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Keiretsu Ties and the Availability of Bank Credit

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Abstract

Many Japanese firms have close affiliations with their main bank as well as with affiliated firms in their keiretsu. These corporate affiliations should insulate firms during economic downturns so that they continue to have access to credit. We examine the role of credit extensions and corporate affiliation over the 1990s, a period of economic distress in Japan. We find that the primary determinant of additional lending from a main bank is the financial condition of the firm, rather than the financial condition of the bank or the strength of the corporate affiliation. Troubled firms have a higher probability of receiving loans, likely reflecting the desire of banks and the government to avoid foreclosure on distressed borrowers. We find that secondary sources of loans are impacted by corporate affiliations, though distressed firms are more likely to receive additional credit. However, if a main bank is decreasing its lending to a firm, secondary lenders are more likely to lend to less financially distressed borrowers.

Keiretsu Ties and the Availability of Bank Credit

Two forms of corporate affiliations have distinguished Japanese firms. The first, the keiretsu, is characterized by firms having substantial cross-shareholding and extensive explicit and implicit business ties. The second is the main bank system, whereby corporate affiliations are centered on their primary bank, the main bank, with the main bank having extensive shareholdings in the client firm, serving as a major source of short- and long-term financing, and, in many instances, having a representative on the firm's board of directors. These corporate affiliations have allowed Japanese firms to reduce agency costs, maintain greater bank debt, and avoid restructuring through costly bankruptcy proceedings. A less benign view of these corporate affiliations is that they subvert corporate governance, insulating firms from the discipline that otherwise would come from outside directors, shareholders, and creditors, resulting in suboptimal business and financial decisions. While previous studies have examined how these corporate affiliations affect investment decisions, stock returns, and corporate governance decisions by comparing affiliated and nonaffiliated firms, they have not directly examined how affiliations impact the availability of credit. This paper utilizes a unique database that enables us to examine firms' bank financing, both by its main bank and by other banks, to determine the extent to which external bank finance is affected by corporate affiliations, such as the main bank and keiretsu relationships.

We find that strength of affiliation does not increase the likelihood of receiving additional financing from a firm's main bank, rather, the primary determinant of a firm obtaining additional financing from its main bank is the financial condition of the firm.

Firms in poor financial health are more likely to receive financing than healthy firms. This perverse result is consistent with the "evergreening" of loans by banks, whereby banks extend additional loans to a troubled firm to enable the firm to make interest payments on outstanding loans and avoid or delay bankruptcy. By keeping the loan current, the bank's balance sheet looks better, since the bank is not required to report the loan among its troubled loans. Furthermore, our evidence is consistent with banks responding to government pressure on them to support credits to troubled borrowers in order to mitigate a credit crunch and a further deterioration in the macroeconomy from additional layoffs and firm bankruptcies.

During the 1980s and early 1990s, most studies of Japanese corporate affiliations found significant benefits. These studies emphasized the unique features of Japanese corporate affiliations that reduced agency costs (Hoshi, Kashyap, and Scharfstein 1993; Takeo, Kashyap, and Scharfstein 1990). Firms with intertwined business relationships, shareholding relationships, board of directors relationships, and financing relationships with other firms should have substantially more information about that firm than do external monitors. Furthermore, studies have shown that banks, often holding both the equity and the debt of the firm, serve as an alternative source of corporate governance capable of making changes in mismanaged firms (Kang and Shivdasani 1995; Kaplan and Minton 1994). This enabled firms to maintain a high degree of bank debt relative to total assets, knowing that their main bank or members of their keiretsu would provide backup financing should the firm become financially troubled.

More recently, studies have been more critical of Japanese corporate affiliations, viewing such affiliations as a problem that has contributed to a decade of subpar

economic growth, rather than as an alternative market model (Kang and Stultz 2000; Morck and Nakamura 1999). If the primary role of corporate affiliations is to insulate management from market forces by enabling firms to avoid the discipline that can be provided by external creditors and investors, this limiting of outside corporate governance would manifest itself in a misallocation of credit. Strong corporate affiliations would allow weak firms to sustain their operations relatively unchanged, rather than being forced by external creditors and shareholders to make the tough restructuring choices necessary to recover.

These two competing views of Japanese corporate affiliations should be most apparent at times when firms and their lenders are financially stressed, such as has been experienced over the past decade in Japan. As Japanese banks came under increasing financial stress, they were forced to reduce lending to some borrowers to maintain their capital ratios. The patterns of reductions in loans by banks across firms should reveal whether their decisions were based on exploiting superior information about the firm or protecting either the entrenched management of the firm or the bank's own balance sheet through limiting the increase in reported problem loans that would occur if the firm failed to make interest payments or declared bankruptcy. To the extent that affiliated lenders were exploiting superior information about the firm, the probability that the firm received additional credit from its affiliated lenders would be positively related to the firm's current and future performance. If, instead, corporate affiliations were protecting banks and firms from realizing embedded losses, the probability of receiving credit would be tied to the strength of affiliations and the exposure of the bank to the firm, rather than being positively related to perceived firm health. In fact, lending might be inversely

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correlated with firm health, insofar as banks undertake the practice of evergreening their loans to troubled firms.

If main banks exploit superior knowledge about firms that borrow from them derived from their affiliations with those firms, the probability that a main bank reduced its exposure to a troubled firm would be high for affiliated firms that experienced particularly poor performance.   If, instead, the consequences of affiliations were to protect the entrenched management of the firm, and, by enabling the firm to make interest payments and avoid or delay bankruptcy, mitigate the damage to the bank's reported balance sheet information, the probability that an affiliated troubled firm received credit from its main bank would be enhanced by poor performance, as both the main bank and the firm's management sought to forestall the realization of losses.

Similarly, if knowledge about the financial health of a troubled firm is enhanced by strong affiliations, then changes in lending to a firm by its main bank can serve as a signal to nonaffiliated (less informed) lenders. Thus, additional evidence can be obtained from an investigation of the lending behavior of secondary lenders (lenders other than the firm's main bank). Their behavior in light of that of the firm's main bank will indicate how they perceive the primary motivating factors underlying main bank lending to their affiliated firms.

If main bank lending decisions are dominated by considerations of the prospects of borrowing firms, then nonaffiliated lenders should view increases in loans to a firm by its main bank as a positive signal, encouraging them to also expand lending to that firm. Similarly, reductions in loans by affiliated lenders should elicit a similar pullback by nonaffiliated banks worried that the main bank was privy to significant insider

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information about the deteriorating financial prospects of the firm. If, instead, main

banks view protecting entrenched management as a key role of affiliations, an increase in

lending by a firm's main bank would not necessarily be viewed as a positive signal.

Similarly, if increases in main bank lending to a firm are motivated by the bank

attempting to limit the volume of existing problem loans it must report, the increase in

lending would not necessarily be interpreted by secondary lenders as a vote of confidence

in the prospects of the firm. Insofar as the affiliated lender has motives other than profit

maximization driving its lending decisions, secondary lenders would seek to reduce their

exposure to unaffiliated troubled firms even when the firm's main bank was expanding

its financing to the firm.

We examine the effect of corporate affiliations in two ways. By estimating the

probability that credit is extended by a firm's main bank, we can deduce the extent to

which a troubled bank reduces (or fails to reduce) lending based on superior information

about affiliated firms or based on the strength of corporate ties between the bank and the

firm. Second, by observing the lending behavior of unaffiliated lenders, we can deduce

whether these lenders behave as if they believe that main bank affiliations provide

superior information about firms, rather than reflecting incentives to protect either the

entrenched management of the firm or the bank's own reported balance sheet.

I. Background

Corporate affiliations have been of great importance to Japanese firms. Prior to

World War II, powerful family corporate groups centered on family controlled banks,

called Zaibatsus, controlled most major firms. After the war, zaibatsus were broken up.

However, to prevent loss of ownership control, Japanese firms began to purchase shares in affiliated financial or industrial firms (Morck and Nakamura 1999; Morck, Nakamura and Shivdasani 2000). These corporate affiliations, cemented with extensive cross-shareholding and interlocking boards of directors, represent direct and indirect business ties termed keiretsus. A potential benefit of keiretsu affiliations is that management is able to secure long-term financing and business relationships, with the managerial monitoring conducted by firms with an equity stake and information about the firm generated by the extensive business relationships (Jensen 1989). Consistent with there being benefits to affiliation relationships, Hoshi, Kashyap and Scharfstein (1990) find that among firms experiencing financial distress, keiretsu firms invest and sell more than those firms that are not members of a keiretsu group.

A second important form of affiliation is provided by the main bank system. The main bank takes primary responsibility for monitoring the firm and can serve as a form of corporate governance (Kaplan and Minton 1994). The main bank is generally one of the major shareholders, and the borrowing firm usually owns shares in its main bank. The main bank is particularly important during times of distress, when it can require changes in management and alter the board of directors (Kang and Shivdasani 1995; Morck and Nakamura 1999). This oversight provided by the bank, both a debt and equity holder, can reduce typical information asymmetries, resulting in firms with a main bank having greater access to external credit, which, in turn, affects firms' investment decisions (Hoshi, Kashyap and Scharfstein 1991). However, there is a dark side to this close lending relationship: If the bank rather than the borrower becomes troubled, the ability of the firm to finance investment may be impeded (Gibson 1995; Kang and Stultz 2000).

This study examines the corporate affiliations, both by keiretsu classification and by main bank relationships, to determine the impact of such affiliations on credit allocation during periods of firm and/or bank distress. One of the primary potential benefits of Japanese corporate affiliations is that they can reduce the costs to a firm when it encounters financial difficulties. Financially troubled firms can have difficulty convincing suppliers, customers, and creditors of their viability. Affiliations can reduce the costs of providing information to stakeholders of a firm's true financial condition and improve the ability to renegotiate or provide terms that allow the firm to remain viable. Because affiliations allow all affiliated firms to share in the costs as well as the benefits associated with the provision of financial support to an affiliated troubled firm, corporate affiliations can avoid some of the problems with the asymmetric nature of the incidence of the benefits and costs associated with the granting of debt relief by creditors, whereby the benefits, but not the costs, are shared with equity holders, suppliers, and customers (Hoshi, Kashyap and Scharfstein 1990). Thus, affiliations can potentially improve information sharing, reduce asymmetry in information among stakeholders, and more evenly distribute the benefits and costs of providing additional support to a financially troubled firm.

II. The Main Bank Relationship

One of the key corporate affiliations for Japanese firms is the relationship of a firm with its main bank. The banking relationship in Japan is far more important than in the United States for a number of reasons. First, Japanese firms are more reliant on bank debt than firms in the United States, although bond financing has become increasingly

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important over the past decade (Hoshi and Kashyap 1999). Second, the main bank typically is a significant equity holder in the firm. Third, management and directors of the firm frequently have served in managerial positions at the bank. Fourth, the main bank is expected to take a leading role in restructuring the firm should it experience financial difficulties. Finally, the main bank often provides financing for customers and suppliers of the firm, since many of the firms are often part of the same keiretsu.

Because of the implicit contract between firms and their keiretsu members, there is an expectation that the main bank and keiretsu members will be a source of strength for the firm during times of trouble. If so, we should observe financing decisions that are affected by the main bank and keiretsu relationships. During periods of financial difficulties for the bank, firms with strong ties to their main bank and keiretsu group should be more likely to obtain financing from their main bank than firms in similar financial positions with only weak links to their main bank and no membership in a keiretsu group.

To test whether bank financing is allocated based in part on the strength of corporate ties, we examine the pattern of loans obtained by all firms included in the PACAP data base, which includes all first- and second-section firms that are traded on the Tokyo exchange. The PACAP database includes the balance sheet and income statements of firms based on their fiscal year-end reports. The set of main bank and all secondary bank loans is obtained from the Nikkei Needs database, with loan reporting based on the firm's fiscal year.[1]

For our tests that focus on the patterns of lending by main banks, we use a sample period from 1995 through 1999. We focus on this period because it is the period when

banks were seriously capital constrained. Japanese banks reduced their exposure

internationally (Peek and Rosengren 1997, 2000) beginning in the early 1990s. The

reductions in lending were initially focused on loans to firms in the United States and

Europe, followed later by reductions in lending to firms in Southeast Asia. Although the

domestic Japanese economy was insulated from declining bank loans initially, by 1995,

continued deterioration in real estate prices and the Japanese economy, as well as the

failure of some banks, resulted in increased pressure on Japanese banks to shrink

domestic assets to maintain capital-to-asset ratios. The severe problems experienced by

Japanese banks resulted in rating agencies lowering their ratings, significant increases in

the Japan premium (Peek and Rosengren 2001), and a further deterioration in the banks'

loan and stock portfolios.

These factors increased the need for Japanese banks to rethink how they were

utilizing their scarce capital. Thus, faced with the necessity to shrink domestic lending,

capital-constrained Japanese banks were forced to make choices about which firms would

continue to receive scare loans. How were banks to tradeoff their responsibilities to

finance firms with strong bank and keiretsu ties, even though many of these firms had

poor prospects, with the need to make sound business decisions that would direct credit

to the most creditworthy borrowers, even if they were not closely affiliated with the

bank? At the same time, banks faced growing pressure from government entities to

continue lending to troubled firms.

Since the value of affiliations should be most apparent during periods of financial

distress, it is necessary to establish a criterion to define when a firm is deemed to be

distressed. We define financial distress as being initiated when net operating income,

excluding extraordinary items, falls by 50 percent in one year. The firm is viewed as remaining distressed until its operating income increases in each of three consecutive years. Using this definition, we have a total of ## firms that become distressed during the period from 1990 to 1999. To focus on periods of financial difficulty, we limit our sample to the period after equity prices peaked.

We estimate the contribution of main bank and keiretsu affiliations in determining the way that capital-constrained main banks altered their allocation of funds to firms by estimating the following logit equation:

$$\Pr(MLOAN) = a_0 + a_1 KEIRETSU + a_2 FIRM + a_3 BANK + a_4 TIME + m_t$$

The dependent variable has a value of one if main bank loans to the firm increased from year t-1 to year t, and zero if the main bank loans were unchanged or decreased from year t-1 to year t.

KEIRETSU is a vector of variables reflecting group affiliations. These variables include a set of (0,1) dummy variables, as well as a set of continuous variables. MAINK is a dummy variable that has a value of one if the main bank is in the same keiretsu as the distressed firm, and zero otherwise. INDK is a dummy variable that has a value of one if the firm is in one of the six industrial keiretsus (Mitsubishi, Mitsui, Sumitomo, Fuyo, Dai-Ichi Kangyo, and Sanwa), and zero otherwise. OTHERK is a dummy variable that has a value of one if the firm is in one of the non-industrial keiretsus, and zero otherwise. PBLOCK is the percent ownership of the firm by the top ten holders of equity. PK is the percent ownership of the firm by keiretsu members among the top ten equity holders.

MBL is the ratio of main bank loans to the firm to total loans to the firm. MBLMB is the ratio of main bank loans to the firm relative to the main bank's total loans. MD is the ratio of the firm's main bank loans to the firm's total debt.

FIRM is a vector of variables intended to capture firm health and other characteristics of the firm. The variables related to firm health include the ratio of the firm's equity to its total assets (FEQA), its ratio of debt to total assets (FDEBTA), its ratio of loans to total debt (FLOAND), its ratio of book value to market value (FBOOKMKT), its ratio of investment securities to total assets (FINVSECA), its ratio of liquid assets to total assets (FLIQA), its return on assets (FROA), and the percent change in the firm's equity price over the past year (FPCPR). Other measures of firm characteristics include the logarithm of the firm's total assets (FLASSET), the shares of the firm's stock owned by financial firms (FSHFIN), nonfinancial firms (FSHNFIN), and foreigners (FSHFOR), and a set of industry dummy variables.

BANK is a vector of variables intended to capture bank health. These variables include the bank's risk-based capital ratio (BRBC), the ratio of nonperforming loans to total loans (BNPLL), the ratio of nonperforming loans to total assets (BNPLA), the percent change in the bank's equity price over the past year (BPCPR), and a set of dummy variables reflecting the Moody's rating for the bank (which we will collect if time permits).

We include a set of annual time dummy variables to capture the effects of the macroeconomy. We use this specification rather than using a set of continuous macroeconomic variables because most Japanese macroeconomic variables are known to

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have significant measurement issues. These annual dummy variables will capture the average effect of economic conditions in each year.

In several specifications, we also allow interactions with the keiretsu dummy variable (INDK) and the measures of firm health, in order to determine the extent to which main bank lending to a firm is affected by keiretsu membership and the strength of its main bank relationship, after controlling for the firm's health. This allows main banks to respond differentially to a firm's financial condition based on having a keiretsu affiliation with the main bank. By estimating the probability that credit is extended to a firm by its main bank, we can deduce the extent to which a troubled bank reduces (or fails to reduce) lending to a firm based on superior information about affiliated firms or the strength of corporate ties.

We also provide an ex post examination of firm performance. We examine those firms with the largest percentage increase in main bank lending from 1995-1997, and compare that with the firm's stock price performance in 1998 and 1999. This will help identify whether extensions of credit were based on superior information from affiliations, or whether the pattern of credit extensions was motivated instead by the obligations of affiliates to provide support to distressed firms through implicit agreements between borrowers and their banks.

III. Secondary Lending Relationships

When a firm becomes troubled, the ability to assess its true financial condition becomes critical. If improved information flows are one of the major benefits of corporate affiliations, the actions of affiliates should serve as a signal to nonaffiliated

companies of affiliates' views, based on superior information, of a troubled firm's prospects. A decision by affiliates to reduce a commitment to a troubled firm should strongly signal to firms not privy to the superior information derived from affiliation that the firm's prospects are poor. On the other hand, if a firm's main bank increases its loans to a firm that is perceived to be troubled, it may not necessarily be a signal of improving health of the firm. It may be that the main bank's actions are motivated by self-interest, in terms of avoiding or delaying an increase in its reported problem loans (evergreening), or by an obligation to support an affiliated firm when it has severe problems. Thus, the reactions of secondary lenders to changes in main bank lending may provide information on the relative importance of the conflicting motivations of main banks to their customers.

To determine whether secondary sources of credit to firms take their cues from affiliated firms, we estimate the following logit equation:

$$\Pr(SLOAN) = a_0 + a_1 KEIRETSU + a_2 FIRM + a_3 MBDEC * FIRMH + a_4 BANK + a_5 TIME + U_t$$

The dependent variable has a value of one if secondary bank loans to the distressed firm increase from year t-1 to year t, and zero if the secondary bank loans are unchanged or decrease from year t-1 to year t. MBDEC*FIRMH is a vector of firm health variables (FIRMH) interacted with a (0,1) dummy variable related to the behavior of the main bank. MBDEC has a value of one if the main bank decreased loans to the distressed firm from period t-1 to period t, and zero otherwise. The remaining independent variables are as described in equation 1.

We first estimate the equation excluding the interactive variables so that the equations are specified as equation 1 except that the dependent variable is based on

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secondary lending rather than on main bank lending. The results can provide insights about the extent to which the behavior of secondary lenders mimics that of main bank lenders. We then estimate equation 2 to focus on whether secondary lenders place a different emphasis on firm health when they know that the firm's main bank has reduced lending to the firm. In particular, do secondary lenders view a reduction in loans from main banks as a signal that the firm has particularly serious problems. If so, one would expect secondary lenders to also reduce loans to the firm. On the other hand, if main banks are basing their loan decisions on considerations other than the firm's prospects, then secondary lenders might not follow the lead of the main bank

In addition to estimating equation 2 for total secondary loans, we also estimate the equation for a number of subcategories of secondary loan sources: loans from secondary banks in the same keiretsu as the firm, loans from the largest three secondary private banks not in the same keiretsu as the firm, loans from the remaining private banks not in the same keiretsu as the firm, loans from government lenders, loans from nonbank financial lenders in the same keiretsu as the firm, loans from nonbank financial lenders not in the same keiretsu as the firm, and loans from all other secondary lenders. Because each set of secondary lenders may have different information and different financial incentives to extend credit to the firm, estimating the equations separately by category of lender allows us to explore these differences.

IV. Empirical Results

Table 1 provides the results of estimating equation 1. The dependent variable is a (0,1) dummy variable, having a value of one if the main bank increased lending to the

firm, and zero if the firm's main bank loans fell or remained unchanged. While limited dependent variables can be estimated using a logit model, the estimated coefficients can be difficult to interpret. Consequently, we also provide estimates using ordinary least squares as a more intuitive check on the results from the logit model. The estimates in the first two columns of Table 1 are based on 1,797 observations for those firms that have been classified as being distressed. The third and fourth columns provide the results for the 4,860 observations in the full sample of firms.

The first three explanatory variables capture the strength of the firms' affiliations. PK, the percent ownership of the firm by keiretsu members among the top ten equity holders, has a negative estimated coefficient that is statistically significant, indicating that when the firm is more tightly connected to its keiretsu affiliates, the main bank is less likely to increase loans to the firm. The estimated coefficient for MBLMB, the ratio of main bank loans to the firm relative to total loans to all firms by the main bank, is negative, but statistically insignificant, indicating that the bank is not more likely to increase loans to the firm the larger the bank's exposure to the firm. The third variable, MD, the ratio of main bank loans to the firm relative to the firm's total debt, has an estimated effect that is positive but not statistically different than zero.

While these results indicate that the strength of the firm's ownership links to its keiretsu affiliates is inversely related to increases in loans from its main bank, the strength of the firm's affiliation to its main bank does not strongly influence whether the main bank is willing to extend credit to a borrower, controlling for bank, firm, and macroeconomic conditions. While a variety of other specifications were estimated to capture the strength of the firm-bank affiliation, none of these materially altered the

results. These included specifications with variables measuring loans to the firm from its

main bank relative to other denominators such as total loans to the firm, allowing the

keiretsu dummy variable to differ across keiretsu groups, and whether the main bank and

the firm were members of the same keiretsu. These variations did not alter the general

result that the main bank-firm affiliation did not strongly influence main bank lending to

individual firms.

The one result that comes through consistently is that the stronger are the

ownership ties other keiretsu members to the firm, the less likely it is that the main bank

will increase lending to the firm, after controlling for the health of the firm. One

possibility is that keiretsu members have access to alternative financing through affiliated

suppliers, customers, and nonbank lenders, such as life insurance companies, and, to the

extent that the firm needs to expand its debt, may choose to do so through such

alternative sources, particularly given the financial health of most Japanese banks. And,

the ability of the firm to access this alternative source of funding is positively related to

the ownership stake that these affiliated firms have in the firm. A second possibility is

that the firm can raise needed funds by selling some its cross shareholdings of other

keiretsu members as a substitute for relying on additional debt financing. A third

possibility is that troubled firms without a keiretsu affiliation are more dependent on bank

financing to avoid bankruptcy. In fact, Shinsei bank, formerly LTCB and now under

foreign ownership, has been criticized for not supporting borrowers not affiliated with the

bank.

The second set of variables captures the financial condition of the firm. Only

three variables had statistically significant estimated coefficients, the firm's capital ratio,

its ratio of liquid assets to total assets, and its return on assets, in each case having negative estimated effects. These results imply that as a firm's health deteriorates, the main bank is more likely to increase lending to the firm. This perverse result may be due to several factors. First, Japanese banks are well known for their practice of evergreening loans, providing loans to borrowers to allow the loans to remain current. Banks under pressure to maintain capital ratios have an incentive to minimize reported problem loans, those not current or to firms that have declared bankruptcy, so that they do not have to make additional loan loss provisions, which would reduce earnings and thus capital. Such practices, particularly during a time of reduced bank lending, would appear as increases in lending to the most troubled firms.

A second possibility is that Japanese banks are responding to significant government pressure to avoid a credit crunch or a precipitous decline in economic conditions by extending credit to troubled firms. The Shinsei bank, which was acquired by foreign investors, has taken the unusual step of complaining publicly about government pressure to support troubled credits. This pressure has reportedly been to provide additional financing to non-keiretsu, as well as keiretsu, members, indicating that the financial condition of the firm, rather than its affiliation, may be the better proxy for such government pressure.

The third set of variables is composed of bank-specific variables. Neither the risk-based capital ratio nor the percentage change in the stock price of the firm's main bank has a statistically significant impact on the firm receiving additional credit from its main bank. This may reflect the fact that all Japanese banks are experiencing severe

financial conditions, and that most bank loans are being extended based on avoiding the

bankruptcy of troubled borrowers, regardless of the financial condition of the bank.

We have also included a set of annual dummy variables and a set of industry

dummy variables in the estimated equations. Having a separate time dummy for each

time period should control for the average state of the economy in each period. The

industry effects should control for any systematic differences across industries.

Interestingly, the results for the sample that includes all firms are very similar to

those for the sample of distressed firms, and the results are fairly consistent whether the

equation is estimated by an OLS or a logit specification. Thus, inclusion of additional

healthy firms does not alter the primary finding that the financial health of the firm, rather

than the strength of the firm's affiliation with its main bank or the financial health of the

firm's main bank, is the major determinant of whether the firm receives additional loans

from its main bank.

Table 2 provides the results of estimating equation 2. The first two columns are

estimated using the distressed-firm sample, while the latter two columns are estimated

using the full sample of firms. The first column repeats the specification shown in Table

1 except that the dependent variable is now related to an increase in secondary loans

rather than main bank loans. Thus, the estimated coefficients are related to the

probability that a firm receives an increase in loans from secondary sources. PK, the

percent ownership of the firm by keiretsu members among the top ten equity holders, and

MD, the ratio of main bank loans to the firm relative to the firm's total debt, are not

statistically significant. The estimated coefficient for MBLMB, the ratio of main bank

loans to the firm relative to total loans to all firms by the main bank, is negative and

statistically significant. This indicates that secondary lenders are less likely to increase

loans to the firm the larger is the main bank's exposure to the firm.

As with the results for main bank lending, the probability of a firm receiving

additional loans from secondary sources is related to the financial condition of the firm,

but in a perverse way. The estimated coefficients on FEQA, the firm's ratio of equity to

assets, and FROA, the firm's return on assets, are each negative and statistically

significant. This implies that receiving additional secondary loans is less likely the

healthier is the financial condition of the firm, other things equal. None of the other

estimated coefficients are statistically significant.

In the second column, we allow the financial condition of the firm to be interacted

with a dummy variable that has a value of one if the main bank decreased lending to the

firm. The estimated coefficient on the interactive dummy variable is negative, large in

absolute value, and highly significant, indicating that an increase in secondary loans is

much less likely to occur if the main bank has decreased loans to the firm. Consistent

with the results in column 1, for those firms not experiencing a reduction in main bank

loans, an increase in secondary loans is less likely the higher is the firm's capital ratio

and the higher is the firm's return on assets. However, the interaction term indicates that

the pattern is different if the main bank has decreased loans to the firm. The differential

effect shown is that an increase in secondary loans is more likely to occur if the firm has

a larger capital ratio (statistically significant) and a higher return on assets (not

significant). For FEQA, the magnitude of the differential effect (0.022) is sufficient to

nearly offset the negative base effect (-0.027), leaving a net effect of only –0.005. This is

consistent with secondary lenders following the lead of the main bank when main banks

are increasing lending, whereby the healthier the firm, the less likely it will receive additional loans from the main bank or the secondary bank. However, if the main bank is reducing its exposure to a firm, secondary lending is much less likely to increase, but the probability no longer decreases as strongly the higher the firm's capital ratio.

The results for the full sample provide very similar implications. For the full sample, PK has an estimated coefficient that is negative and statistically significant. Thus, as the percent ownership of the firm by keiretsu members among the top ten equity holders increases, the probability of additional secondary financing decreases. In addition, the negative estimated coefficient on the percent change in the firm's stock price over the previous year, interacted with the main bank decreased loans dummy variable, is now statistically significant, suggesting that for those firms that have experienced a decline in main bank loans, secondary lenders are more likely to increase loans to firms the worse their stock price performance during the previous year.

V. Conclusion

These preliminary results indicate that the most significant factor affecting main bank lending is the financial condition of the firm. However, based on the prospects of the firm, the effect is perverse. The more troubled the firm, the more likely that the main bank will increase lending to the firm. Secondary sources of loans are also extended to troubled borrowers, though the strength of corporate affiliations is more important. In addition, if a main bank is decreasing lending to a borrower, the secondary lender is less likely to lend to troubled firms.

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[1] Most Japanese firms have a fiscal year that ends March 31. In our sample, **85??** percent of the firms have a fiscal year that ends in March…..

	Distressed Firms		All Firms	
	OLS	Logit	OLS	Logit
PK	-.002*	-.007*	-.001**	-.006**
	(.001)	(.003)	(.000)	(.002)
MBLMB	-.257	-1.217	-.104	-.499
	(.210)	(.965)	(.073)	(.328)
MD	.000	.000	.001	.003
	(.002)	(.000)	(.001)	(.006)
FEQA	-.005**	-.022**	-.005**	-.026**
	(.001)	(.004)	(.000)	(.002)
FINVSECA	-.001	-.002	-.001	-.007
	(.002)	(.008)	(.001)	(.005)
FLIQA	-.004**	-.017**	-.004**	-.018**
	(.001)	(.005)	(.001)	(.003)
FROA	-.013**	-.057	-.014**	-.070**
	(.004)	(.018)	(.002)	(.012)
FPCPR	-.001	-.003	-.001**	-.004**
	(.000)	(.002)	(.000)	(.001)
FLASSET	-.020	-.082	-.014*	-.068*
	(.011)	(.051)	(.007)	(.032)
FENTB	-.100	-.465	-.079*	-.348*
	(.067)	(.315)	(.034)	(.163)
FXB	.125	.538	.043	.195
	(1.46)	(.374)	(.043)	(.201)
FIB	-.037	-.148	-.022	-.074
	(.063)	(.281)	(.032)	(.147)
BRBC	.033	.149	.025*	.118*
	(.024)	(.103)	(.013)	(.059)
BPCPR	-.000	-.002	.000	.000
	(.001)	(.005)	(.001)	(.002)
n	1797	1797	4860	4860
R^2	.075		.092	
log ratio		141.53		475.88
log likelihood		-1150.82		-2982.57

Table 1
Determinants of Main Bank Lending

Omitted in the table but included in the estimation were dummy variables for each year and for each major industry.
* Significant at the 5 percent level
** Significant at the 1 percent level

Table 2
Determinants of Secondary Lending, Logit Estimation

	Distressed Firms		All Firms	
PK	-.004	-.005	-.006**	-.008**
	(.003)	(.003)	(.002)	(.002)
MBLMB	-3.396**	-3.315**	-.457	-.846*
	(.987)	(1.061)	(.322)	(.390)
MD	.008	.032**	.010	.034**
	(.008)	(.008)	(.006)	(.006)
FEQA	-.014**	-.027**	-.025**	-.029**
	(.003)	(.004)	(.002)	(.003)
FROA	-.057**	-.055*	-.068**	-.074**
	(.018)	(.023)	(.012)	(.014)
FPCPR	-.003	.001	-.004	-.001
	(.002)	(.002)	(.001)	(.001)
FLASSET	.069	.151**	-.054	.077
	(.051)	(.056)	(.031)	(.033)
FENTB	-.023	.125	-.354	-.210
	(.291)	(.324)	(.161)	(.167)
FXB	.691	.603	.199	.283
	(.375)	(.406)	(.199)	(.210)
FIB	-.184	-.252	-.091	-.018
	(.285)	(.310)	(.147)	(.155)
BRBC	-.016	-.081	.116*	.031
	(.100)	(.111)	(.058)	(.062)
BPCPR	.001	.001	-.000	.001
	(.004)	(.005)	(.003)	(.002)
DMBDEC		-2.618**		-2.519**
		(.264)		(.165)
D*FEQA		.022**		.022**
		(.007)		(.005)
D*FROA		.029		.045
		(.039)		(.024)
D*FPCPR		-.006		-.006**
		(.003)		(.002)
N	1845	1845	4958	4958
Log ratio	135.25	412.41	458.68	1065.14
Log likelihood	-1179.9117	1041.3306	-3130.5576	-2827.3244

Omitted in the table but included in the estimation were dummy variables for each year and for each major industry.
* Significant at the 5 percent level
** Significant at the 1 percent level