduced (about 0.3%). It should be considered that the local institutions which are more active in the mortgage market tend to observe relatively more conservative credit criteria than other economies in the region, both in terms of amounts lent relative to the property's value (in general, up to 75%) and in terms of the ratio of the weight of the payments in income (mostly up to 25%).

As regards the price of housing, if we take for instance the case of the Autonomous City of Buenos Aires, the various sources of information available—both public and private— show that in the last few years, the value of square meters offered increased, measured in dollars. If we consider these values in terms of the average private sector worker's income, that is, a measure of the capacity to access and of valuation, we can see that the relationship remains relatively constant and even falls slightly in some periods (see Figure 3.3).

Figure 3.3 | Offer price of M2 and remuneration
Offer price of M2 in \$ / Monthly average remuneration



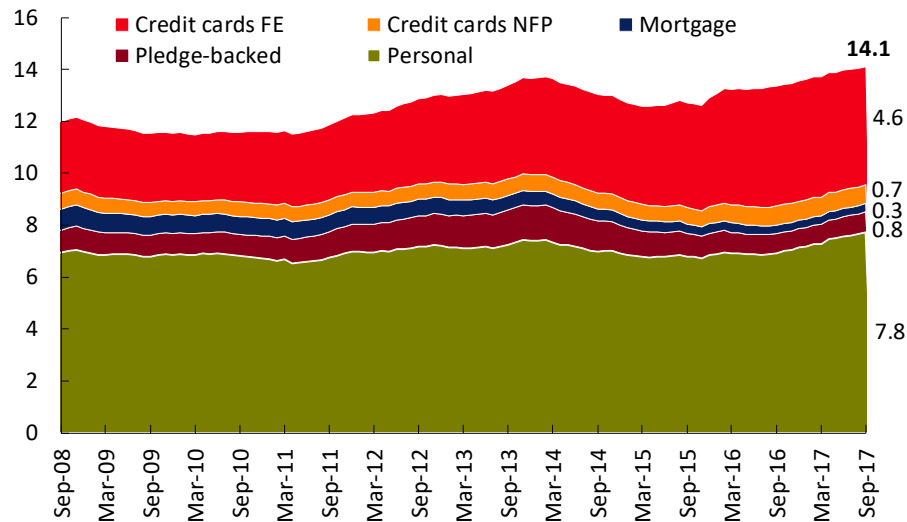
Note: Quarterly data is taken from the offer price in dollars of buildings of 2/3 rooms used in CABA. Average remuneration of registered workers in the private sector.
Source: Real Estate Report and Min. of Labor, Employment and Social Security.

The BCRA has micro- and macroprudential tools to reduce potential excessive risks associated with the housing and mortgage market. An example of this is the existence of differential weights in the requirements of minimum capital by credit risk, which depend on the ratio of the loan amount and the property's value, among other available tools. In the short and the medium term, this institution will continue to monitor the potential systemic risks which may arise in this market.

Relative to the last IEF, the households' debt and financial burden increased slightly (see Figure 3.4), though they remain at relatively low levels. The debt level of companies did not change significantly

compared to the last IEF, while it is estimated that in the last few years, the relative availability of operating income for debt service has increased (see Exhibit 1).

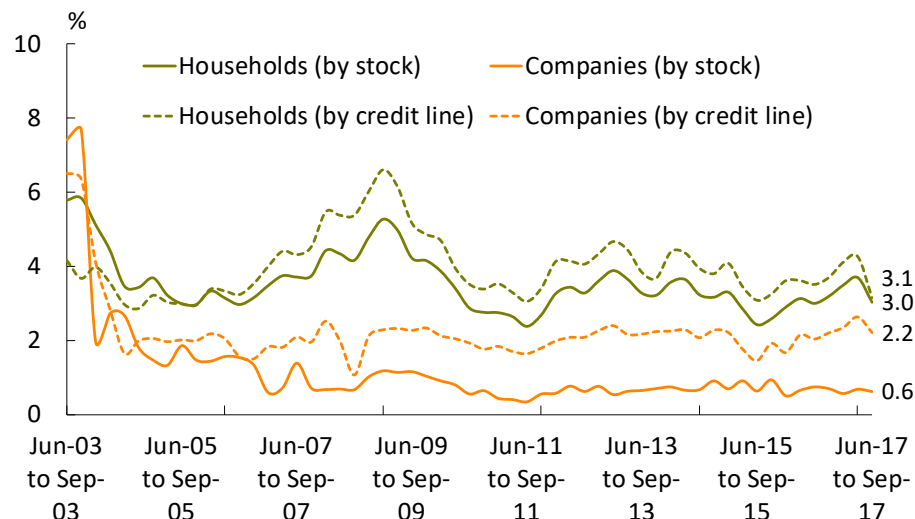
Figure 3.4 | Household financial burden indicator
As % of wage mass



Note: The calculation considers the monthly services estimated by loans (capital and interest), in terms of the estimated monthly wage mass. FE: Financial Entities; NFP: Non-financial Providers. Source: BCRA

As regards the estimation of the likelihood that a debtor’s credit situation will worsen (IPM measure⁷⁷), the last quarter showed a marked reduction, both for households and companies (see Figure 3.5). This reduction in the IPM came after the increase seen since mid-2015⁷⁸. The household IPM continues to be higher than its corporate counterpart. These indicators remained at levels consistent with the average of the last ten years. We see that the reduction in the household IPM’s margin was widespread among credit assistance.

Figure 3.5 | Quarterly frequency of debtor situation deterioration



The information contains banks (neither financial trusts nor non-financial credit providers) and the non-financial private sector. Source: BCRA

⁷⁷ The IPM is estimated both in terms of debt balance and of credit assistance. For greater detail on the measure’s construction, see page 38 of IEF I-17.

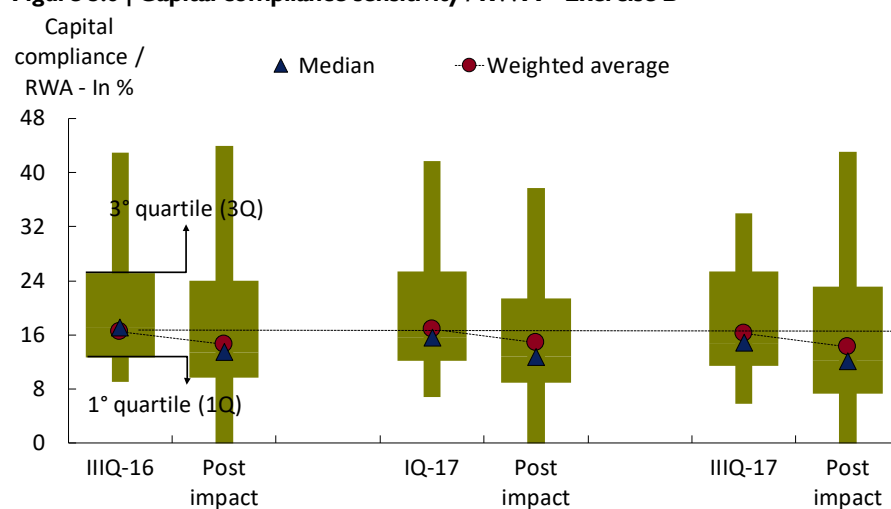
⁷⁸ A similar behavior was seen in the indicator which considers the balance in delinquency in terms of the balance a year before (expressed in same-purchasing-power pesos).

An eventual abrupt change in the external context, with consequences in terms of access to financing for Argentina, could affect the counterparty risk of the local corporate sector. Those companies with a greater use of external financing (for instance, those linked to the primary sector, services, and industry, see Exhibit 1), would see a deterioration of their financial position and a reduction in their repayment capacity to local banks. It is expected, however, for all potential scenarios of this type to have a reduced effect on the Argentine financial system. This happens because, currently, the system shows a diversified credit portfolio (in part thanks to prudential regulations), a situation which is consolidated by the currently-very-low levels of delinquency and high provisioning ratios in the corporate portfolio, against a backdrop of broad solvency margins.

System’s resistance to exercises of sensitivity to credit risk

The set of banks keeps an important position of resistance as regards hypothetical scenarios⁷⁹ —with very low likelihood— of credit risk materialization, showing at the aggregate level similar results to those of the last IEF. In the case of “exercise B”⁸⁰, already presented, it is estimated that after the assumed impact, 21 financial institutions in total would be left with a capital compliance below 8% of risk-weighted assets. This number of institutions is greater than the number which crossed this threshold in the first quarter of 2017 (18 institutions) and the third quarter of 2016 (16 institutions). This result is accounted for mainly by the lower capital levels currently seen in a greater number of institutions compared to previous IEFs (see Figure 3.6 and Chapter 2), though at an aggregate level capital remains high.

Figure 3.6 | Capital compliance sensitivity / RWA – Exercise B*



* Note: the exercise assumes the increase in the non-performing ratio to the maximum reached in the international financial crisis (between IIS-07 and IS-10), and then the non-payment of such loans. For the IIIQ-16 the data of Sep-16 is considered, for the IQ-17 the one of Mar-17 and for the IIIQ-17 the one of Sep-17. Source: BCRA

Reconfiguration of liquidity levels in a context of credit growth

Indicators of bank exposure to liquidity risks showed few changes in the last months. Both deposit concentration and the weight of the liabilities with shorter terms in total funding remained at levels similar to those seen in the last IEF.

⁷⁹ Since the publication of IEF I-16, three sensitivity exercises are developed, based on extreme assumptions: 1) “exercise A”: inability to pay of nonperforming debtors as of the last available information; 2) “exercise B”: increase of the delinquency ratio in each institution, up to the maximum reached in the peak global financial crisis (between the second half of 2007 and the first half of 2010) followed by the default on those loans; and 3) “exercise C”: inability to repay by the 10 companies which owe more to the financial system.

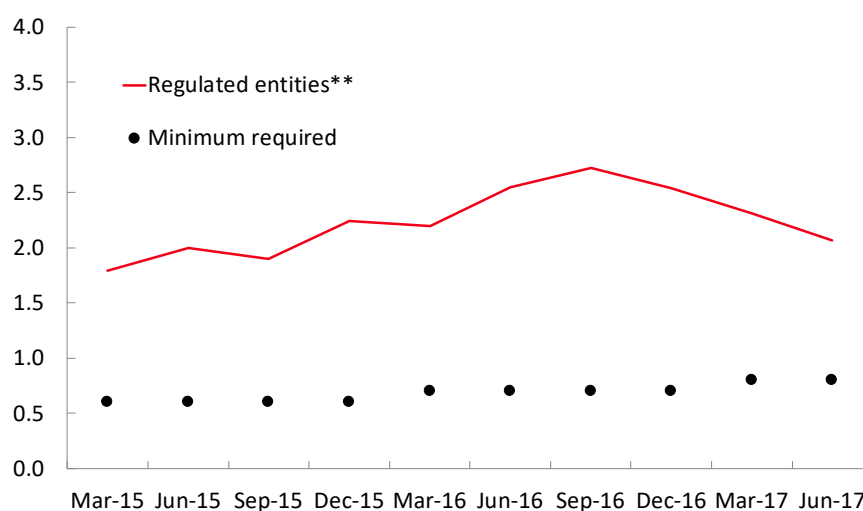
⁸⁰ See previous note

The coverage of deposits with liquid asset—including LEBAC holdings— was above 42% towards the end of the third quarter of 2017. Since the last IEF edition, credit to the private sector became significantly dynamic. As a result, the broad coverage ratio was reduced almost 10 p.p. since March, 2017. This reduction was mostly explained by the lower balance of repo operations with the BCRA and the fall in the availability of foreign currency.

Against that backdrop, the financial system continues to show a liquidity coverage ratio (LCR) which is well above the minimum recommended at the international level (see Figure 3.7). In this sense, towards the middle of the year, the largest institutions —those classified within Group A⁸¹— had an LCR level of about 2.1, 0.5 p.p. below the level seen for the last IEF, with data as of last December. However, this value was 1.3 p.p. higher than the minimum regulatory requirement in place. The semi-annual change was due to a reduction of the liquid assets in the High-Quality Liquid Asset fund (HQLA), mainly for the performance of domestic- and foreign-currency financing, coupled with the context of a moderate increase in deposits.

The decrease of uncertainty in inter-financial liquidity markets has made it possible for banks to manage more effectively their resource excesses and shortages. In this sense, since the repo band as policy rate was established, the fall of volatility in these markets became sharper. In this context, traded amounts for the collateralized and not collateralized segments increased since March.

**Figure 3.7 | Liquidity coverage ratio
HQLA / NCO***



*HQLA = High-Quality Liquid Assets. NCO = Net Cash Outflows.

**The obligated entities belong to group A (Communication "A" 5703) and represented 87% of assets to Jun-17. Source: BCRA

Should credit to the private sector continue to grow, it can be expected for institutions to keep readjusting their voluntary liquidity levels and have an incentive to improve the real returns they offer on their deposits (see Box 5). In parallel, under the Basel macroprudential recommendations as regards liquidity risk, since 2018, banks⁸² must meet the Net Stable Funding Ratio (NSFR). This ratio aims for entities to be able to finance their longer-term assets with stable resources. At all times, the relationship between the available stable funding amount must be higher than or equal to the required funding amount⁸³. In the current context of expansion of longer-term credit lines, compliance with this rule will contribute to the bank's management of liquidity risk.

⁸¹ Com. "A" 5703

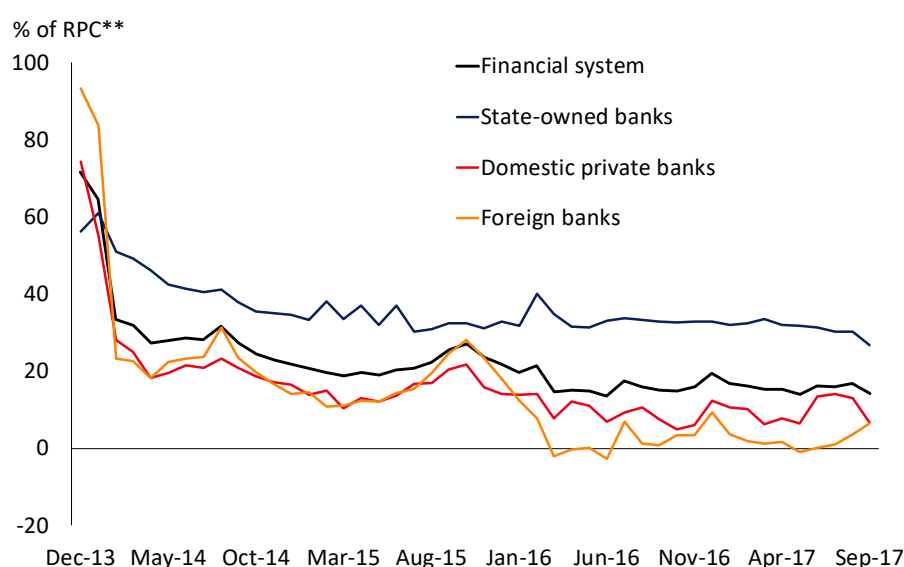
⁸² Banks belonging to group A.

⁸³ For greater detail, see the consolidated text about the [Net Stable Funding Ratio](#).

Low exposure to currency risk under a floating exchange rate regime

The foreign currency mismatch for the group of banks did not change significantly since late 2015, and is currently around 14.2% of the Adjusted Stockholders' Equity (RPC, its Spanish acronym), slightly below the level of the last IEF (March, 2017) (see Figure 3.8).

Figure 3.8 | Foreign currency mismatch by group of banks
Assets - Liabilities + Net undelivered term purchases*



*Off balance sheet accounts.** Regulatory capital. Source: BCRA

Given the evolution of the peso-dollar exchange rate and the level of balance sheet mismatch seen so far in the year, the regulatory capital requirement in this category amounted to only 3.5% of the total capital requirement (2% of RPC) as of September, a level consistent with that of the last IEF. In this context, we must consider that a floating exchange rate regime, such as that in place in Argentina, prevents abrupt variations as those usually observed in fixed exchange rate regimes (in which it is usual for pressure to build up over time, which ends in abrupt and significant variations). While the floating exchange rate regime does not preclude volatility scenarios (e.g., due to the materialization of stress in the external context), in this case the changes are usually milder and can be temporary in nature. At the same time, it must be considered that in a floating exchange rate regime agents price potential volatility into their decisions (in general, by reducing open net positions, as can be seen since 2016). Moreover, the central bank can use international reserves to avoid disruptive changes not linked to variations in macroeconomic fundamentals.

The dynamic nature of UVA-denominated loans and the inflation-adjusted items mismatch

As detailed in two previous editions of the IEF, the risks faced by banks operating in UVA can be broken down into two. On one hand, because its being a coin different from peso, its future re-expression will entail an impact on results measured in the domestic currency. On the other hand, the fact that banks have an asset mismatch with adjustable long-term financing and non-adjustable short term funding causes institutions to expose themselves to a real interest rate risk. In this last case, the risk could materialize, for instance, if inflation is lower than the increase in the nominal interest rate.

As of September of this year, the volume of UVA-denominated loans granted by banks was well above the funding they received from account unit. While loans granted since April, 2016, amounted to more than \$39 billion (95% so far in 2017), the balance of deposits and negotiable obligations amounted to little over \$1.4 billion and \$2 billion as of September, respectively. As a result, the difference between UVA-

denominated assets and liabilities grew over the year and now accounts for 11% of the RPC, on aggregate, as of September⁸⁴ ⁸⁵, 9 p.p. more than in March, 2017 (data as of the last IEF). Including in the analysis CER-adjusted government securities, the mismatch in inflation-adjustable items totaled 15.6% of RPC as of the end of the third quarter of the year, 6.6 p.p. above the level seen six months before.

An eventual change in the external context capable of having an adverse effect on financial markets⁸⁶ could lead to a materialization of the UVA-mismatch risk, which could create economic losses for banks. However, this potential impact would be limited, given the incipient nature of that mismatch⁸⁷ and the sector's solvency levels. In this sense, the BCRA would continue to closely monitor the evolution of this mismatch, in order to keep banks from assuming exposures which could be potentially risky from a systemic point of view⁸⁸.

The greater maturity transformation of banks reflects in a greater exposure to interest rate risk

Banks increased their exposition to interest rate risk in the last few months, while it remains in reduced levels. As of July —the last available data— the term of assets (net of liabilities) which have no market value (banking book) increased by almost 16 months relative to the last IEF edition, and are now over of two years: the highest level in recent memory. While the financial system is still focusing mostly on transactional activity, the incipient growth of longer-maturity credit translated into a certain increase of maturity mismatch.

As they are mainly led by UVA-denominated loans —both mortgage and personal loans—, the assets with the greater residual maturity increase at a faster rate than those with shorter maturities between February and July of this year —the last available information. In terms of funding, the relatively higher increase of demand deposits⁸⁹ reduced the modified maturity of liabilities in the period.

In terms of a potential materialization of this risk, the above consideration of UVA-related mismatches still applies. While there is no current local capital requirement due to the interest rate risk faced by institutions, the BCRA timely introduced a regulation with guidelines for institutions as to how to manage this risk effectively and prudently⁹⁰. One of the criteria recommended to measure interest rate risk implies simulating and increase of 200 basis points in interest rates and quantify the impact on assets⁹¹. This hypothetical exercise estimated that, as of July, the economic value of this portfolio⁹² would have decreased only by 4.4%.

⁸⁴ The UVA mismatch was of 29% of RPC for state owned banks, 10% for branches and subsidiaries of foreign banks, and 7% for domestic private banks.

⁸⁵ In Chile, this mismatch reached approximately 180% of regulatory capital (see Exhibit 5).

⁸⁶ For greater detail, see [October, 2017 IPOM's edition](#) - Chapter 1.

⁸⁷ This consideration also applies to the case of the interest rate mismatch.

⁸⁸ In parallel, in order to mitigate intrinsic risks in these operations and encourage complementariness with the capital market, the BCRA continues to work to enable the securitization of loans of this type in the future.

⁸⁹ Demand deposits have a simplified treatment in the computation of interest rate risk, in which 50% of those deposits can be considered as stable funding, and, if necessary could cover for mismatches in other maturity bands.

⁹⁰ [Guidelines for the Management of Risks in Financial Institutions](#) Section 5.

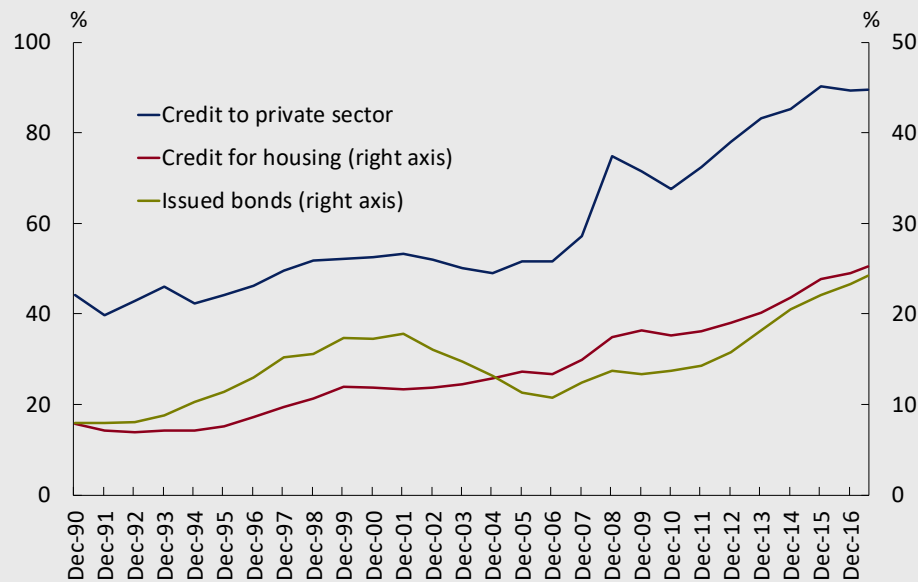
⁹¹ Another method used considers an increase in the interest rate equivalent to that seen in 99th percentile of year-over-year variations of the last 5 years. According to this computation, economic value would have decreased by 19.4%.

⁹² The economic value of the financial entity would be given by the present value of the expected cash flow of the entity, that is, of the expected cash flows from the net assets of the liabilities plus net out-of-balance sheet positions.

Exhibit 5 / Housing credit in the Chilean financial system

Against the backdrop of the growth experienced by UVA-denominated mortgage credit in Argentina, it is relevant to explore other countries' experiences in order to enrich the analysis. In particular, it is interesting to observe the Chilean case, as that country had the highest penetration of housing bank loans compared with other Latin American economies. The dynamic nature of this country's mortgage market became relevant with the development and widespread use of the inflation-indexed unit of account⁹³ (UF) and, later, with the control of inflation, since 1991. In parallel, also important was the development of financial markets, coupled with an effective oversight, and in the particular case of loans for lower income segments, the operations of state owned banks and the process of learning and modification as regards subsidy mechanisms were also significant. The following are some features of the process by which bank housing credit increased.

**Figure 1 | Credit to private sector, credit for housing and issued bonds
As % of GDP – Chilean financial system**



Source: Superintendency of Banks and Financial Institutions and Central Bank of Chile

In the last 25 years, bank housing credit went from 8% to 25% of GDP in Chile (see Figure 1), and, thus, had an active role in the expansion of total private sector credit, which reached almost 90% of the GDP in mid 2017. Housing loans have increased their relevance, from 17% of total private sector loans in early 1990 to the current level of 28%. Housing credit was granted mainly in UF (they currently represent 97% of the total balance). It should be considered that this process took place in a context in which inflation went from levels of over 30% (near the end of 1990) to less than 10% in 1995, and remained low since then.

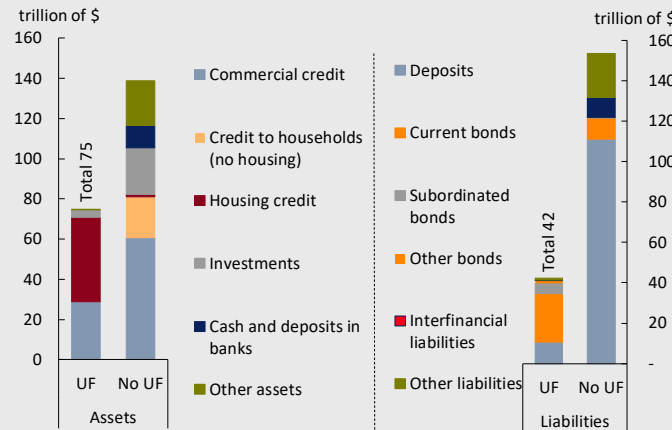
As regards bank funding, since late 1990 there was a sustained increase in bonds issued by banks. Approximately 80% of the total amount of these instruments was placed with a maturity of between 2 and 15 years (straight or current bonds), while the remaining were issued with a maturity of between 10 and 30 years (subordinated bonds). It should be considered that, currently, almost three fourths of the bank bond portfolio is denominated in UF⁹⁴.

⁹³ The UF is an unit of account adjusted by the monthly variation in the previous month's consumer price index (CPI), and was introduced in 1967 in order to stimulate the development of the mortgage market. With time, its use extended to other types of loans and contracts.

⁹⁴ The rest of the portfolio is denominated in foreign currency (18%) and Chilean pesos (8%).

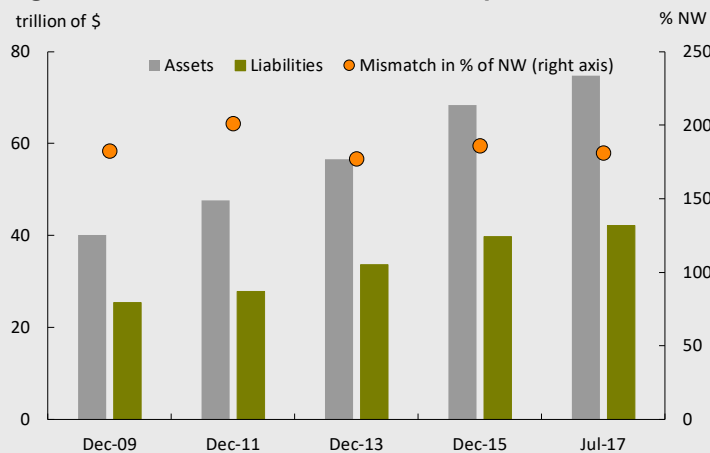
Besides housing loans, the Chilean financial system keeps other UF-denominated assets: part of its trade credits (32%) and portfolio investments (14%) (see Figure 2). In total, about 35% of the asset of the group of banks is denominated in UF. In terms of funding, besides bonds, a small share of deposits (9%) is denominated in UF. Thus, 20% of total funding is accounted for by UF-denominated instruments. In sum, in the Chilean financial system there is a differential between UF-denominated assets and funds of approximately 180% of aggregated net worth, a value which did not change significantly in the last few years (see Figure 3).

**Figure 2| Bank balance composition
Chilean financial system - July 2017**



Source: Superintendency of Banks and Financial Institutions of Chile

Figure 3 | Mismatch in UF – Chilean financial system



Source: Superintendency of Banks and Financial Institutions of Chile

The nature of the bonds issues in terms of maturity (long) and currency (UF) helped reduce the typical mismatches associated with mortgage loans. The issuance of these bonds reflects a case in which long-term savings are channeled towards the financing of housing through banks, without making an extensive use neither of assets securitization nor of investment bank⁹⁵. It should be pointed out that pension funds had an important role in terms of demand of medium- and long-term debt instruments. Towards the ends of 2016, these institutional investors had in their portfolios most of the bank bonds denominated in UF⁹⁶.

⁹⁵ The securitization of mortgages and funding through second-tier bank (Production Promotion Corporation) have not been relevant in the process of expansion of housing credit in Chile, as highlighted by Alarcón, Demaestri and Piedrabuena. *Financiamiento de la vivienda en Chile*. Inter-American Development Bank. 2014.

⁹⁶ It is estimated that these bonds represented almost a fourth of the total pension funds' portfolio in late 2016. These bonds held by the pension funds would appear to be over 60% of the total bonds outstanding.

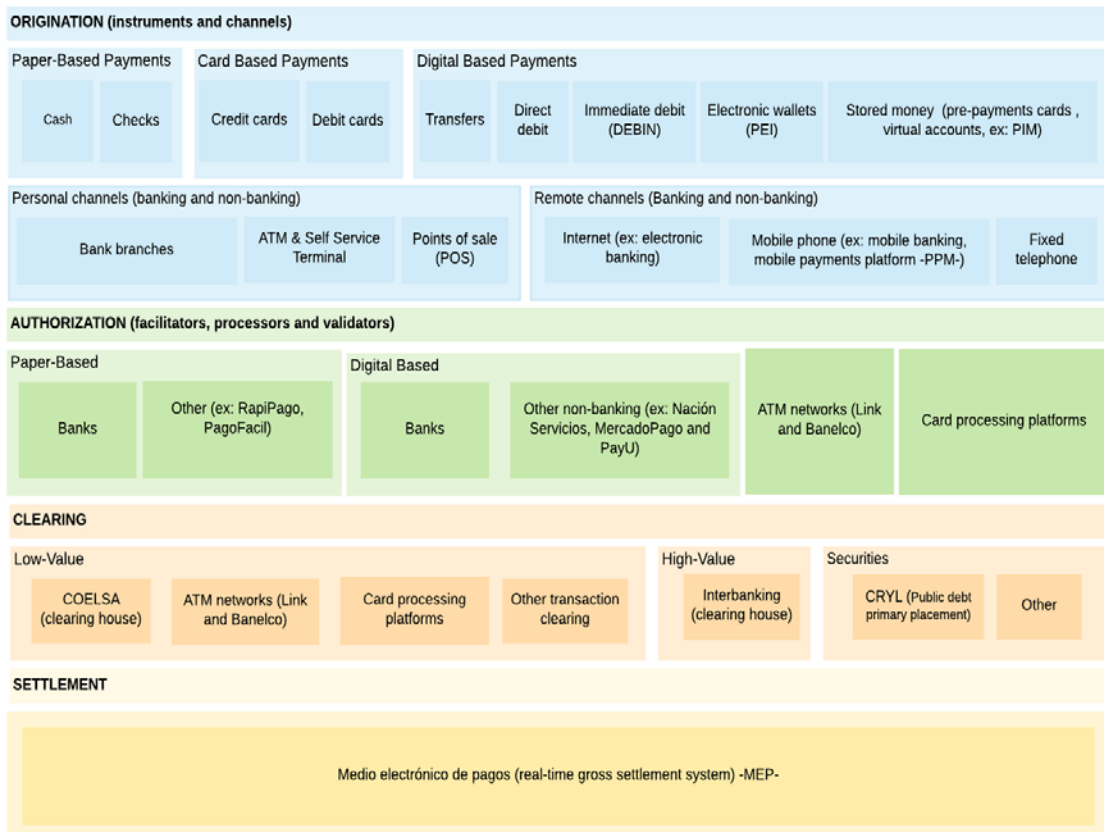
4. Payment system

Throughout 2017, the BCRA continued to encourage a greater use of electronic means of payment, in order to reduce cash use in economic transactions. Electronic means of payment enable safer, more efficient and cheaper transactions for the economy as a whole, contributing to a greater level of financial inclusion in the population. That was the goal of the recent launch of the Immediate Debit (DEBIN), a new instrument aimed at making instant electronic payments. Immediate transaction operations continue to increase their depth in the population's transactions, given their advantages in terms of security and efficiency. The operations originated in the immediate electronic payment (PEI) platform remain very reduced

National payment system

A payment system can be defined as a network of interconnected institutions which exchange the data needed to process payments, efficiently and safely, of economic transactions usually carried out by households and companies. It comprises various stages, including those involved in operation origination, authorization, clearing, and settlement. These stages have differential characteristics depending on the channel in which they are carried out, the instruments used and the actors involved. Figure 4.1 is a synthetic description of the current Argentine payment system, distinguishing its different stages.

Figure 4.1 | Argentine payment system



Simplified scheme of Argentine payment system. The payment system contemplates different stages. First, the initiation, through the choice of alternative instruments and channels. In second place, the authorization, which depends on the chosen instrument and channel. Third, the clearing, which also depends on the type of instrument and channel. Finally, the settlement in the real time gross settlement system (MEP) administered by the BCRA.

Origination. A payment operation is initiated when a customer selects an instrument and a channel for the payment order for a good or a service he or she receives. Instruments adopt different formats, which have changed over time based on technological advances, from paper and cards to new digital formats, such as immediate transfers, immediate debit (DEBIN) —see Box 12—, electronic wallets and money stored in different media (cell phones, cards, or software) which operate a pre-paid scheme. Local advances aim at providing real-time retail payment instruments, that is, that the recipient has access to the funds at the moment in which the payer generates the order (24/7)⁹⁷. The latter include immediate transfers through traditional channels, immediate electronic payments (PEI) through the mobile payment platform (PPM) in its different modalities, and DEBIN. The customer will be able to choose in-person or remote payment channels, bank-based or not, depending on his or her preferences and access possibilities.

Authorization. The authorization process makes it possible for operations to take place, reducing their inherent risks. The sophistication of the authorization process depends on the instrument and the payment channel chosen: on the one hand, cash money requires no prior validation for its acceptance, while, on the other, a digital instrument requires a validation process which may involve different institutions, both banking and non-banking. Thus, the authorization process involves facilitators, processors, and payment validators. Payment facilitators enable the operation, reducing the risks assumed by sellers and buyers (e.g., digital non-banking payment facilitators, such as Nación Servicios, MercadoPago and PayU). Processors are those companies which offer interfaces for stores to process a payment in their point of sale (e.g., credit card processors). New technologies and the measures taken by the BCRA⁹⁸ had enabled the development of new payment facilitators, which creates more competition in the sector (e.g., new devices which compete with the traditional terminals to read the cards' magnetic bands, as is the case of dongles).

Clearing. In general, clearing is carried out by a clearing house, through which the instructions referring to various means of payment passes. The clearing process makes it possible for operations to take place between customers who operate with different financial institutions. Clearing houses compute the net positions of member institutions, an information which they then submit to the central bank for the final settlement of the operations carried out. Just as in the authorization process, instrument clearing depends on the means of payment chosen⁹⁹. There is a wide variety of types of clearing houses. For the national system, clearing houses can be divided into:

- *Low-value clearing houses.* These are used to process large transaction volumes, referring to the customers' day-to-day payments, through a wide range of instruments (e.g., a point-of-sale payment, or a remote a payment through electronic banking, among others);
- *High-value clearing houses.* They process a narrower range of higher-value transactions, such as those carried out between the financial entities themselves;
- *Operations with securities.* This comprises the institutions which exchange the capital markets' financial assets (e.g., the "Central Register and Settlement House of Public Debt Instruments", or CRYL).

Settlement. A payment system requires a specialized agent to provide final fund settlement between participants. There are two main types of settlement. First, gross settlement, in which transactions are settled one at a time. Second, net settlement, in which a group of (payment and collection) transactions is built up over a period of time, and then settled in net aggregate terms.

Gross settlement offers the advantage of being agile, with the corresponding reduction in the risks faced by parties, as it takes place simultaneously with the payment. With this type of settlement, transactions are irrevocable, and only became effective if the payer has sufficient funds. On the other hand, net deferred settlements requires less immediate liquidity, as the settlement of the operations takes place only after the resulting difference between credits and debits has been computed, thus lowering the flow of funds between institutions.

⁹⁷ Even though the final settlement between banks or authorized operators is deferred through an end-of-day clearing.

⁹⁸ [Com. "A" 5982](#)

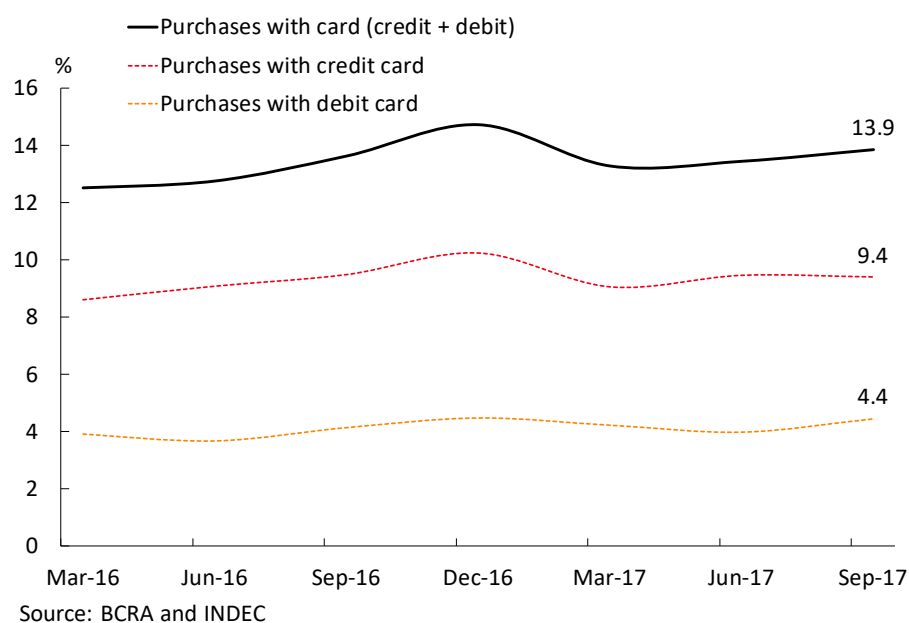
⁹⁹ For example, in the case of non-bank instrument and channels, clearing can be carried out by the same authorizer.

Instruments and channels in the national payment system

Money continues to be one of the main means of payment in Argentina. Facing this scenario, in the last two years, the BCRA has implemented a set of measures aimed at promoting a greater use of electronic means of payment. These tools are more efficient, effective, and safe for economic transactions, and they also promote a greater bancarization of operations. The most important of these measures are the free nature of electronic transfers, the creation of immediate payment mechanisms, the possibility for customers to raise the acceptable limits for immediate transfers through electronic channels¹⁰⁰ and the implementation of DEBIN (see Box 11). However, there is still a long way to go to achieve a significant reduction of the use of cash, a process which also involves a change in society's customs.

The cash/GDP ratio is high in Argentina (about 5.5), though with decreasing trend in the margin. With a gradual adoption of technology, society is gradually moving towards a greater use of the new means of payment, partially replacing the traditional ones. The gradual reduction of the costs associated with these means of payment promoted by the BCRA¹⁰¹, coupled with the economic recovery, are encouraging the use of credit and debit cards. As regards debit card transactions, in the third quarter of 2017 they amounted to over 63 million in average monthly purchases (8.8% more than a year ago), which in terms of volume equals 4.4% of the GDP (see Figure 4.2), 0.3 p.p. the level seen 12 months before. In the case of credit cards, 74 million monthly transactions were carried out on average on the third quarter of 2017 (7.6% more than in the same period in 2016), which amounted to 9.4% of GDP (-0.1 p.p. in the year-over-year comparison). In both cases, faster growth is expected for the last quarter of the year, supported by the usual seasonality and the greater economic activity.

Figure 4.2 | Purchases with cards as % of GDP – Accumulative quarterly annualized.



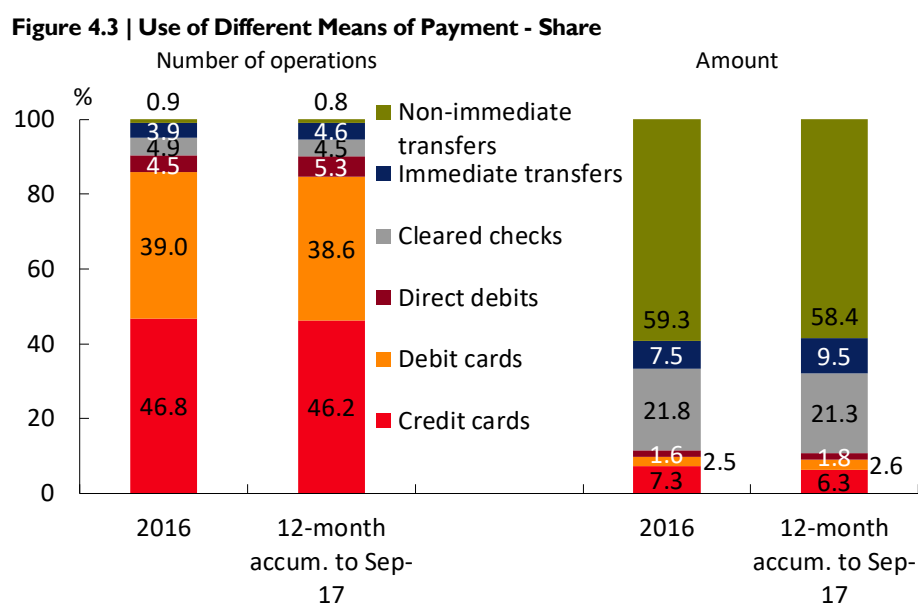
The incentive scheme promoted by the BCRA had a more marked effect on the performance of immediate transfers¹⁰², whose share in the group of alternative means of payment increased by 2 p.p. in terms of volume and 0.7 p.p. in terms of number of operations in the last 12 months relative to 2016 (see Figure 4.3). There was also a year-over-year increase in the use of direct debit (with a low share of the total), while the

¹⁰⁰ [Com. "A" 6235](#). Institutions must raise those limits upon their customers' request for specific operations with higher amounts, which substantially facilitates real estate operations or car purchases.

¹⁰¹ For more details, see [IEF I-17](#).

¹⁰² These are transfers credited online carried out through the following channels: Internet banking, ATMs and self-service terminals, corporate electronic banking and mobile banking.

use of checks decreased slightly, as did the share of cards in the total of means of payments which are an alternative to cash.



Moreover, given the widespread use of Internet-compatible cell phones in the population, mobile banking is showing a remarkable growth in all channels which enable immediate transfers: the number of transactions has doubled in the last 12 months.

The performance of immediate electronic payment (PEI) instruments implemented by the BCRA remains in very reduced levels, probably requiring more maturation time. Since their implementation and until September, 2017, over 107,000 transactions had been made, of which 67% refer to electronic wallets, 32% to mobile POS terminals, and 1% to the payment button¹⁰³. 63% of operations were carried out through banks belonging to the Link network, and 37% through banks belonging to the Banelco network.

Risk associated to the payment system

A policy aimed at promoting financial stability cannot ignore the adequate monitoring of the different components of the infrastructure of a payment system, as well as its potential systemic impact on the economy. The correct operation of these structures is essential, so it is necessary to identify their risks and create mechanisms to oversee and manage them. Payment systems present a set of intrinsic risks in its everyday operations:

- ✓ *Legal risk*: operations must have a legal, well-founded basis, in order to prevent the emergence of eventual litigations in the case of ambiguities in the regulations' interpretations. This could endanger the realization of transactions.
- ✓ *Credit risk*: the risk that a counterparty (which must make the payment) is unable to fully satisfy its financial obligations timely or in the future.
- ✓ *Liquidity risk*: the risk that a counterparty (which must make the payment) lacks sufficient funds to satisfy its financial obligations as foreseen and when foreseen, even if it is able to do so in the future (e. g., by liquidating assets or through a loan).

¹⁰³ Shares are similar in terms of transacted amounts.

- ✓ *Operational risk*: this includes the appearance of operational failures (mistakes or delays in the dispatch of messages, failures of communication, service degradation or interruption, fraud) which may give rise to delays, losses or liquidity issues for the participants of the transactions. In general, the management of operational risks requires defining an acceptable level of tolerance and the implementation of controls and the timely monitoring of these risks.

The BCRA adopted the Principles for Financial Market Infrastructures of the Bank of International Settlements (BIS)¹⁰⁴ and, under them, defines in detail the requirements that the systemically-important infrastructure under its oversight must meet to mitigate risks.

In the case of the Argentine payment system, seeing as the electronic means of payment (MEP) is a real-time gross settlement system which operates directly on the current accounts the banks have with the BCRA, credit and liquidity risks are discarded. Moreover, the MEP provides no queue management or intraday liquidity facilities, which reduces the aforementioned risks even more. The transactions which are accepted by the BCRA are irrevocable, with an adequate legal framework and a wide set of minimum computer security requirements and contingency plans and continuity mechanisms which attenuate legal and operational risks¹⁰⁵.

In turn, the Low-value electronic clearing house —a central component of the local payment system— makes a deferred net settlement, a situation which could give rise to credit risk between the institutions which interact through it. In order to minimize that risk, the BCRA demands that institution to provide guarantees, which can be used if it defaults on the net balance an institution owes. Just as the MEP, this actor must meet minimum requirements in terms of computer security and the regulatory framework for its operations.

In line with what was discussed in the first section of this Chapter, the BCRA currently has a policy of encouraging online immediate retail payments through electronic channels (as is the case of DEBIN and PEI), operations which are settled at the end of the day between participants. In that sense, a set of measures was adopted to control the emergence of risks:

- ✓ In order to mitigate credit risk related to the deferred settlement of these payments, banks are required to provide guarantees. As a result, the providers of the clearing service for immediate transfers would accept these operations as long as their value covers the guarantee.
- ✓ Operational risks of electronic channels are mitigated through the minimum computer security requirements. Risks related to the DEBIN security, in particular the potential for fraud, has been reduced, when it was established that functions must have a level of security capable of ensuring that the customer is not exposed to a unlawful use of his or her account, the operations' security is guaranteed and the transactions are duly recorded.
- ✓ As regards legal risks, the standards which regulate the DEBIN define clearly and precisely they role of each participant and its responsibilities. The responsibility of originating institutions (banks or non-bank institutions) over debit orders created by their customers was defined specifically in the context of the "Know Your Customer" policy, and as a consequence of having authorized the DEBIN operation before. In the legal arena, a precise definition was also established for the role of the manager and the different profiles of participants which include responsibility over that task and its specific obligations.
- ✓ The DEBIN shows no liquidity risk between the generating customer and the bank, as the institution verifies the existence of a sufficient balance before the debit to the account takes place. For the funds' recipient, liquidity issues are mitigated, as resources become available immediately.

¹⁰⁴ Com. "A" 5775

¹⁰⁵ In order to have an idea of the MEP's relative significance, the volume of operations in the last 12 months (as of September, 2017) equal approximately 4 times the average GDP in the same period.

Box 12. Immediate debit (DEBIN). A new instrument for collections and payments

What is it? It is a new electronic instrument made available to the public by the BCRA¹⁰⁶, which can be used to make instant payments for goods and services all day, all year. This instrument makes it possible for companies or households to request the authorization to collect their sales and, once the authorization is received, the payment takes place through an instant bank transfer.

What are its goals? To contribute to a more modern and efficient payment system, allowing both people and companies to manage their collections with more simplicity. That is, it provides an electronic alternative to the use of cash money, promoting greater competition in the payments system through the inclusion of non-bank providers of payment systems (such as fintech companies).

Which are the participants?

Participant	Function	Actor in the payment system
Customers	Generating or accepting DEBINs.	Individuals or legal entities with an account in financial system institutions.
Generators	Facilitating adherence to the operation, originating DEBINs, and crediting the funds in the relevant accounts.	Financial institutions or those authorized by the BCRA in the future.
Authorizers	Receiving DEBIN request and providing their customers with the mechanisms to accept them or reject them.	Financial institutions.
Processors	Linking DEBIN generators and authorizers with the administrator.	Financial institutions or third parties designated by them.
Operators	Linking clients with DEBIN generators and authorizers.	Financial institutions or third parties designated by generators and authorizers ¹⁰⁷ .
Administrator	Settling the net balances of operations in the BCRA.	Low-value electronic clearing house (COELSA)

How does one start to operate? Customers looking to use DEBIN must do so through the electronic channels put at their disposal. As a security measure, generated DEBIN have a life of between 10 minutes and 3 days, during which the client must authorize the debit in his or her account (otherwise, the operation is canceled).

How does it work? There is a broad range of operations which can be carried out through this medium¹⁰⁸. As an example, we present the case of collection by a company from a final consumer (see Figure 4.4). In order to collect, the company generates an electronic request for money. If the customer accepts the request with a computer or a mobile app, the funds are transferred to the requester's account instantly.

What are its costs? The authorizing customer does not pay any fee. Only the customer who initiates the DEBIN request incurs a cost.

What are its inherent risks? How are they mitigated?

- ✓ As any electronic operation, the DEBIN is exposed to operational risks associated with eventual failures in computer systems. Besides, once the transaction is finalized and the good or service has been delivered, there may appear credit risks related to the buyer (lack of funds) or to the institution which has to make the payment (settlement).
- ✓ In order to mitigate those risks, it is established that adherence to the DEBIN operation is part of the "Know Your Customer" policy, and that it is the financial institution which enables the customer to use DEBIN requests, once the established requirements have been verified. As regards the settlement

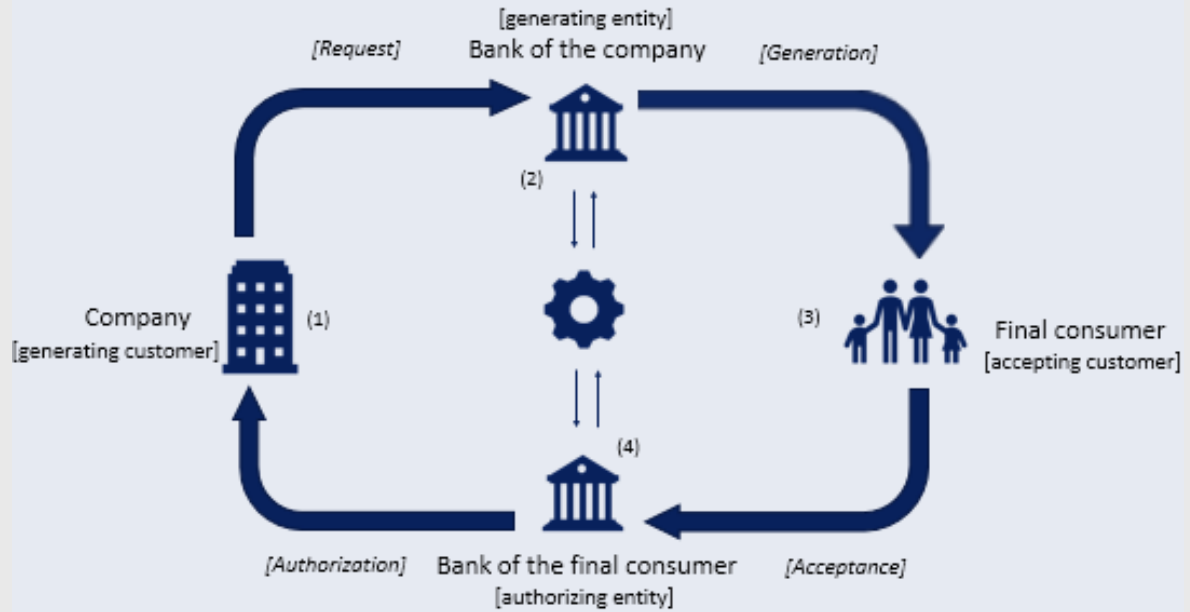
¹⁰⁶ Com. "A" 6285

¹⁰⁷ The High-value electronic clearing house (Interbanking) could participate as an operator and/or processor of DEBINs.

¹⁰⁸ For more details, see order text "[National payment system. Immediate debit](#)".

of the operation, a scheme of guarantees is in place to verify its compliance. Besides, as regards the security of the functionalities, the BCRA demands from participants compliance of computer risk control standards and requirements, in order to ensure that operations are genuine.

Figure 4.4 | Scheme DEBIN



Example of using DEBIN: charging a company to a final consumer through the banking system. (1) A company requests a fee. (2) The bank of the company generates the DEBIN. (3) The final consumer authorizes it. (4) The bank of the final consumer verifies the availability of funds and authorizes the operation. The bank of the company credits the funds to the company and, at the end of the day, the banks are connected through the chamber that compensates the net balances after verifying the guarantees.

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: Superintendencia 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.

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