Does the Collapse of Internal Capital Market Change Firms' Financial Structure?

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Abstract

This paper investigates the consequences of the collapse of internal capital market on firms' financial decision making. We use a data set from Japan, where the existence of the traditional bank-oriented "keiretsu" system has been weakening in recent decades. In addition to the findings that firms in internal capital markets have higher financial leverage and a slower speed of adjustment, we find that as a banks' influence weakens, member firms' financial leverage decreases and their speed of adjustment increases. Several robustness checks ensure consistent results in the basic analyses such as: excluding firms with extreme financial leverage, controlling for firms' financial distress, using multiple cut-off points representing different banks' ownership levels, and whether there has been a shift from using bank loans to public bonds due to the decline of bank's influence on other member firms.

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1. Introduction

The origin of the internal capital markets is known as a channel of liquidity transfer within business groups to overcome their firms' financial difficulties (Masulis et al. 2011; Morck et al. 2005; Almeida et al. 2015), which leads to differences in financial behavior. In this line, a considerable number of studies report differences in banks' lending attitude between the business group-affiliated and independent firms (see e.g., Hoshi et al. 1990; Khanna and Yafeh 2007; Gopalan et al. 2007; Byoun 2008).

Unlike the previous literature, we analyze how the financial behavior changes in the process of the weakening internal capital markets. To this aim, we focus on Japan, which has long been regarded as a country dominated by large business groups. Japanese banks played an essential role in supporting firms—not only as a debt holder but also as an equity holder.[1] However, the influence of these banks over its group members' firms has deteriorated during the long-term recession period that began after the collapse of the land price bubble in 1990. This collapse generated a huge amount of bad loans, leading to the credit crunch of the Japanese banking sector in 1997, which made it difficult for banks to support their member firms; this, in turn, weakened the solidarity of Japanese business groups (Hoshi and Kashyap 2010). This situation has also been flagged by a recent news article in the *Financial Times* (May 12, 2016)[2] showing that tie within the business groups in the Japanese market has weakened and the collaboration among the group members has declined in recent years.[3]

[1] The detail of the role of banks in the business groups is well explained in Hoshi et al., 1990 and Aoki, 1994.

[2] The article, titled "Nissan to take 34% stake in Mitsubishi Motors," was published on May 12, 2016 and discusses the case of Mitsubishi Motors, which is a member company of the Mitsubishi Group. The automobile company faced financial distress in 2001, 2004, and 2016 due to scandals related to false fuel efficiency reports. In both 2001 and 2004, the company was saved and supported by other members in the Mitsubishi Group. However, in 2016, other members in the group did not support the motor company, and it was purchased by a competitor motor company, Nissan Motors, which was thought to be a member of a different business group, the Fuji Group.

[3] Another example is the joint venture company for thermal power generation founded by Mitsubishi and Hitachi. These two were thought to belong to different business groups once: Mitsubishi Heavy Industry was in the Mitsubishi Group, and Hitachi belonged to the Mitsui Group. The following quote is from an article entitled "Hitachi and Mitsubishi Heavy in tie-up," published in *Financial Times* (November 29, 2012): "Two of Japan's

As a result of the decline of the tie within business groups in Japan, the firm-bank relation has deteriorated significantly. Hence, the role of banks' influence within a group, represented by bank ownership as a governance mechanism in these firms, may change and lead to further changes in firms' financial decision-making. Therefore, to better understand the relation between bank ownership and firms' financial leverage and the speed of adjustment, and how this decline in bank ownership affect Japanese firms' financial leverage and the speed of adjustment, we use a panel dataset of Japanese listed firms containing information on the financial and ownership characteristics of these firms.

We find following empirical results. First, we find a positive relation between bank dependency and the firm's financial structure that is in line with the previous literature (see e.g., Fukuda and Hirota (1996); Hirota (1999); Antoniou et al. (2008)), while its economic significance is not so large. An increase of one standard deviation of bank ownership leads to an increase of financial leverage for 1.05 percentage points or 5% of one standard deviation; hence, we confirm that bank ownership is one of the key determinants, but does not fully explain the variation, of firm's capital structure. Also, we find that bank ownership is negatively related to the speed of adjustment (Antoniou, et al., 2008; Öztekin and Flannery (2012)). The adjustment speed of firms with bank ownership is 6.6% whereas without bank ownership is 19% per year using dynamic GMM approach.

Second, we investigate whether the decline in bank ownership positively affects the decline in financial leverage. To this aim, we divide the sample into two: firms with and without bank ownership at 2001 and compare the subsequent change in the financial leverage of them. The decline in financial leverage is more pronounced for firms with bank ownership in 2001. The financial leverage for the sample of firms with bank ownership declines by 7% from 2001 to 2008, and this difference is statistically significant; whereas, the financial

top industrial conglomerates are to merge their thermal power plant units, mounting a challenge to Siemens and GE at a time of growing uncertainty over the global outlook for fossil-fueled power."

leverage for firms without bank ownership only decreases by 2.38%, which is insignificantly different from zero. This implies that during our sample period, only the firms with high bank ownership decline their financial leverage as the bank ownership declines.

Third, we examine whether a decline in bank ownership amplifies the speed at which the firm adjusts its leverage level. If a firm slowly adjusts its capital structure due to the reliance on its bank's smooth provision of liquidity, the speed increases as the bank's influence declines. To confirm this prediction, we restrict our sample to firms with high bank ownership in 2001, as these firms are thought to have strong firm-bank relation and to have less incentive to adjust their capital structure. Then, we divide the sample into two according to the decline in bank ownership starting in 2001 and compute the speed of adjustment for each subsample. We find a higher speed of adjustment for the subsample with a larger decline in bank ownership. The speed of leverage adjustment, for firms that experienced more than 5% decline in their bank ownership since 2001, is 15.1%; whereas, the speed of adjustment is only 7.2% for firms that had less than 5% decline in their bank ownership.

Several robustness checks have been conducted as follow. First, we verify whether our results are robust for different leverage measures by re-running our models using market leverage ratios instead of book leverage ratios.[4] Second, we provide alternative cut-off points for the level of bank ownership in the firm by proposing different levels at 3%, 5%, 7%, 10%, and 15%. We estimate the speed of adjustment using the GMM method for each of the cut-off points using both book and market leverage.

Third, we put forward the possibility that firms with strong firm-bank relation may rely more on bank loans, while firms without the financial support of banks tend to rely more on bond issuance. The findings of these robustness tests provide further support to the results obtained in the basic analyses. We find that deteriorated the decrease of firm-bank relation

[4] See e.g., Hovakimian et al. (2001) and Strebulaev and Yang (2013) for more details about the main differences between book and market leverage ratios.

leads to an increase in the frequency of using bond financing; hence an increase of bond ratio ratio in the the debt level.

The remainder of this paper is organized as follows: Section 2 explains the literature on the business groups, introducing the historical backbone of the Japanese banking system, and then introduces the main hypotheses to be tested. Section 3 introduces the sample used and the descriptive statistics. Section 4 examines how bank ownership affects firms' financial leverage. Section 5 tackles the question of how bank ownership affects the leverage speed of adjustment. Section 6 provides the necessary robustness tests. Section 7 concludes.

2. Related Literature and Hypotheses Building

2.1.The Origin of the Internal Capital Market and its Role in the Japanese Economy

Internal capital markets work as an effective tool in mitigating the imperfections of finance in many countries (Khanna and Yafeh 2007; Masulis et al. 2011)[5]. Previous literature considers business groups work for providing liquidity in weak financial institutions and less-developed financial markets (Masulis et al. 2011; Morck et al. 2005; Almeida et al. 2015).

In some country, banks are the center of the group and support the liquidity provision for other group member firms. Japan is an example and a bank-oriented business group (called *keiretsu*) contributed to the fast growth of the Japanese economy up to the 1980s (Hoshi et al. 1990; Aoki 1994; Kaplan and Minton 1994; Kang and Shivdasani 1997). In the *keiretsu* system, a bank has to take care of companies not only in terms of providing liquidity but also by monitoring the firms (see e.g., Hoshi et al. 1990 and Aoki 1994). The main bank not only plays the role of a lender for the client firms but also plays the role of a stockholder of the companies. This dual role is thought to reduce the agency cost of the firms when the Japanese

[5] This has been documented in India (Gopalan et al., 2014); Japan (Hoshi et al., 1990); Korea (Kim et al., 2016); and Peru (Buchuk et al., 2014).

economy grows (Prowse 1990; Aoki and Patrick 1994) and reduce any potential conflict of interest between creditors and equity holders (Myers 1977; Stulz 1988).

However, theoretical prediction shows that on the other hand, such firm-bank relations would impose some cost on the firms in certain situations; in such, the switching cost makes it difficult for firms to change their main bank or to try to have multiple bank relations (Rajan 1992; Weinstein and Yafeh 1998).

The collapse of the Japanese land price bubble in 1990 highlights the dark side of the tight firm-bank relation. The recession of 1990 generated a bad loans problem in Japanese banks. To address the bad loan problem, Japanese banks abandoned their role as the liquidity provider within the group. One piece of numerical evidence comes from the fact that the degree of cross-shareholding within groups, especially ownership by banks, diminished in this period. Generally, mutual holding of equity is thought to represent the relation between companies and/or banks, and Nitta (2008) shows that the equity ownership by banks has declined throughout the 2000s.

Additionally, firms regard relying on the bank as a cost. As noted above, banks are no longer assumed to be a liquidity provider. Indeed, Kang and Stulz (2000) show a decline in the operating performance of unhealthy banks in Japan after the collapse of the land price bubble, indicating that tight firm-bank relation is no longer a cost for the firm.

To mitigate the switching cost due to the firm-bank relation, Japanese firms tried to modify the relation with their main banks. The relations between firms and banks and within member firms in certain business groups had weakened since the banking crisis in Japan in 1997. Additionally, as per the article published in the *Nikkei* newspaper in 1998, Japanese listed firms started to cut off their relations with banks because they were afraid that unhealthy banks would not be able to support them as before when they were in financial trouble (the *Nikkei,* September 15, 1998). These findings are in line with previous literature

that argues that bank lending increases for low-profit firms that are members of the business group (see e.g., Gopalan et al. (2007, 2014); Buchuk et al. (2014)).

2.2.Internal Capital Markets and financial leverage

It has been shown that a strong firm-bank relation influences the capital structure decision-making process. Indeed, Fukuda and Hirota (1996) demonstrate that firms with a strong firm-bank relation have a higher leverage ratio. Additionally, Fan et al. (2012) show that the capital structure of firms in Japan is higher than that in other countries. Weinstein and Yafeh (1998) reveal that a close firm-bank relation increases the availability of bank loans, especially for firms with limited access to the capital markets. This can be interpreted as being related to the small degree of asymmetric information between a bank and its borrower (Diamond 1984). A study similar to this paper is that of Öztekin and Flannery (2012), who find a slower leverage speed of adjustment in bank-oriented countries. In addition to this, we further find that the speed of adjustment increases as the bank's influence or solidarity of the business groups weakens. As same with the previous literature, we compare the financial leverage of the bank-dependent firms and others.

H.1 *Bank ownership positively affects firms' financial leverage.*

Taking this a step further, we analyze how the weakening of the firm-bank relation affects the capital structure. If a bank plays the role of the main capital provider for their client firms, we predict that the amount of debt declines as the bank's influence weakens. In Japan, as we have shown, the bank's influence over their client firms has declined in recent decades, which provides a good experimental venue in which to examine the relation between the decline in firm-bank relation and the change in capital structure. While the data used by Fukuda and Hirota (1996) extend into the 1990s, a period characterized by the great influence of Japanese banks on firms belonging to the business groups, we update the data period through 2014,

when banks started to lose their dominating influence over firms. If the above argument holds true, as banks lose their influence over their clientele, we hypothesize that firms' financial leverage declines.

H.2 *As bank ownership declines, firms' financial leverage also declines.*

2.3.Internal Capital Markets and Speed of Adjustment

We also analyze the relation between internal capital markets and the speed of adjustment toward firms' target capital leverage. Antoniou et al. (2008) provide a comparison study investigating the determinants of capital structure between capital market- and bank-oriented institutions. Their results show that the firms in bank-oriented countries like Japan have the slowest adjustment speed to their target leverage ratios while French firms have the fastest speed of adjustment. Furthermore, they argue that this speed of adjustment is significantly affected by the economic environment and its institutions, tax systems, corporate governance mechanisms, and borrower-lender relations. In a recent study, Öztekin and Flannery (2012) also find that the adjustment speed toward the target leverage ratio is slow in countries with bank-dominant economic systems. Therefore, we propose the following hypothesis:

H.3 *Adjustment speed for firms with bank ownership is slower than for those without.*

We additionally analyze the change in speed of adjustment in the situation where the influence of the banks weakens and firms gradually rely on the market type financing methods. Building on the previous findings of Antoniou et al. (2008) and Öztekin and Flannery (2012), we argue that bank ownership in the firm helps in reducing the agency costs and in closing the ties between firms and their creditors (Myers 1977); as well as in reducing the asymmetry of information (Myers and Majluf 1984), which grants firms with bank

ownership easier access to debt financing and lessens their need to use debt as a signal for their firms' quality. Consequently, the cost of adjustment speed is relatively similar to the cost of being off target for firms with bank ownership; hence, the adjustment speed toward the target leverage ratio for firms with bank ownership is slower compared to firms without bank ownership.

In addition, we argue that firms with relatively more stable bank ownership changes across the years enjoy a slower speed of adjustment compared to those firms with bigger fluctuations in their bank ownership each year. The reason behind this is that high negative changes in bank ownership increase the asymmetric information and agency costs between banks and firms, which in turn increase the cost of debt for those firms, leading to an increase in the speed of the cost of adjustment. Therefore, we hypothesize the following:

H.4 *Large negative changes in bank ownership lead to an increase in the speed of adjustment.*

3. Data Set

The financial data set is provided by the Value Search data service by Nikkei Media Marketing. The sample employs annual firm-level financial and ownership data covering the period from 2001 to 2014.[6] Our data set begins in 2001 because Nikkei Media Marketing started to collect ownership data that year. The ownership information contains the top 30 ownerships for each firm-year observation. Due to the difference in financial statements, we exclude the financial firms and ETFs from our sample. Also, firms in regulated utilities are also excluded because of the difference in competitiveness. The final sample includes 45,621 firm-year observations.

[6] We do not use the business group information that has been used in traditional Japanese research. The previous literature mainly relies on the *Japanese Company Handbook*. However, the last issue of the *Japanese Company Handbook* was in 2000. Further, all the large banks in Japan experienced the merger, so our dataset cannot adopt the method used in traditional literature.

Table 1 reports the summary statistics of bank ownerships and financial leverage, where bank ownership is computed as a cumulative amount of banks' equity ownership in the firm each year. This means that if more than two banks own part of a firm's equity, we sum up their equity holdings into one number. On average, 4% to 8% percent of a firm's stock is owned by banks. However, this percentage declined over time, from less than 8% in 2001 to less than 4% in 2014. Additionally, we find that this decline in bank ownership is accompanied by a decline in the value of firms' financial leverage each year across the sample period, from 32% in 2001 to 24.5% in 2014.

4. How Bank Ownership Affects Firms' Financial Leverage

To examine the first two hypotheses developed in subsection 2.2 above, we conduct two types of analyses. First, by dividing the sample into two groups, namely, those without and with bank ownership, we conduct a mean comparison analysis across the sample period between these two groups to identify any differences in the financial leverage. Second, we perform a multivariate test and show how bank ownership affects the financial leverage.

4.1.Mean Comparison Analysis

In order to have an initial understanding of the distribution of the financial leverage values for both groups (with and without bank ownership) across the sample period, we first provide a mean comparison analysis for the firms' financial leverage, as per Table 2. In addition, since we attempt to identify the changes in financial leverage from the beginning of our sample period (2001), we also calculate the mean values of the financial leverage differences from base year, 2001 and subsequent year.

First, we compare the average financial leverage in 2001 for both groups. To control for other unobservable situations, we employ the propensity score matching method. For each firm without bank ownership in 2001, we call as treatment group, we find a matched firm

from the firms with bank ownership. Then, we compare the mean difference between the two subsamples. In the matching process, we use the following as control variables: *MB, Cash Flow, Depreciation, RDD, R&D Expense, Firm Size, Tangibility, Liquidity, Industry Leverage*. The findings show a statistical and economic difference between the value of these variables, with the financial leverage value being much higher for the group with bank ownership (33.0%), compared to only (24.5%) for the group without bank ownership. This is consistent with hypothesis **H1** that firms with bank ownership have higher financial leverage.

Furthermore, the results reveal that the decline in financial leverage of firms without bank ownership is rather small compared to those with it. The mean financial leverage value for firms with bank ownership decreased dramatically from 33.0% in 2001 to 28.8% in 2008, with further decreasing to 24.3% in 2014. By contrast, firms without bank ownership saw a steady decline in financial leverage, from 24.5% in 2001 to 20.4% in 2008, reaching 19.3% in 2014.

In addition, our results show that the mean value of changes in financial leverage for firms with bank ownership dropped dramatically by 10.67% from 2001 to 2008, which is statistically significant at the 1% level. However, this result does not hold in the second group, firms without bank ownership. The change in financial leverage dropped insignificantly by 4.1% for the same period, which is statistically insignificant. Overall, these results support hypothesis **H2**, which argues that as firm-bank relation declines, financial leverage declines.

For the period after 2008, we notice that overall, firms' reliance on leverage decreased for both groups. In addition, the overall mean changes of financial leverage increased for both groups. The financial leverage values for the group of firms with bank ownership fell a total of 8.7% from 2001 to 2014; whereas, for the other group of firms with bank ownership, this value dropped 5.2%.

4.2.Multivariate Analysis: Methodology

While the mean comparison analysis provided in the previous section does not control for firm characteristics, we further conduct a multivariate analysis using OLS regression in order to capture the effect of bank ownership on the firms' financial leverage. The model we use to conduct our study analysis is as follows:

$$BLR_{i,t} = \alpha + \delta PCT\_BANK\_OWNERSHIP_{it} + \beta_i X_{i,t-1} + \gamma_i + \omega_{i,t} \quad (1)$$

$BLR_{i,t}$ denotes the book leverage ratio of firm *i* in year *t*. $PCT\_BANK\_OWNERSHIP_{it}$ is the cumulative equity ownership by banks for firm *i* in year *t*. If multiple banks own the firm's shares, we use the cumulative amount of ownership by all banks holding that firm's equity. Vector *X* contains the factors affecting the firms' financial leverage based on previous studies such as Flannery and Rangan (2006), Lemmon et al. (2008), and Öztekin and Flannery (2012). These control variables include profit, market-to-book ratio, firm size, tangibility, R&D dummy, R&D expenses, liquidity, depreciation, and median industry leverage. These variables are used based on previous studies such as Hovakimian et al. (2001) and Flannery and Rangan (2006).

Financial Leverage (Book) is defined as the book value of the debt divided by total assets, which is reported as a percentage. *Financial Leverage (Market)* is defined as the book value of the debt divided by the market value of the firm, which is also reported as a percentage. *Pct Bank Ownership* is the total amount of the ownerships by banks. *MB* represents the market-to-book ratio, which is defined as the market value of equity (the number of shares times the stock price, which is the closing price on the last day of each accounting period) divided by the book value of equity. *Cash Flow* is defined as earnings before interest and taxes plus depreciation and amortization divided by total assets. *Depreciation* is defined as depreciation and amortization divided by total assets. The indicator variable *RDD* takes the value of 1 if the R&D expense is a non-zero value, and 0 otherwise. *R&D Expense* is defined as R&D expense divided by the total assets. *Firm Size* is defined as the natural logarithm of

the total assets. *Liquidity* is defined as current assets divided by current liabilities. *Industry Leverage* is defined as the median value of the financial leverage in the same industry/year. Following Lemmon et al. (2008), we include the firm-level fixed effect to capture firms' unobservable effects.

Table 3 reports the summary statistics for the variables used in subsequent analyses. We report the mean, median, and standard deviations for each subsample of the firms with and without bank ownership. Also, the result for the mean for each subsample is reported. We find the difference in the financial leverage in both book and market value. Additionally, we find the differences in the firms' characteristics: we find that firms with bank ownership are lower in market-to-book leverage, cash flow, and the amount of depreciation. They report the research and development item more frequently, but the mean value of the research and development expenditure is lower than those without bank ownership. Additionally, firms with bank ownership are large in size, which is determined by measuring the total assets, high amount of tangibility, lower liquidity, and belonging to the industry with high financial leverage, which is measured by the median value of the book leverage in each industry/year.

4.3.Multivariate Analysis: Results

Table 4 presents the estimation results of equation (1) on the relation between the changes in bank ownership and the level of firms' financial leverage. Columns 1 to 3 include the entire sample analysis, whereas columns 4 to 6 and 7 to 9 contain the results for the subsample periods from 2001 to 2008 and from 2009 to 2014, respectively. As shown in TABLEs 1 and 2, the decline in bank ownership is more pronounced in the early sample period. Thus, in addition to the full sample model, we conduct an analysis of the subsamples, which consist of the sample between 2001 and 2008 and between 2009 and 2014.

In general, we find that bank ownership has a positive influence on the firms' financial leverage for the three different subsamples. This finding is also in line with the findings of

Antoniou et al. (2008) and favors the argument that firms with higher bank ownership prefer to use debt as opposed to external equity to mitigate any possible dilution of ownership and control. As a result, the conclusion can be drawn that banks as a corporate governance mechanism play a significant role in the capital structure decision-making of firms.

More specifically, the findings reported in column 1 of Table 4 represent the results of estimations obtained from the entire sample period, where we find that the percentage of ownership, which is the cumulative ownership by banks for each firm-year observation, has a positive coefficient of 0.215, which is statistically significant at the 1% level. This indicates that a one percent increase in ownership leads to a 0.215% increase in financial leverage. We need to mention that the economic significance is not so pronounced. An increase of one standard deviation of bank ownership leads to an increase of financial leverage for 1.05 percentage point of the financial leverage or 5% of standard deviation. Then while the bank ownership positively relates with the firm's financial leverage, it is not the only factor that explains the variation of the financial leverage.

When dividing the sample in two, we find the elasticity is steeper for the period before the recent financial crisis. The slope in the first period is 0.251 in column 4 and for the latter period is 0.086 in column 7, and both coefficients are statistically significant at the 1% level. Hence, banks' influence on their firms' financial leverage is stronger for the early period in our sample. These findings are consistent with the hypothesis **H1**, that the impact of bank ownership becomes weaker on the firms' leverage after the financial crisis due to the decline in banks' influence in the Japanese market.

We note that the results for the control variables are generally consistent with the prior literature. For example, we find that profitability, cash flow, and RDD are negatively related to firms' financial leverage, while market-to-book leverage, depreciation, firm size, and industry leverage are positively related to financial leverage.

Additionally, we include the change of bank ownership instead of the bank ownership itself. The main explanatory variable in columns 2, 5, and 8 is the one year difference in the bank ownership, and the one in columns 3, 6, and 9 is the difference since 2001. Since the analysis in columns 3, 6, and 9 requires the firms to exist in 2001, the sample size is smaller than others. As shown in **Table 1**, the cumulative bank ownership declines in our sample period. Therefore, we predict positive coefficients for these variables from the hypothesis **H2**. Consistent with the prediction, the estimated coefficients are positive in all analyses. While the one-year difference shows marginal statistical significance, the change from 2001 satisfies the statistical significance at the 1% level in all sample periods. These imply that a decline in bank ownership leads to a decline in financial leverage, which is consistent with the hypothesis **H2**.

5. How Bank Ownership Affects the Leverage Speed of Adjustment

5.1.Speed of Adjustment: Methodology

In order to examine the existence of a target leverage in a framework that allows for adjustment costs and measures the speed of adjustment, we follow the studies of Antoniou et al. (2008), Öztekin and Flannery (2012), and Warr et al. (2012) by using a two-stage approach. In the first stage, we estimate the target leverage ratio using the standard representation of the partial adjustment model, which can be written as:

$$BLR_{i,t} - BLR_{i,t-1} = \lambda\,(BLR^{*}_{i,t} - BLR_{i,t-1}) + \delta_{i,t} \qquad (2)$$

where $BLR_{i,t}$ denotes the book leverage ratio of firm *i* in year *t*; $BLR^{*}_{i,t}$ is the target leverage ratio for firm i in year t; and λ measures the proportional adjustment during one year. Equation (2) shows that a firm adjusts its target ratio based on a trade-off between the costs of its current leverage ratio and the costs of leverage adjustment (Antoniou et al. 2008), where λ permits the firm to partially move to its target leverage in a given year. However,

this adjustment is not always perfect and is infrequent because of the existence of transaction costs. This is further supported by Leary and Roberts (2005), who report that, on average, firms adjust their capital structure once a year. The firm adjusts its capital structure perfectly to its target ratio when $\lambda = 1$; hence, transaction costs are zero. However, when $\lambda = 0$, then the firm does not adjust its capital structure, and the current leverage ratio equals the previous year's leverage ratio.

The rationale for the selection of firm- and industry-specific factors affecting the target leverage ratio, which are used in equation 2, is based on previous studies such as Hovakimian et al. (2001), Fama and French (2002), and Flannery and Rangan (2006). These control variables include profit, market-to-book ratio, firm size, tangibility, R&D dummy, R&D expenses, and median industry leverage. In addition to these, we already know that bank ownership affects financial leverage, and we thus include it as an explanatory variable. Therefore, assuming that the target leverage ratio, $BLR^{*}_{i,t}$, which is the predicted value from equation 2, is time dependent and a function of the firm's explanatory variables (X), then equation 2 will be as follows:

$$BLR^{*}_{i,t} = \delta PCT\_BANK\_OWNERSHIP_{it} + \beta_i X_{i,t-1} + \omega_{i,t}. \quad (3)$$

δ, β_i and $\omega_{i,t}$ are unknown parameters to be estimated. All the explanatory variables used in the estimation process are lagged one year to avoid reverse causality. Furthermore, adjustment speed is estimated with the one-year lagged dependent variable to reduce the endogeneity. We also control for unobserved firm heterogeneity by including firm and industry fixed effects.

By substituting equation 2 into equation 3 and rearranging the equation, we obtain a dynamic panel model represented by the following equation:

$$BLR_{i,t} = (1-\lambda)BLR_{i,t-1}(\lambda\delta)Bank\ Ownership_{i,t-1} + (\lambda\beta)X_{i,t-1} + \omega_{i,t} + \delta_{i,t} \quad (4)$$

To estimate the parameters in equation 4, we use two different empirical approaches: namely, those of the system GMM estimates proposed by Blundell and Bond (1998); and the corrected least squares dependent variable (LSDVC) developed by Kiviet (1995) and recently used by Öztekin and Flannery (2012) and Flannery and Hankins (2013). Flannery and Hankins (2013) compare several estimation models for a dynamic panel model and argue that the LSDVC model is the second-best estimator in many cases.

5.2.Results of Adjustment Speed Models

5.2.1. Bank Ownership and Speed of Adjustment

The findings reported in

Table 5 below show a significant and positive impact of the one-period lagged dependent variable, financial book leverage, on the capital structure of the firms in both samples studied (with and without bank ownership) and for both methods implemented (GMM and LSDVC). Furthermore, the estimated coefficients enjoy a value between zero and one, which indicates that the results are reliable and stable, and the leverage ratio tends to adjust toward its target level over time. These findings are in line with those reported by Antoniou et al. (2008).

The **λ** computed in

Table 5 reports the speed of adjustment estimation value. According to the results, we find that firms with bank ownership adjust their capital structure slowly compared to firms without bank ownership. The estimated speed of adjustment using the GMM method for firms with bank ownership is about 6.6% per year, while the speed of the firms without bank ownership increases substantially to reach 19%. These estimations are consistent with hypothesis **H3**: bank ownership helps in mitigating agency costs and asymmetry of information between firms and banks, which leads to a reduction in the cost of adjustment relative to the cost of being off target.

Then, we compute the speed of adjustment using the LSDVC method, and the results reported are consistent with those for the system GMM method, in which the speed of adjustment is 15.2% for firms with bank ownership and much faster for firms without bank ownership, with a speed of adjustment value of 34.7%. Overall, the above results are consistent with hypothesis **H3**, which predicts a slow adjustment speed for firms with higher bank ownership.

5.2.2. Changes of Bank Ownership and Speed of Adjustment

To test hypothesis **H4**, how the yearly changes in bank ownership impact the firms' leverage speed of adjustment, we first limit our sample to firms whose bank ownership in 2001 was higher than the industry median value. Then, we divide the new sample into two groups. The first group includes firms whose bank ownership value declines more than 5 percentage points from 2001, while the second group consists of firms whose decline of the bank ownership is less than 5 percentage points. We predict that the speed of adjustment fasten for the subsample those decline the bank ownership more. Then, we estimate equation (4) for each subsample to compute the speed of adjustment, using both the Blundell and Bond GMM method and the LSDVC (corrected least square dependent variable) estimator.

Table 6 below reports the estimated coefficients from equation 4 for each subsample. We find that, in line with hypothesis **H4**, firms with big bank ownership fluctuations (more than 5%, reported in column 1) adjust their leverage to achieve the target leverage ratio faster than their counterpart firms with small bank ownership changes (less than 5%, reported in column 2). The speed of adjustment for the subsample with more than a 5% decline in bank ownership is 15.1% (column 1) and higher than those with less than a 5% decline, which is 7.2% (column 2) according to the Blundell and Bond GMM estimates.

The results are similar when using LSDVC estimation. The speed of adjustment for firms with more than a 5% decline is 24.4% and 19.8% for those with less than a 5% decline These

results further support our mainstream finding that big negative changes in bank ownership increase the asymmetric information and agency costs between the bank and the firm, which in turn increase the cost of debt for those firms, leading to an increase in the cost of speed of adjustment.

6. Robustness Tests

6.1.Alternative Measures of Leverage

According to Parsons and Titman (2009), leverage ratio measuring suffers from considerable ambiguity. For example, there exists a difference when scaling debt by market value or book value (Strebulaev and Yang 2013). However, a considerable number of studies (e.g., Hovakimian et al. (2001); Fama and French (2002); Flannery and Rangan (2006) support and use the market-based debt ratio. Welch (2004) argues that the market-based ratio is superior to the book-based ratio when describing the relative ownership of firms by creditors and equity holders.

We follow Antoniou et al. (2008) and Öztekin and Flannery (2012) in defining the market leverage ratio as the book value of debt divided by the sum of the book value of debt and the market value of equity. The results are reported in Table 7 and Table 8.

Table 7 reports the results for equation (1), in which the market leverage is used as the financial leverage instead of book leverage. Similar to our findings in Table 4, we find a positive relation between bank ownership and financial leverage; further, this relation is stronger for the time period before 2008, with a coefficient value of 0.700 compared to a coefficient value of 0.367 after 2008.

Table 8 reports the speed of adjustment for firms with and without bank ownership. The results obtained from the LSDVC method contradict those with book leverage, which is reported in

Table 5. The results using Blundell and Bond's system GMM imply that the speed of adjustment of firms with bank ownership is faster (19.3%) than that of firms without bank ownership (13.2%), which is inconsistent with the hypothesis **H3**. However, the results using LSDVC are consistent with our hypothesis that the speed of adjustment of firms with bank ownership is slower (22.3%) than that of firms without bank ownership (28.3%). To further verify the robustness of our results, we change the cut-off points for bank ownership and re-examine hypothesis **H3**.

6.2.Bank Ownership under Extreme Leverage Policies

Firms with extreme leverage policies are thought to deviate substantially from their optimal leverage level. This may result in an upwardly biased estimation for the speed of adjustment, leading to failure in rejecting the null hypothesis that the adjustment speed is zero (Chang and Dasgupta 2009; Öztekin and Flannery 2012). In order to resolve this problem, many studies suggest dropping firms with extreme leverage in order to get more accurate results (Hovakimian and Li 2011; Öztekin and Flannery 2012).[7]

To further study the effect of bank ownership on firms' financial leverage and their speed of adjustment without the effect of extreme leverage policies, we divide our sample into three subsamples according to the percentage of debt of the firm. The first subsample includes firms with low leverage (less than 10%), the second subsample contains firms with an extremely high leverage level (greater than 90%), and the final subsample includes the remaining firms. Then, we estimate equations 1 and 4 for each subsample to examine the effect of bank ownership on leverage and its speed of adjustment for each group.

[7] There is no clear-cut definition to what represents extreme leverage. Hovakimian and Li (2011) suggest that firms follow extreme leverage policy when they have less than 10% or greater than 90% of leverage, whereas Minton and Wurck (2002) and Strebulaeve and Yang (2013) classify extreme leverage as less than 5% or greater than 95%.

Table 9 reports the estimation results of the OLS estimation from equation 1, where column 1 is the result for the subsample with less than 10% of book leverage, column 2 is for that with between 10% and 90%, and column 3 is for that with greater than 90%. We find that the percentage of bank ownership has a statistically significant positive effect on the firms' leverage level after excluding the extreme values of leverage. Furthermore, it is notable that the value of the coefficient for bank ownership is 0.239, which is higher than the coefficient value before removing the extreme values of leverage. Recall the estimated parameter of 0.215 in column 1 of Table 4.

In the other two subsamples with extreme leverage, we do not find the same relation between bank ownership and financial leverage. The reasons seem to be obvious: the low financial leverage firms tend to avoid debt financing[8] and the high leverage firms have no room to borrow more.

Table 10 reports the results of the speed of adjustment model. Panels A and C show the results with firms with financial leverage of less than 10% and greater than 90%, respectively, while Panel B of Table 10 reports the speed of adjustment for the group of firms without the extreme influence of high and low levels of leverage. Our results are consistent with our main prediction—that firms with bank ownership adjust their leverage ratios more slowly than their counterparts without bank ownership—and the speeds of adjustment are 7.2% and 9.5% for the firms with and without bank ownership, respectively. In addition, while comparing these results with the ones in Table 6, we find that the speed of adjustment for firms with moderate leverage levels to be 7.2%, which is faster than the 6.6% speed of adjustment for firms with extreme leverage values. This lends further support to the argument provided by Chang and Dasgupta (2009) that an upward bias may be noted for the speed of adjustment when including extreme values of leverage.

[8] See Strebulaeve and Yang (2013) for the debate about the zero-leverage firms.

As per panel A of Table 10, which describes firms with an extremely low value of leverage, we still find the speed of adjustment of firms with bank ownership to be slower compared to those without. However, the values of adjustment speed are relatively higher for both groups compared to the sample with only moderate leverage values. It is reported in Panel A (low leverage) that the speed of adjustment values is 31.5% and 31.8% for firms with and without bank ownership, respectively. In addition, the speed of adjustment values in Panel B (high leverage) is 20.4% and 93.7%, respectively.

6.3.Bank Ownership and Firms' Financial Distress

Institutional ownership is considered to be an effective internal corporate governance mechanism to ensure objective and effective monitoring of managerial actions and behavior, which is consistent with the agency theory perspective. However, when firms are in financial distress, moral hazard and asset substitution problems become a serious issue for creditors (Jensen and Meckling 1976). Therefore, lenders and especially banks tend to impose more stringent monitoring over these financially distressed firms (Lin et al. 2013).

It is well established in the literature that banks and other financial owners are attracted to financially distressed firms, which allow them to increase their ownership portfolio and to profit from distressed situations (James 1996; Jostarndt 2009). Hotchkiss and Mooradian (1997) report that financial ownership increased by 16% in financially distressed firms compared to non-financially distressed ones. Furthermore, James (1996) argues that banks increase their ownership in financially distressed firms by reducing their debt and increasing their equity position (debt-equity swapping).

This situation is in contrast to that of Japanese banks' ownership. Sheard (1994) and Morck et al. (2000) argue that Japanese bank-firm relations tend to be long-term relations in order to block any takeover attempts. Both Kang and Shivdasani (1997) and Morck et al. (2000) study the effect of banks' ownership changes in the years around the financial decline

on firms' performance and find no significant evidence that Japanese banks increase their ownership levels in firms as a response to poor performance.

Given the recent decline in banks' ownership and building on these previous findings, we attempt to further understand how financial distress risk and bank ownership may change a firm's financial leverage. We use the z-score proposed by Altman (1968) and include an interaction variable between the z-score (financial distress) and the percentage of bank ownership. The z-score ratio indicates the lower the z-score value is, the higher the probability of financial distress.

Table 11 reports the regression estimations for equation (1) after adding the z-score and its interaction with the bank ownership variable. As expected, and consistent with previous literature (e.g., Denis and Mihov (2003); Lin et al. (2013), the z-score has a negative and significant relation with the level of leverage used in the firm, which indicates that when firms are in financial distress, they tend to borrow more and increase their leverage value.

Furthermore, the interaction term between bank ownership and financial distress variables shows a significantly negative relation with the firm's leverage. This indicates that the impact of bank ownership on the firm's leverage is weaker in firms with lower financial health. This finding is consistent with the conclusion drawn by Morck et al. (2000) and Kang and Shivdasani (1997) that Japanese banks do not increase their ownership in firms as a response to poor performance.

6.4.Alternative Bank Ownership Concentration Levels

In this section, we argue that our results could be driven by the arbitrarily suggested cut-off point of bank ownership percentage, which is fixed at the 0% level in our previous analysis. Therefore, we re-run the speed of adjustment estimation at different cut-off points—namely, at 3%, 5%, 7%, 10%, and 15%—to check the validity of our findings.

Table 12 shows the speed of adjustment for book and market leverage estimated for both groups, the group of firms with bank ownership higher than the suggested cut-off point, and the group of firms with bank ownership equal to or lower than the suggested cut-off point. In hypothesis **H3**, we predict that the speed of adjustment is faster for the lower bank ownership subsample. The results obtained using the book leverage ratio, reported in Panel A of Table 12, further support this hypothesis given different bank ownership cut-off points.

On the other hand, the results obtained using market leverage varies slightly according to the cut-off point used. Our prediction only holds for bank ownership levels at 5% and 7%.

However, this prediction does not hold when changing the cut-off point for bank ownership to 3%, 10%, and 15%.

6.5.Influence on Bond Issuance

As a final robustness test, we test if there is any preference among firms for using bank loans versus using bonds during the shift in bank's influence. Bolton and Freixas (2000) theoretically show that a firm has an incentive to rely on bank loans when the bank has private information from serial lending relations. Lin et al. (2013) point out a relation between the ownership structure and the firm's choice between bond and bank loans. Therefore, we argue that, with strong firm-bank relation, firms may rely more on bank loans, while firms without the financial support from banks tend to rely more on bond issuance. Our hypothesis is that a firm with strong firm-bank relation relies on bank loans; or conversely, a firm without strong firm-bank relation relies on bond issuance.

To assess this argument, we run two types of tests reported the results in Table 13. First type of estimation uses the bond issuing indicator as dependent variable and the results are reported in columns 1 to 3. Second type of estimation uses the ratio of bond defined as the total bond divided by the total amount of debt, and results are reported in columns 4 to 6. Main explanatory variables are *Pct. Bank Ownership* and *Change in Bank Ownership*, and we predict negative coefficients for these variables as following reason. If a firm with strong firm-bank relation relies on the bank lending, the frequency of the bond issuance decreases as the bank dependency increases and the ratio of the bond issuance in the total amount of the debt from financial institutions and markets.

The results are partly consistent with the prediction. First, we run a probit regression following a similar approach to that used by Peek and Rosengren (2005), where the dependent variable takes the value of 1 if the firm's amount of bond issuance increases from

the previous year. As the main explanatory variable, we use the percentage of the bank ownership in column 1 and the first difference of the bank ownership in column 2.We find that strong firm-bank relation negatively influences the frequency of bond issuance. The coefficient of *Pct Bank Ownership* is negative. This implies that the firms with strong firm-bank relation rely less on bond issuance and more on bank lending. Additionally, column 2, where the main explanatory variable is *Change in Bank Ownership*, shows the negative relation between the change in firm-bank relation and the frequency of bond usage but is statistically insignificant. In column 3, we include both *Pct Bank Ownership* and *Change in Bank Ownership* jointly, and the results are similar to those in columns 1 and 2.

Second, following Lin et al. (2013), we use the bond ratio as our dependent variable, which is defined as the total amount of bond issuance divided by the sum of the total bonds and total bank loans. Similar to columns 1 and 2, the main explanatory variable is the percentage of bank ownership in column 4 and first difference in the bank ownership in column 5.

The results are not always consistent with our predictions. In column 4, we find a positive coefficient for *Pct. Bank Ownership*, which contradicts our hypothesis. If a firm with high bank ownership relies on bank loans, it relies less on bond issuance, so the coefficient should be positive. The results imply that the amount of bond issuance of the firms with strong bank ownership is much greater than that of those with weak bank ownership. One of the interpretations of this is that bank ownership may be some kind of signal to the bond investors about the quality of the firm, which enables the firm to more easily issue bonds.

Lastly, in column 5, the estimated coefficient of the *Change in Bank Ownership* is negative, which shows that as the firm-bank relation weakens, the firm relies more on bonds, which is consistent with our hypothesis.

Overall, most of our findings show that the bank influences the firm's choice between bank loans and bond, and the weakening of the bank's influence also influences the firms' choice to change from bank lending to bond issuance. However, some of the results are not consistent with our prediction. There are two possible reasons. First, as shown in hypothesis 1, the financial leverage of the firms with a strong firm-bank relation is already higher than others. Therefore, they may not have any reason to change from bank lending to bond financing. Rather, they need to reduce the amount of their debt, which we have shown in hypothesis **H2**. Second, issuing bonds incurs some cost, which makes firms reluctant to use the method. When such firms require additional funding, they only use bond financings. This is consistent with the fact that the estimated coefficients of the market-to-book ratio are positive, which indicates that only firms with additional investment opportunities use bond financing.

7. Conclusion

Recently, the characteristic bank-oriented nature of the Japanese market has begun to lose its dominance with the declining the influence of banks in business groups. This declining of the bank's influence affects substantially the firm-bank relation. The primary objective of this paper is to examine the relation between firm-bank relation and the firm's financial leverage, and how this decline in the relation between banks and firms may affect the firm's speed of adjusting its leverage ratio to its target level. To carry out this investigation, we use a dataset of Japanese listed firms containing information on financial and ownership characteristics of these firms during the period from 2001 to 2014.

Using this data, four types of analyses have been conducted. First, univariate and multivariate analyses have been used to test the relation between bank ownership and the firm's book and market financial leverage. A positive relation is reported, indicating initial

evidence that firm-bank relation does indeed influence the firms' financial leverage. This also supports the argument that internal capital markets of business groups strongly affect the firms' financing decisions. Second, the influence of bank ownership on the firms' speed of adjustment was also investigated using two estimates: system GMM and the corrected square dependent variable (LSDVC). The sample was divided into firms with and without bank ownership, and then the leverage speeds of adjustment for both subsamples were computed and compared. In line with our prediction, the findings show that the speed of adjustment is faster for firms with higher bank ownership. This is mainly because when a bank possesses strong influence, and if a firm heavily relies on bank lending, then the firm has less incentive to adjust its capital structure through adjusting its target leverage ratio.

Third, to investigate whether the decline in bank ownership increases the firm's speed of adjustment, the sample is restricted to firms with high bank ownership in 2001, as these are thought to be firms with strong firm-bank relation and to have less incentive to adjust their capital structure. Then, we divide the sample in two, with reference to the decline in bank ownership from 2001, and compute the speed of adjustment for each subsample. We find a higher speed of adjustment for the subsample with the larger decline in bank ownership.

Finally, several checks have been conducted to test the robustness of the results obtained. All the results were confirmed using robustness tests that include excluding firms with extreme financial leverage, controlling for firms' financial distress, using multiple cut-off points representing different bank ownership levels, and determining whether there is a shift from using bank loans to public bonds due to the decline of banking influence.

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Table 1 Time pattern for bank ownership and leverage mean values
This table reports summary statistics (mean and median) of bank ownership and financial leverage across each year during the sample period from 2001 to 2014.

		Bank Ownership		Leverage	
	N.	Mean	Median	Mean	Median
2001	3146	7.75	6.69	32.00	29.99
2002	3391	7.94	6.96	31.96	30.37
2003	3392	6.85	6.05	31.20	29.56
2004	3458	5.53	4.72	29.42	27.58
2005	3543	4.81	3.85	27.84	25.37
2006	3623	4.45	3.40	26.65	24.31
2007	3666	4.27	3.17	25.88	22.83
2008	3572	4.26	3.19	26.05	22.62
2009	3477	4.36	3.28	28.06	24.92
2010	3376	4.13	3.10	27.26	24.03
2011	3344	4.03	2.94	26.51	22.77
2012	3305	3.99	2.85	25.69	22.32
2013	3312	3.90	2.65	25.15	21.51
2014	3355	3.78	2.50	24.49	21.02

Table 2 Mean comparison analysis

This table reports the mean and standard deviation values of the financial leverage, defined as the total debt divided by the total assets, across each year for two subsamples: with and without bank ownership in 2001, where subsamples are restricted to firms that exist starting from 2001. Differences in financial leverage values between the current year and 2001 are also reported for both subsamples. The column [a] - [b] reports the differences in mean values between both subsamples (with and without bank ownership) across each year. The last column includes the results from the t-test.

Financial leverage of the firms...	with bank ownership in 2001 (Matched group)					without bank ownership in 2001 (Treatment group)							
	Mean [a]	St. Dev.	Diff. from 2001	*t*-stats.		Mean [b]	St. Dev.	Diff. from 2001	*t*-stats		[a] - [b]	*t*-stats.	
2001	33.0%	21.3%				24.5%	21.7%				8.5%	-5.68	***
2002	32.3%	21.3%	-0.7%	0.81		24.4%	22.1%	-0.1%	1.19		7.9%	-5.17	***
2003	30.4%	20.4%	-2.6%	-9.05	***	22.6%	20.5%	-1.9%	-0.25		7.8%	-5.21	***
2004	28.9%	19.5%	-4.1%	-15.44	***	21.0%	19.6%	-3.5%	-1.47		7.9%	-5.40	***
2005	27.7%	18.8%	-5.3%	-19.27	***	20.6%	19.4%	-3.9%	-1.59		7.1%	-5.02	***
2006	26.6%	18.4%	-6.4%	-22.22	***	20.4%	19.0%	-4.1%	-1.66	*	6.2%	-4.39	***
2007	26.4%	18.7%	-6.6%	-21.31	***	20.3%	18.7%	-4.2%	-1.81	*	6.1%	-4.19	***
2008	28.8%	19.9%	-4.2%	-10.67	***	20.4%	18.5%	-4.1%	-1.32		8.4%	-5.24	***
2009	28.1%	19.5%	-4.9%	-12.91	***	19.5%	17.8%	-5.0%	-1.67	*	8.6%	-5.40	***
2010	27.2%	19.1%	-5.8%	-15.45	***	19.9%	18.4%	-4.6%	-1.75	*	7.3%	-4.53	***
2011	26.3%	18.7%	-6.7%	-17.55	***	20.0%	18.3%	-4.5%	-1.57		6.3%	-3.97	***
2012	25.7%	18.2%	-7.3%	-19.37	***	19.2%	17.0%	-5.3%	-2.27	**	6.5%	-4.14	***
2013	25.0%	17.7%	-8.0%	-20.83	***	19.5%	17.3%	-5.0%	-2.38	**	5.5%	-3.52	***
2014	24.3%	17.1%	-8.7%	-21.82	***	19.3%	15.6%	-5.2%	-2.81	**	5.0%	-2.78	***
2001 - 2014	8.7%					5.2%					3.5%		

The superscripts ***, **, and * indicate significance at 1 %, 5 %, and 10 % levels, respectively

Table 3 Summary statistics

This table reports the summary statistics of the variables used in the multivariate analyses. The mean, median, and standard deviations for the subsample with bank ownership and without bank ownership are reported. We also report the t-statistics for the two subsamples. The last column reports the t-statistics for the mean test between the two subsamples. *Financial Leverage (Book)* is defined as the book value of the debt divided by total assets, which is reported by percentage. *Financial Leverage* (Market) is defined as the book value of the debt divided by the market value of the firm, which is reported by percentage. *Pct Bank Ownership* is the total amount of the ownerships by banks. *MB* represents market-to-book ratio, which is defined as the market value of equity (the number of shares times the stock price, which is the closing price on the last day of each accounting period) divided by the book value of equity. *Cash Flow* is defined as earnings before interest and taxes plus depreciation and amortization divided by total assets. *Depreciation* is defined as depreciation and amortization divided by total assets. The indicator variable *RDD* takes the value of 1 if the R&D expense is a non-zero value, and 0 otherwise. *R&D Expense* is defined as R&D expense divided by the total assets. *Firm Size* is defined as the natural logarithm of the total assets. *Liquidity* is defined as current assets divided by current liabilities. *Industry Leverage* is defined as the median value of the financial leverage in the same industry/year.

	With Bank Ownership			Without Bank Ownership			Test in Mean
Variable Name	Mean	Median	St. Dev.	Mean	Median	St. Dev.	*t*-statistics
Financial Leverage (Book)	0.282	0.256	0.193	0.225	0.164	0.207	26.12***
Financial Leverage (Market)	0.398	0.387	0.248	0.262	0.182	0.248	50.2***
Pct Bank Ownership	6.055	5.070	4.455	0	0	0	
MB	1.480	0.722	2.429	4.026	1.660	5.694	-67.65***
Cash Flow	0.096	0.087	0.068	0.119	0.110	0.117	-26.6***
Depreciation	0.030	0.026	0.021	0.032	0.024	0.035	-6.23***
RDD	0.398	0.000	0.490	0.301	0.000	0.459	17.65***
R&D Expense	0.007	0.000	0.016	0.009	0.000	0.021	-7.67***
Firm Size	10.550	10.363	1.484	9.680	9.361	1.872	49.47***
Tangibility	0.182	0.163	0.119	0.126	0.084	0.126	40.94***
Liquidity	1.300	1.034	0.988	1.946	1.426	1.603	-49.95***
Industry Leverage	0.263	0.262	0.076	0.220	0.231	0.089	49.41***

The superscripts ***, **, and * indicate significance at 1 %, 5 %, and 10 % levels, respectively

Table 4 Impact of bank ownership on book leverage

This table reports results obtained from equation (1) showing the relation between the changes in bank ownership and the level of firms' financial leverage. The dependent variable is the book leverage values. The results are reported for the entire sample in columns 1 to 3, for the early sample period from 2001 to 2008 in columns 4 to 6, and for the late sample period from 2009 to 2014 in columns 7 to 9. *One-year Change in Bank Ownership* is the lagged value of the first-difference of the bank ownership. *Change in Bank Ownership* from 2001 is the difference in the bank ownership from the year 2001 to the year *t*. Standard errors are presented in parentheses.

	(1) Entire sample	(2) Entire sample	(3) Entire sample	(4) 2001 to 2008	(5) 2001 to 2008	(6) 2001 to 2008	(7) 2009 to 2014	(8) 2009 to 2014	(9) 2009 to 2014
Pct Bank Ownership	0.215***			0.251***			0.0864***		
	(0.0171)			(0.0205)			(0.0306)		
One-year Change in Bank Ownership		0.0297*			0.0288			0.0249	
		(0.0164)			(0.0183)			(0.0241)	
Change in Bank Ownership from 2001			0.212***			0.261***			0.0829***
			(0.0174)			(0.0214)			(0.0290)
MB	0.0237	0.0371*	-0.00253	0.0555*	0.141***	0.0393	-0.0925***	-0.0777***	-0.269***
	(0.0203)	(0.0214)	(0.0272)	(0.0324)	(0.0361)	(0.0370)	(0.0293)	(0.0298)	(0.0450)
Cash Flow	-35.77***	-34.75***	-40.35***	-26.66***	-26.20***	-29.58***	-24.53***	-24.76***	-25.69***
	(0.699)	(0.728)	(0.830)	(1.149)	(1.329)	(1.232)	(0.837)	(0.845)	(1.015)
Depreciation	-10.85***	-8.414***	-16.87***	-14.26***	-18.20***	-17.70***	0.706	1.634	2.820
	(2.866)	(2.881)	(3.768)	(3.907)	(4.038)	(4.676)	(3.710)	(3.736)	(5.560)
RDD	-0.605***	-0.518***	-0.760***	0.178	0.717**	-0.0592	-0.750***	-0.773***	-0.763***
	(0.145)	(0.150)	(0.150)	(0.279)	(0.323)	(0.284)	(0.210)	(0.211)	(0.212)
R&D Expense	-20.98***	-20.65***	-13.46*	-43.48***	-38.87***	-30.95***	-1.135	-1.774	14.96
	(6.266)	(6.456)	(7.283)	(10.42)	(11.89)	(11.05)	(8.159)	(8.226)	(10.15)
Firm Size	4.870***	4.743***	5.367***	6.697***	6.139***	7.420***	4.028***	4.023***	3.505***
	(0.128)	(0.136)	(0.150)	(0.243)	(0.283)	(0.270)	(0.187)	(0.189)	(0.244)
Tangibility	15.49***	15.44***	17.33***	16.85***	18.28***	14.72***	10.62***	11.02***	11.80***
	(0.963)	(1.003)	(1.085)	(1.799)	(2.046)	(1.886)	(1.277)	(1.295)	(1.517)
Liquidity	-4.538***	-4.373***	-5.292***	-2.963***	-2.765***	-3.552***	-3.248***	-3.243***	-3.972***
	(0.0816)	(0.0845)	(0.0966)	(0.144)	(0.160)	(0.161)	(0.107)	(0.107)	(0.134)
Industry Leverage	44.22***	44.18***	41.85***	63.60***	67.96***	63.94***	43.00***	42.90***	38.86***
	(1.247)	(1.244)	(1.283)	(2.066)	(2.090)	(2.123)	(2.219)	(2.231)	(2.296)

Constant	-27.49*** (1.421)	-25.69*** (1.510)	-30.92*** (1.711)	-56.38*** (2.752)	-51.45*** (3.190)	-61.48*** (3.076)	-20.00*** (2.054)	-19.70*** (2.080)	-13.93*** (2.742)
N. of observations	45,334	41,836	35,241	19,535	16,053	16,842	25,799	25,783	18,399
R-Squared	0.238	0.213	0.278	0.225	0.199	0.255	0.144	0.141	0.170

The superscripts ***, **, and * indicate significance at 1 %, 5 %, and 10 % levels, respectively

Table 5 Speed of adjustment (book leverage)

This table reports the influence of bank ownership on the leverage speed of adjustment for the firms. The dependent variable represents the book leverage values. The results of the full sample analysis are reported in columns 1 and 4. The results for the subsample with bank ownership are reported in columns 2 and 5, and results for the subsample without bank ownership are reported in columns 3 and 6. Blundell and Bond's (1998) two-step GMM procedure is used and reported in columns 1 to 3, and the LSDVC method is used and results are reported in columns 4 to 6. The speed of adjustment, λ, is computed from equation 4 for each subsample, where $(1-\lambda)$ is the estimated coefficient of the lagged financial leverage ratio. Standard errors are presented in parentheses.

	(1)	(2)	(3)	(4)	(5)	(6)
	GMM			LSDVC		
	Entire Sample	Bank ownership pct.		Entire Sample	Bank ownership pct.	
		> 0%	= 0%		> 0%	= 0%
Leverage (lagged)	0.859***	0.934***	0.810***	0.808***	0.848***	0.653***
	(0.0257)	(0.0223)	(0.0532)	(0.00512)	(0.00436)	(0.0144)
Pct Bank Ownership	0.602***			0.144***		
	(0.0702)			(0.0168)		
MB	0.242***	0.0539	0.136***	0.104***	0.00182	0.0818**
	(0.0318)	(0.0351)	(0.0372)	(0.0209)	(0.0277)	(0.0390)
Cash Flow	5.230***	5.444***	4.072*	-4.099***	-6.457***	-1.456
	(1.476)	(1.549)	(2.355)	(0.654)	(0.643)	(1.581)
Depreciation	-17.17***	-13.95***	-27.58***	-15.47***	-6.659*	-14.73***
	(6.524)	(4.156)	(7.878)	(2.151)	(3.897)	(4.728)
RDD	-1.052***	-0.250***	-0.778**	-0.441***	-0.317***	-0.536
	(0.151)	(0.0849)	(0.373)	(0.156)	(0.123)	(0.502)
R&D Expense	9.042**	-0.632	-5.463	-1.251	4.937	-17.45
	(4.505)	(3.206)	(9.096)	(5.446)	(7.142)	(13.59)
Firm Size	-0.241***	-0.0120	-0.128	2.051***	2.553***	1.733***
	(0.0465)	(0.0251)	(0.0781)	(0.122)	(0.156)	(0.282)
Tangibility	3.987***	1.831*	7.629***	3.635***	1.076	6.328**
	(1.375)	(1.017)	(2.154)	(0.912)	(0.848)	(3.025)
Liquidity	-0.449*	-0.0844	-0.109	0.260***	0.298***	-0.0152
	(0.239)	(0.257)	(0.342)	(0.0779)	(0.0873)	(0.155)
Industry Leverage	-0.577	1.927***	9.204***	7.258***	8.806***	4.765
	(1.052)	(0.576)	(2.094)	(1.269)	(1.047)	(4.668)
Constant	3.074***	0.792	2.945			
	(1.085)	(0.932)	(2.036)			
Number of Observations	45,334	35,175	10,159	45,334	35,175	10,159
λ =	**0.141**	**0.066**	**0.19**	**0.192**	**0.152**	**0.347**

The superscripts ***, **, and * indicate significance at 1 %, 5 %, and 10 % levels, respectively

Table 6 Changes of bank ownership and speed of adjustment

This table reports the relation between the change of bank ownership and speed of adjustment. The sample is restricted to firms with more than the median of bank ownership in 2001. Then, we divide the sample in two: one is those firms that reduce the bank ownership by at least 5% (columns 1 and 3), and the other is those firms that reduce the bank ownership less than 5% or rather increase the bank ownership (columns 2 and 4). Blundell and Bond's (1998) two-step GMM procedure is used and reported in columns 1 and 2, and the LSDVC method is used and results are reported in columns 3 and 4. The speed of adjustment, λ, is computed from equation 4 for each subsample, where $(1-\lambda)$ is the estimated coefficient of the lagged financial leverage ratio. Standard errors are presented in parentheses.

	(1)	(2)	(3)	(4)
	GMM		LSDVC	
Bank ownership at 2001 is higher than the median value, and				
reduce the bank ownership ...	more than 5%	less than 5%	more than 5%	less than 5%
Leverage (lagged)	0.849***	0.928***	0.756***	0.802***
	(0.0363)	(0.0374)	(0.0116)	(0.00666)
MB	-0.0717	0.110***	-0.0915	0.0844***
	(0.0483)	(0.0390)	(0.0703)	(0.0264)
Cash Flow	2.535	6.320***	-4.176**	-2.614***
	(3.160)	(2.082)	(1.662)	(0.961)
Depreciation	-21.98***	-24.14***	-4.368	-15.25***
	(7.839)	(9.311)	(8.524)	(3.931)
RDD	-0.577***	-0.211	-0.555**	-0.588***
	(0.200)	(0.156)	(0.257)	(0.182)
R&D Expense	-1.618	-4.558	21.79	-0.398
	(5.914)	(6.077)	(18.65)	(9.056)
Firm Size	0.205***	-0.0229	2.395***	1.695***
	(0.0674)	(0.0436)	(0.407)	(0.180)
Tangibility	6.288***	4.287**	2.918*	3.785***
	(2.105)	(1.961)	(1.740)	(1.205)
Liquidity	-0.573	0.273	0.0104	0.651***
	(0.395)	(0.350)	(0.170)	(0.112)
Industry Leverage	2.134	3.755***	-0.535	13.73***
	(1.363)	(1.094)	(3.091)	(1.852)
Constant	1.243	0.0374		
	(1.412)	(1.626)		
Number of Observations	7,635	21,036	7,477	21,036
λ =	**0.151**	**0.072**	**0.244**	**0.198**

The superscripts ***, **, and * indicate significance at 1 %, 5 %, and 10 % levels, respectively

Table 7 Impact of bank ownership (market leverage)

This table reports results obtained from equation (1) showing the relation between the changes in bank ownership and the level of firms' financial leverage. The methodology is same as that in Table 4 except that the dependent variable is the market leverage values. The results are reported for the entire sample in columns 1 to 3, for the early sample period from 2001 to 2008 in columns 4 to 6, and for the late sample period from 2009 to 2014 in columns 7 to 9. Standard errors are presented in parentheses.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Entire sample	Entire sample	Entire sample	2001 to 2008	2001 to 2008	2001 to 2008	2009 to 2014	2009 to 2014	2009 to 2014
Pct Bank Ownership	0.538***			0.700***			0.367***		
	(0.0254)			(0.0306)			(0.0463)		
One-year Change in Bank Ownership		0.293***			0.258***			0.0376	
		(0.0244)			(0.0271)			(0.0362)	
Change in Bank Ownership from 2001			0.562***			0.735***			0.368***
			(0.0266)			(0.0328)			(0.0468)
MB	-0.364***	-0.348***	-0.491***	-0.0976**	0.114**	-0.0343	-0.298***	-0.294***	-0.572***
	(0.0301)	(0.0318)	(0.0416)	(0.0483)	(0.0534)	(0.0566)	(0.0443)	(0.0449)	(0.0725)
Cash Flow	-58.20***	-55.59***	-66.91***	-48.63***	-46.68***	-52.14***	-31.52***	-31.67***	-36.72***
	(1.040)	(1.085)	(1.268)	(1.716)	(1.965)	(1.885)	(1.265)	(1.272)	(1.637)
Depreciation	14.53***	18.14***	28.01***	4.387	1.972	8.809	-12.66**	-10.98*	-24.75***
	(4.263)	(4.295)	(5.757)	(5.835)	(5.964)	(7.159)	(5.612)	(5.625)	(8.968)
RDD	-2.864***	-2.878***	-2.879***	-0.996**	-0.454	-1.097**	-0.366	-0.162	-0.277
	(0.216)	(0.223)	(0.229)	(0.416)	(0.478)	(0.435)	(0.317)	(0.317)	(0.341)
R&D Expense	-7.393	-2.509	-3.354	-24.92	-13.42	-29.49*	21.96*	21.12*	43.52***
	(9.320)	(9.632)	(11.13)	(15.57)	(17.57)	(16.91)	(12.34)	(12.37)	(16.36)
Firm Size	9.756***	9.768***	10.21***	13.31***	12.79***	13.53***	8.353***	8.561***	9.034***
	(0.191)	(0.204)	(0.230)	(0.363)	(0.421)	(0.414)	(0.282)	(0.285)	(0.394)
Tangibility	18.82***	18.76***	17.09***	18.26***	17.76***	14.43***	17.57***	17.90***	21.41***
	(1.433)	(1.494)	(1.658)	(2.686)	(3.026)	(2.887)	(1.931)	(1.951)	(2.447)
Liquidity	-3.640***	-3.456***	-4.480***	-2.327***	-2.461***	-2.964***	-2.950***	-2.981***	-3.980***
	(0.121)	(0.126)	(0.148)	(0.215)	(0.237)	(0.246)	(0.161)	(0.162)	(0.216)
Industry Leverage	53.45***	51.72***	51.00***	177.5***	186.6***	182.3***	119.7***	120.8***	104.8***
	(1.855)	(1.855)	(1.961)	(3.085)	(3.092)	(3.250)	(3.356)	(3.359)	(3.703)
Constant	-70.74***	-68.78***	-70.72***	-150.7***	-144.9***	-148.2***	-72.86***	-73.90***	-74.47***
	(2.114)	(2.253)	(2.615)	(4.110)	(4.738)	(4.709)	(3.107)	(3.133)	(4.422)
N. of observations	45,334	41,677	35,241	19,535	15,990	16,842	25,799	25,687	18,399
R-Squared	0.229	0.197	0.252	0.383	0.349	0.403	0.159	0.157	0.175

The superscripts ***, **, and * indicate significance at 1 %, 5 %, and 10 % levels, respectively

Table 8 Speed of adjustment (market leverage)

This table reports the influence of bank ownership on the leverage speed of adjustment for the firms. The dependent variable represents the market leverage values. The result of the full sample analysis is reported in columns 1 and 4. The results for the subsample with bank ownership are reported in columns 2 and 5, and results for the subsample without bank ownership are reported in columns 3 and 6. Blundell and Bond's (1998) two-step GMM procedure is used and reported in columns 1 to 3, and the LSDVC method is used and results are reported in columns 4 to 6. The speed of adjustment, λ , is computed from equation 4 for each subsample, where $(1-\lambda)$ is the estimated coefficient of the lagged financial leverage ratio. Standard errors are presented in parentheses.

	(1)	(2)	(3)	(4)	(5)	(6)
	GMM			LSDVC		
	Entire Sample	Bank ownership pct.		Entire Sample	Dividing the sample	
		> 0%	= 0%		> 0%	= 0%
Leverage (lagged)	0.787***	0.807***	0.868***	0.762***	0.777***	0.717***
	(0.0109)	(0.0114)	(0.0252)	(0.00491)	(0.00482)	(0.0135)
Pct Bank Ownership	0.872***			0.393***		
	(0.0754)			(0.0254)		
MB	0.288***	0.245***	0.141***	0.161***	0.242***	0.0503
	(0.0266)	(0.0407)	(0.0351)	(0.0320)	(0.0484)	(0.0505)
Cash Flow	5.452***	1.777	10.63***	-5.465***	-10.23***	1.782
	(1.356)	(1.777)	(2.029)	(1.008)	(1.107)	(2.029)
Depreciation	-25.19***	-37.18***	-28.03***	-9.493***	-6.268	-12.91**
	(4.236)	(5.327)	(5.925)	(3.257)	(6.801)	(6.077)
RDD	-1.069***	0.00244	-0.549	-0.789***	-0.647***	-0.515
	(0.193)	(0.154)	(0.372)	(0.237)	(0.216)	(0.647)
R&D Expense	1.886	-15.23***	-3.570	20.85**	18.74	7.405
	(5.675)	(5.246)	(8.091)	(8.238)	(12.64)	(17.38)
Firm Size	-0.234***	-0.00260	0.0378	4.972***	5.932***	4.208***
	(0.0584)	(0.0458)	(0.0773)	(0.189)	(0.287)	(0.356)
Tangibility	2.228**	3.138***	3.373**	1.704	0.724	1.794
	(0.928)	(0.934)	(1.612)	(1.374)	(1.540)	(3.859)
Liquidity	-1.792***	-2.421***	-0.255	-0.158	-0.356**	-0.0191
	(0.129)	(0.159)	(0.171)	(0.118)	(0.158)	(0.199)
Industry Leverage	-2.544*	0.395	7.901***	-8.355***	1.093	-7.758
	(1.414)	(1.051)	(1.996)	(1.918)	(1.853)	(5.992)
Constant	8.583***	10.44***	0.838			
	(0.793)	(0.879)	(1.104)			
Number of Observations	45,334	35,175	10,159	45,334	35,175	10,159
λ =	**0.213**	**0.193**	**0.132**	**0.238**	**0.223**	**0.283**

The superscripts ***, **, and * indicate significance at 1 %, 5 %, and 10 % levels, respectively

Table 9 Extreme leverage policy and determination of capital structure (book leverage)
This table reports results obtained from equation (1) showing the relation between the changes in bank ownership and the level of the firm's financial leverage after taking into consideration the extreme leverage values. The sample is divided into three subsamples, where column 1 shows the results for firms with less than 10% leverage values, column 2 shows the results for firms with leverage values between 10% and 90%, and column 3 shows the results for firms with leverage values higher than 90%. The dependent variable is the book leverage values. Standard errors are presented in parentheses.

	(1)	(2)	(3)
	Leverage < 10%	10% < leverage < 90%	leverage > 90%
Pct Bank Ownership	0.0107	0.239***	0.168
	(0.00888)	(0.0196)	(0.255)
MB	-0.0193***	0.222***	23.77*
	(0.00606)	(0.0371)	(10.42)
Cash Flow	-3.470***	-36.88***	5.356
	(0.308)	(0.893)	(10.08)
Depreciation	3.812***	-9.645**	76.70
	(1.049)	(3.986)	(114.7)
RDD	-0.0553	-0.781***	-3.923**
	(0.0706)	(0.172)	(1.602)
R&D Expense	-2.901	-11.61	1,848**
	(2.415)	(8.348)	(567.5)
Firm Size	0.187***	4.741***	-2.952
	(0.0685)	(0.153)	(4.759)
Tangibility	2.023***	10.44***	20.48
	(0.598)	(1.113)	(12.11)
Liquidity	-0.573***	-7.249***	10.92
	(0.0256)	(0.165)	(7.683)
Industry Leverage	4.271***	49.07***	2.058
	(0.661)	(1.451)	(28.27)
Constant	3.720***	-20.42***	98.95*
	(0.746)	(1.712)	(44.15)
Number of Observations	11,373	33,899	62
R-Squared	0.092	0.247	0.866

The superscripts ***, **, and * indicate significance at 1 %, 5 %, and 10 % levels, respectively

Table 10 Extreme leverage and speed of adjustment (book leverage)

This table reports the influence of bank ownership on the leverage speed of adjustment for the firms after taking into consideration the extreme leverage values. The sample is divided into three subsamples, where Panel A shows the results for firms with less than 10% leverage values, Panel 2 shows the results for firms with leverage values between 10% and 90%, and Panel 3 shows the results for firms with leverage values higher than 90%. The dependent variable represents the book leverage values. Each Panel further reports the estimated results for three categories, namely: the entire sample, a subsample for firms with more than 5% bank ownership, and a subsample for firms with no bank ownership. Blundell and Bond's (1998) two-step GMM procedure is used in the estimation of the results. The speed of adjustment, λ, is computed from equation 4 for each subsample, where $(1-\lambda)$ is the estimated coefficient of the lagged financial leverage ratio. Standard errors are presented in parentheses.

Panel A (Leverage < 10%)

	Entire Sample		Bank ownership pct.	
VARIABLES			> 5%	= 0%
Leverage (lagged)	0.685***	0.682***	0.636***	0.566***
	(0.0467)	(0.0475)	(0.0535)	(0.0660)
Pct Bank Ownership		0.429		
		(0.301)		
MB	-0.0340**	0.0110	-0.0534***	-0.0253
	(0.0151)	(0.0386)	(0.0143)	(0.0204)
Cash Flow	3.942***	5.338***	2.223**	3.619***
	(0.781)	(1.064)	(0.944)	(1.010)
Depreciation	-29.74***	-25.32***	-11.73*	-27.43***
	(8.077)	(8.543)	(6.866)	(8.178)
RDD	0.0784	-0.113	0.0466	0.190
	(0.105)	(0.158)	(0.0784)	(0.246)
R&D Expense	-10.38***	-6.207	-4.669	-12.93**
	(3.607)	(4.388)	(2.885)	(6.287)
Firm Size	0.285***	0.127	0.156***	0.297***
	(0.0401)	(0.129)	(0.0321)	(0.0663)
Tangibility	5.140***	4.127***	1.117	8.688***
	(1.525)	(1.592)	(1.117)	(2.101)
Liquidity	0.526***	0.513***	0.253***	0.521***
	(0.0949)	(0.102)	(0.0931)	(0.141)
Industry Leverage	1.495**	-1.835	1.592***	0.585
	(0.710)	(2.525)	(0.539)	(1.060)
Constant	-3.743***	-3.181***	-1.035	-3.557***
	(0.863)	(1.135)	(0.767)	(1.339)
Number of Observations	11,373	11,373	7,457	3,916
λ =	**0.315**	**0.318**	**0.364**	**0.434**

Panel B (10% < Leverage < 90%)

	Entire Sample		Bank ownership pct.	
VARIABLES			> 5%	0%
Leverage (lagged)	0.928***	0.905***	0.955***	0.827***
	(0.0271)	(0.0291)	(0.0268)	(0.0621)
Pct Bank Ownership		0.704***		
		(0.0755)		
MB	0.520***	0.695***	0.325***	0.486***
	(0.0582)	(0.0624)	(0.0775)	(0.0801)
Cash Flow	8.197***	9.920***	8.301***	9.190***
	(1.671)	(1.708)	(1.660)	(3.033)
Depreciation	-17.68***	-7.816	-14.52***	-18.29**
	(4.194)	(4.971)	(4.605)	(7.185)
RDD	-0.676***	-1.581***	-0.423***	-1.826***
	(0.125)	(0.189)	(0.105)	(0.510)
R&D Expense	-10.53**	6.934	-8.110*	-3.053
	(4.990)	(6.531)	(4.566)	(13.67)
Firm Size	0.00801	-0.257***	0.0118	-0.0671
	(0.0340)	(0.0562)	(0.0300)	(0.0938)
Tangibility	3.994***	2.033**	2.646***	5.264***
	(0.817)	(0.947)	(0.846)	(1.675)
Liquidity	2.281***	1.658***	1.868***	2.626***
	(0.480)	(0.527)	(0.576)	(0.745)
Industry Leverage	4.277***	-1.392	2.817***	7.416***
	(0.771)	(1.228)	(0.651)	(2.428)
Constant	-2.314	-0.488	-2.343	0.791
	(1.536)	(1.697)	(1.659)	(3.083)
Number of Observations	33,899	33,899	27,670	6,229
λ =	**0.072**	**0.095**	**0.045**	**0.173**

Panel C (Leverage > 90%)

	Entire Sample		Bank ownership pct.	
VARIABLES			> 5%	0%
Leverage (lagged)	0.123	0.144	0.454**	0.146
	(0.191)	(0.202)	(0.177)	(0.165)
Pct Bank Ownership		0.316		
		(0.426)		
MB	-0.988	-0.934	-0.262	-2.464
	(4.429)	(4.419)	(1.679)	(2.126)
Cash Flow	-11.51	-13.37	-41.70***	34.73
	(18.71)	(18.60)	(14.64)	(31.34)
Depreciation	-30.67	-11.77	50.75	259.9*
	(66.12)	(79.48)	(72.50)	(153.7)
RDD	0.0757	-1.036	3.090**	0.645
	(2.050)	(2.504)	(1.311)	(4.140)
R&D Expense	79.72	92.28	43.48	2,190*
	(60.10)	(58.20)	(63.86)	(1,188)
Firm Size	-0.676	-1.020	1.263**	-4.607*
	(0.924)	(0.980)	(0.519)	(2.730)
Tangibility	-8.580	-8.917	-4.043	-144.4*
	(8.279)	(8.249)	(7.642)	(86.60)
Liquidity	-10.98	-8.667	3.450	-53.65
	(12.34)	(14.11)	(5.530)	(34.91)
Industry Leverage	15.22	10.97	13.88	143.9
	(11.59)	(14.25)	(8.437)	(96.54)
Constant	89.79***	90.12***	33.85**	132.2***
	(27.82)	(27.26)	(16.91)	(44.25)
Number of Observations	62	62	48	14
λ =	**0.877**	**0.856**	**0.546**	**0.854**

The superscripts ***, **, and * indicate significance at 1 %, 5 %, and 10 % levels, respectively

Table 11 Financial distress (book leverage)

This table reports results obtained from equation (1) showing the relation between the changes in bank ownership and the level of firms' financial leverage while controlling for the firm's financial distress measured by z-score variable and an interaction effect variable between the percentage of bank ownership and firms' financial distress (Pct Bank x Z-Score). The results are reported for the entire sample in column 1, for the subsample of firms with bank ownership in column 2, and for the subsample of firms without bank ownership in column 3. Standard errors are presented in parentheses.

	Entire sample	more than 0%	0%
Pct Bank Ownership	0.610***		
	(0.0230)		
Z-Score	-1.895***	-3.214***	-1.494***
	(0.0315)	(0.0499)	(0.0471)
Pct Bank x Z-Score	-0.152***		
	(0.00569)		
MB	0.550***	0.690***	0.364***
	(0.0206)	(0.0344)	(0.0322)
Cash Flow	-25.70***	-30.85***	-16.60***
	(0.672)	(0.823)	(1.280)
Depreciation	-17.52***	-26.17***	-9.181**
	(2.697)	(4.424)	(4.062)
RDD	-0.589***	-0.607***	-0.0896
	(0.137)	(0.139)	(0.410)
R&D Expense	-17.26***	-23.92***	-19.43*
	(5.895)	(7.086)	(11.47)
Firm Size	3.811***	4.324***	3.372***
	(0.121)	(0.154)	(0.234)
Tangibility	12.20***	12.39***	11.79***
	(0.907)	(1.041)	(2.170)
Liquidity	-4.409***	-5.330***	-3.097***
	(0.0768)	(0.102)	(0.136)
Industry Leverage	39.39***	41.87***	38.33***
	(1.183)	(1.082)	(3.901)
Constant	(1.356)	(1.729)	(2.605)
Number of Observations	45,334	35,414	10,159
R-Squared	0.326	0.359	0.240

The superscripts ***, **, and * indicate significance at 1 %, 5 %, and 10 % levels, respectively

Table 12 Different cut-off points

This table reports the leverage speed of adjustment for different cut-off points (*c*) representing different levels of bank ownership in the firm. The table reports the speed of adjustment, λ , in equation 4 for each subsample, where (1- λ) is the estimated coefficient of the lagged financial leverage ratio. Panel A uses book leverage and panel B uses market leverage as a measurement of financial leverage. The number of observations in each analysis is reported in brackets.

Panel A Book Leverage		
	Bank ownership pct. > *c*	Bank ownership pct. <= *c*
c = 3%	0.035	0.169
	[25461]	[19873]
c = 5%	0.043	0.147
	[18354]	[26980]
c = 7%	0.042	0.135
	[12850]	[32484]
c = 10%	0.015	0.128
	[6697]	[38637]
c = 15%	0.112	0.138
	[1904]	[43430]
Panel B Market Leverage		
	Bank ownership pct. > *c*	Bank ownership pct. <= *c*
c = 3%	0.181	0.170
	[25461]	[19873]
c = 5%	0.183	0.189
	[18354]	[26980]
c = 7%	0.179	0.201
	[12850]	[32484]
c = 10%	0.201	0. 129
	[6697]	[38637]
c = 15%	0.216	0.167
	[1904]	[43430]

Table 13 Influence on bond issuance

This table reports the relation between the bank ownership and the bond issuance. The dependent variable in columns 1 to 3 is an indicator variable that takes the value of one for the firms that increase the amount of bond, and that in columns 4 and 6 is the ratio of bond, which is defined as the total amount of bond divided by total amount of debt. Pct Bank Ownership is the percentage of cumulative bank ownership and Change in Bank Ownership is the first difference of bank ownership. We use a random-effect Probit model in columns 1 and 3 and Blundell and Bond GMM in columns 4 and 6. Standard errors are presented in parentheses.

Dependent variable is...	Pr(Bond)	Pr(Bond)	Pr(Bond)	Ratio Bond	Ratio Bond	Ratio Bond
Pct. Bank Ownership	-0.00702**		-0.00613**	0.0235***		0.0211***
	(0.00276)		(0.00284)	(0.00464)		(0.00467)
Change in Bank Ownership		-0.00359	-0.00171		-0.0483***	-0.0383***
		(0.00436)	(0.00449)		(0.00920)	(0.00820)
Leverage	0.0252***	0.0253***	0.0253***	0.0193***	0.0210***	0.0208***
	(0.000839)	(0.000841)	(0.000841)	(0.00213)	(0.00206)	(0.00216)
MB	0.0321***	0.0330***	0.0323***	-0.00177	-0.00689***	-0.00342*
	(0.00510)	(0.00510)	(0.00511)	(0.00173)	(0.00137)	(0.00176)
Cash Flow	1.109***	1.140***	1.108***	0.832***	0.815***	0.891***
	(0.169)	(0.169)	(0.170)	(0.0837)	(0.0894)	(0.0864)
Depreciation	0.397	0.469	0.400	1.550***	1.270***	1.546***
	(0.562)	(0.559)	(0.563)	(0.211)	(0.193)	(0.215)
RDD	0.0802***	0.0692**	0.0773**	0.0131	0.0363***	0.0146
	(0.0303)	(0.0302)	(0.0304)	(0.0104)	(0.00832)	(0.0107)
R&D Expense	0.359	0.493	0.379	0.225	-0.307	0.0946
	(0.989)	(0.987)	(0.989)	(0.258)	(0.230)	(0.265)
Firm Size	0.112***	0.110***	0.112***	0.00927***	0.0151***	0.00818**
	(0.00886)	(0.00884)	(0.00888)	(0.00348)	(0.00306)	(0.00369)
Tangibility	-1.154***	-1.176***	-1.161***	-0.665***	-0.638***	-0.690***
	(0.138)	(0.138)	(0.138)	(0.0723)	(0.0758)	(0.0747)
Liquidity	-0.0952***	-0.0947***	-0.0948***	0.159***	0.173***	0.172***
	(0.0224)	(0.0225)	(0.0225)	(0.0194)	(0.0191)	(0.0198)
Industry Leverage	0.457**	0.382**	0.464**	-0.529***	-0.448***	-0.596***
	(0.182)	(0.179)	(0.183)	(0.0684)	(0.0699)	(0.0771)
Constant	-3.515***	-3.512***	-3.522***	-0.791***	-0.825***	-0.816***
	RE Probit	RE Probit	RE Probit	GMM	GMM	GMM
Number of Observations	45,334	45,334	45,121	44,854	44,641	44,641
R-Squared	4,413	4,413	4,409	4,395	4,391	4,391

The superscripts ***, **, and * indicate significance at 1 %, 5 %, and 10 % levels, respectively