Personal Relations in Loan Renegotiation: Evidence from Corporate Loans

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Abstract

This paper presents evidence that personal relationships between corporate borrowers and bank loan officers improve the outcomes of loan renegotiation. Exploiting a bank reorganization in Greece in the mid-2010s, I find that firms that experience an exogenous interruption in their loan officer relationship confront three consequences: one, the firms are less likely to renegotiate their loans; two, conditional on renegotiation, the firms are given tougher loan terms; and three, the firms are more likely to default on the renegotiated loans. These results point to the importance of personal relationships in mitigating the cost of distress for both borrowers and lenders in loan renegotiations.

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1 Introduction

Are personal relationships with bank loan officers consequential for corporate borrowers? Could stronger relationships help a firm secure better loan terms in a renegotiation? Is this advantage reciprocal: can the bank benefit from closer relationships with its corporate clients? Most corporate credit is mediated by a personal relationship between a firm and a loan officer, as this connection helps to mitigate agency problems. Financial intermediation theory suggests that relationships can be beneficial because they reduce information asymmetries and alleviate moral hazard (through monitoring, screening, repeated interaction etc.).[1] At the same time, strong relationships between borrowers and lenders may give rise to other problems, e.g., soft-budget-constraint problems, hold-up problems, or nepotistic behavior.[2] Whether the benefits of these relationships offset the costs is a challenging empirical question.

In this paper, I study the impact of personal relationships between loan officers and firms on loan renegotiations and I investigate whether personal relationships have significant effects on both the probability of successful renegotiation and on the terms of the renewed loans. A renegotiation can be initiated by either the creditor or the borrower prior to or coincident with default on a loan. Classic contract theory suggests that in unanticipated states of the world, renegotiation is Pareto improving.[3] Especially when financial distress results from a macroeconomic shock, it is probable that both the bank and the borrower will benefit from a successful renegotiation. Renegotiation relaxes inefficient constraints on the borrowers as well as the bank and can increase expected loan repayments.

There are two main challenges for accurately estimating the impact of personal relationships on loan renegotiation. The first is the difficulty of quantifying the value of a personal relationship. No direct measure of relationship intensity exists. The length of a given relationship may seem like a straightforward measure, but the endogeneity of the decision to sever an existing relationship will complicate the interpretation of the time span measure. The endogeneity factor creates the second challenge. A bank's decision to break an existing relationship may reflect its perception of the declining creditworthiness of the borrower. Under some circumstances a successful firm may seek to broaden its access to external finance by weakening its relationship with the particular bank. Such decisions are endogenous and would bias any results estimated

[1] Classic references: Leland and Pyle (1977) Diamond (1984) Ramakrishnan and Thakor (1984) Fama (1985) Allen (1990)

[2] Boot (2000);Bolton and Scharfstein (1996), Dewatripont and Maskin (1995);Sharpe (1990), Rajan (1992)

[3] Hart and Moore (1988), Rajan (1992), Aghion, Dewatripont, and Rey (1994), Bolton and Scharfstein (1996), Hart and Moore (1998), Maskin and Moore (1999), Gorton and Kahn (2000), Garleanu and Zwiebel (2008)

by treating relationships as exogenous in a simple OLS framework.

To overcome these challenges, I use a 2013 bank reorganization in Greece. This experiment provides exogenous variation in the length of the relationships between loan officers and firms. Moreover, detailed confidential data on corporate loans allow me to quantify accurately the effect of interrupted personal relationships, by controlling for region, bank unit, and firm-specific effects. My central finding is that personal relationships between loan officers and firms have a significant positive impact on loan renegotiation. Firms with interrupted relationships are less likely to renegotiate a loan compared to firms experiencing continuous relationships. In addition, firms with interrupted relationships receive tougher loan terms and default more frequently on the loans that are renegotiated.

The empirical setting is based on the consolidation of a major commercial bank in Greece with business activity throughout the country. Bank network consolidation is a common response of banks to financial distress, as consolidation reduces operating costs and centralizes lending decisions.[4] During consolidation, some bank units are closed and the loan accounts from those units are merged with accounts in other surviving units. A bank unit closure interrupts personal relationships between loan officers and firms because merged accounts obtain new loan officers. Thus, after consolidation, two types of firms are identified: one, those whose loans were transferred to another unit and whose personal relationships were consequently discontinued, and two, those that remained at the same unit for the entire period.

The criterion for bank units' consolidation was geographic location. My identifying assumption is that the decision to close a bank unit is orthogonal to firms' characteristics. I find support for that assumption in the data by testing for differences in observable characteristics. First, I compare the loan terms and performance, and firm financial variables of borrowers in closed and open units in the pre-unit closure period and I find no statistically significant differences. Second, I provide out-of-sample evidence that the identifying assumption holds by using the Amadeus Bureau van Dijk dataset to test for differences based on the zip codes of bank units.

I apply a difference-in-difference methodology to estimate the effect of relationship interruption. I define as *treated* the firms with exogenously discontinued personal relationships and as *control* those with continuing relationships. Hard information passed from one loan officer to another because the transfer happened

[4]Several banks in Italy, Spain, Portugal have consolidated their network during the recent crisis as well as banks in the United States.

within the same bank. Observed differences between the two groups in the post-consolidation period should be driven by the consequences of interrupted personal relationships.

I find strong evidence for the significant effect of personal relationships on loan renegotiations at both extensive and intensive margins. Firms with interrupted relationships have a 26% lower probability of renegotiating at least one of their old loans upon their transfer to another unit, compared to firms that remained at the same unit. The unconditional probability of renegotiating a loan is 59% and the estimated effect corresponds to a 15% lower probability of renegotiation. Moreover, conditional on renegotiating a loan, affected firms received tougher loan terms on their renegotiated loans. The affected loan terms for firms whose accounts were transferred to another unit include higher interest rates, approximately 50% shorter maturities, and requirements that these firms pledge 70% more collateral per loan amount compared to firms that remained with their original bank unit for the entire period. The economic magnitudes of the impact on loan maturity and collateral are significant as they correspond, on average, to approximately a year's shorter maturity and an additional €0.88 of collateral for each euro of loan amount.

Moreover, contingent on successful renegotiation in the post-unit-closure period, I identify a positive effect of continuing personal relationships on the delinquency of renegotiated loans. Greek banks, like most of the banks operating in countries hit by the 2010 European debt crisis and the preceding financial crisis, faced a significant increase in their nonperforming loan (NPL) ratios. In contrast to firms with continuous relationships, those whose relationships were interrupted are found to delay payments on their renegotiated loans by additional days, and their renegotiated loans have a 15.4% higher probability of becoming nonperforming. In response to the worse average performance of the interrupted-relationship loans, the bank increases the level of loan-loss provisions, and we observe an approximately 70% increase, which corresponds to additional €0.10 of loan-loss provisions for each euro of loan balance.

I also observe that firms alter their capital structure after their relationship with the bank is interrupted. The change in capital structure indicates that firms cannot substitute lending from other banks without cost when the relationship with one bank is exogenously interrupted. In particular, we observe that, when the relationship with the bank is interrupted, firms raise more equity and decrease their leverage. Firms only partially substitute loans from other banks to make up for the borrowing reduction from the bank whose relationship was severed, resulting in lower total debt. This change in a firm's sources of financing is likely to have important implications for the firm's business model and investment decisions.

A possible selection bias on renegotiation could change the interpretation of the results for loan term and performance differences between interrupted- and continuing-relationship loans. If the loan officer chooses to renegotiate with firms based on their performance, the intensive margin results will be biased. To address the concern of potential selection bias on renegotiation, I conduct two tests. First, I compare the pre-unit-closure period characteristics of the treated and control firms that renegotiated a loan in the post-unit-closure period and I find no statistically significant difference in pre-period measures of firm performance. Second, I consider all the hard information available to both the loan officer and the econometrician to identify the variables that can trigger a renegotiation. This test demonstrates that the loan officer who remained at the same unit for the entire period chose to renegotiate with treated firms with higher profitability prospects. Loan officer behavior, therefore, biases estimated coefficients towards zero, implying that my intensive margin results are conservative.

To further investigate the explanatory mechanism for the value of a relationship between a loan officer and a firm, I examine closer and more distant relationships separately. In most cases, a closer relationship entails fewer outside financing options, and when this closer relationship is interrupted, the expected effect is a significant informational loss. In contrast, firms with more distant relationships and, hence, greater outside financing options are expected to have stronger bargaining power. To test for the value of a stronger relationship, I construct three different measures of relationship strength. The results from this analysis confirm the value of personal relationships, as a firm with a stronger previous loan-officer relationship displays a significant negative effect on its renegotiated loan terms when this relationship ends.

This paper's main conclusion is that personal relationships mitigate the cost of distress for both the firm and the bank in a loan renegotiation. The firm is worse off following the interruption of its loan officer relationship, as it is less able to renegotiate, and the firm also receives tougher loan terms on renegotiated loans. The bank experiences higher default ratios and makes higher loan-loss provisions for the renegotiated loans of interrupted relationship firms.

In the next section, I describe the paper's contributions to the literature. In section 3, I provide an overview of the institutional background and the dataset structure. In section 4, I present the empirical specification and a detailed comparison of the treated and control groups. The regression results are presented in section 5. In section 6, I conclude.

2 Related Literature

This paper contributes to the literature by being the first to combine two classic research streams—relationship banking and contract renegotiation—and by estimating the consequences of personal relationships between loan officers and firms for loan renegotiations.

The broader literature to which this study contributes addresses the role of relationships in credit markets. A rich theoretical literature on bank debt highlights the importance of informational asymmetry and moral hazard for financial intermediation.[5] Several empirical papers have examined the relationship between banks and borrowers for evidence to determine whether asymmetric information affects lending. Petersen and Rajan (1994) and Berger and Udell (1995) used the repeated interaction between a borrower and a financial institution as a measure of relationship. Mian (2006), Agarwal and Hauswald (2010), Canales and Nanda (2012), and Bolton, Freixas, Gambacorta, and Mistrulli (2016) define relationship lending as a function of geographic distance. Ongena and Smith (2001) analyze the duration of a bank relationship with a firm. Sufi (2007) and Ivashina (2009) explore informational asymmetries in a lending syndicate. [6]

The empirical literature to which this paper is most closely related identifies the effects of personal relationships between bank employees and borrowers. These studies focus on how loan approvals or performance can be influenced by different factors such as cultural proximity (Fisman, Paravisini, and Vig, 2017), social connections (Haselmann, Schoenherr, and Vig, 2016), hierarchical and geographical distance (Liberti and Mian, 2009), or the loan officer being on leave (Drexler and Schoar, 2014). Several papers examine the effect on interest rates of strong interpersonal connections between a banker and a firm (Engelberg, Gao, and Parsons, 2012), or the effect of a strong relationship as measured by the number of interactions (Herpfer, 2017), or the effect of an interruption of a relationship caused by an executive's death or retirement (Karolyi, 2017). Lastly, Hertzberg, Liberti, and Paravisini (2010) and Cole, Kanz, and Klapper (2015) provide insights on the effects of bank-specific governance policies on the moral hazard behavior of a loan officer.

Within the field of literature on relationship banking, this paper is the first to demonstrate how exogenous interruptions in bank-borrower relationships affect loan renegotiation. One important difference between

[5] Jaffee and Russell (1976); Stiglitz and Weiss (1981); Myers and Majluf (1984); Diamond (1984); Ramakrishnan and Thakor (1984);Sharpe (1990);Diamond (1991); Besanko and Kanatas (1993); Rajan and Winton (1995);Bolton and Freixas (2000)

[6] Extensive surveys of this literature are provided by Ongenah and Smith (2000), Boot (2000), Srinivasan (2014), Kysucky and Norden (2015)

new and renegotiated loans is the bank's prior exposure to the risk of default on pre-existing loans, which gives the borrower a stronger negotiation position. The risk of a higher probability of default is magnified in a crisis period, such as in Greece in 2010-2015, when banks faced very high delinquency ratios that drove their overall risk assessment. In such periods, the value of a successful renegotiation surges. This paper not only shows the effect of relationships on the probability of renegotiation, but also on the attributes of the loans that are renegotiated. Further, whereas existing literature focuses on estimating relationship effects on lending either at the extensive margin or on the interest rate only, this paper examines the impact on the three main variables characterizing the loan structure (i.e., interest rate, maturity, and collateral) and on variables related to loan performance.

Given that the main focus of this paper is loan renegotiations, the analysis also contributes to the literature on contract renegotiation. Several influential papers have examined renegotiation in incomplete contracts as an out-of-equilibrium phenomenon.[7] Although the existing theory of contact renegotiation has evolved significantly, the empirical evidence on this topic is limited due to data restrictions. This paper investigates renegotiation independent of previous defaults on a loan payment, and for that reason is also related to the work of Roberts and Sufi (2009), who analyze in detail the factors triggering a renegotiation, and those determining its outcomes. Roberts (2015) is the closest to my paper, as he shows that a corporate loan renegotiation happens frequently, modifies significantly the initial loan terms, and is affected significantly by the duration of the lending relationship. Although similar conclusions to those found in these two papers arise in my analysis regarding the frequency and the outcomes of a renegotiation, my paper advances beyond these to estimate the effect of the relationship between a loan officer and a borrower on the probability of renegotiation and the nature of its outcomes.

A few empirical papers have considered other factors affecting loan renegotiation. The importance of the liquidation value of collateral (Benmelech and Bergman, 2008) and of the mortgage securitization (Piskorski, Seru, and Vig, 2010) on loan renegotiation are highlighted. James (1995) focuses on debt restructurings and shows that the financial condition of the firm determines the bank's incentives to make concessions. Lastly, Chodorow-Reich and Falato (2017) show the importance of the financial institution's health on contracting credit using covenant violations.

This paper also complements literature examining the impact of bank branch consolidation. In this area,

[7] Hart and Moore (1988), Rajan (1992), Aghion, Dewatripont, and Rey (1994), Von Thadden (1995), Bolton and Scharfstein (1996), Hart and Moore (1998), Maskin and Moore (1999), Gorton and Kahn (2000), Garleanu and Zwiebel (2008), Tirole (2010)

the most relevant paper is by Nguyen (2016), as she examines how branch closures in the United States affect local access to credit. Lastly, this paper is linked to the strain of European debt crisis literature that employing micro–level data to identify the impact on bank lending.[8]

3 Institutional Background & Data

3.1 Institutional Background

The identification setting and the data that I use in this paper come from a Greek bank and cover the period 2012–2015.[9] Several important facts characterize the economy and the banking sector of that period. From 2008 and until the end of 2016, the Greek GDP contracted by approximately 25%; unemployment rose to approximately 26% of the labor force, the highest level in the European Union; and investment declined by 75%. The collapse in investment was partially caused by a decreased access to credit. Access to finance was the most pressing concern for small- and medium-size enterprises (SMEs) operating in Greece, as 33% of SME owners consider this their most important problem.[10] This issue is critical given that SMEs account for more than 90% of private companies and 87% of total employment.

The Greek banking sector suffered during this period from a lack of access to international capital markets, deposit flight, and losses from the sovereign debt restructuring. Several banks were resolved and their deposits as well as a number of their loan portfolios were transferred to the four largest banks, thus causing a significant centralization of the sector. The four largest banks went through three large-scale recapitalizations (July 2013, May 2014, and December 2015) during this period. However, availability of long-term finance remained limited, and cost of credit was very high compared to EU standards. One of the main reasons for the limited credit supply was the deterioration of banking asset quality. In 2016, the nonperforming loans (NPLs) reached 45% of the loan portfolio, and provisions stood at 50% of total NPLs. In particular, in the corporate sector, about 60% of loans to small- and medium-size businesses were nonperforming. The rise of the NPLs ties up bank capital, thereby reducing profitability and increasing funding costs.

[8] Acharya, Eisert, Eufinger, and Hirsch (2016), Bentolila, Jansen, and Jiménez (2016), Cingano, Manaresi, and Sette (2016), Popov and Van Horen (2015), De Marco (2016)

[9] Gourinchas, Philippon, and Vayanos (2017) provide a detailed empirical and theoretical analysis of the Greek crisis.

[10] OECD, 2016 Financing SMEs Report

In this paper, I exploit a major internal reorganization that was implemented in one of Greece's largest banks, and led to the closure of bank units. It is important to clarify what a bank unit is and distinguish bank units from branch closures discussed in prior literature. In this case, a bank unit entails a center that manages corporate loans, and more centralized centers managing specific loan types. For the analysis that follows, a bank unit can be considered a type of branch, because, as in distinct branches, personal relationships develop between loan officers and the firm whose loans they manage.

The main goal of this internal reorganization was increased efficiency regarding NPL management. In response to the significant rise in the NPL ratio for corporate loans, the bank established specialized NPL workout units at the end of 2013. The new units were separate from the units responsible for loan origination and were responsible for monitoring, managing, or liquidating the nonperforming exposures. Approximately half of total loans to small- and medium-size corporations were transferred to these specialized NPL units.

This transfer of loans to the NPL units caused a significantly reduced workload for the original units assigned to manage corporate loans. Consequently, it became cost effective for the bank to consolidate the original units, by closing several and relocating the management of corporate loans to the closest unit that remained open. Originally there were 112 units that managed corporate loans, and after the mergers, there were 37. The bank intended to retain its network across the country, thereby ensuring clients would remain. For that reason, the main criterion for mergers was geographic location, and, further, mergers would only take place in areas already served by two or more units. The unit remaining open in a given area, would be the unit managing the largest volume of loans. An important feature of the consolidation was the relocation of the loan officers. Loan officers who had worked in units that closed were transferred to the newly established NPL units. Loan officers who worked in units that remained open continued to manage their old loans and became additionally responsible for the loans transferred from closed units. Because firms whose loans were transferred to the closest unit lost the relation with the loan officer who had managed their loans, the feature of unit mergers, provides a good setting for testing the effect of personal relationships on loan renegotiation.

3.2 Dataset structure

The main data used in this study come from one of the largest commercial banks in Greece. The dataset contains detailed annual information on corporate loans for approximately 8,000 small and medium nonretail enterprises (SME) covering four years (2012–2015). The construction of the sample is based on the ECB

supervision guidelines for the Asset Quality Review (AQR). Under these guidelines, an SME is defined as a corporation that has annual turnover up to € 50 million and employs fewer than 250 persons.

For several reasons, a restricted sample of nonretail SMEs is the most appropriate sample for the proposed analysis. First, it is necessary to exclude large corporations as they have access to other sources of financing, such as international banks and the stock market. Moreover, credit for large corporations is approved at a centralized, and higher level at the bank, and for that reason, personal relations with loan officers are expected to be irrelevant. Second, the retail sector is also excluded from the dataset, as a different department at the bank manages this sector, and further approvals were required to obtain that dataset. By focusing on nonretail SMEs, I gained access to credible firm financial information, since the majority of the firms in the sample have audited financial statements, which they are required to submit to the bank. Moreover, by excluding very small firms, we can expect sample firms to be unaffected by the narrow local economic environment. Firms in the sample operate either regionally or nationally and their performance is expected to be affected by the economic conditions at the region and industry level.

The dataset includes detailed information on the loan terms and performance as well as basic firm financial information. Each firm has multiple loans at this bank, and the loan types vary from the more secure, such as leasing, to the less secure, such as factoring, letters of credit, revolving credit, and corporate bond loans. Moreover, an indicator of the bank unit responsible for each loan is included, which allows for tracking transfers across units. Personal relationships develop between loan officers and firms at the bank unit and changes in the bank unit indicator reflect interruptions of such relations.

3.3 Descriptive Statistics

As I focus on the merger of the original bank units, I exclude the loans that were transferred to the specialized NPL workout units. For that reason, the sample included is not representative of the Greek economy during this period, but rather represent the set of firms that performed relatively well during the crisis.

The final sample consists of loans to 3,984 firms located across the 13 geographic regions of the country. Following the merger, a single bank unit managed on average 340 loans to 107 firms. The original dataset includes loan-level information, but the main unit of analysis in this paper is at the firm level. The reason for this aggregation is to avoid duplication within firms, which could bias the results. To aggregate the dataset

at the firm level, a simple summation is used for the exposure and the collateral value. For the interest rate, the maturity, and all performance-related variables, a weighted average is estimated, using as weights the ratio of the specific loan exposure over the total exposure of the firm.

Table 1 presents the summary statistics for the main variables in the pre-period (2012, 2013). A median firm in the sample has two loans with a total balance of approximately €536,000 and total collateral cover of €187,630. The average interest rate is 5.97%, and the average remaining maturity of the loans is approximately one and a half years (528.34 days). The median firm performs well, with no nonperforming exposures, and has not delayed a payment. Regarding the firm's financial information, the median firm was medium-size with approximately €6 million in total assets and €4.25 million in total debt. It has a positive EBITDA of approximately €270,000, and a high leverage equal to 0.69. The summary statistics confirm the fact that the sample is comprised of firms that performed relatively well during the crisis.

4 Empirical Methodology

4.1 Identification Strategy

The identification of relationship interruption is based on a bank's internal reorganization and the closure of bank units. I employ this exogenous variation, define appropriate treatment and control groups, and apply the difference-in-difference methodology to accurately estimate the effect of interrupted personal relationships between loan officers and firms on loan renegotiation.

The first step is to exclude loans were transferred to the specialized NPL units. The sample is thus constrained to relatively "good" firms. The next step is to identify the firms whose accounts were transferred to another unit because their original unit closed. By looking at the transfers across bank units, we observe a set of firms whose accounts were transferred to other bank units without their original unit closing. (This set of observations accounts for approximately 11% of the original sample.) It is necessary to exclude these firms from the analysis, due to the endogeneity of their transfer.

By using the closure of the original bank unit as the source of exogenous variation, I overcome the selection bias that may arise at the firm level. In particular, treated firms are defined as those whose loan accounts were transferred to another bank unit because their original unit closed. Control firms are defined

as those whose loan accounts remained at the same unit during the whole period of the sample. This specification of treatment and control groups ensures that the variation comes only from the bank unit level and not from the firm level. Loans transferred from one unit to another as a result of a cause other than unit closure are excluded from the sample.

The feature that allows me to identify an interruption in personal relationships between loan officers and firms is the relocation of loan officers. Loan officers who worked in units that closed were transferred to the new NPL units. Loan officers who worked in the units that remained open continued to manage their old loans and became responsible for the loans that were transferred from the closed units. For that reason, firms that remained at the same unit continued to interact with the same loan officers, while firms whose accounts were transferred had to establish a new relationship with a different loan officer.

The baseline specification is a difference-in-difference, which allows me to compare the difference on the outcome variables between the firms in the treated group and those in the control group in the post-unit closure period (2014, 2015) relative to the difference that the two groups had in the pre-unit closure period (2012, 2013). The baseline regression is:

$$y_{iurt} = \alpha_i + \alpha_u + \alpha_{rt} + \delta(Post_t * Treat_{iur}) + \varepsilon_{iurt} \tag{1}$$

where y_{iurt} stands for the outcome variable for firm i obtaining a loan from bank unit u and located in region r in year t. $Treat_{iur}$ is a dummy variable equal to one for treated firms and zero for control firms. $Post_t$ is a dummy variable equal to zero for the period before the bank units' closure (from 2012 to 2013) and one after the closures (from 2014 to 2015). The baseline specification includes firm fixed effects (α_i) to capture any time-invariant characteristics of the firm. Bank unit fixed effects (α_u) as well as region $*$ year fixed effects (α_{rt}) are included to capture any time-invariant characteristics of the bank unit (e.g., a specific bank unit may have a higher lending limit) and any region and time-varying shocks respectively. For the treated firms, the bank-unit fixed effect is based on the unit to which their loans were transferred. The coefficient of interest is δ, which measures the difference in the outcome variable for the firms that experienced an interruption in their personal relationship with the loan officers, relative to the firms that did not, controlling for the pre-period difference.

The outcome variables of interest belong to four groups: (i) the probability of renegotiating a loan (ex-

tensive margin); (ii) renegotiated loan terms (intensive margin); (iii) loan performance of the rnegotiated loans; and (iv), firm level effects. Regarding the loan terms of the renegotiated loans, I use as outcome variables the interest rate, the remaining maturity of the loan, and the collateral value relative to the loan balance. I also construct two additional variables to help capture the effect of collateral. The first is an unsecured loan dummy and the second is a type-of-collateral dummy. Regarding the effect on loan performance, I examine three different outcome variables: (i) the ratio of a loan's payment days past due over the number of remaining days; (ii) a nonperforming dummy variable; and (iii), the ratio of total provisions over total loan balance. To capture firm outcomes from an interrupted relationship, I examine the firm's total assets, total debt, total equity, the ratio of equity over assets, and the firm's leverage estimated by the ratio of total debt over total assets.

4.2 Comparison of treated and control groups in the pre-unit closure period

The most important threat to identification is a possible selection bias that arises from the decision to close a bank unit. It is necessary to assume that the bank did not close units where debtors performed, or were expected to perform, worse. The main criterion for unit closure is geographic location: in areas where there were two or more units, the bank kept only one, while in areas with only one unit, it was optimal for the bank to keep it open to serve the main priority of client retention.

A comparison between the two groups in the pre-unit-closure period (2012–2013) provides evidence that there are no statistically significant differences across the two groups. Table 2 presents this comparison and includes variables related to loan terms, performance, and firms' financials. Column 1 shows the mean value and the standard deviation for the control firms, Column 2 for the treated firms, and Column 3 shows the p-value for the difference, with regional fixed effects included. The only variable significantly different across the two groups is the ratio of loans transferred to the NPL units from the originals: this variable is higher for the bank units that remained open. This difference indicates that, to the extent that units were selected for closure based on loan performance, the bank units that closed had better performing loans. For that reason, if a selection bias exists on which units closed, it will bias the results downwards. The fact that we do not observe any statistically significant difference for the loan terms, performance, and firms' financial information supports the assumption that the two groups shared similar characteristics. The probability is therefore high that the two groups would have continued to look similar if the personal relationships with

loan officers had not been interrupted.

I report also parallel trend graphs in Figures 1 and 2, which show the results for the total balance. Figure 1a plots the mean values for the treated and the control groups, and Figure 1b plots the mean value of the residuals from a regression of total balance on region fixed effects. Figure 2 plots the regression coefficients and the confidence intervals from a regression of the log of total balance on region and bank unit fixed effects. Another important variable for which the parallel trends hypothesis should be tested is the nonperforming dummy, as higher default ratios could predict the bank unit closure. A similar analysis providing evidence against this hypothesis is conducted in Figures 3 and 4. These graphs support the hypothesis that no pre-trend difference regarding the loan amount or performance existed to predict bank unit closure.

4.3 Out-of-sample comparison of firms located in exposed and control geographic areas

In this section, I perform an out-of-sample comparison of firms located in geographic areas where a bank unit closed (exposed areas), and firms located in areas where a unit remained open (control areas). This test provides further evidence that the local economic conditions, and the firms operating in exposed and control areas, are similar. The data for this comparison come from the Amadeus Bureau van Dijk dataset and cover the same period of the experiment (2012–2015). The Amadeus dataset provides information on firms' balance sheets and income statements. In addition, I use the bank units' zip codes to identify exposed and control areas. I match the firms' zip code with the bank units' zip code, and construct a subsample of the Amadeus dataset appropriate for the out-of-sample comparison.

Table 3 presents the results comparing firms located in exposed and control areas for the same period of the experiment (2012–2015). The first column shows the mean value and the standard deviation of firms located in the zip code areas where a bank unit remained open, and the second column for firms located in areas where a unit closed. The third column shows the p-value of the difference. The two groups are similar across most of the variables. There is a small and significant in total assets and the number of employees between the two groups, which suggests that firms in control areas are larger. To account for this difference, I include the firm's total assets as a control variable in the baseline results in section 5.1.3. Moreover, in subsection 5.2.2, I restrict the sample to areas in which firms have similar characteristics to provide further evidence that local economic conditions do not explain differences between control and treated groups.

The main variables of interest in Table 3 are those related to firms' financial performance. Any difference in these variables would suggest that the economic conditions differ between exposed and control areas. No statistically significant differences in these variables are observable (EBIT, EBITDA, net income, sales, gross profit, etc.).

Lastly, to capture the potential differences associated with unobserved economic indicators, I use the firms' financial characteristics as dependent variables and apply the baseline regression 1 to examine whether there is an out-of-sample effect of a bank unit closure. Column 4 of Table 3 shows the estimated coefficients from the difference-in-difference regressions on firms' variables. No coefficient is statistically significant. The fact that there is no statistically significant difference across any specification for the observable characteristics of firms' financial characteristics supports the assumption that economic conditions in the exposed and control areas are similar.

5 Results

First, I report the baseline results on loan renegotiation. I examine the impact of personal relationships between loan officers and firms on the probability of renegotiating a loan and, conditional on renegotiating a loan, I estimate the impact on the loan terms and performance. Firm-level effects are included. Lastly, I examine how the strength of the relationship affects the results by using three different measures of relationship strength.

5.1 Baseline Results

5.1.1 Effect on Probability of Renegotiation

First, I analyze the extensive margin and the probability of renegotiating a loan after a firm's loans are transferred to another bank unit. I compare firms that experienced an exogenous interruption in the personal relationship with their loan officer with those that did not. The outcome variable of interest is the probability that a firm renegotiates at least one of its pre-existing loans. The data in this section are constructed at the firm level. More formally, the dependent variable is a dummy variable equal to one if the firm renegotiated at least one of its old loans and zero if the firm did not renegotiate any loan. Table 4 presents the results

with different specifications regarding fixed effects and control variables. It can be seen that firms whose relationship with a loan officer is interrupted have a 26% lower probability of renegotiating at least one of their pre-existing loans, compared to firms with uninterrupted relationships, when firm, bank unit, and region-year fixed effects are included.

A loan renegotiation can be initiated either by the bank or by the firm and does not require a delayed loan payment. A renegotiation is expected to be mutually advantageous, as otherwise one of the parties would not agree to the new terms. The firm benefits by renegotiating a loan, because one or more of the initial loan terms is relaxed. At the same time, the bank prevents a default or improves its covenants. Since renegotiation benefits the firms, firms with interrupted relationships receive worse treatment as the result of the transfer of their loans to another bank unit.

The results from four different specifications are presented in Table 4, and the results are robust. In all four specifications, bank unit fixed effects are included to capture any unit-level time-invariant variation, and the standard errors are clustered at the unit level. Even though bank lending policies in general are similar across units, a larger unit or a unit that is higher in the organizational hierarchy may have different limits on loan amounts and the terms it is allowed to approve.

Moreover, I control for the regional differences by adding region or region-year fixed effects. In the first column, region and year fixed effects are included, while in the second column region-year fixed effects are included. When constructing the region-year fixed effects, I define the region more broadly than strict geography to ensure that at least two bank units are open per region in the post-unit closure period and I combine only neighboring regions that have similar industry composition. No adjustment is done on regions that have two or more bank units in the post-period. The specification defined in Column 2 is the baseline specification of the paper.

To control for firm level differences, in Columns 1 and 2 firm fixed effects are included to capture any time-invariant characteristics of the firm such as size, industry, etc. In Columns 3 and 4, I add different types of firm-level time-varying control variables. In Column 3, as control variables, the firm's lagged log of EBITDA and the lagged log of total loans at this bank are included. In Column 4, the lagged log of total assets is included as a control variable to control for changes in the size of the firm. The results remain robust when we control for time-varying firm characteristics, and this confirms that variations at the firm level during the years of the experiment are not driving the estimated coefficients.

5.1.2 Effect on Possible Renegotiation Outcomes

After a renegotiation, both the loan terms and loan amount can be altered, depending on the firm's needs and the bank's constraints. A renegotiation can have one or more of the following outcomes: an increase in the loan amount (in particular, in the case of a credit line), a decrease in the interest rate, an extension of the loan maturity, and either an increase or a decrease in collateral value. An increase in collateral is in most cases necessary if the loan amount is increased, but can be a requirement under other renegotiation outcomes as well. A decrease in collateral is possible, as it may be optimal for the bank to free up part of the assets previously pledged as collateral to let the firm use them for new loans.

Table 5 shows the possible renegotiation outcomes and the unconditional probability for a firm receiving each of these. By renegotiating a loan, more than one of the loan terms can change, and for that reason, the unconditional probabilities do not sum to 100. The most common outcome is an increase in collateral pledged, as this often is a requirement for other changes, and the least common change is an extension in loan maturity.

I estimate the effect of an interruption in the personal relationship with a loan officer on the probability of receiving each of the possible outcomes. Table 6 presents these results using the baseline regression specification. Firms with interrupted relationships have a lower probability compared to the control firms to receive any renegotiation outcome, except for a decrease in the interest rate. In particular, they have approximately 20% lower probability of increasing the loan amount, of increasing the loan's collateral, and of decreasing the collateral. Treated firms have also approximately 5% lower probability of extending the loan's maturity.

5.1.3 Effect on Loan Terms Conditional on a Renegotiation

Tables 7–10 present the results for the newly agreed loan terms after renegotiating a loan under different specifications. Overall, we observe that firms with interrupted loan officer relationships receive worse terms. Specifically, they receive 1% higher interest rates, 50% shorter maturities, and they have to pledge a 70% higher value of collateral relative to the total loan balance. Even though the estimated effect on the interest rate is statistically significant, the economic magnitude is small. In contrast, the estimated effects on maturity and collateral are both statistically and economically significant. This difference may be related to the fact

that a range for the interest rate is generated by an automated program, while the maturity and the collateral are determined by the negotiation with the loan officer.

Interest Rate: Table 7 presents the results on the log of the interest rate for different empirical specifications. From the baseline regression, we observe that firms with interrupted loan officer relationships receive a 1% higher interest rate on renegotiated loans, compared to firms that remained at the same bank unit. The economic magnitude of this difference is small as it corresponds to only 0.07 basis points (likely due to the automated program-generated interest rate).

Maturity: Firms whose relationships with their loan officers are interrupted appear to receive significantly shorter maturities on their renegotiated loans. Table 8 includes the results for the remaining maturity, as measured by the log of remaining days. Based on the baseline specification, treated firms receive approximately 50% fewer days remaining on their renegotiated loans, which corresponds to approximately one-year-shorter maturities.

Collateral: The outcome variable that is used to estimate the effect on the collateral is the ratio of collateral value relative to the total loan balance. An absolute effect on collateral value would not be informative, as it could be driven by an increase in the loan amount. Table 9 shows the results on the log of collateral value relative to the total balance for renegotiated loans. Firms with interrupted loan officer relationships pledge a significantly higher value of collateral. The baseline specification shows that treated firms have to pledge 71.6% more collateral relative to the loan balance after their loans are transferred, which corresponds to and additional €0.88 of collateral for each euro of loan amount.

Loan amount: There is mixed evidence regarding the loan amount. Table 10 presents the results on the log of the total balance of the firm's renegotiated loans that performed well. This is a subset of the renegotiated loans, as nonperforming loans are excluded. This restriction is necessary because the loan balance can increase or remain the same, due to either the loan amount increased or the debtor delayed the loan payments. For that reason, the results presented in Table 10 should be seen as suggestive. The estimated result varies under different specifications. In particular, under the baseline specification, firms with interrupted relationships do not receive any statistically different loan amounts in the renegotiated loans relative to firms in the control group. When we control for lagged firm characteristics in Columns 3 and 4, however, firms with an interrupted relationships present higher loan balances on their renegotiated loans.

5.1.4 Effect on Loan Performance Conditional on a Renegotiation

In this subsection, I estimate the effect of an interruption in the relationship between a firm and a loan officer on the renegotiated loan's performance. Identifying such an effect on delinquency is of crucial importance for gauging the effect of renegotiation for the bank. A crucial challenge that banks face during a recession is a steep increase in nonperforming loans (NPLs). Even though the "bad" firms that drive the high rise in the NPLs are excluded from this analysis, identifying the impact of personal relationships in the "good" firms is also significant. The "good" firms compose the most relevant group of firms for which the bank can prevent delays on loan repayments. For that reason, the value of personal relationships surges in a loan renegotiation during a recession period because they help restrict delinquencies.

Table 11 presents the results for the baseline empirical specification (1) for three variables related to loan performance ((i) log of a loan's payment days past due over the remaining days of the loan; (ii) nonperforming dummy variable; and (iii), log of total provisions over total balance). The firm outcome variables in this section are analyzed only for the loans renegotiated in the post-unit-closure period. We observe that firms with an interrupted relationship perform worse on the renegotiated loans compared to firms with an uninterrupted relationship. Treated firms have a 15.4% higher probability of defaulting on a renegotiated loan, and the bank makes a 70% higher level of provisions on renegotiated loans with interrupted relationships.

Days Past Due a Payment: Firms whose accounts were exogenously transferred to another bank unit delay their payments by more than double the number of days than those that remained at the same unit. The outcome variable is the log of a loan payment's days past due over the remaining days of the loan. In the first column of Table 11 we see that the number of days delayed per remaining days is 1.5 times higher for the treated group, which corresponds to approximately 27 additional days of delay.

Nonperforming: The second column reports the result for a nonperforming dummy equal to one if the loan is characterized as nonperforming and zero otherwise. An exposure is characterized as nonperforming if it is 90 days or more past due, or if it is impaired. A firm with an interrupted relationship has a 15.4% higher probability of its loan becoming nonperforming after renegotiation, compared to a firm with an uninterrupted relationship, which corresponds to an approximately 2% higher probability to default.

Loan Provisions: The last outcome variable examined here is the log of the ratio of total loan-loss provisions that the bank needs to make for the renegotiated loans relative to the total balance of the renegotiated

loan. For the renegotiated loans of firms with interrupted relations, the level of provisions per total loan balance is approximately 70% higher, which corresponds to an additional €0.10 of loan-loss provisions for each euro of loan balance.

5.1.5 Effect on Renegotiated Loans' Collateral Type

In Table 9, the effect of sustained personal relationships on relaxing collateral requirements is presented, and the economic magnitude of this effect is large. In this section, I focus on the qualitative information regarding collateral types to further investigate the effect of continuing personal relationships on collateral. The value and the type of collateral are determined by the loan officer, not by an automated program (as is the case with interest rates), and for that reason, a measurable impact of personal relationships is expected on the collateral-related variables.

I construct two dummy variables that explore the impact of renegotiation on collateral pledged. The first is an *Unsecured Loan* dummy, which is one if the loan does not have any collateral pledged and is considered unsecured, and zero otherwise. Approximately 50% of the loans included in the analysis were unsecured in the pre unit closure period, and no statistically significant difference occurs between the treated and the control groups.

In addition, I construct a second dummy variable that quantifies the effect on the type of collateral. This is potentially important because the enforceability of collateral depends on its type. I construct a *Secure Type of Collateral* dummy that is equal to one if the collateral is considered highly secure and zero otherwise. I define real estate (commercial and residential), ships, deposits, and debt securities as highly secure. As less secure collateral types, I define accounts receivable, equities or convertible bonds, and other types of guarantees. Both the treated and control groups have pledged highly secure types of collateral in approximately 50% of their collateralized loans. In 2012 and 2013, approximately 36% of the secured loans employ receivables as collateral, 30% use real estate, and 20% use deposits.

Table 12 presents the results for the two collateral variables. Column 1, shows that firms in the treated group have an 18% lower probability of having an unsecured loan after a renegotiation. Column 2, shows that an interruption in the personal loan officer relationship induces firms to pledge more highly secure collateral on their renegotiated loans. In particular, treated firms are 31.3% more likely to pledge highly

secure collateral compared to control firms.

5.2 Addressing possible threats to identification

5.2.1 Identifying Possible Selection Bias on Renegotiation

One concern regarding the validity of the estimated effects of an interrupted relationship is a possible selection bias concerning whether a loan is renegotiated. In subsections 4.2 and 4.3, I demonstrated that firms in the treated and control groups share similar pre-unit closure characteristics. Two of my main findings are that firms with interrupted personal relationships have a lower probability of renegotiating a loan (subsection 5.1.1), and conditional on a renegotiation, these firms receive worse loan terms (subsection 5.1.3). If loan officers choose to renegotiate with interrupted-relationship firms based on different criteria than those used for the continuous-relationship firms, then the intensive margin results would be biased. If loan officers for interrupted-relationship loans granted renegotiation more frequently for firms with relatively inferior performance, while loan officers for continuing-relationship firms did not do so, then the estimated effect of continuing relationships on the probability of renegotiation would exaggerate the true effect of the continuing relationship. In fact however, I find the opposite, implying that my estimated effect of continuing relationships on renegotiation terms is conservative.

I conduct two tests, which are presented in Tables 13 and 14. The first test compares the two types of firms that renegotiated a loan in the post-period. In Table 13, a similar analysis as in Table 2 is conducted, but for this test, I include only firms that renegotiated a loan in the post-unit closure period, and compare the pre-unit closure period characteristics between the treated and control groups. We observe no statistically significant difference in any of the variables between firms with interrupted and continuing relationships that renegotiated a loan in the post-unit closure period. Firms in the two groups that renegotiated loans in the post-unit closure period shared similar characteristics in the pre-period, which suggests no selection bias exists regarding whether a loan is renegotiated.

Table 14 presents a second test, which considers observable variables that can prompt a renegotiation. I rank firms within each bank unit based on the year-before-the-transfer value for each variable. The decision to renegotiate a loan is made by the loan officer at the bank unit, and, for that reason, any correlation outside the unit would not be informative for the criteria used to renegotiate a loan at the bank unit. The rank

within the bank unit allows me to control for the variation at the bank unit and any criterion based on hard information used by the loan officer. I regress a dummy variable for renegotiating a loan on the firm's within-bank-unit rank separately for each variable and include bank-unit and region-year fixed effects. This test provides us with correlations that show which firms have a higher probability of renegotiating a loan, based on the previous year's hard information available to the loan officer and to the econometrician. Table 14, Column 1 presents the result for the whole sample (pre- and post-unit closure period for treated and control firms), Column 2 for control firms in the post-period, and Column 3 for treated firms in the post-period.

The most interesting observation comes from the estimations of the year-before-the-transfer EBITDA growth rate. We observe that, for the whole sample and for the control group in the post-period, there is no statistically significant effect, while for the treated group in the post-period there is a positive statistically significant correlation. As noted above, this finding indicates my estimates are conservative.

Table 14 implies a common rule with respect to the firm's leverage, total loans at the subject bank, and total loan-loss provision is applied for all firms, independent of whether they belong to the treated or control group. Moreover, firms in the whole sample and in the control group appear to be selected similarly for renegotiation based on their total assets, total debt, debt over EBITDA, and payments' days past due. In contrast, we do not observe a correlation between these variables and renegotiation for the treated group. Again, this finding indicates conservative estimates.

5.2.2 Controlling for firms' differences in zip codes locations

Subsection 4.3 discussed the observed differences between firms located in areas where a bank unit closed (exposed) and in areas where a bank unit remained open (control). Based on the zip code comparison using the Amadeus dataset presented in Table 3, firms located in the exposed areas are smaller in size. Even though I control for the log of total assets in the estimated results, in this section, I provide further evidence that firms' differences across geographic locations are not driving the results.

To accurately control for potential differences in the geographic location of the exposed and the control areas, I restrict the sample to areas in which firms across the two areas have no statistically significant difference in financial variables. In particular, I exclude firms located in Attica, the region where Athens

is located, and I repeat the analysis. Table 15 presents the results of the subsample on the comparison of exposed and control areas using the Amadeus dataset. This finding confirms that no significant difference in financial variables obtains between the two groups in the subsample.

The next step is to show that, when I restrict the sample to areas where firms across the two groups are similar, the estimated results on the outcome variables hold. Tables 16 and 17 present these results. The estimated coefficients for both the probability to renegotiate a loan and the intensive margin results on loan terms and performance are similar in economic significance to the baseline results. This confirms that the baseline results are not driven by the differences on the firm's characteristics nor by the economic conditions at the zip-code level.

5.2.3 Controlling for bank unit size

If more than one unit operated in the same geographic area, the bank decided to keep the larger units open and close the smaller ones. For that reason, a possible concern regarding the identification strategy would be whether the difference in the size of the bank unit where the accounts were transferred can explain the results. To address this concern, I perform an analysis controlling for the size of the bank unit to which the loans were transferred.

I rank the units based on the number of corporate borrowers they manage in 2013. Figure 5, I plot an increasing series of the number of borrowers per bank unit versus the rank of the bank unit. From this plot, it is obvious that the larger units remained open and the smaller ones closed.

To test for an effect from the relative size of the bank unit, I construct first a measure of the unit's size based on the number of accounts managed per unit in 2013, the year before the reorganization. The relative rank of the units' size, for those that remained open, did not change after the reorganization. Second, I filter the observations based on the size of the unit where the treated firms were transferred. In particular, I restrict the sample of the treated firms to those transferred to a bank unit that was at most 20% larger than their original unit. Moreover, I restrict the control group and include only these firms managed at the unit receiving firms from units that were at most 20% smaller (from the "filtered" treated group).

After I construct the subsample that allows me to control for unit size, I repeat the analysis of the outcome variables of interest. The results are presented in Tables 18 and 19. The results on the probability

of renegotiating a loan and on the intensive margins of loan terms and performance bear similar magnitude and significance to the baseline results. These findings show that the baseline results in all three groups of outcome variables are not driven by differences in unit size.

5.3 Other Firm-Level Effects

This section considers other effects on firms of a bank unit closure. Table 3 Column 4 shows no average real effect and, in particular, no effect following a bank unit closure on the firms located at the same zip-code area. In this section, I examine whether the bank unit closure and the interruption in the loan officer relationship is associated with any effects on the capital structure of the firms that borrowed from the closed units.

To test for firm-level effects, I apply the baseline specification 1 to the firms' financial variables provided by the bank. By using the bank data, I restrict the sample only to the bank clients. Table 20 presents these results. The main conclusion is that firms with interrupted loan officer relationships change their capital structure and their main sources of financing. In particular, relative to control firms, treated firms raise three times more equity, decrease their total debt by 78%, and decrease their total assets by 61%. These changes in the firms' capital structure cause a 6.4% decrease in the treated firms' leverage (measured by the ratio of total debt over total assets) and a 9% increase in their level of equity over assets. Moreover, I examine the effect of an interrupted relationship on a substitution of lending from other banks. I measure substitution by constructing a new variable, the *dependence ratio*, that is equal to the ratio of the amount of debt that a firm has at this bank relative to the total amount of its debt. The dependence ratio decreased 10% for treated firms relative to control firms, suggesting that treated firms partially substituted loans from the subject bank with new bank loans.

The results show that the main sources of external financing are altered in the case of firms with interrupted relationships. The negative effect on both total debt and the dependence ratio shows that firms increase their relative lending from other banks, but they substitute only partially their total debt from other banks when their relationship with the subject bank is interrupted. These results, combined with a significant increase in equity, suggest that, when firms experience an interrupted relationship, they cover their financing needs with new sources of funds, including funds from other banks. These effects may explain observed changes in investment decisions, as implied by the decrease in total assets.

5.4 Results by Relationship Strength

In this section, I further investigate the value of a relationship between a loan officer and a firm. I construct three different measures of relationship strength and compare the impact of an interrupted relationship on firms with stronger relationships and those with weaker relationships. The main result of this section is that the interruption of a strong relationship with a loan officer has a more significant negative effect on the renegotiated loan terms. This conclusion is consistent across the three measures of relationship strength.

5.4.1 Relationship Strength Measured by the Dependence Ratio

The first measure of relationship strength is the ratio of a firm's total amount of loans at this bank over its total debt to other banks. This measure shows whether a firm had an established relationship with other banks or whether it borrowed predominantly from the bank featured in this study. One of the main assumptions for a mutually advantageous renegotiation is that the firm has outside options for financing, as those options would increase the firm's bargaining power. For small-and medium-size corporations,, the outside options for financing are either other local banks, or raising inside or outside private equity, as these relatively smaller firms do not have access to the stock market or from foreign banks.

It follows that if a firm borrows from other banks in the pre-period, and has an established relationship with them, it is easier for the firm to seek financing from other banks once the relationship with the subject bank is interrupted. On the other hand, if the firm depends mostly on the subject bank to satisfy its financing needs, then its negotiation power is limited. This section provides a comparison of these two groups, i.e., firms with closer relationships and fewer outside options versus firms with weaker relationships and more outside options.

As a measure of how close the relationship is, I estimate an indicator variable which I label the *Dependence Ratio*. The *Dependence Ratio* is defined as the ratio of the total balance at this bank over the total debt that a firm had to other banks in 2013, the year before the bank units' closure. First, I estimate the correlation between the *Dependence Ratio* and the probability of renegotiating a loan. Table 21 presents the correlation results. The first two columns show the results for the whole sample in the pre- and the post-unit closure period, where Columns 3 and 4 report results for the control firms, and Columns 5 and 6 for the treated firms. There is a positive and significant correlation between the dependence ratio and the probability of

renegotiating a loan, suggesting that firms with closer relationships have a higher probability of renegotiating. Note that this correlation is not significant for the treated group in the post-period, although it was significant in the pre-period. This suggests a loss in the value of close relationships between the firm and the bank once the relationship with the loan officer is interrupted. Treated firms that borrowed predominantly from the subject bank in the pre-unit-closure period do not have a higher probability of renegotiating in the post-unit-closure period.

Figure 6 presents the density distribution of the *Dependence Ratio* in 2013. The higher the value of the ratio, the more dependent the firm is on this bank. The lower the value of the ratio, the less important this bank is to the firm, since it borrowed from multiple sources. As shown in Figure 6, the majority of firms borrow from multiple banks, while a smaller number borrows mostly from the subject bank. In the following analysis, I test separately the effect of interrupted relationships for firms with closer relations, and for those with more distant ones.

Tables 22–24 present the results for these two subsamples. Firms with a *closer relationship* are defined as those with a dependence ratio above 50%. Firms with a *less close relationship* are defined as those with a dependence ratio below 20%.[11] The results are estimated using the baseline empirical specification 1. Table 22 shows that, independent of whether the firm had a close relationship with the subject bank in the pre-unit closure period, the firm has a 28% lower probability of renegotiating a loan after the relationship is interrupted. Table 23 includes the results of the loan terms. Firms with a closer relationship pay a higher cost from interruption by receiving tougher loan terms on the renegotiated loans. In particular, firms with a close relationship that was interrupted receive higher interest rates and shorter maturities, and have to pledge more collateral per loan balance, compared to firms with closer and uninterrupted relationships. On the other hand, firms with a weak relationship and more outside options for financing from other banks receive better loan terms on their renegotiated loans if the relationship with the subject bank is interrupted. In particular, they receive a lower interest rate and longer maturities, and have to pledge less collateral per total balance compared to firms with weak and uninterrupted relations.

The effect on firms with weaker relationships can be driven by two different channels. First, concerning firms for which only a small part of their total debt originated at this bank, the value of a personal relationship with a loan officer is very small. In that case, an interrupted relationship has little effect. A second

[11] The cutoffs were chosen to secure enough statistical power to the tests. The results remain robust under different cutoff thresholds, and tables are available upon request.

channel explaining the results is that firms with established relationships with other banks have a stronger bargaining position with the subject bank. These firms with outside options can walk away more easily from the subject bank and negotiate better loan terms elsewhere. In these cases, we should see the continuing relationship with a loan officer at the subject bank as an incentive to retain the clients at the subject bank. Better bargaining position and a willingness to exercise it would also translate into better loan terms, as we observe in Table 23. The results in Table 24 further support that view.

Based on the estimations in Table 24, treated firms whose relationship with the subject bank is close perform better, and their loans have a lower probability of becoming nonperforming, compared to the control firms. Despite receiving worse loan terms on their renegotiated loans, firms with close and interrupted relationships perform better, compared to firms with close and continuing relationships. These results suggest that firms with limited or no outside options may have lower bargaining power and may try to gain the trust of the new loan officer by performing better.

On the other hand, firms that have outside financing options and whose relationships with the subject bank were interrupted, ceteris paribus, default more on renegotiated loans. These firms have less to lose if they negotiate harder by threatening default to gain better terms. That creates a higher incentive for them than for the control firms to default on their loans at the subject bank. Overall, the fact that the bank unit closure causes an improvement in loan terms and an increase in defaults for firms with outside financing options, posits *moral hazard* behavior as a possibility for gaining better terms on renegotiated loans.

5.4.2 Relationship Strength Measured by the Number of Interactions

The second measure of relationship strength I use is the number of interactions each firm had with the bank in 2013. I identify interaction as either the issuance of a new loan or a renegotiation of an old loan. The number of interactions in 2013 shows the minimum number of contact events that a firm had with the loan officer the year before the bank units' closure, and this number indicates their relationship strength.

Table 25 shows the summary statistics of the number of loans, new loans, and renegotiations per year. The mean number of interactions per year is 3.6, and the median is 2, which is the same as the number of loans. Figure 7 presents the density distributions of the number of loans, interactions, new loans, and renegotiations. We observe that the distributions are highly skewed, as is indicated by the summary statistics.

In the following analysis, I separate the sample between those firms with more than two interactions in 2013 and those with two or fewer. The number two is selected as this is the median of the total number of interactions in 2013.[12] Firms with more than two interactions are expected to have a closer relationship with the loan officers who negotiated two or more loan contracts in the previous year. On the other hand, firms with two or fewer interactions are expected to have a weaker relationship. More frequent interactions with a loan officer in the pre-period suggests that frictions arising in loan contracts were overcome in the past, and therefore, the parties would be more likely to reach an optimal contract in the future. Once the relationship is interrupted, the benefit of the previous history is lost.

The results of this analysis are presented in tables 26–28. Table 26 presents the results for the probability of renegotiating a loan for the two groups. Firms with more than two interactions in the pre-unit closure period and an interrupted relationship have a higher probability of renegotiating a loan than firms with more than two interactions and uninterrupted relations. On the other hand, among the firms with two or fewer interactions, those with interrupted relationships have a 37% lower probability of renegotiating than those with uninterrupted relationships. Regarding the intensive margin, treated firms receive tougher loan terms on their renegotiated loans, independent of the previous number of interactions. These results are included in Table 27. With respect to the effect on renegotiated loans' performance, an increase occurs both in defaults and in provisions among firms with two or fewer interactions. Table 28 presents the results on renegotiated loans' performances. On the other hand, among firms with more than two interactions, we do not observe any statistically significant effect for delays on loan repayments or defaults, and we observe a decrease in the level of provisions.

The results discussed in this subsection confirm the hypothesis that personal relationships have an additional value for loan renegotiation. This added value is more important for firms with closer relationships with the bank (i.e., firms with more than two interactions), as these firms, despite receiving tougher loan terms, continue to perform well. This behavior could be explained as a signal for future expected interactions. On the other hand, firms with two or fewer interactions in the pre-period appear to default more on their renegotiated loans, and this result suggests a less valuable relationship for them. Overall, the results from this subsection suggest that the expectation of future regular interactions with the bank affects the behavior of the firm, as we do not observe a significant effect in defaults among the firms with frequent

[12]The results remain robust under different cutoff thresholds and tables are available upon request.

interaction. On the other hand, these results do not appear to alter the incentive of the loan officer, as both groups receive tougher loan terms.

5.4.3 Relationship Strength Measured by the Relative Size of the Firm

In this section, I use as a third measure of relationship strength the relative size of the firm as a corporate client within a bank unit. I estimate this measure as the ratio of the total balance of the firm over the total amount of loans that each bank unit manages in 2014, which captures the exposure of that bank unit to each corporate borrower: The larger the ratio, the larger the exposure of the bank unit to this client. The relative size of the firm is potentially correlated with two effects. Although, for larger firms, the potential profit margin for the bank is higher, the bank is also exposed to a higher risk. As both the profit margin and the risk are higher for larger firms, it is expected that loan officers will have a stronger incentive to establish closer relationships with larger clients.

Figure 8 shows the density distribution of the relative size of the firm within the bank unit. As expected, the distribution is highly skewed, and the majority of the firms are small clients for the bank unit. The indicator of relative firm size is estimated based on 2014 data, the first year after the transfer occurred. I use the relative size after the transfer to control for different behaviors towards the large clients in the post-period independent of whether a firm was in the treated or control group. In the following tests, I look separately at larger and smaller firms. I define as larger firms those whose balance at the specific bank unit accounts for at least 1% of the total amount of corporate loans the unit manages. The rest of the sample is defined as relatively small firms.[13]

Tables 29–31 present the results for larger and smaller firms separately. From the results on the extensive margin, we observe that firms with smaller balances and an interrupted relationship have a lower probability of renegotiating a loan following the transfer to another bank unit. On the other hand, for firms with larger balances, no statistically significant difference obtains between the treated and control groups. Regarding the results on the intensive margin, firms with larger balances are affected the most when their relationship with a loan officer is interrupted. In particular, treated firms with a large balance receive a higher interest rate and shorter maturities, and they have to pledge a higher value of collateral. For treated firms with smaller

[13]The cutoffs were chosen to secure enough statistical power to the tests. The results remain robust under different cutoff thresholds, and tables are available upon request.

balances, there is no statistically significant difference from the control group on the renegotiated loan terms.

Regarding renegotiated loans' performance, firms with smaller balances and interrupted relations evidently delay longer in their loan repayments, default more on their loans, and have an increased level of provision for these loans. In particular, among firms with smaller balances, treated firms have a 50% higher probability of becoming nonperforming. On the other hand, among firms with larger balances, even though the treated firms delay their payments by additional days, these firms have an 87% lower probability of becoming nonperforming.

From the analysis based on the relative size of the firm, I identify important heterogeneity. Firms with smaller balances, once their relationship with the loan officer is interrupted, have a lower probability to renegotiate a loan; however, conditional on a renegotiation, they receive loan terms similar to those of the firms with continuous relationships and they default with a higher probability. This finding suggests that the value of a relationship for small firms affects the extensive margin to renegotiate a loan and the firm's default risk once its ties with the bank are relaxed. Larger firms with interrupted relationships have the same probability of renegotiating a loan as larger firms with uninterrupted relationships; however, conditional on a renegotiation, they receive tougher loan terms. This effect suggests that, when a loan officer manages a client with whom he or she does not have an established relationship, the officer compensates for the higher risk by requiring tougher loan terms.

5.5 Results by Firms Pre-Unit-Closure Period Performance

In this section, I analyze whether the firm's pre-unit-closure period loan performance influences the estimated results. I separate the sample between firms that delayed a loan payment in 2013, the year before the transfer, and firms that paid their loans on time. Tables 32–34 present the results of the main outcomes of interest separately for the two groups. A common conclusion is that the results are consistent independent of the previous behavior of the firm. We observe that both firms with good repayment behavior and those with delays in loan payments have a lower probability of renegotiating a loan when their loan officer relationships are interrupted. The results on the intensive margin are similar: Independent of the previous repayment behavior of the firm, treated firms receive tougher terms on their renegotiated loans.

With respect to the renegotiated loans' performance, we observe a difference between the two groups.

In particular, among the firms that delayed a loan payment in the past, treated firms have a lower probability of becoming nonperforming (or a higher probability to perform well in the post-period if the loan was delinquent in the pre-period) and a lower level of provisions is recorded after the relationship with the loan officer is interrupted. In contrast, treated firms with on time loan payments in the past have a higher probability of becoming nonperforming in the post-period, and a higher level of provisions is offered.

Overall, the results indicate that the impact of an interrupted relationship on the probability of renegotiating a loan, and on the renegotiated loan's terms, is the same for firms with good repayment histories and for those with delays in their loan payments. These findings therefore support the hypothesis that firm characteristics are not driving the estimated results. The results on the renegotiated loans' performance suggest a moral hazard behavior from firms with previously on-time loan payments, as these firms appear to default more on their loans in the post-unit-closure period.

5.6 Interpretation of the Results

5.6.1 Soft Information or Favoritism

Several mechanisms can explain the impact of personal relationships between loan officers and firms on lending. The most obvious implication of long-lasting personal relationships is the acquisition of soft information about the borrower. Through a continuing interaction between a loan officer and a firm, the loan officer can acquire more soft information about the firm's profitability and investment prospects. Alternatively, personal relationships between loan officers and firms may create a propensity for unwarranted favoritism (or nepotism). In that case, a poorly performing firm with a close relationship would receive the same or better loan terms than a good-performing firm.

In subsection 4.2, I demonstrated that firms in the treated and control groups have similar financial characteristics, loan terms, and loan performance in the pre-period. The fact that we do not observe any statistically significant difference between the groups regarding loan terms, loan performance, and firm financial characteristics in the pre-period suggests that there is no favoritism for the treated group in the pre-period. In other words, if only the treated group received favorable treatment in the pre-period, we would observe a difference either in the loan terms, with similar firm financial information, or in firm profitability and loan performance, with similar loan terms.

Furthermore, from the results on loan performance we observe that firms with continuing relationships have a lower probability to default on the renegotiated loans. This result suggests that the acquisition of soft information for firms with continuing relationships, as opposed to unwarranted favoritism, explains my findings.

5.6.2 Moral Hazard or Anticipated Repeated Interaction

Arguably, the superior outcomes of continuing-relationship firms reflect, in part, endogenous decisions made by those firms, and not merely soft information about their condition. The loan repayment behavior of the treated firms may be driven by two distinct underlying mechanisms. In the first mechanism, the repayment behavior is driven by moral hazard, and in the second, it is driven by the expectation of repeated interaction with the subject bank. These two behaviors have opposite predictions for firms' performance. According to the moral hazard hypothesis, a treated firm has an incentive to strategically default on its loan payments, to exercise its negotiation power, and to gain better loan terms. Under this hypothesis, we would observe an increase in loan defaults. However, under the repeated interaction hypothesis, a firm would highly value the relationship with the bank and, in anticipation of repeated interactions, would perform well in the present, despite possibly unfavorable loan terms.

We observe that firms whose personal relationships with a loan officer have been interrupted perform worse on their renegotiated loans. The results from two tests suggest that this difference in renegotiated loan performance may reflect moral hazard. First, in subsection 5.2.1, we discussed that there is a positive statistically significant correlation between renegotiating a loan and the EBITDA growth rate only for the treated group in the post-period. Given this positive correlation, we cannot conclude that the estimated increase on loan defaults is driven by the firms' profitability. Moreover, the unconditional results discussed in section 5.7 reveal no significant effect on payment delays, and on the level of provisions for all loans that firms had. This result indicates that firms with interrupted relationships continued to repay on time the loans that were not renegotiated.

The analysis based on relationship strength in section 5.4 allows us to examine separately different groups of firms whose behavior may be driven by the anticipated repeated interaction with the bank. Specifically, firms with a higher dependence ratio (subsection 5.4.1), and firms with a greater number of interactions with the bank in the pre-unit consolidation period (subsection 5.4.2), perform better on the renegotiated

loans, despite receiving tougher loan terms in the post-period, compared to the control group. This result points to behavior driven by an anticipated repeated interaction with the bank. Namely, firms with a close pre-period relationship with the bank, despite the interrupted relationship with the loan officer, perform well on their loans in anticipation of future interactions with the new loan officer. On the other hand, firms that do not place a high value on the relationship with this bank (either firms with low dependence ratios and outside options to seek financing or firms with a low number of interactions) have a stronger incentive to exercise their bargaining position, and default strategically on their loans to gain better loan terms. Overall, the analysis on the two groups of firms based on relationship strength allows us to identify two opposite plausible mechanisms driving the behavior of a firm: repeated interaction and moral hazard.

5.7 Unconditional Results on All Loans

The results on loan terms and performance presented in the previous sections were estimated conditional on the firm renegotiating a loan. In this section, I estimate the effect of an interruption in the loan officer relationship on all loans. The results on all loans reveal whether significant differences between the two groups on the other loan terms and performance exist. I include in the set of all loans old loans that were not renegotiated, old loans that were renegotiated, and new loans. For this analysis, I use the baseline specification with firm, bank unit, and region-year fixed effects, and Tables 35 and 36 present the results.

In Table 35, the results on all loans terms are included. We observe no statistically significant difference in the loan terms between the firms whose relationship was interrupted and those with continuous relationships. The unconditional results are driven mostly by the old loans that were not renegotiated, and for that reason we do not observe any statistically significant difference. As we saw in Table 2, firms in the treated and control groups had similar loan terms in the pre-period. For that reason, if they did not renegotiate a loan in the post–period, the loan terms between the two groups would remain similar.

In Table 36, the unconditional effect on the loan performance is presented. We do not observe a statistically significant difference in the number of days that a loan is delayed, or in the level of provisions. However, we observe a higher probability of a loan'ss becoming nonperforming if the firm experiences an interruption in the relationship with the loan officer. In particular, firms with interrupted relationships have a 9% higher probability of their loans' becoming nonperforming than do firms with continuous relationships. This effect is driven mainly by the bank's policy to define as nonperforming all of a given firm's loans, even

if the firm defaults only on one of its loans. Since we do not observe a significant effect on the number of days a loan was delayed, and taking into account the bank's definition of nonperforming loans, we expect that this effect is driven mostly by the delays in the renegotiated loan repayments.

5.8 Results on New Loans

Although this paper's central goal is the analysis of the impact of personal relationships on corporate loan renegotiations, this section presents the results for new loans to ensure that a firm is not substituting a loan renegotiation with a loan origination. I use the same variation of a bank unit closure to define the treatment indicator, but in this case, I look only at the post-period new lending (years 2014, 2015). The regression that is used is the following:

$$y_{iurt} = \alpha + \alpha_u + \alpha_{rt} + \delta * Treat_{iur} + \varepsilon_{iurt} \tag{2}$$

where y_{iurt} stands for the outcome variable of interest for the firm i located in region r in year t getting a loan from the bank unit u. $Treat_{iur}$ is a dummy variable equal to one if the firm belongs in the treatment group (if the firm's loan accounts were transferred to another pre-existing bank unit because the original unit closed) and is equal to zero if the firm belongs to the control group (if the firm's loan accounts remained at the same unit for the whole period of the sample). The specification includes bank-unit fixed effects (α_u) as well as region-year fixed effects (α_{rt}). The coefficient of interest is δ, which measures the difference in the outcome variable for the firms that experienced an interruption in the personal relationship with the loan officer responsible for managing their loan accounts, relative to the firms that did not.

Tables 37–38 present the results on the new lending both at the extensive margin and at the intensive margin. Firms with interrupted relationships received 30% fewer new loans in the post-period than firms with continuous relations. A significant difference between the two groups is observed also on the new loans' terms. Treated firms received almost 90% lower volume of lending, with higher interest rates and shorter maturities. With respect to the new loans' performance, we do not observe a statistically significant effect. The no statistically significant effect on new loan performance could be driven by the limited time dimension of the panel dataset it is very unlikely for a new loan to turn nonperforming within the first year.

The results on the new loans' extensive and intensive margins confirm further the value of personal re-

lationships in corporate banking. Firms that lost their personal relationship with the responsible loan officer conclusively receive less lending and tougher loan terms both on new and renegotiated loans. Moreover, Table 20 illustrates that a firm with an interrupted relationship partially substitutes its total debt through other banks, as both the dependence ratio and the total debt decreases at the same time.

6 Conclusion

Personal relationships have a significant positive effect in corporate loan renegotiation, mitigating the costs of distress for both firms and banks. A relationship between a loan officer and a firm helps eliminate frictions that arise in loan renegotiation. When a relationship is interrupted, the renegotiation outcome is less likely to be beneficial and the efficient contract is less likely to be achieved. Using the consolidation of bank units as a source of exogenous variation, I analyze a proprietary dataset on corporate loans. I find strong evidence that a personal relationship with a loan officer significantly affects loan renegotiation outcomes both at the extensive and intensive margins. Notably, I observe that firms with interrupted relationships have a lower probability of renegotiating a loan upon their transfer to another bank unit. Conditional on renegotiating a loan, affected firms also receive tougher terms (higher interest rates, shorter maturities, and higher value of collateral). The value of maintaining relationships is also visible in measures of loan delinquency. Strong personal relationships between the bank officer and the firm prevent defaults. Firms with interrupted relationships perform worse on their renegotiated loans than those with stable relationships.

In general, the result that firms with interrupted relationships receive tougher loan terms on renegotiated loans may be driven either by a loss of valuable soft information or by unwarranted favoritism. The good performance of the treated firms on non-renegotiated loans, as well as the good performance of the firms with continuing relationships on all loans, support the view that favoritism is not driving the results. This paper also analyzes the repayments of the firms with interrupted relationships: Their behavior could be driven, in part, either by moral hazard or by the expectation of future regular interaction with the bank. A detailed analysis based on relationship strength allows us to examine separately different firms with closer and weaker relationships and find suggestive evidence of these two opposite mechanisms.

References

Acharya, V. V., T. Eisert, C. Eufinger, and C. W. Hirsch (2016): "Real effects of the sovereign debt crisis in Europe: Evidence from syndicated loans," .

Agarwal, S., and R. Hauswald (2010): "Distance and private information in lending," *The Review of Financial Studies*, 23(7), 2757–2788.

Aghion, P., M. Dewatripont, and P. Rey (1994): "Renegotiation design with unverifiable information," *Econometrica: Journal of the Econometric Society*, pp. 257–282.

Allen, F. (1990): "The market for information and the origin of financial intermediation," *Journal of financial intermediation*, 1(1), 3–30.

Benmelech, E., and N. K. Bergman (2008): "Liquidation values and the credibility of financial contract renegotiation: Evidence from US airlines," *The Quarterly Journal of Economics*, 123(4), 1635–1677.

Bentolila, S., M. Jansen, and G. Jiménez (2016): "When credit dries up: job losses in the Great Recession, CEMFI," .

Berger, A. N., and G. F. Udell (1995): "Relationship lending and lines of credit in small firm finance," *Journal of Business*, pp. 351–381.

Besanko, D., and G. Kanatas (1993): "Credit market equilibrium with bank monitoring and moral hazard," *The review of financial studies*, 6(1), 213–232.

Bolton, P., and X. Freixas (2000): "Equity, bonds, and bank debt: Capital structure and financial market equilibrium under asymmetric information," *Journal of Political Economy*, 108(2), 324–351.

Bolton, P., X. Freixas, L. Gambacorta, and P. E. Mistrulli (2016): "Relationship and transaction lending in a crisis," *Review of Financial Studies*, p. hhw041.

Bolton, P., and D. S. Scharfstein (1996): "Optimal debt structure and the number of creditors," *Journal of Political Economy*, 104(1), 1–25.

Boot, A. W. (2000): "Relationship banking: What do we know?," *Journal of financial intermediation*, 9(1), 7–25.

Canales, R., and R. Nanda (2012): "A darker side to decentralized banks: Market power and credit rationing in SME lending," *Journal of Financial Economics*, 105(2), 353–366.

Chodorow-Reich, G., and A. Falato (2017): "The Loan Covenant Channel: How Bank Health Transmits to the Real Economy," .

Cingano, F., F. Manaresi, and E. Sette (2016): "Does Credit Crunch Investment Down? New Evidence on the Real Effects of the Bank-Lending Channel," *Review of Financial Studies*, 29(10), 2737–2773.

Cole, S., M. Kanz, and L. Klapper (2015): "Incentivizing Calculated Risk-Taking: Evidence from an Experiment with Commercial Bank Loan Officers," *The Journal of Finance*, 70(2), 537–575.

De Marco, F. (2016): "Bank lending and the European sovereign debt crisis," .

Dewatripont, M., and E. Maskin (1995): "Credit and efficiency in centralized and decentralized economies," *The Review of Economic Studies*, 62(4), 541–555.

Diamond, D. W. (1984): "Financial intermediation and delegated monitoring," *The review of economic studies*, 51(3), 393–414.

——— (1991): "Monitoring and reputation: The choice between bank loans and directly placed debt," *Journal of political Economy*, 99(4), 689–721.

Drexler, A., and A. Schoar (2014): "Do relationships matter? Evidence from loan officer turnover," *Management Science*, 60(11), 2722–2736.

Engelberg, J., P. Gao, and C. A. Parsons (2012): "Friends with money," *Journal of Financial Economics*, 103(1), 169–188.

Fama, E. F. (1985): "What's different about banks?," *Journal of monetary economics*, 15(1), 29–39.

Fisman, R., D. Paravisini, and V. Vig (2017): "Cultural proximity and loan outcomes," *The American Economic Review*, 107(2), 457–492.

Garleanu, N., and J. Zwiebel (2008): "Design and renegotiation of debt covenants," *The Review of Financial Studies*, 22(2), 749–781.

Gorton, G., and J. Kahn (2000): "The design of bank loan contracts," *The Review of Financial Studies*, 13(2), 331–364.

Gourinchas, P.-O., T. Philippon, and D. Vayanos (2017): "The analytics of the Greek crisis," *NBER Macroeconomics Annual*, 31(1), 1–81.

Hart, O., and J. Moore (1988): "Incomplete contracts and renegotiation," *Econometrica: Journal of the Econometric Society*, pp. 755–785.

——— (1998): "Default and renegotiation: A dynamic model of debt," *The Quarterly Journal of Economics*, 113(1), 1–41.

Haselmann, R., D. Schoenherr, and V. Vig (2016): "Rent-seeking in elite networks," Discussion paper, SAFE Working Paper Series.

Herpfer, C. (2017): "The Role of Bankers in the US Syndicated Loan Market," .

Hertzberg, A., J. Liberti, and D. Paravisini (2010): "Information and incentives inside the firm: Evidence from loan officer rotation," *The Journal of Finance*, 65(3), 795–828.

Ivashina, V. (2009): "Asymmetric information effects on loan spreads," *Journal of Financial Economics*, 92(2), 300–319.

Jaffee, D. M., and T. Russell (1976): "Imperfect information, uncertainty, and credit rationing," *The Quarterly Journal of Economics*, 90(4), 651–666.

James, C. (1995): "When do banks take equity in debt restructurings?," *The Review of Financial Studies*, 8(4), 1209–1234.

Karolyi, S. A. (2017): "Personal Lending Relationships," *The Journal of Finance*, pp. n/a–n/a.

Kysucky, V., and L. Norden (2015): "The benefits of relationship lending in a cross-country context: A meta-analysis," *Management Science*, 62(1), 90–110.

Leland, H., and D. H. Pyle (1977): "Informational Asymmetries, Financial Structure, and Financial Intermediation," *Journal of Finance*, 32(2), 371–87.

Liberti, J. M., and A. R. Mian (2009): "Estimating the effect of hierarchies on information use," *Review of financial studies*, 22(10), 4057–4090.

Maskin, E., and J. Moore (1999): "Implementation and renegotiation," *Review of Economic studies*, pp. 39–56.

Mian, A. (2006): "Distance constraints: The limits of foreign lending in poor economies," *The Journal of Finance*, 61(3), 1465–1505.

Myers, S. C., and N. S. Majluf (1984): "Corporate financing and investment decisions when firms have information that investors do not have," *Journal of Financial Economics*, 13(2), 187–221.

Nguyen, H.-L. Q. (2016): "Do bank branches still matter? The effect of closings on local economic outcomes," Discussion paper, Working paper.

Ongena, S., and D. C. Smith (2001): "The duration of bank relationships," *Journal of Financial Economics*, 61(3), 449–475.

Ongenah, S., and D. C. Smith (2000): "Bank Relationships: A Review," *Performance of financial institutions: Efficiency, innovation, regulation*, p. 221.

Petersen, M. A., and R. G. Rajan (1994): "The benefits of lending relationships: Evidence from small business data," *The Journal of Finance*, 49(1), 3–37.

Piskorski, T., A. Seru, and V. Vig (2010): "Securitization and distressed loan renegotiation: Evidence from the subprime mortgage crisis," *Journal of Financial Economics*, 97(3), 369–397.

Popov, A., and N. Van Horen (2015): "Exporting sovereign stress: Evidence from syndicated bank lending during the euro area sovereign debt crisis," *Review of Finance*, 19(5), 1825–1866.

Rajan, R., and A. Winton (1995): "Covenants and collateral as incentives to monitor," *The Journal of Finance*, 50(4), 1113–1146.

Rajan, R. G. (1992): "Insiders and outsiders: The choice between informed and arm's-length debt," *The Journal of Finance*, 47(4), 1367–1400.

Ramakrishnan, R. T., and A. V. Thakor (1984): "Information reliability and a theory of financial intermediation," *The Review of Economic Studies*, 51(3), 415–432.

Roberts, M. R. (2015): "The role of dynamic renegotiation and asymmetric information in financial contracting," *Journal of Financial Economics*, 116(1), 61–81.

Roberts, M. R., and A. Sufi (2009): "Renegotiation of financial contracts: Evidence from private credit agreements," *Journal of Financial Economics*, 93(2), 159–184.

Sharpe, S. A. (1990): "Asymmetric information, bank lending, and implicit contracts: A stylized model of customer relationships," *The Journal of Finance*, 45(4), 1069–1087.

Srinivasan, A. (2014): "Long Run Relationships in Banking," *Foundations and Trends in Finance*, 8(2), 55–143.

Stiglitz, J. E., and A. Weiss (1981): "Credit rationing in markets with imperfect information," *The American Economic Review*, 71(3), 393–410.

Sufi, A. (2007): "Information asymmetry and financing arrangements: Evidence from syndicated loans," *The Journal of Finance*, 62(2), 629–668.

Tirole, J. (2010): *The theory of corporate finance*. Princeton University Press.

Von Thadden, E.-L. (1995): "Long-term contracts, short-term investment and monitoring," *The Review of Economic Studies*, 62(4), 557–575.

Table 1: Summary statistics based on the 2012–2013 values

Variable	Mean	Std. Dev.	Median
Loan-Related Variables:			
Total Balance	2,611,645	10,057,676.6	535,934.5
Interest Rate	.0597	.034	.0621
Total Collateral Value	3,234,279	20,128,240	187,630
Days Remaining (Maturity)	528.34	995.16	52.35
Unsecured loan (Dummy)	.35	.45	0
Secure type of collateral (Dummy)	.50	.45	.51
Number of loans per year	4.72	29.31	2
Performance-Related Variables :			
Nonperforming (Dummy)	.11	.31	0
Days Past Due	29.8	82.32	0
Days Past Due over Remaining Days	10.1	52.03	0
Total Provision	1,438,472	30,789,946	0
Debtor Renegotiated a Loan (Dummy)	.59	.49	0
At Least One Forborne (Dummy)	.05	.21	0
Firm's Financial Information :			
Total Assets	35,710,880	204,072,593	6,124,094
Total Debt	24,219,150	140,099,180	4,253,020
Total Equity	12,862,210	90,149,735	1,644,740
EBITDA	1,384,210	26,161,717	271,487
Total Debt over EBITDA ratio	-26.7	3,325.4	7.5
Leverage (Debt over Assets)	.72	.72	.69

This table displays summary statistics of the main variables. The variables are constructed at the firm level. A simple sum of all loans a firm holds each year is used for the total balance, total collateral value, number of loans, and total provision. A weighted average with weights equal to the ratio of the specific loan exposure over the total balance of the firm is used for the interest rate, days remaining, nonperforming (dummy), and days past due. All variables are based on the 2012–2013 values.

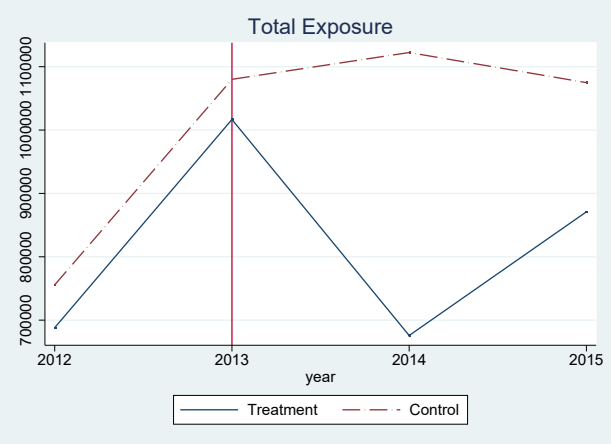
Table 2: Comparison of pre-period mean values for treated and control groups

Variable	(1) Control	(2) Treated	(3) p - value on Difference
Loan-Related Variables:			
Total Balance	934,255.3	791,929.6	(0.571)
	(1,497,483.4)	(1,232,984.1)	
Interest Rate	0.0618	0.0657	(0.323)
	(0.0325)	(0.0334)	
Days Remaining (Maturity)	516.9	723.4	(0.198)
	(985.4)	(1,207.4)	
Total Collateral Value	737,344.5	811,042.0	(0.831)
	(1,342,033.5)	(1,362,189.0)	
Unsecured Loan (Dummy)	0.548	0.478	(0.348)
	(0.498)	(0.501)	
Secure Type of Collateral (Dummy)	0.473	0.539	(0.483)
	(0.450)	(0.460)	
Performance-Related Variables:			
Nonperforming (Dummy)	0.106	0.124	(0.735)
	(0.308)	(0.330)	
Days Delayed over Remaining Days	11.20	17.98	(0.201)
	(63.98)	(65.67)	
Total Provision per Total Exposure	0.114	0.143	(0.467)
	(1.828)	(0.655)	
Ratio of Loans Transferred to NPL specialized unit	0.141	0.0781	(0.072)
	(0.0568)	(0.0628)	
Debtor's Financial Information:			
Total Assets	10,712,500.0	7,983,826.1	(0.632)
	(15,995,732.5)	(12,173,003.3)	
Total Debt	7,473,765.0	6,565,431.2	(0.884)
	(11,426,411.1)	(10,640,303.1)	
Total Equity	3,543,320.3	2,207,924.3	(0.273)
	(6,546,923.7)	(3,996,019.6)	
EBITDA	1,413,431.1	596,890.4	(0.208)
	(26,589,773.0)	(2,541,047.6)	
Total Debt over EBITDA Ratio	-47.11	9.679	(0.398)
	(3828.6)	(64.95)	
Leverage (Debt over Assets)	0.704	0.717	(0.879)
	(0.316)	(0.240)	

This table displays the mean values and standard deviations separately for the treated and control groups. Column 3 reports the p-value for the difference between Columns 1 and 2. p-values are obtained from a regression of the main variable on a treatment indicator and region fixed effects. All variables and estimations are based on the 2012–2013 values.

Figure 1: Trends of the total exposure for the treatment and control groups (mean values and residuals)

(a) mean values



(b) residuals from region f.e. and a constant

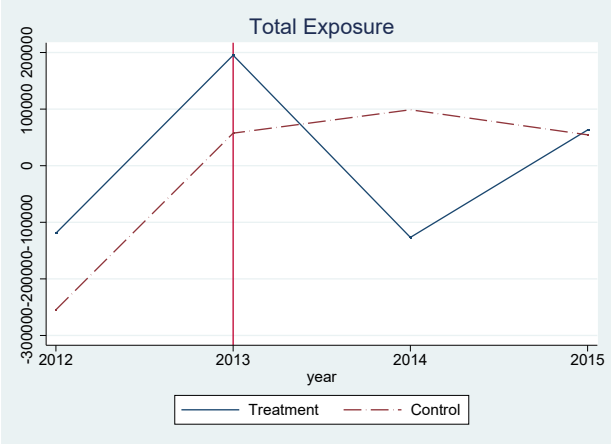


Figure 1a plots the mean values of the total exposure for the treated and control groups over the period from 2012 until 2015. Figure 1b plots the residuals from a regression of the total exposure on region fixed effects for the treated and control groups for the same period.

Figure 2: Regression coefficients and confidence intervals after controlling for region and bank unit fixed effects

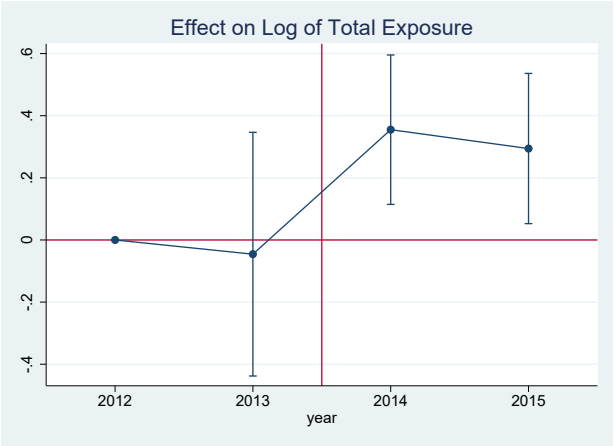
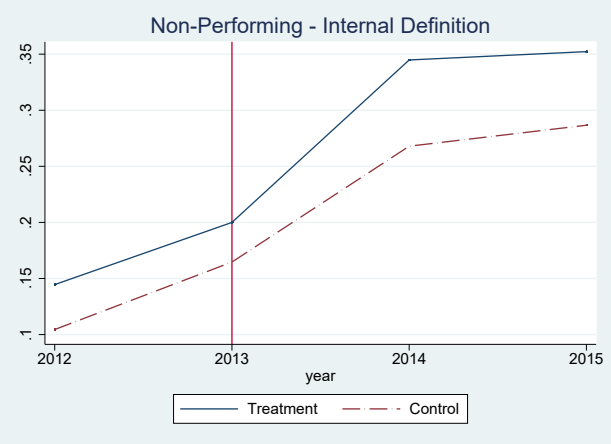


Figure 2 plots the effect of an interruption in the relationship between a loan officer and a firm on the log of total exposure. The coefficients are obtained from a regression of the log on total exposure on the treatment indicator and on region and bank-unit fixed effects. Bars show 95% confidence intervals.

Figure 3: Trends for the nonperforming dummy for the treatment and control groups (mean values and residuals)

(a) mean values



(b) residuals from region f.e. and a constant

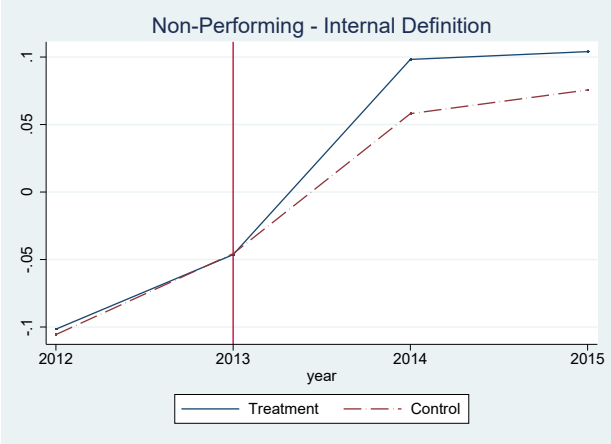


Figure 3a plots the mean values of the nonperforming dummy variable for the treated and the control groups from 2012 until 2015. Figure 3b plots the residuals from a regression of the nonperforming dummy variable on region fixed effects for the treated and control groups over the same period.

Figure 4: Regression coefficients and confidence intervals after controlling for region and bank-unit fixed effects

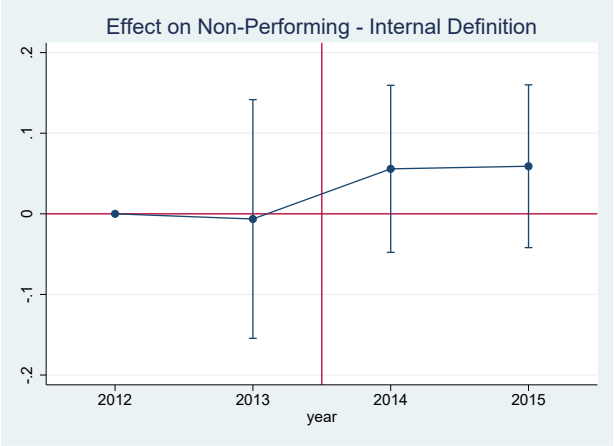


Figure 4 plots the effect of an interruption in the relationship between a loan officer and a firm on the nonperforming dummy variable. The coefficients are obtained from a regression of the nonperforming dummy on the treatment indicator and on region and bank-unit fixed effects. Bars show 95% confidence intervals.

Table 3: Summary statistics and Difference-in-Difference coefficients for firms in exposed and control areas - Match on the zip code

	(1) Mean values for Control areas	(2) Mean values for Exposed areas	(3) p - value on Difference	(4) Coefficient from DiD
Total Assets	2,046,750.4	1,825,612.9	(0.053)	-1,198.2
	(2,213,766.2)	(2,042,689.0)		(42,739.4)
Total Debt	498,087.1	458,946.9	(0.273)	12,978.2
	(1,031,146.5)	(974,348.2)		(13,685.6)
Shareholders Funds	906,964.1	780,377.7	(0.015)	-18,101.5
	(1,336,612.6)	(1,086,455.0)		(21,782.0)
Number of Employees	13.33	11.86	(0.034)	-0.131
	(15.84)	(12.78)		(0.317)
EBIT	95,948.5	70,551.1	(0.138)	-2,360.2
	(215,807.3)	(186,164.2)		(6,868.1)
EBIT Growth Rate	-0.450	-0.0356	(0.368)	2.070
	(29.85)	(8.002)		(3.758)
Net Income	35,171.8	20,397.8	(0.396)	-2,071.4
	(162,093.6)	(146,359.9)		(5,756.2)
Net Income Growth Rate	-0.482	-1.015	(0.252)	-0.632
	(11.70)	(25.73)		(0.976)
Operating Revenue (Turnover)	1,640,175.0	1,430,693.6	(0.205)	27,648.1
	(2,496,198.6)	(2,291,917.3)		(30,733.6)
Sales	1,609,808.0	1,401,415.3	(0.205)	25,852.7
	(2,476,738.2)	(2,267,099.8)		(30,432.5)
Gross Profit	440,155.2	374,192.1	(0.102)	-1,232.8
	(584,430.4)	(528,494.3)		(16,640.0)
Cash Flow	95,235.7	79,114.4	(0.094)	-1,455.9
	(194,803.9)	(171,806.5)		(7,490.2)
Return on Shareholders Funds (%)	12.50	5.947	(0.259)	-1.996
	(78.81)	(72.12)		(4.009)
Return on Total Assets (%)	3.153	2.784	(0.298)	-0.161
	(13.62)	(13.74)		(0.652)
Profit Margin (%)	2.185	1.091	(0.527)	0.0524
	(20.73)	(21.09)		(0.652)

The data source for this table is the Amadeus Bureau van Dijk database. This table in columns 1 and 2 displays the mean values and standard deviations for firms located in zip-code areas where a bank unit closed (exposed areas) and firms located in zip-code areas where a unit remained open (control areas). Column 3 reports the p-value for the difference between Columns 1 and 2. p-values are obtained from a regression of the main variable on an indicator of whether the firm is located at the zip-code area where a bank unit closed, and region fixed effects. Column 4 presents the estimate coefficients from difference-in-difference regressions on the firms' variables. All variables and estimations are based on 2012–2015 values.

Table 4: Effect on renegotiating a loan (extensive margin)

	(1)	(2)	(3)	(4)
Post ∗ *Treat*	-0.231**	-0.262***	-0.236**	-0.308***
	(0.0879)	(0.0783)	(0.114)	(0.0744)
Observations	12,540	12,540	7,220	11,023
R^2	0.284	0.287	0.042	0.302
Firm F.E.	✓	✓		
Bank Unit F.E.	✓	✓	✓	✓
Region F.E.	✓			
Year F.E.	✓			
Region ∗ Year F.E.		✓	✓	✓
Lagged log of EBITDA			✓	
Lagged log of Total Balance			✓	
Lagged log of Total Assets				✓
Cluster Level		Bank Unit		

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

This table displays the results from estimating equation 1. The dependent variable is a dummy variable that is equal to one if the firm *i* renegotiated a loan at time *t* and zero otherwise. The dummy variable *Treat* is equal to one if the firm experienced an interruption in its relationship with the loan officer due to the bank unit closure, and zero otherwise. The dummy variable *Post* is equal to one if the year of the observation is after the reorganization (either 2014 or 2015) and zero if it is before the reorganization (either 2012 or 2013). The bottom of the table depicts information on the fixed effects and the control variables included. Standard errors are corrected for clustering at the bank-unit level.

Table 5: Unconditional probabilities for renegotiation outcomes

Outcome	Unconditional Probability
Increase Collateral	55%
Decrease Interest Rate	48%
Decrease Collateral	23%
Increase Loan Amount	20%
Increase Maturity	8%

This table displays the renegotiation outcomes and the unconditional probability for a firm to receive each of these. By renegotiating a loan, a firm and the bank can agree to change more than one term, and, for that reason, the unconditional probabilities of the renegotiation outcomes do not sum to 100.

Table 6: Effect on different renegotiation outcomes (extensive margin)

	(1) *Increased Maturity*	(2) *Increased Loan amount*	(3) *Increased Collateral*	(4) *Decreased Collateral*	(5) *Decreased Interest Rate*
Post $*$ *Treat*	-0.0489**	-0.207***	-0.204***	-0.208***	-0.0592
	(0.0244)	(0.0659)	(0.0760)	(0.0521)	(0.0903)
Observations	12,540	12,540	12,540	12,540	12,540
R^2	0.025	0.068	0.125	0.115	0.128
Firm F.E.	✓	✓	✓	✓	✓
Bank Unit F.E.	✓	✓	✓	✓	✓
Region $*$ Year F.E.	✓	✓	✓	✓	✓
Cluster Level			Bank Unit		

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

This table displays the results from estimating equation 1 for different renegotiation outcomes. The dependent variables are dummy variables that are equal to one if firm i received that particular renegotiation outcome at time t and zero otherwise. The dummy variable *Treat* is equal to one if the firm experienced an interruption on its relationship with the loan officer due to the bank unit closure, and zero otherwise. The dummy variable *Post* is equal to one if the year of the observation is after the reorganization (either 2014 or 2015) and zero if it is before the reorganization (either 2012 or 2013). In the regressions, firm, bank-unit and region $*$ year fixed effects are included. Standard errors are corrected for clustering at the bank-unit level.

Table 7: Effect on log of Interest Rate - Only renegotiated loans

	(1)	(2)	(3)	(4)
Post $*$ *Treat*	0.00468	0.00982**	0.0162*	0.00946**
	(0.00375)	(0.00380)	(0.00856)	(0.00374)
Observations	5,368	5,368	4,191	4,875
R^2	0.022	0.028	0.021	0.027
Firm F.E.	✓	✓		
Bank Unit F.E.	✓	✓	✓	✓
Region F.E.	✓			
Year F.E.	✓			
Region $*$ Year F.E.		✓	✓	✓
Lagged log of EBITDA			✓	
Lagged log of Total Balance			✓	
Lagged log of Total Assets				✓
Cluster Level		Bank Unit		

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

This table displays the results from estimating equation 1 only for firms that renegotiated a loan over the sample period. The observations included in the analysis are the loans that were renegotiated at least once during the sample period. The dependent variable is the log of interest rate of the renegotiated loans that firm i had. The dummy variable *Treat* is equal to one if the firm experienced an interruption on its relationship with the loan officer due to the bank-unit closure, and zero otherwise. The dummy variable *Post* is equal to one if the year of the observation is after the reorganization (either 2014 or 2015) and zero if it is before the reorganization (either 2012 or 2013). The bottom of the table depicts information on the fixed effects and the control variables included. Standard errors are corrected for clustering at the bank-unit level.

Table 8: Effect on log of Remaining Days (Maturity) - Only renegotiated loans

	(1)	(2)	(3)	(4)
Post ∗ *Treat*	-0.775**	-0.489**	-0.874**	-0.429
	(0.363)	(0.210)	(0.337)	(0.282)
Observations	5,368	5,368	4,191	4,875
R^2	0.032	0.016	0.042	0.020
Firm F.E.	✓	✓		
Bank Unit F.E.	✓	✓	✓	✓
Region F.E.	✓			
Year F.E.	✓			
Region ∗ Year F.E.		✓	✓	✓
Lagged log of EBITDA			✓	
Lagged log of Total Balance			✓	
Lagged log of Total Assets				✓
Cluster Level		Bank Unit		

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

This table displays the results from estimating equation 1 only for firms that renegotiated a loan over the sample period. The observations included in the analysis are the loans that were renegotiated at least once during the sample period. The dependent variable is the log of days remaining of the renegotiated loans that firm *i* had. This variable is a measure of loan maturity. The dummy variable *Treat* is equal to one if the firm experienced an interruption on its relationship with the loan officer due to the bank-unit closure, and zero otherwise. The dummy variable *Post* is equal to one if the year of the observation is after the reorganization (either 2014 or 2015) and zero if it is before the reorganization (either 2012 or 2013). The bottom of the table depicts information on the fixed effects and the control variables included. Standard errors are corrected for clustering at the bank-unit level.

Table 9: Effect on log of Collateral per Total Balance - Only renegotiated loans

	(1)	(2)	(3)	(4)
Post $*$ *Treat*	1.268***	0.716***	0.815***	0.790***
	(0.355)	(0.249)	(0.184)	(0.270)
Observations	5,367	5,367	4,191	4,874
R^2	0.028	0.016	0.035	0.025
Firm F.E.	✓	✓		
Bank Unit F.E.	✓	✓	✓	✓
Region F.E.	✓			
Year F.E.	✓			
Region $*$ Year F.E.		✓	✓	✓
Lagged log of EBITDA			✓	
Lagged log of Total Balance			✓	
Lagged log of Total Assets				✓
Cluster Level		Bank Unit		

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

This table displays the results from estimating equation 1 only for firms that renegotiated a loan over the sample period. The observations included in the analysis are the loans that were renegotiated at least once during the sample period. The dependent variable is the log of collateral value per total balance of the renegotiated loans that firm *i* had. The dummy variable *Treat* is equal to one if the firm experienced an interruption on its relationship with the loan officer due to the bank-unit closure, and zero otherwise. The dummy variable *Post* is equal to one if the year of the observation is after the reorganization (either 2014 or 2015) and zero if it is before the reorganization (either 2012 or 2013). The bottom of the table depicts information on the fixed effects and the control variables included. Standard errors are corrected for clustering at the bank-unit level.

Table 10: Effect on log of Total Balance (exclude nonperforming loans) - Only renegotiated loans

	(1)	(2)	(3)	(4)
Post $*$ *Treat*	0.136	0.342	1.013***	0.516**
	(0.205)	(0.225)	(0.330)	(0.247)
Observations	4,068	4,068	3,274	3,766
R^2	0.031	0.043	0.040	0.045
Firm F.E.	✓	✓		
Bank Unit F.E.	✓	✓	✓	✓
Region F.E.	✓			
Year F.E.	✓			
Region $*$ Year F.E.		✓	✓	✓
Lagged log of EBITDA			✓	
Lagged log of Total Balance			✓	
Lagged log of Total Assets				✓
Cluster Level		Bank Unit		

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

This table displays the results from estimating equation 1 only for firms that renegotiated a loan over the sample period. The observations included in the analysis are the loans that were renegotiated at least once during the sample period and that were not in default. The dependent variable is the log of total balance of the renegotiated loans that firm *i* had. The nonperforming loans are excluded from this analysis as an increase in the total balance for these loans could be driven by the delayed payment. The dummy variable *Treat* is equal to one if the firm experienced an interruption on its relationship with the loan officer due to the bank-unit closure, and zero otherwise. The dummy variable *Post* is equal to one if the year of the observation is after the reorganization (either 2014 or 2015) and zero if it is before the reorganization (either 2012 or 2013). The bottom of the table depicts information on the fixed effects and the control variables included. Standard errors are corrected for clustering at the bank-unit level.

Table 11: Effect on variables related to loan performance - Only renegotiated loans

	(1) *Log of Days Past Due over Remaining Days*	(2) *Nonperforming (Dummy)*	(3) *Log of Total Provision per Total Balance*
Post $*$ *Treat*	1.576***	0.154***	0.696***
	(0.176)	(0.0395)	(0.216)
Observations	5,368	5,368	5,368
R^2	0.013	0.043	0.123
Firm F.E.	✓	✓	✓
Bank Unit F.E.	✓	✓	✓
Region $*$ Year F.E.	✓	✓	✓
Cluster Level		Bank Unit	

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

This table displays the results from estimating equation 1 only for firms that renegotiated a loan over the sample period for three variables related to loan performance. The observations included in the analysis are the loans that were renegotiated at least once during the sample period. Each column shows the estimated results for a different dependent variable. Column 1 presents the estimated result for the log of days past due a loan payment over the number of remaining days. Column 2 is the estimated result for a nonperforming dummy variable that is equal to one if the loan is characterized as nonperforming and zero otherwise. Column 3 presents the result on the log of total value of loan-loss provision over total loan balance. The dummy variable *Treat* is equal to one if the firm experienced an interruption on its relationship with the loan officer due to the bank-unit closure, and zero otherwise. The dummy variable *Post* is equal to one if the year of the observation is after the reorganization (either 2014 or 2015) and zero if it is before the reorganization (either 2012 or 2013). In the baseline regressions, firm, bank-unit, and region$*$year fixed effects are included. Standard errors are corrected for clustering at the bank-unit level.

Table 12: Effect on variables related to collateral type - Only renegotiated loans

	(1)	(2)
	Unsecured Loan	*Secure Type of Collateral*
Post $*$ *Treat*	-0.180**	0.313***
	(0.0773)	(0.103)
Observations	5,368	4,779
R^2	0.015	0.011
Firm F.E.	✓	✓
Bank Unit F.E.	✓	✓
Region $*$ Year F.E.	✓	✓
Cluster Level	Bank Unit	

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

This table displays the results from estimating equation 1 only for firms that renegotiated a loan over the sample period for two variables related to loan collateral. The observations included in the analysis are the loans that were renegotiated at least once during the sample period. Each column shows the estimated results for a different dependent variable. Column 1 presents the result for an unsecured loan dummy variable that is equal to one if firm's i loan had no collateral at time t and equal to zero otherwise. Column 2 presents the result for a secure type of collateral dummy variable that is equal to one if firm's i loan had more secure collateral at time t and zero otherwise. As more secure collateral, real estate (commercial or residential), ships, deposits, and debt securities are characterized. As less secure collateral, accounts receivable, equities or convertible bonds, and other types of guarantees are characterized. The dummy variable *Treat* is equal to one if the firm experienced an interruption on its relationship with the loan officer due to the bank-unit closure, and zero otherwise. The dummy variable *Post* is equal to one if the year of the observation is after the reorganization (either 2014 or 2015) and zero if it is before the reorganization (either 2012 or 2013). In the baseline regressions, firm, bank-unit, and region$*$year fixed effects are included. Standard errors are corrected for clustering at the bank-unit level.

Table 13: Comparison of pre-period mean values for treated and control groups - Only firms that renegotiated a loan

Variable	(1) Control	(2) Treated	(3) p - value on Difference
Loan-Related Variables:			
Total Balance	950,778.6	812,330.8	(0.656)
	(1,521,659.9)	(1,286,015.7)	
Interest Rate	0.0632	0.0665	(0.328)
	(0.0339)	(0.0335)	
Days Remaining (Maturity)	402.8	565.2	(0.561)
	(839.2)	(1062.5)	
Total Collateral Value	790,269.9	797,576.3	(0.749)
	(1,387,600.2)	(1,356,898.3)	
Unsecured Loan (Dummy)	0.340	0.339	(0.942)
	(0.443)	(0.462)	
Secure Type of Collateral (Dummy)	0.467	0.510	(0.917)
	(0.445)	(0.455)	
Performance-Related Variables:			
Nonperforming (Dummy)	0.122	0.140	(0.254)
	(0.327)	(0.347)	
Days Delayed over Remaining Days	13.10	19.76	(0.266)
	(69.75)	(68.74)	
Total Provision per Total Exposure	0.136	0.156	(0.618)
	(2.007)	(0.700)	
Ratio of Loans transferred to NPL specialized unit	0.141	0.0798	(0.110)
	(0.0576)	(0.0603)	
Debtor's Financial Information:			
Total Assets	10,413,859.5	6,882,262.0	(0.187)
	(15,273,643.4)	(7,440,389.4)	
Total Debt	7,333,025.7	5,330,367.5	(0.134)
	(11,067,786.7)	(4,948,417.3)	
Total Equity	3,402,715.3	2,163,741.2	(0.459)
	(6,372,251.9)	(3,981,664.0)	
EBITDA	1,044,784.6	601,476.2	(0.479)
	(26,063,090.9)	(2,663,656.7)	
Total Debt over EBITDA ratio	-60.75	8.174	(0.417)
	(4181.2)	(67.12)	
Leverage (Debt over Assets)	0.714	0.719	(0.521)
	(0.321)	(0.241)	

This table displays the mean values and standard deviations for the treated and control groups only for firms that renegotiated at least one loan. Column 3 reports the p-value for the difference between Columns 1 and 2. p-values are obtained from a regression of the main variable on a treatment indicator and region fixed effects. All variables and estimations are based on the 2012–2013 values.

Table 14: Identify possible selection on renegotiation

	(1) Whole Sample pre- and post-period	(2) Only control group post-period	(3) Only treated group post-period
	Renegotiation	*Renegotiation*	*Renegotiation*
All variables are in lagged logs:			
Firm Variables:			
EBITDA growth rate	0.000147	-0.0000467	0.00102***
	(0.000145)	(0.000300)	(0.000328)
Total Assets	0.000613**	0.000570**	0.000574
	(0.000229)	(0.000228)	(0.000685)
Total Debt	0.000853***	0.000802***	0.00141
	(0.000191)	(0.000192)	(0.000976)
Total Equity	0.000223	0.000209	-0.000806
	(0.000247)	(0.000265)	(0.000476)
Leverage (Debt over Assets)	0.000635***	0.000602**	0.00132*
	(0.000205)	(0.000221)	(0.000763)
Total Debt over EBITDA	0.000653***	0.000706***	0.000849
	(0.000134)	(0.000119)	(0.000715)
Loan Variables:			
Total Balance	0.00136***	0.00169***	0.00229***
	(0.000186)	(0.000190)	(0.000638)
Total Provision	0.00166***	0.00186***	0.00172***
	(0.000148)	(0.000190)	(0.000572)
Days Past Due	0.00118***	0.00121***	0.000122
	(0.000120)	(0.000135)	(0.000337)
Bank Unit F.E.	✓	✓	✓
Region ∗ Year F.E.	✓	✓	✓
Cluster Level		Bank Unit	

This table displays the estimated coefficients from separate regressions of the renegotiation dummy variable on firm and loan variables. The independent variables are constructed as the firm's rank within bank unit based on each variable's value at the year before the transfer. Bank-unit and region∗year fixed effects are included, and standard errors are clustered at the bank-unit level. Column 1 reports the estimated coefficients for the whole sample (treated and control groups over the whole period). Column 2 reports the coefficients for the control group in the post-period. Column 3 reports the coefficients for the treated group in the post-period.

Table 15: Summary statistics and Difference-in-Difference coefficients for firms in exposed and control areas - Exclude Attica and match on the zip code

	(1) Mean values for Control areas	(2) Mean values for Exposed areas	(3) p - value on Difference	(4) Coefficient from DiD
Total Assets	1,626,610.8	2,014,598.6	(0.399)	87,059.6
	(1,743,132.7)	(2,138,976.2)		(71,485.0)
Total Debt	355,360.0	549,881.4	(0.110)	-19,373.3
	(790,474.9)	(1,038,056.8)		(17,135.4)
Shareholders funds	785,544.4	907,094.8	(0.814)	33,374.6
	(1,189,319.0)	(1,129,909.4)		(25,500.5)
Number of Employees	11.37	12.33	(0.459)	0.0734
	(12.07)	(13.80)		(0.588)
EBIT	83,964.2	60,042.6	(0.114)	14,415.8
	(172,477.7)	(169,693.1)		(12,099.1)
EBIT growth Rate	-3.783	-0.167	(0.161)	26.74
	(79.72)	(9.234)		(26.61)
Net Income	32,158.8	9,409.9	(0.558)	9,655.2
	(137,600.4)	(138,692.2)		(8,291.5)
Net Income Growth Rate	-1.283	-0.942	(0.782)	1.042
	(16.41)	(20.60)		(0.975)
Operating revenue (Turnover)	1,219,683.1	1,503,067.8	(0.597)	70,398.0
	(1,796,479.7)	(2,435,916.8)		(49,835.7)
Sales	1,189,756.5	1,474,594.3	(0.576)	63,702.5
	(1,794,288.1)	(2,414,726.8)		(50,256.1)
Gross Profit	374,294.3	334,154.7	(0.436)	-4,988.0
	(454,295.2)	(475,334.0)		(37,769.4)
Cash Flow	88,236.9	81,123.2	(0.192)	5,758.8
	(175,649.1)	(168,534.7)		(14,592.4)
Return on Shareholders Funds (%)	6.544	-0.434	(0.146)	0.869
	(74.48)	(61.08)		(13.30)
Return on Total Assets (%)	3.821	1.522	(0.180)	0.744
	(14.44)	(11.76)		(1.113)
Profit Margin (%)	3.447	-0.876	(0.143)	0.906
	(21.71)	(20.89)		(0.814)

The data source for this table is the Amadeus Bureau van Dijk database, and it excludes the Attica region. The sample is restricted to areas where firms are similar. Columns 1 and 2 show the mean values and standard deviations for firms located in the zip code areas where a bank-unit closed (exposed areas) and firms located in the zip code areas where a unit remained open (control areas). Column 3 reports the p-value for the difference between Columns 1 and 2. p-values are obtained from a regression of the main variable on an indicator of whether the firm is located at the zip code area where a bank-unit closed and region fixed effects. Column 4 presents the estimate coefficients from difference-in-difference regressions on the firms' variables. All variables and estimations are based on 2012–2015 values.

Table 16: Effect on the probability of renegotiating a loan and on renegotiated loans' terms - Only areas with similar characteristics

	Extensive Margin	*Intensive Margin*		
	(1)	(1)	(2)	(3)
	Renegotiation	*Log of Interest Rate*	*Log of Remaining Maturity*	*Log of Collateral per Balance*
Post $*$ *Treat*	-0.200*	0.00617**	-0.930*	0.950***
	(0.108)	(0.00263)	(0.523)	(0.122)
Observations	6,039	2,226	2,226	2,225
R^2	0.272	0.027	0.052	0.039
Firm F.E.	✓	✓	✓	✓
Bank Unit F.E.	✓	✓	✓	✓
Region $*$ Year F.E.	✓	✓	✓	✓
Cluster Level		Bank Unit		

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

This table displays the results from estimating equation 1 only for firms located in areas where firms have no statistically different characteristics, as it is shown at table 15. In Column 1 of the results on the extensive margin, the dependent variable is a dummy that is equal to one if firm *i* renegotiated a loan at time *t* and zero otherwise.

For the estimations on the intensive margin, the observations included in the analysis are the loans that were renegotiated at least once during the sample period. Results are estimated for three loan terms. Column 1 presents the result for the log of interest rate of the renegotiated loans firm *i* had. Column 2 is the estimated result for the log of days remaining of the renegotiated loans. Column 3 presents the result on the log of collateral value per total balance of the renegotiated loans. The dummy variable *Treat* is equal to one if the firm experienced an interruption in its relationship with the loan officer due to the bank-unit closure, and zero otherwise. The dummy variable *Post* is equal to one if the year of the observation is after the reorganization (either 2014 or 2015) and zero if it is before the reorganization (either 2012 or 2013). In the baseline regressions, firm, bank-unit, and region$*$year fixed effects are included. Standard errors are corrected for clustering at the bank-unit level.

Table 17: Effect on renegotiated loans' performance - Only areas with similar characteristics

	(1) *Log of Days Past Due over Remaining Days*	(2) *Nonperforming (Dummy)*	(3) *Log of Total Provision per Total Balance*
Post ∗ *Treat*	0.420***	0.285***	0.727***
	(0.151)	(0.0568)	(0.200)
Observations	1,039	1,039	2,225
R^2	0.016	0.047	0.140
Firm F.E.	✓	✓	✓
Bank Unit F.E.	✓	✓	✓
Region ∗ Year F.E.	✓	✓	✓
Cluster Level		Bank Unit	

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

This table displays the results from estimating equation 1 only for firms located in areas where firms have no statistically different characteristics, as it is shown at table 15. The observations included in the analysis are the loans that were renegotiated at least once during the sample period. Results are estimated for three variables related to loan performance. Each column shows the estimated results for a different dependent variable. Column 1 presents the result for the log of days past due a loan payment over the number of remaining days. Column 2 is the estimated result for a nonperforming dummy variable that is equal to one if the loan is characterized as nonperforming and equal to zero otherwise. Column 3 presents the result on the log of total value of loan-loss provision over total loan balance. The dummy variable *Treat* is equal to one if the firm experienced an interruption in its relationship with the loan officer due to the bank-unit closure, and zero otherwise. The dummy variable *Post* is equal to one if the year of the observation is after the reorganization (either 2014 or 2015) and zero if it is before the reorganization (either 2012 or 2013). In the baseline regressions, firm, bank-unit, and region∗year fixed effects are included. Standard errors are corrected for clustering at the bank-unit level.

Figure 5: Rank bank units based on the number of corporate borrowers per unit in 2013

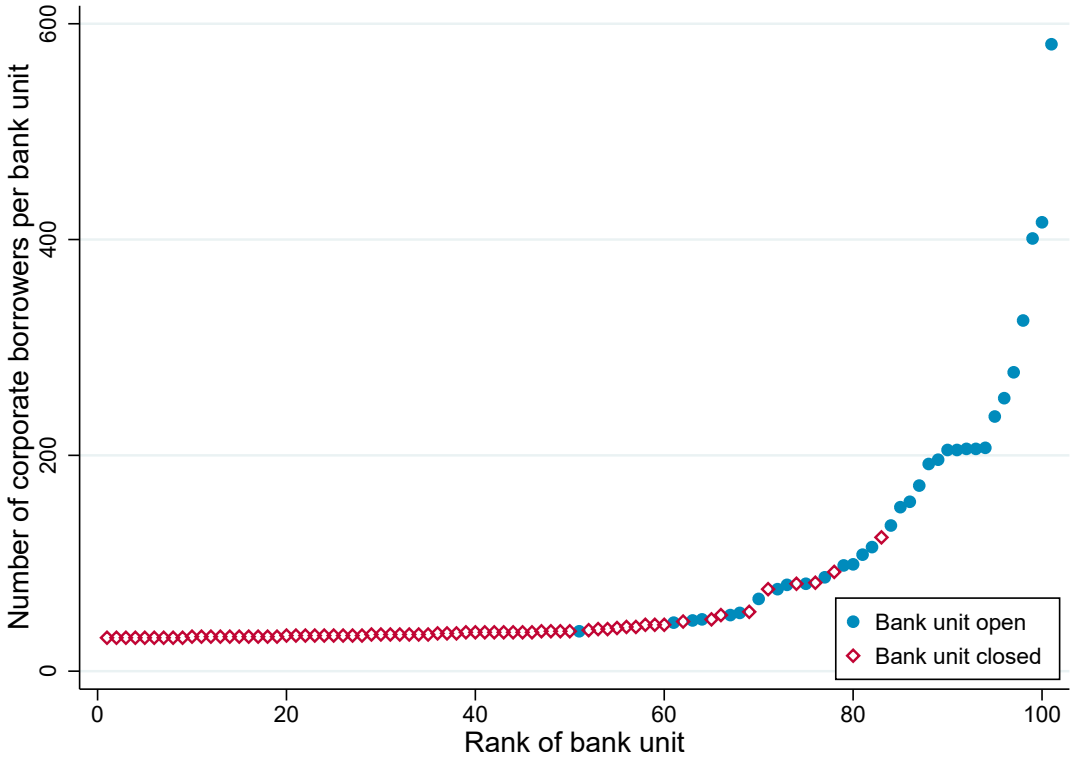


Figure 5 plots the number of corporate borrowers per bank unit in 2013 as a measure of relative size of the units. The red diamonds represent bank units that closed and the blue dots units that remained open.

Table 18: Effect on the probability of renegotiating a loan and on renegotiated loans' terms - Control for bank unit size

	Extensive Margin	*Intensive Margin*		
	(1)	(1)	(2)	(3)
	Renegotiation	*Log of Interest Rate*	*Log of Remaining Maturity*	*Log of Collateral per Balance*
Post $*$ *Treat*	-0.247***	0.00724***	-0.242***	0.966***
	(0.0450)	(0.000643)	(0.000000244)	(5.70e-14)
Observations	804	356	356	356
R^2	0.436	0.121	0.109	0.057
Firm F.E.	✓	✓	✓	✓
Bank Unit F.E.	✓	✓	✓	✓
Region $*$ Year F.E.	✓	✓	✓	✓
Cluster Level		Bank Unit		

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

This table displays the results from estimating equation 1 only for firms that were transferred to a bank unit that was at most 20% larger than their original unit. Observations on the control group are also restricted to those that were managed at the unit that received firms from units that were at most 20% smaller (from the "filtered" treated group).

In Column 1 of the results on the extensive margin, the dependent variable is a dummy that is equal to one if firm *i* renegotiated a loan at time *t* and zero otherwise.

For the estimations on the intensive margin, the observations included in the analysis are the loans that were renegotiated at least once during the sample period. Results are estimated for three loan terms. Column 1 presents the result for the log of interest rate of the renegotiated loans that firm *i* had. Column 2 is the estimated result for the log of days remaining of the renegotiated loans. Column 3 presents the result on the log of collateral value per total balance of the renegotiated loans. The dummy variable *Treat* is equal to one if the firm experienced an interruption in its relationship with the loan officer due to the bank-unit closure, and zero otherwise. The dummy variable *Post* is equal to one if the year of the observation is after the reorganization (either 2014 or 2015) and zero if it is before the reorganization (either 2012 or 2013). In the baseline regressions, firm, bank-unit, and region$*$year fixed effects are included. Standard errors are corrected for clustering at the bank-unit level.

Table 19: Effect on renegotiated loans' performance - Control for bank unit size

	(1) *Log of Days Past Due over Remaining Days*	(2) *Nonperforming (Dummy)*	(3) *Log of Total Provision per Total Balance*
Post $*$ *Treat*	0.254***	0.813***	0.634*
	(4.76e-16)	(0.188)	(0.341)
Observations	356	356	356
R^2	0.054	0.251	0.209
Firm F.E.	✓	✓	✓
Bank Unit F.E.	✓	✓	✓
Region $*$ Year F.E.	✓	✓	✓
Cluster Level		Bank Unit	

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

This table displays the results from estimating equation 1 only for firms that were transferred to a bank unit that was at most 20% larger than their original unit. Observations on the control group are also restricted to those that were managed at the unit that received firms from units that were at most 20% smaller (from the "filtered" treated group). The observations included in the analysis are the loans that were renegotiated at least once during the sample period. Results are estimated for three variables related to loan performance. Each column shows the estimated results for a different dependent variable. Column 1 presents the result for the log of days past due a loan payment over the number of remaining days. Column 2 is the estimated result for a nonperforming dummy variable that is equal to one if the loan is characterized as nonperforming and zero otherwise. Column 3 presents the result on the log of total value of loan-loss provision over total loan balance. The dummy variable *Treat* is equal to one if the firm experienced an interruption in its relationship with the loan officer due to the bank unit closure, and zero otherwise. The dummy variable *Post* is equal to one if the year of the observation is after the reorganization (either 2014 or 2015) and zero if it is before the reorganization (either 2012 or 2013). In the baseline regressions, firm, bank-unit, and region$*$year fixed effects are included. Standard errors are corrected for clustering at the bank-unit level.

Table 20: Firm Level Effects

	(1) *Log of Total Assets*	(2) *Log of Total Debt*	(3) *Log of Total Equity*	(4) *Log of Equity over Assets*	(5) *Log of Leverage*	(6) *Total Balance over Total Debt*
Post $*$ *Treat*	-0.611***	-0.783***	3.058**	0.0903***	-0.0637***	-0.106**
	(0.192)	(0.218)	(1.255)	(0.0306)	(0.0217)	(0.0406)
Observations	9,060	9,060	9,060	9,060	9,060	9,060
R^2	0.012	0.010	0.014	0.012	0.010	0.022
Firm F.E.	✓	✓	✓	✓	✓	✓
Bank unit F.E.	✓	✓	✓	✓	✓	✓
Region $*$ Year F.E.	✓	✓	✓	✓	✓	✓
Cluster Level				Bank unit		

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

This table displays the results of an interruption in the relationship between a loan officer and a firm from estimating equation 1 on firm financial variables. In Column 1, the dependent variable is the log of total assets of firm i at year t. In Column 2, the dependent variable is the log of total debt. In Column 3, the dependent variable is the log of total equity. In Column 4, the dependent variable is the log of the ratio of total equity over total assets. In Column 5, the dependent variable is the log of the firm's leverage. Leverage is defined as the ratio of total debt over total assets. In Column 6, the dependent variable is the ratio of the total balance at this bank over the total debt to all banks that a firm i has at year t. This is a measure of how much a firm borrows from this bank relative to its total debt from all banks. The dummy variable *Treat* is equal to one if the firm experienced an interruption on its relationship with the loan officer due to the bank unit closure, and zero otherwise. The dummy variable *Post* is equal to one if the year of the observation is after the reorganization (either 2014 or 2015) and zero if it is before the reorganization (either 2012 or 2013). Firm, bank unit, and region$*$year fixed effects are included. The bottom of the table depicts information on the fixed effects and the control variables included. Standard errors are corrected for clustering at the bank unit level.

Table 21: Correlation of relationship strength with probability to renegotiate

	Whole sample		*Only control*		*Only treated*	
	(1)	(2)	(1)	(2)	(1)	(2)
	Pre-period	*Post-period*	*Pre-period*	*Post-period*	*Pre-period*	*Post-period*
Dependence Ratio	0.0440***	0.147***	0.0321**	0.140***	0.162***	0.0621
	(0.0120)	(0.0272)	(0.0123)	(0.0267)	(0.0444)	(0.0811)
R^2	0.422	0.013	0.431	0.014	0.378	0.103
Bank Unit F.E.	✓	✓	✓	✓	✓	✓
Region $*$ Year F.E.	✓	✓	✓	✓	✓	✓
Cluster Level	Bank Unit					

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

This table displays the estimated coefficients from separate regressions of the renegotiation dummy variable on the *dependence ratio*. The *dependence ratio* is the ratio of the total balance that a firm has at this bank over the total debt that the firm has at all banks. The *dependence ratio* is used as an approximate measure of relationship strength. Bank-unit and region$*$year fixed effects are included, and standard errors are clustered at the bank unit level. The first two columns present the coefficients for the whole sample for the pre- and post-period separately. The second two columns present the coefficients only for the control group for the pre- and post-period separately. The last two columns present the coefficients only for the treated group for the pre- and post-period separately.

Figure 6: Density distribution of the *dependence ratio*

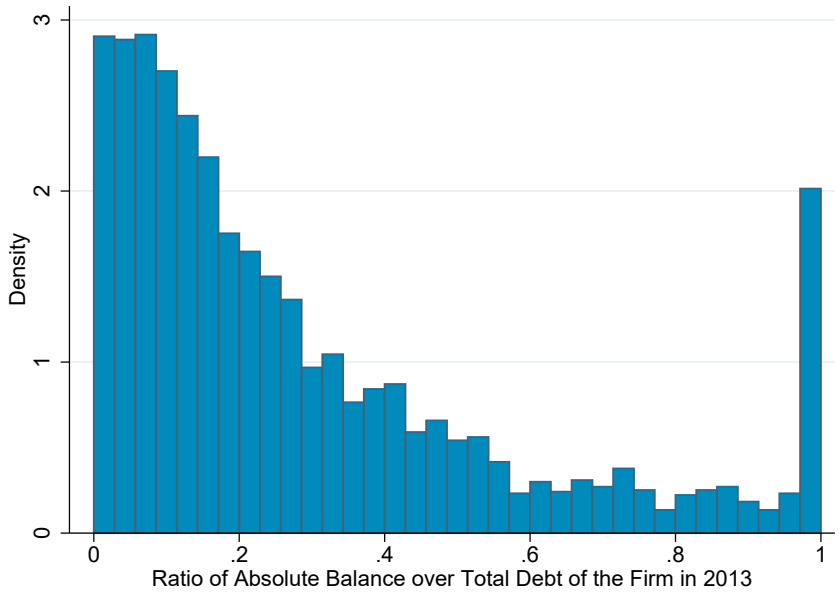


Figure 6 plots the density distribution of the *dependence ratio* as measured in 2013.
The *dependence ratio* is defined as the ratio of the total balance that a firm has at this bank over the total bank debt of the firm.

Table 22: Effect on renegotiating a loan (extensive margin) - Based on relationship strength

	Closer Relationship	*Less Close Relationship*
	(1)	(2)
	Renegotiation	*Renegotiation*
Post $*$ *Treat*	-0.280**	-0.289**
	(0.105)	(0.132)
Observations	2,106	6,991
R^2	0.296	0.259
Firm F.E.	✓	✓
Bank Unit F.E.	✓	✓
Region $*$ Year F.E.	✓	✓
Cluster Level	Bank Unit	

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

This table displays the results from estimating equation 1 separately for firms with a closer relationship with the bank and for firms with a less close relationship. Firms with a *closer relationship* are defined those with dependence ratio above 50% in 2013. As firms with a *less close relationship*, are defined those with dependence ratio below 20% in 2013. The dependent variable is a dummy that is equal to one if firm *i* renegotiated a loan at time *t* and zero otherwise. The dummy variable *Treat* is equal to one if the firm experienced an interruption in its relationship with the loan officer due to the bank-unit closure, and zero otherwise. The dummy variable *Post* is equal to one if the year of the observation is after the reorganization (either 2014 or 2015) and zero if it is before the reorganization (either 2012 or 2013). The bottom of the table depicts information on the fixed effects and the control variables included. Standard errors are corrected for clustering at the bank-unit level.

Table 23: Effect on renegotiated loans' terms - Based on relationship strength

	Closer Relationship			*Less Close Relationship*		
	(1)	(2)	(3)	(1)	(2)	(3)
	Log of Interest Rate	*Log of Days Remaining*	*Log of Collateral Value over Total Balance*	*Log of Interest Rate*	*Log of Days Remaining*	*Log of Collateral Value over Total Balance*
Post $*$ *Treat*	0.0212***	-3.360***	1.686***	-0.0129***	2.349***	-0.587**
	(0.00477)	(0.996)	(0.261)	(0.00412)	(0.566)	(0.263)
Observations	985	985	985	3,107	3,107	3,106
R^2	0.011	0.031	0.037	0.007	0.031	0.019
Firm F.E.	✓	✓	✓	✓	✓	✓
Bank Unit F.E.	✓	✓	✓	✓	✓	✓
Region $*$ Year F.E.	✓	✓	✓	✓	✓	✓
Cluster Level	Bank Unit					

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

This table displays the results from estimating equation 1 separately for firms with a closer relationship with the bank and for firms with a less close relationship. Firms with a *closer relationship* are defined as those with dependence ratio above 50% in 2013. Firms with a *less close relationship* are defined those with dependence ratio below 20% in 2013. For these estimations, the observations included in the analysis are the loans that were renegotiated at least once during the sample period. Results are estimated for three loan terms. Column 1 presents the result for the log of interest rate of the renegotiated loans that firm *i* had. Column 2 is the estimated result for the log of days remaining of the renegotiated loans. Column 3 presents the result on the log of collateral value per total balance of the renegotiated loans. The dummy variable *Treat* is equal to one if the firm experienced an interruption in its relationship with the loan officer due to the bank-unit closure, and zero otherwise. The dummy variable *Post* is equal to one if the year of the observation is after the reorganization (either 2014 or 2015) and zero if it is before the reorganization (either 2012 or 2013). In the baseline regressions, firm, bank-unit, and region$*$year fixed effects are included. Standard errors are corrected for clustering at the bank-unit level.

Table 24: Effect on renegotiated loans' performance - Based on relationship strength

	Closer Relationship			*Less Close Relationship*		
	(1)	(2)	(3)	(1)	(2)	(3)
	Log of Days Past Due over Remaining Days	*Nonperforming (Dummy)*	*Log of Total Provision per Total Balance*	*Log of Days Past Due over Remaining Days*	*Nonperforming (Dummy)*	*Log of Total Provision per Total Balance*
Post∗Treat	-0.0896	-1.015***	-0.0235	1.641***	0.353***	-0.146
	(0.346)	(0.0627)	(0.237)	(0.320)	(0.0530)	(0.133)
Observations	985	985	985	3,107	3,107	3,106
R^2	0.032	0.067	0.072	0.013	0.043	0.026
Firm F.E.	✓	✓	✓	✓	✓	✓
Bank Unit F.E.	✓	✓	✓	✓	✓	✓
Region∗Year F.E.	✓	✓	✓	✓	✓	✓
Cluster Level	Bank Unit					

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

This table displays the results from estimating equation 1 separately for firms with a closer relationship with the bank and for firms with a less close relationship. Firms with a *closer relationship* are defined those with dependence ratio above 50% in 2013. Firms with a *less close relationship* are defined those with dependence ratio below 20% in 2013. For these estimations, the observations included in the analysis are the loans that were renegotiated at least once during the sample period. Results are estimated for three variables related to loan performance. Column 1 presents the result for the log of a loan payment's days past due over the number of remaining days. Column 2 is the estimated result for a nonperforming dummy variable that is equal to one if the loan is characterized as nonperforming and equal to zero otherwise. Column 3 presents the result on the log of total value of loan-loss provision over total loan balance. The dummy variable *Treat* is equal to one if the firm experienced an interruption on its relationship with the loan officer due to the bank unit closure, and zero otherwise. The dummy variable *Post* is equal to one if the year of the observation is after the reorganization (either 2014 or 2015) and zero if it is before the reorganization (either 2012 or 2013). In the baseline regressions, firm, bank-unit, and region∗year fixed effects are included. Standard errors are corrected for clustering at the bank-unit level.

Table 25: Summary statistics for interactions in 2013

	mean	sd	min	p5	p25	p50	p75	p95	max
Number of loans	3.624004	3.505157	1	1	1	2	5	11	31
Number of interactions	3.630204	3.524094	0	1	1	2	5	11	29
Number of new loans	1.821081	2.249178	0	0	0	1	3	6	14
Number of renegotiations	1.809123	2.236438	0	0	1	1	2	6	23

This table displays the summary statistics of the number of loans, interactions, new loans, and renegotiations that a firm has per year. An interaction is defined as either the issuance of a new loan or a renegotiation of a loan.

Figure 7: Density of number of interactions

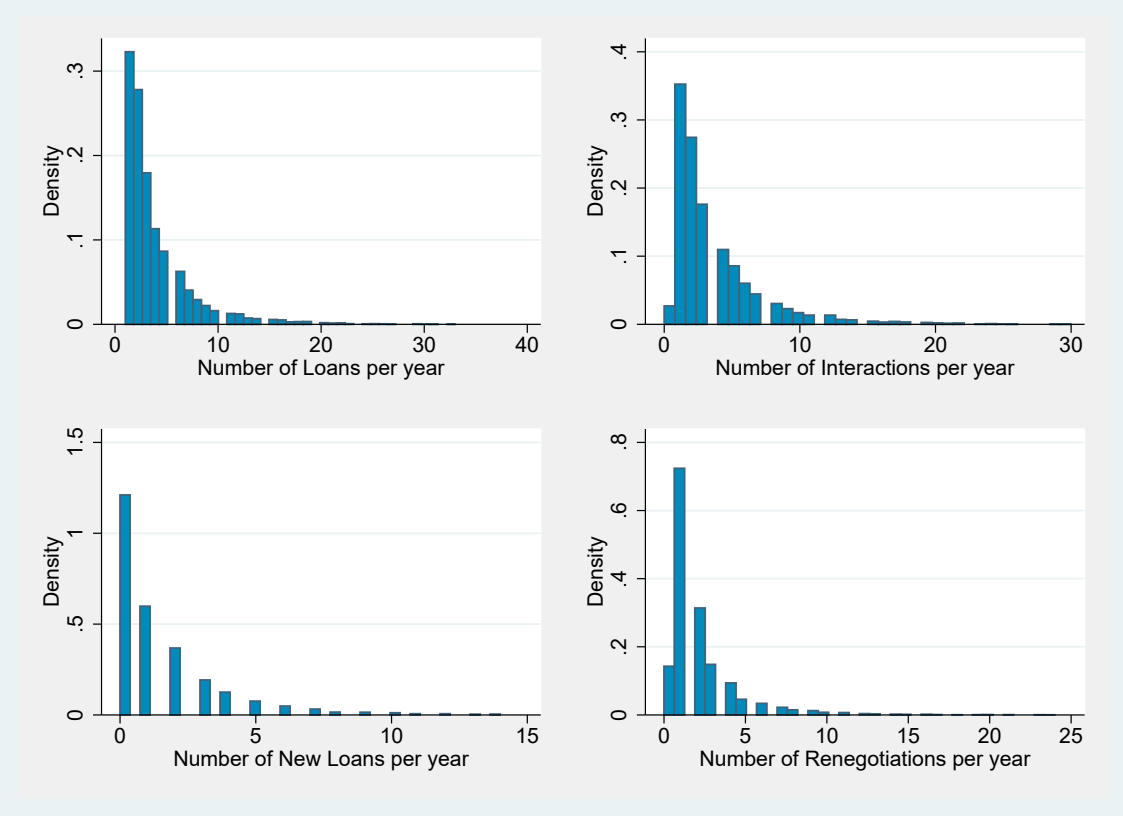


Figure 7 plots the density distributions of the number of loans, interactions, new loans, and renegotiations that a firm has per year. An interaction is defined as either the issuance of a new loan or a renegotiation of a loan.

Table 26: Effect on renegotiating a loan (extensive margin) - By number of interactions in 2013

	More than two interactions	*Two or less interactions*
	(1)	(2)
	Renegotiation	*Renegotiation*
Post ∗ *Treat*	0.270***	-0.373***
	(0.0946)	(0.0517)
Observations	5,141	7,626
R^2	0.384	0.164
Firm F.E.	✓	✓
Bank Unit F.E.	✓	✓
Region ∗ Year F.E.	✓	✓
Cluster Level	Bank Unit	

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

This table displays the results from estimating equation 1 separately for firms that had more than two interactions with the bank in 2013 and for firms that had two or fewer interactions in 2013. An interaction is defined as either the issuance of a new loan or a renegotiation of an existing loan. The dependent variable is a dummy variable that is equal to one if firm *i* renegotiated a loan at time *t* and zero otherwise. The dummy variable *Treat* is equal to one if the firm experienced an interruption in its relationship with the loan officer due to the bank unit closure, and zero otherwise. The dummy variable *Post* is equal to one if the year of the observation is after the reorganization (either 2014 or 2015) and zero if it is before the reorganization (either 2012 or 2013). The bottom of the table depicts information on the fixed effects and the control variables included. Standard errors are corrected for clustering at the bank-unit level.

Table 27: Effect on renegotiated loans' terms - By number of interactions in 2013

	More than two interactions			*Two or less interactions*		
	(1)	(2)	(3)	(1)	(2)	(3)
	Log of Interest Rate	*Log of Days Remaining*	*Log of Collateral Value over Total Balance*	*Log of Interest Rate*	*Log of Days Remaining*	*Log of Collateral Value over Total Balance*
Post $*$ *Treat*	0.0143***	-0.896*	1.167***	0.00796**	-1.235	0.781*
	(0.00304)	(0.454)	(0.175)	(0.00354)	(1.013)	(0.440)
Observations	2,845	2,845	2,844	2,302	2,302	2,302
R^2	0.007	0.021	0.014	0.018	0.023	0.026
Firm F.E.	✓	✓	✓	✓	✓	✓
Bank Unit F.E.	✓	✓	✓	✓	✓	✓
Region $*$ Year F.E.	✓	✓	✓	✓	✓	✓
Cluster Level	Bank Unit					

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

This table displays the results from estimating equation 1 separately for firms that had more than two interactions with the bank in 2013 and for firms that had two or fewer interactions in 2013. An interaction is defined as either the issuance of a new loan or a renegotiation of a loan. For these estimations, the observations included in the analysis are the loans that were renegotiated at least once during the sample period. Results are estimated for three loan terms. Column 1 presents the result for the log of interest rate of the renegotiated loans that firm *i* had. Column 2 is the estimated result for the log of days remaining of the renegotiated loans. Column 3 presents the result on the log of collateral value per total balance of the renegotiated loans. The dummy variable *Treat* is equal to one if the firm experienced an interruption in its relationship with the loan officer due to the bank-unit closure, and zero otherwise. The dummy variable *Post* is equal to one if the year of the observation is after the reorganization (either 2014 or 2015) and zero if it is before the reorganization (either 2012 or 2013). In the baseline regressions, firm, bank-unit, and region$*$year fixed effects are included. Standard errors are corrected for clustering at the bank-unit level.

Table 28: Effect on renegotiated loans' performance - By number of interactions in 2013

	More than two interactions			*Two or less interactions*		
	(1)	(2)	(3)	(1)	(2)	(3)
	Log of Days Past Due over Remaining Days	*Nonperforming (Dummy)*	*Log of Total Provision per Total Balance*	*Log of Days Past Due over Remaining Days*	*Nonperforming (Dummy)*	*Log of Total Provision per Total Balance*
Post $*$ *Treat*	0.540	0.0238	-0.460***	2.308***	0.257***	0.740***
	(0.543)	(0.0392)	(0.109)	(0.648)	(0.0723)	(0.185)
Observations	2,845	2,845	2,844	2,302	2,302	2,302
R^2	0.014	0.043	0.040	0.030	0.051	0.049
Firm F.E.	✓	✓	✓	✓	✓	✓
Bank Unit F.E.	✓	✓	✓	✓	✓	✓
Region$*$Year F.E.	✓	✓	✓	✓	✓	✓
Cluster Level	Bank Unit					

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

This table displays the results from estimating equation 1 separately for firms that had more than two interactions with the bank in 2013 and for firms that had two or fewer interactions in 2013. An interaction is defined as either the issuance of a new loan or a renegotiation of a loan. For these estimations, the observations included in the analysis are the loans that were renegotiated at least once during the sample period. Results are estimated for three variables related to loan performance. Column 1 presents the result for the log of days past due a loan payment over the number of remaining days. Column 2 is the estimated result for a nonperforming dummy variable that is equal to one if the loan is characterized as nonperforming and equal to zero otherwise. Column 3 presents the result on the log of total value of loan-loss provision over total loan balance. The dummy variable *Treat* is equal to one if the firm experienced an interruption in its relationship with the loan officer due to the bank-unit closure, and zero otherwise. The dummy variable *Post* is equal to one if the year of the observation is after the reorganization (either 2014 or 2015) and zero if it is before the reorganization (either 2012 or 2013). In the baseline regressions, firm, bank-unit, and region$*$year fixed effects are included. Standard errors are corrected for clustering at the bank-unit level.

Figure 8: Density distribution of the firm's relative size

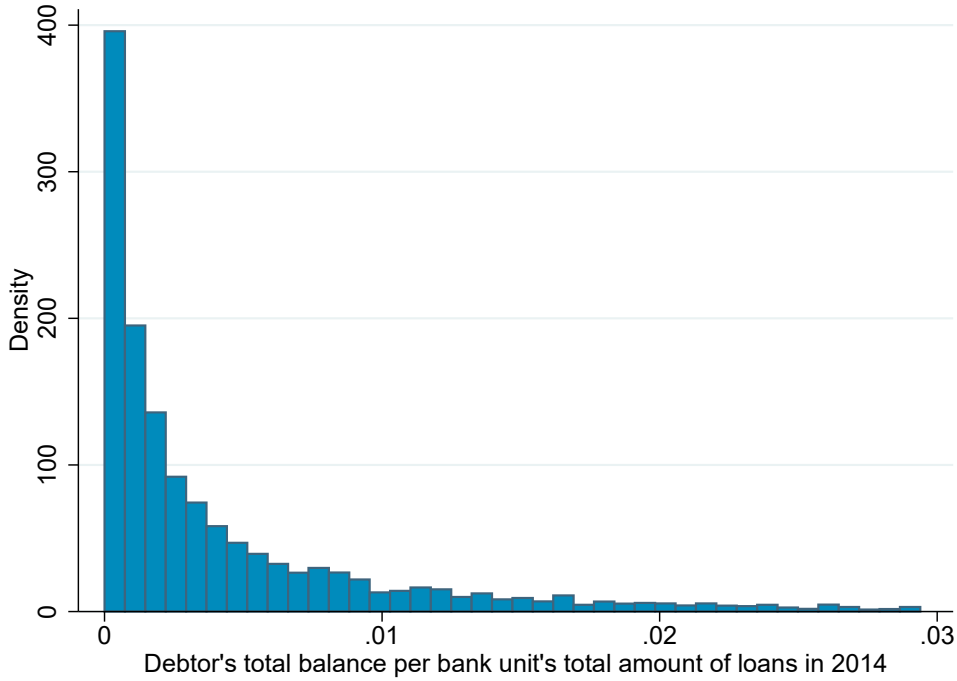


Figure 8 plots the density distribution of the firm's relative size as a corporate client within bank unit. The measure of firm's relative size is the ratio of the firm's total balance at the bank unit over the total amount of loans that each bank unit manages in 2014.

Table 29: Effect on renegotiating a loan (extensive margin) - By firm's relative size as bank's corporate client within unit in 2014

	Smaller balance	*Larger balance*
	(1)	(2)
	Renegotiation	*Renegotiation*
Post ∗ *Treat*	-0.385***	-0.102
	(0.0540)	(0.116)
Observations	10,296	2,937
R^2	0.264	0.389
Firm F.E.	✓	✓
Bank Unit F.E.	✓	✓
Region ∗ Year F.E.	✓	✓
Cluster Level	Bank Unit	

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

This table displays the results from estimating equation 1 separately for firms that had a smaller balance at the bank unit in 2014 and for firms that had a larger balance. Larger firms are defined as those whose balance at the specific bank unit accounts for at least 1% of the total amount of corporate loans that the unit manages. The rest of the sample is defined as relatively smaller firms. The dependent variable is a dummy variable that is equal to one if firm *i* renegotiated a loan at time *t* and zero otherwise. The dummy variable *Treat* is equal to one if the firm experienced an interruption in its relationship with the loan officer due to the bank-unit closure, and zero otherwise. The dummy variable *Post* is equal to one if the year of the observation is after the reorganization (either 2014 or 2015) and zero if it is before the reorganization (either 2012 or 2013). The bottom of the table depicts information on the fixed effects and the control variables included. Standard errors are corrected for clustering at the bank-unit level.

Table 30: Effect on renegotiated loans' terms - By firm's relative size as bank's corporate client within unit in 2014

	Smaller balance			*Larger balance*		
	(1)	(2)	(3)	(1)	(2)	(3)
	Log of Interest Rate	*Log of Days Remaining*	*Log of Collateral Value over Total Balance*	*Log of Interest Rate*	*Log of Days Remaining*	*Log of Collateral Value over Total Balance*
Post $*$ *Treat*	0.00631	-0.0467	0.256*	0.0186***	-4.194***	1.330***
	(0.00444)	(0.477)	(0.149)	(0.00679)	(0.652)	(0.430)
Observations	3,366	3,366	3,365	2,002	2,002	2,002
R^2	0.010	0.031	0.021	0.008	0.021	0.019
Firm F.E.	✓	✓	✓	✓	✓	✓
Bank Unit F.E.	✓	✓	✓	✓	✓	✓
Region $*$ Year F.E.	✓	✓	✓	✓	✓	✓
Cluster Level	Bank Unit					

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

This table displays the results from estimating equation 1 separately for firms that had a smaller balance at the bank unit in 2014 and for firms that had a larger balance. Larger firms are defined as those whose balance at the specific bank unit accounts for at least 1% of the total amount of corporate loans that the unit manages. The rest of the sample is defined as relatively smaller firms. For these estimations, the observations included in the analysis are the loans that were renegotiated at least once during the sample period. Results are estimated for three loan terms. Column 1 presents the result for the log of interest rate of the renegotiated loans that firm *i* had. Column 2 is the estimated result for the log of days remaining of the renegotiated loans. Column 3 presents the result on the log of collateral value per total balance of the renegotiated loans. The dummy variable *Treat* is equal to one if the firm experienced an interruption in its relationship with the loan officer due to the bank unit closure, and zero otherwise. The dummy variable *Post* is equal to one if the year of the observation is after the reorganization (either 2014 or 2015) and zero if it is before the reorganization (either 2012 or 2013). In the baseline regressions, firm, bank-unit, and region$*$year fixed effects are included. Standard errors are corrected for clustering at the bank-unit level.

Table 31: Effect on renegotiated loans' performance - By firm's relative size as bank's corporate client within unit in 2014

	Smaller balance			*Larger balance*		
	(1)	(2)	(3)	(1)	(2)	(3)
	Log of Days Past Due over Remaining Days	*Nonperforming (Dummy)*	*Log of Total Provision per Total Balance*	*Log of Days Past Due over Remaining Days*	*Nonperforming (Dummy)*	*Log of Total Provision per Total Balance*
Post∗Treat	1.876***	0.502***	0.833***	1.825***	-0.877***	0.538
	(0.204)	(0.0204)	(0.141)	(0.378)	(0.165)	(0.493)
Observations	3,366	3,366	3365	2,002	2,002	2,002
R^2	0.026	0.134	0.113	0.007	0.129	0.154
Firm F.E.	✓	✓	✓	✓	✓	✓
Bank Unit F.E.	✓	✓	✓	✓	✓	✓
Region∗Year F.E.	✓	✓	✓	✓	✓	✓
Cluster Level	Bank Unit					

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

This table displays the results from estimating equation 1 separately for firms that had a smaller balance at the bank unit in 2014 and for firms that had a larger balance. Larger firms are defined as those whose balance at the specific bank unit accounts for at least 1% of the total amount of corporate loans that the unit manages. The rest of the sample is defined as relatively smaller firms. For these estimations, the observations included in the analysis are the loans that were renegotiated at least once during the sample period. Results are estimated for three variables related to loan performance. Column 1 presents the result for the log of days past due a loan payment over the number of remaining days. Column 2 is the estimated result for a nonperforming dummy variable that is equal to one if the loan is characterized as nonperforming and zero otherwise. Column 3 presents the result on the log of total value of loan-loss provision over total loan balance. The dummy variable *Treat* is equal to one if the firm experienced an interruption in its relationship with the loan officer due to the bank-unit closure, and zero otherwise. The dummy variable *Post* is equal to one if the year of the observation is after the reorganization (either 2014 or 2015) and zero if it is before the reorganization (either 2012 or 2013). In the baseline regressions, firm, bank-unit, and region∗year fixed effects are included. Standard errors are corrected for clustering at the bank-unit level.

Table 32: Effect on renegotiating a loan (extensive margin) - By firm's pre-period performance

	Delayed loan payment	*On time loan payment*
	(1)	(2)
	Renegotiation	*Renegotiation*
Post ∗ *Treat*	-0.301***	-0.189*
	(0.0883)	(0.107)
Observations	3,764	9,469
R^2	0.420	0.245
Firm F.E.	✓	✓
Bank Unit F.E.	✓	✓
Region ∗ Year F.E.	✓	✓
Cluster Level	Bank Unit	

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

This table displays the results from estimating equation 1 separately for firms that delayed a loan payment in 2013 and for firms that paid their loans on time in 2013. The dependent variable is a dummy variable that is equal to one if firm *i* renegotiated a loan at time *t* and zero otherwise. The dummy variable *Treat* is equal to one if the firm experienced an interruption in its relationship with the loan officer due to the bank-unit closure, and zero otherwise. The dummy variable *Post* is equal to one if the year of the observation is after the reorganization (either 2014 or 2015) and zero if it is before the reorganization (either 2012 or 2013). The bottom of the table depicts information on the fixed effects and the control variables included. Standard errors are corrected for clustering at the bank-unit level.

Table 33: Effect on renegotiated loans' terms - By firm's pre-period performance

	Delayed loan payment			*On time loan payment*		
	(1)	(2)	(3)	(1)	(2)	(3)
	Log of Interest Rate	*Log of Days Remaining*	*Log of Collateral Value over Total Balance*	*Log of Interest Rate*	*Log of Days Remaining*	*Log of Collateral Value over Total Balance*
Post $*$ *Treat*	0.0136***	-1.127***	0.461**	0.00955***	-0.698*	1.034***
	(0.00280)	(0.311)	(0.170)	(0.00345)	(0.370)	(0.348)
Observations	1,866	1,866	1,866	3,502	3,502	3,501
R^2	0.014	0.033	0.017	0.006	0.012	0.019
Firm F.E.	✓	✓	✓	✓	✓	✓
Bank Unit F.E.	✓	✓	✓	✓	✓	✓
Region $*$ Year F.E.	✓	✓	✓	✓	✓	✓
Cluster Level	Bank Unit					

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

This table displays the results from estimating equation 1 separately for firms that delayed a loan payment in 2013 and for firms that paid their loans on time in 2013. For these estimations, the observations included in the analysis are the loans that were renegotiated at least once during the sample period. Results are estimated for three loan terms. Column 1 presents the result for the log of interest rate of the renegotiated loans that firm *i* had. Column 2 is the estimated result for the log of days remaining of the renegotiated loans. Column 3 presents the result on the log of collateral value per total balance of the renegotiated loans. The dummy variable *Treat* is equal to one if the firm experienced an interruption in its relationship with the loan officer due to the bank-unit closure, and zero otherwise. The dummy variable *Post* is equal to one if the year of the observation is after the reorganization (either 2014 or 2015) and zero if it is before the reorganization (either 2012 or 2013). In the baseline regressions, firm, bank-unit, and region$*$year fixed effects are included. Standard errors are corrected for clustering at the bank-unit level.

Table 34: Effect on renegotiated loans' performance - By firm's pre-period performance

	Delayed loan payment			*On time loan payment*		
	(1)	(2)	(3)	(1)	(2)	(3)
	Log of Days Past Due over Remaining Days	*Nonperforming (Dummy)*	*Log of Total Provision per Total Balance*	*Log of Days Past Due over Remaining Days*	*Nonperforming (Dummy)*	*Log of Total Provision per Total Balance*
Post∗Treat	1.263***	-0.129**	-0.411***	1.706***	0.202***	0.637***
	(0.370)	(0.0503)	(0.126)	(0.256)	(0.0514)	(0.134)
Observations	1,866	1,866	1,866	3,502	3,502	3,501
R^2	0.027	0.078	0.040	0.051	0.050	0.040
Firm F.E.	✓	✓	✓	✓	✓	✓
Bank Unit F.E.	✓	✓	✓	✓	✓	✓
Region∗Year F.E.	✓	✓	✓	✓	✓	✓
Cluster Level	Bank Unit					

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

This table displays the results from estimating equation 1 separately for firms that delayed a loan payment in 2013 and for firms that paid their loans on time in 2013. For these estimations, the observations included in the analysis are the loans that were renegotiated at least once during the sample period. Results are estimated for three variables related to loan performance. Column 1 presents the result for the log of a loan payment's days past due over the number of remaining days. Column 2 is the estimated result for a nonperforming dummy variable that is equal to one if the loan is characterized as nonperforming and equal to zero otherwise. Column 3 presents the result on the log of total value of loan-loss provision over total loan balance. The dummy variable *Treat* is equal to one if the firm experienced an interruption in its relationship with the loan officer due to the bank-unit closure, and zero otherwise. The dummy variable *Post* is equal to one if the year of the observation is after the reorganization (either 2014 or 2015) and zero if it is before the reorganization (either 2012 or 2013). In the baseline regressions, firm, bank-unit, and region∗year fixed effects are included. Standard errors are corrected for clustering at the bank-unit level.

Table 35: Unconditional effect on loan terms

	(1) *Log of Total Balance*	(2) *Log of Interest rate*	(3) *Log of Days remaining*	(4) *Log of Collateral per Balance*	(5) *Unsecured Loan (Dummy)*	(6) *Secure Collateral (Dummy)*
Post $*$ *Treat*	0.0458	-0.00177	0.172	-0.0323	-0.000893	-0.00402
	(0.0419)	(0.00150)	(0.142)	(0.0554)	(0.0370)	(0.0397)
Observations	14,540	14,540	14,540	14,540	14,540	11,243
R^2	0.030	0.049	0.056	0.035	0.018	0.012
Firm F.E.	✓	✓	✓	✓	✓	✓
Bank unit F.E.	✓	✓	✓	✓	✓	✓
Region $*$ Year F.E.	✓	✓	✓	✓	✓	✓
Cluster Level			Bank unit			

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

This table displays the results from estimating equation 1 for all loans that firms hold over the sample period. The observations included in the analysis are the new loans, loans that were renegotiated, and old loans that weren't renegotiated. The dependent variables are the log of interest rate, log of days remaining, log of collateral value per total balance, a dummy variable for whether the loan was unsecured, a dummy variable for whether the collateral pledged was secure type, for the loans that firm i had at year t. The dummy variable *Treat* is equal to one if the firm experienced an interruption on its relationship with the loan officer due to the bank-unit closure, and zero otherwise. The dummy variable *Post* is equal to one if the year of the observation is after the reorganization (either 2014 or 2015) and zero if it is before the re-organization (either 2012 or 2013). Firm, bank-unit, and region$*$year fixed effects are included. Standard errors are corrected for clustering at the bank-unit level.

Table 36: Unconditional effect on loans' performance

	(1) *Log of Days Past Due over Remaining Days*	(2) *Nonperforming (Dummy)*	(3) *Log of Total Provision per Total Balance*
Post ∗ *Treat*	-0.140	0.0951***	0.0198
	(0.107)	(0.0308)	(0.0247)
Observations	14,540	14,540	14,538
R^2	0.048	0.164	0.209
Firm F.E.	✓	✓	✓
Bank unit F.E.	✓	✓	✓
Region ∗ Year F.E.	✓	✓	✓
Cluster Level		Bank unit	

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

This table displays the results from estimating equation 1 for all loans that firms hold over the sample period. The observations included in the analysis are the new loans, loans that were renegotiated, and old loans that were not renegotiated. The dependent variables are the log of days past due over the number of remaining days, a nonperforming dummy variable, and the log of total provision over total balance for the loans that firm *i* had at year *t*. The dummy variable *Treat* is equal to one if the firm experienced an interruption in its relationship with the loan officer due to the bank-unit closure ,and zero otherwise. The dummy variable *Post* is equal to one if the year of the observation is after the reorganization (either 2014 or 2015) and zero if it is before the reorganization (either 2012 or 2013). Firm, bank-unit, and region∗year fixed effects are included. Standard errors are corrected for clustering at the bank-unit level.

Table 37: Effect on new loans

	Extensive marign	Intensive margin			
	(1)	(1)	(2)	(3)	(4)
	Log of Number of New Loans	*Log of Total Loan Amount*	*Log of Interest rate*	*Log of Days remaining*	*Log of Collateral per Loan Amount*
Treat	-0.301***	-0.896***	0.00806**	-0.791*	-0.128
	(0.0603)	(0.164)	(0.00341)	(0.453)	(0.0987)
Observations	4,254	4,254	4,254	4,254	4,217
R^2	0.053	0.011	0.008	0.020	0.012
Bank Unit F.E.	✓	✓	✓	✓	✓
Region ∗ Year F.E.	✓	✓	✓	✓	✓
Cluster Level			Bank Unit		

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

This table displays the results from estimating equation 2 for the new loans that firms received in the post-period (2014–2015). The dependent variable for the extensive margin is the log of number of new loans that firm *i* received at year *t*. On the intensive margin, the dependent variables are the loan terms of the new loans. In particular, these are the log of the total amount, log of interest rate, log of remaining days, log of collateral value per loan amount. The dummy variable *Treat* is equal to one if the firm experienced an interruption on its relationship with the loan officer due to the bank-unit closure, and zero otherwise. Bank-unit, and region∗year fixed effects are included. Standard errors are corrected for clustering at the bank-unit level.

Table 38: Effect on new loans' performance

	(1) *Log of Days Past Due per Remaining Days*	(2) *Nonperforming (Dummy)*	(3) *Log of Total Provision per Total Balance*
Treat	0.192	0.0627	-0.0469
	(0.138)	(0.0510)	(0.0379)
Observations	4,254	4,254	4,217
R^2	0.002	0.004	0.013
Bank Unit F.E.	✓	✓	✓
Region $*$ Year F.E.	✓	✓	✓
Cluster Level		Bank Unit	

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

This table displays the results from estimating equation 2 for the new loans performance that a firm i received in the post-period (2014–2015). The results are estimated for three variables related to loans' performance. The dependent variables are the log of a loan's payment days past due over remaining days, a nonperforming dummy variable, and the log of total loan-loss provision over total balance. The dummy variable *Treat* is equal to one if the firm experienced an interruption in its relationship with the loan officer due to the bank-unit closure, and zero otherwise. Bank-unit, and region$*$year fixed effects are included. Standard errors are corrected for clustering at the bank-unit level.