

## The Maturity of Syndicated Loans Originated in Japan\*

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### Abstract

*I estimated a model that addresses the maturity of syndicated loans originated in Japan, employing a sample of 126 facilities. I found a negative relationship between maturity and the existence of credit rating and loan size, consistent with the Diamond's (1991b) liquidity risk hypothesis that firms that face potential inefficient liquidation lengthen the maturity of their debt. I also found evidence that the national identity of the arranging bank influences the maturity of syndicated loans. As the arranging bank is a local (i.e. Japanese) bank, its maturity is lengthened. I also found that loan maturity increases with the number of lenders within a syndicate, implying that Japanese borrowers prefer to have longer-term loans when the prospect for loan re-negotiability is reduced. Finally, I found that loan type and loan purpose influence the loan maturity.*

**Key Words:** *Syndicated Loans, Maturity Structure, Liquidity Risk, Japan*

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## I. Introduction

While extensive theoretical literature has examined the financing choice between debt and equity, there has been little research that focuses on the overall structure of firm debt, including the determinants of optimal debt maturity. Studies address issues such as the links among maturity and a number of factors including asymmetric information, agency costs, and credit quality and reputation.

The determinants of debt structure have also been examined empirically. Flannery (1986) finds that high quality firms do not rely on short-term debt more than lower quality firms do. Barclay and Smith (1995) and Guedes and Opler (1996) find that the ratio of the market value of a firm's assets to its book value is a significant determinant of debt maturity. Stohs and Mauer (1996) studied the determinants of debt maturity, as measured by the weighted average maturity of its entire liability structure, and found that leverage is positively related to debt maturity. Guedes and Opler (1996) find that firms with high bond ratings issue shorter-term debt than firms with junk bond ratings. Guedes and Opler (1996) also examine the role of taxes on debt maturity and find that taxes do not seem to influence debt maturity. Dennis, Nandy, and Sharpe (2000) studied the determinants of revolver contract terms (i.e. maturity, secured status, and pricing status) within a simultaneous decision framework and found that the simultaneous treatment of contract terms and leverage is critical in testing contracting hypotheses of the choice of debt terms. Scherr and Hulburt (2001) investigate the determinants of small firms' choices of debt maturity structures and find that maturity of assets, capital structure, and default likelihood affect the choice of debt maturity. Datta, Iskandar-Datta, and Raman (2005) document a significant and robust negative relation between managerial ownership and corporate debt maturity.

In studies of syndicated loans, Dennis and Mullineaux (2000) find that the probability of syndication increases with loan maturity. Lee (2004), controlling for the simultaneous relationship between maturity and leverage, finds evidence that the maturity of Korean syndicated loans is far from a random outcome. Using a sample of 64 Korean borrowers, Lee (2004) observes a somewhat negative relationship between maturity and a firm's growth options and finds that maturity is inversely related to the firm's marginal effective tax rate and to the volatility of its earnings. Lee (2004) also finds that as the

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size of Korean firms and/or loans increase, loan maturity also increases.

Bank loans are unique in that they are the preferred choice of finance for firms with significant information asymmetry and agency problems. Banks take advantage of "inside-like" information and write their debt contracts in ways that attenuate these problems. More interestingly, 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.<sup>1)</sup> Since bonds and loans have different maturity structures, on average, my study extends previous studies in that it fills a gap in the literature with respect to how maturity is determined on syndicated loans.<sup>2)</sup>

Besides that, my study specifically focuses on the maturity of syndicated loans using the lengths of individual loans, while previous studies employed the maturity of corporate bond or the ratio of debt structure (e.g. long-term debt ratio) and examined the U. S. debt market. Guedes and Opler (1996) note that the incremental approach is well-suited to test theories that rely on state variables fluctuating substantially over time. Also, the incremental approach is able to identify the determinants of financing choices at all points of the maturity spectrum.

Although there is extensive literature concerning Japanese banks and their borrowers, little research has been done on loan syndication originated in one of the most important debt markets, Japan.<sup>3)</sup> According to 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. However, the value of syndicated loans in Japan increased 58% in the two years ending 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

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1) Syndication involves elements of commercial and investment banking, since syndicated loans are brought to market in an underwriting process similar to that for bonds.

2) As Carey, Prowse, Rea, and Udell (1993) emphasize, syndicated loans can be considered a component of a continuum of debt contracts with characteristics (such as maturity, collateral, and covenants) that differ in ways that can be correlated systematically with the nature and quality of information concerning the borrowing firm. Like bonds, syndicated loans tend to have longer maturities and to involve fixed rates of interest. Like bank loans, syndicated loans involve relatively restrictive covenants and are renegotiated relatively frequently.

3) For example, Weinstein and Yafeh (1998) investigate the costs and benefits of relationship banking within the Japanese banking system. Kang and Shivdasani (1995, 1997) study the role of Japanese banks in corporate governance.

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.

Since existing studies on corporate debt maturity reflect the corporate environment in the U. S., a noteworthy contribution of this paper is that this paper is the in-depth analysis of the study of the maturity of syndicated loans originated in Japan after the Financial Reconstruction Law (FRL) of 1998.<sup>4)</sup> In addition, this paper involves new individual and incremental loan transactions, which focus on marginal decisions with a limited set of debt choice, resulting in less potential for measurement error.

The remainder of the paper is organized as follows. In Section II, I discuss the factors that influence the maturity of syndicated loans. Section III presents the empirical results and Section IV concludes.

## II. Model Specification

I specified and estimated models that relate the maturity of syndicated loans to various firm-specific characteristics and loan-specific characteristics. The model I estimated takes the following general form:

Maturity = f(Information Problem/Liquidity Risk, Relationship Strength, Loan Renegotiability, Control Variables)

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

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4) Under the Financial Reconstruction Law of 1998, banks are required to classify loans according to asset quality and save loan loss reserves against non-performing assets. Banks, therefore, tend to offer loans with one year maturity to keep them performing loans and thereby reduce the costs associated with loan loss reserves. Therefore, if I find some significant determinants of loan maturity using samples after the FRL period, it could be another contribution of this paper. For more information the FRL, refer to the web site of Financial Services Agency ([www.fsa.go.jp](http://www.fsa.go.jp)).

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[Table 1] Description of the Variables

Dependent Variable	
MATURITY	The length of loan contract in months.
Independent Variables	
Information Problem/Liquidity Risk	
CP	Dummy equal to one if the borrower has an investment grade (BBB and above) of commercial paper.
SENIOR	Dummy equal to one if the borrower has an investment grade (BBB and above) of senior debt.
LOANSIZE	The natural logarithm of the amount of the loan facility.
Relationship Strength	
JPNLENDER	Dummy equal to one if the loan is originated by the domestic (i.e. Japanese) agent bank and zero otherwise.
Loan Re-negotiability	
N U M B E R	The number of total lenders within a syndicate.
Control Variables	
TERM	Dummy equal to one if the loan is a term loan.
REVOLVER	Dummy equal to one if the loan is a revolving facility.
TAKEOVER	Dummy equal to one if loan purpose is for takeover.
REPAY	Dummy equal to one if loan purpose is to repay existing debt.
FEES	Sum of upfront, annual and commitment fees.

### 1. Information Problem/Liquidity Risk

A significant body of finance theory suggests that a primary influence on the nature of the debt issued by firms is the amount and quality of information available about the borrower. Diamond (1991a) develops a formal model which involves borrowers shifting from private debt to public debt as the quality of the information about the firm improves. Given that public debt typically involves longer term maturity relative to private debt, the existence of the information problem should affect the loan maturity.

Previous research documented that rated or larger firms tend to have relatively lower information problems (i.e. more transparent and less opaque) than non-rated or smaller firms, because smaller or unrated firms, due to economies of scale in information production and distribution, are likely to produce less information about themselves. [Pettit and Singer (1985), Dennis and Mullineaux (2000), Scherr and Hulburt (2001), and Lee and Mullineaux (2004)]. On the other hand, as noted by Myers (1977), lenders may control the risk of lending to information problematic firms by limiting the length of debt

maturity. Thus, firms providing opaque information do not have access to long term debt markets.

I used the existence of investment grade as a proxy for the level of information problems of firms, since the market typically possesses more information about rated and/or investment grade firms (Dennis and Mullineaux (2000), Lee and Mullineaux (2004)). As proxy variables for information problems, I employed a dummy variable (CP) equal to one if the borrower has an investment grade of commercial paper and another dummy (SENIOR) equal to one if the borrower has an investment grade of senior debt as of loan syndication.

Stohs and Mauer (1996) and Scherr and Hulburt (2001) also argue that smaller firms are more likely to present severe agency conflicts and may use shorter-term debt to reduce these agency costs and they find support for this hypothesis. Dennis, Nandy, and Sharpe (2000) also use firm size as a control variable, since firm size possibly affects the loan duration through risk diversification and reputation effects. Angbazo, Mei, and Saunders (1998) argue that larger loans tend to be associated with large public borrowers and there is more public information available on such borrowers. I used the log of facility size (LNLOANSIZE) as an additional proxy for the relevance of information problems and the expected sign of LNLOANSIZE is positive.<sup>5)</sup>

On the other hand, Guedes and Opler (1996) examine the liquidity risk hypothesis and their work suggests that firms with a higher probability of default issue longer term debt. According to Diamond (1991), liquidity risk is referred to as the risk of a borrower being forced into inefficient liquidation due to unavailable refinancing. In Diamond's (1991b) model, highly-rated firms issue short-term debt because when the debt matures, highly-rated firms' exposure to the risk of not being able to obtain refinancing is relatively low. Lower-rated firms tend to issue long-term debt to avoid the liquidity risk. Guedes and Opler (1996) note that the risk of not being able to refund debt because of deterioration in financial or economic conditions can motivate firms to increase the debt maturity. Guedes and Opler (1996) argue that firms with high credit quality (e.g. large

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5) Firm size, such as sales amount, can be used as a proxy for the relevance of information problems. Out of 137 total sample, I could find only 54 observations that have sales amount. Due to the many missing observations of sales, the amount of borrower's sales is not used in this study. Using 54 observations, I find that loan size and sales are highly correlated (correlation coefficient = 0.72).

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firms, firms with investment grade rating) are less likely to default and find that smaller and riskier firms rarely issue short-term debt, consistent with the liquidity risk hypothesis.<sup>6)</sup> Such a finding would suggest a negative coefficient on CP, SENIOR, and LOANSIZE.

### 2. Relationship Strength

Diamond (1991b) presents a theoretical model that firms that continuously and successfully pay back their debt will eventually gain access to the public market, which is a longer-term debt market, relative to the private market. As relationships between the borrower and lender develop, borrowers may gain a reputation for not defaulting, thereby increasing the prospect that they can borrow for a longer term period.

Since the agent bank plays a key role and assumes crucial responsibilities in the loan syndication, the borrower should choose an agent bank with care. The borrower may seek bids from several potential agent banks based on pre-existing relationships and a successful track record in the syndicated market.

As a proxy for the relationship strength between the borrower and lender, I used the national identity of the agent bank. I argue that a borrower that is arranged by the domestic (i.e. Japanese) agent bank has a closer borrower-lender relationship relative to the one with foreign agent bank. JPNLENDER is equal to one if the loan is originated from a Japanese lender.<sup>7)</sup> The expected sign of JPNLENDER is positive.

### 3. Loan Renegotiability

Gilson, John, and Lang (1990) examine the incentives of financially-distressed firms to choose between private renegotiation and formal bankruptcy. They hypothesize that the holdout problem becomes more severe when there are relatively more lenders

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6) Hypotheses regarding liquidity risk vs. asymmetric information in corporate debt maturity are well outlined in Guedes and Opler (1996). They find empirical results supporting for the liquidity risk hypothesis and find no significant results for the asymmetric information hypothesis.

7) Although Dealscan identifies the nationality of the arranging bank, it does not provide the identity of the main bank of the borrower.

participating in the restructuring plan. The underlying logic associated with the holdout problem 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) find that, for a sample of 169 distressed firms, about half of them successfully restructured their debt through private re-negotiation. They present evidence that firms are more likely to restructure debt privately 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.

A syndicated loan becomes increasingly similar to public debt as the number of participants increases, because the borrower needs to deal with larger numbers of lenders. In addition, all participants in a syndicate typically must agree to allow temporary violations of covenants and all have to approve any significant restructuring of the terms of the loan agreement. Consequently, a borrower with many lenders has a harder time renegotiating loan contracts in the event of default or violations of loan covenants. Therefore, the borrower is likely to increase loan maturity as more lenders participate in a syndicate. I employed the number of total lenders in a syndicate (NUMBER) and expect a positive coefficient on NUMBER.

#### 4. Control Variables

##### 1) Loan Types

To control the effects of the types of loans on the maturity, I use a dummy variable as a revolver (revolving lines of credit over 1 year) and term loan, respectively. For estimation purposes, I omit bridge loans and 364-day facilities. A revolver provides an on-going line of credit that may be drawn down, repaid and re-borrowed many times over the life of the line. Since revolvers contain options to draw at the borrower's



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discretion, they differ from loans, which are spot loans. A bridge loan is a type of short-term loan in the financial industry. Bridge loans are typically taken out for a period of 2 weeks to 3 years in order to finance other projects. Uses for bridge loans include real estate purchases, retrieving real estate from foreclosure and business loans for operating capital. A 364-day facility is a line of credit structured for 364 days to avoid the capital allocation banks are required to make on unfunded commitments of a year or more.

I expect that banks differentiate revolvers and term loans from other types of very short loans when evaluating maturity, and both revolvers and term loans are expected to have positive signs on their coefficients, since they structurally involve long-term characteristics relative to a bridge or 364-day facility.

### 2) Loan Purpose

I also identified four categories of loan purposes that serve as control variables in the model. "Takeover Acquisition" (TAKEOVER) includes general or specific acquisition program and leveraged-buyout loans. "Debt Repayment" (REPAY) includes a loan to refinance or consolidate existing debt prior to maturity.<sup>8)</sup> I used two dummy variables to reflect the two designated different purpose loans.

Acquisition-related finance, such as TAKEOVER, requires confidentiality and rapidity. Megginson, Poulsen, and Sinkey (1995) argue that banks are able to charge higher rates for financing transactions (such as takeover and LBO) where the borrowing firms need rapid financing, implying a negative sign on TAKEOVER.

Angbazo, Mei, and Saunders (1998) argue that debt refinancing loans (REPAY) can be considered as renewals which provide positive signals about the borrower's prospects. Also, Rajan (1992) has emphasized that short-maturity loans create an opportunity for the originating bank to extract rents from borrowers on the renewal date whenever ex-post information reveals a "good" state. Combining Angbazo et. al. (1998) and Rajan (1992), managing agents would prefer to reduce loan maturity to extract potential rents from the borrower with good prospects, implying a negative relationship between the

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8) The LPC database has more categories for miscellaneous loan purposes including general corporate purpose, working capital, securities purchases, stock buybacks, employee stock option program loans, trade finance, project finance, real estate loans, credit enhancements, and commercial-paper backups.

loan's maturity and debt repayment purpose.

### 3) Fees

Each lender in a syndicate collects fees for its services. Fees in our study combine upfront fees, annual fees, and commitment fees. Upfront fees are one-time fees and compensate the lead bank for providing immediacy and for the risk of not being able to sell participation in the loans. Upfront fees are typically collected at the close of the deal. Annual fees are annual charges against the commitment amount for the loan administration costs. Commitment fees are charged on the undrawn portion of a loan and compensate the participating banks for keeping the loan available while the loan is not drawn. Given the fixed cost component in fee costs, it is likely that there are economies of scale in long-term loan maturity. Hence, borrowers that pay higher fees are likely to increase the length of maturity to achieve potential economies of scale effects. The expectation is that fee size is positively related to loan maturity.

## III. Estimates of the Model

### 1. Sample Selection and Description

I extracted loan deals initiated between 1999 and 2000 in Japan from the Dealscan database maintained by Loan Pricing Corporation.<sup>9)</sup> 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 the Dealscan database, I could initially extract 137 syndicated loans. Out of 137 loans, I removed 11 loans with no data on maturity and obtained 126 syndicated loan facilities that include complete information for this study. Typically, a loan deal consists of a number of dissimilarly designed loans with a common agent and participant banks, designated "facilities," made to the same borrower on a given date.

Table 2 contains summary statistics for the sample.<sup>10)</sup> In this table, LOANSIZE does

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9) I focused on 1999 and 2000, since the Japanese syndicated loan market has rapidly grown since 1999.

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not take a log function due to descriptive purpose. The average loan maturity is about 2.38 years and the median is 1 year, with the longest of 15 years and shortest of 6 months. Dennis and Mullineaux (2000) report a much higher average of 3.94 years for the period 1987-95 in the U. S. syndicate market and also report a higher median of 3.33 years. Using Korean borrowers, Lee (2004) reports 5.1 years on average and 5 years on median. A possible explanation for the low median of my sample is associated with the large compositions of the 364-facility loans and bridge loans relative to the U. S. market. Japanese banks that have experienced a deeper recession compared to the U. S., presumably have a strong incentive, on average, to provide short-term loans to troubled borrowers.

Syndicated loans are flexible, offering a wide range of loan sizes, varying from \$6 million to \$6.395 billion. The average loan facility size is \$509 million, more than twice that of the one observed by Lee and Mullineaux (2004) and Jones, Lang and Nigro (2000), which fall in the \$150-\$220 million range. The mean loan facility size in Lee's(2004) sample is \$100 million. The purpose of the loans in this sample is designated mainly as being for debt repayment in 15% of the loans and takeover in 4.7%. About 26.7% of our sample is allocated to term loans (18%) and revolving facilities (8.7%).

A correlation matrix of all variables is presented in Table 3. I observed that the signs of the correlations between MATURITY and the various independent variables are generally consistent with my predictions. The negative correlations between maturity and the borrower's information asymmetric variables support for Diamond's(1991) liquidity risk hypothesis that firms with high credibility will use short-term borrowing. MATURITY is positively correlated with the proxy for relationship strength (JPNLENDER) and loan type variables (TERM, REVOLVER). On the other hand, MATURITY is negatively correlated with a loan renegotiability proxy (NUMBER) and loan purpose variables (TAKEOVER and REPAY).

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10) Although not used for regression due to the insufficient sales data, the mean sales size of the borrower is large and somewhat skewed with a mean of \$18.9 billion and median of \$8.405 billion. The average sales size in this sample is about more than 9 times that of the U. S. firms in Lee and Mullineaux's (2004) sample. The average size of Korean borrowers reported in Lee (2004) is smaller than Japanese borrowers with sales of \$4.8 billion.

[Table 2] Descriptive Statistics for the Model Variables

Variable	MEAN	MEDIAN	Standard Deviation	MAX	MIN
MATURITY (months)	28.62	12	34.31	180	6
CP	0.15	0	0.36	1	0
SENIOR	0.17	0	0.38	1	0
LOANSIZE(\$, millions)	509	164	1015	6395	6
JPNLENDER NUMBER	0.65	1	0.48	1	0
NUMBER	9.5	8	84	26	2
TERM	0.18	0	0.39	1	0
REVOLVER	0.087	0	0.28	1	0
TAKEOVER	0.047	0	0.21	1	0
REPAY	0.15	0	0.36	1	0
FEES	13.96	10	21.17	132.575	0

[Table 3] Correlation Matrix (N=126)

	MATURITY	CP	SENIOR	LOAN SIZE	JPNLENDER	NUMBER	TERM	REVOLVER	TAKEOVER	REPAY	FEES
MATURITY	1.00										
CP	-0.16	1.00									
SENIOR	-0.18	0.56	1.00								
LOANSIZE	-0.34	0.26	0.26	1.00							
JPNLENDER	0.12	-0.20	-0.36	-0.10	1.00						
NUMBER	-0.07	0.08	0.33	0.51	-0.21	1.00					
TERM	0.52	-0.08	-0.11	-0.24	0.00	-0.01	1.00				
REVOLVER	0.03	-0.05	0.01	0.05	0.05	0.08	-0.14	1.00			
TAKEOVER	-0.01	-0.09	0.09	0.19	0.01	0.25	0.08	0.19	1.00		
REPAY	-0.15	0.19	0.09	0.09	-0.11	-0.02	-0.14	-0.13	-0.09	1.00	
FEES	-0.06	0.05	0.01	-0.08	-0.22	-0.05	0.12	-0.08	-0.04	-0.06	1.00

## 2. Estimation Results

Table 4 provides the detailed distribution of the dependent variable, loan maturity. The dependent variable I estimated in the model is the maturity of syndicated loans originated in Japan. As mentioned above, the mean length of maturity is 28.6 months and the median is 12 months. The distribution of MATURITY is heavily concentrated at 12 months. Since

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my dependent variable is discrete and non-negative, I employed Poisson regression as the estimation technique.<sup>11)</sup>

[Table 4] Distribution of the Dependent Variable

MATURITY	N	Percentage (=N/126)
6	1	0.8
8	1	0.8
9	2	1.6
10	1	0.8
11	1	0.8
12	81	64.3
18	1	0.8
24	2	1.6
36	10	7.9
48	1	0.8
56	1	0.8
60	16	12.7
84	2	1.6
120	2	1.6
144	1	0.8
180	3	2.4

The estimation results are presented in Table 5. I tested adverse selection models by relating the maturity of loans to the existence of the borrowing firm's credit rating and the amount of loan, because the market typically has more information about firms that are rated by a credit rating agency. Also large firms tend to have less growth options than small firms, suggesting that smaller firms will use more short-term bank borrowing as suggested by Myers (1977).

CP is a dummy equal to one if the borrower has an investment grade of commercial paper and zero otherwise. SENIOR is a dummy equal to one if the borrower has an

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11) 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. I performed the goodness-of-fit test on the model and found that the test is highly significant (Goodness-of-fit  $\chi^2=1746.16$ , Prob >  $\chi^2(116)= 0.0000$ ), indicating that the Poisson regression model is appropriate.

investment grade of senior debt rating and zero otherwise. LOANSIZE is the natural logarithm of the amount of the loan facility. JPNLENDER is a dummy equal to one if the loan is originated by a domestic (i.e. Japanese) agent bank and zero otherwise. NUMBER is the number of total lenders within a syndicate. TERM is a dummy equal to one if the loan is a term loan. REVOLVER is a dummy equal to one if the loan is a revolving facility. TAKEOVER is a dummy equal to one if loan purpose is for a takeover. REPAY is a dummy equal to one if loan purpose is to repay existing debt. FEES is the sum of upfront, annual and commitment fees.

[Table 5] Regression Estimates

Model	A	B
CONSTANT	6.649*** (0.000)	6.800*** (0.000)
CP	-0.295*** (0.000)	
SENIOR		-0.425*** (0.000)
LOANSIZE	-0.201*** (0.000)	-0.207*** (0.000)
JPNLENDER	0.173*** (0.000)	0.115*** (0.006)
NUMBER	0.017*** (0.000)	0.0227*** (0.000)
TERM	1.083*** (0.000)	1.064*** (0.000)
REVOLVER	0.470*** (0.000)	0.471*** (0.000)
TAKEOVER	-0.340** (0.049)	-0.329** (0.000)
REPAY	-0.301*** (0.000)	-0.324*** (0.000)
FEES	-0.006*** (0.000)	-0.007*** (0.000)
LR chi-square	1618.24	1643.56
Pseudo R-squared	0.4077	0.4141
N	126	126

p-value in parentheses

\*\*\* 1% level of significance

\*\* 5% level of significance

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The coefficients of the rating dummies (CP and SENIOR) and loan size (LOANSIZE), however, are both negative and significant at the 1% level in Models A and B. Japanese firms with investment grade bonds (or large firms) use more short-term syndicated loans, and Japanese borrowers that have not previously accessed highly rated capital markets (or smaller firms) are likely to obtain a longer maturity on the new syndicated loan issue. While this evidence does not support the information problem hypothesis, it is consistent with the liquidity risk hypothesis.<sup>12)</sup> Our result is similar to those of Guedes and Opler (1996), who test the liquidity risk hypothesis and present evidence that smaller firms tend to issue longer term debt on average.<sup>13)</sup>

The measure of bank relationship (JPNLENDER) is positive and significant at the 0.01 level, suggesting that Japanese arrangers relative to foreign arranging banks tend to lengthen the loan maturity. This interpretation is based on the assumption that when the arranger is a local (i.e. Japanese) bank, the bank-borrower relationship is stronger. As the banking relationship develops, the borrower's payment histories accumulate, through which the borrower is able to have access to the long-term loan market. Although the main bank of a firm is not exactly identified in this study, I weakly infer from this result that the Japanese borrower can increase the loan maturity by designating an arranging bank as a local bank that may be its main bank.

The proxy for loan renegotiability (SIZE) is positive and a significant determinant of loan maturity, which is consistent with Lee and Mullineaux's (2004) findings. A larger syndicate size will lengthen a loan's maturity, presumably because the larger number of parties involved within a syndicate makes it difficult to renegotiate the terms of loan agreements in the event of financial distress. Given all else equal, the Japanese borrower prefers to hold loans with long maturities as more lenders participate in a syndicate.

I included a set of dummy variables for the type and purpose of the loan<sup>14)</sup>. The coefficients of the dummy variables for loan type (TERM, REVOLVER) are positive and

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12) CP and SDEBT might be better proxies for liquidity risk hypothesis, rather than borrower's information problems.

13) Guedes and Opler (1996) employ the log of sales revenue as a proxy for the probability of default.

14) I also estimated the models employing only one dummy for each loan type (TERM, REVOLVER) and loan purpose (TAKEOVER, REPAY), respectively, and similar results to Table 5 were obtained for the other specifications.

significant, suggesting that both term loans and revolving loans are associated with long-term maturities relative to bridge loans and/or 364-day facilities. Among other control variables for the loan purpose, TAKEOVER has a strong negative influence on the loan maturity. Banks tend to shorten the maturities for loans in which quick financing is needed. The coefficients on debt refinancing loans (REPAY) are negative and significant in both models. This result may suggest that agent banks would prefer to reduce loan maturity to extract potential rents from the borrower with positive NPV projects, implying a negative relationship between the loan's maturity and the debt repayment purpose.

Finally, total fees (FEE) earned by lenders are included as one of the control variables in the model. Initially, I expected a positive relation between FEE and loan maturity, since borrowers desire to economize on the fixed portions of borrowing costs. However, I found the tendency of Japanese firms with high fee costs to decrease loan maturity. This result may also be related to Rajan's(1992) article that banks may obtain a monopoly rent from the firm in return for continuing to fund the project. Consistent with this argument, banks may have incentives to reduce the maturity of loans that are profitable.

#### **IV. Summary and Conclusions**

I examined the maturity structure of 126 syndicated loans originated in Japan between 1999 and 2000. Not only has the syndicated loan market in Japan grown since 1999, but also Japanese regulators have started enforcing stricter disclosure regulations on banks through the Financial Reconstruction Law of 1998. Fuchita also (2004) notes that "typical bank loans in Japan are viewed more as quasi equities than loans. This is because there is often no predetermined maturity or because banks keep providing a certain amount of revolving short-term debt." Given these peculiarities of the lending environment in Japan, I offer quite strong evidence that the maturity of syndicated loans originated in Japan is far from random outcomes even after the Financial Reconstruction Law of 1998. I tested the following hypotheses of debt maturity choice of Japanese borrowers: contracting cost/liquidity risk, relationship strength, and loan re-negotiability.

In this study's sample, I found evidence in favor of the Diamond's (1991b) liquidity



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risk hypothesis that borrowers with high liquidity risk issue long term debt to avoid the risk of inefficient liquidation. My finding is consistent with the notion that long maturities are a solution to firms with potential liquidity risk. However, my empirical analysis is less supportive of the contracting cost hypothesis. In addition, I found that loan maturity increases with the number of lenders within a syndicate, implying that borrowers tend to lengthen the loan maturities to avoid the potential hold-out problem as the syndicate size increase. My results indicate that a relationship factor plays a significant role in explaining cross-sectional variation in the loan maturity structure. Finally, I found evidence that loan characteristics, such as loan type, purpose, and fees, are of strong relevance in affecting the maturity of loans originated in Japan.

My results derived specifically from Japanese borrowers and are quite unique in the sense that the data used in this study is rarely employed by other research and the pseudo-R square is high relative to previous empirical tests. Indeed, I focused on narrower set of hypotheses than much of the earlier related research, such as Dennis, Nandy, and Sharpe (2000) and Lee (2004), which controls for the simultaneous relationship between maturity and leverage. Although my regression results explain significant percentages of the variation in the maturity of syndicated loans originated in Japan, the main limitation of this study is that I relied on only one source of data, Dealscan. This suggests that there are other determinants of the loan maturity structure yet to be identified, which requires a more comprehensive database especially for the borrowers' financial statements. One important extension of this study would be to conduct joint tests of the determinants of corporate financial policy using a simultaneous equations framework.

The framework employed in this study can be applied to financial markets in Korea. By enhancing our understanding of the factors that affect the corporate financial policy, our research can contribute to the important policy debate about the design of a "financial architecture" that will promote and facilitate the financial development of Korea.

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