COMISIÓN PARA EL MERCADO FINANCIERO

Regulador y Supervisor Financiero de Chile

Documento de Trabajo **N° 05/24**

Impact of the Access to Fogape-Covid Program on Firm Delinquency: Evidence from Commercial Loans within the Banking System

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Diciembre 2024
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Jose Rishmawi[1] y Cristian Rojas[2]

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RESUMEN

Uno de los argumentos más utilizados para la implementación de los Esquemas Públicos de Garantía de Crédito es asegurar el financiamiento de empresas en dificultades durante las crisis financieras. Sin embargo, no hay mucha evidencia sobre cómo esto afecta la capacidad futura de las empresas para cumplir con sus obligaciones de deuda, que son distintas al préstamo garantizado en sí. Para ello, analizamos un conjunto de empresas que accedieron al Programa Fogape-Covid, uno de los CPGC más relevantes en Chile durante la pandemia, y comparamos su comportamiento de pago bancario futuro de préstamos con aquellas que demandaron pero no accedieron al préstamo garantizado. Los resultados indican que el acceso al Fogape-Covid disminuye la probabilidad de morosidad tanto en el corto plazo (2pp) como en el mediano plazo (5pp), en comparación con empresas similares que demandaron el crédito pero no lo recibieron. Este efecto persiste por más de dos años posteriores a la asignación del crédito. Adicionalmente, encontramos evidencia de que el acceso al crédito es relevante para las micro y pequeñas empresas, en consonancia con el hecho de que este tipo de empresas enfrentan mayores restricciones financieras y un menor acceso financiero al mercado de préstamos tradicionales. Además, encontramos que el monto del crédito garantizado también es significativo en la reducción de la probabilidad de morosidad. Finalmente, mostramos que el acceso al Fogape-Covid reduce la probabilidad de enfrentar un deterioro en la Clasificación Interna de Riesgo (CIR) que los bancos asignan a estas empresas tanto en el corto como en el mediano plazo.

ABSTRACT

One of the most used arguments for delivering Public Credit Guarantee Schemes (PCGS) is to ensure the financing of distressed firms during financial crises. However, there is not much evidence of how this affects firms' future capacity to meet their debt obligations, which differs from the guaranteed loan. For this purpose, we analyze a set of firms that accessed the Fogape-Covid Program, one of the most relevant PCGS in Chile during the pandemic, and compare their future loan banking payment behavior with those that demanded but did not access the guaranteed loan. The results indicate that access to the Fogape-Covid diminishes the probability of delinquency in both the short term (2pp) and the medium term (5pp), compared to similar firms that demanded the credit but did not receive it. This effect persists for over two years following the credit allocation. The impact is also negative compared to eligible firms that did not demand credit. Additionally, we find evidence that credit access is relevant for micro and small firms, consistent with the fact that these firms face financial restrictions and lower financial access to the traditional loan market. Furthermore, we find that the amount of guaranteed credit is also significant in reducing the likelihood of delinquency. Finally, we show that access to Fogape-Covid reduces the probability of facing a deterioration in the Internal Risk Classification (IRC) that banks assign to these firms in both the short and medium term.

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1 Introduction

The Covid-19 crisis has strongly affected the world economy and its financial markets; for this reason, to mitigate its negative consequences, countries have carried out a series of measures, including the injection of liquidity to firms through credits guaranteed by governments (Arbeláez et al., 2020; Boyarchenko et al., 2021; Brault and Signore, 2020). In this context, during periods of low liquidity, the existence of government programs that inject liquidity in a more accessible manner becomes particularly relevant (Fleming, 2012). These programs' importance lies in facilitating access to credit for small and medium-sized enterprises (SMEs) (Cowan et al., 2015; Cowling, 2010; Glennon and Nigro, 2005; Riding and Haines, 2001). However, in PCGS, there is asymmetric information; thus, creating a well-designed program is relevant to mitigate this imbalance (Saito and Tsuruta, 2018).

Given the complex situation that the Covid-19 pandemic has brought, many countries have applied state guarantee programs. United States used this type of policy (Boyarchenko et al., 2021). In the European Union, countries such as France, Germany, Italy, Switzerland, and the United Kingdom (UK) also used this program (Anderson et al., 2021; Zoller-Rydzek and Keller, 2020). In Latin America, in addition to Chile, nations such as Brazil, Colombia, and Peru have implemented this policy as well (Arbeláez et al., 2020). Despite the differences in application restrictions, maximum loan amount, and guarantee percentage, all programs seek to mitigate the impact of the crisis by injecting liquidity into firms.

In Chile, state-guaranteed loans have existed since 1980 (Fogape program). However, given the context of Covid-19, the government created a new program called "Fogape-Covid" in April 2020. This program temporarily relaxes the requirements of former Fogape and allows firms to finance working capital. This scheme focuses on firms whose annual sales do not exceed UF[1] 1 million.

Despite the huge number of credits granted under this program (see Figure 1) in the first months, the number of new credits Fogape-Covid decreased since August 2020. Subsequently, in February 2021, the government announced a new program called "Fogape-Reactiva," which allows for financing investment and working capital. Also, it relaxed the conditions and has a higher interest rate to be less restrictive regarding admissions.

Regardless of many companies applying for financing with state guarantees, there is little evidence of this program's short—and medium-term effects on firms' capacity to pay their commercial debt in the future. Therefore, the main objective of our study is to evaluate the impact of accessing

[1]The "Unidad de Fomento" or UF is an inflation-indexed unit of account, calculated and published by the Central Bank of Chile.

the Fogape-Covid program on firms' short—and medium-term credit delinquency. Also, we want to explore if this effect is heterogeneous according to the size of the firms. Additionally, we are interested in analyzing the relevance of the amount of credit rather than only the firm's access to it and the impact of accessing credit on the probability of a deterioration in the firm's Internal Risk Classification (IRC).

To carry out the methodology, we have data on the total applications to Fogape-Covid and their status, so it is possible to differentiate between firms accepted and rejected and those that did not apply for the loan. Also, we have the debt of the firms in the banking system, as well as the delinquency levels. In addition, we have data on the firms' sales segments, so it is possible to know whether the firm met the requirements to apply for the program. Moreover, we have data on firms' internal risk classification made by banks.

Our research yields novel findings, indicating that accessing Fogape-Covid reduces the probability of delinquency in commercial loans by 2pp in the short term and 5pp in the medium term compared to similar firms whose applications were rejected. Notably, the program substantially impacts micro and small firms, providing compelling evidence of its role in enhancing financial access. These results also apply to Fogape-Reactiva but with a lower level of magnitude. Our results are persistent even 30 months after the firm received the credit.

Moreover, to analyze the relevance of the amount of credit, we measured the program's intensity as a ratio of the amount of credit over the firm's outstanding debt. The results indicate that the higher the intensity, the more impact there is on reducing future delinquencies. Companies that receive over 40% of their outstanding debt show a more significant reduction in delinquency than firms with lower treatment intensity. Additionally, accessing Fogape-Covid also negatively affects the probability of facing a deterioration in the Internal Credit Rating at different time horizons and levels.

Our paper makes a unique contribution to the literature on PCGS by utilizing administrative data on firms that applied for but were denied the guaranteed loan. Our primary analysis directly compares firms that both sought credit; one was successful, and the other was not. This approach is particularly valuable as both types of firms likely faced similar financial constraints or needs, making them more comparable for our estimation.

The structure of our paper is as follows: Section 2 reviews the relevant literature on credit access and PCGS. Section 3 provides a detailed description of the Fogape-Covid and Fogape-Reactiva programs. Section 4 outlines the primary sources of our information. Section 5 describes the data we used. Section 6 presents our empirical strategy. Section 7 presents our results. In section 8, we

conduct robustness tests. Finally, in section 9, we present our conclusions.

2 Literature

There is ample literature about PCGS and their impacts, especially in providing access to financing to micro and small firms. For example, Cowling (2010) investigates guaranteed loans for a UK program called the Small Firms Loan Guarantee Scheme (SFLGS). The author argues empirically that guaranteed financing programs ease small firms' credit restrictions, allowing them greater access to credit. However, it also highlights the need to carefully evaluate these schemes' design and implementation.

Fleming (2012) studied the liquidity facilities provided by the United States Federal Reserve in the 2008 Financial Crisis, and discusses that the credit crunch disproportionately affected smaller firms and those with weaker financial positions. Thus, the crisis exacerbated existing disparities between enterprises. Nevertheless, he argues that this can be addressed with policies that improve the financial system's resilience and provide targeted support to vulnerable firms that can help mitigate the impact. Additionally, Yamori (2015) analyzes the role of Japan's credit guarantee system guaranteed credit during the global financial crisis. Consistent with prior literature, he finds that this policy effectively prevented SMEs' collapse. However, he also notes that these credits bring heavy financial burdens to the government and discourage the efficiency of the companies involved. Consequently, limiting guarantees is relevant to minimize these conflicts. In contexts of liquidity shortages resulting from COVID-19, Brault and Signore (2020) mention that guaranteed credits positively impact the survival chances and growth of SMEs.

Regarding the relationship between PCGS and loan defaults, the literature has been focused mainly on the relationship between the guarantee level, as a percentage, and the payment behavior on the guaranteed loan. For example, Levitsky and Prasad (1987) and Riding and Haines (2001) mention that excessive terms of state loan guarantees contribute to high delinquency rates. They also highlight the importance of the requirements that companies need to meet to access these guaranteed loans. In particular, Riding and Haines (2001) shows that if the guaranteed percentage increases from 85% to 90%, delinquency rates would boost by 50%. Concerning the restrictions of these programs, Anderson et al. (2021) discuss the existence of a trade-off. On the one hand, very flexible and lax requirements can help rescue or support beneficiary firms, but they can also significantly increase risk, raising the probability of delinquency or allowing poorly performing companies to obtain credit, thereby further elevating the risk of delinquency. On the other hand, if the requirements are highly stringent, the

number of beneficiary firms will be reduced, thus lowering the positive impact of the guaranteed loans in crisis. Saito and Tsuruta (2018) also addresses this issue, highlighting the presence of information asymmetry in these types of credit.

On a different edge Cowan et al. (2015), for example, analyzes the relationship between secured and unsecured loan default rates. In particular, they analyze FOGAPE. The authors found that the probability of delinquency on non-eligible loans of client i with bank b is independent of the presence of an insured loan between them. The finding, the authors say, indicates that the increase in the delinquency rate of insured loans is not explained by reduced monitoring efforts but rather by a reduction in the bank's effort to collect the installments of the insured loans. Another paper in this strain is Mullins et al. (2018), which does not find evidence of a large increase in defaults accessing FOGAPE relative to controls. However, they find suggestive evidence that defaults are higher for treated firms than for untreated firms starting nine months after the loan is granted, meaning that there may be a moderate default effect masked by the experiment's low power for detecting differential default. In addition, when they look far from the threshold at the smallest firms receiving FOGAPE, they find a small increase in firms' default rate on loans from the FOGAPE-granting bank relative to loans from other banks to the same firms.

Finally, concerning the type of uses of the guaranteed loans Cao et al. (2024) analyses government guarantee programs in the context of COVID-19 using an ad hoc questionnaire from 17 central banks worldwide. They found that 14 out of 17 countries introduced restrictions on the use of the funds. In particular, 12 out of 17 set the destination of the fund to working capital or operating cost.

3 Fogape-Covid and Fogape-Reactiva Programs

3.1 Fogape-Covid Program

Starting in April 2020, this program mainly focused on firms affected by the Covid-19 pandemic. It requires the firm's annual sales to be at most 1 million UF (approximately USD 40 million). Sales are defined as net sales, excluding value-added tax (VAT), of the goods or services typical of the company's line of business. Sales can be measured using any of the following periods: i) In the twelve months immediately before the date on which the financing is granted; ii) Between October 1, 2018, and September 30, 2019; or iii) The calendar year 2019.

The classification of the companies regarding their annual sales, the maximum loan they can request, and the guarantee is found in Table 1. This table shows that the percentage of guaranteed

coverage decreases with the size of the company. Moreover, the loan cannot exceed 25% of the firm's net annual sales. For instance, if a company has net annual sales of 50,000 UF, the maximum Fogape-Covid credit it can access is 12,500 UF.

The resources from the credit can only be used to cover the company's working capital needs, including payment of salaries, leases, tax obligations, and any other expenses essential for the firm's operation. The funds cannot be used to amortize, prepay, or refinance current or expired loans held by the requesting company, nor can they be used to pay dividends or withdraw profits. Failure to comply with this obligation triggers the acceleration of payment, and the company will no longer be eligible for Fogape-Covid financing again. In any case, some of these conditions are hard to verify due to the fungible condition of the resources.

Additionally, to utilize the credit, enterprises must declare their use of the funds and their commercial impact because of the COVID-19 pandemic. It is necessary to highlight that each financial institution is responsible for the decision to grant guaranteed financing according to the criteria established in its internal credit risk policies. Therefore, none of them are obligated to accept Fogape-Covid loans.

Fogape-Covid financing must satisfy a series of conditions: i) The terms of the financing are between 24 and 48 months, including at least 6 months of grace for the payment of the first installment, which must be equal and successive; ii) The maximum annual nominal interest rate is the Monetary Policy Rate (MPR) plus 300 basic points; iii) The financial institution granting this credit must reschedule any existing credits in installments that the requesting company holds with it; and iv) Loans may not be granted to micro or small firms with delinquency in the banking system for more than 30 days as of October 21, 2019, nor to medium and large firms with delinquency in the banking system of more than 30 days as of March 31, 2020. However, these restrictions will not apply if the companies are no longer in delinquency at the time of requesting the financing.

Lastly, Banco Estado, the only state bank in Chile and the only one that administers guaranteed credit sets the commission to be paid by the creditor institutions as an annual percentage of the unpaid balance of the guaranteed capital. This commission is detailed in Table 2.

3.2 Changes to Fogape-Covid Program

After being implemented in April 2020, two main changes were made in June 2020. First, the rescheduling of the debt with the financial institution that grants the financing will no longer occur if the company requesting the Fogape-Covid credit chooses not to reschedule. If the firm wants to resched-

ule its credits with the financial institution, that institution must provide a minimum 6-month grace period. However, this only happens if the financial institution agrees to grant the credit, as it has the discretion to approve or deny the financing based on its criteria, as commented before.

Second, the deductibles for all company sizes now have a maximum of 2.5% of the total guaranteed balances for granted financing. However, there will be no deductible for micro, small, and medium-sized companies, provided they do not have current debts or only have Fogape-Covid credit debts.

The changes presented apply only to Fogape-Covid credits granted after the publication date of this decree, which is June 30, 2020.

3.3 Fogape-Reactiva Program

The Fogape-Reactiva fund was created in June 2020 to promote the reactivation and recovery of the Chilean economy. In contrast to the Fogape-Covid Program, this credit has looser restrictions, allowing these loans to reach a broader range of firms.

The resources from financing with Fogape-Reactiva, in addition to being used for working capital, as was the case with Fogape-Covid, can also be used for expenses and investments, including the acquisition of fixed assets. Additionally, the resources can be used to amortize, refinance, or prepay financing guaranteed by the Fund. If the financing is not guaranteed by the Fund, the maximum coverage percentage of the Reactivation Guarantee will depend on the size of the firm, as specified:

i) Micro and small companies: 50% of the outstanding balance of each financing up to 6,250 UF.

ii) Medium-sized companies: 50% of the outstanding balance of each financing up to 25,000 UF.

iii) Large companies I: 40% of the outstanding balance of each financing up to 150,000 UF.

iv) Large companies II: 40% of the outstanding balance of each financing up to 250,000 UF.

Fogape-Reactiva financing must meet the following conditions: i) The financing term will be a maximum of 7 years; ii) The maximum annual nominal interest rate is the MPR plus 600 basis points; and iii) Credits may not be granted to companies that are more than 29 days delinquent in the financial system, nor to those that are more than 60 days overdue with the financial institution where the financing with Reactivation Guarantee is requested.

Regarding deductibles, the maximum remains the same as in the new version of the Fogape-Covid (June 2020), which is 2.5%. However, similarly, with the new condition of Fogape-Covid, there will be no deductible for micro, small, and medium-sized companies if they do not have current debts with the

financial institution at the time of the financing request unless that debt is related to Fogape-Covid. Concerning the commissions to be paid by the creditor financial institutions, they now depend on the financing period, as indicated in Table 3.

3.4 Changes to Fogape-Reactiva Program

In June 2021, the Fogape-Reactiva Program was modified in the following ways. Now, eligible companies may not exceed annual net sales net of 100,000 UF. Enterprises with sales exceeding 25,000 UF can only apply for financing with a Reactivation Guarantee if their sales have been reduced by a minimum of 10% compared to the annual sales in i) The twelve months immediately before the period used to measure their sales, or ii) The twelve months between October 1, 2018, and September 30, 2019. The classification of the companies based on their annual sales, the maximum credit that they can request, and the guarantee associated with the financing can be found in Table 4.

The new Fogape-Reactiva must meet a series of conditions: i) The term will be a maximum of 10 years; ii) Credits may not be granted to medium-sized companies that, at the date of the financing request, are in arrears of more than 29 days in the financial system, or have delinquencies of more than 60 days with the financial institution where the financing is requested. For micro and small firms, both thresholds are 89 days. However, for all companies, the delinquency restriction does not apply if the enterprise is no longer in delinquency at the time of granting the financing with the Reactivation Guarantee. This guarantee is valid for a maximum period of 10 years from its granting.

4 Data

We use several administrative datasets for this empirical research. The first one is the data on the demand for Fogape-Covid credit. This information provides details on each firm's application status, as indicated in Table 5. With this information, we can identify which firms received credit and which were rejected by the banks. This database also provides the amount of the credit granted, which we will use as a measure of program intensity.

The second database contains information on the Fogape-Reactiva credit that firms get during the period. We include this program in our analysis because, as described above in section 3, firms can receive both Fogape-Covid and Fogape-Reactiva credits. We aim to measure the impact of each program separately

The third data indicates all the debt in the system by firms, including the delinquency level of

each credit. This information will be used to determine our study variable, delinquency, which in this case represents defaulting on a loan for more than 90 days. Moreover, this database will capture the firms' debt levels and help us identify whether firms that did not demand the credit met the maximum default level required to request it.

The fourth dataset considers the information on the Individual Risk Classifications (IRC) that banks assign to major firms each month.

Finally, the fifth database is based on the Chilean Internal Revenue Service (SII, by its Spanish acronym) and includes details on firms' economic sector and sales level. Although the data from Fogape-Covid considers information about the firm's sales, we required more comprehensive data to compare firms that requested credit and those that did not. For this latter group, data from the SII is necessary.

5 Descriptive Statistics

In our framework, we categorize firms into four types: (i) companies that were granted Fogape-Covid by August 2020; (ii) enterprises that were rejected for Fogape-Covid credit despite meeting the requirements; (iii) firms that did not apply, but given their characteristics, would have been eligible; and (iv) companies that did not apply to Fogape-Covid and do not comply with the program's restrictions (non-eligible). Of these four, only the first three are relevant for estimating the impact of accessing Fogape-Covid financing on delinquency.

Table 6 presents the number of firms, average debt, historical delinquency rates, access to Fogape-Reactiva and other loans, categorized by sales size for each company type. Firstly, based on the number of firms, we can see that the most representative group consists of those who did not apply for the program but were eligible. Across both sales categories, these firms have a higher average debt level than those that were granted Fogape-Covid credit.

In terms of historical delinquency rates, we observe that firms granted credit have significantly lower delinquency rates than those that were rejected, as well as those that did not demand but were eligible. This suggests that credit risk and the design of the program in terms of their requirements played a crucial role in the decision to approve state-guaranteed loans. However, it was not a barrier to demand, given the high delinquency rates of firms that were rejected. These findings align with those of Flores et al. (2021). Finally, regarding access to other types of loans, firms with Fogape-Covid credit also have greater access to the Fogape-Reactiva program and other loans, regardless of the firm's

size group.

6 Empirical Model

6.1 Impact of access to Fogape-Covid

We use the following model to measure the impact of accessing Fogape-Covid on delinquency levels in commercial banking loans:

$$Delinq_{i,t} = \alpha + \beta FogCovid_i^k + \rho FogReact_{it} + \theta CreditRisk_i + \delta Debt_i + \zeta AnotherLoan_{i,t} + \gamma X_i' + \epsilon_{i,t} \quad (1)$$

Where $Delinq_{i,t}$ is a binary variable that takes the value 1 if firm i is in delinquency during period t, and 0 otherwise. For the whole analysis, we define delinquency as a non-payment exceeding 90 days in at least one commercial loan different from Fogape-Covid. $FogCovid_i^k$ is a dummy variable that takes two meanings depending on the comparison being made: firms with Fogape-Covid credit granted versus those that were rejected, or companies with Fogape-Covid loan granted versus those that were eligible but did not apply for it. In the first case ($k = 1$), $FogCovid_i^{k=1}$ is 1 if the company received the credit and 0 if the firm applied for the loan but was rejected by the financial institution based on their credit policy. In the second case ($k = 2$), $FogCovid_i^{k=2}$ it is 1 if the company received the Fogape-Covid loan, but now it is 0 if the firm did not apply despite being eligible based on its delinquency characteristics and sales size. The first specification will be referred to as "inside the demand," and the second as "outside the demand."

$FogReact_{i,t}$ is a dichotomous variable that equals 1 if company i was granted Fogape-Reactiva loan by period t, and 0 if not. We include $FogReact_{i,t}$ in our estimation because the firms during the period of analysis could also access this type of loan, and then we will include it as an explanation variable. In particular, we are interested in assessing the effect of Fogape Covid isolating the effect that by itself has Fogape Reactiva. $CreditRisk_i$ is a binary variable that takes the value 1 if the firm had at least one month during 2019 with more than 30 days of default, and 0 otherwise. This variable will be used as a proxy of the credit risk of the firm's ex-ante loan application following studies like Agarwal and Ben-David (2014), and Agarwal et al. (2009). $Debt_i$ denotes the $ln(Debt)_i$ of the company i at December 2019. $AnotherLoan_{i,t}$ is a dummy variable that equals 1 if the company received another credit by period t, and 0 if not.

The set X_i' are firm-level controls such as the Fogape-Covid requested date, sales level, and eco-

nomic sector of the firms. We control for the specific month of the first Fogape-Covid request to address potential idiosyncratic differences between firms that apply in the first month, which might face greater financial constraints, and those that apply later. Chronologically, the time t corresponds to December 2020, June 2021, December 2021, June 2022, and December 2022, which allows us to consider both the short- and medium-term effect of access to state-guaranteed loans on future delinquency rates.

We will study the impact of accessing Fogape-Covid, focusing on firms that requested this credit up until August 2020. There are two reasons for this. Firstly, we are interested in the short- and medium-term impact of accessing this loan. Analyzing companies that accessed or did not access the credit by this point allows us to track their payment behaviors for more than two years after the bank's decision to grant or deny the credit. Secondly, a major part of the credit granted was issued until this month, as shown in Figure 1. Additionally, considering we are studying the probability of a fall in delinquency, the use in the estimation only firms with some debt in December 2019 and delinquency lower than 30 days at that date.

6.2 Intensity of the Treatment

To complement our impact measurement, we will use the ratio of the Fogape-Covid loan to the firm outstanding debt as a proxy of treatment intensity. Then we built the following variable:

$$IntensityFogCovid_i = \begin{cases} 1, & \text{if } \frac{AmountFogCovid_{i,Aug2020}}{OutstandingDebt_{i,Aug2020}} < 10\%. \\ 2, & \text{if } 10\% < \frac{AmountFogCovid_{i,2020Aug2020}}{OutstandingDebt_{i,Aug2020}} < 20\%. \\ ... & \\ 10, & \text{if } 90\% < \frac{AmountFogCovid_{i,Aug2020}}{OutstandingDebt_{i,Aug2020}}. \end{cases} \tag{2}$$

As discussed before, we are focusing on firms that requested this credit up until August 2020. We will also use the outstanding debt as of August 2020 to ensure comparability. The specification that captures the effect will be then:

$$Delinq_{i,t} = \alpha + \beta IntensityFogCovid_i + \rho FogReact_{it} + \theta CreditRisk_i + \delta Debt_i + \zeta AnotherLoan_{i,t} + \gamma X_i' + \epsilon_{i,t} \tag{3}$$

Where all other variables remain the same, except for the new one, $IntensityFogCovid_i$. Our objective with this exercise is to analyze whether there are significant differences in the effect of access

to Fogape-Covid based on the amount received by the firm.

6.3 Impact on Internal Risk Classification

The last effect we review is how access to Fogape-Covid affects the probability that firms face a deterioration in their Internal Risk Classification (IRC) assigned by banks. The IRC is relevant in prudential terms, as financial institutions assign it based on their assessment of a firm's prospective capacity to pay future financial obligations. By considering both the delinquency and prospective risk, we capture the two most significant indicators of risk.

Local regulations allow banks to use "internal models" to classify firms based on their relevance in the total amount of outstanding loans. Approximately 16% of the companies in our sample fall under "individual classification", while the remainder is classified under "group classification." For the first group, banks assign a letter that indicates their risk level. This classification starts with tranche A1-A6, labeled "normal debt," followed by tranche B1-B4, representing enterprises categorized as "substandard portfolio", and concludes with tranche C1-C6, which indicates firms in the "defaulted portfolio" category.

Then we define the changes in IRC by assigning numerical values to the ratings, from A1 to C6, representing 1 through 16, respectively. Then, we will calculate ΔIRC as follows:

$$\Delta IRC_{i,Aug2020\rightarrow t} = IRC_t - IRC_{Aug2020} \tag{4}$$

Finally, we define a dichotomous variable of deterioration, which reflects whether firms experience a change in IRC ($\Delta IRC_{i,Aug2020\rightarrow t+h}$) that exceeds a specific threshold (X).

$$P(x)_t = \begin{cases} 1, & \text{if } \Delta IRC_{Aug2020\rightarrow t} > X. \\ 0, & \text{otherwise.} \end{cases} \tag{5}$$

For example, $P(2)_t$ is a variable that takes the value 1 if the firms have experienced a deterioration of at least two IRC tranches from August 2020 to the period t, and 0 otherwise.

Our purpose with these metrics is to measure the impact of accessing Fogape-Covid on facing up to four levels of deterioration in the short term, from August 2020 to December 2020, and, in the medium term, from August 2020 to December 2022. In particular, the model we want to test is:

$$P(X)_{i,t} = \alpha + \beta FogCovid_i^k + \rho FogReact_{it} + \theta CreditRisk_i + \delta Debt_i + \zeta AnotherLoan_{i,t} + \gamma X_i' + \epsilon_{i,t} \tag{6}$$

7 Results

7.1 Comparison inside the demand

As explained above, when the comparison is "inside the demand," we compared firms that received Fogape-Covid against those that applied but were rejected. Table 7 shows the short- and medium-term impact of accessing Fogape-Covid for firms based on their status as of August 2020. Columns (1) to (5) show that access to Fogape-Covid credit has a negative and statistically significant effect for all periods. This indicates that companies approved for Fogape-Covid loans are less likely to fall into delinquency on commercial loans compared to those rejected with similar characteristics in different time horizons due to the access.

Credit risk, defined as whether the company was delinquent 12 months before the program started, also shows an expected positive sign. The effect of total debt before the program, December 2019, is also as expected since a greater debt increases the probability of delinquency. However, this effect is not significant in the medium term. Aside from those existing in December 2019, having other loans positively affects the likelihood of delinquency.

Moreover, access to a Fogape-Reactiva loan has a negative and significant impact, though with lower parameters than Fogape-Covid. This result could be explained by the fact that Fogape-Reactiva was launched after Fogape-Covid. Then, the main effect of providing liquidity to the firms could be absorbed by Fogape-Covid instead of Fogape Reactiva.

We are particularly interested in the marginal effect of access. The results indicate that the marginal effects of the Fogape-Covid increase over time, from approximately 2pp in the short term to 5pp in the medium term.

To analyze potential heterogeneous effects based on firm size, we divide the firms into two groups: i) Micro and small and ii) Medium and large. Table 8 presents the results. Firstly, the effect remains negative and significant for both groups: Fogape-Covid and Reactiva have a negative sign, with Fogape-Covid showing a more substantial impact than Reactiva. Secondly, the average marginal effect of Fogape-Covid is higher for micro and small firms than for medium and large firms. As expected, smaller firms benefited more from the guaranteed program than larger ones. Finally, independently of the firm size, the effects of Fogape-Covid are persistent.

7.2 Comparison outside the demand

As explained in section 6, when the comparison is "outside the demand", we analyze companies that received Fogape-Covid versus those that were eligible but did not apply. Table 9 presents the results over time. As in the previous specification, Fogape-Covid and Fogape-Reactiva decrease the probability of delinquency, while credit risk and other loans increase this likelihood.

Looking at the average marginal effects, the impact of Fogape-Covid does not follow a strictly upward trend over time. This could be explained by firms that demanded the credit but were rejected were more financially dependent than this group. Conversely, despite being eligible, companies that did not demand the credit may have had other sources to stay afloat or might have been less severely affected by the crisis. Nonetheless, given the conditions of the guarantee credit, we might expect that firms that did not request the loan, despite being eligible, would have benefited if they had applied.

When examining the heterogeneous effects of this comparison, as before, we divide the firms into two groups: i) micro and small companies and ii) medium and large firms. Table 10 illustrates the outcomes. We can underline that the two Fogape programs have a negative sign in both groups, meaning they reduced the likelihood of delinquency across firm sizes. Moreover, in line with the results "inside the demand", the average marginal effect is larger for micro and small than for medium and large firms. Therefore, Fogape-Covid had a more substantial impact in reducing the probability of delinquency in smaller firms.

7.3 Intensity of the Treatment

Figure 2, panel (a) shows the average marginal effect of the intensity of the Fogape-Covid loan in December 2020, concerning firms with the lowest level of intensity, which is until 10% of the outstanding debt in the financial system. In this exercise, we control for the same characteristics as the other specifications, as detailed in section 6. This figure illustrates that in the short term, since 20-30% of intensity, there are significant negative differences between companies that received the guaranteed loan with this magnitude versus those in the baseline (until 10%). This result suggests that after some level, the intensity of the Fogape-Covid is relevant in diminishing the likelihood of delinquency.

Figure 2, panel (b) presents the same analysis for the medium term, December 2022. This figure shows that the coefficient of the average marginal effect is almost strictly decreasing with the intensity of the Fogape-Covid loan. This suggests that, in the medium term, the intensity of the guaranteed loan plays a crucial role in reducing the probability of delinquency. In this case, the impact is significant and negative, starting from an intensity of 40-50%. Thereby, companies that received a larger portion

of credit relative to their outstanding debt benefited more in terms of defaulting.

7.4 Impact on Deterioration in Internal Risk Classification

Before analyzing the results from this regression, we are interested in examining the dynamics of the changes in Internal Risk Classification (IRC) in both the short and medium term for firms that accessed the Fogape-Covid versus those that were rejected. Figure 3, panel (a) shows that, in the short term (August 2020 to December 2020), there is a high level of persistence in the IRC, where more than 80% of the sample has a $\Delta IRC = 0$. However, we observe that firms "Fogape-Covid Rejected" exhibit a right-skewed distribution compared to firms "Fogape-Covid Accepted."

Figure 3, panel (b) analyzes the medium-term dynamics (August 2020 to December 2022). Here, it is possible to see a decline in the density of $\Delta IRC = 0$ for both types of cases. Additionally, we can see that in comparative terms, "Fogape-Covid Rejected" presents a worse distribution than "Fogape-Covid Accepted," as it is more skewed to the right, indicating a more significant deterioration in risk classification.

The specification results of equation (6) are presented in Table 11. Columns (1) to (4) show that accessing Fogape-Covid has a negative and significant effect on the probability of experiencing at least four levels of IRC deterioration in the short term. This implies that firms granted this credit are less likely to experience a decline in their IRC. Additionally, in the medium term (after 30 months), columns (5) to (8) indicate that the effect remains negative and significant. Moreover, the coefficient is greater than in the short term, suggesting that the Fogape-Covid loan has a stronger effect on preventing deterioration in IRC in the medium term.

8 Robustness

To measure the robustness of the results, we test the same models but consider the variable $CreditRisk_i$ with 24 months of credit history. The specification results are presented in Table 12 and 13. The estimates of these models with the different specifications of the credit risk variable deliver similar results. Therefore, the results obtained are robust to the different specifications of the available credit risk variable.

Additionally, we tested for multicollinearity by performing auxiliary regressions of each independent variable against the other explanatory variables. This approach allows us to assess the goodness of fit of these auxiliary regressions and calculate the variance inflation factor (VIF) for each explanatory

variable. The VIF measures the increase in variance due to a high correlation among independent variables. According to Akinwande et al. (2015), multicollinearity is not a concern when the VIF is less than 5. Our test results show no VIF values exceeding 5, indicating no evidence of multicollinearity.

Moreover, we tested for heteroscedasticity, which indicates that the variance of the errors is not constant across the values of the independent variables. Our test results led us to reject the null hypothesis of homoscedasticity, suggesting that the errors in the previous model are indeed heteroscedastic. Consequently, in all the exercises presented in the paper, we used robust standard errors as proposed by Huber (2004), which solve the variance problem asymptotically.

9 Conclusion

The Covid-19 crisis has strongly affected the global economy and financial markets. To mitigate its negative consequences, countries have carried out a range of measures, including liquidity injections to companies through Public Credit Guarantee Schemes (PCGS) (Arbeláez et al., 2020; Boyarchenko et al., 2021; Brault and Signore, 2020). In Chile, the Fogape-Covid program was launched in April 2020, providing guaranteed loans to companies with annual sales of less than UF 1 million. This paper analyzes the impact of accessing this credit on future delinquency and finds that it plays a key role in preventing it.

This question is relevant because we aim to measure the systemic effect of these loans in reducing overall credit risk within the banking system. Additionally, it is crucial to identify which type of firms were more impacted by their inability to access guaranteed loans. It is well-documented that historical delinquency affects the ability to obtain future loans, so understanding the impact of these public policy tools on firms' credit risk during the crisis recovery is also significant. To quantify these effects, we track companies that received the credit and those rejected for up to two years after the application. We also compare companies that had access to the credit with those eligible for the credit but did not apply.

Our empirical findings show a negative and significant effect of accessing Fogape-Covid and Fogape-Reactiva on the probability of delinquency in other commercial loans in both the short and medium term, considering ex-ante similar firms. This effect is more substantial for micro and small firms, which is consistent with empirical evidence of significant financial constraints faced by these types of firms. The results also indicate that firms that demanded the credit but were rejected were more affected (fell more in delinquency) compared to firms that did not apply. Furthermore, we find that the

effect of Fogape-Covid access remains significant two years later, highlighting the program's long-term importance for firms' financial performance.

Our results can differ from other research mainly for at least two reasons. Firstly, we use administrative data from the demand of the credit to build the counterfactual. Our study is unique in this feature. The second one is that Fogape Covid seems to have stricter conditions, minimizing the moral hazard problem. Our results also prove that having a correct set of requirements for firms is crucial to ensure that the public guaranteed loan reaches the objective.

Additionally, it is relevant to consider that firms without financial liquidity requirements could request credit. This would be possible considering that the PCGS's interest rate was low compared to the market's unsecured loan prices. Considering this, it could be possible that our results had some levels of bias. Nevertheless, our empirical approach considers only firms with no delinquency ex-ante the assignation. Then, this bias is mitigated at a certain point.

Moreover, we found evidence of the intensity effect. Measuring intensity as the ratio of the Fogape-Covid loan to the outstanding debt. We show that in the short term, since 20-30% of intensity, there are significant negative differences between companies that received guaranteed loans of this magnitude and those with loans of up to 10%. The impact is significant for intensities starting from 40-50% in the medium term. Therefore, the intensity of the guaranteed credit is also relevant to reducing the likelihood of delinquency.

Finally, we found evidence that accessing Fogape-Covid negatively affected the probability of deterioration in the firm's Internal Risk Classification (IRC). This is consistent with prior results showing a lower probability of delinquency for those who received the credit and indicates that banks correctly updated their prospective credit risk analysis of these firms.

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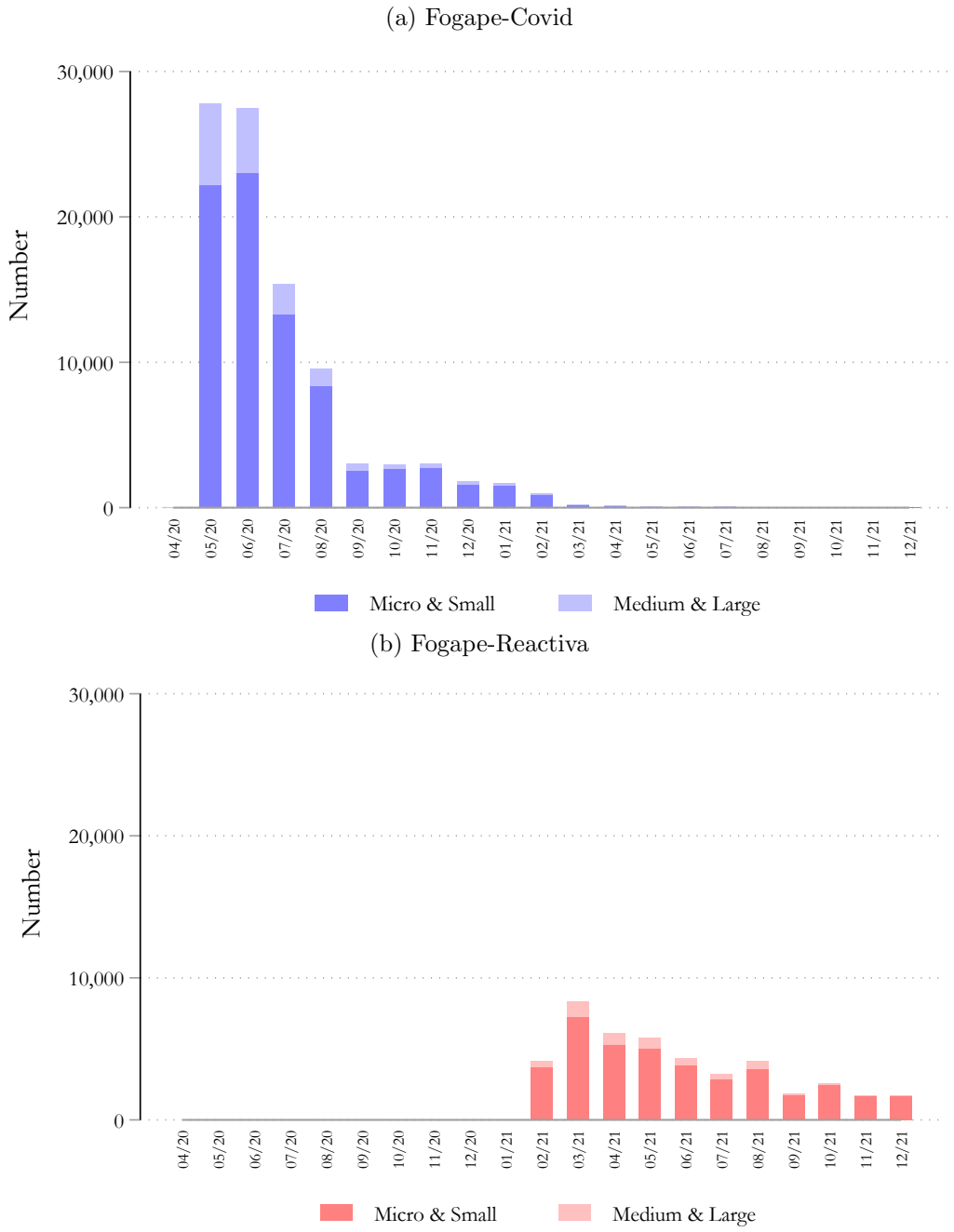
Figures and Tables

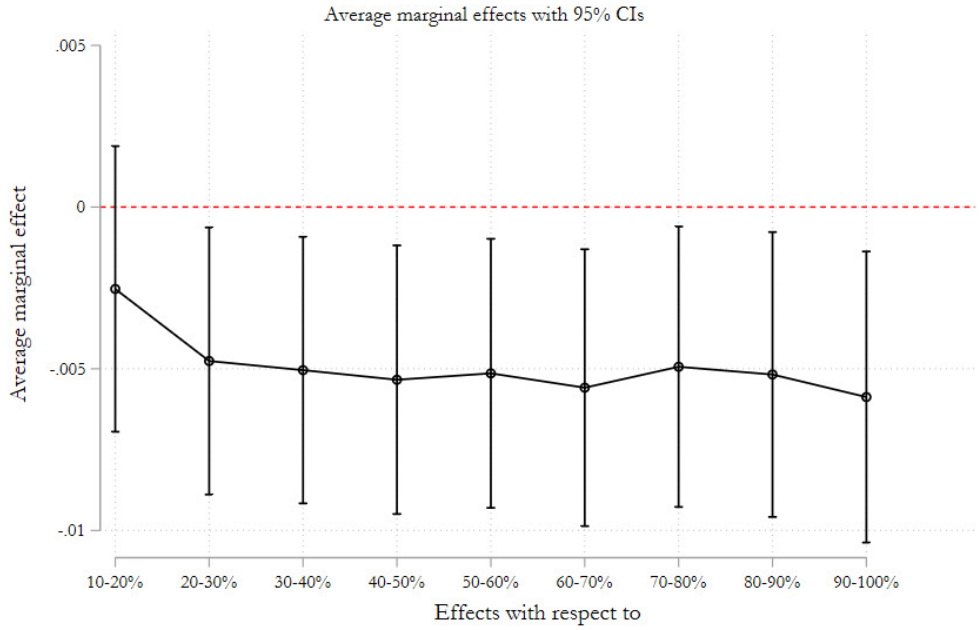
Figure 1: Number of credits granted



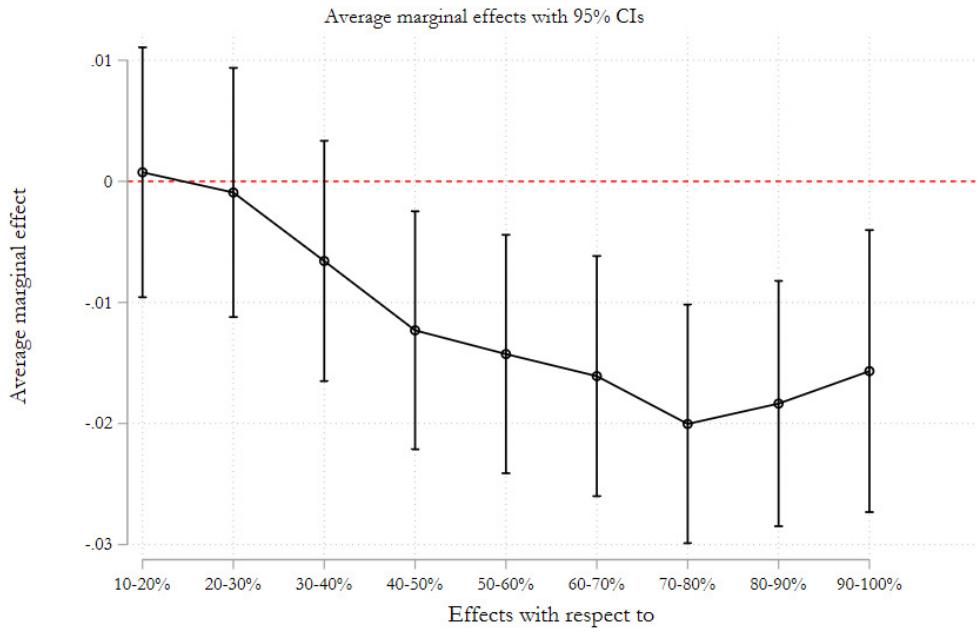
Notes: The figure plots the number of guaranteed credits granted by month. Panel (a) is for Fogape-Covid, and panel (b) is for Fogape-Reactiva. Micro & Small sized firms are those whose annual net sales do not exceed 25,000 UF. Medium & Large sized firms are those whose annual net sales range between 25,000 and 1,000,000 UF.

Figure 2: Average marginal effect of Intensity

(a) December 2020



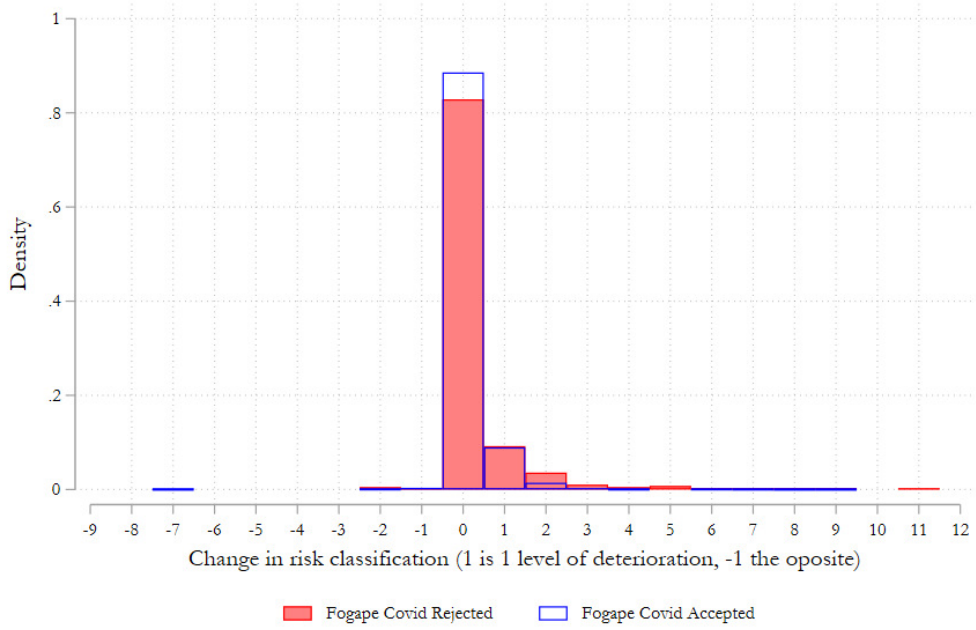
(b) December 2022



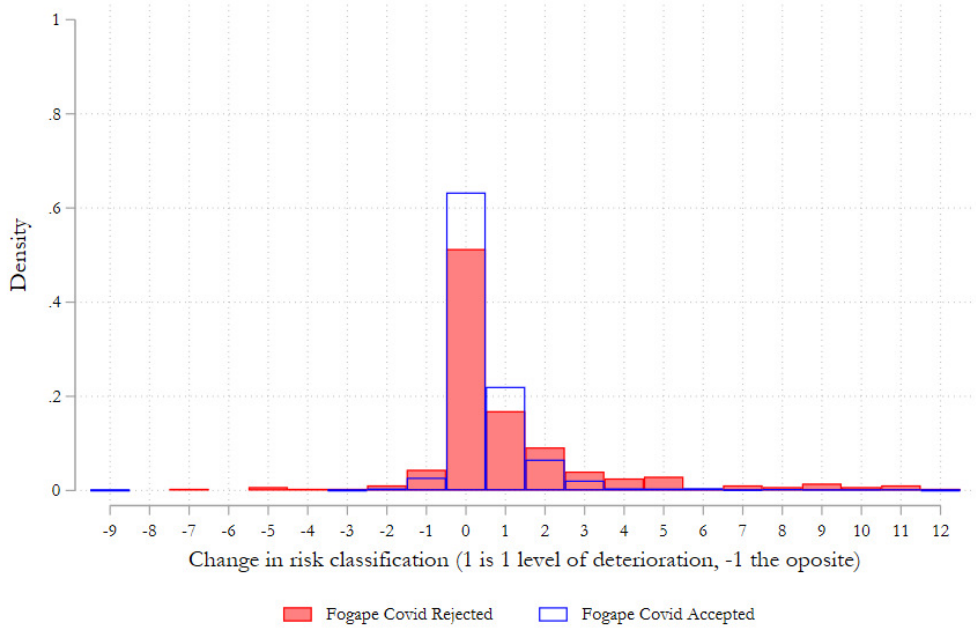
Notes: The figure shows the average marginal effect of intensity. Intensity is defined as the amount of the Fogape-Covid loan over the outstanding debt. The results are with respect to firms with the lowest level of intensity, which is until 10%. We characterized delinquency as a company defaulting on a loan for more than 90 days. Panel (a) presents the short-term effect from August 2020 to December 2020. Panel (b) plots the medium-term effect from August 2020 to December 2022. Confidence intervals are at 95%, using robust standard errors

Figure 3: Changes in Internal Risk Classification (IRC)

(a) August 2020 to December 2020



(b) August 2020 to December 2022



Notes: The figure plots the changes in Internal Risk Classification (IRC) that face firms. In the IRC, there are 16 different tranches, from A1 to C6. In the x-axis of the graphs, 1 means one level of deterioration, and -1 means one level of improvement. Panel (a) presents the changes in the short term, from August 2020 to December 2020. Panel (b) plots the changes in the medium term, from August 2020 to December 2022.

Table 1: Classification and conditions of Fogape-Covid

Company size	Annual sales (UF)	Max loan (UF)	Guarantee (%)
Micro and Small	0-25,000	6,250	85
Medium	25,000-100,000	25,000	80
Large I	100,000-600,000	150,000	70
Large II	600,000-1,000,000	250,000	60

Table 2: Commission for Fogape-Covid

Financing Date	Micro, Small and Medium Companies	Large Companies (I and II)
Until June 2020	0.1%	0.2%
From July 2020	0,2%	0,4%

Table 3: Commission for Fogape-Reactiva

Financing Period	Commission (%)
Between 1 and 35 months	0.6
Between 36 and 59 months	0.3
Between 60 and 84 months	0

Table 4: Classification and conditions of Fogape-Reactiva

Company size	Annual sales (UF)	Max loan (UF)	Guarantee (%)
Micro and Small	0-25.000	6.250	85
Medium	25.000-100.000	25.000	80

Table 5: Fogape-Covid Application Statuses

Financing Period	Commission (%)
1	Registered
2	In evaluation status
3	Approved, but not granted yet
4	Approved, but desisted by the applicant (withdrawal)
5	Granted
6	Rejected due to lack of information
7	Does not meet program requirements
8	Rejected by credit agency of the financial institution

Table 6: Descriptive Statistics

	Demand		Not demand	
	Credit granted	Credit rejected	Eligible	Non-eligible
Panel A: Micro and Small				
# Firms	33,907	3,524	70,622	454
Average debt	UF $1,988	UF $2,791	UF $4,325	UF $2,651
Delinquency (%)	1.17	6.49	2.79	42.51
Fogape-Reactiva (%)	29.09	13.08	4.43	1.76
Another loans (%)	27.37	22.55	7.72	17.40
Panel B: Medium and Large				
# Firms	5,557	478	10,629	120
Average debt	UF $25,290	UF $46,498	UF $62,055	UF $27,069
Delinquency (%)	1.22	6.90	2.02	24.16
Fogape-Reactiva (%)	25.94	11.29	7.56	1.66
Another loans (%)	39.51	38.28	27.95	36.66

Notes: The table shows descriptive statistics for the four types of firms we observed. Column (1) represents firms that demanded for Fogape-Covid and were granted the loan. Column (2) is for companies that demanded for Fogape-Covid but were rejected. Column (3) refers to enterprises that did not apply for the credit but were eligible based on their sales characteristics and delinquency. Column (4) is for firms that did not demand the credit but were non-eligible based on their characteristics. Panel A covers Micro and Small sized firms whose annual net sales do not exceed 25,000 UF. Panel B is for Medium and Large firms whose annual net sales range between 25,000 and 1,000,000 UF. Average debt is reported in UF, using the monthly average of the UF for August 2020, which was approximately 28,668 CLP. Delinquency (%) represents the percentage of firms that fail in delinquency for each group. We defined delinquency as a company defaulting on a loan for over 90 days. Fogape-Reactiva (%) indicates the percentage of companies in each group that received the Fogape-Reactiva loan. Another loans (%) indicates the percentage of companies in each group that received another type of funding during the period.

Table 7: Effect of the Fogape-Covid inside the demand

	(1)	(2)	(3)	(4)	(5)
	2020	2021		2022	
	dec	jun	dec	jun	dec
Fogape Covid	-1.366***	-1.404***	-1.372***	-1.060***	-0.815***
	(0.065)	(0.052)	(0.050)	(0.042)	(0.038)
Credit Risk	0.361***	0.393***	0.354***	0.342***	0.435***
	(0.075)	(0.064)	(0.066)	(0.058)	(0.048)
Debt Dec-2019	0.049***	0.024**	0.009	0.018*	-0.003
	(0.015)	(0.012)	(0.010)	(0.009)	(0.007)
Another loan	0.042	0.197***	0.250***	0.197***	0.208***
	(0.069)	(0.052)	(0.049)	(0.038)	(0.029)
Fogape Reactiva		-0.555***	-0.668***	-0.317***	-0.074**
		(0.116)	(0.097)	(0.050)	(0.032)
Constant	-2.642***	-1.962***	-1.669***	-1.760***	-1.329***
	(0.302)	(0.248)	(0.223)	(0.181)	(0.141)
Observations	37,185	36,976	36,780	36,082	35,274
Sales FE	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes
Date request FE	Yes	Yes	Yes	Yes	Yes
Pseudo-R2	0.253	0.268	0.259	0.143	0.0746
Mean	0.00773	0.0133	0.0145	0.0204	0.0351
Marginal	-0.0182	-0.0291	-0.0306	-0.0387	-0.0532
Error	0.00127	0.00152	0.00156	0.00191	0.00270

Notes: Results for $Delinq_{i,t} = \alpha + \beta FogCovid_i^{k=1} + \rho FogReact_{it} + \theta CreditRisk_i + \delta Debt_i + \zeta AnotherLoan_{i,t} + \gamma X_i' + \epsilon_{i,t}$. $Delinq_{i,t}$ is a binary variable that takes the value 1 if firm i defaulted on a loan for more than 90 days in period t, and 0 otherwise. $FogCovid_i^{k=1} = 1$ is a dummy variable that equals 1 if the company received the credit and 0 if the firm applied for the loan but was rejected by the financial institution based on their credit policy. $CreditRisk_i$ is a binary variable that takes the value 1 if the firm had at least one month during 2019 with more than 30 days of default and 0 otherwise. $Debt_i$ denotes $ln(Debt)_i$ of the company i at December 2019. $AnotherLoan_{i,t}$ is a dummy variable that equals 1 if the company received another credit by period t, and 0 if not. $FogReact_{i,t}$ is a dichotomous variable that equals 1 if company i was granted Fogape-Reactiva loan by period t, and 0 if not. The set X_i' are firm-level controls such as the Fogape-Covid requested date, sales level, and economic sector of the firms. Each column represents a different period t. Robust standard errors in parenthesis. Significance codes: ***: 0.01, **: 0.05, *: 0.1.

Table 8: Effect of the Fogape-Covid inside the demand by firm sizes

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Micro and Small					Medium and Large				
	2020	2021		2022		2020	2021		2022	
	dec	jun	dec	jun	dec	dec	jun	dec	jun	dec
Fogape Covid	-1.347***	-1.406***	-1.362***	-1.035***	-0.806***	-1.607***	-1.432***	-1.465***	-1.242***	-0.869***
	(0.068)	(0.056)	(0.054)	(0.046)	(0.041)	(0.213)	(0.151)	(0.141)	(0.112)	(0.104)
Default 2019 Dec	0.356***	0.390***	0.340***	0.368***	0.469***	0.443**	0.445***	0.440***	0.195	0.238*
	(0.081)	(0.070)	(0.073)	(0.062)	(0.051)	(0.198)	(0.168)	(0.156)	(0.141)	(0.127)
Debt 2019 Dec	0.047***	0.019	0.003	0.016*	-0.003	0.065*	0.066**	0.055**	0.038	-0.002
	(0.016)	(0.013)	(0.011)	(0.010)	(0.007)	(0.035)	(0.033)	(0.027)	(0.026)	(0.018)
Another loan	0.077	0.230***	0.292***	0.224***	0.216***	-0.283	-0.061	-0.079	-0.024	0.152*
	(0.072)	(0.056)	(0.052)	(0.040)	(0.030)	(0.184)	(0.148)	(0.135)	(0.112)	(0.082)
Fogape Reactiva		-0.511***	-0.661***	-0.317***	-0.079**			-0.774**	-0.338*	-0.032
		(0.117)	(0.100)	(0.052)	(0.034)			(0.382)	(0.173)	(0.094)
Constant	-2.741***	-1.924***	-1.636***	-1.875***	-1.407***	-2.758***	-2.773***	-2.470***	-1.808***	-1.273***
	(0.340)	(0.266)	(0.240)	(0.196)	(0.156)	(0.720)	(0.741)	(0.623)	(0.545)	(0.372)
Observations	31,519	31,324	31,144	30,504	29,745	5,666	4,563	5,636	5,578	5,529
Sales FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Date request FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo-R2	0.245	0.263	0.253	0.137	0.0743	0.337	0.299	0.318	0.190	0.0683
Mean	0.00837	0.0140	0.0150	0.0219	0.0373	0.00464	0.0104	0.0103	0.0125	0.0235
Marginal	-0.0191	-0.0303	-0.0314	-0.0398	-0.0550	-0.0135	-0.0276	-0.0257	-0.0313	-0.0418
Error	0.00142	0.00169	0.00173	0.00213	0.00302	0.00280	0.00412	0.00354	0.00411	0.00571

Notes: Results for $Delinq_{i,t} = \alpha + \beta FogCovid_i^{k=1} + \rho FogReact_{it} + \theta CreditRisk_i + \delta Debt_i + \zeta AnotherLoan_{i,t} + \gamma X_i' + \epsilon_{i,t}$, separating the firms into two groups based on their size: i)Micro and Small firms, whose annual net sales do not exceed 25,000 UF, and ii) Medium and Large firms, whose annual net sales range between 25,000 and 1,000,000 UF. $Delinq_{i,t}$ is a binary variable that takes the value 1 if firm i had defaulted a loan for more than 90 days in period t, and 0 otherwise. $FogCovid_i^{k=1}$ is a dummy variable that is 1 if the company received the credit and 0 if the firm applied for the loan but was rejected by the financial institution based on their credit policy. $CreditRisk_i$ is a binary variable that takes the value 1 if the firm had at least one month during 2019 with more than 30 days of default and 0 otherwise. $Debt_i$ denotes the $ln(Debt)_i$ of the company i at December 2019. $AnotherLoan_{i,t}$ is a dummy variable that equals 1 if the company received another credit by period t, and 0 if not. $FogReact_{i,t}$ is a dichotomous variable that equals 1 if company i was granted Fogape-Reactiva loan by period t, and 0 if not. The set X_i' are firm-level controls such as the Fogape-Covid requested date, sales level, and economic sector of the firms. Each column represents a different period t. Robust standard errors in parenthesis. Significance codes: ***: 0.01, **: 0.05, *: 0.1.

Table 9: Effect of the Fogape-Covid outside the demand

	(1)	(2)	(3)	(4)	(5)
	2020	2021		2022	
	dec	jun	dec	jun	dec
Fogape Covid	-1.137***	-1.055***	-1.021***	-0.647***	-0.397***
	(0.044)	(0.035)	(0.033)	(0.024)	(0.019)
Default 2019 Dec	0.604***	0.608***	0.615***	0.614***	0.632***
	(0.030)	(0.028)	(0.028)	(0.028)	(0.026)
Debt 2019 Dec	-0.046***	-0.054***	-0.061***	-0.042***	-0.039***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Another loan	-0.047	0.126***	0.128***	0.175***	0.179***
	(0.037)	(0.028)	(0.027)	(0.023)	(0.019)
Fogape Reactiva		-0.991***	-1.084***	-0.540***	-0.194***
		(0.110)	(0.088)	(0.041)	(0.026)
Constant	-1.241***	-0.971***	-0.811***	-1.139***	-1.091***
	(0.070)	(0.067)	(0.066)	(0.066)	(0.061)
Observations	80,882	78,229	76,917	74,624	73,321
Sales FE	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes
Date request FE	Yes	Yes	Yes	Yes	Yes
Pseudo-R2	0.137	0.150	0.162	0.105	0.0621
Mean	0.0339	0.0483	0.0558	0.0498	0.0586
Marginal	-0.0527	-0.0629	-0.0653	-0.0432	-0.0344
Error	0.00223	0.00224	0.00222	0.00167	0.00166

Notes: Results for $Delinq_{i,t} = \alpha + \beta FogCovid_i^{k=2} + \rho FogReact_{it} + \theta CreditRisk_i + \delta Debt_i + \zeta AnotherLoan_{i,t} + \gamma X_i' + \epsilon_{i,t}$. $Delinq_{i,t}$ is a binary variable that takes the value 1 if firm i had defaulted a loan for more than 90 days in period t, and 0 otherwise. $FogCovid_i^{k=2}$ is a dummy variable that is 1 if the company received the credit and 0 if the firm did not demand the loan despite being eligible based on its delinquency characteristics and sales size. $CreditRisk_i$ is a binary variable that takes the value 1 if the firm had at least one month during 2019 with more than 30 days of default and 0 otherwise. $Debt_i$ denotes the $ln(Debt)_i$ of the company i at December 2019. $AnotherLoan_{i,t}$ is a dummy variable that equals 1 if the company received another credit by period t, and 0 if not. $FogReact_{i,t}$ is a dichotomous variable that equals 1 if company i was granted Fogape-Reactiva loan by period t, and 0 if not. The set X_i' are firm-level controls such as the Fogape-Covid requested date, sales level, and economic sector of the firms. Each column represents a different period t. Robust standard errors in parenthesis. Significance codes: ***: 0.01, **: 0.05, *: 0.1.

Table 10: Effect of the Fogape-Covid outside the demand by firm sizes

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Micro and Small					Medium and Large				
	2020	2021		2022		2020	2021		2022	
	dec	jun	dec	jun	dec	dec	jun	dec	jun	dec
Fogape Covid	-1.151***	-1.085***	-1.055***	-0.669***	-0.423***	-0.967***	-0.709***	-0.648***	-0.455***	-0.180***
	(0.045)	(0.037)	(0.034)	(0.025)	(0.020)	(0.180)	(0.113)	(0.105)	(0.076)	(0.055)
Default 2019 Dec	0.583***	0.593***	0.599***	0.608***	0.634***	0.840***	0.742***	0.756***	0.650***	0.607***
	(0.031)	(0.030)	(0.030)	(0.030)	(0.028)	(0.101)	(0.088)	(0.087)	(0.080)	(0.073)
Debt 2019 Dec	-0.045***	-0.054***	-0.061***	-0.041***	-0.039***	-0.058***	-0.053***	-0.057***	-0.047***	-0.042***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.013)	(0.011)	(0.012)	(0.010)	(0.009)
Another loan	-0.024	0.131***	0.146***	0.192***	0.179***	-0.195*	0.112	0.020	0.080	0.202***
	(0.039)	(0.030)	(0.028)	(0.025)	(0.021)	(0.118)	(0.080)	(0.081)	(0.069)	(0.056)
Fogape Reactiva		-0.964***	-1.093***	-0.556***	-0.215***			-0.981***	-0.394***	-0.031
		(0.112)	(0.092)	(0.044)	(0.028)			(0.318)	(0.118)	(0.071)
Constant	-1.265***	-0.984***	-0.817***	-1.188***	-1.119***	-1.408***	-1.349***	-1.286***	-1.279***	-1.362***
	(0.074)	(0.071)	(0.070)	(0.071)	(0.066)	(0.268)	(0.247)	(0.241)	(0.207)	(0.181)
Observations	67,749	65,319	64,029	61,942	60,734	13,133	11,268	12,888	12,682	12,587
Sales FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Date request FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo-R2	0.125	0.141	0.153	0.0992	0.0572	0.148	0.102	0.123	0.0747	0.0381
Mean	0.0358	0.0512	0.0591	0.0529	0.0627	0.0166	0.0231	0.0247	0.0254	0.0286
Marginal	-0.0601	-0.0721	-0.0755	-0.0492	-0.0399	-0.0154	-0.0199	-0.0167	-0.0152	-0.00873
Error	0.00258	0.00260	0.00259	0.00193	0.00192	0.00314	0.00342	0.00287	0.00266	0.00271

Notes: Results for $Delinq_{i,t} = \alpha + \beta FogCovid_i^{k=2} + \rho FogReact_{it} + \theta CreditRisk_i + \delta Debt_i + \zeta AnotherLoan_{i,t} + \gamma X_i' + \epsilon_{i,t}$, separating the firms in two groups based on their size: i)Micro and Small firms, whose annual net sales do not exceed 25,000 UF, and ii) Medium and Large firms, whose annual net sales range between 25,000 and 1,000,000 UF. $Delinq_{i,t}$ is a binary variable that takes the value 1 if firm i had defaulted a loan for more than 90 days in period t, and 0 otherwise. $FogCovid_i^{k=2}$ is a dummy variable that is 1 if the company received the credit and 0 if the firm did not demand the loan despite being eligible based on its delinquency characteristics and sales size. $CreditRisk_i$ is a binary variable that takes the value 1 if the firm had at least one month during 2019 with more than 30 days of default and 0 otherwise. $Debt_i$ denotes the $ln(Debt)_i$ of the company i at December 2019. $AnotherLoan_{i,t}$ is a dummy variable that equals 1 if the company received another credit by period t, and 0 if not. $FogReact_{i,t}$ is a dichotomous variable that equals 1 if company i was granted Fogape-Reactiva loan by period t, and 0 if not. The set X_i' are firm-level controls such as the Fogape-Covid requested date, sales level, and economic sector of the firms. Each column represents a different period t. Robust standard errors in parenthesis. Significance codes: ***: 0.01, **: 0.05, *: 0.1.

Table 11: Effect of the Fogape-Covid to face a deterioration in the Internal Risk Classification (IRC)

	2020dec				2022dec			
	P(1)	P(2)	P(3)	P(4)	P(1)	P(2)	P(3)	P(4)
Fogape Covid	-0.238**	-0.548***	-0.639***	-0.798***	-0.153*	-0.440***	-0.579***	-0.651***
	(0.094)	(0.131)	(0.176)	(0.227)	(0.091)	(0.101)	(0.115)	(0.127)
Constant	-3.357***	-3.246***	-4.766***	-4.385***	-2.155***	-3.029***	-2.859***	-2.319***
	(0.403)	(0.783)	(0.861)	(0.956)	(0.323)	(0.369)	(0.438)	(0.491)
Observations	3,526	3,526	3,526	3,526	2,912	2,912	2,912	2,912
Risk FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Debt FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sales FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Date request FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo-R2	0.0364	0.0653	0.107	0.176	0.0302	0.0392	0.0422	0.0494
Mean	0.0596	0.0155	0.00404	0.00252	0.231	0.0668	0.0365	0.0268
Marginal	-0.0439	-0.0299	-0.0127	-0.00858	-0.0544	-0.0877	-0.0646	-0.0477
Error	0.0174	0.00751	0.00400	0.00307	0.0323	0.0200	0.0129	0.00975

Notes: Results for $P(X)_{i,t} = \alpha + \beta FogCovid_i^{k=1} + \rho FogReact_{it} + \theta CreditRisk_i + \delta Debt_i + \zeta AnotherLoan_{i,t} + \gamma X_i' + \epsilon_{i,t}$ P(x) is a dummy variable that takes the value 1 if the firms have experienced a deterioration that exceeds a specific threshold (x) in tranches in the IRC and 0 otherwise. In columns (1) to (4), we examine the IRC from August 2020 to December 2020. In columns (5) to (8), we examine the IRC from August 2020 to December 2022. Robust standard errors in parenthesis. Significance codes: ***: 0.01, **: 0.05, *: 0.1.

Table 12: Effect of the Fogape-Covid inside the demand

	(1)	(2)	(3)	(4)	(5)
	2020	2021		2022	
	dec	jun	dec	jun	dec
Fogape Covid	-1.314***	-1.384***	-1.341***	-1.021***	-0.780***
	(0.059)	(0.047)	(0.046)	(0.038)	(0.034)
Default 2018/2019	0.332***	0.381***	0.309***	0.246***	0.324***
	(0.063)	(0.055)	(0.055)	(0.048)	(0.039)
Ln(Debt)	0.045***	0.024**	0.011	0.011	-0.012**
	(0.014)	(0.011)	(0.010)	(0.008)	(0.006)
Another loan	0.084	0.208***	0.272***	0.209***	0.214***
	(0.064)	(0.050)	(0.046)	(0.034)	(0.026)
Fogape Reactiva		-0.576***	-0.687***	-0.278***	-0.045
		(0.109)	(0.090)	(0.043)	(0.028)
Constant	-2.486***	-1.956***	-1.706***	-1.671***	-1.200***
	(0.275)	(0.220)	(0.197)	(0.160)	(0.122)
Observations	42,958	42,824	42,689	42,404	41,962
Sales FE	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes
Date request FE	Yes	Yes	Yes	Yes	Yes
Pseudo-R2	0.236	0.263	0.252	0.128	0.0639
Mean	0.00734	0.0127	0.0137	0.0201	0.0363
Marginal	-0.0182	-0.0294	-0.0308	-0.0393	-0.0544
Error	0.00119	0.00142	0.00145	0.00178	0.00252

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Notes: Results for $Delinq_{i,t} = \alpha + \beta FogCovid_i^{k=1} + \rho FogReact_{it} + \theta CreditRisk_i + \delta Debt_i + \zeta AnotherLoan_{i,t} + \gamma X_i' + \epsilon_{i,t}$. $Delinq_{i,t}$ is a binary variable that takes the value 1 if firm i defaulted on a loan for more than 90 days in period t, and 0 otherwise. $FogCovid_i^{k=1} = 1$ is a dummy variable that equals 1 if the company received the credit and 0 if the firm applied for the loan but was rejected by the financial institution based on their credit policy. $CreditRisk_i$ is a binary variable that takes the value 1 if the firm had at least one month during 2018 or 2019 with more than 30 days of default and 0 otherwise. $Debt_i$ denotes $ln(Debt)_i$ of the company i at December 2019. $AnotherLoan_{i,t}$ is a dummy variable that equals 1 if the company received another credit by period t, and 0 if not. $FogReact_{i,t}$ is a dichotomous variable that equals 1 if company i was granted Fogape-Reactiva loan by period t, and 0 if not. The set X_i' are firm-level controls such as the Fogape-Covid requested date, sales level, and economic sector of the firms. Each column represents a different period t. Robust standard errors in parenthesis. Significance codes: ***: 0.01, **: 0.05, *: 0.1.

Table 13: Effect of the Fogape-Covid outside the demand

	(1)	(2)	(3)	(4)	(5)
	2020	2021		2022	
	dec	jun	dec	jun	dec
Fogape Covid	-0.952***	-0.876***	-0.827***	-0.460***	-0.213***
	(0.041)	(0.033)	(0.031)	(0.023)	(0.018)
Default 2018/2019	0.656***	0.697***	0.701***	0.648***	0.645***
	(0.025)	(0.023)	(0.023)	(0.023)	(0.022)
Ln(Debt)	-0.021***	-0.024***	-0.031***	-0.016***	-0.018***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Another loan	0.071*	0.244***	0.258***	0.279***	0.264***
	(0.037)	(0.029)	(0.027)	(0.023)	(0.019)
Fogape Reactiva		-0.801***	-0.900***	-0.397***	-0.093***
		(0.096)	(0.079)	(0.037)	(0.024)
Constant	-1.862***	-1.746***	-1.587***	-1.836***	-1.699***
	(0.073)	(0.067)	(0.066)	(0.067)	(0.061)
Observations	109,697	106,937	104,584	101,805	99,480
Sales FE	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes
Date request FE	Yes	Yes	Yes	Yes	Yes
Pseudo-R2	0.108	0.119	0.124	0.0770	0.0471
Mean	0.0212	0.0295	0.0337	0.0317	0.0409
Marginal	-0.0353	-0.0419	-0.0431	-0.0251	-0.0155
Error	0.00164	0.00170	0.00170	0.00127	0.00131

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Notes: Results for $Delinq_{i,t} = \alpha + \beta FogCovid_i^{k=2} + \rho FogReact_{it} + \theta CreditRisk_i + \delta Debt_i + \zeta AnotherLoan_{i,t} + \gamma X_i' + \epsilon_{i,t}$. $Delinq_{i,t}$ is a binary variable that takes the value 1 if firm i had defaulted a loan for more than 90 days in period t, and 0 otherwise. $FogCovid_i^{k=2}$ is a dummy variable that is 1 if the company received the credit and 0 if the firm did not demand the loan despite being eligible based on its delinquency characteristics and sales size. $CreditRisk_i$ is a binary variable that takes the value 1 if the firm had at least one month during 2018 or 2019 with more than 30 days of default and 0 otherwise. $Debt_i$ denotes the $ln(Debt)_i$ of the company i at December 2019. $AnotherLoan_{i,t}$ is a dummy variable that equals 1 if the company received another credit by period t, and 0 if not. $FogReact_{i,t}$ is a dichotomous variable that equals 1 if company i was granted Fogape-Reactiva loan by period t, and 0 if not. The set X_i' are firm-level controls such as the Fogape-Covid requested date, sales level, and economic sector of the firms. Each column represents a different period t. Robust standard errors in parenthesis. Significance codes: ***: 0.01, **: 0.05, *: 0.1.

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