Relationship lending: A source of support or a means of exploitation?

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ABSTRACT

Using a dataset from the State Bank of Pakistan containing *each and every* commercial loan generated in the economy from 2006 to 2013, we find that, on average, a longer relationship length is associated with lower risk premiums but higher collateral requirements. However, further examination paints a far more complex picture. The impact of relationship length on risk premiums and collateral varies substantially with the type of lender, as well as the type of borrower. We argue that conflicting empirical findings on relationship lending are the result of using datasets limited to certain types of borrowers or financial institutions.

1. Introduction

Relationship lending is characterized by a long-term bilateral relationship between a lender and borrower. Over this time, the lender collects private information about the borrower, affording it a competitive advantage over other financial institutions (Haubrich, 1989). There are conflicting empirical findings related to relationship lending: support can be found for its being both advantageous and detrimental for borrowers. Studies of relationship lending have been hampered by data limitations; they have been limited to either certain types of financial institutions or certain types of borrowers, or both. Kysucky and Norden (2016) analyze 101 studies on relationship lending and propose that differences in empirical findings are caused by country effects. In contrast, we argue that these differences may result from limited datasets.

We utilize a unique dataset of *each and every* commercial loan extended by *all* financial institutions to firms in Pakistan from April 2006 to December 2013, and explore differences among banks, nonbank financial institutions (NBFIs)[1], foreign banks, domestic financial institutions, government financial institutions, private lenders, large banks, and small and medium-sized financial institutions. In addition, we examine the impact of relationship lending for Government firms, listed firms and small and medium enterprises (SMEs)[2] with various types of lenders. This is the first study, to the best of our knowledge, that examines the impact of relationship for government firms. The literature on relationship lending, as we explain in section 3.2, has so far examined only the variation between small and large banks. Our study highlights the advantages of using an exhaustive dataset.

The Pakistani database we utilize, although unrivalled in the extent of its coverage, is from a developing economy. Relationship lending plays a vital role for financial intermediation in such economies, which are well known to have acute information asymmetry and poor collateral enforcement (Hainz, 2003). In contrast, in developed economies relationship lending has declined because of the greater availability of good, hard

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[1] NBFIs include investment banks, leasing companies, housing finance companies, and development finance institutions.

[2] An SME has been defined in the Prudential Regulations issued by the State Bank of Pakistan as an entity with annual sales turnover of less than Pak Rupees 400 million and with employees fewer than 50 for trading businesses or fewer than 250 for manufacturing and services industries. The definition can be found at http://www.sbp.org.pk/publications/prudential/PRs-SMEs.pdf

information about firms, well-developed capital markets, and the prevalence of alternative financing products (Allen & Santomero, 2001; Boot & Thakor, 2000).

The remainder of this paper is organized as follows. In section 2, we discuss the differences in findings of studies on relationship lending. In section 3, we describe the dataset. Our estimation method is discussed in section 4. We present our results in section 5, and section 6 concludes the discussion.

2.   Literature

Theoretical and empirical research on relationship lending presents diverse and, at times, conflicting results. One strand of literature posits that a durable relationship with a financial institution enhances borrowers' welfare, lowering interest rates and reducing collateral requirements. The other strand of literature asserts that lenders exploit their advantage in information about their borrowers and extract rents by imposing higher credit pricing and collateral requirements. Boot (2000) and Elyasiani and Goldberg (2004) review relevant literature, and Kysucky and Nordon (2016) discuss the tensions in empirical findings on the subject.

The strength of any bank-borrower lending relationship is potentially multidimensional and, therefore, can be assessed in a number of ways. The most common measure used in the literature is the relationship's duration. A second measure examines a firm's use of multiple products from the lender. A third considers a particular lender's share in the firm's total financing.

In an early empirical study, Petersen and Rajan (1994) found that the length of the bank-borrower relationship does not affect interest rates. Similar conclusions have been

reached in three other studies (Elsas & Krahnen, 1998; Lehmann & Neuberger, 2001; Machauer & Weber, 1998). However, Blackwell and Winters (1997), Brick and Palia (2007), and Peltoniemi (2007) find that firms with longer relationships are charged lower interest rates. In a study of loans from a Spanish bank to SMEs, López-Espinosa, Mayordomo, and Moreno (2017) find that benefits to firms begin after two years have passed.[3] Ioannidou and Ongena (2010) find that firms switching to a new bank are charged lower interest rates but that rates increase as the relationship lengthens.[4]

Harhoff and Körting (1998) find no relationship between relationship length and interest rates, but they observe that less collateral is required as relationships lengthen, as do Chakraborty and Hu (2006). Degryse and Van Cayseele (2000) and Hernández-Cánovas and Martínez-Solano (2010) find that firms with longer relationships with banks pay higher interest rates, but they do not find any association with collateral requirements, nor do Steijvers et al. (2010). Ono and Uesugi (2009), however, observe *higher* collateral requirements for customers who have longer relationships with banks. Berger and Udell (1995), Bodenhorn (2003), and Bharath, Dahiya, Saunders, and Srinivasan (2011) observe

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[3] Santikian (2014) details the channels through which the lengths of relationships might reduce interest premiums and finds that profitability from other services provided by the bank to SMEs reduces the interest on loans.

[4] Unlike Ioannidou and Ongena (2010), we use measures of relationship strength that are examined in the extant literature. This makes our findings comparable to those of the earlier studies we discuss in section 2 and highlights the problems due to the data used in these studies.

that both interest rate and collateral requirements drop as the duration of bank-borrower relationships increases.

Blackwell and Winters (1997) find that relying on one lender to meet the bulk of its credit needs reduces a firm's cost of funds, and Degryse and Van Cayseele (2000) find that obtaining multiple banking products from a bank also lowers interest rates. Other researchers have found that multiple lending relationships reduce the value of the private information collected by a particular bank (Cole, 1998), and borrowing from multiple lenders results in higher interest rates (Petersen & Rajan, 1994) and heavier collateral requirements (Harhoff & Körting, 1998). However, Hernández-Cánovas and Martínez-Solano (2010) find that firms maintaining more than one banking relationship obtain cheaper credit.

Regarding the impact of the type of lender, research has mainly concentrated on the differences between small and large banks. Small banks are found to be in a better position to make effective use of "soft" information collected through relationship lending (Berger & Black, 2011; Berger, Miller, Petersen, Rajan, & Stein, 2005). Uchida, Udell, and Yamori (2012) find that small banks focus on relationship lending whereas large banks concentrate on transaction lending, which is based on the use of publicly available "hard" information like financial statements data. Shimizu (2012) and Mudd (2013) find that small banks concentrate on small firms for relationship lending. Stanton (2002) observes, however, that relationship lending is more suitable for large loans, which require substantial time and effort from lending officers. Berger and Black (2011) also observe that the comparative advantage of small banks in relationship lending is maximized when they lend to large firms. Kano, Uchida, Udell, and Watanabe (2011) find that longer relationships with small banks lower interest rates, while longer relationships with large banks raise them.

A few studies have examined the impact of relationship length on the quality of the lender's portfolio and the probability of default. Jiménez and Saurina (2004) find that close bank-borrower relationships induce banks to assume more credit risk. Kang, Zardkoohi, Paetzold, and Fraser (2013) find that relationship lenders expose themselves to higher credit losses. In contrast, Fiordelisi, Monferrà, and Sampagnaro (2014) observe that a long bank-borrower relationship reduces the probability that firms will become distressed.

3. Data

We use an exhaustive dataset of business loans from Pakistan originating during the period April 2006 to December 2013. The dataset comes from the Credit Information Bureau (CIB) of the State Bank of Pakistan.[5] All financial institutions in Pakistan are legally obliged to report all credit transactions to the CIB, so the dataset covers *each and every* loan granted by a financial institution to a firm in Pakistan. We chose April 2006 as the starting point because the CIB introduced major changes in reporting formats from this date. Using data for periods before then is problematic because of changes in codes and definitions. However, for

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[5] The State Bank of Pakistan (SBP) is the central bank of Pakistan as well as the banking sector regulator. It operates a credit information bureau (CIB) under section 25A of the Banking Companies Ordinance, 1962. All financial institutions in Pakistan must submit information about their credit transactions to the CIB monthly. The CIB's database, therefore, covers all credit transactions taking place in the whole economy of Pakistan. The data are highly confidential and therefore have been used in only a few studies; see, for example, Kwaja and Mian (2005, 2008) and Baele, Farooq, and Ongena (2014).

the purposes of determining relationship length, we use the relationship date that is available in the dataset. This takes care of any truncation problem that might have arisen if we had determined relationship length from the date of April 2006.

The original dataset is a month-wise loan-level dataset containing information about loans as well as non-fund-based facilities (such as bank guarantees and letters of credit) obtained by a firm. A loan in itself is, however, a transitory phenomenon, as it is obtained and then repaid, and a new loan is generated. We therefore collapse the loan data to the level of bank-borrower, and thus our unit of observation becomes bank-borrower-month.[6] Where a firm has a number of loans outstanding from a bank at a particular time, we use the weighted average of the risk premiums of those loans to calculate the overall risk premium charged to the firm. Where loans obtained by a borrower from a particular financial institution have different maturities, we use the longest maturity for the aggregated loan.[7]

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[6] The structure of the dataset facilitates the creation of bank-borrower-month observations, as the SBP allocates a unique ID to each bank and each borrower. We could not consider individual loans *per se* as there is no unique ID for each loan. Although the CIB database contains each loan for a bank-borrower pair in any month, and each loan is reported in a separate row (for example, if a borrower had three loans from a given bank in a particular month, there would be three separate rows), the absence of an identifier precludes us from drilling into the data at the loan level to examine issues such as the effects of relationships on newly extended loans.

[7] The dataset covers new as well as existing loans. For example, on April 30, a borrower may have two outstanding loans from a bank. If a new loan is obtained in the month of May, the

Table 1 contains the list of variables used in the analysis. We measure the strength of the bank-borrower relationship in a number of ways. Kysucky and Norden (2016) identify four key dimensions to assess strength: the length of the relationship, the concentration of borrowings by the given firm from the given lender, the geographic distance between firm and bank, and the range of financial services obtained by the firm from its lender. Most studies, as we note above, have used the length of the lending relationship to represent its strength. In addition to the *relationship length*, we use four other variables. We use the *lender's share in financing* of the firm to assess borrower reliance on one lender. The *number of loans,* the *number of financing products* obtained from the bank, and the existence of *non-fund-based facilities* like bank guarantees, letters of credit, etc. capture the scope of the relationship.

Our study examines the impact of the bank-borrower relationship on collateral requirements and risk premiums. Data provided to the CIB are of high quality. The State Bank of Pakistan (SBP) requires all banks to include a description and the value of collateral in internal memoranda used by banks when approving the loan. Compliance with regulatory requirements is checked during periodic inspections of banks. Inspection teams evaluate

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position on May 31 will show three loans, and the terms and conditions of the new loan will be appropriately incorporated into our dataset. To continue this example, if two loans are subsequently fully adjusted in the month of June, the position at the end of June will show only one outstanding loan. We capture this variation through "number of loans," a variable used in our estimation that represents number of loans in a bank-borrower relationship at the end of each month.

policies and procedures used by banks to assess the value and quality of collateral, and also check random samples of values assigned to collateral. Further, banks are required to use evaluators on the panel of professional valuers maintained by the Pakistan Banks Association, which has laid down detailed criteria for placing valuers on its panel as well as a code of conduct for them. We can therefore use a covariate to measure the amount of collateral, rather than a dummy variable merely indicating whether collateral features in the loan covenant (see, for example, Jiménez, Salas, & Saurina, 2006). Clearly, there is a positive relationship between the size of the collateral and the size of the loan. But as we are interested in assessing whether the same size of loan would elicit differential collateral requirements depending on the relationship length, we scale collateral by the sanctioned loan limit to control for this impact.

Obviously, in addition to considerations of their relationships to firms, banks' decisions to grant loans also depend on the borrower's financial position and the collateral on offer (Uchida, 2011). While we do not have access to information on firms' balance sheets, we capture the firm's risk through its detailed credit history, using four variables. *Overdues* show the amounts not paid within due dates by the firm. *Default* is a dummy variable that captures credit quality as reported by the financial institution.[8] If the loan is not overdue and

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[8] The SBP has issued detailed instructions in its prudential regulations on how to classify loans. The instructions are largely objective, and a business loan must be classified if it becomes overdue by 90 days or more. The category of classification deteriorates as the number of days overdue increases. Given that all financial institutions within the SBP regulatory domain are required to follow these prudential regulations, we can safely assume

the bank is satisfied with the borrower's repayment capacity, credit quality is reported as "regular." If it is a problem loan, it is reported in one of four categories: OAEM (other assets especially mentioned), substandard, doubtful, or loss. A dummy variable, *default*, assigns a value of one if a borrower has been reported in any of the four categories. Two other dummy variables, *litigation* and *write-off*, identify whether the borrower has entered into litigation with its lender or has benefited from any write-off of its loans.

[TABLE 1 ABOUT HERE]

For control variables we use various borrower characteristics as well as types of financial institutions. Three dummy variables, *SME firm*, *listed firm*, and *government firm*, are used to identify whether a borrower is an SME, a listed company, or a firm owned and controlled by the government. A firm is identified as a *government firm* if the government (1) holds more than 51% of the shares and (2) has the right to appoint the chief executive officer and the majority of the board members. Borrower characteristics are identified by the CIB and accord with the official SBP definition. The categories are mutually exclusive. Firms falling outside these definitions are not identified in a separate category, so the sample sizes for the firms in these subgroups will be less than the number of firms in the CIB dataset. The size of the loan (*principal*) and *number of bank relationships* represent the size of the borrowings and the firm's access to the financial sector. The borrower's *rating* is used as a dummy variable to assess the impact of information asymmetry.

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uniformity of practice for classification of loans in Pakistan. These prudential regulations can be found on the SBP website http://www.sbp.org.pk/publications/prudential/index.htm.

Financial institutions are classified on four axes: as *NBFI*s (nonbank financial institutions) versus *banks*, *foreign banks* versus *domestic banks*, *large banks* versus *small and medium-sized banks*, and *government financial institutions* versus *private financial institutions*. Large banks are the five largest banks in Pakistan in size of assets and branch network. *Government financial institutions* are identified using the same criteria of ownership and control as we use for government firms. As with borrower characteristics, the type of financial institution is identified by the CIB and accords with the official SBP definition.

Table 2 provides summary descriptive statistics of variables (excluding dummies) examined in this study. The average relationship length of a firm with a financial institution is about 5.45 years, with a median of 4.11 years. Since relationship length is the most important variable to capture relationship strength, we examine it in more detail.

Table 3 details the relationship lengths across different types of lenders and firms. The customers of NBFIs have relatively shorter average relationships, 4.53 years, than do those of banks (5.75 years). Government financial institutions have the longest average relationship period, at 6.83 years, while foreign banks have the shortest, at 4.41 years—even shorter than NBFIs.

But, of course, relationship length cannot be ascribed solely to the lender. There is a possibility, for example, that firms prize their relationship with government banks and maintain it at the expense of their relationship with other banks, perhaps owing to the perception that this will result in better loan terms and conditions. Ongena and Smith (2001) find that firms in Norway maintain the longest relationships with the two largest Norwegian banks. In our dataset, listed firms have substantially longer relationships with financial

institutions, averaging 6.32 years, compared to 4.77 years for SMEs. Government firms are slightly behind listed firms, with an average relationship length of 5.9 years.

[TABLE 2 ABOUT HERE]

[TABLE 3 ABOUT HERE]

The number of loans a firm has from a given lender averages 2.38 but varies substantially across different types of firms. Table 4 shows the average number of loans for each combination of lender and borrower.[9] Across all the financial institutions, listed firms get the largest number of loans, followed by government firms and SMEs.

[TABLE 4 ABOUT HERE]

The average maturity of loans (reported in Table 2) is 3.14 years, suggesting that most loans in our dataset are medium term; indeed, 90% of loans have maturities of less than 6¼ years. However, about 56% of the observations in the dataset pertain to bank-borrower relationships with only one loan. The average number of a given lender's products used by firms to raise financing is 1.56, while a lender's share in a given firm's total financing averages around 76%. However, in about 63% of observations, one lender is the sole provider of funds for a firm. These figures show a general trend among firms to rely on one lender.

The average collateral ratio (collateral value/sanctioned loan limit) in our dataset is 1.68. However, there is substantial variation, with the lowest decile of observations falling

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[9] We do not include univariate correlations to save space. Examination of the correlation coefficients suggested that multicollinearity did not influence the estimates we present. Details of the univariate correlations may be obtained from the corresponding author on request.

below 0.42 and the highest decile above 3.72. The mean interest rate is 14.74%, and the loan maturity averages around 3.14 years.

Most of the loans in the sample are on a floating rate basis, and interest rates are generally reset quarterly.[10] The SBP requires that all loans have to be linked with KIBOR (the Karachi Interbank Offered Rate), and loans are therefore priced at KIBOR + premium. The regulations also require that the premium can be changed only at the time of roll over/renewal. While loans are priced as KIBOR + Premium, in the CIB data banks report the total interest rate being charged on a loan, without separating KIBOR and premium. It should be noted that SBP regulations do not prohibit fixed-rate loans. The objective of the regulation is merely to bring transparency in price setting by the banks; the banks are free to determine the interest rate they will charge, as well as the schedule for resetting the interest rate. Since the KIBOR is the market rate, applicable uniformly across all borrowers, it is the premium that would be affected by the bank-borrower relationship. Accordingly, we subtract the risk-free rate (yield on 3 months government treasury bills) from the interest rate to determine the risk premium, and it is this variable, rather than the average monthly interest, that we use in the analyses we report.

The mean overdue amount is PKR 6.2 million. About 23% of the observations in our dataset pertain to overdue loans—a substantial number that may reflect the stress that the financial sector of Pakistan was under during the period under examination. From 6.89% in

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[10] Our discussions with senior officials at the SBP suggest that up to 95% of the loans in our sample are variable.

December 2006, nonperforming loans rose to 15.74% by December 2011, after which they gradually declined to 12.99% by December 2013.[11]

4. Estimation method

The dataset is an unbalanced panel, and our dependent variables are the collateral ratio and the risk premium. The collateral ratio has been obtained by dividing the amount of the collateral by the sanctioned loan limit; the risk premium, by subtracting the risk-free rate from the interest rate.[12] In addition, we use the GDP deflator to convert the nominal values of principal and overdue amounts into real values.

One of the dependent variables—*collateral*—is bounded by zero as its lower limit. Wooldridge (2011) terms such variables "corner solution response(s)" and argues that a standard censored regression model is suitable for such distributions. Accordingly, we employ maximum likelihood to estimate the following random effects panel Tobit model:

$$Y^*_{it} = X'_{it}\,\beta + \varepsilon_{it} + \mu_i. \tag{1}$$

Y^* is a latent variable, observable for values greater than zero and censored otherwise, and X is a vector of independent variables. μ_i is the unit specific error term, and for a specific unit its value is constant. ε_{it} is the observation-specific error term.

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[11] Financial sector reviews (FSRs) of the SBP for the relevant periods are available at http://www.sbp.org.pk/FSR/index.htm.

[12] For the risk-free rate, we use the rate of return on government three-month treasury bills, obtained from the website of the SBP.

The second dependent variable, risk premium, has both negative and positive values. We use a multivariate GLS regression to fit the following random effects panel model:

$$Y^*_{it} = \alpha + X'_{it}\,\beta + \varepsilon_{it} + v_i. \tag{2}$$

We use random effects for both types of estimations to assess the impact of the type of borrower on collateral and risk premium. This approach, however, assumes that observed variables are not correlated with unobserved variables—a strong assumption that may not be valid. In order to address this issue, we employ a Mundlak correction that enables us to relax this assumption by adding group means of exogenous variables to our models (Mundlak, 1978).

Since the amount of the loan and its terms and conditions (interest rate, collateral, and maturity) are generally decided upon simultaneously, endogeneity may be an issue. We use the following approach to address this issue. For each dependent variable, say collateral, we first estimate the model without including the other three potentially simultaneous main variables: in this case, principal, interest rate, and maturity. We then introduce them into the model one by one. As we show below in section 3.5, the sign and magnitude of the coefficients of the independent variables remain almost the same across all these estimations, giving us comfort that the estimates are robust.

We start by addressing two research questions relating to the impact of relationship strength variables on risk premium and collateral level. First, we examine the impact of relationship strength, borrower's credit history, borrowing firm characteristics, and lender type on the risk premium. Second, we estimate the impact of the same four variables on collateral. We use our whole dataset for these estimations.

In our next set of estimations, we examine how different types of financial institutions respond to lending relationships. We split the dataset using eight different financial institution types: banks, NBFIs, government financial institutions, private financial institutions, foreign banks, domestic financial institutions, large banks, and small and medium financial institutions. It is important to note that these categories are not mutually exclusive—for example, "banks" includes both foreign and domestic banks. Our primary aim is to understand the influence of a particular characteristic on how relationship length affects interest rate and collateral requirements. The last set of estimations uses subsamples divided according to both borrower type and lender type, elucidating how a particular type of lender interacts with a particular type of borrower.

5. Results

We start by presenting the results of estimations that use the whole dataset. We then summarize the results of estimations on subsamples for different types of financial institutions and borrowers.

5.1. *Lending relationships, risk premiums, and collateral requirements*

The results of our first set of estimations, relating to the impact of the bank-borrower relationship and other control variables on risk premium and collateral, are shown in Tables 5 and 6.

[TABLE 5 ABOUT HERE]

[TABLE 6 ABOUT HERE]

The size and sign of most of the variables used in the estimations remain almost the same as we gradually introduce potentially endogenous variables, giving us confidence about the robustness of the estimates. Endogeneity, if present, would lead to specification bias and noticeably different coefficient estimates. While the literature shows mixed empirical evidence on the relationship between collateral and risk premium (Berger, Frame, & Ioannidou, 2016), our initial results suggest a positive relationship between these variables, supporting the findings of Berger and Udell (1990), Godlewski and Weill (2011), Kose, Lynch and Puri (2003), and Godlewski and Weill (2011).

Table 5 shows that the coefficients of three of our relationship-strength variables are significant and negative (the coefficients of *relationship length*, *number of financing products*, and *non-fund-based facility* are -0.059, -0.057, and -0.032 respectively). This implies that, in general, strong relationships with financial institutions enhance firm welfare. Firms that maintain longer relationships and exploit cross-product synergies—using different types of financing products and non-fund-based facilities from the same lender—get lower credit pricing. However, firms that depend on a specific lender to meet most of their financing requirements are exploited: the positive and significant coefficient of *lender share in financing* indicates that they pay higher risk premiums.

In terms of collateral, stronger lender-borrower relationships are generally exploitative: Table 6 shows significant and positive coefficients of *relationship length, number of loans*, and *number of financing products*. That is, more collateral is required when the relationship is longer, the number of loans is higher, and/or the borrower uses more kinds of financing products. However, the coefficient of *lender share in financing* is significant and negative, showing that lenders lower collateral requirements if they are the firm's dominant

financier. Exclusivity thus results in higher risk premiums but lower collateral. Lenders may engage in a balancing act to create a win-win situation for them and their customers so that firms do not seek new credit relationships.

Non-fund-based facility is our only relationship strength variable that has significant and negative coefficients for both risk premium and collateral estimations in Tables 5 and 6. Borrowers obtaining non-fund-based facilities from their lenders benefit in terms of both interest rate and collateral—probably because such facilities generate commissions and fees that compensate lenders for lower risk premiums.

The above results provide *prima facie* support for the findings of Cornee, Masclet, and Thenet (2012), who observe that long-term relationships mitigate default risk, thus reducing the collateral requirement, but, at the same time, also enable lenders to increase risk premiums. Tables 5 and 6, however, also show that relationship strength variables are dominated by type of lender and kind of borrower. For example, in Table 5 the coefficient of *NBFI* (a dummy variable with the value of 1 if the lender is an NBFI) is 2.333, as compared to the coefficient of -0.059 for *relationship length.* Likewise, in Table 6 the coefficient of *SME firm* (a dummy variable with the value of 1 if the borrower is an SME) is 0.472, as compared to 0.004 for *number of loans*. The dominance of these variables suggests that we should fully take into account lender and borrower types. In section 5.2 we therefore divide our sample by type of financial institution.

We observe relatively less variation in Table 7. Across all types of financial institutions, the *number of loans* is significantly and positively associated with collateral, while *lender's share* is significantly and negatively associated with collateral. The *length of relationship*, although significant and positive for all other types of institutions, is

insignificant for public sector financial institutions and negatively associated with collateral for NBFIs. That is, NBFIs are the only institutions that reduce collateral requirements for customers of longer standing. NBFIs are constrained by both their small size and limitations on their operations (for example, they cannot attract demand deposits and cannot undertake a number of other banking activities), and lower collateral requirements may be an effort on their part to retain their customer base. In the remaining two relationship strength variables, *number of products* and *non-fund-based facility*, we observe even greater variation among different types of lenders.

[TABLE 7 ABOUT HERE]

[TABLE 8 ABOUT HERE]

The connection between a given type of financial institution and risk premium also varies with different relationship dimensions. For example, in Table 8, for public sector financial institutions, the coefficients of *relationship length* and *lender share in financing* are significant and negative, while those of *number of loans* and *non-fund-based facility* are significant and positive. That is, public sector financial institutions charge lower risk premiums as their relationship with a given firm lengthens and/or they become its dominant financier, but higher premiums as the firm obtains a larger number of loans or non-fund-based facilities from them. Large banks behave in an almost opposite manner: they reduce credit pricing for users of multiple loans or non-fund-based facilities, but increase it as a borrower becomes more reliant on them.

It seems that financial institutions respond to different relationship strength variables according to their peculiar circumstances. For example, foreign banks and public sector financial institutions charge higher risk premiums from firms that obtain non-fund-based

facilities (like letters of credit and guarantees) from them, unlike private and domestic financial institutions, which reduce risk premiums for such borrowers. The credit rating of domestic financial institutions in Pakistan is constrained by the country's sovereign rating (which was below investment grade from 2006 to 2013). In many cases, letters of credit or guarantees are not accepted unless the issuer has an investment grade or better rating. Pakistani firms may therefore have to approach foreign banks to obtain these facilities, and the foreign banks may exploit this position. In government-related transactions, a guarantee from a public sector institution may be required or preferred, forcing the firms to foster and maintain relationships with these institutions.

As in Tables 5 and 6, in Tables 7 and 8 the variables related to type of firm still have larger coefficients than the relationship-strength variables. For example, in Table 8 the coefficients of the dummy variable *government firm* range from -0.498 to -1.089, as compared to -0.025 to -0.600 for relationship length. This suggests the need to go a step further in bifurcating our dataset and examine the relationship by both type of borrower and type of lender.

5.2. *Lending relationships, types of firm and lender, and terms of credit*

Firm characteristics significantly affect the bank-borrower lending relationship and its implications. For example, Bharath et al. (2007) and Mudd (2013) observe that smaller firms are more inclined to use a relationship lender; larger firms experience no significant difference in risk premiums between a relationship lender and other lenders (Bharath et al., 2011). Tables 9, 10, and 11 provide the results of estimations run on subsamples split by the

types of both borrower and lender. We start with the results for SMEs, followed by listed companies and government firms.

[TABLE 9 ABOUT HERE]

[TABLE 10 ABOUT HERE]

[TABLE 11 ABOUT HERE]

5.2.1. SMEs, lending relationships, and terms of credit

Panels A and B of Table 9 provide the estimation results for SMEs across different types of financial institutions for risk premium and collateral, respectively. In interpreting the results, we need to take into account that SMEs by their nature have little collateral. Thus, higher collateral requirements are perhaps a bigger deterrent for them than higher risk premiums. NBFIs are the only financial institutions that require less collateral from SMEs as the duration of their relationship increases (the coefficient of relationship length for NBFIs in Panel B of Table 9 is significant and negative, whereas it is either significant and positive or insignificant for all other types of financial institutions). SMEs can, however, economize on collateral by concentrating their borrowings with one lender; this reduces the collateral requirements across almost all types of financial institutions, as appears in the negative coefficient of *lender share in financing* in Panel B of Table 9.

One rationale for keeping financial institutions in the public sector is that they support small businesses. Public sector financial institutions in Pakistan do reduce the risk premium for their SME borrowers as their relationship length increases (*relationship length* is significant with a coefficient of -0.256). NBFIs and even foreign banks also follow the same practice, but the coefficients of *relationship length* are much smaller, at -0.077 and -0.191 respectively. Further, public sector financial institutions also reduce risk premiums as well as

collateral if SMEs obtain non-fund-based facilities from them. More loans from such institutions, however, expose SMEs to higher risk premiums as well as larger collateral requirements.

Foreign banks and large banks are considered unsuitable for small firms (Berger et al., 2005; Pennathur & Vishwasrao, 2014). We observe, however, a mixed pattern in the Pakistani dataset. As relationship length increases, both foreign banks and large banks require SMEs to post more collateral, as is shown by the positive coefficients of *relationship length* in Panel B of Table 9. These are also the only types of financial institutions that require more collateral even if SMEs obtain non-fund-based facilities from them (the coefficients of *non-fund-based facility* are significant and positive for foreign banks and large banks, while they are significant and negative for all other types of financial institutions). On the other hand, the coefficients of *number of financing products* and *lender share in financing* are significantly and negatively associated with collateral for both foreign and large banks. That is, for SMEs, using multiple financing products from the same large or foreign bank, and concentrating borrowings from it, both reduce collateral requirements. Foreign banks also charge lower risk premiums from SMEs that have longer relationships with them.

SMEs clearly have choices. If they want to pay lower risk premiums, relationships with public financial institutions, foreign banks, and NBFIs are more useful. Alternatively, if they are constrained by the availability of collateral, they should either maintain relationships with NBFIs or concentrate their borrowings with one lender, since the coefficient of *lender's share* in Table 9 Panel B is negative for all types of financial institutions except NBFIs. Another option for SMEs to reduce risk premiums is to use the same lender for both loans and non-fund-based facilities.

5.2.2. *Listed companies, lending relationships, and terms of credit*

Panels A and B of Table 10 present results of estimations for the effect of listed companies' relationships with different types of financial institutions on risk premiums and collateral respectively. Bharath et al. (2007, 2011) have found that relationships are less useful for listed firms because listed firms impose less information asymmetry than small businesses. In contrast, for listed firms we find significant impacts of various relationship dimensions on both risk premiums and collateral across almost all types of financial institutions. *Relationship length* is significant and negative in both Panel A and Panel B of Table 10: longer relationships with large banks benefit listed companies through lower risk premiums as well as reduced collateral. Longer relationships with private financial institutions, foreign banks, and NBFIs reduce risk premiums but not collateral. Public sector financial institutions and domestic banks require less collateral as relationships lengthen.

For listed companies, concentrating borrowing with one lender lowers collateral requirements across all types of financial institutions and also delivers a lower risk premium if the lender is a public sector financial institution, a foreign bank, or a small or medium-sized financial institution, as is shown by the negative coefficients of *lender share in financing* in Panels A and B of Table 10. Listed companies using multiple financing products from the same lender are generally able to get financing at a cheaper rate, although certain types of lenders impose higher collateral requirements.

5.2.3. *Government firms, lending relationships, and terms of credit*

While government firms in Pakistan do default on their bank loans, there is not a single instance of any write-off relating to government firms in our dataset. Government firms enjoy the implicit backing of the government, and many of them obtain regular

budgetary support to meet their operational and financing needs (Syed, Anka, Abidi, & Shaikh, 2012). In general, his advantageous position helps them get loans on preferential terms and conditions, as is evidenced by the negative coefficients of *government firm* in Tables 5 and 6. Strong relationships with particular financial institutions, however, lead to different results for them Panel A and Panel B of Table 11 show the estimation results for relationships between government firms and different types of financial institutions. Across various types of financial institutions, *relationship length* is either positively associated with higher risk premiums and larger collateral or insignificant, showing that for government firms longer lending relationships are generally exploitative. Private and domestic financial institutions increase the risk premium as the relationship lengthens, while small and medium-sized financial institutions increase both the risk premium and the collateral.

One would generally expect that government firms would be helped by public sector financial institutions, but actually public sector financial institutions are the only institutions that charge higher risk premiums from government firms as these firms become more reliant on them (the coefficient of *lender's share* in Panel A of Table 11 for public sector financial institutions is 0.691 and significant, while it is insignificant for all other types of lenders). Likewise, these institutions charge government firms higher risk premiums when the firms also obtain non-fund-based facilities from them. In contrast, other types of financial institutions, with the exception of foreign banks, reduce their credit pricing on loans to government firms that get such facilities from them. In addition, all types of lenders, again with the exception of public sector financial institutions and foreign banks, reduce risk premiums when government firms obtain more loans from them.

The only way for government firms to economize on collateral is by concentrating their borrowings, since this reduces collateral across all types of financial institutions. The concentration of credit at one bank does not have any impact on risk premiums except, as we mention above, when that bank is in the public sector. Across almost all types of financial institutions, higher numbers of loans and financing products increase collateral requirements. The inefficient use of collateral in this manner may be the result of poor collateral management by government firms, since allocating collateral across different loans and products requires a certain level of professional expertise.[13]

6.   Conclusion

On an aggregate basis, we find that a longer relationship lowers risk premiums but raises collateral requirements. However, further examination paints a far more complex picture. The impact of the relationship on interest rate and collateral varies substantially with the types of lender and borrower as well as across different relationship dimensions. We find it particularly noteworthy that firm-level heterogeneity importantly affects the impact of relationship length on collateral and credit pricing.

Different types of financial institutions respond differently towards different relationship dimensions, perhaps because of their peculiar circumstances. For example, NBFIs are the

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[13] For robustness we assessed the impact of heterogeneity between individual firms by allowing the coefficient of our most important relationship variable, relationship length, to vary across firms. Our inferences are robust to this additional analysis. These results are available on request from the corresponding author.

only institutions that reduce both the collateral requirement and the interest rate as the relationship lengthens, perhaps because they have smaller branch networks and outreach than banks and must make special efforts to retain their customer base. SMEs face a trade-off: with certain types of financial institutions a longer relationship reduces their risk premium but increases collateral requirements. With NBFIs, in contrast, both the collateral and risk premium for SMEs fall as the relationship lengthens. Across various types of lenders, listed companies generally pay lower risk premiums and provide less collateral as the lending relationship lengthens. In this respect they appear better served than SMEs and even government firms, perhaps because, *ceteris paribus*, it is easier to get information about them.

For government firms, the impact of relationships is either insignificant or exploitative, as certain types of lenders impose higher credit prices and collateral requirements on them. Even public sector financial institutions do not appear to have an informational advantage with government firms. On the contrary, public sector financial institutions are the only type of lender that exploits government firms by charging a higher risk premium when these firms become dependent upon them to meet their financing requirements. Yet there are no instances of government firms engaging in write-off in our dataset, and, further, their obligations are implicitly guaranteed by the government; these firms should have been able to demand better treatment from their lenders.

The findings in this paper are economically significant. For example, each year of a relationship with a foreign bank reduces a loan's risk premium by 60 basis points. Conversely, each year of a relationship with a small or medium sized financial institution increases risk premia by around 5 basis points. Collateral, measured as a ratio of collateral to

the sanctioned loan limit, falls by around 1½% for each year of a relationship with a nonbank financial institution but increases by a little over 6½% for each year of a relationship with a foreign bank.

For practitioners, our results imply that firms must carefully choose the type of financial institution with which they want to build a long-term relationship. For a particular firm, the type of financial institution it deals with substantially influences whether it will benefit or be exploited. In addition to relationship length, other relationship strength variables like *lender's share* and *non-fund-based facility* also significantly determine the terms of credit. The complex interplay of various variables demonstrates that getting both a low interest rate and a low collateral requirement is not easy.

For scholars, our findings strongly suggest that conflicting empirical findings on the subject of relationship lending are the result of datasets limited to certain types of borrowers or financial institutions. By using an economy-wide exhaustive dataset, we show that differences among financial institutions and firms play important roles in determining whether—and to whom— relationship lending is beneficial..

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Table 1

Variables and their descriptions.

No.	Name of the variable	Description
	Relationship strength variables	
1.	Relationship length (years)	Number of years a lender and borrower have been in lending relationship
2	Number of loans	Number of loans received by the borrower from a particular financial institution
3	Number of financing products	Number of types of financing products (term loans, running finance, TFC, bonds, etc.) received by a borrower from a particular lender
4	Lender's share in financing	A particular lender's share in the total financing of a borrower from the financial sector
5	Non-fund-based facility	A dummy variable with a value of 1 if a financial institution has granted non-fund-based facilities (e.g., letter of credit, bank guaranty) to a borrower in addition to loans
	Dependent variables	
6	Collateral	The value of the total collateral divided by the loan limit sanctioned by a lender to a given borrower
7	Risk premium	Risk premium (interest rate less risk-free rate) being charged by the financial institution on its loans to a particular borrower
	Loan characteristics	
8	Maturity	Maturity of loan
9	Principal	Principal outstanding amount of the loan payable by the borrower
	Borrower characteristics	
10	Number of bank relationships	Number of financial institutions with which a borrower has lending relationships

11	Rating	A dummy variable with a value of 1 if the borrower is rated either externally or internally by the lender, 0 otherwise
12	SME firm	A dummy variable with a value of 1 if the firm is an SME, 0 otherwise
13	Listed firm	A dummy variable with a value of 1 if the firm is a listed company, 0 otherwise
14	Government firm	A dummy variable with a value of 1 if a firm is majority owned and controlled by the government, 0 otherwise

Credit history of the borrower

15	Overdues	Total overdue amount including principal, interest, or any other amount owed to the lender and not paid by the due date
16	Default	A dummy variable with a value of 1 if the firm has defaulted on its loan to any of its lenders, 0 otherwise
17	Litigation	A dummy variable with a value of 1 if the firm is in litigation regarding recovery of loan with its lender, 0 otherwise
18	Write-off	A dummy variable with a value of 1 if the firm has received any sort of write-off from its lender

Type of financial institution

19	NBFI	A dummy variable with a value of 1 if the financial institution is a nonbank financial institution (e.g., investment bank, leasing company, housing finance company)
20	Foreign bank	A dummy variable with a value of 1 if the financial institution is a foreign bank
21	Large bank	A dummy variable with a value of 1 if the financial institution is large bank
22	Government financial institution	A dummy variable with a value of 1 if the financial institution is government owned and controlled.

Table 2

Descriptive statistics for variables excluding dummies. (Amounts are in Pakistan rupees millions.)

Name of Variable	Mean	Std. Dev.	Percentiles				
			p_10	p_25	p_50	p_75	p_90
Relationship strength variables							
Relationship length (years)	5.45	4.91	1.13	2.22	4.11	6.93	11.04
Number of loans	2.38	3.62	1.00	1.00	1.00	2.00	5.00
Number of financing products	1.56	1.14	1.00	1.00	1.00	2.00	3.00
Lender's share in financing	0.76	0.36	0.10	0.46	1.00	1.00	1.00
Dependent variables							
Collateral	1.68	1.58	0.42	0.99	1.00	2.00	3.72
Interest rate	14.74	3.84	10.19	12.63	14.98	17.00	19.13
Risk premium	3.79	3.82	-0.28	1.86	3.85	5.77	8.08
Loan characteristics							
Maturity	3.14	2.79	0.58	1.00	2.91	4.33	6.25
Principal	47.00	150.00	0.11	0.69	3.50	20.00	100.00
Borrower characteristics							
Number of bank relationships	3.26	4.47	1.00	1.00	1.00	3.00	8.00
Credit history of the borrower							
Overdues	6.20	40.00	0.00	0.00	0.00	0.00	4.30

Note: The terms p_10, p_25, p_50, p_75, and p_90 represent values at the 10th, 25th, 50th, 75th, and 90th percentiles respectively.

Table 3

Relationship length (in years) segmented by types of financial institution and borrower.

	No. of observations	Mean	St. dev.	Percentiles				
				p_10	p_25	p_50	p_75	p_90
Financial institution type								
NBFIs	403,216	4.53	4.10	0.94	1.93	3.43	5.77	8.87
Banks	1,257,909	5.75	5.11	1.19	2.34	4.36	7.28	11.84
Government financial institutions	275,046	6.83	6.45	1.11	2.38	4.76	8.25	17.64
Private financial institutions	1,386,079	5.18	4.50	1.13	2.19	4.00	6.72	10.18
Foreign banks	107,211	4.41	3.40	1.13	2.12	3.61	5.70	8.41
Domestic financial institutions	1,553,914	5.52	4.99	1.13	2.23	4.16	7.02	11.28
Large banks	556,593	6.40	6.01	1.20	2.33	4.59	7.89	14.53
Small and medium financial institutions	1,104,532	4.97	4.17	1.09	2.17	3.92	6.45	9.76
Borrower type								
SMEs	355,945	4.77	4.12	1.06	2.01	3.70	6.33	9.10
Listed firms	121,396	6.32	5.06	1.41	2.76	5.05	8.19	13.09
Government firms	12,636	5.90	6.01	0.92	1.99	4.05	7.09	14.01

Notes: NBFIs are nonbank financial institutions and include investment banks, leasing companies, housing finance companies, and development finance institutions. The terms p_10, p_25, p_50, p_75, and p_90 represent values at the 10th, 25th, 50th, 75th, and 90th percentiles respectively.

Table 4

Number of loans for each combination of lender and borrower.

Type of Lender	SMEs		Listed Firms		Government Firms	
	Mean	SD	Mean	SD	Mean	SD
NBFIs	1.35	1.24	2.13	2.54	1.53	1.22
Banks	1.51	0.98	4.63	6.07	2.54	3.79
Government financial Institutions	1.22	0.61	4.27	5.94	3.59	3.91
Private financial institutions	1.39	1.27	3.06	3.27	1.89	2.35
Foreign banks	1.48	1.03	3.40	2.16	2.19	1.35
Domestic financial institutions	1.37	1.21	4.12	5.85	2.45	3.76
Large banks	1.23	0.66	5.45	6.76	2.96	4.94
Small and medium financial institutions	1.57	1.67	3.51	4.91	2.07	2.30

Notes: NBFIs are nonbank financial institutions and include investment banks, leasing companies, housing finance companies, and development finance institutions.

Table 5
Impact of relationship length and other variables on the risk premium.

Name of Variable	Equation 1	Equation 2	Equation 3	Equation 4
Loan characteristics				
Maturity of loan				0.020***
				(0.003)
Collateral			0.111***	0.111***
			(0.002)	(0.002)
Ln (Principal)		0.007***	0.007***	0.007***
		(0.001)	(0.001)	(0.001)
Relationship strength variables				
Relationship length (years)	-0.060***	-0.056***	-0.057***	-0.059***
	(0.005)	(0.005)	(0.005)	(0.005)
Number of loans	0.000	-0.000	-0.001	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)
Number of financing products	-0.048***	-0.051***	-0.054***	-0.057***
	(0.004)	(0.004)	(0.004)	(0.004)
Lender share in financing	0.016	0.013	0.038***	0.038***
	(0.011)	(0.011)	(0.011)	(0.011)
Non-fund-based facility	-0.042***	-0.039***	-0.035***	-0.032***
	(0.010)	(0.010)	(0.010)	(0.010)
Credit history of the borrower				
Ln (Overdues)	0.019***	0.019***	0.019***	0.019***
	(0.001)	(0.001)	(0.001)	(0.001)
Default	0.227***	0.232***	0.226***	0.226***
	(0.008)	(0.008)	(0.008)	(0.008)
Litigation	0.000	-0.001	0.007	0.008
	(0.011)	(0.011)	(0.011)	(0.011)
Write-off	-0.801***	-0.789***	-0.785***	-0.784***
	(0.022)	(0.022)	(0.022)	(0.022)
Borrower characteristics				
Number of lending relationships	-0.022***	-0.023***	-0.021***	-0.022***
	(0.002)	(0.002)	(0.002)	(0.002)
Rating	-0.427***	-0.427***	-0.428***	-0.429***
	(0.006)	(0.006)	(0.006)	(0.006)
SME firm	0.717***	0.701***	0.589***	0.585***
	(0.034)	(0.034)	(0.034)	(0.034)
Listed firm	-0.118**	-0.121**	-0.113**	-0.113**
	(0.051)	(0.051)	(0.050)	(0.050)
Government firm	-0.596***	-0.553***	-0.516***	-0.515***
	(0.140)	(0.140)	(0.139)	(0.139)

Type of financial institution

NBFI	2.345***	2.343***	2.516***	2.333***
	(0.039)	(0.039)	(0.039)	(0.042)
Foreign bank	0.227***	0.190***	0.215***	0.128**
	(0.054)	(0.054)	(0.054)	(0.054)
Large bank	-0.421***	-0.438***	-0.492***	-0.525***
	(0.034)	(0.034)	(0.033)	(0.034)
Public sector financial institution	-0.318***	-0.305***	-0.402***	-0.425***
	(0.038)	(0.038)	(0.038)	(0.038)
Constant	4.616***	4.954***	4.658***	4.697***
	(0.094)	(0.099)	(0.099)	(0.099)
Year dummies	Included	Included	Included	Included
Observations	1,661,125	1,661,125	1,661,125	1,661,097
Number of firms	54,173	54,173	54,173	54,173
R-square	0.21	0.21	0.22	0.22
Wald chi2(49)	362,430.70	362,779.38	367,541.68	367,793.67
Degree of freedom	43	45	47	49

Notes: Equation 1 is the basic model; "principal," "collateral," and "maturity" are introduced one by one in the subsequent equations. Standard errors are in parentheses. *** $p < 0.01$, ** $p < 0.05$

Table 6
Impact of relationship length and other variables on the collateral.

Name of Variable	Equation 1	Equation 2	Equation 3	Equation 4
Loan characteristics				
Maturity of loan				0.004***
				(0.001)
Risk premium			0.019***	0.019***
			(0.000)	(0.000)
Ln (Principal)		-0.003***	-0.003***	-0.003***
Relationship strength variables		(0.000)	(0.000)	(0.000)
Relationship length (years)	0.009***	0.008***	0.009***	0.008***
	(0.002)	(0.002)	(0.002)	(0.002)
Number of loans	0.004***	0.004***	0.004***	0.004***
	(0.000)	(0.000)	(0.000)	(0.000)
Number of financing products	0.030***	0.031***	0.032***	0.032***
	(0.002)	(0.002)	(0.002)	(0.002)
Lender share in financing	-0.227***	-0.226***	-0.226***	-0.226***
	(0.005)	(0.005)	(0.005)	(0.005)
Non-fund-based facility	-0.031***	-0.032***	-0.031***	-0.031***
	(0.004)	(0.004)	(0.004)	(0.004)
Credit history of the borrower				
Ln (Overdues)	0.001***	0.001***	0.001***	0.001***
	(0.000)	(0.000)	(0.000)	(0.000)
Default	0.060***	0.057***	0.053***	0.053***
	(0.003)	(0.003)	(0.003)	(0.003)
Litigation	-0.071***	-0.071***	-0.071***	-0.070***
	(0.005)	(0.005)	(0.005)	(0.005)
Write-off	-0.027***	-0.033***	-0.018**	-0.018**
	(0.009)	(0.009)	(0.009)	(0.009)
Borrower characteristics				
Number of lending relationships	-0.016***	-0.015***	-0.015***	-0.015***
	(0.001)	(0.001)	(0.001)	(0.001)
Rating	0.012***	0.012***	0.020***	0.020***
	(0.003)	(0.003)	(0.003)	(0.003)
SME firm	0.505***	0.503***	0.472***	0.472***
	(0.015)	(0.015)	(0.015)	(0.015)
Listed firm	-0.020	-0.019	-0.014	-0.014
	(0.022)	(0.022)	(0.022)	(0.022)
Government firm	-0.169***	-0.166***	-0.141**	-0.141**
	(0.063)	(0.063)	(0.063)	(0.063)

Type of financial institution

NBFI	-0.777***	-0.778***	-0.884***	-0.901***
	(0.018)	(0.018)	(0.018)	(0.019)
Foreign bank	-0.110***	-0.113***	-0.121***	-0.129***
	(0.025)	(0.025)	(0.024)	(0.025)
Large bank	0.242***	0.240***	0.260***	0.257***
	(0.015)	(0.015)	(0.015)	(0.015)
Public sector financial institution	0.436***	0.437***	0.451***	0.448***
	(0.017)	(0.017)	(0.017)	(0.017)
Constant	1.308***	1.334***	1.112***	1.117***
	(0.043)	(0.045)	(0.045)	(0.045)
Year dummies				
Observations	1,661,125	1,661,125	1,661,125	1,661,097
Number of firms	54,173	54,173	54,173	54,173
Log likelihood /R square	0.15	0.15	-2,016,650	-2,016,610
Wald chi2	14,975	15,200	19,293	19,314
Degree of freedom	43	45	47	49

Notes: The first equation does not include risk premium, principal, or maturity, the variables that are considered to have simultaneity issues with collateral. These variables are introduced one by one in estimating the next equations. As can be observed from the results, the size, sign, and significance of almost all the variables remain the same, indicating that the estimates are robust. Standard errors are in parentheses. *** $p<0.01$, ** $p<0.05$

For equations 1 and 2, the results have been obtained using multivariate GLS regression, since Tobit estimation could not converge on a solution for these models. For equations 3 and 4, multivariate GLS regression results are not included in the table but are available on request; the results are almost the same for both estimation techniques. This gives us confidence that results obtained from multivariate regression are reasonably reliable.

Table 7

The influence of type of financial institution on level of collateral.

Name of Variable	Type of Financial Institution							
	Public	Private	Foreign	Domestic	Large	S&M	NBFIs	Banks
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Loan characteristics								
Maturity of loan	0.001	0.004***	0.088***	-0.004***	-0.044***	0.029***	-0.046***	0.002
	(0.003)	(0.001)	(0.006)	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)
Risk premium	0.014***	0.020***	0.031***	0.018***	0.018***	0.019***	0.013***	0.020***
	(0.001)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Ln (Principal)	-0.008***	-0.003***	-0.000	-0.004***	-0.001***	-0.005***	0.002***	-0.004***
	(0.001)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Relationship strength variables								
Relationship length (years)	-0.005	0.011***	0.066***	0.005**	0.019***	0.005**	-0.015***	0.021***
	(0.005)	(0.002)	(0.008)	(0.002)	(0.004)	(0.003)	(0.002)	(0.003)
Number of loans	0.033***	0.003***	0.012***	0.004***	0.002***	0.004***	0.011***	0.003***
	(0.002)	(0.000)	(0.003)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)
Number of financing products	0.055***	0.026***	-0.038***	0.044***	-0.006**	0.052***	0.076***	0.036***
	(0.005)	(0.002)	(0.006)	(0.002)	(0.003)	(0.002)	(0.004)	(0.002)
Lender share in financing	-0.256***	-0.224***	-0.349***	-0.213***	-0.286***	-0.212***	-0.026***	-0.362***
	(0.015)	(0.005)	(0.016)	(0.005)	(0.012)	(0.005)	(0.003)	(0.007)
Non-fund-based facility	-0.020	-0.035***	0.028**	-0.032***	0.032***	-0.061***	0.045***	-0.034***
	(0.011)	(0.005)	(0.015)	(0.005)	(0.008)	(0.005)	(0.010)	(0.005)
Credit history of the borrower								
Ln (Overdues)	0.002***	0.000	-0.002***	0.001***	-0.001***	0.001***	0.001***	0.000
	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Default	0.048***	0.053***	0.109***	0.047***	0.061***	0.058***	0.006***	0.079***

	(0.008)	(0.004)	(0.011)	(0.003)	(0.006)	(0.004)	(0.002)	(0.004)
Litigation	-0.131***	-0.054***	0.077***	-0.079***	-0.154***	-0.021***	0.035***	-0.110***
	(0.010)	(0.005)	(0.020)	(0.005)	(0.008)	(0.006)	(0.003)	(0.006)
Write-off	-0.101***	0.001	0.002	-0.021**	-0.122***	0.035***	0.026***	-0.040***
	(0.015)	(0.011)	(0.041)	(0.009)	(0.016)	(0.011)	(0.005)	(0.013)
Borrower characteristics								
Number of lending relationships	-0.018***	-0.014***	-0.012***	-0.017***	-0.017***	-0.014***	-0.009***	-0.020***
	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)
Rating	0.058***	0.024***	-0.100***	0.031***	0.003	0.026***	0.093***	-0.023***
	(0.005)	(0.003)	(0.011)	(0.003)	(0.005)	(0.003)	(0.003)	(0.004)
SME firm	0.231***	0.694***	0.331***	0.597***	0.554***	0.256***	0.077***	0.568***
	(0.042)	(0.016)	(0.059)	(0.016)	(0.026)	(0.020)	(0.021)	(0.017)
Listed firm	-0.064	0.035	0.068	0.020	0.047	-0.012	0.033	0.017
	(0.043)	(0.026)	(0.062)	(0.024)	(0.043)	(0.024)	(0.019)	(0.028)
Government firm	-0.108	-0.060	0.054	-0.062	-0.060	-0.033	0.340***	-0.122
	(0.143)	(0.072)	(0.181)	(0.069)	(0.119)	(0.072)	(0.107)	(0.071)
Constant	1.464***	0.942***	1.210***	1.018***	0.249**	1.585***	0.910***	0.690***
	(0.124)	(0.050)	(0.152)	(0.049)	(0.102)	(0.049)	(0.064)	(0.057)
Year dummies	Included	Included	Included	Included	Included	Included	Included	Included
Observations	275,029	1,386,068	107,211	1,553,886	556,576	1,104,521	403,206	1,257,891
Log likelihood / R-square	-315,052	0.10	-124,361	-1,892,079	-708,917	0.06	0.26	-1,681,340
Wald chi2(45)	3475.61	14109.84	5423.68	13162.33	8737.84	10260.06	13000.02	13927.74
Degree of freedom	45	45	45	45	45	45	45	45

Notes: Estimations in columns 2, 6, and 7 used multivariate GLS regression since Tobit regression is not able to converge on a solution for these subsample estimations. For other equations, the results of estimations using multivariate GLS regression are not included in the tables but are available on request; the results are almost the same for both estimation techniques. This gives us confidence in the reliability of these results. "S&M" means small and medium institutions. Standard errors are in parentheses. *** $p<0.01$, ** $p<0.05$

Table 8

The influence of type of financial institution on risk premium.

Name of variable	Type of Financial Institution							
	Public	Private	Foreign	Domestic	Large	S&M	NBFIs	Banks
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Loan characteristics								
Maturity of loan	-0.184***	0.042***	-0.013	0.019***	0.122***	-0.031***	-0.308***	0.042***
	(0.007)	(0.003)	(0.013)	(0.003)	(0.006)	(0.003)	(0.013)	(0.003)
Collateral	0.059***	0.121***	0.172***	0.105***	0.141***	0.091***	0.384***	0.103***
	(0.004)	(0.002)	(0.007)	(0.002)	(0.004)	(0.002)	(0.009)	(0.002)
Ln (Principal)	-0.003***	0.008***	0.007***	0.006***	-0.002***	0.018***	0.076***	-0.001**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Relationship strength variables								
Relationship length (years)	-0.053***	-0.053***	-0.600***	-0.025***	-0.198***	0.050***	-0.047***	-0.058***
	(0.010)	(0.006)	(0.019)	(0.005)	(0.011)	(0.006)	(0.009)	(0.006)
Number of loans	0.022***	-0.001	0.028***	-0.002***	-0.013***	0.004***	-0.067***	0.005***
	(0.003)	(0.001)	(0.008)	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)
Number of financing products	0.001	-0.059***	-0.524***	-0.002	-0.011	-0.090***	0.197***	-0.071***
	(0.010)	(0.004)	(0.015)	(0.004)	(0.008)	(0.004)	(0.019)	(0.004)
Lender share in financing	-0.129***	0.059***	-0.323***	0.071***	0.145***	-0.007	0.057***	0.003
	(0.032)	(0.012)	(0.038)	(0.012)	(0.032)	(0.011)	(0.015)	(0.015)
Non-fund-based facility	0.050**	-0.039***	0.310***	-0.057***	-0.116***	0.014	0.048	-0.009
	(0.024)	(0.012)	(0.034)	(0.011)	(0.021)	(0.011)	(0.052)	(0.011)
Credit history of the borrower								
Ln (Overdues)	0.005***	0.023***	0.062***	0.015***	0.039***	0.004***	-0.017***	0.029***
	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)

Default	0.067***	0.236***	0.741***	0.195***	0.588***	0.044***	0.040***	0.308***
	(0.016)	(0.009)	(0.026)	(0.008)	(0.018)	(0.008)	(0.012)	(0.010)
Litigation	-0.236***	0.097***	1.391***	-0.069***	0.270***	-0.164***	-0.670***	0.269***
	(0.020)	(0.013)	(0.048)	(0.012)	(0.022)	(0.013)	(0.018)	(0.014)
Write-off	-0.655***	-0.749***	-0.821***	-0.775***	-1.182***	-0.520***	-0.696***	-0.859***
	(0.032)	(0.027)	(0.095)	(0.023)	(0.044)	(0.024)	(0.028)	(0.030)
Borrower characteristics								
Number of lending relationships	-0.021***	-0.020***	-0.087***	-0.014***	-0.008	-0.024***	-0.009***	-0.020***
	(0.003)	(0.002)	(0.006)	(0.002)	(0.004)	(0.002)	(0.003)	(0.002)
Rating	0.264***	-0.625***	-0.602***	-0.418***	-0.549***	-0.395***	-0.460***	-0.501***
	(0.011)	(0.008)	(0.027)	(0.007)	(0.012)	(0.007)	(0.017)	(0.008)
SME firm	0.426***	0.326***	0.418***	0.398***	0.837***	0.342***	0.249***	0.561***
	(0.082)	(0.038)	(0.157)	(0.035)	(0.047)	(0.050)	(0.089)	(0.035)
Listed firm	-0.417***	-0.156***	-0.610***	-0.176***	0.013	-0.258***	0.120	-0.232***
	(0.087)	(0.060)	(0.159)	(0.054)	(0.096)	(0.058)	(0.091)	(0.059)
Government firm	-0.462	-0.866***	-0.151	-0.784***	-0.231	-0.915***	-1.089**	-0.498***
	(0.280)	(0.164)	(0.482)	(0.150)	(0.216)	(0.183)	(0.454)	(0.143)
Constant	4.395***	5.959***	4.472***	5.802***	3.326***	6.310***	8.573***	4.411***
	(0.240)	(0.111)	(0.402)	(0.104)	(0.184)	(0.122)	(0.262)	(0.112)
Year dummies	Included	Included	Included	Included	Included	Included	Included	Included
Observations	275,029	1,386,068	107,211	1,553,886	556,576	1,104,521	403,206	1,257,891
R-square	0.28	0.17	0.27	0.18	0.16	0.22	0.31	0.16
Wald chi2	106,146	287,437	40,959	334,730	105,183	308,505	182,635	238,288
Degree of freedom	45	45	45	45	45	45	45	45

Notes: "S&M" means small and medium institutions. Standard errors are in parentheses. *** p<0.01, ** p<0.05

Table 9

Panel A

Estimations for risk premium for SMEs, by type of financial institution.

Name of Variable	Type of Financial Institution							
	Public	Private	Foreign	Domestic	Large	S&M	NBFIs	Banks
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Loan characteristics								
Maturity of loan	-0.374***	0.180***	0.134***	0.160***	0.262***	0.039***	-0.558***	0.187***
	(0.024)	(0.008)	(0.035)	(0.008)	(0.011)	(0.009)	(0.041)	(0.008)
Collateral	0.095***	0.134***	0.040	0.130***	0.148***	0.080***	0.847***	0.123***
	(0.010)	(0.005)	(0.021)	(0.004)	(0.006)	(0.006)	(0.025)	(0.005)
Ln (Principal)	0.011***	-0.001	-0.001	-0.001	-0.008***	0.028***	0.096***	-0.006***
	(0.003)	(0.001)	(0.005)	(0.001)	(0.002)	(0.002)	(0.003)	(0.001)
Relationship strength variables								
Relationship length (years)	-0.256***	-0.001	-0.191***	-0.033**	0.012	-0.011	-0.077***	-0.007
	(0.026)	(0.014)	(0.046)	(0.013)	(0.019)	(0.015)	(0.022)	(0.015)
Number of loans	0.116***	-0.067***	0.064**	-0.072***	-0.160***	-0.060***	-0.181***	-0.050***
	(0.031)	(0.007)	(0.031)	(0.006)	(0.021)	(0.005)	(0.012)	(0.007)
Number of financing products	0.063	0.180***	-0.127	0.179***	0.345***	0.056**	0.246***	0.124***
	(0.052)	(0.022)	(0.070)	(0.021)	(0.038)	(0.022)	(0.068)	(0.022)
Lender share in financing	0.279	0.078	-0.231	0.107**	0.319***	-0.011	-0.006	0.181***
	(0.150)	(0.048)	(0.129)	(0.047)	(0.115)	(0.039)	(0.043)	(0.066)
Non-fund-based facility	-0.301***	-0.133***	-0.358***	-0.137***	-0.361***	0.063	0.236	-0.121***
	(0.076)	(0.041)	(0.131)	(0.038)	(0.060)	(0.040)	(0.164)	(0.039)
Credit history of the borrower								
Ln (Overdues)	-0.022***	0.037***	0.003	0.028***	0.039***	-0.009***	-0.037***	0.036***
	(0.003)	(0.002)	(0.004)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Default	0.602***	0.412***	0.318***	0.514***	0.826***	0.028	-0.269***	0.658***
	(0.040)	(0.024)	(0.063)	(0.022)	(0.034)	(0.023)	(0.030)	(0.025)
Litigation	-0.133**	0.352***	0.617***	0.322***	0.441***	-0.237***	-1.128***	0.472***
	(0.066)	(0.030)	(0.129)	(0.028)	(0.036)	(0.043)	(0.062)	(0.030)
Write-off	-0.905***	-0.678***	-1.379***	-0.733***	-0.732***	-0.813***	-2.158***	-0.441***
	(0.203)	(0.108)	(0.324)	(0.101)	(0.136)	(0.128)	(0.144)	(0.114)

Borrower characteristics

Number of lending relationships	0.142***	-0.076***	0.126**	-0.056***	-0.150***	0.019	0.099***	-0.117***
	(0.044)	(0.018)	(0.052)	(0.017)	(0.037)	(0.015)	(0.017)	(0.023)
Rating	-0.028	-0.037**	-0.588***	-0.034**	0.169***	-0.587***	-0.300***	-0.147***
	(0.031)	(0.017)	(0.079)	(0.015)	(0.021)	(0.021)	(0.062)	(0.018)
Constant	5.977***	7.266***	-0.266	7.128***	6.974***	9.041***	12.586***	5.944***
	(1.241)	(0.356)	(3.777)	(0.345)	(0.639)	(0.498)	(0.849)	(0.408)
Year dummies	Included	Included	Included	Included	Included	Included	Included	Included
Observations	47,106	308,838	12,837	343,107	206,528	149,416	53,911	302,033
R-square	0.14	0.13	0.24	0.13	0.15	0.18	0.26	0.13

Notes: "S&M" means small and medium institutions. Standard errors are in parentheses. *** $p<0.01$, ** $p<0.05$

Panel B
Estimations for collateral for SMEs, by type of financial institution.

Name of Variable	Type of Financial Institutions							
	Public	Private	Foreign	Domestic	Large	S&M	NBFIs	Banks
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Loan characteristics								
Maturity of loan	-0.008	-0.044***	0.026	-0.044***	-0.086***	0.017***	-0.017**	-0.050***
	(0.012)	(0.003)	(0.015)	(0.003)	(0.004)	(0.004)	(0.007)	(0.003)
Risk premium	0.023***	0.019***	0.007	0.020***	0.020***	0.016***	0.025***	0.020***
	(0.002)	(0.001)	(0.004)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Ln (Principal)	-0.007***	-0.003***	-0.003	-0.004***	-0.002***	-0.006***	0.002***	-0.004***
	(0.001)	(0.001)	(0.002)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)
Relationship strength variables								
Relationship length (years)	0.008	0.051***	0.056***	0.044***	0.078***	0.003	-0.039***	0.063***
	(0.013)	(0.005)	(0.020)	(0.005)	(0.007)	(0.007)	(0.004)	(0.006)
Number of loans	0.043***	0.008***	0.022	0.009***	0.030***	0.002	0.017***	0.005
	(0.015)	(0.002)	(0.013)	(0.002)	(0.008)	(0.002)	(0.002)	(0.003)
Number of financing products	0.023	0.099***	-0.067**	0.101***	-0.060***	0.225***	0.214***	0.106***
	(0.025)	(0.008)	(0.030)	(0.008)	(0.014)	(0.010)	(0.012)	(0.009)
Lender share in financing	-0.382***	-0.143***	-0.516***	-0.128***	-0.218***	-0.151***	-0.003	-0.315***
	(0.073)	(0.018)	(0.055)	(0.018)	(0.042)	(0.018)	(0.007)	(0.027)
Non-fund-based facility	-0.334***	-0.062***	0.517***	-0.123***	0.094***	-0.281***	-0.347***	-0.102***
	(0.037)	(0.016)	(0.056)	(0.015)	(0.022)	(0.018)	(0.028)	(0.016)
Credit history of the borrower								
Ln (Overdues)	-0.008***	-0.004***	-0.003	-0.005***	-0.012***	-0.000	0.000	-0.008***
	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)
Default	0.184***	0.076***	0.024	0.100***	0.146***	0.077***	0.016***	0.140***
	(0.019)	(0.009)	(0.027)	(0.008)	(0.013)	(0.010)	(0.005)	(0.010)
Litigation	-0.453***	-0.207***	0.149***	-0.240***	-0.302***	-0.120***	0.158***	-0.277***
	(0.032)	(0.011)	(0.055)	(0.011)	(0.013)	(0.019)	(0.011)	(0.012)
Write-off	-0.308***	0.131***	0.850***	0.038	-0.112**	0.380***	0.396***	0.000
	(0.099)	(0.041)	(0.139)	(0.039)	(0.050)	(0.057)	(0.024)	(0.046)

Borrower characteristics

Number of lending relationships	-0.125***	-0.015**	-0.032	-0.023***	-0.046***	-0.020***	0.001	-0.057***
	(0.022)	(0.007)	(0.022)	(0.007)	(0.014)	(0.007)	(0.003)	(0.009)
Rating	0.083***	0.122***	-0.036	0.116***	0.118***	0.093***	0.035***	0.081***
	(0.015)	(0.006)	(0.034)	(0.006)	(0.008)	(0.009)	(0.011)	(0.007)
Constant	2.595***	0.662***	1.965	0.837***	0.785	1.896***	1.215***	0.725***
	(0.727)	(0.221)	(1.732)	(0.219)	(0.442)	(0.240)	(0.225)	(0.259)
Year dummies	Included	Included	Included	Included	Included	Included	Included	Included
Observations	47,106	308,838	12,837	343,107	206,528	149,416	53,911	302,033
Log Likelihood/R-square	-57,164	-396,946	-12,412	-441,132	-276,746	-173,634	0.48	-407,800

Notes: For column 7, the results have been obtained using multivariate GLS regression analysis since Tobit estimation could not converge on a solution for the subsample relating to NBFIs' loans to SMEs. For other subsamples, multivariate results are not included in the table but are available on request; results are almost the same for both estimation techniques. This gives us confidence that results obtained from multivariate regression are reasonably reliable. "S&M" means small and medium institutions. Standard errors are in parentheses. *** p<0.01, ** p<0.05

Table 10

Panel A

Estimations for risk premium for listed firms, by type of financial institution.

Name of Variable	Type of Financial Institution							
	Public (1)	Private (2)	Foreign (3)	Domestic (4)	Large (5)	S&M (6)	NBFIs (7)	Banks (8)
Loan characteristics								
Maturity of loan	-0.267***	-0.003	-0.330***	0.012	0.037**	-0.035***	-0.148***	-0.025***
	(0.023)	(0.009)	(0.034)	(0.009)	(0.017)	(0.010)	(0.035)	(0.009)
Collateral	0.065***	0.074***	0.136***	0.067***	0.060***	0.075***	0.285***	0.060***
	(0.016)	(0.008)	(0.018)	(0.008)	(0.014)	(0.008)	(0.024)	(0.008)
Ln (Principal)	-0.002	-0.017***	-0.017***	-0.011***	-0.025***	-0.008***	0.014***	-0.018***
	(0.004)	(0.002)	(0.003)	(0.002)	(0.003)	(0.002)	(0.004)	(0.002)
Relationship strength variables								
Relationship length (years)	-0.034	-0.046**	-0.107**	-0.021	-0.247***	0.049**	-0.149***	0.000
	(0.035)	(0.022)	(0.055)	(0.020)	(0.042)	(0.021)	(0.032)	(0.023)
Number of loans	0.029***	0.006***	0.013	0.006***	-0.012***	0.020***	-0.017***	0.008***
	(0.007)	(0.002)	(0.029)	(0.002)	(0.003)	(0.002)	(0.007)	(0.002)
Number of financing products	0.054**	-0.040***	-0.238***	-0.009	0.028	-0.068***	-0.153***	-0.021**
	(0.024)	(0.010)	(0.041)	(0.010)	(0.016)	(0.011)	(0.048)	(0.010)
Lender share in financing	-0.440***	-0.022	-0.416***	-0.045	0.132	-0.106**	0.126	-0.144***
	(0.078)	(0.046)	(0.135)	(0.042)	(0.075)	(0.048)	(0.068)	(0.048)
Non-fund-based facility	-0.118**	-0.048	0.244***	-0.101***	-0.339***	0.088***	0.114	-0.041
	(0.059)	(0.030)	(0.080)	(0.028)	(0.053)	(0.031)	(0.129)	(0.029)

Credit history of the borrower

Ln (Overdues)	0.019***	0.029***	0.028***	0.023***	0.048***	0.018***	0.016***	0.028***
	(0.002)	(0.002)	(0.007)	(0.002)	(0.003)	(0.002)	(0.002)	(0.002)
Default	0.091	-0.067**	-0.268***	-0.026	-0.001	-0.044	0.396***	-0.198***
	(0.051)	(0.031)	(0.080)	(0.029)	(0.057)	(0.030)	(0.042)	(0.033)
Litigation	0.104**	0.202***	0.216	0.112***	0.665***	0.046	-0.351***	0.476***
	(0.054)	(0.042)	(0.160)	(0.035)	(0.079)	(0.037)	(0.048)	(0.045)
Write-off	-0.499***	0.154**	-2.896***	-0.047	-0.680***	0.166***	0.267***	-0.308***
	(0.077)	(0.066)	(0.385)	(0.053)	(0.113)	(0.058)	(0.069)	(0.071)
Borrower characteristics								
Number of lending relationships	0.003	0.006	-0.042***	0.013***	0.025***	-0.005	-0.000	0.004
	(0.005)	(0.003)	(0.009)	(0.003)	(0.006)	(0.003)	(0.005)	(0.003)
Rating	-0.062	-0.446***	0.107	-0.487***	-0.827***	-0.184***	-0.244***	-0.559***
	(0.044)	(0.030)	(0.092)	(0.027)	(0.048)	(0.030)	(0.045)	(0.032)
Constant	3.707***	4.730***	4.411***	4.337***	1.991***	4.750***	4.926***	4.047***
	(0.581)	(0.359)	(0.797)	(0.346)	(0.762)	(0.343)	(0.746)	(0.360)
Year dummies	Included	Included	Included	Included	Included	Included	Included	Included
Observations	23,854	97,542	15,106	106,290	32,641	88,755	29,136	92,260
R-square	0.13	0.20	0.24	0.16	0.19	0.21	0.21	0.14

Notes: "S&M" means small and medium institutions. Standard errors are in parentheses. *** $p<0.01$, ** $p<0.05$

Table 10

Panel B

Estimations for collateral requirements for loans to listed firms, by type of financial institution.

Name of variable	Type of Financial Institution							
	Public	Private	Foreign	Domestic	Large	S&M	NBFIs	Banks
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Loan characteristics								
Maturity of loan	0.011	0.020***	0.102***	0.005	0.020***	0.019***	-0.024***	0.021***
	(0.010)	(0.004)	(0.016)	(0.004)	(0.007)	(0.004)	(0.009)	(0.004)
Risk premium	0.011***	0.013***	0.029***	0.011***	0.009***	0.014***	0.017***	0.012***
	(0.003)	(0.001)	(0.004)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)
Ln (Principal)	-0.005***	0.000	0.001	-0.001	0.002	-0.002	-0.001	-0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Relationship strength variables								
Relationship length (years)	-0.033**	-0.018	-0.018	-0.025***	-0.056***	-0.005	-0.002	-0.023**
	(0.015)	(0.009)	(0.025)	(0.008)	(0.016)	(0.009)	(0.008)	(0.010)
Number of loans	0.037***	0.008***	-0.016	0.010***	0.010***	0.010***	0.008***	0.010***
	(0.003)	(0.001)	(0.014)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)
Number of financing products	0.091***	0.023***	-0.087***	0.053***	0.071***	0.004	-0.077***	0.038***
	(0.010)	(0.004)	(0.019)	(0.004)	(0.006)	(0.005)	(0.012)	(0.004)
Lender share in financing	-0.200***	-0.664***	-0.857***	-0.564***	-0.554***	-0.595***	-0.104***	-0.722***
	(0.032)	(0.019)	(0.062)	(0.017)	(0.029)	(0.021)	(0.017)	(0.021)
Non-fund-based facility	-0.174***	-0.042***	0.151***	-0.077***	-0.097***	-0.029**	0.231***	-0.064***
	(0.024)	(0.013)	(0.037)	(0.012)	(0.021)	(0.013)	(0.032)	(0.013)

Credit history of the borrower

Ln (Overdues)	-0.004***	0.007***	0.022***	0.003***	0.007***	0.003***	-0.001	0.005***
	(0.001)	(0.001)	(0.003)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Default	0.067***	0.090***	0.294***	0.054***	0.119***	0.071***	0.083***	0.089***
	(0.021)	(0.013)	(0.037)	(0.012)	(0.022)	(0.013)	(0.010)	(0.015)
Litigation	0.006	0.159***	0.103	0.113***	0.299***	0.059***	-0.039***	0.196***
	(0.022)	(0.018)	(0.074)	(0.014)	(0.031)	(0.016)	(0.012)	(0.020)
Write-off	0.068**	0.001	-0.400**	0.036	0.003	0.031	-0.015	0.074**
	(0.032)	(0.028)	(0.177)	(0.022)	(0.044)	(0.025)	(0.017)	(0.031)
Borrower characteristics								
Number of lending relationships	-0.015***	-0.011***	0.029***	-0.019***	-0.019***	-0.009***	-0.012***	-0.013***
	(0.002)	(0.001)	(0.004)	(0.001)	(0.002)	(0.001)	(0.001)	(0.002)
Rating	-0.084***	-0.017	0.020	-0.011	-0.022	-0.084***	0.034***	-0.062***
	(0.018)	(0.013)	(0.042)	(0.011)	(0.019)	(0.013)	(0.011)	(0.014)
Constant	1.268***	0.951***	1.030***	1.101***	0.531	1.121***	0.970***	0.947***
	(0.307)	(0.127)	(0.288)	(0.133)	(0.307)	(0.128)	(0.249)	(0.141)
Year dummies	Included	Included	Included	Included	Included	Included	Included	Included
Observations	23,854	97,542	15,106	106,290	32,641	88,755	29,136	92,260
Log likelihood/R-square	0.07	-120,402	-19,703	-125,180	-40,760	-104,523	0.17	-120,372

Notes: For column 7, the results have been obtained using multivariate GLS regression analysis since Tobit estimation could not converge on a solution for this subsample. For other subsamples, results are almost the same for both estimation techniques, giving us confidence that results obtained from multivariate regression analysis are reliable as well. "S&M" means small and medium institutions. Standard errors are in parentheses. *** $p<0.01$, ** $p<0.05$

Table 11

Panel A

Estimations for risk premium for government firms, by type of financial institution.

	Types of Financial Institutions							
	Public	Private	Foreign	Domestic	Large	S&M	NBFIs	Banks
Name of Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Loan characteristics								
Maturity of loan	-0.023	-0.157***	0.204**	-0.138***	-0.192***	-0.048	-0.652***	-0.121***
	(0.041)	(0.025)	(0.083)	(0.023)	(0.033)	(0.029)	(0.166)	(0.022)
Collateral	-0.069**	-0.073***	-0.108	-0.079***	-0.019	-0.133***	0.110	-0.080***
	(0.029)	(0.027)	(0.072)	(0.022)	(0.032)	(0.028)	(0.081)	(0.021)
Ln (Principal)	0.018**	-0.004	-0.037***	0.004	-0.002	-0.010	0.038**	-0.003
	(0.008)	(0.005)	(0.008)	(0.005)	(0.006)	(0.005)	(0.016)	(0.004)
Relationship strength variables								
Relationship length (years)	-0.010	0.263***	-0.198	0.203***	0.144	0.197***	0.123	0.180***
	(0.080)	(0.059)	(0.124)	(0.052)	(0.080)	(0.061)	(0.143)	(0.052)
Number of loans	-0.043	-0.041***	-0.193	-0.049***	-0.031***	-0.140***	-0.951***	-0.036***
	(0.027)	(0.007)	(0.109)	(0.007)	(0.008)	(0.016)	(0.068)	(0.007)
Number of financing products	-0.489***	0.381***	-0.044	0.334***	0.329***	0.470***	0.884	0.304***
	(0.119)	(0.044)	(0.197)	(0.042)	(0.057)	(0.061)	(0.630)	(0.040)
Lender share in financing	0.691**	-0.041	0.408	-0.117	-0.304	0.075	-0.092	-0.024
	(0.293)	(0.124)	(0.284)	(0.119)	(0.226)	(0.127)	(0.278)	(0.121)
Non-fund-based facility	0.917***	-0.262**	2.347***	-0.378***	-0.629***	-0.073		-0.181
	(0.253)	(0.116)	(0.342)	(0.110)	(0.186)	(0.129)		(0.104)

Credit history of the borrower

Ln (Overdues)	-0.058***	-0.010	0.003	-0.024***	-0.023**	-0.012**	-0.035***	-0.017***
	(0.009)	(0.006)	(0.019)	(0.005)	(0.009)	(0.006)	(0.011)	(0.006)
Default	0.742***	0.259***	-0.678***	0.538***	0.801***	0.058	0.628***	0.376***
	(0.129)	(0.099)	(0.258)	(0.085)	(0.133)	(0.103)	(0.193)	(0.090)
Litigation	-0.179	-0.926***		-0.600***	-1.118***	-0.302	-0.627**	-0.378**
	(0.173)	(0.215)		(0.142)	(0.201)	(0.198)	(0.252)	(0.173)
Write-off								
Borrower characteristics								
Number of lending relationships	-0.079***	0.015	0.091***	-0.009	-0.016	-0.005	-0.110**	0.016
	(0.024)	(0.015)	(0.033)	(0.014)	(0.022)	(0.017)	(0.043)	(0.014)
Rating	0.609***	-0.628***	-0.562**	-0.028	0.189**	-0.442***	-0.317	-0.064
	(0.083)	(0.090)	(0.231)	(0.066)	(0.090)	(0.092)	(0.382)	(0.066)
Constant	2.249	5.356***	2.339	4.407***	3.994**	6.731***	4.825	3.631***
	(1.698)	(1.078)	(5.692)	(0.945)	(1.606)	(1.041)	(5.216)	(0.914)
Year dummies	Included	Included	Included	Included	Included	Included	Included	Included
Observations	3,019	9,617	1,174	11,462	4,995	7,641	1,411	11,225
R-square	0.43	0.18	0.40	0.20	0.29	0.26	0.49	0.20

Notes: "S&M" means small and medium institutions. Standard errors are in parentheses. *** $p<0.01$, ** $p<0.05$

Table 11

Panel B

Estimations for collateral for loans to government firms, by type of financial institution.

Name of Variable	Type of Financial Institutions							
	Public (1)	Private (2)	Foreign (3)	Domestic (4)	Large (5)	S&M (6)	NBFIs (7)	Banks (8)
Loan characteristics								
Maturity of loan	-0.224***	0.022**	0.053	-0.030***	0.003	-0.038***	-0.229***	-0.015
	(0.026)	(0.010)	(0.034)	(0.010)	(0.015)	(0.012)	(0.055)	(0.010)
Risk premium	-0.027**	-0.011***	-0.019	-0.015***	-0.004	-0.024***	0.012	-0.016***
	(0.012)	(0.004)	(0.012)	(0.004)	(0.007)	(0.005)	(0.009)	(0.004)
Ln (Principal)	-0.005	-0.005***	-0.008**	-0.005**	0.002	-0.011***	-0.002	-0.006***
	(0.005)	(0.002)	(0.003)	(0.002)	(0.003)	(0.002)	(0.005)	(0.002)
Relationship strength variables								
Relationship length (years)	-0.007	0.037	-0.002	0.030	-0.008	0.060**	-0.073	0.038
	(0.050)	(0.023)	(0.051)	(0.023)	(0.037)	(0.026)	(0.048)	(0.023)
Number of loans	-0.003	0.011***	0.034	0.010***	0.007	0.029***	0.209***	0.008**
	(0.017)	(0.003)	(0.045)	(0.003)	(0.004)	(0.007)	(0.024)	(0.003)
Number of financing products	0.437***	0.061***	0.172**	0.093***	0.059**	0.092***	-0.206	0.095***
	(0.075)	(0.017)	(0.081)	(0.018)	(0.026)	(0.026)	(0.210)	(0.018)
Lender share in financing	-0.528***	-0.575***	-0.722***	-0.570***	-0.532***	-0.627***	-0.113	-0.697***
	(0.183)	(0.048)	(0.115)	(0.052)	(0.103)	(0.053)	(0.093)	(0.054)
Non-fund-based facility	-0.020	-0.009	-0.092	0.019	0.145	-0.076		-0.018
	(0.159)	(0.045)	(0.144)	(0.049)	(0.085)	(0.054)		(0.047)

Credit history of the borrower

Ln (Overdues)	0.035***	-0.006**	0.003	0.003	0.009**	-0.002	0.025***	-0.009***
	(0.006)	(0.002)	(0.008)	(0.002)	(0.004)	(0.003)	(0.003)	(0.003)
Default	-0.439***	0.034	0.067	-0.124***	-0.052	-0.146***	0.205***	-0.140***
	(0.081)	(0.039)	(0.106)	(0.038)	(0.061)	(0.044)	(0.064)	(0.040)
Litigation	-0.610***	0.017		-0.265***	0.496***	-1.141***	-0.045	-0.310***
	(0.108)	(0.084)		(0.062)	(0.092)	(0.082)	(0.084)	(0.077)
Write-off	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
Borrower characteristics								
Number of lending relationships	-0.064***	-0.008	-0.004	-0.019***	-0.030***	-0.012	-0.009	-0.015**
	(0.015)	(0.006)	(0.014)	(0.006)	(0.010)	(0.007)	(0.014)	(0.006)
Rating	0.207***	-0.039	0.446***	-0.020	0.052	-0.152***	0.949***	-0.007
	(0.052)	(0.035)	(0.094)	(0.029)	(0.041)	(0.039)	(0.125)	(0.030)
Constant	0.850	1.620***	4.589***	1.007**	-0.108	2.596***	-0.169	1.201***
	(0.971)	(0.442)	(0.914)	(0.416)	(0.623)	(0.543)	(1.454)	(0.435)
Year dummies	Included	Included	Included	Included	Included	Included	Included	Included
Observations	3,019	9,617	1,174	11,462	4,995	7,641	1,411	11,225
Log likelihood/R-square	-3,691	-,691	-832	-12,675	-5,709	-7,766	-1,100	-12,337

Notes: Standard errors are in parentheses. *** $p<0.01$, ** $p<0.05$