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Nice to be on the A-List

Yasushi Hamao, Kenji Kutsuna, and Joe Peek

Abstract:

This study uses Japanese data to address an important shortcoming of most of the existing literature on credit availability by including a set of unlisted firms (which are the firms most likely to be bank dependent) in the analysis, and by investigating differences between the treatment of listed and unlisted firms by their lenders. While we find evidence consistent with evergreening behavior by banks toward listed firms, whereby banks continue to lend to weak firms so they can continue making interest payments on existing loans and put off bankruptcy, the more striking result is that banks appear to be much less willing to engage in evergreening behavior toward the smaller, unlisted firms. Moreover, among listed firms, for which data on ownership by banks are available, a higher concentration of ownership of the firm by either the main bank or the firm's top three lenders increases the likelihood of the firm obtaining increased loans, suggesting that bank ownership of the firm stimulates evergreening behavior to a greater degree. However, the difference in treatment of unlisted firms relative to listed firms does not appear to be related simply to systematic differences in size between the two groups of firms. Thus, it appears that the distinguishing characteristic that determines whether a bank might evergreen loans to a firm is whether or not the firm is listed. Furthermore, this effect appears to be stronger for those firms listed on the more prestigious Tokyo Stock Exchange than for firms listed on other exchanges: being on the list (being listed) matters, and being on the A-list matters even more, consistent with a Too Connected To Fail phenomenon for nonfinancial firms in Japan.

JEL codes: E44, E51, G21, G28

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Yasushi Haman is an associate professor of finance and business economics at the USC Marshall School of Business. Kenji Kutsuna is a professor of entrepreneurial finance at Kobe University. Joe Peek is a vice president and economist in the research department at the Federal Reserve Bank of Boston. Their email addresses are: hamao@usc.edu, kenji.kutsuna@gmail.com, and Joe.Peek@bos.frb.org, respectively.

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1. Introduction

It is well established that Japanese banks provided support to listed firms during the extended period of economic malaise in Japan following the bursting of the stock market and real estate bubbles (for example, Peek and Rosengren 2005; Caballero, Hoshi, and Kashap 2008). In particular, the weaker was a bank's health, the more likely it was to increase lending to the weakest Japanese firms, in large part because of the perverse incentives banks faced to avoid having to recognize an even greater quantity of problem loans. While extending additional credit to enable zombie firms to continue making interest payments on existing loans (evergreening loans) may have avoided the mutually assured destruction of the banks and their borrowers, such behavior likely contributed to lengthening the period of economic malaise in Japan, commonly referred to as the "Lost Decade." Bank regulators were complicit in allowing such bank behavior, permitting banks to overstate their capital and understate their problem loans, in part to avoid the high costs that would be associated with widespread bank failures and a massive increase in unemployment if many large firms were to fall into bankruptcy.

While the existing literature does provide strong evidence of evergreening behavior by banks, this evidence has been produced primarily for listed firms, omitting precisely the set of smaller, unlisted firms most likely to be "bank dependent" and thus most affected by reduced credit availability during a banking crisis. This study investigates the extent to which banks treated unlisted firms differently than listed firms in terms of their willingness to make credit available, and whether the loans supplied were based on the fundamentals of healthy firms or on evergreening loans to unhealthy firms.

The extended period of economic malaise, in combination with the banking crisis, that followed the bursting of the stock market and real estate bubbles in Japan at the beginning of

the 1990s is particularly relevant for a study of bank credit availability that attempts to distinguish between the experiences and treatment of unlisted firms and those of listed firms. Moreover, the general conclusions from previous studies, that the evergreening of loans to unhealthy Japanese listed firms was widespread and that some relatively healthy Japanese firms may have faced a credit crunch, suggest that including the smaller, unlisted, and primarily bank-dependent firms is essential for obtaining a better understanding of how, and to whom, bank credit was provided during this troubled period.

We find evidence consistent with evergreening behavior by banks toward listed firms, consistent with prior studies. However, the more striking result is that banks appear to treat the smaller, unlisted firms differently, being much less willing to engage in evergreening behavior toward these borrowers. And, it is not simply a matter of firm size: these results remain even after controlling for differences in firm size. Thus, it appears that being a listed firm matters. Yet even among listed firms, banks appear to show even more favoritism toward firms listed on the premier stock exchange, the Tokyo Stock Exchange, than to those listed on other exchanges; that is, being on the list matters, and being on the A-list matters even more. Moreover, among listed firms, for which data on ownership by banks are available, a higher concentration of ownership of the firm by either the main bank or the firm's top three lenders increases the likelihood of the firm obtaining increased loans, with the effect being even stronger for the weakest firms that have a negative return on assets.

A number of possible explanations exist for differential treatment of listed and unlisted firms. One explanation is a variant of the Too Big To Fail story for financial firms applied to nonfinancial firms. For financial firms, it is not just size but the extent to which the firms are interconnected with other firms. In the case of Japanese nonfinancial firms, it may be a case of

Too Connected To Fail. For example, banks may have been more willing to provide credit to unhealthy listed firms as a result of government pressure to support large troubled firms in order to avoid a massive increase in unemployment, pressure from the government and the Tokyo Stock Exchange to avoid the embarrassment of large numbers of listed-firm failures, same-*keiretsu* affiliations between the main bank and the firm, or simply the potentially greater adverse impact on banks' reported problem loans and capital of the failure of a large firm than the failure of a number of small firms. Thus, pressure or incentives to treat listed firms differently than unlisted firms may have been based either on external factors or on factors internal to the banks or on both.

In fact, given the persistent weak economic performance experienced in Japan following the bursting of the stock market and real estate bubbles, the relatively few bankruptcies of listed Japanese firms is quite striking (Hoshi and Kashyap 2001; Hamao, Mei, and Xu 2004). In sharp contrast, large numbers of bankruptcies of small and mid-sized Japanese enterprises (SMEs) occurred throughout the period of economic malaise, even in the face of exhortations by the government for banks to increase lending to SMEs. For example, based on data reported by the Small and Medium Enterprise Agency (2003) and the Ministry of Internal Affairs and Communications (2010), the bankruptcy rate for firms with paid-in capital of less than 100 million yen was 1.77 percent in 1996, compared with only 0.09 percent for listed firms. Although bankruptcy rates were higher in 2001, the relative comparison is similar: 2.33 percent for firms with paid-in capital of less than 100 million yen compared with only 0.32 percent for listed firms. To what extent can the disparity in bankruptcy rates be attributed to differences in the fundamentals of the two groups of firms, and to what extent can it be attributed to a difference in the treatment of the firms by their lenders? Our evidence suggests that listed and unlisted

firms were treated differently by banks, and that this differential treatment was not simply due to a difference in firm size. Thus, our evidence is consistent with "connected" firms receiving favorable treatment, where the connection in this instance is a connection to a stock exchange; and better still if that stock exchange is the premier stock exchange: the Tokyo Stock Exchange (TSE).

The paper is organized as follows. In the next section, we provide some background and summarize previous studies. Section 3 describes the data and sample characteristics, and Section 4 discusses the empirical specification. Sections 5 and 6 present empirical results, and Section 7 concludes.

2. Background

Most firms rely on credit in order to finance their operations. While many larger firms have direct access to credit markets, most firms are too small, or too opaque, to directly access credit markets (for example, bond and commercial paper markets). Such firms tend to rely more heavily on intermediated credit, with most of that credit being provided by banks. Because these firms rely on banks for their borrowing, they are often deemed to be "bank dependent." Moreover, in countries such as Japan that are typically considered to have a bank-centered, rather than a market-centered, economy, the relative reliance on bank loans should be particularly important.

Because bank credit is such an important source of credit for most firms in Japan, it is important to understand under what criteria, and to whom, bank credit is provided. While the willingness of banks to make credit available likely changes over time and is particularly sensitive to the general business cycle and to adverse shocks to bank health, it is unlikely that all

categories of borrowers are affected equally. In particular, it may be those firms most dependent on bank credit that suffer the brunt of such adjustments in the supply of bank credit. Unfortunately, most firm-level studies that investigate the provision of bank credit rely on datasets that include only listed firms, omitting precisely those firms most likely to be bank dependent. This occurs because balance sheet and income data for listed firms are widely available, while the availability of these data for unlisted firms is quite limited. While we can improve our understanding of the allocation of credit through studies of listed firms, we do not know that the supply of credit to, or the demand for credit by, smaller, unlisted firms follows the same patterns as those for the larger, listed firms, which are more transparent and have better access to nonbank sources of credit through national or international markets. Moreover, any differences may be magnified in times of financial stress: when credit markets may not function as well as in more normal times the willingness to take on risk exposure may be reduced, bank and/or firm health may deteriorate, and market signals become less clear as opacity increases.

For listed Japanese firms, substantial evidence exists that Japanese banks continued to lend to unhealthy firms during the crisis period. For example, Sekine, Kobayashi, and Saita (2003), Peek and Rosengren (2005), Ahearne and Shinada (2005), and Caballero et al. (2008) each find that bank credit was allocated to relatively unhealthy firms, suggesting that the banking system misallocated credit, and that this misallocation likely extended the length of the period of economic malaise experienced by the Japanese economy. Peek and Rosengren (2005) emphasize the perverse incentives faced by troubled banks to continue allocating credit to many of their weakest borrowers in order to avoid "mutually assured destruction." Because troubled banks needed to continue the fiction that they were adequately capitalized, they wanted to

avoid reporting further increases in nonperforming loans that would have required them to charge off existing loans and add to their loan loss reserves, actions that would have reduced their reported capital ratios. In order to do so, they tried to prevent or delay their troubled borrowers from being declared bankrupt, which would have forced the banks to recognize their loans to those firms as problem loans.

One mechanism to avoid reporting additional increases in nonperforming loans is "evergreening" loans, whereby a bank makes additional loans to a troubled firm that can be used to repay interest on the firm's existing loans. By providing to the firm the funds needed for interest payments, the banks could enable the borrowing firms to avoid defaulting on the already outstanding loans, and thus the lenders would not be forced to recognize them as nonperforming loans. Of course, bank regulators would have to be complicit in perpetuating the fiction that such loans were current and that the banks did not need to charge off at least part of the loans and add to their loan loss reserves. In fact, using aggregate data, Hosono and Sakuragawa (2003) argue that the discretionary enforcement of minimum capital requirements by bank supervisors was a key determinant of forbearance lending by Japanese banks.

Using detailed data on loans from individual banks to individual listed firms, Peek and Rosengren (2005) show that troubled banks with reported capital ratios close to the required minimum value were more likely to increase loans to their weakest borrowers. Moreover, they find that this misallocation of credit was enhanced by corporate affiliations; that is, if a bank was in the same *keiretsu* as the firm, it was more likely to increase loans to a weak firm. On the other hand, the misallocation of credit was less prevalent by nonbank lenders than by banks. Focusing on the debt-to-asset ratio, Sekine et al. (2003) find similar evidence of forbearance lending to nonmanufacturing firms, especially in particularly troubled industries such as real

estate and construction, adversely impacting bank profitability. While the extensive misallocation of credit may have prevented widespread bankruptcies of listed firms, it also likely impaired the creative destruction that would have contributed to the restructuring of troubled firms and the reallocation of resources to more productive uses required for the Japanese economy to have a sustained recovery.

In fact, Caballero et al. (2008) focus on how this forbearance lending to otherwise insolvent borrowers interfered with the restructuring of troubled firms necessary for the recovery of the Japanese economy. Moreover, not only did this forbearance lending allow "zombie" firms to continue to operate, but their continued operations had an adverse effect on healthier firms by distorting competition. The reduced profitability of firms forced to compete with these zombie firms discouraged the non-zombie firms from investing and deterred entry of new competitors, further weakening any potential economic recovery. In fact, Ahearne and Shinada (2005) find similar evidence that industries with a concentration of zombie firms tended to have lower productivity growth rates, in part because forbearance lending aided weak firms at the expense of the more productive firms in those industries, restraining the ability of the more productive firms to gain market share at the expense of the least productive firms.

A small number of studies have provided similar evidence of the inefficient allocation of credit for smaller, unlisted firms during the crisis period. For example, Nishimura, Nakajima, and Kiyota (2005) find that relatively inefficient firms, based on total factor productivity, tended to survive during the crisis, while relatively efficient firms were exiting. This pattern was particularly apparent for recent entrants. Such evidence strongly suggests that Japanese banks did not allocate credit efficiently during the crisis. Uesugi (2008) finds a similar pattern among

manufacturing firms for voluntary exits not necessarily related to financial problems, insofar as relatively efficient firms voluntarily exited while relatively inefficient firms continued to operate. However, Uesugi (2008) finds that bank lending to SMEs, unlike that to large firms, appears to have operated efficiently rather than being based on forbearance lending, perhaps because loans to distressed small firms are too small to be renegotiated. Of course, to the extent that the loans to distressed SMEs are guaranteed by the government, banks have no incentive to pursue forbearance policies; instead they simply collect on the distressed loans from the government guarantor. This suggests that bank behavior toward unlisted firms may be quite different from that toward listed firms.

3. Data

Our dataset covers the period from 1993 to 2005, and contains annual data for both unlisted and listed firms in Japan. The unlisted-firm data are primarily from Teikoku Databank, a credit research firm. The original Teikoku dataset contains over 500,000 unlisted firms, from large firms to small proprietorship businesses. From this extensive dataset, we obtained annual balance sheet and income statement data for firms with paid-in capital exceeding 80 million yen after 1993. We excluded 100 percent parent-owned subsidiaries, cooperatives, public utilities, and financial firms. We also required that the firm report data for at least five consecutive years during our sample period.

We supplemented these data with data for unlisted firms contained in Nikkei Financial QUEST, although if an unlisted firm appears in both datasets, we used the Teikoku data.[1]

[1] The Nikkei database includes unlisted firms that are required to file with the Ministry of Finance. Firms having more than 1,000 shareholders (except for firms with less than 500 million yen of paid-in capital) are required to file. Both balance sheet and income statement data items are comparable to those for listed firms that are required to file

Although the statements of the unlisted firms that do not file with the Ministry of Finance are not audited, the integrity of reporting is assured by being members of the Teikoku credit research universe of firms. Teikoku's research is widely used by banks and other financial institutions for their credit assessment, and the fact that a firm belongs to this dataset (and obtained a Teikoku Company Code) is considered to be passing a milestone. For listed firms, we obtained annual financial and attribute data for 1993 to 2005 from Nikkei Financial QUEST, which includes all listed firms on the Tokyo and regional exchanges (including newly established exchanges for new and emerging firms), and JASDAQ. As with unlisted firms, we excluded public utilities and financial firms. Table 1 shows the number of firms of specific types included in our regression sample. We divided firms into the following three categories: (1) listed on the first or second section of the Tokyo Stock Exchange (TSE), (2) listed on other exchanges (regional exchanges, TSE MOTHERS, and JASDAQ), and (3) unlisted. The TSE, which has stricter listing standards than other exchanges, had a rising number of listed firms during the period, averaging 1,466 firms per year. The number of listed firms on other exchanges also exhibited a general rise, averaging 1,100 firms per year. The number of firms in our unlisted-firm sample exhibits a humped shape, rising for most of the period before falling off at the end, averaging almost 8,700 firms per year.

Table 2 contains descriptive statistics for our sample of listed and unlisted firms separately. The table is based on the usable sample for the regression analysis, which begins only in 1996, because the earlier available data are used in constructing the lagged values for the explanatory variables. As shown in Table 2, the mean (median) paid-in capital for listed firms is

with the Ministry of Finance. We cross-checked the data for these firms across the two datasets for accuracy and found no significant differences.

11.45 billion yen (3.48 billion yen) in 1996. In contrast, the mean (median) paid-in capital for unlisted firms is, as expected, much smaller, at only 476 million yen (113 million yen) in 1996. Similarly, the mean (median) value of total assets for listed firms is 142 billion yen (35.7 billion yen) in 1996, but only 16.3 billion yen (5.6 billion yen) for unlisted firms. After 1996, both paid-in capital and total assets declined on average for listed firms. For unlisted firms, paid-in capital initially declined slightly but was much higher by 2005, while total assets declined throughout the sample period.

Table 3 contains the industry distributions for the listed and unlisted-firm samples separately. Manufacturing firms accounted for 57 percent of the listed firms in 1996, but only 32 percent of unlisted firms. In sharp contrast, the percentages of construction and wholesale trade, retail trade, and eating and drinking places for unlisted firms were high (18 and 33 percent) compared with those for listed firms (only 8.5 and 19 percent) in 1996. Comparing 2005 with 1996, the listed-firm shares exhibit some shifting, most notably the decline in the manufacturing share and the rise in the services share, with the unlisted-firm shares exhibiting shifts in the same directions for these two industries, although to a lesser degree.

A main bank is designated for each firm for each year. For unlisted firms, the main bank is the first-named bank in the firm attributes file of the Teikoku Databank.[2] Because we have access to the identities of lenders to each listed firm from the Nikkei NEEDS loan database, we are able to identify the main banks for listed firms with more precision, designating the main bank as the lender with the largest volume of loans outstanding to the firm in each year. The main bank list is then smoothed to avoid instances in which a specific firm's largest lender

[2] The set of main banks is limited to publicly traded banks for which we can calculate a market-to-book value, one of the control variables used in our regression analysis.

switches back and forth temporarily as new loans are made or existing loans mature. For both listed firms and unlisted firms, City Banks dominate as main banks, although representing a much smaller share of unlisted firms than of listed firms. The difference is made up by Regional Banks, which represent a much larger share of unlisted firms than of listed firms.

4. Empirical Specification

While we do not have individual bank loan data for each unlisted firm, we do have total bank loans to the firm and can identify the main bank of the firm (as the first-named bank in the firm attributes file). Following Peek and Rosengren (2005), who examined listed firms to investigate the extent to which banks evergreened loans to firms, we specify an equation that explains the probability of a firm receiving increased loans, using variables intended to measure firm health, other firm characteristics, and main bank health, as well as additional controls for loan demand and general macroeconomic activity. However, by extending our sample to include unlisted firms as well as listed firms, we are able to investigate whether differences exist between the determinants of bank lending to unlisted firms and those of listed firms.

The dependent variable used in our regression models is a (0, 1) dummy variable that takes on a value of one if total loans to the firm increase from the prior year, and zero otherwise. This directly follows the Peek and Rosengren (2005) specification, recognizing that a decrease in loans or no change in loans provides an ambiguous signal. Loans could remain unchanged either because the firm did not request additional loans or because, even though the firm did request additional loans, the bank denied the request. Similarly, a firm's loans could decline through simple amortization of existing loans, because firms did not desire to roll over maturing loans, because banks refused to roll over maturing loans to the firm, or because of

debt forgiveness by the banks; each of these reasons has different implications for the availability of credit to the firm. We use a random effects probit specification rather than a fixed (firm) effects specification because a fixed effects specification would not allow the firm characteristics that we are most interested in, such as being unlisted, to be included in the regression specification.

The basic specification is:

$$PR(LOAN_{i,t}) = a_0 + \boldsymbol{a_1 FIRM}_{i,t-1} + \boldsymbol{a_2 BOND}_{i,t-1} + \boldsymbol{a_3 BANK}_{i,t-1} + \boldsymbol{a_4 YEAR}_{i,t} + \boldsymbol{a_5 REGION}_{i,t-1} + \mathbf{a_6 INDUSTRY}_{i,t-1} + u_{i,t-1}$$

The first vector of variables, ***FIRM***, is intended to capture firm health and other characteristics of the firm, including loan demand. We use a one-year lag for each measure in the regressions. UNLISTED_D, a (0, 1) dummy variable, is equal to one if the firm is unlisted, and equal to zero if the firm is listed. The firm's return on assets, FROA, is measured as the firm's operating income as a share of its total assets for the prior year. FROA_AV is measured as the average of the firm's return on assets (ROA) for the current and prior year. We also consider noncontinuous measures of FROA_AV to allow for a nonlinear effect. FROA_LOW, a (0, 1) dummy variable that is equal to one if the firm's FROA_AV is in the lowest quartile among the sample firms, and FROA_HIGH, a (0, 1) dummy variable indicating that the firm's FROA_AV is in the highest quartile. The estimated coefficients then indicate differential effects compared with the middle 50 percent, which serves as the benchmark. In addition, we consider dummy variables that indicate the quintile to which the firm's ROA belongs. These are FROA_QUI1, FROA_QUI2, FROA_QUI4, and FROA_QUI5. The estimated coefficients then indicate differential effects compared with the third quintile, which serves as the benchmark.

In addition to these dummy variable measures for ROA, we also allow for a specific nonlinearity that permits a differential response when FROA_AV takes on negative values. The idea is that firms will try hard to avoid reporting negative earnings, so doing so may be particularly informative about the firm's deteriorating health. For this specification, we add two variables in addition to including FROA_AV. The first is D_LOSS, a (0, 1) dummy variable that takes on a value of one if FROA_AV is negative, and zero otherwise. The second variable is then the interaction term of D_LOSS with FROA_AV, which allows the estimated effect of FROA_AV to differ when FROA_AV has a negative value from its value when FROA_AV has a positive value. Finally, in addition to measures of ROA, we also include DIRECTION(FROA) to account for whether FROA is rising or falling. This variable is measured as the difference between FROA and FROA_AV. This measure is intended to capture, for a given level of ROA, whether a firm's health is improving or deteriorating, which should be a factor in a bank's willingness to grant additional loans to a firm.

The firm's working capital, FWORKCAP, is measured as the firm's current (having a life of less than one year) assets less current liabilities, as a share of total assets. To control for capital structure, we consider a measure of leverage, FLEV, calculated as the value of the ratio of the firm's total liabilities to the firm's total assets. Firm size, FLASSET, is measured as the logarithm of the firm's total real assets, using the consumer price index as the deflator. The change in the firm's real sales (using the consumer price index as the price deflator) from period (t-1) to period t, scaled by period (t-1) real sales, FSALES, is used to control for shifts in the firm's loan demand. A firm's tangible assets, FPPE, are measured as property, plant, and equipment, as a share of the firm's total assets.

We interact each of the explanatory variables in the regression with the unlisted-firm dummy variable to allow the effects to differ between listed firms and unlisted firms. The resulting differential effects for unlisted firms are the primary focus of our analysis. This is especially the case for the ROA and DIRECTION measures, the primary indicators of the presence of evergreening behavior by banks. Because higher or lower ROA can impact the demand for loans as well as the supply of loans, focusing on the differential effect helps to isolate the loan supply effect. That is, a negative estimated effect of ROA might simply reflect that a firm with weak ROA needs additional loans to cover operating expenses. Alternatively, the negative effect could be indicating that banks tend to increase loans to weakly performing firms (evergreening). By focusing on the differential effect, we strip out the loan demand effects common to both listed and unlisted firms, isolating the differential loan supply effect to be captured by the differential effect of unlisted-firm ROA.

The second set of explanatory variables, ***BOND***, is a vector of variables intended to capture the bond issuing behavior of firms. Five bond issue-related (0, 1) dummy variables are included. BOND_D is equal to one if the firm has bonds outstanding during the prior period, and is equal to zero otherwise. BOND_UP_D is equal to one if the firm increased bonds outstanding during the prior year, and is equal to zero otherwise. BOND_DOWN_D is equal to one if the firm decreased bonds outstanding during the prior year, and is equal to zero otherwise. We also allow for differential effects when bonds outstanding increase from zero or decline all the way to zero. BOND_TO_ZERO is equal to one if the firm's bonds outstanding declined to zero during the prior period, and is equal to zero otherwise. BOND_FROM_ZERO is equal to one if the firm's bonds outstanding increased from zero during the prior period, and is equal to zero otherwise. These bond-related variables serve as a control for loan demand and

also serve as indicators of firm health, insofar as an unhealthy firm would find it difficult to access the arms-length bond market.

BANK is a vector of variables intended to capture main bank health. The primary measure of main bank health, MBK_MB, is measured as the main bank's market-to-book ratio at the end of the prior period. In addition, RECAP_D is a (0, 1) dummy variable, with a value of one indicating that the main bank was recapitalized during the prior year. The next set of explanatory variables, ***YEAR***, contains a set of annual (0, 1) dummy variables (from 1997_D to 2005_D). These annual dummy variables capture the average effect of macroeconomic conditions in each year relative to the base year of 1996.

REGION contains PREF_INCOME to capture the average effect of regional economic conditions in each year. PREF_INCOME is measured as the average growth rate of real income per capita during the past three years in the prefecture in which the firm is headquartered. The final set of explanatory variables, ***INDUSTRY***, contains six industry dummy variables in order to control for any systematic differences across industries. We use a set of (0, 1) dummy variables to indicate whether a firm belongs to the agriculture, forestry, fishery and mining (AGRI), manufacturing (MANUFA), construction (CONST), transport and communications (TRANS), wholesale trade, retail trade, and eating and drinking places (WHOLESALE), or real estate (REALEST) industry. The base group is the service industry.

We also estimate equations for some subsets of firms or sample periods, allowing the slope coefficients on the explanatory variables to differ across subsamples. By considering specific subsets of observations, we may be better able to identify the extent of, and reasons for, differences in the bank treatment of listed versus unlisted firms during the crisis period.

5. Empirical Results

Table 4 contains descriptive statistics for the variables used in the regression analysis. We removed outliers, defined as those observations outside the 1 percent tails of the distributions, for the explanatory variables that measure firm health and firm characteristics other than size. In removing outliers, we considered the unlisted- and listed-firm observations as separate datasets to avoid disproportionately removing either listed observations or unlisted observations at either extreme, given that the distribution of characteristics of unlisted firms may differ systematically from that of listed firms. Similarly, we removed the 1 percent tails year by year rather than from the aggregated set of observations to avoid disproportionately removing observations from the years with the very best and very worst firm performances.

5.1 Full Sample of Firms

Table 5 contains the results for the full set of firms in our sample. Because of the nonlinearity embedded in probit estimation, the table includes the marginal effects as well as the estimated coefficients. The first set of results indicates that, for listed firms, the return on assets has a negative effect, suggesting that worse-performing firms were more likely to obtain an increase in loans, consistent with banks' evergreening loans to the weakest firms. Moreover, the negative estimated coefficient on the direction of the change in firm ROA indicates that listed firms with declining ROA were even more likely to obtain increased bank loans, again consistent with evergreening behavior by banks toward listed firms. Firms with more working capital were less likely to obtain an increase in loans, perhaps reflecting less need for additional loans, and thus a lower demand for loans by these firms. The negative estimated effect for firm leverage indicates that the heavier was a firm's existing debt load, the less likely was the firm to

obtain increased loans. The estimated coefficients also indicate that larger listed firms were less likely to obtain an increase in bank loans, perhaps reflecting their better access to alternative sources of funds through the bond market, or perhaps reflecting less loan demand to the extent that these tend to be more mature firms. Listed firms with faster sales growth were more likely to obtain increased loans, consistent with such firms having a stronger demand for credit in order to increase capacity to meet the growing demand for their goods and services. Listed firms with a larger share of their assets in the form of property, plant, and equipment were less likely to obtain increased loans.

Each of the differential effects for unlisted firms compared with listed firms associated with firm characteristics has a statistically significant effect, with the effect being of opposite sign, with the exception of firm size. Moreover, the total effects for unlisted firms (the sum of the effect for listed firms and the differential effect for unlisted firms) differ significantly from zero at the 1 percent level for each of the unlisted-firm characteristics (indicated by the "b" designation). The positive differential marginal effect of ROA is double the size of the negative effect for listed firms, indicating that the total effect for unlisted firms is positive and, as noted, differs significantly from zero. Thus, in contrast to the results for listed firms and consistent with banks' evergreening loans, higher ROA increases the probability that an unlisted firm will obtain increased loans. The positive differential effect on the direction of the change in ROA for unlisted firms offsets most of the negative effect for listed firms, although the net effect remains negative. The positive differential effect on working capital partially offsets the negative effect estimated for listed firms, indicating that the net effect for unlisted firms remains negative, but is only about half as large (in absolute value). The positive differential effect on leverage is more than double the negative effect for listed firms, indicating that the net effect for unlisted firms is

positive. Thus, unlisted firms with greater leverage are more likely to obtain increased loans. The negative differential effect on firm size reinforces the negative effect for listed firms, indicating that smaller unlisted firms are even more likely to obtain increased loans. Finally, the differential effects for both sales growth and FPPE provide only partial offsets to the effects for listed firms.

With respect to the bond variables, BOND_D has a statistically significant positive effect for listed firms, indicating that firms with bonds outstanding are more likely to obtain an increase in bank loans. Listed firms that decreased bonds outstanding over the prior year were more likely to experience an increase in bank loans, and if outstanding loans decreased all the way to zero, the firm was even more likely to obtain increased bank loans. These two effects are consistent with bank loans replacing bond issuance as a source of credit to firms as their outstanding bonds mature. Moreover, these effects are consistent with banks' aiding weakened firms that are no longer able to access the bond market, insofar as firms squeezed completely out of the bond market are more likely to obtain increased bank loans than firms that merely experience a decline in their bonds outstanding. That is, listed firms no longer able to pass the market test enabling them to roll over their maturing bonds return to their bank lenders that may not hold the firms to the same high standard as the arms-length bond market. On the other hand, when listed firms enter the bond market, with bonds outstanding increasing from zero, the bond issuance appears to replace the need for bank loans, reducing the probability of the firm obtaining increased loans.

For unlisted firms, three of the differential effects are statistically significant, while four of the total effects for unlisted firms are statistically different from zero. Unlisted firms with bonds outstanding are more likely to obtain increased loans, although the effect does not differ

significantly from that for listed firms. An increase in an unlisted firm's bonds outstanding decreases the probability of the firm obtaining increased loans even more than is the case for a listed firm. The negative differential effect of a decrease in bonds outstanding offsets most of the positive effect for listed firms, although the total effect if bonds outstanding fall all the way to zero is stronger for unlisted firms than for listed firms. Similarly, the differential marginal effect when unlisted firms enter the bond market offsets most of the negative effect for listed firms, although the differential effect is significant only at the 10 percent level.

Main bank health, as measured by the bank's market-to-book ratio, has a negative effect, suggesting that weaker main banks are more likely to increase loans to a firm. However, the effect is significant only at the 10 percent level. For unlisted firms, the marginal effect more than offsets the listed firm effect. However, this effect, too, is significant only at the 10 percent level, and the total unlisted effect does not differ significantly from zero, suggesting no additional evergreening effect for unlisted firms by weak main banks.

The control for local economic conditions, the three-year average growth rate of real per capita income in the prefecture in which the firm is headquartered has a negative and statistically significant effect for listed firms, indicating that a firm headquartered in a prefecture with a smaller value of PREF_INCOME is more likely to obtain increased bank loans. This is consistent with loans being directed to listed firms in the worst-performing geographical areas. In contrast, for unlisted firms the positive estimated differential marginal effect almost precisely offsets that for listed firms, indicating that local economic conditions had no net effect on the probability of an unlisted firm obtaining increased loans, once the firm's own health and characteristics are taken into account.

Among the industry effects for listed firms, the industry dummy variables have estimated coefficients that are positive and, with the exception of AGRI, statistically significant, indicating that listed firms in these industries are more likely (compared with listed firms in the services industry, which serves as the benchmark) to obtain increased loans. Only two of the differential effects for unlisted firms, those for TRANS and REALEST, are statistically significant, in each case with partially offsetting effects. The total effects for unlisted firms differ significantly from zero for three industries (manufacturing, wholesale, and real estate), with the total effect being positive in each case.

The remaining three columns contain alternative specifications that allow for the possibility of nonlinear effects emanating from ROA. In the second set of results, the continuous ROA measure is replaced by two (0, 1) dummy variables for observations in the highest quartile and the lowest quartile that indicate differential effects compared with the middle 50 percent of the observations. In the third set of results, the continuous ROA measure is replaced by (0, 1) dummy variables for observations in the top two and bottom two quintiles, with the estimated coefficients indicating differential effects compared with the effects emanating from the middle quintile. These specifications provide evidence consistent with the first set of results and have no meaningful impacts on the estimated coefficients of the other explanatory variables. In particular, both high ROA listed firms and low ROA unlisted firms are less likely to obtain additional loans.

The fourth specification allows the ROA effect to have a differential effect when FROA_AV is negative. The negative estimated effect of D_LOSS indicates that listed firms reporting negative earnings are less likely to obtain an increase in loans, providing a partial offset to the FROA_AV effect, although the effect is significant only at the 10 percent level.

However, the negative estimated effect of the interaction term of D_LOSS with FROA_AV reinforces the FROA_AV effect, although this differential effect is not statistically significant. For unlisted firms, neither D_LOSS nor its interaction with FROA_AV has a statistically significant differential effect. The remaining coefficients, including that for DIRECTION, are essentially the same as in the first specification.

While the differential effects for unlisted firms are statistically significant, a key concern is the extent to which they are economically significant. The table shows marginal effects as well as estimated coefficients to provide some sense of the economic significance. Using the fourth specification in Table 5, a one standard deviation decrease in FROA_AV increases the probability of listed firms' obtaining additional loans by 0.019 (= 0.438*0.044), while it decreases that for unlisted firms by 0.012 [= (0.714 – 0.438)*0.044], a difference of 0.031 (= 0.714*0.044), an economically meaningful difference of over 8 percent of the base probability of receiving increased loans.

5.2 Subperiods

The acute phase of the credit crisis (1998–1999), when several financial institutions failed, including the nationalization of two large long-term credit banks, may have caused banks to behave differently. In fact, the Bank Lending Attitude Diffusion Indices compiled by the Bank of Japan, containing responses separately from small, medium, and large firms, indicate a rapid worsening of banks' lending attitudes in this period, as shown in Figure 1. An interesting characteristic of this episode of credit tightening is that all three types of firms experienced difficulties of a similar magnitude, whereas both prior to this phase of the crisis and subsequent to this episode the spread of the indices across small, medium, and large firms was much larger.

After major banks were recapitalized by two government capital infusions, the indices show sharp improvement, although small firms' sentiment recovered more slowly than did that of medium firms, and much more slowly than that of large firms.

Table 6 contains the results, using the continuous measure of firm ROA corresponding to the final specification of Table 5, for three subperiods: 1996–1997, 1998–1999 and 2000–2005. To save space, only the estimated effects associated with the firm characteristics are shown in the table. Panel A contains the results for the 1996-to-1997 subperiod. For this subperiod, six of the seven firm characteristics for listed firms are statistically significant, with the lone exception being firm leverage. In particular, lower ROAs and declining ROAs are even more strongly associated with an increase in bank loans compared with the full sample estimates, suggesting even stronger evergreening behavior by banks toward listed firms for this subperiod. Four of the differential effects for unlisted firms are statistically significant. As is the case for the entire sample, the positive differential effect of ROA for unlisted firms more than offsets the negative effect for listed firms.

Panel B of Table 6 contains the results for the 1998–99 crisis subperiod. All of the firm characteristics except the leverage ratio and FPPE have statistically significant effects for listed firms. While the FROA_AV effect retains a value of the same magnitude as in the 1996–1997 subperiod, the partially offsetting effect of D_LOSS is now statistically significant. Four of the seven differential effects for unlisted firms are significant, with that for ROA again more than offsetting the effect for listed-firm ROA.

Panel C of Table 6 contains the results for the longer, 2000–2005, subperiod. All seven of the listed-firm characteristics have significant effects, although those for both ROA and the change in ROA are now much smaller (in absolute value). The D_LOSS effect is significant, but

less than half that for the 1998–1999 subperiod. Thus, while the evidence remains consistent with evergreening for listed firms, the magnitude of this effect appears to be much smaller subsequent to the 1998–1999 crisis and the recapitalization of banks. Moreover, increased leverage now has a negative and significant effect, indicating that listed firms with a higher debt load have a reduced likelihood of obtaining increased loans. With respect to the differential effects for unlisted firms, all seven of the effects are significant, with those for both FROA_AV and LEV more than offsetting the listed-firm effects.

5.3 Is It Simply the Difference in Firm Size?

One systematic difference between listed and unlisted firms is that listed firms tend to be larger, on average, than unlisted firms. To address the concern that the results in the earlier tables might be related to differences in firm size, even though the log of real assets of the firm is included as an explanatory variable, the base regression from the fourth specification of Table 5 was re-estimated for three subsamples selected based on alternative measures of firm size. The three dimensions of firm size considered are total real assets, the number of employees, and real sales volume. The subsamples were chosen to include the range for which a major size overlap occurs for listed and unlisted firms, omitting both extremely large (predominately listed) firms and extremely small (predominately unlisted) firms. For the log of total real assets, the overlapping range is 15 to 18. For the number of employees, the overlapping range is 100 to 1,000. For the log of real sales, the overlapping range is 14.5 to 18.[3]

[3] These cut-off points were chosen to cover from approximately the 25th percentile of unlisted firms to approximately the 75th percentile of listed firms.

The first column of Table 7 reproduces the results from the final specification of Table 5 for ease of comparison. Again, to save space, only the estimated effects associated with the firm characteristics are shown in the table. While the point estimates for the explanatory variables vary somewhat, the main story remains. For each of the subsamples, both firm ROA and the change in ROA for listed firms have negative and statistically significant effects, while the differential effects for unlisted firms are both positive and statistically significant, with that for the unlisted-firm ROA differential marginal effect more than offsetting the negative effect of ROA for listed firms in each instance. Thus, even when the extremes for any of the three alternative indicators of firm size are eliminated, the results suggesting differential treatment of unlisted firms with respect to evergreening bank behavior remain.

5.4 Separating IPO Firm Observations

An alternative approach is to distinguish between the observations of firms that had an IPO during our sample period and observations of firms that were always listed or always unlisted during our sample period. In the earlier analysis, the pre-IPO observations were included with the unlisted-firm observations, while the post-IPO observations were included with the listed firm observations. By separately identifying the pre- and post-IPO observations, we can compare the pre-IPO observations and the post-IPO observations, as well as (1) the listed-firm observations for firms that are always listed and the newly listed post-IPO observations, and (2) the unlisted-firm observations for firms that are always unlisted and the unlisted observations for IPO firms prior to their listing.

The Table 8 specifications allow such comparisons. Again, to save space, only the estimated effects associated with the firm characteristics are shown in the table. The first

specification uses the listed post-IPO observations as the base and allows a comparison with both the pre-IPO unlisted observations and the observations from the always-listed firms. For the post-IPO observations, six of the seven firm characteristics have statistically significant effects, with the lone exception being firm leverage. Of particular interest, both firm ROA and the change in ROA have negative estimated effects, consistent with listed firms more generally. However, the estimated effects are smaller (in absolute value) than those for listed firms in the earlier tables. Reinforcing this weaker effect, the offsetting effect of D_LOSS is now larger (in absolute value) and statistically significant. Still, four of the seven pre-IPO unlisted-firm differential effects are statistically significant, and all but firm leverage are of the opposite sign. However, the offsetting differential effect of ROA for pre-IPO firms is now only half as large as that for the post-IPO observations and is not statistically significant. For the always-listed observations, the differential effects for both ROA and the change in ROA are of the same sign as those for the post-IPO observations and are statistically significant. Thus, it appears that the treatment by banks of newly listed post-IPO firms lies somewhere between that of their pre-IPO selves and the always-listed firms.

The second specification uses the unlisted pre-IPO observations as the base and allows a comparison with both the post-IPO listed observations and the observations from the always-unlisted firms. For the base pre-IPO observations, neither firm ROA nor the change in ROA has a statistically significant effect on the likelihood of receiving increased loans. Consistent with the first regression in the table, the post-IPO listed observations have negative estimated differential effects for both firm ROA and for the change in ROA, with that for the change in ROA being statistically significant. On the other hand, neither firm ROA nor the change in ROA has a statistically significant differential effect for the always-unlisted firms. Thus, it does not

appear that banks treat the pre-IPO unlisted firms differently than they treat unlisted firms generally with respect to evergreening behavior based on firm performance as measured by a firm's ROA.

6. Further Analysis of Listed Firms

It has now been established that unlisted firms have been treated differently than listed firms by Japanese banks. In particular, the evidence is consistent with banks' being more likely to undertake evergreening behavior toward listed firms than toward unlisted firms. Moreover, even when we consider samples of listed and unlisted firms in the same overlapping size range, this difference remains. Thus, being a listed firm appears to matter. Next, we turn to better understanding what might underlie this bank behavior toward listed firms.

6.1 TSE versus Non-TSE Listed Firms

The Tokyo Stock Exchange (TSE) is the premier stock exchange in Japan. An interesting question concerns the extent to which the favoritism shown toward listed firms by Japanese banks is reserved for TSE firms (essentially the A list), or also extends to firms listed on other stock exchanges. Table 9 contains the results from estimating the basic equation for the set of listed firms, distinguishing between firms listed on the Tokyo Stock Exchange (First and Second sections) and non-TSE listed firms. Again, to save space, only the estimated effects associated with the firm characteristics are shown in the table. The first specification contains results for all listed observations, while the second specification omits the observations for firms that upgraded to the TSE from the other exchanges during our sample period. The base group of observations is for the TSE-listed firms.

For the first specification, the TSE firms have estimated effects for firm characteristics that are somewhat larger (in absolute value) than for those for the full set of listed firms shown in the fourth specification of Table 5, with the exceptions of FSALES and FPPE. Consistent with this comparison, the differential effects for the non-TSE observations are of the opposite sign from those for the TSE observations for each firm characteristic, with the exception of sales growth, with five of the seven differential effects being significant. Still, the six offsetting differential effects are only partial, and the total effects for non-TSE firms remain statistically significant. Thus, the evidence suggests that banks are likely to engage in evergreening behavior with non-TSE listed firms, but to a lesser degree than with TSE firms.

Similar conclusions are reached from the results in the second specification, which omits the observations for firms that upgraded to the TSE during our sample period. The primary difference is that the ROA effect for TSE firms becomes much stronger. However, the offsetting differential effect for non-TSE firms almost completely offsets that for TSE firms, making the total ROA effect for non-TSE firms no longer statistically significant.

6.2 Concentration of Bank Ownership of Listed Firms

The extent to which ownership by banks of a firm is concentrated may provide an incentive for those bank owners to undertake evergreening behavior toward that firm. Such relationships indicate strong bank-firm ties, as well as providing lenders with an incentive to delay or prevent the bankruptcy of a troubled firm because such an event would impact the lender's own *reported* financial health. Thus, lenders with a substantial exposure to a firm, even if the lender is aware of the firm's precarious health, may continue lending to the firm to avoid having to recognize any losses that would impact its own balance sheet were the firm to default

on its loans or enter bankruptcy. Unfortunately, data on ownership and lender concentrations are available only for listed firms. Therefore, we are able to supplement our basic specifications with ownership concentration measures only for the listed firms in our sample.

Table 10 reports the descriptive statistics (mean, median, minimum, and maximum values) for the concentration of bank ownership of the listed firms in our sample. The number of lending banks, the Main Bank's loan share, and the identities of the top three lending banks for each firm are from the Nikkei NEEDS loan database. The shareholding data are from Toyo Keizai Shimpo Sha. The mean (median) number of lending banks is 7.64 (6), ranging from zero to 88 banks. The mean (median) number of shareholding banks reported for the sample of listed firms is 4.23 (4), ranging from zero to 15 banks. On average, Main Banks own 3 percent of the outstanding shares of listed firms, with the ownership by the top 3 lender banks accounting for 7 percent of outstanding shares. All banks as a group hold, on average, 10 percent of the outstanding shares of a listed firm. While bank regulations limit a bank's ownership to 5 percent of a firm's shares, the table does show a maximum of 10 percent for Main Bank ownership. Due to bank mergers and acquisitions, bank ownership shares may exceed the 5 percent limit temporarily.

Table 11 contains the results for our sample of listed firms for the fourth specification of Table 5 supplemented with the ownership concentration measures for Main Banks and the Top 3 lender banks. Again, to save space, the estimated effects of the explanatory variables other than the firm characteristics are not shown in the table. The bank ownership concentration measures are entered separately, as well as interacted with the four ROA-related measures, FROA_AV, D_LOSS, D_LOSS*FROA_AV and DIRECTION(FROA). The interaction terms are included because these measures of firm health have the greatest potential for indicating the

extent to which banks are evergreening loans to the weakest firms. If banks are responding to the incentive to evergreen loans, the more concentrated is bank ownership among the primary lenders to the firm, the more the ownership measure would be expected to have a positive estimated coefficient, and the interactive terms, other than for D_LOSS, would be expected to have negative estimated coefficients. That is, the more concentrated is bank ownership of the firm by the primary lenders to the firm, the more likely are banks to increase loans to the firm, and this likelihood should increase the weaker is the performance of the firm.

The results in the first specification of Table 11 confirm that the greater is the Main Bank ownership concentration, the larger is the likelihood of the firm's obtaining increased loans. While the negative ROA effect is now significant only at the 10 percent level, and firm ROA interacted with the Main Bank ownership share is insignificant (although negative), the D_LOSS*FROA_AV*(Main Bank Ownership) effect is negative and significant, indicating that the ownership effect is strengthened the lower is the firm's ROA for firms with a negative ROA. That is, the negative sign of the effect, in combination with the negative value of ROA, means that the greater is Main Bank ownership, the larger is the likelihood that the firm will obtain an increase in total loans. Thus, greater Main Bank ownership is associated with stronger evidence of evergreening behavior, especially when firm ROA is negative. The same story emerges for the change in ROA. While the negative effect of DIRECTION retains its significance, greater Main Bank ownership makes the effect even stronger, as evidenced by the significant negative effect on Main Bank ownership interacted with DIRECTION.

The second specification in Table 11 repeats the first specification, replacing Main Bank ownership with top 3 lenders' ownership. These results tell the same story for ownership

concentration among the top three lenders as for the main bank. Again, greater top 3 ownership is associated with even stronger evergreening behavior toward listed firms.

The third and fourth specifications in the table focus on loans from the specific category of owner-lenders. That is, for the third specification, the dependent variable takes on a value of one when main bank loans increase to the firm, rather than when total loans increase. Similarly, for the fourth specification, the dependent variable takes on a value of one when loans from the top three lenders increase, rather than when total loans increase. The primary differences from the first two specifications are that firm ROA now has a significant positive effect that is more than offset by the much larger, and now significant, effect of ROA interacted with the ownership measures. Thus, in addition to a larger ownership share's increasing the likelihood of a firm obtaining additional loans, the negative effect of ROA is strengthened the larger are the ownership shares, and this effect is strengthened further if ROA is negative or declining.

7. Conclusion

Because SMEs are more likely than large firms to be bank dependent, it is important to understand better the determinants of credit availability to SMEs. Moreover, because most studies draw conclusions based on evidence for only the larger, listed firms because the data for unlisted firms are unavailable, those conclusions may be unwarranted for the great mass of firms that are most reliant on bank credit. This study addresses this important shortcoming of most of the existing literature, both by including a set of unlisted firms in the analysis and by investigating differences between the treatment of listed and unlisted firms by their lenders.

Our evidence is consistent with Japanese banks' evergreening loans to listed firms, consistent with previous studies. However, we find significant differences in the way that

Japanese banks have treated unlisted firms. In particular, the differential effects for unlisted firms for both ROA and the direction of the change in ROA tend to offset the evergreening effect found for listed firms. In fact, the total ROA effect for unlisted firms is positive, in contrast to the negative effect found for listed firms; that is, banks tend to increase loans to unlisted firms the larger is their ROA. Moreover, for the set of listed firms, we find that a higher concentration of ownership of a firm by either the firm's main bank or the firm's top three lenders increases the likelihood of the firm obtaining increased loans, and the probability increases both when ROA is declining and, once ROA becomes negative, the lower is ROA. Thus, it appears that lenders in Japan responded to increased equity exposure by making additional loans available to a firm, especially for the weakest firms.

Still, while listed firms are, on average, larger than unlisted firms, size differences do not appear to be the source of the differential treatment. In addition to controlling for firm asset size, subsamples of listed and unlisted firms are considered with overlapping sizes of real assets, employees, and real sales. Yet the evidence of differential treatment remains, suggesting that the special treatment by banks may be attributable to a firm's achieving listed status. Moreover, the evergreening behavior by banks toward listed firms appears to be stronger for those firms listed on the Tokyo Stock Exchange, the premier exchange in Japan, compared with other, less prestigious stock exchanges. Thus, our evidence is consistent with a Too Connected To Fail explanation for the favored treatment of listed Japanese firms, with the connection to the Tokyo Stock Exchange, the A list, resulting in even more favorable treatment by banks.

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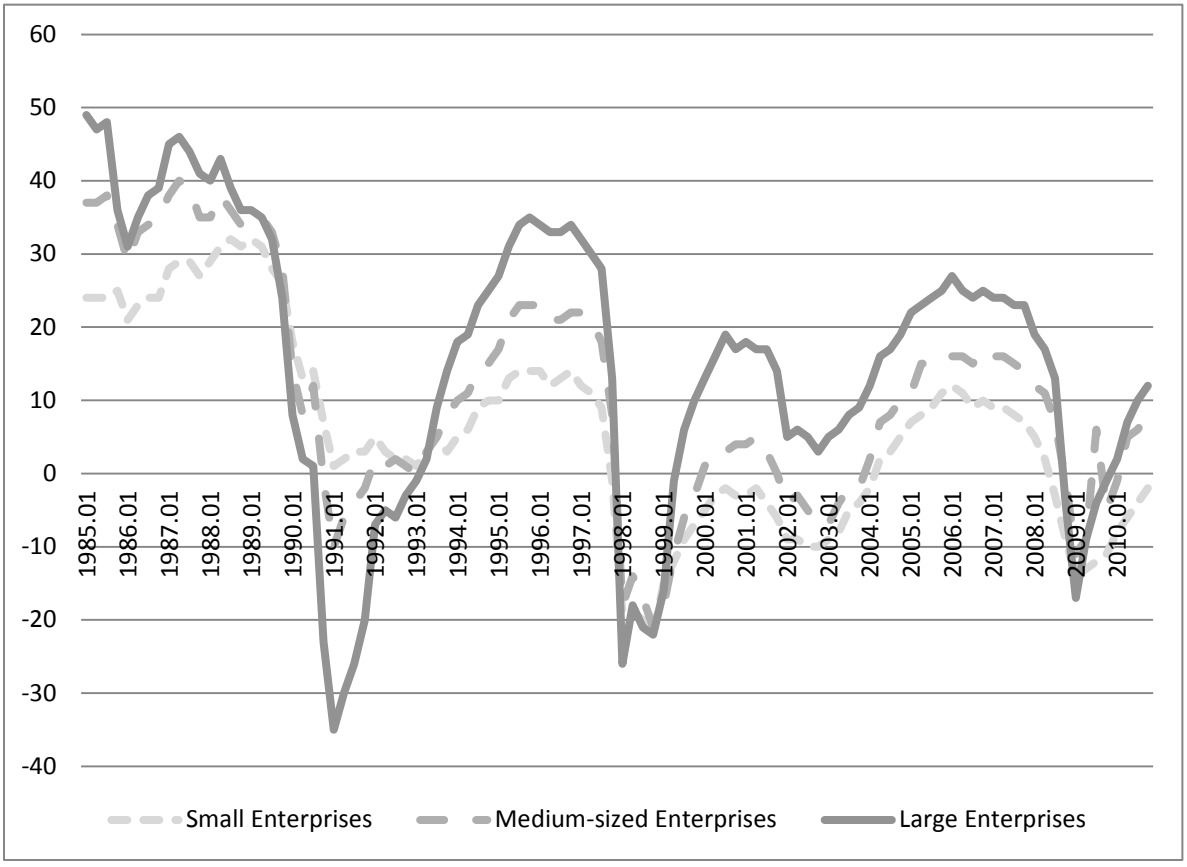
Figure 1. Bank Lending Attitude Diffusion Index

This figure presents the Bank Lending Attitude Diffusion Index during the period of 1985–2010 based on a quarterly survey by the Bank of Japan for all industries. Firms are asked in a questionnaire survey whether bank lending attitudes are moderate, not so severe, or severe. The Diffusion Index is calculated as the percentage of firms that described bank lending attitudes as being moderate minus the percentage of firms that described bank lending attitudes as being severe. Until 2003:Q4, the size of firms was based on the number of permanent employees (small: 50–299, medium: 300–999, large: over 1,000). From 2004:Q1, the size is based on the amount of paid-in capital (small: 20 million–100 million yen, medium: 100 million–1 billion yen, large: over 1 billion yen).



Source: Bank of Japan

Table 1. Number of Firms in the Regression Sample

This table shows the number of each category of firms in our regression sample. TSE listed indicates being listed on the Tokyo Stock Exchange (Section 1 or Section 2). "Other exchanges" include regional exchanges, TSE MOTHERS, and JASDAQ markets.

Year	TSE listed	Listed on other exchanges	Unlisted
1996	1,295	963	8,060
1997	1,339	1,041	8,437
1998	1,367	1,102	8,578
1999	1,394	1,122	8,859
2000	1,455	1,066	8,979
2001	1,549	1,105	9,037
2002	1,576	1,131	8,767
2003	1,539	1,163	9,039
2004	1,554	1,145	8,939
2005	1,592	1,163	8,214
Average	1,466	1,100	8,691

Source: Authors' compilation

Table 2. Paid-in Capital and Total Assets

This table reports the means, standard deviations, and median values for paid-in capital and total assets for our sample firms at the beginning, middle and end of our 1996–2005 regression sample period. Paid-in capital and total assets are in millions of yen. Statistics for listed firms and unlisted firms are reported separately.

	Listed Firms			Unlisted Firms		
	1996	2000	2005	1996	2000	2005
Panel A. Paid-in Capital (Million Yen)						
Mean	11,449	11,211	10,362	476	468	579
St. Dev.	31,127	29,966	34,771	3,359	2,810	8,629
Median	3,484	3,144	2,600	113	120	130
N. of Obs	2,258	2,521	2,755	8,060	8,979	8,214
Panel B. Total Assets (Million Yen)						
Mean	141,660	126,478	106,283	16,311	12,644	11,924
St. Dev.	455,632	391,695	351,768	98,908	48,698	49,519
Median	35,652	30,027	24,395	5,643	4,686	4,565
N. of Obs	2,258	2,521	2,755	8,060	8,979	8,214

Source: Authors' calculations

Table 3. Industry Composition

This table reports the distribution of sample firms across industry categories at the beginning, middle and end of our 1996–2005 regression sample period. Firms are divided into seven industries. Data for listed firms and unlisted firms are reported separately.

	Listed Firms			Unlisted Firms		
	1996	2000	2005	1996	2000	2005
Agriculture, Forestry, Fishing, and Mining	13	12	9	19	20	20
	0.6%	0.5%	0.3%	0.2%	0.2%	0.2%
Manufacturing	1,288	1,346	1,280	2,606	2,740	2,522
	57.0%	53.4%	46.5%	32.3%	30.5%	30.7%
Construction	192	209	185	1,428	1,628	1,362
	8.5%	8.3%	6.7%	17.7%	18.1%	16.6%
Wholesale Trade, Retail Trade, and	428	545	634	2,649	2,858	2,544
Eating and Drinking Places	19.0%	21.6%	23.0%	32.9%	31.8%	31.0%
Real Estate	44	61	81	243	295	327
	1.9%	2.4%	2.9%	3.0%	3.3%	4.0%
Transport and Communications	131	132	148	397	444	426
	5.8%	5.2%	5.4%	4.9%	4.9%	5.2%
Services	162	216	418	718	994	1,013
	7.2%	8.6%	15.2%	8.9%	11.1%	12.3%
Total	2,258	2,521	2,755	8,060	8,979	8,214

Source: Authors' calculations

Table 4. Descriptive Statistics

This table reports means, standard deviations, and medians for the variables in the regressions. The statistics are reported for listed firms and unlisted firms separately. Loan Increase (Dummy) has a value of one if total loans to the firm from financial institutions increased from the prior year, and zero if total loans to the firm were unchanged or decreased from the prior year. UNLISTED_D is a dummy variable equal to one if the firm is unlisted, and equal to zero if it is a listed firm. FROA is measured as the firm's operating income as a share of its total assets for the prior year. FROA_AV is the two-year average of FROA. D_LOSS is equal to one if FROA_AV < 0, and is equal to zero otherwise. DIRECTION(FROA) is measured as the difference between FROA and FROA_AV. Because of its small magnitude, DIRECTION(FROA) is multiplied by 100 for this table. FWORKCAP is measured as the firm's prior year current assets less current liabilities as a share of total assets. FLEV, the firm's leverage, is calculated as the firm's prior year total liabilities as a share of the firm's total assets. FLASSET is measured as the prior year logarithm of the firm's total real assets, deflated using the Consumer Price Index. FSALES is the change in the firm's real sales over the prior year as a share of the prior year's sales. FPPE is measured as the firm's prior year property, plant and equipment as a share of total assets. BOND_D is equal to one if the firm has bonds outstanding, and is equal to zero otherwise. BOND_UP_D (BOND_DOWN_D) is equal to one if the firm increased (decreased) bonds outstanding during the prior year, and equal to zero otherwise. BOND_TO_ZERO is equal to one if the firm's bonds outstanding declined to zero during the prior period, and is equal to zero otherwise. BOND_FROM_ZERO is equal to one if the firm's bonds outstanding increased from zero during the prior period, and is equal to zero otherwise. MBK_MB is measured as the main bank's prior year market-to-book ratio. RECAP_D is a (1,0) dummy variable that indicates that the firm's main bank was recapitalized during the prior year. PREF_INCOME is measured as the growth rate of real income per capita during the past three years in the prefecture in which the firm is headquartered. Industry dummy variables indicate whether a firm belongs to agriculture, forestry, fishery and mining (AGRI), manufacturing (MANUFA), construction (CONST), transport and communications (TRANS), wholesale trade, retail trade, and eating and drinking places (WHOLESALE), and real estate (REALEST). The base group is the service industry.

	Unlisted (Obs = 86909)			**Listed (Obs = 25661)**			**Entire Sample (Obs = 112570)**		
Variables	mean	st. dev	median	mean	st. dev	median	mean	st. dev	median
Loan Increase (Dummy)	0.375	0.484	0.000	0.367	0.482	0.000	0.373	0.484	0.000
UNLISTED_D	1.000	0.000	1.000	0.000	0.000	0.000	0.772	0.420	1.000
FROA_AV	0.033	0.042	0.026	0.044	0.050	0.033	0.035	0.044	0.027
D_LOSS	0.133	0.339	0.000	0.109	0.311	0.000	0.127	0.333	0.000
DIRECTION(FROA) x 100	-0.029	1.784	-0.016	-0.055	1.520	0.004	-0.035	1.728	-0.011
FWORKCAP	0.093	0.199	0.084	0.126	0.192	0.122	0.101	0.198	0.092
FLEV	0.747	0.195	0.788	0.577	0.196	0.587	0.708	0.208	0.747
FLASSET	15.398	1.218	15.360	17.324	1.397	17.132	15.837	1.498	15.707
FSALES	0.014	0.174	-0.001	0.021	0.141	0.010	0.016	0.167	0.002
PPE	0.308	0.226	0.271	0.184	0.132	0.160	0.280	0.215	0.238
BOND_D	0.197	0.398	0.000	0.400	0.490	0.000	0.243	0.429	0.000
BOND_UP_D	0.066	0.249	0.000	0.122	0.327	0.000	0.079	0.270	0.000
BOND_DOWN_D	0.055	0.228	0.000	0.195	0.396	0.000	0.087	0.282	0.000
BOND_TO_ZERO	0.017	0.128	0.000	0.061	0.238	0.000	0.027	0.161	0.000
BOND_FROM_ZERO	0.032	0.177	0.000	0.039	0.194	0.000	0.034	0.181	0.000
MBK_MB	1.591	1.001	1.352	1.757	1.102	1.563	1.629	1.027	1.374
RECAP_D	0.062	0.241	0.000	0.029	0.167	0.000	0.054	0.227	0.000
PREF_INCOME	0.992	0.044	0.993	0.996	0.044	0.995	0.993	0.044	0.993
MANUFA	0.308	0.462	0.000	0.519	0.500	1.000	0.356	0.479	0.000
CONST	0.175	0.380	0.000	0.078	0.268	0.000	0.153	0.360	0.000
TRANS	0.050	0.219	0.000	0.055	0.228	0.000	0.051	0.221	0.000
WHOLESALE	0.319	0.466	0.000	0.216	0.412	0.000	0.296	0.456	0.000
REALEST	0.035	0.184	0.000	0.023	0.150	0.000	0.032	0.177	0.000
AGRI	0.002	0.049	0.000	0.005	0.068	0.000	0.003	0.054	0.000

Source: Authors' calculations

Table 5. Regression Results for the Entire Sample of Firms (1996–2005)

This table reports the results from random effects probit regressions for the probability of a firm receiving increased loans using variables intended to measure firm health, other firm characteristics, main bank health, and main bank type, as well as additional controls for loan demand and general macroeconomic activity. The dependent variable is the (0, 1) dummy variable indicating increased bank loans. The basic specification is as follows:

$$PR(LOAN_{i\,t}) = a_0 + \mathbf{a}_1\boldsymbol{FIRM}_{i,\,t-1} + \mathbf{a}_2\boldsymbol{BOND}_{i,\,t-1} + \mathbf{a}_3\boldsymbol{BANK}_{i,\,t-1} + \mathbf{a}_4\boldsymbol{YEAR}_{i,\,t} + \mathbf{a}_5\boldsymbol{REGION}_{i,\,t-1} + \mathbf{a}_6\boldsymbol{INDUSTRY}_{i,\,t-1} + u_{i,\,t-1}$$

FIRM is a vector of variables intended to capture firm health and other characteristics of the firm. ***BOND*** is a vector of variables intended to capture the characteristics of a firm's outstanding bonds. ***BANK*** is a vector of variables intended to capture main bank health. ***YEAR*** contains a set of annual (0, 1) dummy variables. ***REGION*** contains PREF_INCOME to capture the average effect of regional economic conditions in each year. ***INDUSTRY*** contains industry dummy variables in order to control for any systematic differences across industries. Each explanatory variable is interacted with the unlisted dummy variable to allow the effects to differ between unlisted firms and listed firms. See the Table 4 variable descriptions for the details of variable construction. The ***YEAR*** dummy variables are included in all regressions, but the estimated coefficients are not reported to save space. * and ** indicate that the estimated coefficients differ significantly from zero at the 5 percent and 1 percent level, respectively. Notations "a" and "b" indicate that the total effect for the unlisted-firm variables (the sum of the listed firm effect and the unlisted-firm differential effect) differ significantly from zero at the 5 percent and 1 percent level, respectively.

	(1)				(2)				(3)				(4)			
Entire Sample	Coef.	Marginal Effect	Z-value		Coef.	Marginal Effect	Z-value		Coef.	Marginal Effect	Z-value		Coef.	Marginal Effect	Z-value	
UNLISTED_D	-0.101	-0.037	-0.31		-0.023	-0.008	-0.07		-0.041	-0.015	-0.12		-0.093	-0.034	-0.28	
FROA_AV	-1.030	-0.372	-4.41	**									-1.215	-0.438	-4.65	**
D_LOSS													-0.064	-0.023	-1.84	
D_LOSS * FROA_AV													-0.155	-0.056	-0.16	
DIRECTION(FROA)	-0.064	-0.023	-10.11	**	-0.062	-0.022	-9.92	**	-0.063	-0.023	-9.96	**	-0.064	-0.023	-10.14	**
FROA_HIGH					-0.092	-0.033	-3.82	**								
FROA_LOW					0.044	0.016	1.80									
FROA_QUI1									-0.108	-0.039	-3.54	**				
FROA_QUI2									-0.034	-0.012	-1.24					
FROA_QUI4									0.024	0.008	0.80					
FROA_QUI5									0.026	0.009	0.84					
FWORKCAP	-0.971	-0.350	-12.24	**	-0.982	-0.354	-12.42	**	-0.980	-0.354	-12.38	**	-0.971	-0.350	-12.23	**
FLEV	-0.225	-0.081	-2.97	**	-0.233	-0.084	-3.06	**	-0.237	-0.086	-3.11	**	-0.224	-0.081	-2.95	**
FLASSET	-0.059	-0.021	-6.87	**	-0.059	-0.021	-6.80	**	-0.060	-0.022	-6.91	**	-0.062	-0.022	-7.06	**
FSALES	0.847	0.306	11.30	**	0.816	0.295	11.25	**	0.822	0.296	11.26	**	0.853	0.308	11.36	**
FPPE	-0.600	-0.217	-6.35	**	-0.592	-0.214	-6.26	**	-0.589	-0.212	-6.22	**	-0.603	-0.218	-6.38	**
UN*FROA_AV	2.066	0.745	7.76	**b									1.981	0.714	6.53	**b
UN * D_LOSS													-0.009	-0.003	-0.22	b
UN * D_LOSS * FROA_AV													-0.005	-0.002	0.00	
UN * DIRECTION(FROA)	0.046	0.017	6.67	**b	0.044	0.016	6.42	**b	0.045	0.016	6.50	**b	0.046	0.017	6.70	**b
UN * FROA_HIGH					0.144	0.052	5.30	**b								
UN * FROA_LOW					-0.102	-0.037	-3.74	**b								
UN * FROA_QUI1									0.170	0.061	4.90	**b				
UN * FROA_QUI2									0.083	0.030	2.63	**b				
UN * FROA_QUI4									-0.017	-0.006	-0.51					
UN * FROA_QUI5									-0.099	-0.036	-2.89	**b				
UN * FWORKCAP	0.484	0.175	5.55	**b	0.498	0.180	5.72	**b	0.491	0.177	5.64	**b	0.478	0.173	5.49	**b
UN * FLEV	0.506	0.183	6.06	**b	0.502	0.181	6.00	**b	0.508	0.183	6.05	**b	0.499	0.180	5.95	**b
UN * FLASSET	-0.059	-0.021	-5.98	**b	-0.060	-0.021	-5.99	**b	-0.059	-0.021	-5.95	**b	-0.059	-0.021	-5.91	**b
UN * FSALES	-0.252	-0.091	-3.13	**b	-0.209	-0.075	-2.68	**b	-0.220	-0.079	-2.80	**b	-0.256	-0.092	-3.18	**b
UN * FPPE	0.349	0.126	3.54	**b	0.335	0.121	3.41	**b	0.332	0.120	3.36	**b	0.351	0.127	3.57	**b
BOND_D	0.159	0.057	5.71	**	0.162	0.058	5.80	**	0.162	0.058	5.79	**	0.158	0.057	5.65	**
BOND_UP_D	-0.020	-0.007	-0.51		-0.021	-0.008	-0.54		-0.021	-0.008	-0.54		-0.020	-0.007	-0.52	
BOND_DOWN_D	0.347	0.125	10.41	**	0.347	0.125	10.39	**	0.347	0.125	10.39	**	0.348	0.126	10.43	**
BOND_TO_ZERO	0.247	0.089	5.05	**	0.249	0.090	5.08	**	0.249	0.090	5.09	**	0.247	0.089	5.03	**
BOND_FROM_ZERO	-0.149	-0.054	-2.75	**	-0.150	-0.054	-2.78	**	-0.150	-0.054	-2.77	**	-0.150	-0.054	-2.77	**
UN * BOND_D	0.055	0.020	1.67	b	0.051	0.018	1.57	b	0.050	0.018	1.54	b	0.055	0.020	1.69	b
UN * BOND_UP_D	-0.126	-0.046	-2.59	*b	-0.124	-0.045	-2.56	*b	-0.126	-0.046	-2.59	*b	-0.127	-0.046	-2.61	**b
UN * BOND_DOWN_D	-0.294	-0.106	-6.87	**a	-0.293	-0.106	-6.84	**a	-0.293	-0.106	-6.85	**a	-0.294	-0.106	-6.86	**a
UN * BOND_TO_ZERO	0.175	0.063	2.64	**b	0.172	0.062	2.60	**b	0.173	0.062	2.61	**b	0.176	0.063	2.65	**b
UN * BOND_FROM_ZERO	0.122	0.044	1.88		0.125	0.045	1.92		0.125	0.045	1.92		0.123	0.044	1.89	
MBK_MB	-0.020	-0.007	-1.75		-0.021	-0.007	-1.79		-0.021	-0.008	-1.79		-0.020	-0.007	-1.75	
UN * MBK_MB	0.024	0.009	1.81		0.024	0.009	1.84		0.024	0.009	1.85		0.024	0.009	1.82	
RECAP_D	-0.043	-0.015	-0.78		-0.041	-0.015	-0.75		-0.041	-0.015	-0.76		-0.041	-0.015	-0.76	
UN * RECAP_D	-0.052	-0.019	-0.89	b	-0.053	-0.019	-0.90	b	-0.052	-0.019	-0.89	b	-0.054	-0.019	-0.91	b
PREF_INCOME	-0.643	-0.232	-2.59	*	-0.655	-0.236	-2.64	**	-0.649	-0.234	-2.61	**	-0.638	-0.230	-2.57	*
UN * PREF_INCOME	0.619	0.223	2.20	*	0.631	0.228	2.24	*	0.625	0.225	2.22	*	0.616	0.222	2.19	*
MANUFA	0.080	0.029	2.09	*	0.088	0.032	2.34	*	0.088	0.032	2.32	*	0.078	0.028	2.04	*
CONST	0.139	0.050	2.56	*	0.151	0.054	2.79	**	0.146	0.053	2.70	**	0.133	0.048	2.46	*
TRANS	0.189	0.068	3.20	**	0.197	0.071	3.34	**	0.196	0.071	3.30	**	0.186	0.067	3.14	**
WHOLESALE	0.082	0.029	1.99	*	0.088	0.032	2.15	*	0.088	0.032	2.15	*	0.078	0.028	1.90	
REALEST	0.334	0.121	4.32	**	0.342	0.123	4.41	**	0.341	0.123	4.40	**	0.332	0.120	4.29	**
AGRI	0.159	0.057	0.98		0.162	0.058	1.00		0.159	0.058	0.98		0.152	0.055	0.94	
UN * MANUFA	0.038	0.014	0.90	b	0.023	0.008	0.54	b	0.024	0.009	0.56	b	0.038	0.014	0.88	b
UN * CONST	-0.096	-0.035	-1.66		-0.116	-0.042	-2.00	*	-0.113	-0.041	-1.95		-0.097	-0.035	-1.67	
UN * TRANS	-0.142	-0.051	-2.14	*	-0.158	-0.057	-2.38	*	-0.155	-0.056	-2.34	*	-0.142	-0.051	-2.13	*
UN * WHOLESALE	0.008	0.003	0.18	b	-0.003	-0.001	-0.07	b	-0.004	-0.001	-0.08	b	0.007	0.002	0.14	b
UN * REALEST	-0.231	-0.083	-2.74	**b	-0.242	-0.087	-2.87	**b	-0.242	-0.087	-2.88	**b	-0.231	-0.083	-2.75	**b
UN * AGRI	-0.041	-0.015	-0.21		-0.048	-0.017	-0.24		-0.047	-0.017	-0.23		-0.041	-0.015	-0.20	
cons	1.594		5.48	**b	1.570		5.39	**	1.596		5.46	**b	1.648		5.64	**
Number of obs	112570				112570				112570				112570			
Pseudo R Squared	0.030				0.030				0.030				0.030			

Source: Authors' calculations

Table 6. Regression Results for Three Sub-periods (1996–1997, 1998–1999, and 2000–2005)

This table contains the results for three sub-periods: 1996–1997, 1998–1999 and 2000–2005. See Table 4 for a description of the individual variables. The regressions include all variables in Table 5, specification (4), but some coefficients are not reported to save space. * and ** indicate that the estimated coefficients differ significantly from zero at the 5 percent and 1 percent level, respectively. Notations "a" and "b" indicate that the total net effect of a variable for unlisted firms differs significantly from zero at the 5 percent and 1 percent level, respectively.

	Panel A. 1996-1997				Panel B. 1998-1999				Panel C. 2000-2005			
	Coef.	Marginal effect	Z-value		Coef.	Marginal effect	Z-value		Coef.	Marginal effect	Z-value	
UNLISTED_D	-0.970	-0.367	-1.08		-1.178	-0.445	-1.66		0.085	0.029	0.21	
FROA_AV	-3.673	-1.389	-4.52	**	-3.528	-1.333	-5.15	**	-0.771	-0.266	-2.51	*
D_LOSS	0.068	0.026	0.66		-0.182	-0.069	-2.09	*	-0.086	-0.030	-2.01	*
D_LOSS * FROA_AV	-0.738	-0.279	-0.22		2.228	0.842	0.67		0.393	0.135	0.35	
DIRECTION(FROA)	-0.121	-0.046	-5.23	**	-0.104	-0.039	-5.30	**	-0.049	-0.017	-6.79	**
FWORKCAP	-0.889	-0.336	-4.69	**	-1.264	-0.478	-7.81	**	-0.891	-0.307	-8.85	**
FLEV	0.112	0.042	0.64		-0.113	-0.043	-0.74		-0.249	-0.086	-2.59	*
FLASSET	-0.090	-0.034	-4.59	**	-0.065	-0.025	-3.76	**	-0.058	-0.020	-5.31	**
FSALES	0.965	0.365	3.92	**	1.044	0.395	4.59	**	0.777	0.268	8.95	**
FPPE	-0.619	-0.234	-3.15	**	-0.333	-0.126	-1.79		-0.604	-0.208	-4.84	**
UN*FROA_AV	4.040	1.527	4.49	**	3.902	1.475	5.10	**	1.608	0.555	4.40	**b
UN * D_LOSS	-0.121	-0.046	-1.07		0.113	0.043	1.18		0.006	0.002	0.13	b
UN * D_LOSS * FROA_AV	0.411	0.156	0.11		-0.956	-0.361	-0.27		-0.612	-0.211	-0.49	
UN * DIRECTION(FROA)	0.079	0.030	3.24	**b	0.091	0.034	4.37	**a	0.035	0.012	4.41	**b
UN*FWORKCAP	0.368	0.139	1.77	b	0.546	0.207	3.07	**b	0.429	0.148	3.87	**b
UN*FLEV	0.540	0.204	2.78	**b	0.476	0.180	2.83	**b	0.488	0.168	4.60	**b
UN*FLASSET	-0.007	-0.003	-0.32	b	-0.023	-0.009	-1.15	b	-0.082	-0.028	-6.48	**b
UN*FSALES	-0.123	-0.046	-0.47	b	-0.460	-0.174	-1.93	b	-0.193	-0.067	-2.05	*b
UN*FPPE	0.483	0.182	2.35	*a	0.015	0.006	0.08	b	0.336	0.116	2.59	*b
Number of obs	21135				22422				69013			
Pseudo R Squared	0.029				0.029				0.023			

Source: Authors' calculations

Table 7. Regression Results for Firms with Overlapping Size Measures

This table contains results for firms within size ranges for which a substantial overlap for listed and unlisted firms exists. In order to facilitate comparison, the result from specification (4) of Table 5 is shown as "Entire sample." See Table 4 for a description of the individual variables. "Overlapping asset size," "Overlapping # of employees," and "Overlapping sales volume" indicate the columns containing the regression coefficients for subsamples of listed and unlisted firms that have 15 < Ln(Assets) < 18, 100 < Number of employee < 1000, and 14.5 < Ln(Sales) < 18, respectively. The regressions include all variables in Table 5, specification (4), but some coefficients are not reported to save space. * and ** indicate that the estimated coefficients differ significantly from zero at the 5 percent and 1 percent level, respectively. Notations "a" and "b" indicate that the total net effect of a variable for unlisted firms differs significantly from zero at the 5 percent and 1 percent level, respectively.

	Entire Sample (from Table 5, (4))			Overlapping asset size			Overlapping # of employees			Overlapping sales volume		
	Coef.	Marginal effect	Z-value	Coef.	Marginal effect	Z-value	Coef.	Marginal effect	Z-value	Coef.	Marginal effect	Z-value
UNLISTED_D	-0.093	-0.034	-0.28	0.644	0.229	1.32	0.186	0.067	0.40	0.480	0.173	1.10
FROA_AV	-1.215	-0.438	-4.65 **	-1.251	-0.446	-4.17 **	-1.386	-0.496	-4.40 **	-1.122	-0.404	-3.85 **
D_LOSS	-0.064	-0.023	-1.84	-0.100	-0.036	-2.53 *	-0.089	-0.032	-2.07 *	-0.104	-0.037	-2.59 **
D_LOSS*FROA_AV	-0.155	-0.056	-0.16	-0.350	-0.125	-0.31	-1.226	-0.438	-0.88	-1.239	-0.446	-1.01
DIRECTION(FROA)	-0.064	-0.023	-10.14 **	-0.071	-0.025	-9.69 **	-0.072	-0.026	-9.19 **	-0.068	-0.024	-9.46 **
FWORKCAP	-0.971	-0.350	-12.23 **	-0.893	-0.318	-9.47 **	-0.827	-0.296	-8.47 **	-0.853	-0.307	-9.40 **
FLEV	-0.224	-0.081	-2.95 **	-0.179	-0.064	-2.01 *	-0.156	-0.056	-1.68	-0.127	-0.046	-1.46
FLASSET	-0.062	-0.022	-7.06 **	-0.123	-0.044	-7.06 **	-0.084	-0.030	-5.39 **	-0.059	-0.021	-3.88 **
FSALES	0.853	0.308	11.36 **	0.977	0.348	11.04 **	0.972	0.347	10.19 **	1.013	0.365	11.62 **
FPPE	-0.603	-0.218	-6.38 **	-0.625	-0.223	-5.66 **	-0.594	-0.212	-5.21 **	-0.604	-0.217	-5.70 **
UN*FROA_AV	1.981	0.714	6.53 **b	2.011	0.716	5.41 **b	1.414	0.506	3.67 **	1.490	0.536	4.35 **a
UN*D_LOSS	-0.009	-0.003	-0.22 b	0.070	0.025	1.47	0.031	0.011	0.60 a	0.051	0.018	1.13 a
UN*D_LOSS*FROA_AV	-0.005	-0.002	0.00	-0.326	-0.116	-0.23	1.011	0.361	0.63	1.673	0.602	1.20
UN*DIRECTION(FROA)	0.046	0.017	6.70 **b	0.040	0.014	4.64 **b	0.042	0.015	4.71 **b	0.041	0.015	5.22 **b
UN*FWORKCAP	0.478	0.173	5.49 **b	0.266	0.095	2.50 *b	0.268	0.096	2.39 *b	0.318	0.114	3.16 **b
UN*FLEV	0.499	0.180	5.95 **b	0.455	0.162	4.47 **b	0.456	0.163	4.27 **b	0.415	0.149	4.30 **b
UN*FLASSET	-0.059	-0.021	-5.91 **b	-0.086	-0.031	-4.24 **b	-0.050	-0.018	-2.82 **b	-0.082	-0.030	-4.87 **b
UN*FSALES	-0.256	-0.092	-3.18 **b	-0.353	-0.126	-3.59 **b	-0.168	-0.060	-1.55 b	-0.379	-0.137	-4.02 **b
UN*FPPE	0.351	0.127	3.57 **b	0.328	0.117	2.81 **b	0.451	0.161	3.72 **b	0.410	0.148	3.70 **b
Number of obs	112570			70672			62300			86574		
Pseudo R Squared	0.030			0.035			0.036			0.031		
Number of Listed Firms	25661			18127			16606			18350		
Number of Unlisted Firms	86909			52545			45694			68224		

Source: Authors' calculations

Table 8. Separating IPO Firm Observations

This table contains results for subsets of firms based on their listing status. The sample firms in Panel A (B) are listed (unlisted) firms and firms that underwent an IPO during our sample period. PreIPO_D is a dummy variable that is equal to one if the observation is from the pre-IPO period of an IPO firm, and zero otherwise. PostIPO_D is a dummy variable that is equal to one if the observation is from the post-IPO period of an IPO firm, zero otherwise. In Panel A, the base is the IPO firms' post-IPO observations. In Panel B, the base is the IPO firms' pre-IPO observations. See Table 4 for a description of the other individual variables. The regressions include all variables in Table 5, specification (4), but some coefficients are not reported to save space. * and ** indicate that the estimated coefficients differ significantly from zero at the 5 percent and 1 percent level, respectively. Notations "a" and "b" indicate that the total net effect of a variable for unlisted firms differs significantly from zero at the 5 percent and 1 percent level, respectively.

Panel A. Always listed firms and IPO firms	Coef.	Marginal effect	Z-value		Panel B. Always unlisted firms and IPO firms	Coef.	Marginal effect	Z-value	
ALWAYS_LISTED_D	-0.642	-0.227	-1.09		PostIPO_D	0.692	0.250	0.74	
PreIPO_D	-0.832	-0.294	-0.89		ALWAYS_UNLISTED_D	0.132	0.048	0.16	
FROA_AV	-0.926	-0.327	-2.74	**	FROA_AV	-0.338	-0.122	-0.50	
D_LOSS	-0.208	-0.074	-2.74	**	D_LOSS	-0.143	-0.052	-0.77	
D_LOSS*FROA_AV	2.163	0.764	1.64		D_LOSS*FROA_AV	2.786	1.006	1.23	
DIRECTION(FROA) x 100	-0.049	-0.017	-5.91	**	DIRECTION(FROA) x 100	-0.010	-0.004	-0.86	
FWORKCAP	-1.231	-0.435	-9.67	**	FWORKCAP	0.093	0.034	0.41	
FLEV	0.017	0.006	0.14		FLEV	1.277	0.461	5.22	**
FLASSET	-0.115	-0.041	-6.47	**	FLASSET	-0.065	-0.024	-2.54	*
FSALES	1.044	0.369	9.57	**	FSALES	0.831	0.300	5.35	**
FPPE	-1.013	-0.358	-7.31	**	FPPE	-0.032	-0.011	-0.19	
PreIPO*FROA_AV	0.424	0.150	0.57		PostIPO*FROA_AV	-0.530	-0.191	-0.71	a
PreIPO*D_LOSS	0.076	0.027	0.38		PostIPO*D_LOSS	-0.078	-0.028	-0.39	b
PreIPO*D_LOSS*FROA_AV	1.044	0.369	0.40		PostIPO*D_LOSS*FROA_AV	-0.512	-0.185	-0.20	
PreIPO*DIRECTION(FROA)	0.042	0.015	2.88	**	PostIPO*DIRECTION(FROA)	-0.043	-0.016	-2.96	**b
PreIPO*FWORKCAP	1.359	0.480	5.42	**	PostIPO*FWORKCAP	-1.346	-0.486	-5.34	**b
PreIPO*FLEV	1.229	0.434	4.64	**b	PostIPO*FLEV	-1.216	-0.439	-4.56	**
PreIPO*FLASSET	0.041	0.015	1.41	b	PostIPO*FLASSET	-0.042	-0.015	-1.42	b
PreIPO*FSALES	-0.225	-0.079	-1.20	b	PostIPO*FSALES	0.220	0.080	1.17	b
PreIPO*FPPE	0.999	0.353	4.85	**	PostIPO*FPPE	-1.033	-0.373	-4.99	**b
ALWAYS_LISTED*FROA_AV	-1.852	-0.654	-3.11	**b	ALWAYS_UNLISTED*FROA_AV	1.132	0.409	1.63	b
ALWAYS_LISTED*D_LOSS	0.098	0.035	1.12	a	ALWAYS_UNLISTED*D_LOSS	0.072	0.026	0.39	b
ALWAYS_LISTED*D_LOSS*FROA_AV	-3.225	-1.139	-1.58		ALWAYS_UNLISTED*D_LOSS*FROA_AV	-3.021	-1.091	-1.31	
ALWAYS_LISTED*DIRECTION(FROA)	-0.035	-0.012	-2.75	**b	ALWAYS_UNLISTED*DIRECTION(FROA)	-0.008	-0.003	-0.62	b
ALWAYS_LISTED*FWORKCAP	0.371	0.131	2.33	*b	ALWAYS_UNLISTED*FWORKCAP	-0.599	-0.216	-2.62	**b
ALWAYS_LISTED*FLEV	-0.390	-0.138	-2.55	*b	ALWAYS_UNLISTED*FLEV	-1.027	-0.371	-4.16	**b
ALWAYS_LISTED*FLASSET	0.076	0.027	3.69	**b	ALWAYS_UNLISTED*FLASSET	-0.061	-0.022	-2.31	*b
ALWAYS_LISTED*FSALES	-0.365	-0.129	-2.43	*b	ALWAYS_UNLISTED*FSALES	-0.251	-0.091	-1.59	b
ALWAYS_LISTED*FPPE	0.677	0.239	3.79	**b	ALWAYS_UNLISTED*FPPE	-0.227	-0.082	-1.37	b
Obs	27811				Obs	95122			
Pseudo R-sq	0.048				Pseudo R-sq	0.028			

Source: Authors' calculations.

Table 9. Listed on the Tokyo Stock Exchange or Not

This table contains the results from estimating the basic equation for the set of listed firms making a distinction between firms listed on the Tokyo Stock Exchange and non-TSE listed firms. The base group of observations is firms listed on the TSE (Section I or II, including IPO firms and firms upgraded from other exchanges to the TSE) for column (1), and firms listed on the TSE, but excluding firms upgraded from other exchanges for column (2). The regressions include all variables in Table 5, specification (4), but some coefficients are not reported to save space. See Table 4 for a description of individual variables. * and ** indicate that the estimated coefficients differ significantly from zero at the 5 percent and 1 percent level, respectively. Notations "a" and "b" indicate that the total net effect of a variable for unlisted firms differs significantly from zero at the 5 percent and 1 percent level, respectively.

	(1)				(2)			
	Coef.	Marginal effect	Z-value		Coef.	Marginal effect	Z-value	
NON_TSE	-0.466	-0.165	-0.85		-0.356	-0.127	-0.60	
FROA_AV	-1.827	-0.649	-4.69	**	-2.651	-0.944	-5.22	**
D_LOSS	-0.104	-0.037	-2.07	*	-0.094	-0.033	-1.80	
D_LOSS * FROA_AV	-2.617	-0.929	-1.43		-1.139	-0.405	-0.60	
DIRECTION(FROA)	-0.087	-0.031	-8.58	**	-0.090	-0.032	-7.69	**
FWORKCAP	-1.047	-0.372	-9.81	**	-0.997	-0.355	-8.39	**
FLEV	-0.347	-0.123	-3.39	**	-0.358	-0.128	-3.15	**
FLASSET	-0.074	-0.026	-5.99	**	-0.057	-0.020	-4.34	**
FSALES	0.666	0.236	6.01	**	0.602	0.214	4.85	**
FPPE	-0.498	-0.177	-3.78	**	-0.443	-0.158	-3.11	**
NON_TSE * FROA_AV	1.041	0.370	2.16	*b	2.570	0.915	4.29	**
NON_TSE * D_LOSS	0.008	0.003	0.12	a	-0.007	-0.003	-0.10	a
NON_TSE * D_LOSS * FROA_AV	3.915	1.390	1.86		1.670	0.595	0.77	
NON_TSE * DIRECTION(FROA)	0.049	0.017	4.07	**b	0.054	0.019	3.96	**b
NON_TSE * FWORKCAP	0.426	0.151	3.00	**b	0.361	0.128	2.29	*b
NON_TSE * FLEV	0.565	0.201	4.24	**a	0.534	0.190	3.61	**
NON_TSE * FLASSET	0.010	0.004	0.54	b	0.015	0.005	0.72	b
NON_TSE * FSALES	0.293	0.104	2.14	*b	0.333	0.119	2.21	*b
NON_TSE * FPPE	0.071	0.025	0.46	b	-0.069	-0.024	-0.41	b
Number of obs	27863				23664			
Pseudo R Squared	0.044				0.047			
N. of obs. (TSE)	14660				12295			
N. of obs. (non-TSE)	14303				11369			
N. of obs. (IPOs)	10467				7870			

Source: Authors' calculations

Table 10. Concentration of Bank Lending and Shareholdings for Listed Firms

This table reports descriptive statistics for the concentration of bank lending and bank shareholdings for listed firms. The number of lending banks indicates how many banks lend to the listed firm. The number of shareholding banks indicates how many banks hold shares of the listed firm. Main bank's ownership share indicates the proportion of total shares outstanding owned by the firm's main bank. The Top 3 lending banks' ownership share indicates the proportion of total shares outstanding owned by the firm's top three lenders. All banks' ownership share indicates the proportion of total shares outstanding of the firm owned by all banks.

All Listed Firms	mean	median	min	max	Obs.
Number of lending banks	7.64	6.00	0.00	88.00	23040
Number of shareholding banks	4.23	4.00	0.00	15.00	23040
Main bank's ownership share	0.03	0.04	0.00	0.10	23040
Top 3 lending banks' ownership share	0.07	0.07	0.00	0.26	23040
All banks' ownership share	0.10	0.09	0.00	0.49	23040

Source: Authors' calculations

Table 11. Regression Results for the Concentration of Bank Shareholdings (Listed Firms Only)

This table reports the results for the subset of listed firms. See Tables 4 and 11 for a description of the individual variables. The dependent variable in regression (1) and (2) is the (0, 1) dummy variable indicating an increase in total bank loans. The dependent variable in regression (3) is the (0, 1) dummy variable indicating increased main bank loans, and that in regression (4) is the (0, 1) dummy variable indicating increased bank loans from the top three lending banks. The same set of control variables from earlier specifications is included in the regressions, but some coefficients are not reported to save space. * and ** indicate that the estimated coefficients differ significantly from zero at the 5 percent and 1 percent level, respectively.

	Dependent Variable: (0, 1) variable in increased total loans (1)			Dependent Variable: (0, 1) variable in increased total loans (2)			Dependent Variable: (0, 1) variable in increased main bank loans (3)			Dependent Variable: (0, 1) variable in increased loans from top 3 lending banks (4)		
	Coef.	Marginal effect	Z-value	Coef.	Marginal effect	Z-value	Coef.	Marginal effect	Z-value	Coef.	Marginal effect	Z-value
FROA_AV	-0.692	-0.245	-1.74	-0.477	-0.169	-1.22	1.168	0.421	2.47 *	1.252	0.431	2.70 **
D_LOSS	-0.057	-0.020	-0.74	-0.092	-0.032	-1.24	-0.033	-0.012	-0.40	-0.135	-0.047	-1.69
D_LOSS * FROA_AV	2.880	1.020	1.34	3.704	1.310	1.73	3.371	1.216	1.31	2.153	0.740	0.94
DIRECTION(FROA) * 100	-0.043	-0.015	-4.11 **	-0.040	-0.014	-4.02 **	-0.037	-0.013	-3.04 **	-0.042	-0.014	-3.57 **
FWORKCAP	-0.884	-0.313	-10.56 **	-0.885	-0.313	-10.58 **	-0.745	-0.269	-9.06 **	-0.665	-0.229	-8.02 **
FLEV	-0.075	-0.027	-0.93	-0.083	-0.030	-1.03	0.177	0.064	2.21 *	-0.083	-0.029	-1.03
FLASSET	-0.069	-0.025	-7.60 **	-0.073	-0.026	-7.9 **	-0.070	-0.025	-7.86 **	-0.055	-0.019	-6.12 **
FSALES	0.929	0.329	11.18 **	0.936	0.331	11.26 **	0.621	0.224	7.17 **	0.596	0.205	6.83 **
FPPE	-0.368	-0.130	-3.46 **	-0.361	-0.128	-3.4 **	-0.181	-0.065	-1.78	-0.111	-0.038	-1.09
Main Bank Ownership	1.831	0.648	1.97 *				2.738	0.988	2.79 **			
FROA_AV x (Main Bank Ownership)	-6.826	-2.417	-0.48				-68.798	-24.811	-4.37 **			
D_LOSS * (Main Bank Ownership)	-1.020	-0.361	-0.48				-0.299	-0.108	-0.13			
D_LOSS * FROA_AV * (Main Bank Ownership)	-153.403	-54.322	-2.37 *				-160.550	-57.901	-2.20 *			
DIRECTION(FROA) * 100 * (Main Bank Ownership)	-1.139	-0.403	-3.44 **				-0.956	-0.345	-2.61 **			
Top 3 Lenders' Ownership				1.279	0.453	3.2 **				1.527	0.525	3.62 **
FROA_AV * (Top 3 Lenders' Ownership)				-8.201	-2.901	-1.29				-38.116	-13.108	-5.4 **
D_LOSS x (Top 3 Lenders' Ownership)				-0.156	-0.055	-0.17				0.502	0.173	0.52
D_LOSS * FROA_AV * (Top 3 Lenders' Ownership)				-84.540	-29.906	-2.88 **				-53.379	-18.357	-1.75
DIRECTION(FROA) * 100 * (Top 3 Lenders' Ownership)				-0.587	-0.208	-3.96 **				-0.354	-0.122	-2.15 *
Number of obs	23040			23040			20818			20818		
Pseudo R squared	0.046			0.047			0.037			0.045		

Source: Authors' calculations