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SME financing in Argentina; Before, during and after the coronavirus

Financiamiento PYME en el mercado de capitales argentino; antes, durante y después del coronavirus

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Abstract

The aim of this paper is to characterize the financing of Argentine SMEs through the capital market during the second to fourth quarters of 2020 (COVID-19 pandemic) in relation to the previous period 2017-2019, and the subsequent period (2021 and first half of 2022). Short and long-term debt instruments are studied through a quantitative study of correlational scope. We observe that during the pandemic period, the issuance volumes of all instruments except for financial trusts and endorsed post-dated checks decrease. The issuance periods show dissimilar behavior. A changing behavior of the cost differential of financial instruments compared to overdraft loans is observed. However, when considering the cost of financing in real terms in the capital markets, there are no significant differences between the pandemic period and the previous and subsequent periods.

JEL Code: G14, G18, G19
Keywords: COVID19; pandemic; financing; issuances; rates; periods

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Resumen

El objetivo es caracterizar el financiamiento a pymes argentinas vía el mercado de capitales durante el segundo a cuarto trimestre de 2020 (pandemia por COVID-19) en relación al periodo anterior 2017-2019, y posterior (2021 y primer semestre 2022). Se analizan instrumentos de deuda a corto y largo plazo mediante un estudio cuantitativo de alcance correlacional. Se observa que durante el periodo de pandemia caen los volúmenes de emisión de todos los instrumentos excepto los fideicomisos financieros y cheques de pago diferido avalados. Los plazos de emisión muestran un comportamiento disímil. Existe un desarrollo cambiante del diferencial del costo de los instrumentos financieros respecto al adelanto en cuenta corriente. En cambio, si se considera el costo del financiamiento en términos reales en el mercado de capitales, no hay diferencias significativas entre el periodo de pandemia y el previo y posterior.

Código JEL: G14, G18, G19
Palabras clave: COVID19; pandemia; financiamiento; emisiones; tasas; plazos

Introduction

The COVID-19 pandemic has affected all companies, but the effect on small and medium-sized enterprises (SMEs) has been stronger due to higher levels of vulnerability and lower resilience (Song, Yang, & Tao, 2020; Corredera-Catalán, Filippo di Pietro, & Trujillo-Ponce, 2021, Zutshi et al., 2021; Yao & Liu, 2023). In European SMEs, insolvency increased due to falling demand and difficulties in covering production costs (Kaya, 2022). In Argentina, the impact of the pandemic added to the recession that began in 2018-2019. The monthly economic activity estimator (EMAE; Spanish: Estimador Mensual de Actividad Económica) began to show year-on-year declines from April 2018. During that year, the maximum drop in the monthly economic activity estimator was 7.5% (November 2018 with respect to November 2017), while in 2019, it was 7% (March 2019 with respect to March 2018) (INDEC, 2022).

Access to financing has traditionally been a critical issue for SMEs. SMEs' financial restrictions are related to amounts, terms, costs, and guarantees (Ayyagari, Demirguc-Kunt, & Maksimovic, 2013). These problems are exacerbated in times of crisis (Eggers, 2020). In mid-2021, 40% of Argentine companies identified high nominal interest rates as the main difficulty in accessing credit (Bargados et al., 2021).

These restrictions and the importance of SMEs in economic growth[1] have led to the design of financial support policies for this sector. The Argentine capital market has two sectors where companies can offer their bonds: the general panel and the SME panel. The latter establishes fewer information requirements than the regime for large companies, and its regulatory framework is differentiated to

[1] In Argentina, SMEs represent 99.4% of the total number of companies in the country and employ 64% of registered employees (Ministry of Economy, 2023).

consider the particularities of the SME sector. The share of financing for SMEs in relation to the total financed by the Argentine capital market has evolved from 10-11% (2014-2016) to 28% in 2020 (Comisión Nacional de Valores-CNV, 2020), although short-term financing strongly predominates. Greater access to the capital market is crucial to increase the diversification of financing sources and avoid excessive dependence on bank loans, especially during a period of shrinking credit supply (Bongini et al., 2021). Nevertheless, SME financing via the capital market during the pandemic has been little studied.

Based on the above, this paper aims to characterize the financing for Argentine SMEs via the capital market during the second to the fourth quarter of 2020 (COVID-19 pandemic) with respect to the previous period (2017-2019) and later (2021 and the first half of 2022). Short-term and long-term debt instruments are considered. A quantitative study of correlational scope is performed, where the amounts issued and interest rates are analyzed graphically and statistically. The Mann-Whitney test (or Wilcoxon rank-sum test), the non-parametric test of equality of medians, and the Levene test of equality of variances are used to determine the existence of significant differences between the pandemic data series and the pre- and post-pandemic period. Given the high dependence of SMEs on the banking system (Ferrando & Rariga, 2024), diversification of financing sources is essential in times of crisis. This paper contributes to understanding the dynamics of a source of funds that has not been previously studied in the case of SMEs: access to funds via the capital market during the pandemic.

The first section shows the background framework, followed by the methodology, and then the results are presented. The last section provides the conclusions.

Background framework

Financing for SMEs during the pandemic

Zutshi et al. (2021) reviewed the literature on the COVID-19 crisis in SMEs, identifying three general challenges: costs and financing, business interruption, and development opportunities. Specifically, financing for SMEs during the pandemic has been studied mostly within the framework of the banking system as a channel for state financial support programs, together with guarantee schemes.

Song et al. (2020) studied the behavior of financial service providers during the pandemic in China through expectancy theory. Under this theory, agents' actions are driven by two factors: expectancy (the probability that the effort will contribute to achieving the expected objectives) and the perceived value of the actions' results (Vroom, 1964). They classify these organizations into three types: commercial banks, non-bank financial institutions, and enhanced financial service providers. They find that different factors have reduced the expectation of these providers to finance SMEs: insufficient financial resources,

problems in computerization capabilities, and lack of coordination with companies in the sector. Providers require greater collaboration with institutional stakeholders to promote information sharing (such as public data) and for flexible decision making (greater liquidity and risk tolerance).

Kraemer-Eis et al. (2020) report an increase in the rate of SME lending in the euro area during the pandemic, accompanied by an increased use of guarantee schemes. At the same time, borrowing costs decreased, reaching a historic low in June 2020. Corredera-Catalán et al. (2021) consider the Spanish case and show that during the pandemic, governments can use guarantee schemes to improve SME access to financing, thus limiting the burden on the public budget.

Calabrese et al. (2022) studied two UK government SME finance support programs during the first eight months of COVID-19. They found that 92.1 % of all financing provided in this period was supported by the UK government, in contrast to less than 5 % in normal times. Moreover, Heredia-Zurita and Dini (2021) reviewed government measures to support SMEs during the pandemic in nine Latin American countries (Argentina, Brazil, Chile, Colombia, Costa Rica, Ecuador, Mexico, Panama, and Uruguay). They found that almost a third of the policies adopted are related to financing via special lines of credit and public guarantee coverage.[2] Argentina is second only to Colombia in the number of financial support measures, with ten out of 24 COVID-19 related policies.

Yao and Liu (2023) found that financing constraints increased during the pandemic for US SMEs, with a stronger effect on smaller companies. They stress the importance of tapping new sources of funds and strengthening ties with existing creditors. Gur et al. (2023) made a similar finding for SMEs in Istanbul, observing that smaller companies faced greater financing problems and relied more heavily on informal sources (acquaintances, relatives, friends). Medium-sized companies were more likely to apply for a bank loan. Tabares et al. (2023) studied SMEs in Portugal during this period and found that the use of products from the banking system continues, together with public aid programs.

Liu et al. (2022) report that the macro environment attenuates information asymmetries in the post-COVID-19 recovery of Chinese SMEs, with demand for informal finance decreasing if formal sources are available. Khan (2022) used a sample of 19 countries—with data from the World Bank—and also found that financing constraints tightened during the pandemic, especially for SMEs with greater problems of access to external funds. These companies were less likely to have access to bank loans and had to resort to trade credit, deferral of operating liabilities, and public assistance programs. Using the same database, Zhang and Sogn-Grundvåg (2022) found that the pandemic negatively affected SMEs more than the 2008 financial crisis.

2 In Argentina, the guarantee system consists of mutual guarantee companies, provincial funds, and the Argentine Guarantee Fund (FOGAR; Spanish: Fondo de Garantías Argentino). These entities operate together with the banking system and the capital market.

Ferrando and Rariga (2024) studied the behavior of SMEs in the eurozone in the face of different crises and reported that during COVID-19, companies' sales and profits fell drastically, increasing their financial vulnerability. From 2022 onwards, there is a significant increase in costs related to raw materials and energy and in interest expenses due to the rise in interest rates. During the pandemic, bank loans and subsidized lines of credit increased sharply, becoming SMEs' main source of financing.

The background review shows the concentration of external SME financing in the banking system and the dependence on public aid programs in the context of the COVID-19 crisis. Nonetheless, one way of channeling funds for which no previous studies have been identified is the capital market, which allows companies to resort to different short- and medium-term debt instruments and for policymakers to propose specific designs for SMEs.

Instruments for SME financing in the Argentine capital market

The Argentine capital market has two sectors where companies can offer their securities: the general and SME panels. The debt financial instruments available for SMEs are:

Negotiable Obligations (ON; Spanish: Obligaciones negociables): these are debt instruments issued by private companies; their issuance requires authorization from the National Securities Commission (CNV; Spanish: Comisión Nacional de Valores). There are different special regimes (SME, guaranteed SME, simple ON[3]) where the publication costs are subsidized (supplement, placement notice, bidding results notice, payment notices, among others). It implies the periodic presentation of accounting information under a simplified regime, and the securities can only be acquired by qualified investors (Ministry of Economy, 2022b).

Financial trusts (FF; Spanish: Fideicomisos financieros): these consist of the creation of trust assets, which are separate from the assets of the trustor and the trustee (administrator) and are therefore independent of the creditors of both. The capital is divided into debt securities and certificates of participation. The trustee is required to be an SME. The trustee must be a financial trustee registered with the CNV (Bolsa de Comercio de Buenos Aires, 2022).

Deferred payment checks (CPD; Spanish: Cheques de pago diferidos): there are three types of these instruments (Mercado Argentino de Valores, 2022a):

3 In 2017, the Simple ON was created, an instrument that allows SMEs to finance their projects in the medium and long term with the guarantee of a Mutual Guarantee Society (SGR) (CNV, 2020).

Endorsed CPD: Deferred checks (maximum term 360 days) are discounted in the capital market. SMEs may negotiate their checks or those of third parties with the backing of a mutual guarantee society (SGR; Spanish: Sociedad de Garantía Recíproca).

Direct CPD: Direct trading of checks is carried out in the Argentine Securities Market under four different categories designated as "Guaranteed," "Non-Guaranteed," "Warrants Guarantee," and "Contract Guarantee grains in Price to be fixed" segments. They have been operating since October 2019.

E-checks: The electronic check is an innovation promoted by the Central Bank of the Argentine Republic (BCRA; Spanish: Banco Central de la República Argentina) to simplify operations and reduce costs (BCRA Communication A6578 of July 2019), which started operating in March 2020. There are two trading categories, direct and endorsed (Mercado Argentino de Valores, 2022b).

Stock promissory notes: these are debt securities that may be traded in authorized markets in two forms: endorsed (by an SGR or a Guarantee Fund) or direct (without guarantee). The minimum term is 15 days, and the maximum term is three years (Mercado Argentino de Valores, 2022c).

Electronic Credit Invoice (FCE; Spanish: Factura de crédito electrónica): an SME supplier of a large company can transform commercial credit into financial credit through the invoice authorization by its client. This generates an enforceable title, which can be traded on the capital market and factoring platforms. They have been traded since July 2019 (Ministerio de Desarrollo Productivo, 2021; Mercado Argentino de Valores, 2022d).

In Argentina, the definition of SME to access the capital market under the special regime for the sector was established for several years by the CNV, while the ex-SEPYME established the limits for the rest of the special programs. In 2021, with RG CNV 901/21, the definition of SME was unified, allowing the companies to prove their condition to access the capital market merely by presenting the MSME certificate. Res. 220/19 of the ex-SEPYME established the MSME certificate defining four categories (micro, small, medium tranche 1, and medium tranche 2) based on five sectors of activity (services, commerce, construction, agriculture, and industry and mining). The limits are established based on annual sales, with the lowest value for services and the highest for industry and mining. Those companies that fall within financial intermediation and insurance services or real estate services must comply with an additional parameter regarding the amount of assets. In the case of commission agents, consignees or travel agencies, neither sales nor assets are considered, but only the number of employees. The limits in Argentine pesos established by these regulations are periodically updated due to the effect of inflation.

The progression of quarantine and distancing policies in Argentina during the pandemic was divided into three initial stages of isolation and subsequent stages of non-quarantine distancing. The first phase of "strict isolation" lasted from March 20 to April 17, 2020; "managed isolation" was in effect from April 18 to 26, 2020; and from that date until June 4, 2020, the phase "geographic segmentation" was in

effect. During phases 1 to 3, essential activities and services were allowed to operate, including supermarkets, food retail stores, and personal hygiene and cleaning services. In the third stage, between May and June 2020, depending on the region, the opening of commercial activity of most non-essential items began. In November 2020, the measures of Social, Preventive, and Obligatory Distancing (DISPO; Spanish: Distanciamiento Social, Preventivo y Obligatorio) came into force, corresponding to phase 4 of "progressive reopening" and phase 5 of "new normality" (Ministry of Health of Argentina, 2022). Within the framework of the pandemic, the State launched different financial assistance programs for SMEs through loans at subsidized rates, non-refundable contributions, tax moratoriums, exemption from the payment of employer contributions, and subsidy of 50% of employees' salaries, among other measures. In May 2020, the cost of bank financing fell by 50% as part of the BCRA's policies (BCRA, 2020).

Methodology

A quantitative study with descriptive and correlational scope was carried out. The study population consisted of issuances of SME debt instruments in the Argentine capital market. The analyzed period was from January 2017 to June 2022. Information on all issues, freely available on the website of the CNV and the BCRA, was analyzed.

First, the volume of issuance in constant currency by instrument was studied. Subsequently, for the different SME instruments, it was identified whether there were differences in the pandemic period (March to December 2020), and the previous (January 2017 to February 2020) and subsequent (January 2021 to June 2022) months, concerning the internal rate of return (IRR) at the time of placement and the nominal term in months (for ON issues) or days (the rest of the alternatives). The following instruments were analyzed[4]:

– Negotiable obligations for SMEs: monthly issuance volume, rate, and term for individual issues are studied from January 2017 to June 2022, issued in Argentine pesos (ARS) and US dollars (USD).

– SME financial trusts: monthly issuance volume is studied from January 2017 to June 2022. The available information on rates and terms does not allow the SME segment to be discriminated.

– Deferred payment checks (direct and endorsed): volume of issuance, rate, and term for monthly issues are studied from January 2017 to June 2022, in ARS.

[4] Only in the case of ON issues is information available for each issuer; for the rest of the instruments, the series reported are monthly values added by instrument.

– Promissory notes: volume of issuance, rate, and term for monthly issuances, endorsed mode (in ARS and USD) from January 2017 to June 2022, and direct mode (in ARS and USD) from June 2020 to June 2022 are studied.

– Electronic credit invoice: volume of issuance, rate, and term are studied for monthly issuances, issued in ARS from July 2019 to June 2022, and in USD from August 2019 to June 2022.

The rates of peso issues are analyzed in two different ways in order to incorporate the effect of inflation and BCRA policies in the analysis of nominal peso rates: a) as the spread between the initial IRR and the monthly average of overdraft loans (lending rate) reported for the BCRA for the month of issuance, and b) as the spread between the initial IRR and the monthly average of the BADLAR rate (borrowing rate) reported for the BCRA for the month of issuance. The BADLAR is the reference rate for floating rate peso ON issues. As shown in Figure 1, the overdraft loans rate was a few points above the BADLAR before the pandemic. Following BCRA policy, this spread was inverted during the pandemic, and in the subsequent period, the spread was reduced, becoming sometimes positive and sometimes negative.

To compare issue amounts, rates, and terms, the binary variable “Pandemic 2020” is defined, which assigns a value of 1 to issues from March to December 2020. This definition is based on the fact that this period coincides with the time of greatest restrictions and drop in economic activity. During 2020, year-on-year drops in activity (measured by the EMAE) exceeded 10% between March and August, with the peak in April (25.3% drop compared to April 2019). As of March 2021, year-on-year variations became positive, exhibiting a recovery (INDEC, 2022).

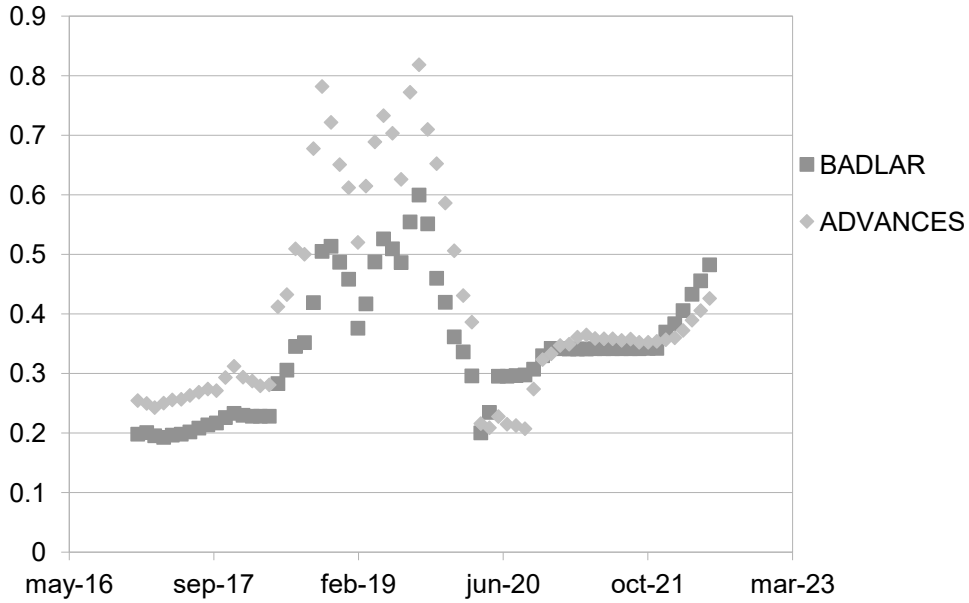

Figure 1. Monthly evolution of the BADLAR and overdraft loans rates
Source: created by the author based on BCRA data

The data analysis tools consist first of descriptive statistics and histograms, which graphically represent the distribution of the variables for each period studied. Subsequently, the differences between the distributions of the variables in the defined periods are studied using three statistics. The Wilcoxon rank-sum test allows differences between two independent groups (coming from the same population) to be compared, without making assumptions about the distribution of the dependent variable.[5] Rejection of the null hypothesis in this test implies that the distributions are not equal. The median and variance are analyzed in order to study how the distributions differ.

On the one hand, the non-parametric k-sample test for equality of medians is performed, where the null hypothesis that the k samples were drawn from populations with the same median is evaluated, with the test statistic $\chi 2$ being calculated. Rejection of the null hypothesis implies that the medians of the distributions are not equal.[5] On the other hand, the Levene test of equality of variances is performed under the alternative formulation proposed by Brown and Forsythe (1974), defining the median as the measure of central tendency. The rejection of the null hypothesis implies that the distributions do not have equal variance. These techniques have been previously employed in the comparison of financial series because

[5] Its mathematical formulation can be found in Gibbons and Chakraborti (2003).

of their robustness to non-normality conditions, as stated for example by Hvozdyk and Rustanov (2016), La Rosa *et al.* (2018), and Alkayed *et al.* (2024).

In cases where a significant difference is obtained for the pandemic2020 variable, it is verified whether these differences are maintained both pre- and post-pandemic, testing the "Pre-pandemic" variable. The same analysis is performed with the emission volumes. Table 1 presents the operational definitions of the variables studied for each debt instrument.

Table 1
Operational description of the analyzed variables

Variables	Definition
Amount of issuance	Continuous variable. Constant value in ARS at the beginning of January 2017, taking the national general CPI from the National Institute of Statistics and Censuses (INDEC; Spanish: Instituto Nacional de Estadística y Censos).
Initial IRR	Continuous variable. Internal rate of return at the time of issuance, expressed in the same currency as the corresponding ON.
Term	Continuous variable. Nominal duration in months for ON and in days for short-term instruments.
Overdraft rate	Continuous variable. Overdraft loans rate reported for the BCRA. Monthly or quarterly averages are used as appropriate.
Differential overdraft	Continuous variable. Difference between the initial IRR of the issuance and the overdraft rate for instruments in ARS.
BADLAR	Continuous variable. Interest rate for deposits in banks over ARS 1 million in a term of 30 to 35 days, as reported by the BCRA. Monthly or quarterly averages are used as appropriate.
BADLAR differential	Continuous variable. Difference between the initial IRR of the issuance and the BADLAR rate for instruments in ARS.
Pandemic 2020	Binary variable that assigns a value of 1 to issues from March to December 2020 and a value of 0 to the rest
Pre-pandemic	Binary variable that assigns a value of 1 to issues from March 2017 to February 2020 and a value of 0 to issues from January 2021 to June 2022; issues from March to December 2020 are excluded.

Results

Evolution of financing instruments for SMEs

Figure 2 shows an increasing evolution in the total amount of financing for SMEs in the capital market, with a real increase of 15% in 2020 compared to the previous year and 39% between 2021 and 2020. The

most relevant instrument between 2017 and Q1 2022 was Endorsed CPDs, with almost 70% of the total volume. Q1 2022 funding shows a drop of almost 14% compared to Q1 2021. E-checks, which started trading at the beginning of March 2020, rapidly gained share in the CPD segment (CNV, 2020). The ONs, which are the debt instruments that allow access to longer financing terms, account on average for only 6% of the total SME financing volume.

Table 2 shows the change in the quarterly constitution of the volume issued by instrument. The Total column indicates the percentage change in the volume issued for all instruments in a quarter, relative to the same quarter of the previous year. For example, in Q1 2021 (row 2021-1), the total volume issued increased 52.44% relative to Q1 2020. For each instrument, the percentage variation with respect to the same quarter of the previous year is shown regarding the share of each instrument in the total quarter volume. For example, for negotiable obligations in Q2 2020 (row 2020-2), the share of this instrument in the total issued decreased 44.03% with respect to Q2 2019.

In the first three quarters of 2020, the total volume issued increased compared to the same period of 2019, except for the last quarter, when the volume dropped by 13%. There is also a change in the composition of instruments during the 2020 quarters. In the first three quarters of 2020, there is an increase in the share of Endorsed CPDs. In the second quarter, there is an increase in the participation of financial trusts, while in the third quarter, FCEs make their debut.

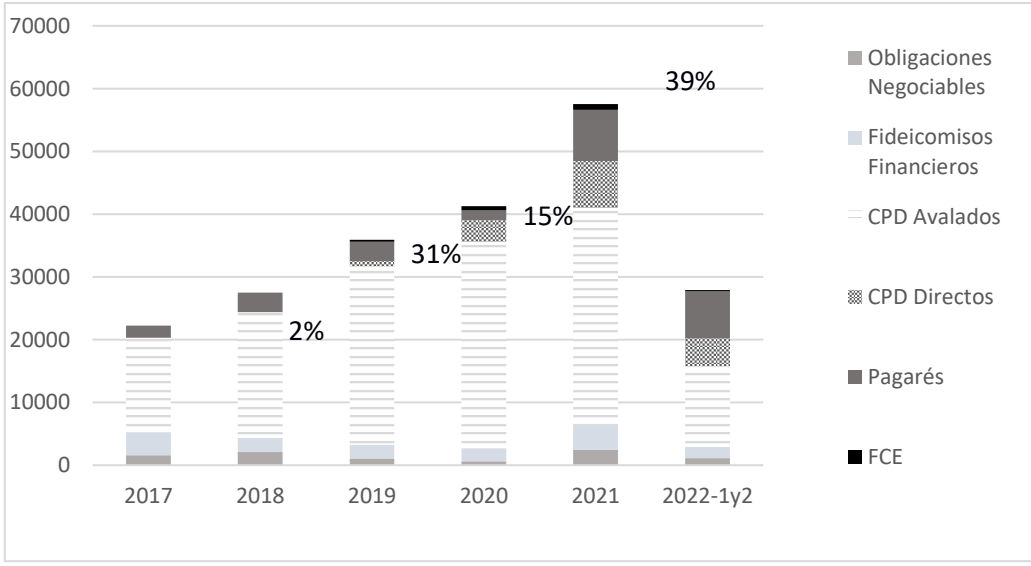

Figure 2. Evolution of the amount issued by instrument
Source: created by the author based on CNV data
Note: Amounts in ARS in constant currency according to CPI base January 2017 (INDEC). E-check trading is included within CPD.

Table 2
Evolution of the share by instrument in the volume of SME instruments issued

Year-Q	Negotiable Obligations	Financial trusts	Endorsed CPD	Direct CPD	Promissory notes	FCE	Total
2018-1	494.51 %	-79.39 %	5.17 %		396.60 %		25.78 %
2018–2	-20.79 %	3.29 %	12.31 %		107.19 %		13.27 %
2018-3	-60.99 %	-52.99 %	33.31 %		36.11 %		8.71 %
2018-4	-4.64 %	-15.46 %	81.37 %		0.43 %		48.59 %
2019-1	-66.56 %	370.88 %	72.98 %		1.57 %		44.40 %
2019-2	-30.74 %	-47.50 %	77.37 %		114.66 %		58.71 %
2019-3	74.24 %	21.79 %	18.89 %		-19.17 %		16.56 %
2019-4	-70.47 %	-42.87 %	17.60 %		-86.48 %		10.90 %
2020-1	-91.85 %	-30.88 %	16.54 %		-83.76 %		14.94 %
2020-2	-44.03 %	20.96 %	43.66 %		-82.54 %		29.52 %
2020-3	-57.98 %	-25.08 %	31.43 %		-33.11 %	328.65 %	29.81 %
2020-4	181.15 %	46.13 %	-27.49 %	-10.18 %	568.13 %	-48.97 %	-13.72 %
2021-1	1214.64 %	171.82 %	28.93 %	75.70 %	798.51 %	-14.51 %	52.44 %
2021-2	221.30 %	125.38 %	-7.01 %	103.40 %	691.60 %	116.90 %	23.00 %
2021-3	286.35 %	54.38 %	-3.36 %	131.45 %	269.45 %	-3.55 %	26.23 %
2021-4	244.19 %	34.30 %	12.65 %	166.45 %	331.78 %	131.09 %	68.20 %
2022-1	-4.86 %	-67.28 %	-91.99%	234.00 %	119.14 %	1096.00 %	-13.96 %
2022-2	20.59 %	-6.06 %	-36.59 %	24.07 %	130.54 %	9.82 %	-3.65 %

Source: created by the author based on CNV data. Base values in constant currency according to CPI (INDEC). E-check trading is included within CPD.
Note: The percentage variation for each instrument with respect to the same quarter of the previous year is shown in relation to the share of each instrument in the total volume of the quarter. 2020 (pandemic) values are in bold for ease of data visualization. The 2017 data are used as the basis for the 2018 calculations.

The issuance of ONs showed a sharp drop during 2020, with only three issues in ARS in the first half of the year and none in USD. These rare issuances were at shorter terms than those recorded before and after. As of the fourth quarter of 2020, an increase in ON issuance is recorded (for the first time since the third quarter of 2019), potentially reflecting an improvement in expectations following the exit from stricter isolation. In 2017-2019, there were an average of 35 issuances per year, while in 2020, there were 21, and during 2021 they rose to 52.

Monthly volumes issued per instrument

Table 3 presents the statistical analysis of the distribution of the monthly volume emitted, considering the pandemic and non-pandemic periods. The analysis is extended for instruments with significant differences by comparing the pre- and post-pandemic periods (Table 4). Subsequently, the graphical analysis of frequency is developed in Figures 3 to 8. Considering the related statistical tests in the interpretation of results (Table 3), the issuance of ON (Figure 3), direct CPD (Figure 6), promissory notes (Figure 7), and FCE (Figure 8) show statistically significant differences with respect to their median (lower in pandemic) and distribution (with a bias to lower amounts during pandemic). For FFs (Figure 4), no statistically significant differences are observed. For Endorsed CPD (Figure 5), no robust results are found since, although they show statistical differences in their distribution, there are no differences for their median and variance. Based on this evidence, the instruments with the least variation in their volume issued during the pandemic would be the FFs and Endorsed CPDs.

Table 3
Differences in monthly issuance volumes of SME instruments (pandemic and non-pandemic)

Instrument	Median (Pandemic 2020=1)	Median (Pandemic 2020=0)	P-Value Ranksum	P-value Median	P-value Levene
ON	28.5	148	0.026**	0.057*	0.046**
FF	175	235	0.249	0.526	0.409
Endorsed CPD	2398.5	2036	0.0395**	0.127	0.233
Direct CPD	263	633	0.0002***	0.000***	0.029**
Promissory notes	173	281	0.0085***	0.045**	0.167
FCE	39	66	0.0131**	0.034**	0.054*

Note: Columns 1 and 2 show the medians of the series in millions of constant ARS January 2017. Pandemic 2020 = 1 indicates pandemic period, = 0, pre- or post-pandemic period. Significance at 10% is indicated with *, ** at 5%, *** at 1%.

Table 4
Differences in monthly issuance volumes of SME instruments (pre-pandemic and post-pandemic)

Instrument	Median (pre-pandemic 2020=1)	Median (pre-pandemic 2020=0)	P-Value Ranksum	P-value Median	P-value Levene
ON	112.5	210.5	0.0087***	0.022**	0.572
Endorsed CPD	1706	2401	0.003***	0.004***	0.761

Direct CPD	283	650.5	0.0008***	0.016**	0.297
Promissory notes	222	710	0.000***	0.000***	0.000***
FCE	67	65	0.868	0.395	0.056*

Note: Columns 1 and 2 show the medians of the series in millions of constant ARS January 2017. Direct CPD negotiation starts in October 2019 and FCE in July 2019. Pre-pandemic 2020=1 indicates the pre-pandemic period, = 0, the post-pandemic period. Significance is indicated with * at 10%, ** at 5%, *** at 1%.

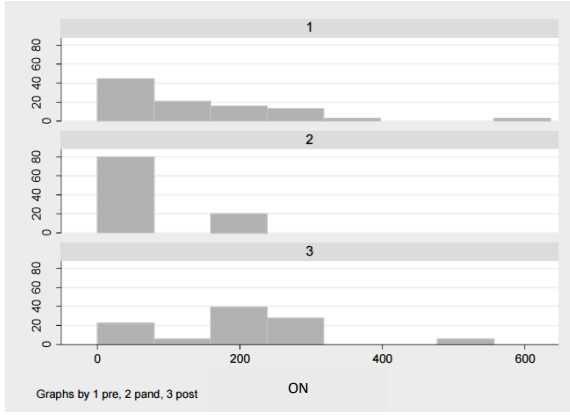

Figure 3. Histogram of volume of ON issuance in constant ARS

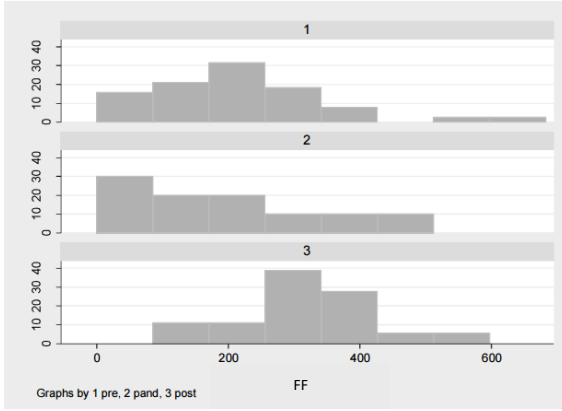

Figure 4. Histogram of the volume issued in FF in constant ARS

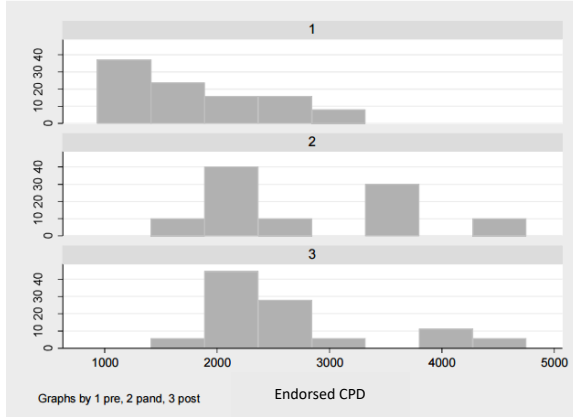

Figure 5. Histogram of endorsed CPD issuance volume in constant ARS

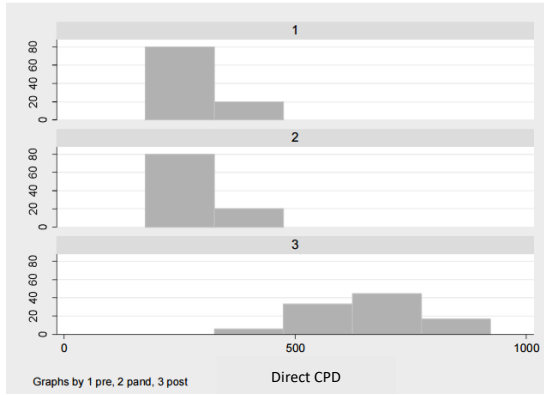

Figure 6. Histogram of direct CPD volume issued in constant ARS

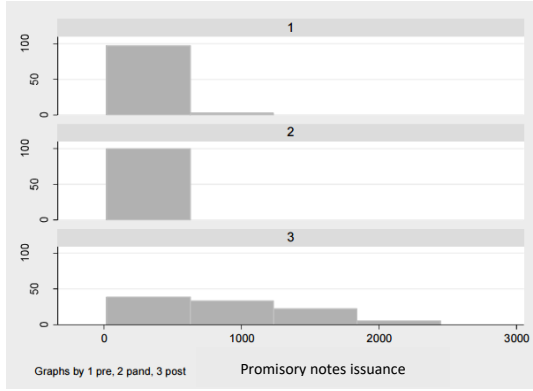

Figure 7. Histogram of volume of promissory notes issuance in constant ARS

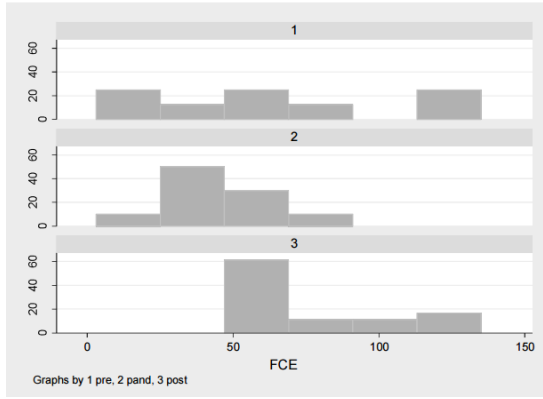

Figure 8. Histogram of volume issued of FCE in constant ARS
Note: The upper panel (1) shows the pre-pandemic period, the middle panel (2) the pandemic period, and the lower panel (3) the post-pandemic period.

Extending the analysis to study whether post-pandemic changes persist, Table 4 indicates that for negotiable obligations, deferred payment checks, and promissory notes, the volume traded is significantly higher in the post-pandemic period. No differences are found for electronic credit invoices. This increase in the volume issued shows a recovery of the Argentine capital market after the COVID-19 crisis.

Analysis of rates and terms of negotiable obligations

For negotiable obligations issues, changes in rates and maturities are analyzed at the individual issue level, comparing the pandemic period with the pre- and post-pandemic situation. There were only four dollar or dollar-linked issues during quarters 2 to 4 of 2020 (pandemic2020=1), and 96 in the pre- and post-pandemic periods (pandemic2020=0). For ARS, the number of issues was 19 and 96, respectively.

Table 5
Characteristics of ON issues issued in ARS

Year-Q	Average IRR	(IRR-overdraft rate)	(IRR-BADLAR)	Average term (months)	Issuances
2017-1	26.13%	1.25%	6.37%	30.99	3
2017-2	25.38%	-0.04%	5.80%	27.38	4
2017-3	27.82%	1.27%	7.05%	22.25	7
2017-4	30.01%	0.88%	7.53%	27.81	14
2018-1	28.70%	0.02%	5.84%	36.46	12

2018-2	34.24%	-3.48%	6.93%	26.57	11
2018-3	40.87%	-15.05%	5.36%	33.06	7
2018-4	58.28%	-13.95%	8.07%	29.01	17
2019-1	49.14%	-9.10%	7.32%	33.06	7
2019-2	60.02%	-10.94%	9.20%	27.15	14
2019-3	57.21%	-17.88%	3.37%	27.43	6
2019-4	51.61%	-13.23%	3.55%	24.37	5
2020-1	39.16%	-5.26%	5.91%	17.07	2
2020-2	26.50%	4.75%	2.08%	12.17	1
2020-3	33.75%	12.63%	4.11%	25.03	9
2020-4	39.35%	8.54%	6.83%	20.9	9
2021-1	35.53%	0.26%	1.43%	20.31	8
2021-2	37.20%	1.15%	3.10%	28.27	14
2021-3	39.09%	3.40%	4.95%	29.65	9
2021-4	39.30%	4.04%	5.13%	27.43	21
2022-1	43.05%	4.86%	4.50%	26.78	10
2022-2	46.63%	5.93%	0.92%	27.61	15

Source: created by the author based on CNV data
Note: To facilitate the visualization of the data, the values for the year 2020 (pandemic) are in bold.

The average interest rate for ON placement in ARS during 2020 ranged between 26% and 39%, well below 2019 values (between 49% and 60%). In 2021-2022, the average rate varies between 35% and 47% (Table 5). It is observed that for dollar issues there is weak evidence of a lower IRR during the pandemic, although without meaningful changes in the term (Table 6). The rate differential with overdraft loans is considerably higher for peso issues during the pandemic. This is evidence of the BCRA's policy of lowering the cost of bank financing. On the other hand, the spread with the BADLAR is not statistically significant. The term of peso issues is significantly shorter during the pandemic.

Table 6
Comparison of ON emission characteristics

Variable	Pandemic 2020=1	Pandemic 2020=0	P-Value Ranksum	P-value Median	P-value Levene
ON- IRR, issuances in USD	0.05 (N=4)	0.08 (N=96)	0.0634*	0.154	0.313
ON- Term (months), issuances in USD	24	27.5	0.2073	0.618	0.118

ON- Diff. overdraft, issuances in ARS	0.097 (N=19)	0.00205 (N=186)	0.000***	0.000***	0.009***
ON- Diff. BADLAR, issuances in ARS	0.055	0.062	0.3153	0.650	0.489
ON-Term (months), issuances in ARS	18	24	0.0021***	0.046**	0.606

Note: The medians of the corresponding series are reported. Individual emissions are analyzed. Pandemic 2020 = 1 indicates pandemic period, = 0, pre- or post-pandemic period. Significance is indicated by * at 10%, ** at 5%, *** at 1%.

Table 7 shows the pre- and post-pandemic comparison of the significant variables in Table 6. Before the pandemic, the distribution was wider and skewed to negative spreads between the IRR and the rate of overdraft loans (Figure 9), and the cost of ONs was on average lower than overdraft, noting that, given the BCRA's policy, this trend was reversed during the pandemic and was maintained after that. The term of ON issuance in ARS shows few significant changes (Figure 10).

Table 7
Characteristics of the ON emissions pre- and post-pandemic

Variable	Pre-Pandemic 2020=1	Pre-Pandemic 2020=0	P-Value Ranksum	P-value Median	P-value Levene
ON- Diff. overdraft, issuances in ARS	-0.043 (N=109)	0.046 (N=77)	0.000***	0.000***	0.001***
ON-Term (months), issuances in ARS	24 months (N=109)	24 months (N=77)	0.057*	0.098*	0.550

Note: The medians of the corresponding series are reported. Individual emissions are analyzed. Pre-pandemic 2020 = 1 indicates the pre-pandemic period, = 0, the post-pandemic period. Significance is indicated with * at 10%, ** at 5%, *** at 1%.

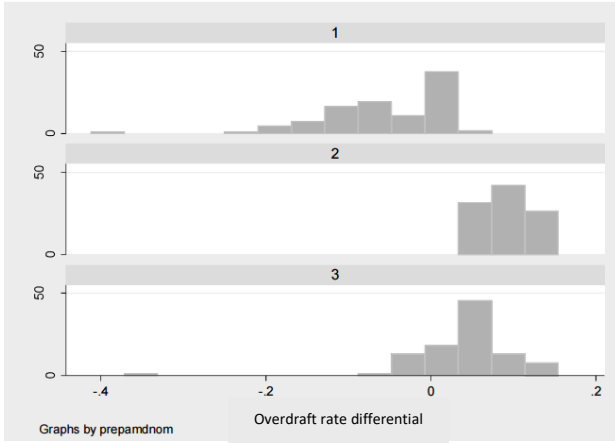

Figure 9. Histogram of overdraft rate differential

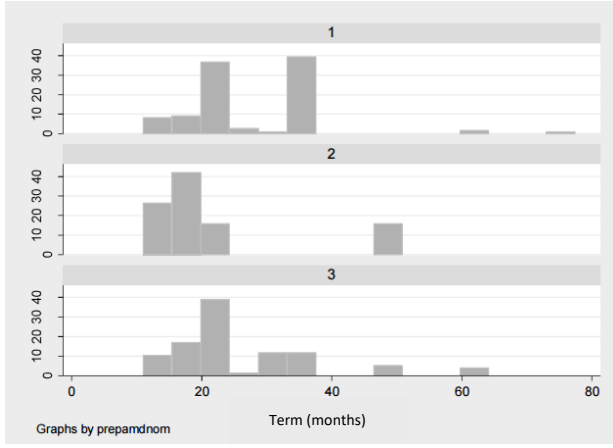

Figure 10. Histogram of term of issuance (issuances in ARS)

Note: The upper panel (1) shows the pre-pandemic period, the middle panel (2) the pandemic period, and the lower panel (3) the post-pandemic period.

Rate and term analysis of short-term instruments

The rate and term of issue (in days) are analyzed for short-term instruments traded in the capital markets. Table 8 shows the tests carried out comparing the pandemic and non-pandemic situation, while Table 9 indicates, for the significant variables in Table 8, the tests comparing the pre- and post-pandemic period. Figure 11 to 15 show the histograms for the instruments included in Table 9.

Concerning the term, it is observed that in direct CPD, this is extended during the pandemic period (Table 8), maintaining this trend post-pandemic (Table 9 and Figure 13). A much larger increase in

terms of issuance is presented in the case of direct promissory notes in ARS (Table 8), although pre- and post-pandemic differences cannot be evaluated since these issuances began in June 2020. For the other instruments (Endorsed CPD, ARS and USD promissory notes, ARS and USD FCE), no meaningful differences are reported.

Table 8
Comparison of characteristics of short-term instruments (pandemic and non-pandemic)

Variable	Median (pandemic 2020=1)	Median (pandemic 2020=0)	P-Value Ranksum	P-value Median	P-value Levene
EndCPD- Diff. BADLAR	-0.027 (n=10)	0.016 (n=56)	0.169	0.170	0.387
EndCPD- Diff. Overdraft	0.027	-0.041	0.003***	0.039**	0.545
EndCPD-Term	169 days	155.5 days	0.186	0.492	0.710
DirCPD- Diff. BADLAR	0.074 (n=10)	0.095 (n=56)	0.267	0.170	0.885
DirCPD- Diff. Overdraft	0.120	0.030	0.000***	0.001***	0.547
DirCPD-Term	88 days	80.5 days	0.038**	0.023**	0.089*
EndProNot- Diff. BADLAR issuances in ARS	0.059 (n=10)	0.059 (n=51)	0.599	0.955	0.994
EndProNot- Diff. Overdraft issuances in ARS	0.110	-0.003	0.001***	0.000***	0.526
EndProNot-Term issuances in ARS	357.5 days	414 days	0.121	0.185	0.237
EndProNot- IRR issuances in USD	0.003 (n=10)	0.071 (n=56)	0.020**	0.170	0.605
EndProNot-Term issuances in USD	345 days	338.5 days	0.986	0.492	0.067*
DirProNot- Diff. BADLAR issuances in ARS	0.043 (n=7)	0.083 (n=18)	0.000***	0.003***	0.027**
DirProNot- Diff. Overdraft issuances in ARS	0.057	0.088	0.090*	0.225	0.288
EndProNot-Term issuances in ARS	554 days	289.5 days	0.039**	0.144	0.036**

DirProNot- IRR issuances in USD	0.03 (n=6)	0.035 (n=18)	0.784	0.478	0.637
DirProNot-Term issuances in USD	233.5 days	338 days	0.033**	0.059*	0.439
FCE- Diff. BADLAR issuances in ARS	0.048 (n=10)	0.033 (n=26)	0.289	0.457	0.197
FCE- Diff. Overdraft issuances in ARS	0.110	0.022	0.000***	0.000***	0.544
FCE-Term issuances in ARS	34 days	33 days	0.972	0.836	0.567
FCE- IRR issuances in USD	0.06 (n=10)	0.06 (n=25)	0.340	0.668	0.958
FCE-Term issuances in USD	78 days	62 days	0.411	0.915	0.124

Note: The medians of the corresponding series are reported. Monthly averages are analyzed. The sample size (n) is reported in the first row of each instrument. Significance is indicated with * at 10%, ** at 5%, *** at 1%.

The rate differential with the BADLAR is not significant for instruments issued in ARS, except in the case of direct promissory notes, where the difference between IRR and rate is half during the pandemic period (Table 8). This same instrument is the only one showing a smaller difference between IRR and overdraft loans rate during the pandemic. Conversely, for the rest of the instruments in ARS, the opposite results are observed: during the pandemic the difference is greater, clearly indicating the intervention policy of the BCRA in the cost of the current account discount. When comparing the pre- and post-pandemic periods (Table 9), it is evident that prior to March 2020, short-term capital market instruments had a lower cost than the bank alternative (Endorsed promissory notes, Figure 12; Endorsed CPD, Figure 14; FCE, Figure 15) or very similar (direct CPD, Figure 11). After the pandemic, all these instruments became more expensive than bank discounting, in line with the increase in financing costs reported by Ferrando and Rariga (2024).

For instruments issued in USD (direct, endorsed, and FCE promissory notes), the results for IRR do not show robust or relevant differences (Table 6). The same is true for the term, except for the case of direct promissory notes showing a shorter duration of the issuance periods during the pandemic.

Table 9
Comparison of characteristics of the short-term instruments (pre- and post-pandemic)

Variable	Pre-Pandemic 2020=1	Pre-Pandemic 2020=0	P-Value Ranksum	P-value Median	P-value Levene
EndCPD- Diff. Overdraft	-0.118 (N=38)	0.025 (N=18)	0.000***	0.022**	0.001***
DirCPD- Diff. Overdraft	0.008 (N=38)	0.064 (N=18)	0.000***	0.001***	0.010**
DirCPD-Term	73	87.5	0.001***	0.000***	0.008***
EndProNot- Diff. Overdraft issuances in ARS	-0.083 (N=33)	0.099 (N=18)	0.000***	0.000***	0.138
FCE- Diff. Overdraft issuances in ARS	-0.064 (N=8)	0.043 (N=18)	0.000***	0.011**	0.001***

Note: The issuance of direct promissory notes in ARS started in June 2020, so it is not possible to study the pre-pandemic period. Given the binary nature of the pre-pandemic variable, the pre-pandemic=1 column indicates the pre-pandemic period, while the pre-pandemic=0 column indicates the post-pandemic period. Significance is indicated with * at 10%, ** at 5%, *** at 1%.

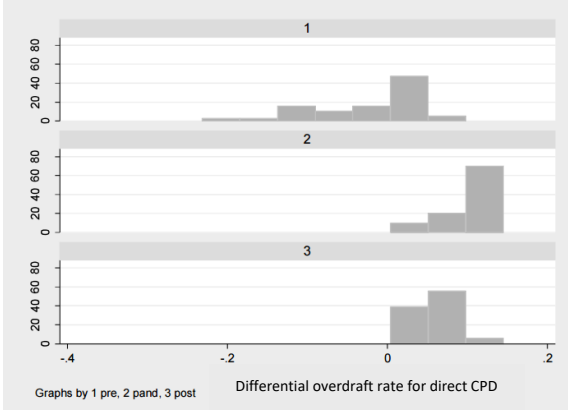

Figure 11. Histogram of the differential overdraft rate for direct CPD

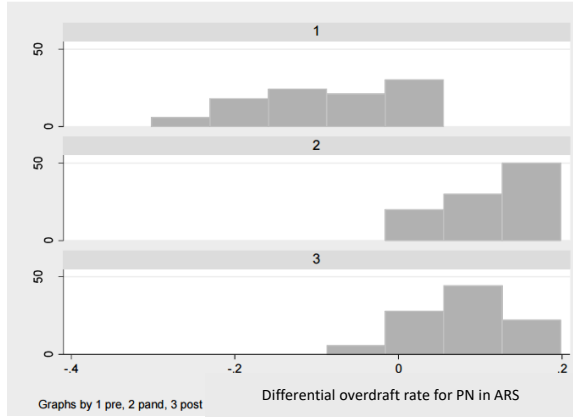

Figure 12. Histogram of the overdraft rate differential for promissory notes endorsed in ARS

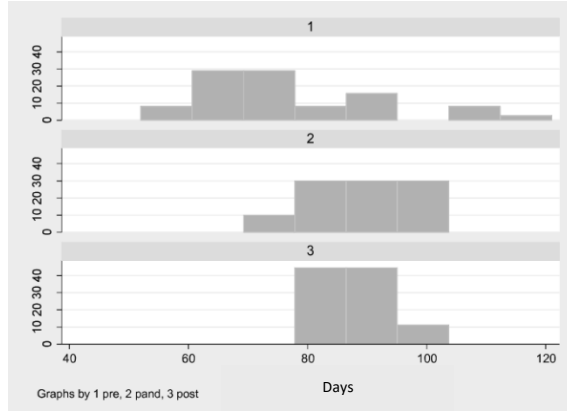

Figure 13. Histogram of the term for direct CPD

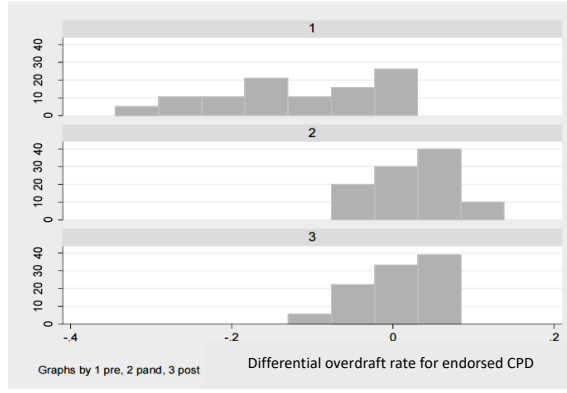

Figure 14. Histogram of the differential overdraft rate for endorsed CPD

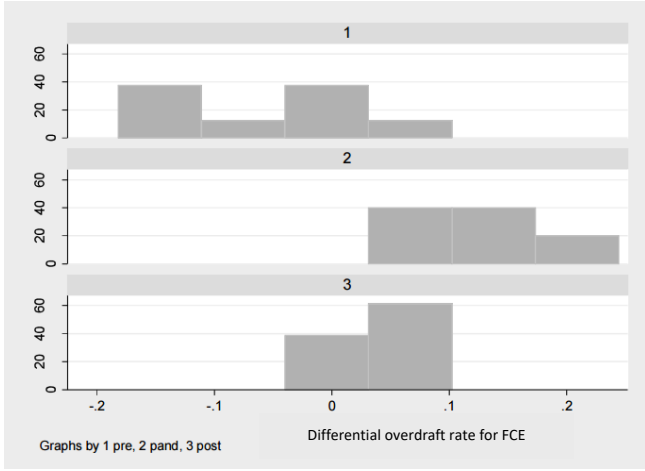

Figure 15. Histogram of the differential overdraft rate for FCE
Note: The upper panel (1) shows the pre-pandemic period, the middle panel (2) the pandemic period, and the lower panel (3) the post-pandemic period.

Conclusions

The economic contraction caused by the COVID-19 pandemic posed a challenge on several fronts for SMEs, especially concerning financing. This paper studies how the Argentine capital market reacted as a means of channeling funds, comparing this evolution with the period before and after the pandemic.

During the pandemic, the issuance volumes of all instruments fell, revealing an increase in financial restrictions as Eggers (2020) and Khan (2022) described. Financial trusts and endorsed deferred payment checks are an exception, highlighting the relevance of guarantee schemes (Corredera-Catalán *et al.*, 2021) and the search for alternative means of financing (Yao & Liu, 2023). Subsequently, an increasing issuance volume is observed in all instruments, both for the pandemic period and earlier. Regarding the terms of issuance, some instruments extend them during the pandemic (direct deferred payment checks and direct promissory notes in ARS), while for direct promissory notes in USD, they are shortened. This shows the importance of strengthening formal SME financing channels (Liu *et al.*, 2022).

Unlike the banking sector, there is no regulatory body to establish rate policies in the capital market. Consequently, there is a changing behavior of the cost differential of financial instruments with respect to overdraft loans. While pre-pandemic the capital market allowed access to lower relative rates, this relation is reversed during and after the pandemic. The fall in the nominal cost of bank financing during the pandemic is consistent with what happened worldwide (Kraemer-Eis *et al.*, 2020). In contrast, if the cost of real financing in the capital market (compared to the BADLAR) is considered, there are no

major differences between the pandemic period and the pre- and post-pandemic periods. This shows the relevance of the capital market as an alternative source of financing for SMEs, remaining competitive in real cost conditions even in times of crisis.

A better understanding of the behavior of volumes, terms, and financing rates is expected to enable a more precise delineation of instruments focused on SMEs. Therefore, different challenges are identified for the SME sector of the Argentine capital market. First, to strengthen access to longer-term funds, so that the financing obtained can be allocated to investments in fixed assets. Second, to promote the development of special capital opening programs since equity financing is practically non-existent. Also, it is necessary to consolidate guarantee schemes in SME financing, especially during periods of crisis.

It would be interesting to incorporate variables such as the sector and geographic location of the SMEs as future lines of research, information that is currently only publicly available for negotiable obligations issues. If the information were available for all instruments, this would make it possible to identify the relevance of value chains in capital market financing and to study the geographic concentration of the distribution of funds.

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