Agency Conflicts, Financial Distress, and Syndicate Structure: Evidence from Japanese Borrowers

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Abstract

We examine how borrower firm characteristics affect the size structure in the Japanese syndicated loan market for the 1999-2003 period. Consistent with the view by Lee and Mullineaux (2004), we find that syndicates are smaller when borrowers have higher credit risk, while firms with greater information asymmetry are associated with larger syndicates in Japan. These results are primarily driven by *non-keiretsu* (non-business group) firms. This suggests that the role of enhanced monitoring and facilitated renegotiation is especially useful for banks participating in Japanese syndicated loan for non-keiretsu firms. On the other hand, information problems seem to be less severe for *keiretsu* (business group) firms which tend to have easier access to syndicated loan via the intermediation of in-house banks in the relevant syndicate. Finally, Keiretsu firms have less fraction of loan by the agent bank as the maturity rises, while non-keiretsu firms have greater fraction of loan by the agent bank as the maturity rises. It appears that main banks of keiretsu firms with informational advantage are forced to retain more of the loan and form a more concentrated syndicate to "signal" that the loan is of high quality. This further confirms the view that information problems are less severe in the keiretsu firms.

I. Introduction

Japan's syndicated loan market is still small for the size of its economy, since the vast majority of loan transactions in Japan are still bilateral transactions that are provided by individual banks under separate agreements. According to the recent sources from Thomson Financial and the Bank of Japan, syndicated loans account for just 5% of overall Japanese lending, compared with 30% to 35% in the U. S. Nevertheless, the syndicated loan market is rapidly developing due to several fundamental factors: In the last few years, in an effort to use their capital efficiently, Japanese banks have become more focused on risk-adjusted returns. Large acquisition financing is increasing in Japan, which requires banks to spread the risk among members of a syndicate. Japanese borrowers are discovering with syndicated loans the benefits of having access to a lending universe larger than the few relationship banks from which they have received bilateral transactions.

The value of syndicated loans in Japan increased 58% in the two years ended in March 2004, to 19 trillion yen ($174.63 billion). Japan's market for syndicated loans which was nonexistent eight years ago is growing given the fact that overall lending by Japanese banks has fallen for 78 months in a row. Bankers and analysts predict that syndicated loans will play an even bigger role in corporate finance in Japan in the future.[1] Syndicated loans represent a hybrid of traditional bank loans and capital market instruments, or in the language of Boot and Thakor (2000), a mix of "relationship loans" and "transactions loans." Syndicating loans involves a process similar to underwriting and, on occasion, loans are formally underwritten. In addition, by the end of the 1990s, a large percentage of individual syndicated loans was rated by Moody's and/or Standard and Poor's. Nonetheless, the evidence provided by Dennis and Mullineaux (2000) and Jones, Lang, and Nigro (2000) indicates there is a significant "relationship" aspect to syndicated lending.

Finance theory suggests that firms with relatively few information problems and agency problems are more likely to have access to capital markets. We extend this logic to examine the marketability of loans to certain numbers of banks that choose to participate in a financing. While syndicate size obviously should increase with the size of a bank loan, we are primarily interested in whether other

factors play a role in syndicate formation. The structure of syndicates involves issues addressed in organization theory since syndicating a loan amounts to outsourcing the financing component of a loan transaction.[2] The size of a syndicate will be especially relevant in the event the borrower becomes financially distressed, since all members of the group must approve any significant changes to the terms of a loan.

In this paper, we examine how borrower firm characteristics affect the size structure of syndications using Japanese syndicated loan market data for the 1999-2003 period. Consistent with the view of small syndicates' enhanced monitoring and renegotiation hypothesis by Lee and Mullineaux (2004) that we find that syndicates are smaller when Japanese borrowers have higher credit risk, while firms with greater information asymmetry are associated with larger syndicates. These results are primarily driven by *non-keiretsu* (non-business group) firms. This suggests that the role of enhanced monitoring and facilitated renegotiation is especially useful for banks participating in Japanese syndicated loan for non-keiretsu firms.

On the other hand, information problems seem to be less severe for keiretsu firms which tend to have easier access to syndicated loan via the intermediation of in-house banks in the syndicate. This is consistent with the view by Hoshi, Kashyap, and Sharfstein (1990) who argue that financial ties between main banks and their client firms reduce information asymmetry and incentive problems, allow financial flexibility for firms, so that firms may continue to proceed with ongoing projects. Finally, we find that the maturity of syndicated loans is an important factor in determining the loan share of lead agent bank in a syndicate. Keiretsu firms have less fraction of loan by the agent bank as the maturity rises, while non-keiretsu firms have greater fraction of loan by the agent bank as the maturity rises. It appears that main banks of keiretsu firms with informational advantage are forced to retain more of the loan and form a more concentrated syndicate to "signal' that the loan is of high quality. This further confirms the view that information problems are less severe in the keiretsu firms.

While previous study (i.e. Lee and Mullineaux (2004)) have examined already the syndicate structure in U.S., this is the first analysis of the structure of lending syndicates in most important and biggest loan markets in Asia, Japan. We specify and estimate models that relate the size of loan syndicates originated in Japan to various proxies not only for adverse selection, moral hazard, and hold-out problems, but also for the relevance of proprietary information, which was not tested in any previous study. This paper provides further empirical supports for the hypotheses that the marketability of debt claims are associated with information and agency factors, and contributes to previous research by locating the common factors that affect the syndicate structure regardless of the place of loan origination.

The remainder of the paper is structured as follows. Section II provides a brief overview of the loan syndication market. Section III provides a more detailed overview of previous studies on loan syndication and Section IV discusses what kind of factors might influence syndicate size in Japan. Section V presents the empirical results and Section VI concludes.

II. Overview of Syndicated Lending

A syndicate consists of a group of financial institutions that provides financing to a single borrower. In a syndicated loan, two or more lenders extend a loan to the borrower. The loan is administered by a common agent bank and governed by a common document (or set of documents) among the lenders. Each bank acts without responsibility for the other banks in the syndicate with respect to its relationship with the borrower. If one of the syndicate members fails to meet its obligations to the borrower, the other syndicate members have no legal responsibilities to provide those funds to the borrower.

Even though syndicate members are referred to by different titles, such as agent, manager, or co-manager, each lender holds a common loan agreement with the borrower and receives a note that shows the lender's share in the syndicate. Consequently, there exists a direct relationship between the borrower and each lender in the syndicate. Given this direct relationship, syndicated loans may have advantages over other types of financing. Typically, however, the agent bank plays a more active role in analyzing

the borrower's credit worthiness and in monitoring its financial and operating activities. Consequently, the agent typically builds a closer relationship with the borrower than the participant banks.

Before marketing the syndication, the agent prepares an information memorandum on behalf of the borrower. Potential participants are required to sign a confidentiality agreement before they receive the memorandum in order to prevent sensitive information from being disseminated in the market. In addition to the information memorandum, both the borrower and the agent need to confirm final decisions on the term sheet.

Once invitations are prepared, the borrower and/or agent select banks that will receive invitations. The borrower can indicate the number of banks preferred in Syndication Strategy (the sub-section of a term sheet), especially when the borrower wants the transaction to be a relationship-driven transaction. For example, the borrower may want to choose exclusively from its existing relationship banks to reduce uncertainty about performance. Alternatively, the borrower may want to enter a new business, so it might choose banks having expertise in that area.

After the final members are determined, the agent bank distributes the documentation and announces the loan terms with all the participating banks. During this process, it is common to find that the total amount committed by the participating lenders is greater (over-subscription) or less (under-subscription) than the amount required by the borrower. When over-subscription occurs, the commitment amount is usually 20-100% higher than the amount required by the borrower, which indicates the syndication has clearly been a success. There can be many possible reasons for over-subscription. The deal may be very attractively priced such that it attracts more banks than expected. Alternatively, some good information about the borrower might be released during the syndication.

In the event of over-subscription, it is the borrower who decides whether to accept the increase or not. The agent has no right to increase the amount of the commitment without the borrower's permission. In the case of under-subscription, if the agent agrees to fully underwrite the total facility, the agent(s) is required to take up the shortage so that the borrower can obtain the commitment it

requested. Once allocations and commitments are finally completed, all the relevant parties sign the loan agreement. At this point, the loan is closed.

III. Related Literature

In their paper, Lee and Mullineaux (2004) study the factors that influence the size and composition of commercial lending syndicates in the U.S. They find that syndicates are smaller and more concentrated, as reflected in the Hirschman Herfindahl Index for the lending group, when there is less information available about the borrower, when credit risk is relatively high, and when a loan is secured. They also find that syndicates are larger and more diffuse when the arranging bank is more reputable, when the arranger constrains the loan re-sale activity of group members, when the loan has a long term to maturity, and when the borrower holds large growth options. In a recent paper, Sufi (2006) empirically examines the US syndicated loan market, with an emphasis on how information asymmetry between lenders and borrowers. He finds that the lead bank retains a larger share of the loan and forms a more concentrated syndicate when the borrower requires more intense monitoring and due diligence. When information asymmetry between the borrower and lenders is potentially severe, participant lenders are closer to the borrower, both geographically and in terms of previous lending relationships. Sufi (2006) concludes that lead bank and borrower reputation mitigates, but does not eliminate, information asymmetry problems.

Factors determining when a loan will be financed by multiple lenders rather than a single creditor are examined in Dennis and Mullineaux (2000). They find that loans are more likely to be syndicated as information about the borrower becomes more transparent. This result is consistent with the so-called life-cycle model of borrowing associated with Diamond (1991) and Carey, Prowse, Rea, and Udell (1993). The essential idea is that borrowers will gravitate from private sources of funds (such as venture capital, commercial banks and commercial finance companies) to public debt markets as firms grow larger, disseminate increased information, and develop a reputation by continuously repaying their debt obligations. Syndicated loans represent a hybrid of private and public debt, and the results of Dennis and

Mullineaux (2000) suggest that a loan becomes more marketable to investors as adverse selection problems become less severe. Their study also finds that certain characteristics of a loan influence its salability. Longer-term loans are more likely to be syndicated than shorter-term financings, for example. Given that an originating bank has decided to syndicate a loan, a larger portion can be sold to syndicate participants if the loan is unsecured. A significant literature (Gorton and Pennachi (1995) and Pichler and Wilhelm (2001) are examples) argues that the reputation of the seller can serve to mitigate agency problems in a loan sale or syndication context. Dennis and Mullineaux (2000) confirm this view, finding that a loan is more likely to be syndicated when the originating institution is more reputable as reflected in a history of repeat transactions with particular participants in a syndicate. Their results also indicate that reputable arrangers sell off larger portions of the loans they syndicate.

Jones, Lang and Nigro (2000) study the share of a syndicated loan held by the arranger, using Shared National Credit Program data over the period 1995-99. They emphasize that the ability to overcome adverse selection and moral hazard problems has been critical for the development of this market. Like Dennis and Mullineaux (2000), the authors find that lead banks retain larger portions of the lower-quality loans they originate. They also observe that a segment of arrangers tends to specialize in lower-quality credits and that these banks market a larger share of their low-quality loans in syndication. Their study is a useful complement to Dennis and Mullineaux (2000) since it uses a different and substantially larger database. They are also able to use observed bank examiner loan ratings as a measure of credit risk.

A syndicate can be viewed as a team or strategic alliance formed for the purpose of providing finance to a particular borrower. As Pichler and Wilhelm (2001) note, a syndicate is a unique type of team since it is formed to carry out a well-defined function and is, by nature, a temporary alliance. A syndicate disbands when a loan is repaid. A large literature emphasizes the relevance of agency costs in a team production setting, but these problems are likely to be even more severe when the team's existence is ephemeral. Pichler and Wilhelm (2001) provide a formal analysis of how a syndicate's organizational structure can arise as a contractual response to the relationship-intensive nature of finance. While the

focus of their model is the formation of investment-bank underwriting syndicates, the logic holds in the case of commercial lending syndicates as well. In fact, the lead arranger in a lending syndicate typically holds a portion of the credit in its portfolio (as do other participants), whereas investment bank underwriters do not. "Relationship" consequently is potentially even more relevant to lending syndicates than to underwriting groups. Since commercial loans are increasingly re-sold in the capital markets by the original participants in a lending syndicate, the distinction between loan syndication and bond underwriting has been somewhat eroded in the market, however.

When participating in a loan syndicate, the members of the group clearly delegate at least some monitoring in the sense of Diamond (1984) to the lead arranger and other designated agents. A team production process invites agency problems involving both adverse selection and moral hazard. Pichler and Wilhelm (2001) investigate the moral hazard issue from a theoretical perspective and demonstrate how the designation of a particular group member as a "lead banker" essentially acts as a monitoring device that threatens those who might shirk with a loss of reputation and the quasi-rents associated with that intangible asset. A key aspect of their model is that the syndicate for a particular deal is formed after effort is exerted. While they focus on investment banking syndicates, this condition also holds in commercial lending syndicates since the terms of the deal are negotiated prior to the loan's distribution to the participants. There is a noteworthy distinction, however, between investment and commercial banking syndicates. The lead investment bank distributes securities to syndicate participants for the purpose of re-sale to capital market investors. The lead commercial bank arranger distributes portions of the loan to participants that may or may not re-sell the loan to other investors. In fact, the lead arranger and/or borrower can limit subsequent sales of loans purchased in a syndication context. We investigate below whether such limits influence the structure of a commercial lending syndicate.

The basic intuition of the Pichler-Wilhelm model is that the issuer/borrower gains when an institution is designated as a lead and the lead institution's ability to control the make-up of the syndicate mitigates moral hazard problems within the team. The lead bank's own concern with the loss of quasi-rents provides strong motivation not to erode the value of its reputation.

IV. Testable Hypotheses

The syndicate size is the number of banks participating in the syndicate. If a loan is syndicated, the minimum size of a syndicate would be two and the maximum size is, in principle, unlimited. In practice, syndicates involving more than 30 banks are rare. The parties associated with a lending syndicate are a borrower, one or more agent banks, and a set of participant banks. All the parties may have concerns about the size of a syndicate. As a basic economic principle, syndicates should increase in size as the overall benefits of expanding the size of a lending group exceed the relevant marginal costs.

The arranger of a lending syndicate should prefer a small to a large group, since the costs of managing a syndicate increase with the number of participants. While the lead bank (and any designated agents) presumably has some concern with administrative expenses, a major potential cost associated with a large lending group involves the expense of restructuring the loan in the event of financial distress. Since the members of the syndicate must unanimously agree to any substantive changes in the loan contract, negotiation costs and the prospect of hold-out problems increase directly with syndicate size. Sizeable syndicates would be especially problematic when credit risk is high.[3]

The arranging bank can influence the size of the syndicate in several ways. First, it decides on the number of institutions it will invite to participate. Rhodes (1996) estimates that, as a rough average, about a third of the invited banks will participate in a syndicate. Second, it chooses the initial menu of designated amounts for participation, the dollar size of each bracket, and the fees to be paid for participation in each bracket. Given the loan amount, syndicate size will increase if the lead bank offers relatively small bracket amounts.[4] Third, the lead bank reserves the right to close the syndication at any time prior to the designated end of the offering period. Fourth, the lead bank can adjust the portion of the loan it chooses to take.[5] The arranger cannot precisely control the size of the syndicate, however, because it cannot be certain of participant demands for the relative amounts offered. If total demand for the loan exceeds the size of the loan (and the borrower chooses not to increase the loan amount), the lead bank will allocate the loan, with implications for the size in the syndicate. If the loan is oversubscribed, syndicate size will increase.[6]

We specify and estimate models that relate the size of loan syndicates originated in Japan to various proxies for agency conflicts, financial distress, and proprietary information. We cannot examine whether comprehensive loan characteristics and contractual restrictions on the re-sale behavior of the syndicate participants influence syndicate size, however, because the necessary data are not available.

The models we estimate take the following general form:

Syndicate Size = f (Agency Conflicts, Financial Distress, Proprietary Information, Profitability, Loan Characteristics, Control Variables)

The definitions of the variables used in our estimations are in Table 1.

1. Agency Conflicts

1) Information Problems

Since the market typically possesses more information about larger firms, larger size borrowers are less likely to be information problematic. Also, these firms generally have had more time to build a "reputation" in the form of a history of debt repayments or to establish relationships with financial institutions, so the prospect for these firms to appeal to a large set of lenders is relatively high. Lenders in a syndicate will be concerned about the availability and quality of information regarding the borrower and will prefer "transparent" borrowers to "opaque" ones, other things equal. Consequently, more lenders are likely to participate in a syndicate when borrower information is "transparent."

On the other hand, information problematic firms require more monitoring, so lead banks should offer invitees relatively larger portions of such loans to enhance incentives to monitor. While the agent undertakes some delegated monitoring on behalf of the participants, bank regulations require that each lender perform due diligence independently. Based on this argument, we hypothesize that a firm's size is negatively related to the size of syndicate. We use two proxies for the scale and the scope of information problems. LNSALES is the natural logarithm of annual sales in the year of the syndication. LNASSETS is the natural logarithm of book value of assets in the year of syndication.

The signs of these coefficients are ambiguous and results from Lee and Mullinaux (2004) show mixed signs on these variables. Dennis and Mullineaux (2000) and Jones, Lang and Nigro (2000) found

that loans were likely to be syndicated in larger proportions as more information about the borrower was available.

2) Agency Problems Between the Borrower and Lenders

Agency costs can influence syndicate size. Studies such as Barclay and Smith (1995a and 1995b), Houston and James (1996), and Krishnaswami, Spindt, and Subramaniam (1999) argue that firms with high leverage and growth options are more likely to rely on private debt as moral hazard problems become more severe. To measure the agency costs between the borrower and the lenders, we employ the borrower's fixed assets to its book value of assets (FATA). Denis and Mihov (2003) use the fixed assets ratio as a proxy for the agency cost of a firm, and they find that firms with low fixed assets ratio is assumed to have high growth options in the firm's investment set. Since a syndicate involving a small number of lenders is able to monitor more efficiently, we hypothesize that FATA is positively related to the size of a syndicate.[7]

However, the above argument that private debt involving a small number of lenders provides more efficient monitoring holds in the absence of Rajan (1992)'s hold-up problems.[8] Rajan (1992) emphasizes that private funding comes with costs as well as benefits in the sense that information acquired by a private lender could be used to extract rents from the borrower in subsequent financing costs. This is an example of the hold-up problem emphasized by Hart and Moore (1994) in a setting involving incomplete contracting. A syndicate involving a large number of participants may able to avoid potential hold-up problems. Without the hold-up problem, we argue the size of a syndicate should be negatively influenced by increased agency problems. In the presence of potential hold-up problems, however, firms with substantial growth opportunities are more likely to rely on many lenders.

If the agency problems between the borrower and lenders are potentially significant, the reputation of the borrower can be a solution to these problems. Diamond (1991) argues that reputation can substitute for the role that monitoring plays in overcoming the moral hazard problems and demonstrates that borrowers shift from private sources to the public markets as the borrower develops a reputation in the form of a history of successful debt repayments. Hence syndicated loans represent a

hybrid of traditional bank loans and capital market instruments, reputable firms are more likely to associated with larger syndicates. As a measure of the borrower's reputation, we follow Esho, Lam, and Sharpe (2001) in using the firm's ratio of long-term debt to total debt (LTDRATIO). A borrower that can issue relatively long-term debt is considered more reputable. A positive coefficient is expected on the LTDRATIO variable.

2. Financial Distress

The lead arranger's capacity to syndicate should also depend on the perceptions of borrowers' potential hold-out problems and loan re-negotiability. Gilson, John, and Lang (1990) examine the incentives of financially- distressed firms to choose between private re-negotiation and formal bankruptcy. They argue that the severity of hold-out problems will be influenced by the number of creditors, the type of debt, and the voting rules. They hypothesize that the holdout problem becomes more severe when there are relatively more lenders participating in the restructuring plan. The underlying logic is that as the number of total votes to be cast increases, the prospect that at least one debt holder will object increases. Gilson, John, and Lang (1990) present evidence that firms are more likely to restructure debt privately as the ratio of bank debt to total liabilities increases and as borrowers have fewer lenders.

Preece and Mullineaux (1996) investigate the prospect that contractual flexibility in renegotiating private debt might supplement monitoring as a source of value to borrowers. As the number of lenders increases in a syndicate, loan restructurings become more complicated due to potential hold-out problems among the syndicate members, suggesting that the size of the market's reaction to loan announcements should be negatively associated with the size of a syndicate. They find evidence in favor of this hypothesis. Asquith, Gertner, and Scharfstein (1994) note that there are four ways banks can respond to financial distress. Banks can loosen financial constraints on borrowers by allowing changes in covenants, delay principal and/or interest, and extend additional lines of credit. Contrarily, banks can tighten financial constraints by calling loans and reducing lines of credit. Asquith, Gertner, and Scharfstein (1994) find that banks are more likely to loosen the constraints when they have collateral, but loosening financial constraints does not affect the probability of bankruptcy.

Since the members of the syndicate must unanimously agree to any substantive changes in the loan contract, negotiation costs and the prospect of hold-out problems increase directly with syndicate size. Sizeable syndicates would be especially problematic when potential financial distress is high.[9] To measure the borrower's potential financial distress and associated hold-out problems, we use the ratio of the firm's total debt to total assets (TOTALDEBT), debt-to-equity ratio (DEBTEQUITY), and Altman's Z-score (1977). Since a low Z-Score represents a high probability of financial distress, the signs of these financial distress variables are expected to move inversely each other. We argue that as these variables increase, syndicate size should decline.

3. Proprietary Information

If the borrower's business success depends strongly on its private information, the firm will have significant concerns about information leakage to outsiders, especially to competitors. In a syndicated loan, potential participants are required to sign a confidentiality agreement before they receive the information memorandum in order to prevent sensitive information from being disseminated in the market. This requirement, however, may not fully eliminate the borrower's concerns, since it would be difficult and costly to identify the source of any breach of confidentiality.

Bhattacharya and Chiesa (1995) find that when firms' probabilities of success are not influenced by their private knowledge, firms prefer multilateral financing to bilateral financing. On the other hand, if the proprietary information can significantly influence firms' probabilities of success, multilateral financing is not preferable, since the prospect of revealing proprietary information to a competitor creates incentives to free ride on investments in R&D. Under bilateral financing, this free-rider problem does not occur, because the proprietary information is never disclosed. In addition, Yosha (1995) notes that the degree and cost of information disclosure is different between bilateral and multilateral financing. Under multilateral financing, the borrower is required to disclose detailed information to lenders, because it needs to verify its creditworthiness. Under bilateral financing, on the other hand, a relationship between the borrower and lenders is often considered as an important lending decision factor, which implies that the borrower can provide less information. Therefore, bilateral financing is less costly in terms of

information disclosure. In equilibrium, Yosha (1995) finds that firms with profits that are highly sensitive to proprietary information choose bilateral financing, while firms that are less sensitive rely on multilateral financing.

We use the ratio of R&D expenditures to firm's sales (R&D) to measure the relevance of the firm's confidential information. If the borrower has strong needs for confidentiality, a smaller syndicate is preferable, suggesting the sign of R&D is negative.

4. Profitability

The profitability of the borrowing firms also can influence size of a syndicate. Highly profitable firms are less costly to monitor and less likely to default. We expect that more profitable firms will be associated with a larger syndicate.

5. Loan Characteristics

1) Maturity

The characteristics of the loan itself could affect the structure of the syndicate. Lee and Mullinaux (2004) find a positive relationship between the loan maturity and the syndicate size. Jones et. al. (2000) find that maturity positively affects the proportion of a loan sold in syndication, and Sufi (2006) also finds that loan maturity is negatively related to the holding shares of the lead bank. If the borrower's credit risk declines with loan maturity, as the results of Dennis and Mullineaux (2000) imply, we should expect larger syndicates for longer-term loans.

We predict that information problems in syndicated loans would be less severe for keiretsu firms. This is because keiretsu firms have had close relationships with their main banks which often serve as lead agent banks of the syndication and have informational advantage over borrower firms. Sufi (2006) presents the adverse selection hypothesis, which seems to be similar for cases of keiretsu syndication. The lead agent bank has private information on the borrower firm that is unknown to participant lenders. Thus if the adverse selection hypothesis is true, then a lead agent bank with a previous relationship with the borrower should be forced to retain more of the loan and form a more concentrated

syndicate. Therefore we predict that Keiretsu (non-keiretsu) firms will have less (greater) fraction of loan by the agent bank as the maturity rises.

2) Loan Purpose

Both the borrower and the agent bank may be concerned about the purpose for which the funds will be used. In our sample, we include dummies for working capital (WORK) and debt repayment (REPAY). The base dummy is general corporate purposes. Debt repayment loans include facilities for refinancing or consolidation of existing debt prior to maturity. If funds are needed for debt repayment or recapitalization, the borrower may wish to obtain the financing more quickly, since such loans are likely to be used for resolving short-term liquidity problems.[10] Since it takes less time for the agent bank to form a smaller syndicate, both the borrower and the agent bank may prefer a smaller syndicate. We expect that loans associated with debt repayment should involve smaller number of lenders relative to loans with general corporate purposes. WORK is a dummy equal to one if the loan is used for working capital purpose.

6. Control Variables.

1) Facility Size

We control for the effect of facility size on syndicate size, since as the facility size increases, the size of the lending syndicate will become larger for either regulatory or diversification-related reasons.

2) Year

We include year dummies (results not reported) for each year of the transaction. We want to examine the influence of the variables discussed above, abstracting from any potential trends in syndicate formation.

V. Empirical Analysis

1. Sample selection and description

We employ data from the *Dealscan* database maintained by Loan Pricing Corporation(LPC). While this database provides detailed transaction-specific data on loans originated in the U.S., this is not

the case for loans originated in Japan. From *Dealscan*, we could extract 144 facilities that are related to non-financial firms and that have complete financial information on the web site from 1999 to 2003. A facility can be defined as a loan deal that involves a number of dissimilarly designed loans with common agent and participant banks, made to the same borrower on a given date. Table 2 provides some descriptive statistics for the sample.

The average number of syndicate lenders in Japan is 9.6 and the median is 8. Lee and Mullineaux (2004) report a similar average of 9 lenders for the period 1987-95 in the U.S syndicate market, but also report a lower median of 5 lenders in the U.S. market. Pichler and Wilhelm (2001) report that the average investment banking underwriting syndicate contains 18.2 members. The difference is not surprising, since the average bond issue is 2 to 4 times the size of the typical syndicated loan, depending on the time horizon of comparison.

The mean size of Japanese borrowers in our sample is very large relative to other samples based on U.S. and Korean syndicate market and somewhat skewed with a mean of $24.9 billion and median of $12.4 billion. The average asset size in this sample is about more than 9 times that of the U. S. firms in Lee and Mullineaux's (2004) sample. The mean loan facility size in our sample is $459 million, which is larger than the various averages observed in the U.S. market by Lee and Mullineaux (2004) and Jones, Lang and Nigro (2000), which fall in the $150-$220 million range. These differences in descriptive statistics among the three studies, however, may not provide significant implication since the time horizon of comparison is not matched.

The mean debt-to-equity ratio for this study is 4.7, and the median is 3.9. The Korean sample shows a similar debt-to-equity ratio of 4.4. The means of Japanese firms' ROA and ROE are 0.7% and1.9%, respectively. Regardless of different time horizon being compared, the poor Japanese firms' profitability reflects a long period of economic recession in Japan. Finally, the purpose of loans in this sample is designated mainly as general corporate purpose and etc. of 84%, debt repayment of 11%, and working capital of 14%.

A correlation matrix of dependent and independent variables is provided in Table 3. We find positive correlations between SIZE and agency conflicts variables (ASSETS, SALES, FATA, LTDRATIO, MATURITY) and combined signs with the financial distress variables (TOTALDEBT, DEBTEQUITY, ZSCORE). Consistent with the proprietary information hypothesis, we find a negative correlation between SIZE and R&D. SIZE is positively correlated with the proxy for loan purpose variables (WORK, REPAY). Also SIZE is positively correlated with FACSIZE, as expected. Due to the high correlations, we separately regress SIZE on ASSETS and SALES, TOTALDEBT and DEBTEQUITY, and ROA and ROE for estimation purpose.

Descriptive statistics which provide us with a sense of understanding differences and similarities in financial performance by keiretsu firms and non-keiretsu firms are provided in Table 4. Most interestingly, the size of a syndicated loan (i.e., the number of banks participating in a syndicate) shows that keiretsu firms have much smaller of banks in a syndication than non-keiretsu firms. The mean (median) values of syndicated loan size are 11.38 (10.5) for non-keiretsu firms and 8.03 (7) for keiretsu firms, respectively. The mean and median values for total assets show that there are no statistically significant differences between keiretsu firms and non-keiretsu firms. On the hand, the mean annual sales for keiretsu firms and that for non-keiretsu firms are statistically significantly different at 5 percent level. We also find that leverage (TOTAL DEBT) for keiretsu firms are higher and this is statically significant. Finally, we find that loan maturity is statistically significantly longer for non-keiretsu firms, while there are no statistical significant differences in mean and median for the size of syndicate loan amount facility.

2. Model Estimation

The dependent variable in the model we estimate is the total number of banks participating in the syndicate. Since this variable is discrete and non-negative, we employ Poisson regression as the estimation technique. [13] The results for the syndicate size for the full are presented in Tables 5.

We employ the size of the firm to measure the scope of information problems between the borrower and lenders. Similar to Lee and Mullineaux (2004), the coefficients of the information proxies (ASSETS and SALES) are positively signed and significant in all specifications. These results are

consistent with our initial information problem hypothesis that more lenders are likely to participate in a syndicate when borrower information is "transparent," assuming firm size is a signal regarding the quality of the credit. To measure agency costs, we employ the ratio of the borrower's fixed assets to their book value of assets (FATA). Firms with higher fixed asset ratios have relatively lower growth options in their investment opportunity set. We find that the coefficient of FATA is positive in all specifications and generally highly significant, suggesting that borrowers with low growth options are able to attract more lenders to a syndicate. This variable is incorrectly signed according to the hold-up problem hypothesis that Firms with flexible growth options may prefer larger syndicates to prevent an individual bank from extracting rents in the loan renewal stage, in the sense of Rajan (1992).

The coefficient of LTDRATIO is positive and highly significant in every equation, implying that reputable borrowers appeal to more lenders. Lee and Mullineaux (2004) and Dennis and Mullineaux (2000) found that agent's reputation was the primary mechanism for controlling agency problems within the lending group. In this paper, we could not examine the role of agent's reputation in Japan syndication market, because we could not determine the identity of the agent bank in our database. Similar to Lee and Mullineaux (2003), we analyzed instead whether the borrower's reputation affects the size of syndicate. Our findings suggest that as borrowers become more reputable (i.e. firms have been able to raise larger portions of longer-term debt relative to total debt), they attract larger syndicates.

Loan characteristics, such as maturity, could serve to attenuate agency problems between the agent and syndicate members. MATURITY is again positive but insignificant, which does not support our hypothesis that longer maturity results in a large syndicate, presumably because long-term loans save on duplicative monitoring costs for the syndicate banks. Also, our findings are not consistent with the notion that short maturities, and consequent frequent re-contracting, are a solution to potential agency problems within the syndicate.

Borrowers' leverage ratios and Z-score are a proxy for the potential hold-out problems, financial distress or the borrower's observable risk. The coefficients of TOTALDEBT and DEBTEQUITY are negative, and ZSCORE is positive. As noted before, a low Z-Score represents a high probability of

financial distress. These variables are strongly significant in all of our specifications, suggesting that borrowers with higher potential for financial distress appear to choose smaller syndicates in order to avoid potential "hold-out" problems in the event of default. The agent also may prefer to have smaller syndicates when the borrower is likely to be in financial distress, because the agent will have higher administrative costs in a restructuring when there are many lenders. Therefore, both the borrower and the agent prefer a smaller syndicate if the borrower is likely to be in financial distress.

The R&D variable, which we hypothesize as a proxy for the relevance of proprietary information, is highly significant and the sign is negative. These results are consistent with the hypothesis that firms with high R&D expenditures will place a high value on confidentiality and thus prefer a smaller syndicate.

The coefficients of ROA and ROE are significant, but the sign is negative.[11] While we initially expect that syndicate lenders prefer more profitable borrowers, our results are not consistent with the hypothesis. One possible explanation is that the agent bank might prefer to raise their exposure to borrowers with high profitability by opting for relatively large portions.

The control variable, FACSZ, is positive and strongly significant. The larger the facility, the larger is the syndicate size. Variables regarding the purpose of loan are generally significant. The coefficients of WORK and REPAY are positive and highly significant, indicating that loans used for working capital and debt repayment purposes are associated with larger syndicates relative to loans for general corporate purposes. The positive sign on REPAY is not consistent with our initial expectation that debt repayment loans are related to a smaller syndicate, since these loans are presumed to resolve short-term liquidity constraints. The keiretsu dummy (KEIRETSU, equal to one if the borrower belongs to *Keiretsu*) coefficients for all equations in Table 5 shows strong negative sign, and this calls for conducting further analysis of panel study for both keiretsu firms and non-keiretsu firms. The results are given in Table 6 and 7.

The keiretsu firm regression results of Table 6 are quite different from the full sample results of Table 5, while the non-keiretsu (independent) firm regression results of Table 7 are similar to the full sample results. Because of the discreteness of dependent variables, we use Poisson regression results in

our analysis. Table 6 shows that FATA (the borrower's fixed assets to its book value of assets) has statistically significant positive coefficients in all estimation equations, while LTDRATIO (the ratio of the borrower's long-term debt to total debt) turns out to be significantly negative for all cases. This is consistent with the view by Hoshi, Kashyap, and Sharfstein (1990) who argue that financial ties between main banks and their client firms reduce information asymmetry and incentive problems, allow financial flexibility for firms, so that firms may continue to proceed with ongoing projects.

In Table 7, both total assets (ASSETS) and annual sales (SALES) have a strong positive sign. This implies that transparent non-keiretsu firms are more likely to have more banks in the syndicate as a result of reduced information asymmetry problems. Also, Table 7 shows that both leverage (TOTALDEBT) and debt-equity ratio (DEBTEQUITY) have a strong negative sign. The majority of coefficients (6 out of 8) for Altman's z-score (ZSCORE) turn out to be statistically significantly positive in Table 7, indicating that firms with high low liquidity tends to have smaller syndication group. This suggests that higher credit risk is negatively related to the number of banks in a syndicate, a finding consistent with Lee and Mullineaux (2004) for the US case. Also, it appears that syndicates are structured to enhance monitoring efforts and to facilitate renegotiation if borrowers become financially distressed.
Finally, the OLS regression results using a syndicated loan holding share of lead manager bank are provided in Table 8 through 10. We find a sharp contrast in the relationship between lead agent's holding share for both keiretsu and non-keiretsu firms. The maturity of syndicated loans is an important factor in determining the loan share of lead agent bank in a syndicate. Keiretsu firms have less fraction of loan by the agent bank as the maturity rises, while non-keiretsu firms have greater fraction of loan by the agent bank as the maturity rises. It appears that main banks of keiretsu firms with informational advantage are forced to retain more of the loan and form a more concentrated syndicate to "signal' that the loan is of high quality. This further confirms the view that information problems are less severe in the keiretsu firms.

This further confirms the view that information problems are less severe in the keiretsu firms. In Table 10, we also find that coefficients for both the firm leverage (TOTALDEBT) and the debt-equity ratio (DEBTEQUITY) turn out to be significantly negative in all equations. Financial distress in non-

keiretsu firms appears to discourage lead agent banks hold greater portion of loan in the syndicate, while this pattern is not statistically significant for keiretsu firms. This again confirms the value of durable relation banking in the main bank system for keiretsu firms.

VI. Concluding Remarks

This paper focuses on the factors that influence the number of lenders in syndicates formed for the purpose of selling business loans originated in Japan. The syndication market in Japan is large (almost 20 trillion yen as of March 31, 2004) and has grown steadily. However, there is only a limited body of research on this important form of financing and no research on lending syndicates originated in Japan. Syndicated loans are an interesting phenomenon, since they are a hybrid of "traditional" bank loans (often referred to as "relationship lending") and capital market instruments ("transaction lending").

Using Japanese syndicated loan market data, during the 1999-2003 period we find that syndicates are smaller when Japanese borrowers have higher credit risk, while firms with greater information asymmetry (as measure by sales and total assets) are associated with larger syndicates. This is consistent with the view of small syndicates' enhanced monitoring and renegotiation hypothesis by Lee and Mullineaux (2004). The results are primarily driven by *non-keiretsu* (non-business group) firms. This supports the notion that the scale and scope of information asymmetries are relevant to how many banks will participate in a syndicate, especially for banks participating in a Japanese syndicated loan for non-keiretsu firms.

Information problems however seem to be less severe for keiretsu firms which tend to have easier access to syndicated loan via the intermediation of in-house banks in the syndicate. This is consistent with the view by Hoshi, Kashyap, and Sharfstein (1990) who argue that financial ties between main banks and their client firms reduce information asymmetry and incentive problems, allow financial flexibility for firms, so that firms may continue to proceed with ongoing projects. Finally, we find that the maturity of syndicated loans is an important factor in determining the loan share of lead agent bank in a syndicate. Keiretsu (non-keiretsu) firms have less (greater) fraction of loan by the agent bank as the maturity rises.

Our research is partially motivated by agency theory, which emphasizes the role of information and incentives in financial contracting. Theory and evidence suggest that debt claims are more marketable as information about the borrower becomes more available and is more credible. We estimate a model that relates the size of a syndicate group to the quality of the information about the borrower, to agency problems between the borrower and the lenders, to the prospects that the lead or agent bank might exploit the other participants in the loan transaction, to potential financial distress of the borrower, and to the proprietary information regarding the borrower.

We also find evidence that as the borrower's reputation capital increases, as reflected in the ratio of long-term debt to total debt, relatively more lenders participate in a syndicate, because some of the agency problems between the borrower and lenders can be mitigated by the borrower's reputation. Instead of the borrower's side, Dennis and Mullineaux (2000) find that the proportion of a loan can be syndicated increases as the managing agent becomes more reputable. Our research also supports the notion that relationships are a potential mechanism for attenuating agency problems in debt contracting.

The evidence regarding the individual loan's characteristics, such as maturity, does not appear to support the hypothesis that potential agency problems between the agent and the syndicate members can be resolved by the loan's characteristics. Finance theory suggests that keeping contractual relations brief can reduce potential agency problems. By this logic, maturity should be negatively related to the size of a syndicate. Our evidence is to the contrary. Lengthening a loan's maturity, an agent can form a larger syndicate, though not significant. Longer maturity increases the size of a syndicate, probably because it results in reduced duplicative monitoring costs within the syndicate.

Lead banks form smaller syndicates when the borrower's financial risk is high in order to reduce potential hold-out problems and consequently restructure the loan more efficiently. The R&D variable, which we hypothesize as a proxy for the relevance of proprietary information with a consequent negative sign, is significant in our various estimations with a negative sign. Our results support the hypothesis that firms will prefer larger syndicates to protect information leakage to competitors.

Table 1
Description of the Variables in the Models

Variable	Description
Agency Conflicts	
--Information Variables	
ASSETS	The natural logarithm of the book value of borrower's assets.
SALES	The natural logarithm of the borrower's annual sales.
--Agency Problems Between the Borrower and Lenders	
FATA	The borrower's fixed assets to its book value of assets.
LTDRATIO	The ratio of the borrower's long-term debt to total debt.
Financial Distress	
TOTALDEBT	The ratio of the borrower's total debt to total assets.
DEBTEQUITY	The ratio of the borrower's total debt to total equity.
ZSCORE	Altman's Z-score. Defined as (3.3*EBIT/SALES+1*SALES/TA+1.4*RE/TA+1.2*WC/TA), where EBIT is earnings before interest and taxes, RE is retained earnings, and WC is working capital.
Proprietary Information	
R&D	The ratio of the borrower's R&D expenditures to sales
Profitability and Fee	
ROA	The borrower's return on assets.
ROE	The borrower's return on equity
Loan Characteristics	
MATURITY	The length of loan maturity in months.
WORK	Dummy variable equal to 1 if loan purpose is working capital and 0 otherwise.
REPAY	Dummy variable equal to 1 if loan purpose is debt repayment and 0 otherwise.
Control Variables	
FACSIZE	The natural logarithm of the size of the loan facility.
Year Dummy	Dummy variables for the years (2000, 2001, 2002, and 2003) of loan syndication

Table 2
Descriptive Statistics for the Model Variables
The sample is obtained from Loan Pricing Corporation's *Dealscan* database and covers the period 1999-2003. Size is the number of institutions participating in a syndicate, including the arranging bank. The remaining variables are defined in Table 1.

Variable	MEAN	MEDIAN	MAX	MIN
SIZE	9.61	8	31	2
ASSETS ($, million)	24985.8	12401.8	153198	2145
SALES ($, million)	24261.5	11169.5	141735.2	137
FATA	0.40	0.34	0.91	0.03
LTDRATIO	0.46	0.44	0.81	0.03
TOTALDEBT	0.74	0.79	0.94	0.27
DEBTEQUITY	4.68	3.99	17.31	0.38
ZSCORE	1.52	1.28	16	-1.78
R&D	0.0000287	0.0000125	0.000388	0
ROA	0.00744	0.00635	0.1785	-0.0966
ROE	0.0193	0.0379	0.553	-0.385
MATURITY (months)	34.5	12	240	6
WORK	0.055	0	1	0
REPAY	0.111	0	1	0
FACSIZE ($, million)	459.9	252.6	4000	8.42

Table 3
Pearson Correlation Matrix

	SIZE	ASSETS	SAL-ES	FATA	LTD RATIO	TOTAL DEBT	DEBTEQUITY	SCORE	R&D	ROA	ROE	MATURITY	WORK	REPAY	FACSIZE
SIZE	1.00														
ASSETS	0.31	1.00													
SALES	0.21	0.75	1.00												
FATA	0.17	0.25	-0.07	1.00											
LTDRATIO	0.23	0.40	0.16	0.56	1.00										
TOTALDEBT	0.01	0.50	0.53	0.10	0.15	1.00									
DEBTEQUITY	-0.05	0.42	0.52	-0.16	-0.00	0.81	1.00								
ZSCORE	0.05	-0.12	-0.29	-0.26	-0.13	-0.45	-0.14	1.00							
R&D	-0.18	-0.16	-0.37	-0.09	-0.21	-0.29	-0.27	-0.08	1.00						
ROA	-0.03	-0.10	-0.05	0.09	0.03	-0.34	-0.27	0.26	-0.04	1.00					
ROE	0.08	0.08	0.09	0.15	0.11	-0.17	-0.19	0.14	-0.14	0.86	1.00				
MATURITY	0.11	0.24	0 13	0.44	0.30	0.20	0.13	-0.12	-0.16	-0.02	-0.01	1.00			
WORK	0.17	0.00	0.00	-0.04	0.03	0.12	0.07	-0.06	-0.03	-0.06	-0.02	-0.06	1.00		
REPAY	0.09	0.08	0.14	-0.15	-0.08	-0.03	-0.07	0.01	0.04	0.10	0.12	-0.13	-0.09	1.00	
FACSIZE	0.27	0.58	0.45	0.10	0.15	0.27	0.18	0.01	-0.06	-0.05	0.11	-0.07	0.02	0.15	1.00

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Table 4. Descriptive statistics: *Keiretsu* firms vs. Non- *Keiretsu* firms

	NON-KEIRETSU		KEIRETSU		DIFFERENCE			
	Mean	Median	Mean	Median	Mean	t-test	Median	p-value
SIZE	11.38	10.5	8.03	7	3.35	3.17	3.5	0.00
ASSET(million dollar)	28.893	11.866	21.318	14.329	7.575	1.64	-2.462	0.40
SALES(million dollar)	18.743	10.300	29.183	13.800	-10.00	-2.11	-3.500	0.14
FATA	0.478	0.351	0.329	0.283	0.149	4.00	0.067	0.00
LTDRATIO	0.514	0.469	0.422	0.432	0.092	3.33	0.036	0.01
TOTAL DEBT	0.686	0.749	0.794	0.810	-0.107	-4.66	-0.060	0.00
DEBT EQUITY	3.493	3.011	5.748	4.925	-2.254	-4.28	-1.913	0.00
Z-SCORE	1.764	1.310	1.304	1.277	0.460	1.51	0.032	0.71
R&D	0.0027	0.0013	0.0030	0.0008	-0.0003	-0.32	0.0004	0.02
ROA	0.0154	0.0144	0.0002	0.0008	0.015	3.67	0.011	0.00
ROE	0.0474	0.0455	-0.0059	0.0165	0.053	3.16	0.029	0.00
MATURITY	51.882	12	27.881	12	24.00	3.04	0	0.03
FACSIZE(million dollar)	0.410	0.238	0.504	0.274	-0.0934	-0.85	-0.0359	0.56

ASSETS is the natural logarithm of the book value of borrower's assets. SALES is the natural logarithm of the borrower's annual sales. FATA is the borrower's fixed assets to its book value of assets. LTDRATIO is The ratio of the borrower's long-term debt to total debt. TOTALDEBT is the ratio of the borrower's total debt to total assets. DEBTEQUITY is the ratio of the borrower's total debt to total equity. ZSCORE is Altman's z-score. R&D is the ratio of the borrower's R&D expenditures to sales. ROA is the borrower's return on assets. ROE is the borrower's return on equity. MATURITY is the length of loan maturity in months. FACSIZE is the natural logarithm of the size of the loan facility.

Table 5 Estimation Results of Poisson Regressions for Syndicate Size: Full Sample of Japanese Borrowers

Equation	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent Variable	SIZE							
ASSETS	0.1257***	0.1384***	0.1244***	0.1419***				
	(2.60)	(2.78)	(2.58)	(2.85)				
SALES					0.1052***	0.1223***	0.0919***	0.1112***
					(2.82)	(3.15)	(2.50)	(2.88)
FATA	0.1676	0.0537	0.1246	0.0206	0.4079***	0.3347**	0.3322**	0.2780
	(1.08)	(0.34)	(0.81)	(0.13)	(2.36)	(1.96)	(1.95)	(1.64)
LTDRATIO	0.1988	0.1892	0.1837	0.1645	0.2400	0.2274	0.2359	0.2156
	(1.02)	(0.97)	(0.94)	(0.84)	(1.25)	(1.19)	(1.22)	(1.12)
TOTALDEBT	-0.6919**		-0.5852**		-0.5978**		-0.4652*	
	(-2..35)		(-1.99)		(-2.12)		(-1.65)	
DEBTEQUITY		-0.0314***		-0.0302***		-0.0303***		-0.0277**
		(-2.56)		-2.46		(-2.25)		(-2.32)
ZSCORE	0.0232	0.3462**	0.0134	0.0225	0.0554***	0.0690***	0.0414**	0.0525***
	(1.34)	(2.26)	(0.78)	(1.50)	(2.86)	(3.72)	(2.19)	(2.95)
R&D	-31.7208***	-31.5478***	-33.1035***	-33.6943***	-25.0106***	-24.5213***	-28.1017***	-28.5214***
	(-3.66)	(-3.69)	(-3.71)	(-3.81)	(-2.83)	(-2.80)	(-3.11)	(-3.19)
ROA	-5.5908***	-5.4495***			-6.1791***	-6.1803***		
	(-3.77)	(-3.71)			(-4.07)	(-4.10)		
ROE			-0.6979**	-0.7470**			-07723**	-0.8444***
			(-2.11)	(-2.24)			(-2.31)	(-2.49)
MATURITY	-0.00009	0.000007	-0.00007	-0.00003	-0.00019	-0.00009	-0.00013	-0.00003
	(-0.14)	(0.01)	(-0.11)	(0.05)	(-0.30)	(-0.15)	(-0.20)	(-0.05)
WORK	0.6566***	0.6305***	0.6592***	0.6362***	0.6903***	0.6729***	0.6901***	0.6566***
	(6.28)	(6.05)	(6.30)	(6.10)	(6.54)	(6.42)	(6.53)	(6.28)
REPAY	0.2479***	0.2318***	0.2246**	0.2121**	0.2316***	0.2134**	0.2084**	0.1934**
	(2.63)	(2.46)	(2.40)	(2.26)	(2.46)	(2.26)	(2.23)	(2.06)
KEIRETU	-0.3015***	-0.3162***	-0.2891***	-0.3009***	-0.3031***	-0.3135***	-0.2872***	-0.2937***
	(-4.13)	(-4.45)	(-3.94)	(-4.22)	(-4.14)	(-4.42)	(-3.92)	(-4.13)
FACSIZE	0.1140***	0.1055***	0.1230***	0.1152***	0.1154***	0.1066***	0.1305***	0.1240***
	(3.51)	(3.20)	(3.79)	(3.51)	(3.69)	(3.41)	(4.21)	(4.03)
Constant	-0.6757	-1.1322*	-0.8329	-1.3000**	-0.5754	-1.0565**	-0.6159	-1.0718**
	(-1.17)	(-1.82)	(-1.45)	(-2.08)	(-1.11)	(-1.91)	(-1.18)	(-1.92)
Year Dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	144	144	144	144	144	144	144	144
Pseudo-R^2	0.1732	0.1742	0.1640	0.1660	0.1743	0.1762	0.1637	0.1661

This table reports the effects of agency conflicts, financial distress, proprietary information, and proprietary information on the number of institutions participating in a syndicate. ASSETS is the natural logarithm of the book value of borrower's assets. SALES is the natural logarithm of the borrower's annual sales. FATA is the borrower's fixed assets to its book value of assets. LTDRATIO is The ratio of the borrower's long-term debt to total debt. TOTALDEBT is the ratio of the borrower's total debt to total assets. DEBTEQUITY is the ratio of the borrower's total debt to total equity. ZSCORE is Altman's z-score. R&D is the ratio of the borrower's R&D expenditures to sales. ROA is the borrower's return on assets. ROE is the borrower's return on equity. MATURITY is the length of loan maturity in months. WORK is a dummy variable equal to 1 if loan purpose is working capital and 0 otherwise. REPAY is a dummy variable equal to 1 if loan purpose is debt repayment and 0 otherwise. KEIRETSU is a dummy variable equal to 1 if the borrower belongs to *keiretsu* and 0 otherwise. FACSIZE is the natural logarithm of the size of the loan facility. Figures are Poisson regression coefficient estimates, and z-values are reported in parentheses. ***, **, and * respectively indicate significance levels at 1%, 5%, 10% levels.

Table 6 Estimation Results of Poisson Regressions for Syndicate Size: Keiretsu

Equation	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent Variable	SIZE							
ASSETS	0.0238	0.0765	0.0269	0.0832				
	(0.21)	(0.69)	(0.23)	(0.75)				
SALES					0.1376	0.1688*	0.1408	0.1738**
					(1.45)	(1.84)	(1.48)	(1.90)
FATA	1.9237***	1.7660***	1.9241***	1.7598***	1.7794***	1.6722***	1.7714***	1.6577***
	(4.41)	(4.27)	(4.35)	(4.20)	(4.06)	(4.03)	(3.97)	(3.93)
LTDRATIO	-0.9214**	-0.9564**	-0.9065**	-0.9480**	-0.8488**	-0.8508**	-0.8274**	-0.8301**
	(-2.04)	(-2.02)	(-2.00)	(-1.99)	(-2.03)	(-2.03)	(-1.98)	(-1.98)
TOTALDEBT	0.9463		0.9617		0.2408		0.2515	
	(1.03)		(1.04)		(0.28)		(0.29)	
DEBTEQUITY		0.0091		0.0084		-0.0048		-0.0052
		(0.42)		(0.39)		(-0.24)		(0.798)
ZSCORE	0.2455*	0.1853	0.2435*	0.1816	0.0810	0.0329	0.0740	0.0230
	(1.86)	(1.59)	(1.81)	(1.53)	(0.48)	(0.22)	(0.43)	(0.15)
R&D	-8.4482	-14.0583	-7.6884	-13.4812	-6.4736	-7.9402	-5.5942	-7.1269
	(-0.72)	(-1.35)	(-0.66)	(-1.30)	(-0.59)	(-0.75)	(-0.51)	(-0.68)
ROA	-2.2684	-2.4181			-1.9132	-1.8832		
	(-1.09)	(-1.16)			(-0.91)	(-0.90)		
ROE			-0.3863	-0.4193			-0.2990	-0.2924
			(-0.85)	(-0.93)			(-0.66)	(-0.64)
MATURITY	-0.0032*	-0.0030*	-0.0032*	-0.0030*	-0.0027	-0.0026	-0.0027	-0.00258
	(-1.84)	(-1.74)	(-1.84)	(-1.73)	(-1.56)	(-1.47)	(-1.56)	(-1.46)
WORK	0.2801*	0.2698*	0.2787*	0.2675*	0.2476	0.2352	0.2438	0.2305
	(1.74)	(1.67)	(1.72)	(1.64)	(1.53)	(1.44)	(1.50)	(1.41)
REPAY	0.6858***	0.6599***	0.6801***	0.6506***	0.6112***	0.5818***	0.6069***	0.5758***
	(4.32)	(4.00)	(4.25)	(3.91)	(3.85)	(3.54)	(3.81)	(3.50)
FACSIZE	0.0808*	0.0877*	0.0863*	0.0937**	0.0658	0.0672	0.0701	0.0714
	(1.72)	(1.87)	(1.84)	(2.00)	(1.40)	(1.43)	(1.48)	(1.51)
Constant	-0.4490	-0.5711	-0.5940	-0.7625	-1.4011	-1.6288	-1.5211	-1.7620
	(-0.34)	(-0.37)	(-0.45)	(-0.49)	(-1.28)	(-1.29)	(-1.39)	(-1.41)
Year Dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	76	76	76	76	76	76	76	76
Pseudo-R^2	0.1586	0.1570	0.1577	0.1560	0.1624	0.1624	0.1616	0.1616

This table reports the effects of agency conflicts, financial distress, proprietary information, and proprietary information on the number of institutions participating in a syndicate. ASSETS is the natural logarithm of the book value of borrower's assets. SALES is the natural logarithm of the borrower's annual sales. FATA is the borrower's fixed assets to its book value of assets. LTDRATIO is The ratio of the borrower's long-term debt to total debt. TOTALDEBT is the ratio of the borrower's total debt to total assets. DEBTEQUITY is the ratio of the borrower's total debt to total equity. ZSCORE is Altman's z-score. R&D is the ratio of the borrower's R&D expenditures to sales. ROA is the borrower's return on assets. ROE is the borrower's return on equity. MATURITY is the length of loan maturity in months. WORK is a dummy variable equal to 1 if loan purpose is working capital and 0 otherwise. REPAY is a dummy variable equal to 1 if loan purpose is debt repayment and 0 otherwise. FACSIZE is the natural logarithm of the size of the loan facility. Figures are Poisson regression coefficient estimates, and z-values are reported in parentheses. ***, **, and * respectively indicate significance levels at 1%, 5%, 10% levels.

Table 7 Estimation Results of Poisson Regressions for Syndicate Size: Non-Keiretsu

Equation	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent Variable	SIZE							
ASSETS	0.2479***	0.2597***	0.2598***	0.2724***				
	(3.89)	(4.05)	(4.09)	(4.26)				
SALES					0.1934***	0.2011***	0.1995***	0.2068***
					(3.53)	(3.65)	3.64	(3.76)
FATA	-0.0899	-0.1327	-0.1796	-0.2022	0.2631	0.2412	0.1837	0.1803
	(-0.41)	(-0.62)	(-0.83)	(-0.94)	(1.18)	(1.10)	(0.83)	(0.83)
LTDRATIO	0.5479**	0.6240***	0.4006*	0.4709**	0.5399**	0.6027**	0.3910	0.4452*
	(2.16)	(2.49)	(1.63)	(1.94)	(2.10)	(2.36)	(1.56)	(1.80)
TOTALDEBT	-1.0034***		-0.9308***		-0.8169**		-0.7274**	
	(-2.75)		(-2.56)		(-2..26)		(-2.02)	
DEBTEQUITY		-0.07325***		-0.0697***		-0.0609***		-0.0558***
		(-3.15)		(-2.98)		(-2.68)		(-2.43)
ZSCORE	0.0287	0.0438***	0.0106	0.0237	0.0863***	0.1004***	0.0696***	0.0815***
	(1.46)	(2.52)	(0.57)	(1.47)	(3.49)	(4.34)	(2.90)	(3.67)
R&D	-44.4522**	-37.0558**	-67.0565***	-61.8314***	-46.3238**	-41.1494**	-68.8419***	-65.6105***
	(-1.96)	(-1.71)	(-3.07)	(-2.95)	(-2.14)	(-1.97)	(-3.31)	(-3.27)
ROA	-8.2413	-9.1140***			-8.5081***	-9.2526***		
	(-3.44)	(-3.85)			(-3.57)	(-3.90)		
ROE			-1.2645*	-1.7214**			-1.2736*	-1.6434**
			(-1.80)	(-2.42)			(-1.82)	(-2.31)
MATURITY	-0.00101	-0.00042	-0.00114	-0.00067	-0.00107	-0.00057	-0.0012	-0.00081
	(-2.57)	(-0.51)	(-1.42)	(-0.80)	(-1.37)	(-0.69)	(-1.49)	(-0.96)
WORK	1.4799***	1.5065***	1.5023***	1.5389***	1.4737***	1.4978***	1.4977***	1.5298***
	(8.16)	(8.22)	(8.29)	(8.38)	(8.12)	(8.19)	(8.26)	(8.34)
REPAY	0.0034	0.0468	-0.0289	0.0179	-0.0389	-0.0042	-0.0768	-0.0398
	(0.02)	(0.31)	(-0.20)	(0.12)	(0.27)	(-0.03)	(-0.53)	(-0.27)
FACSIZE	0.0694	0.0360	0.0840	0.0564	0.1072**	0.0822*	0.1250***	0.1058**
	(1.33)	(0.68)	(1.62)	(1.08)	(2.26)	(1.73)	(2.65)	(2.26)
Constant	-1.8650**	-2.2177***	-2.1242***	-2.4997***	-1.7219**	-2.0060***	-1.9396**	-2.2225***
	(-2.30)	(-2.75)	(-2.62)	(-3.10)	(-2.09)	(-2.47)	(-2.35)	(-2.74)
Year Dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	68	68	68	68	68	68	68	68
Pseudo-R^2	0.3027	0.3074	0.2875	0.2920	0.2982	0.3022	0.2816	0.2851

This table reports the effects of agency conflicts, financial distress, proprietary information, and proprietary information on the number of institutions participating in a syndicate. ASSETS is the natural logarithm of the book value of borrower's assets. SALES is the natural logarithm of the borrower's annual sales. FATA is the borrower's fixed assets to its book value of assets. LTDRATIO is The ratio of the borrower's long-term debt to total debt. TOTALDEBT is the ratio of the borrower's total debt to total assets. DEBTEQUITY is the ratio of the borrower's total debt to total equity. ZSCORE is Altman's z-score. R&D is the ratio of the borrower's R&D expenditures to sales. ROA is the borrower's return on assets. ROE is the borrower's return on equity. MATURITY is the length of loan maturity in months. WORK is a dummy variable equal to 1 if loan purpose is working capital and 0 otherwise. REPAY is a dummy variable equal to 1 if loan purpose is debt repayment and 0 otherwise. FACSIZE is the natural logarithm of the size of the loan facility. Figures are Poisson regression coefficient estimates, and z-values are reported in parentheses. ***, **, and * respectively indicate significance levels at 1%, 5%, 10% levels.

Table 8 OLS Regression Results for Full Sample of Borrowers: Lead Agent Share

Equation	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent Variable	% Held by Lead Agent							
ASSETS	2.9596	2.4435	3.0513	2.5618				
	(0.76)	(0.61)	(0.79)	(0.64)				
SALES					-0.1722	-0.1774	0.14540	0.2851
					(-0.07)	(-0.07)	(0.06)	(0.10)
FATA	9.1691	6.0236	10.9650	7.6891	9.4283	7.2780	11.7399	9.5394
	(1.01)	(0.59)	(1.21)	(0.76)	(0.90)	(0.67)	(1.12)	(0.88)
LTDRATIO	-12.9870	-13.2189	-13.2075	-13.5597	-9.0634	-9.8924	-9.4408	-10.4656
	(-1.13)	(-1.14)	(-1.13)	(-1.15)	(-0.87)	(-0.94)	(-0.89)	(-0.98)
TOTALDEBT	-37.8524*		-40.0527*		-29.8693		-32.3586	
	(-1.82)		(1.88		(-1.52)		(-1.63)	
DEBTEQUITY		-1.0061		-1.1105		-.7124		-0.8536
		(-1.20)		(1.33)		(-0.87)		(-1.06)
ZSCORE	-1.2928	-.4317	-1.1799	-0.2360	-1.0974	-.3899	-0.9220	-0.1039
	(-1.51)	(-0.78)	(-1.45)	(-0.48)	(-1.11)	(-0.46)	(-0.97)	(-0.12)
R&D	390.0735	504.7533	342.2169	457.308	423.2596	526.8324	395.1659	505.3652
	(0.80)	(1.03)	(0.70)	(0.93)	(0.88)	(1.10)	(0.83)	(1.06)
ROA	9.0913	22.1437			9.1126	21.3030		
	(0.14)	(0.33)			(0.15)	(0.34)		
ROE			-16.4259	-15.8597			-16.0079	-15.4957
			(-0.89)	(-0.86)			(-0.87)	(-0.83)
MATURITY	0.0312	0.0281	0.0276	0.0243	0.037	0.0324	0.0335	0.0278
	(0.64)	(0.56)	(0.56)	(0.48)	(0.76)	(0.64)	(0.67)	(0.55)
WORK	1.1910	0.3157	1.3613	0.4139	1.2904	0.6143	1.5282	0.7870
	(0.20)	(0.05)	(0.23)	(0.07)	(0.21)	(0.10)	(0.25)	(0.13)
REPAY	-13.5122***	-13.9809***	-13.0288**	-13.4618**	-13.3891**	-13.7168**	-12.9979**	-13.3545**
	(-2.48)	(-2.42)	(-2.27)	(-2.20)	(-2.40)	(-2.34)	(-2.23)	(-2.17)
KEIRETSU	4.7792	3.0115	4.4487	2.5322	5.0100	3.3736	4.6906	2.9232
	(1.04)	(0.64)	(0.95)	(0.52)	(1.09)	(0.72)	(1.00)	(0.60)
FACSIZE	0.6342	0.2628	0.7335	0.3175	1.6681	1.1561	1.6654	1.0698
	(0.24)	(0.10)	(0.29)	(0.13)	(0.64)	(0.47)	(0.67)	(0.45)
Constant	9.8151	-0.1520	8.5526	-2.3694	40.8428	28.9469	37.0619	22.6009
	(0.24)	(-0.00)	(0.21)	(-0.05)	(1.30)	(0.79)	(1.17)	(0.61)
Year Dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	139	139	139	139	139	139	139	139
R^2	0.1501	0.1361	0.1555	0.1406	0.1443	0.1324	0.1494	0.1367

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Table 9 OLS Regression Results for Sub-sample of *Keiretsu* Borrowers: Lead Agent Share

Equation	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent Variable	% Held by Lead Agent							
ASSETS	-4.8746	-7.3063	-4.2551	-6.6720				
	(-0.78)	(-1.21)	(-0.70)	(-1.15)				
SALES					-6.3089	-7.9938*	-6.4338	-8.0791*
					(-1.37)	(-1.76)	(-1.41)	(-1.82)
FATA	-37.7356	-29.9995	-33.3515	-25.7502	-37.1647	-30.3560	-31.5047	-24.8155
	(-1.50)	(-1.27)	(-1.32)	(-1.10)	(-1.50)	(-1.28)	(-1.27)	(-1.06)
LTDRATIO	5.7217	6.8830	4.3102	5.1938	-0.9108	-2.8080	-1.3418	-3.1769
	(0.22)	(0.26)	(0.17)	(0.20)	(-0.04)	(-0.12)	(-0.05)	(-0.13)
TOTALDEBT	-35.4050		-38.8970		-26.0754		-25.2791	
	(-0.77)		(-0.84)		(-0.62)		(-0.60)	
DEBTEQUITY		-0.1715		-0.2611		-.0230		-.0180
		(-0.16)		(-0.25)		(-0.02)		(-0.02)
ZSCORE	-8.5755	-6.2436	-7.3383	-4.9436	-3.8490	-1.019	-1.9943	.7753
	(-1.22)	(-1.04)	(-1.03)	(-0.82)	(-0.48)	(-0.14)	(-0.24)	(0.11)
R&D	-575.572	-357.6789	-549.8812	-325.8481	-894.4529	-819.2869	-836.9613	-763.3528
	(-0.82)	(-0.58)	(-0.78)	(-0.53)	(-1.47)	(-1.48)	(-1.40)	(-1.40)
ROA	-109.8554*	-104.986			-131.7755*	-133.5364*		
	(-1.69)	(-1.60)			(-1.83)	(-1.84)		
ROE			-33.5804*	-32.0774*			-39.1134**	-39.5573**
			(-1.86)	(-1.75)			(-2.01)	(-2.04)
MATURITY	-0.2315**	-0.2404**	-0.2299**	-0.2388**	-0.2392**	-.2475**	-0.2396**	-.24770***
	(-2.28)	(-2.36)	(-2.29)	(-2.37)	(-2.33)	(-2.39)	(-2.37)	(-2.43)
WORK	0.1345	0.7596	0.5868	1.1547	0.6910	1.3257	1.3266	1.9519
	(0.02)	(0.10)	(0.09)	(0.16)	(0.10)	(0.18)	(0.19)	(0.27)
REPAY	-9.7094	-7.961	-10.7694	-9.0784	-8.3502	-6.6890	-9.1003	-7.4826
	(-1.33)	(-0.99)	(-1.48)	(-1.13)	(-1.20)	(-0.89)	(-1.31)	(-1.00)
FACSIZE	-3.3218	-3.5567	-3.0210	-3.3131	-3.0000	-3.1901	-2.5654	-2.7435
	(-1.14)	(-1.26)	(-1.10)	(-1.23)	(-1.02)	(-1.13)	(-0.93)	(-1.02)
Constant	215.0213***	225.7252***	199.8202***	208.8591***	225.0933***	230.4504***	215.5134***	220.7251***
	(2.90)	(2.69)	(2.88)	(2.68)	(3.91)	(3.67)	(3.98)	(3.75)
Year Dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	72	72	72	72	72	72	72	72
R^2	0.3529	0.3466	0.3644	0.3572	0.3659	0.3618	0.3803	0.3764

This table reports the effects of agency conflicts, financial distress, proprietary information, and proprietary information on the holding share of agent banks. ASSETS is the natural logarithm of the book value of borrower's assets. SALES is the natural logarithm of the borrower's annual sales. FATA is the borrower's fixed assets to its book value of assets. LTDRATIO is The ratio of the borrower's long-term debt to total debt. TOTALDEBT is the ratio of the borrower's total debt to total assets. DEBTEQUITY is the ratio of the borrower's total debt to total equity. ZSCORE is Altman's z-score. R&D is the ratio of the borrower's R&D expenditures to sales. ROA is the borrower's return on assets. ROE is the borrower's return on equity. MATURITY is the length of loan maturity in months. WORK is a dummy variable equal to 1 if loan purpose is working capital and 0 otherwise. REPAY is a dummy variable equal to 1 if loan purpose is debt repayment and 0 otherwise. FACSIZE is the natural logarithm of the size of the loan facility. Figures are OLS regression coefficient estimates, and t-values are reported in parentheses. ***, **, and * respectively indicate significance levels at 1%, 5%, 10% levels.

Table 10 OLS Regression Results for Sub-sample of *Non-Keiretsu* Borrowers: Lead Agent Share

Equation	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent Variable	% Held by Lead Agent							
ASSETS	4.2237	4.7875	3.8779	4.2606				
	(1.00)	(1.13)	(0.94)	(1.02)				
SALES					1.4983	1.5625	1.2253	1.2090
					(0.41)	(0.44)	(0.35)	(0.35)
FATA	8.0795	4.2131	5.7123	2.4195	11.5047	8.2137	8.6260	5.6574
	(0.65)	(0.31)	(0.47)	(0.18)	(0.95)	(0.64)	(0.75)	(0.45)
LTDRATIO	-15.6684	-10.8396	-12.659	-8.6191	-14.4126	-9.7294	-11.4663	-7.5524
	(-1.03)	(-0.72)	(-0.89)	(-0.60)	(-0.98)	(-0.68)	(-0.83)	(-0.55)
TOTALDEBT	-53.3176***		-57.7112***		-49.9484***		-54.3901***	
	(-2.90)		(-3.21)		(-2.69)		(-3.00)	
DEBTEQUITY		-3.7685***		-3.6296***		-3.4643***		-3.3324***
		(-2.84)		(-2.72)		(-2.56)		(-2.47)
ZSCORE	-1.754927**	-0.9213	-1.4916**	-0.5987	-1.2955	-0.4918	-1.1206	-0.2708
	(-2.30)	(-1.47)	(-2.37)	(-1.15)	(-1.12)	(-0.45)	(-1.05)	(-0.26)
R&D	607.5347	1024.719*	1091.396***	1438.958***	531.5685	914.3736	1011.904**	1340.686***
	(1.11)	(1.90)	(2.70)	(3.10)	(0.91)	(1.60)	(2.33)	(2.75)
ROA	285.8311**	211.1936*			279.3716**	210.0992*		
	(2.23)	(1.81)			(2.11)	(1.72)		
ROE			103.5812***	75.6701**			103.0899***	77.40174***
			(3.71)	(2.47)			(3.62)	(2.50)
MATURITY	0.1210***	0.1541***	0.14697***	0.1693***	0.1282***	0.1598***	0.1542***	0.1752***
	(2.79)	(3.23)	(3.40)	(3.50)	(2.97)	(3.32)	(3.57)	(3.60)
WORK	-12.2433**	-11.1911*	-13.5789***	-12.908**	-13.0592**	-12.2946*	-14.3717***	-14.003**
	(-2.00)	(-1.69)	(-2.47)	(-2.05)	(-2.09)	(-1.81)	(-2.59)	(-2.19)
REPAY	-9.9073	-7.2065	-10.579	-7.9854	-10.4051	-7.9954	-11.0752*	-8.7739
	(-1.42)	(-0.97)	(-1.60)	(-1.10)	(-1.47)	(-1.06)	(-1.65)	(-1.19)
FACSIZE	3.3939	1.7123	2.5178	1.1241	4.9811*	3.670746	4.0569	2.9454
	(0.96)	(0.47)	(0.75)	(0.32)	(1.63)	(1.19)	(1.43)	(1.00)
Constant	-39.4548	-58.2078	-24.9749	-46.4807	-18.6376	-32.2199	-4.4804	-21.4012
	(-0.73)	(-1.04)	(-0.48)	(-0.86)	(-0.33)	(-0.56)	(-0.08)	(-0.38)
Year Dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	67	67	67	67	67	67	67	67
R^2	0.5136	0.5248	0.5477	0.5414	0.5050	0.5136	0.5401	0.5322

This table reports the effects of agency conflicts, financial distress, proprietary information, and proprietary information on the holding share of agent banks. ASSETS is the natural logarithm of the book value of borrower's assets. SALES is the natural logarithm of the borrower's annual sales. FATA is the borrower's fixed assets to its book value of assets. LTDRATIO is The ratio of the borrower's long-term debt to total debt. TOTALDEBT is the ratio of the borrower's total debt to total assets. DEBTEQUITY is the ratio of the borrower's total debt to total equity. ZSCORE is Altman's z-score. R&D is the ratio of the borrower's R&D expenditures to sales. ROA is the borrower's return on assets. ROE is the borrower's return on equity. MATURITY is the length of loan maturity in months. WORK is a dummy variable equal to 1 if loan purpose is working capital and 0 otherwise. REPAY is a dummy variable equal to 1 if loan purpose is debt repayment and 0 otherwise. FACSIZE is the natural logarithm of the size of the loan facility. Figures are OLS regression coefficient estimates, and t-values are reported in parentheses. ***, **, and * respectively indicate significance levels at 1%, 5%, 10% levels.

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Footnotes

[1] Wall Street Journal (Eastern Edition), July 14, 2004

[2] Barzel, Habib and Johnsen (2000) describe a syndicate as an "ad hoc firm."

[3] One key reason it took several years to restructure many large international loans during the 1980s was the large number of banks in these syndicates.

[4] The arranger typically acts as "book runner" for the deal. This role involves decisions on the number and identity of the institutions that will be invited to participate and the various "bracket amounts" that will be offered. Participants that commit to larger amounts normally receive higher fees and more prestigious titles. The title "Manager" might be associated with a $20 million allocation, for example, and "Co-manager" with a $10 million piece of the loan. Institutions taking the smallest pieces are called "participants." When relatively large bracket amounts are offered by the book-runner, the syndicate becomes more concentrated if multiple participants seek the largest pieces of the loan. Once the designated offer period closes, the loan will be either over-or undersubscribed.[4] In the case of an oversubscribed loan, the borrower typically is given an option to increase the size of the facility. If the borrower chooses not to exercise this option, the arranging institution will allocate smaller commitments to participants than those initially sought, typically with an effort to make equal allocations within each bracket. The final allocations are strictly at the discretion of the arranger, however.[4] The degree of concentration in the final allocations depends not only on how the arranger sets the bracket amounts, but also on excess demand for pieces of the loan within each bracket. In the case of an undersubscribed loan, the arranger will take the residual amount, unless the original deal involved a "best efforts" arrangement. Alternatively, the borrower could agree to adjust the terms of the deal to make it more attractive to participants.

[5] The research by Dennis and Mullineaux (2000) and Jones, Lang, and Nigro (2001) implicitly treats the arranger's decision about the proportion of the loan it holds in its own portfolio as independent of the purchase decisions by participants. The lead bank does not firmly decide and announce its own position

prior to syndication, however. Consequently, it is more realistic to view the arranger's portion of the loan as dependent on the decisions of the other group members, although somewhat controllable since the arranger can close the syndication at its discretion. An implication is that it is not appropriate to include the lead bank's share in either the syndicate size or composition models since it is not an exogenous variable.

[6] Unfortunately, we cannot observe whether a loan is over- or undersubscribed in our data or the number of institutions invited to participate.

[7] Lee and Mullinaux (2004) used market to book ratio as a proxy for growth options, but we use FATA due to market data unavailability. Lee and Mullinaux (2004) showed mixed results on the market to book variable.

[8] The moral hazard problems between the borrower and lenders may be less severe in a syndicated loan setting compared to a loan participation. In a participation the loan buyer has no directly- enforceable rights against the borrower. If the borrower defaults on loan payments, it is the loan seller that exercises control against the borrower, not the loan buyer. Unless the loan seller actively takes actions to recover the loss, the buyer has to bear full risk of loss. The buyer may have ability to re-sell the defaulted loan to the seller, which is called "recourse". Most loans are sold without recourse, since loan selling banks are required to reserve capital against loans sold with recourse. By selling a loan without recourse, the seller can remove the loan from its balance sheet and thus has less incentive to monitor the borrower.

In a syndicated loan, each lender has its own loan agreement with the borrower and thus has directly enforceable rights against the borrower. In addition, the syndicate lenders have the right of setoff against the borrower's deposits, which allows each syndicate member to withdraw the borrower's deposits to pay for its unpaid interest and/or principal. However, the borrower's incentive to exploit lenders is not likely to be eliminated by the lender's right of setoff and thus agency problems between the borrower and lenders should be a potentially relevant factor affecting the syndicate size.

[9] One key reason it took several years to restructure many large international loans during the 1980s was the large number of banks in these syndicates.

[10] Denis (1990) investigates the use of a target firm's defensive payout policy to maintain its independence in response to hostile corporate control activity. Angbazo, Mei, and Saunders (1998) note that debt repayment and/or recapitalization typically are utilized for defensive purposes in corporate contests.

[13] Poisson regression assumes the data follow a Poisson distribution. The primary characteristics of this distribution are skewness, non-negative values, and variance that increases with the mean. Poisson regression is a special case of the Generalized Linear Model.