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Ownership Structure and Syndicated Loan Maturity

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〈abstract〉

Controlling for the impacts of main strands of debt maturity theories, we highlight the relationship between syndicated loan maturity and ownership structure of Korean borrowers. We find that as the ownership of large shareholders increases, the maturity of syndicated loans also increases. Additionally, we identify a negative relation between foreigners' ownership and loan maturity, indicating that foreign institutional investors serve valuable monitoring functions ; as their equity shares increase, they fully take advantage of frequent renewals through the short maturity of syndicated loan. We also show that the predicted value of leverage is more systematically and positively related to the maturity of syndicated loan.

Keywords : Maturity, Syndicated Loans, Ownership Structure, Agency Cost

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Ⅰ. Introduction

The study of financing choice decisions has moved towards the structure of debt contract terms, such as collateral, spread, and maturity. Especially regarding maturity, academic theory links debt maturity with the number of factors, including asymmetric information (Flannery, 1986) and (Diamond, 1991b), agency costs (Myers, 1977), taxes (Brick and Ravid, 1985) and Kane et al. (1985), and credit quality and reputation (Diamond, 1991a) and (1991b). Based on the above theory, earlier empirical studies have examined the determinants of corporate debt maturity structure (Barclay and Smith, 1995 ; Guedes and Opler, 1996 ; Stohs and Mauer, 1996 ; Dennis, Nandy, and Sharpe, 2000).

In studies of the maturity of syndicated loans, Dennis and Mullineaux (2000) find that the probability of syndication increases with loan maturity, while Lee and Mullineaux (2004) observe that syndicate size increases significantly with maturity. Using a sample 64 facilities, Lee (2004) finds that firm's growth options, marginal tax rate, volatility of earnings, and firm size affect the maturity of Korean syndicated loans.

Related previous studies, however, have paid less attention to the effect of the ownership structure on debt maturity choice. Since debt maturity is essentially a part of financial strategy, we could naturally assume that debt maturity decision is strongly affected by conflicts of interest between managers and shareholders. Datta, Iskandar-Datta, and Raman (2005) stressed that managerial ownership is an important factor in debt maturity decision. Datta et al. (2005) find a significant and robust negative relation between managerial stock ownership and corporate bond maturity after controlling for previously identified determinants of debt maturity and treating leverage and maturity endogenously. Datta et al. (2005) also show that managers with higher ownership choose a greater proportion of short maturity when firms involve low growth options.

This study examines the maturity structure of syndicated loans with focus on the effect of ownership structure. This study extends the literature of debt maturity in following ways. While Lee (2004) investigates the maturity of syndicated loans with

relatively smaller observations, according to our knowledge, the role of ownership structure in loan maturity has not been examined in any previous work. We examine the effects of major groups of shareholders on syndicated loan maturity : largest shareholders and foreign shareholders. This study would extend Datta et al.(2005), which examined the effect of managerial ownership on debt maturity.

Besides, in the extant literature of debt maturity, debt captures corporate bonds, including other firm obligations such as capitalized lease obligations and long-term fixed claims. Choices among these types of debt financing can involve multiple tradeoff issues, as Carey, Post, and Sharpe (1998) demonstrate for the choice between bank financing and finance company loans. Aggregating these heterogeneous sources of debt can consequently result in measurement problems and complicate interpretations of the results. In order to elude from this measurement problems, we focus only on the syndicated loans. Syndication involves elements of commercial and investment banking, since syndicated loans are brought to market in an underwriting process similar to that for bonds. The hybrid characteristics of syndicated loans make these debt agreements academically interesting. Since bonds and loans involve different maturity structures, on average, our study tries to fill a gap in the literature with respect to how syndicated loan maturity is affected by the structure of ownership structure.

Finally, our study focuses on new individual financing transactions where the firm chooses to borrow at the margin, rather than the amount of debt on a firm's balance sheet at a given point of time. By using incremental data, we can overcome the problems of inaccurate measurement of debt maturity and of "averaging" financing decisions over time.

The remainder of the paper is organized as follows. In Section Ⅱ, we review previous studies on debt maturity structure and develop the hypothesis in the light of literature review. Section Ⅲ presents the empirical results and Section Ⅳ concludes.

Ⅱ. Model Specification

We specify and estimate models that relate the maturity of syndicated loans to

the structure of ownership and other control variables. Taking previous literature into account, we formulate the following general form :

Maturity = f(The Structure of Stock Ownership, Control Variables)

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

1. Stock Ownership Structure

Fama and Jensen (1983) argue that large shareholders involve in the monitoring process more actively than small shareholders, since large shareholders have significant investment at stake as well as substantial voting power to protect these investments. Shelifer and Vishny (1986, 1997) also discuss that a firm may not pay any one of many small owners to monitor the performance of the management. Small shareholders who do not have a big enough stake in the firm will not absorb the costs of watching the management. That is, in a company with numerous amounts of dispersed shareholders, any single shareholder does not have incentive to monitor management, because all small shareholders will share the benefits from monitoring as a result of free-riding. Large shareholders, however, have greater incentives to monitor, since they are able to absorb the fixed monitoring costs.

Friend and Lang (1988) find that the presence of a large shareholder in a company signals to the market that the management is closely monitored. Thus, the presence of a large shareholder in firms does not make creditors depend heavily on short-term debt to control managers since the interests of managers and stockholders coincide. Diamond (1984) demonstrates that avoiding duplicative monitoring costs can provide a rationale for the existence of financial intermediaries. Short-term loans are likely to require frequent requests for refinancing, which trigger more frequent monitoring of the borrower. Although participating banks delegate some monitoring duties to the arranging bank, syndication results in duplicative monitoring by its very nature.

Given the assumption that the severity of agency conflicts between managers and shareholders is controlled, we argue that as the equity share of a large shareholder

increases, the maturity of syndicated loans also increases. As the large shareholder's stock portion increases, it has greater incentives to monitor the management but simultaneously desires to reduce duplicative monitoring costs through extending loan maturity. Therefore, we expect a positive relationship between the stock ownership of a large shareholder (LARSH) and syndicated loan maturity.

Khanna and Palepu (1999) find evidence that domestic investors are poor monitors and note that foreign institutional investors serve a valuable monitoring function as emerging markets integrate with the global economy. Ferris and Park (2005) examine the relation between firm value and the structure of foreign equity ownership for a sample of Japanese firms and find that curvilinear relation exists between Tobin's Q and the fraction of common stocks owned by foreigners in Japan.

Khanna and Palepu (1999) find that Tobin's Q is positively correlated with the presence of foreign institutional ownership and negatively correlated with the presence of domestic institutional ownership. Park (2001) also argues that foreign institutional investors are good monitors. Given Khanna and Palepu (1999) and Ferris and Park (2005), it is plausible to expect that there exists a negative relation between loan maturity and foreign institutional ownership (FORSH).

Foreign institutional investors serve valuable monitoring functions and they fully take advantage of frequent renewals through the short maturity of loans. Short-term loans involve less opportunity for the agent bank to shirk and short maturities are likely to involve frequent requests for renewals, which triggers more frequent monitoring of the borrower.

2. Control Variables

1) Agency Costs

Findings in the literature state that firms whose investment opportunity set has more growth options should use more short-term debt (Barclay and Smith, 1995 ; Houston and James, 1996 ; Dennis et al., 2000). The market-to-book proxy has been widely used to measure potential agency problems. Another proxy for the importance of growth opportunities is the ratio of R&D expenses to sales (Houston and

James, 1996). We hypothesize that firm's growth opportunities are inversely related to the maturity of syndicated loans.

2) Credit Quality

Diamond (1991a) argues that there is a non-monotonic relationship between credit risk and debt maturity. Scherr and Hulburt (2001) find that average debt maturity is lower for firms with negative Altman's Z-scores. Dennis et al. (2000) also use Z-SCORE to proxy for credit quality. Dennis et al. (2000)'s results are consistent with Diamond's (1991a) prediction. We follow Dennis et al. (2000) to control for credit risk.

3) Effective Tax Rate

The higher the marginal tax rate of a firm, the more beneficial are tax shield effects. Firms with higher effective tax rates, therefore, will issue longer-term debt (Scherr and Hulburt, 2001). An alternative view is that optimal debt maturity rises as the tax advantage of debt falls and as the volatility of firm value decreases (Stohs and Mauer, 1996) and (Dennis et al., 2000). In general, no strong empirical evidence is observed in tax-related hypotheses (Barclay and Smith, 1995a ; Guedes and Opler, 1996 ; Ozkan, 2000 ; and Dennis et al., 2000). We use the ratio of taxes paid to total assets, TAX, to proxy for the firm's marginal effective tax rate. We also use SDEBIT, which is the standard deviation of the change in EBIT in the five years preceding the loan origination date, scaled by average total assets for that period (Dennis et al., 2000). Since we have conflicting hypotheses and, mixed empirical results, the signs of these variables are ambiguous.

4) Signaling

A borrower can signal superior information about its quality by issuing short-term debt (Flannery, 1986). The empirical evidence on signaling is mixed. Some find borrowers with negative earning-surprises choose short-term debt (Stohs and Mauer, 1996 ; Guedes and Opler, 1996). Others find no significant relation between earn-

ings-surprises and debt maturity (Ozkan, 2000 ; Dennis et al., 2000). We use EPS to measure firm quality. EPS is the difference in EPS on the loans closing date and 12 months later, scaled by closing dates common stock price. A negative relation between maturity and borrower quality is expected.

<Table 1> Description of the Variables

Dependent Variable	
MATURITY	The length of loan contract in months.
Ownership Structure	
LARSH	The percentage of stock ownership held by the largest shareholder.
FORSH	The percentage of stock ownership held by foreign institutional shareholders.
Control Variables	
Agency Costs	
MKBK	The ratio of the borrower's market value of firm (the book value of total liabilities plus the market value of equity) to its book value of assets.
R&D	The ratio of the borrower's R&D expenditures (the sum of all costs relevant to the development of new products and services) to sales.
Credit Quality	
Z-SCORE	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.
Effective Tax Rate	
TAX	The ratio of taxes paid to total assets.
SDEBIT	The standard deviation of the change in EBIT for five years' preceding deal date and scaled by average total assets for that period.
Signaling	
EPS	The difference between next year's earnings per share and this year's earnings per share, scaled by this year's common stock price.
Leverage	
LEV	The ratio of the firm's total debt to total assets in book values at the end of the quarter prior to syndication.
Firm size and Loan Size	
ASSETS	The natural logarithm of the book value of assets.
SALES	The natural logarithm of the annual sales.
FACSIZE	The natural logarithm of the size of the loan facility.

5) Leverage

Stohs and Mauer (1996) argue that highly leveraged borrowers should issue longer-term debt to avoid the likelihood of a liquidity crisis (Diamond, 1991b), and they find a such relationship. Dennis et al. (2000) treat borrower's leverage as an exogenous variable and find an inverse relationship between leverage and the duration of revolver contracts. Following Dennis et al. (2000) and Lee (2004), we will estimate our model using a two-stage estimation process.

6) Firm Size and Loan Size

Dennis et al. (2000) and Lee (2004) use firm size as a control variable. Ozkan (2000) also finds that firm size affects debt maturity. We use the natural logarithm of the book value of assets (ASSETS) and sales (SALES) to proxy for firm size. Finally, we control for the loan size, the natural logarithm of the size of the loan facility (LNFACSIZE). The definitions of the variables used in our estimations are in <Table 1>.

Ⅲ. Estimates of the Model

1. Sample selection and description

We extract loan deals initiated between 1992 and 2003 in Korea from the *Dealscan* database maintained by Loan Pricing Corporation. While this database provides detailed transaction-specific data on loans originated in the U. S., this is not the case for loans originated in Korea. From *Dealscan* database, we finally obtain 112 syndicated loan facilities that include complete information for this study.[1] Typically, a loan deal consists of a number of dissimilarly designed loans with common agent and participant banks, designated "facilities," made to the same borrower on a given date.

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1) Our sample consists only of KOSPI (Korean Composite Stock Price Index) listed non-financial firms.

<Table 2> Descriptive Statistics for the Model Variables

Variable	MEAN	MEDIAN	Standard Deviation	MAX	MIN
MATURITY (months)	52.57	36	41.16	276	3
LARSH	0.2680	0.2555	0.1792	0.8088	0
FORSH	0.1309	0.1039	0.1263	0.4934	0
MKBK	1.007	0.94	0.28	1.88	0.61
R&D	0.0031	0.00032	0.0064	0.0336	0
ZSCORE	1.244	0.951	1.227	8.588	-0.129
TAX	0.010	0.0056	0.014	0.064	-0.008
SDEBIT	0.454	0.019	3.096	23.31	0.008
EPS	7316.4	-16.36	44205	272550	-3529.3
LEV	0.744	0.70	0.24	1.65	0.289
ASSETS ($, millions)	5135	3036	4763	17800	61
SALES ($, millions)	5199	2442	6842	32180	76
FACSIZE ($, millions)	161	100	179	720	44

<Table 2> contains summary statistics for the sample. In this table, ASSETS, SALES, and FACSIZE do not take log function due to descriptive purpose. The average loan maturity is about 4.38 years and the median is 3 years, with the longest of 23 years and shortest of 3 months.[2] These results are similar to Dennis and Mullineaux(2001). They report an average of 3.94 years for the period 1987~1995 in the U. S. syndicate market and also report a median of 3.33 years. Using a sample period of 1992 and 2000, Lee(2004) reports a higher average of 5.1 years and a median of 5 years. A possible explanation for the low median of our sample is that banks in Korea currently implement so called a "evergreening" policy. That is, banks continually roll over or refinancing loans to unprofitable borrowers.[3] The da-

2) The average maturity for the sample of private placements issued in Korea is about 2.7 years and the median is 2.5 years (Lee and An, 2008).

3) Smith (2003) notes some plausible reasons why banks may persist evergreen loans to poorly performing borrowers. Banks may be vulnerable to the negative effect that a loan denial would have on the borrower. Thus, banks decide to forego the unpleasant consequences through frequent renewals. Also, by frequent renewals to unprofitable borrowers, banks do not have to classify loans to such borrowers as "non-performing assets" consequently avoiding the credit costs associated with increased loan loss provisions.

taset employed in this study consists of larger compositions of 364-facility loans and bridge loans relative to Lee (2004)'s dataset.

The mean size of Korean borrowers in our sample is large and somewhat skewed to the left with a mean of $5.1 billion and median of $3.06 billion. The average sales size in this sample is larger than that of the U. S. firms in Sufi's (2007) sample. Using the sample period of 1991~2003, Sufi (2007) reports that syndicated loan U. S. borrowers on average have $4.97 billion in assets and have $3.12 billion in sales.[4] In terms of loan size, syndicated loans are flexible, offering a wide range of loan size, varying from $44 million to $720 million. The average of loan facility size is $161 million, smaller that of the one observed by Sufi (2007) in which the mean loan facility size is $358 million.

<Table 3> Correlation Matrix

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
MATURITY	[1]	1.00												
LARSH	[2]	0.06	1.00											
FORSH	[3]	-0.16	-0.30	1.00										
MKBK	[4]	-0.05	0.08	-0.7	1.00									
R&D	[5]	-0.17	-0.07	0.18	-0.08	1.00								
ZSCORE	[6]	-0.18	-0.11	0.22	-0.06	-0.08	1.00							
TAX	[7]	0.00	0.32	0.23	-0.00	0.05	0.24	1.00						
SDEBIT	[8]	-0.11	0.05	-0.02	-0.12	0.18	-0.07	-0.11	1.00					
EPS	[9]	0.02	0.00	-0.17	0.51	-0.07	-0.17	-0.11	-0.01	1.00				
LEV	[10]	0.14	-0.04	-0.39	0.46	-0.19	-0.22	-0.34	-0.08	0.39	1.00			
ASSETS	[11]	0.04	-0.11	0.61	-0.41	0.13	0.17	0.22	0.17	-0.38	-0.61	1.00		
SALES	[12]	-0.03	-0.10	0.64	-0.24	0.04	0.47	0.27	0.07	-0.33	-0.52	0.91	1.00	
FACSIZE	[13]	0.04	0.03	0.20	0.21	0.05	-0.23	-0.04	0.18	0.15	0.10	-0.02	-0.07	1.00

<Table 3> presents a correlation matrix of all variables. We observe that the signs of the correlations between MATURITY and the various independent variables are generally consistent with our predictions. The signs of correlations between maturity and the ownership variables support our hypotheses. Variables for agency

4) The medians of assets and sales are $1.02 billion and $0.629 billion, respectively in Sufi (2007).

problems suggest that firms with the high degree of potential agency problems will use more short-term bank borrowing. Note that the correlations between LARSH and firm size variables (ASSETS and SALES) are negative, suggesting that as the firm size increases, the equity ownership is diffused. The positive correlations between FORSH and firm size proxies suggest that foreign equity investors augment their shares as the firm size increases.

2. Estimation Results

<Table 4> provides the detailed distribution of the dependent variable, MATURITY. The distribution of MATURITY is heavily concentrated at 3 years and 5 years. Since our dependent variable is discrete and non-negative, we employ Poisson regression as the estimation technique.[5)]

<Table 4> Distribution of the Dependent Variable

	Frequency	Percent Frequency
3 ≤ MATURITY < 11	4	3.28
12 = MATURITY	10	8.20
18 ≤ MATURITY < 24	4	3.28
MATURITY = 24	12	9.84
25 ≤ MATURITY < 32	4	3.28
MATURITY = 36	26	21.31
42 ≤ MATURITY < 49	3	2.46
MATURITY = 60	30	24.59
84 ≤ MATURITY < 97	5	4.10
MATURITY = 120	9	7.38
121 ≤ MATURITY < 277	5	4.10

The single equation estimates ignoring endogeneity are presented in <Table 5>. The results on the ownership structure variables (LARSH and FORSH) provide support for our initial hypotheses. The positive coefficients of LARSH suggest that

5) 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.

as the equity share of a large shareholder increases, the maturity of syndicated loans also increases. As the large shareholder's stock portion increases, it has greater

<Table 5> Regression Estimates Ignoring Endogeneity

LARSH is the percentage of the borrower's common shares outstanding held by the largest shareholder. FORSH is the percentage of held by foreign investors. MKBK is the ratio of the borrower's market value of firm (the book value of total liabilities plus the market value of equity) to its book value of assets. R&D is the ratio of the borrower's R&D expenditures to sales. ZSCORE is Altman's Z-score. TAX is the ratio of taxes paid to total assets. SDEBIT is the standard deviation of the change in EBIT for five years' preceding deal date and scaled by average total assets for that period. EPS is the difference between next year's earnings per share and this year's earnings per share, scaled by this year's common stock price. LEV is the ratio of the firm's total debt to total assets in book values at the end of the quarter prior to syndication. FACSIZE is the natural logarithm of the size of the loan facility. *** 1% level of significance, ** 5% level of significance, and * 10% level of significance, respectively. p-value in parentheses.

Model	A	B	C	D	E	F	G	H
Constant	-0.085 (0.829)	0.039 (0.921)	1.252*** (0.001)	1.776*** (0.000)	-3.091*** (0.000)	-2.880*** (0.000)	-1.573*** (0.000)	-0.897** (0.037)
LARSH	0.003*** (0.000)	0.002*** (0.002)	0.003*** (0.000)	0.001** (0.045)				
FORSH					-0.021*** (0.000)	-0.020*** (0.000)	-0.020*** (0.000)	-0.018*** (0.000)
MKBK	-0.514*** (0.000)		-0.609*** (0.000)		-0.379*** (0.000)		-0.561*** (0.000)	
R&D		-22.382*** (0.000)		-22.649*** (0.000)		-17.223*** (0.000)		-17.421*** (0.000)
ZSCORE	-0.141*** (0.000)	-0.181*** (0.002)	-0.184*** (0.000)	-0.221*** (0.000)	-0.102*** (0.000)	-0.126*** (0.000)	-0.188*** (0.000)	-0.213*** (0.000)
TAX	3.267*** (0.002)	3.351*** (0.000)	3.789*** (0.000)	3.938*** (0.000)	5.070*** (0.000)	4.719*** (0.000)	5.162*** (0.000)	4.646*** (0.000)
SDEBIT	-0.160*** (0.000)	-0.048*** (0.002)	-0.055*** (0.000)	-0.041*** (0.000)	-0.069*** (0.000)	-0.60*** (0.000)	-0.063*** (0.000)	-0.051*** (0.000)
EPS	1.160*** (0.001)	-1.250 (0.689)	9.740*** (0.005)	-6.100** (0.047)	1.210*** (0.001)	2.780 (0.380)	1.060*** (0.002)	-3.750 (0.226)
LEV	1.091*** (0.000)	0.751*** (0.000)	0.878*** (0.000)	0.463*** (0.000)	0.997*** (0.000)	0.741*** (0.000)	0.768*** (0.000)	0.410*** (0.000)
ASSETS	0.151*** (0.000)	0.153*** (0.000)			0.249*** (0.000)	0.246*** (0.000)		
SALES			0.103*** (0.000)	0.089*** (0.000)			0.202*** (0.000)	0.182*** (0.000)
FACSIZE	0.025** (0.042)	0.011 (0.382)	0.028** (0.025)	0.008 (0.509)	0..086*** (0.000)	0.072*** (0.000)	0.086*** (0.000)	0.060*** (0.000)
Pseudo R2	14.05	14.67	12.18	12.07	19.32	19.73	16.66	15.91

incentives to monitor the management but simultaneously desires to reduce duplicative monitoring costs through extending loan maturity.

The coefficients on FORSH are negative and significant at the 1% level, suggesting that foreign institutional investors serve valuable monitoring functions as their equity shares increase and they fully take advantage of frequent renewals through the short maturity of loans. Lee and An (2008) find that as financial institutions and foreign investors hold more equity shares, Korean borrowers tend to issue longer maturity of private placements of bond. These results suggest that privately placed bonds and loans may have different maturity structures and respond differently to the stock ownership structure.

The coefficients of the agency proxies (MKBK and R&D) are negatively signed and significant, implying that Korean borrowers with high market-to-book ratio and R&D ratio desire to mitigate potential agency problems by funding through short-maturity syndicated loans.

We include Altman's Z-score to control for the borrower's credit risk and find that the coefficient on Z-score is negative and significant. Korean firms with potential credit risk are more likely to choose longer maturity debt, perhaps due to liquidity risk.

The coefficient of TAX is positive and significant, consistent with Scherr and Hulburt (2001). It seems that Korean firms with higher effective tax rates will borrow in the long term possibly in order to maximize interest tax shield effects. The coefficient of SDEBIT, however, is negative and significant, suggesting that loan maturity varies inversely with the volatility of firm asset values. Our empirical results partially support Stohs and Mauer (1996) and Dennis et al. (2000) who argue that firms with higher tax advantages of debt and more volatile earnings are more likely to lower debt maturity.

Our regression results do not provide support for Flannery's (1986) signaling hypothesis. The signs of the coefficients of abnormal earnings, EPS, are mixed and the level of significance also varies depending on the specifications.

The estimates regarding LEVERAGE reveal a significant and positive association between the leverage ratio and syndicated loan maturity. This supports the view

that liquidity risk is positively related to leverage, so highly leveraged firms should choose longer-term debt to control for the probability of a liquidity crisis (Diamonds, 1991b ; Stohs and Mauer, 1996). <Table 5> shows that firm size has a significant and positive impact on Korean borrowers' loan maturity decision. Firm size possibly affects the loan duration through lower informational asymmetries and reputation effects. Finally, loan size (FACSIZE) has a positive impact, but weakly, on loan maturity.

As an alternative specification, Myers (1977) provides theory in which leverage and debt contract terms can be considered as substitute mechanisms for limiting agency problems. Barclay et al. (1995) present evidence that leverage and maturity are interrelated. Dennis et al. (2000) also argue that debt maturity and firm's leverage are determined simultaneously. By treating maturity and leverage simultaneously, Dennis et al. (2000) find strong evidence that leverage negatively affects the maturity of bank revolving credit agreements. In light of this evidence, we assume that leverage is endogenously determined.

In <Table 6>, we estimate the maturity model in a two-stage process.[6] Effectively, we replace the actual values of LEVERAGE by the fitted values of the endogenous variables (LEVHAT) in Table 6. In support of our central hypothesis, we still find that the coefficients of the ownership variables are significant. As a control variable, MKBK is not a significant factor in our simultaneous equation estimation which is inconsistent with Dennis et al. (2000).

One noteworthy result is associated with leverage. While we find a strong positive relationship between leverage and syndicated loan maturity assuming leverage is exogenous, the relationship becomes negative when they are modeled endogenously (Dennis et al., 2000 ; Lee, 2004 ; Lee and An, 2008). This result suggests that the simultaneous treatment of maturity and leverage seems to be crucial in testing

6) For the first-stage regression model with leverage as the endogenous variable, we use an instrumental variable approach and estimate a reduced form equation for leverage. Following Dennis et al. (2000) and Datta et al. (2005), we include ASSETS (or SALES), MKBK (or R&D), SDEBIT, EPS, Fixed Assets Ratio, and ROA to determine leverage in first stage. In <Table 6>, fitted values from this reduced form are then substituted for leverage (LEVHAT) in the second stage estimates.

contracting hypothesis even when the ownership structure variables are taken into account.

<Table 6> Regression Estimates

LARSH is the percentage of the borrower's common shares outstanding held by the largest shareholder. FORSH is the percentage of held by foreign investors. MKBK is the ratio of the borrower's market value of firm (the book value of total liabilities plus the market value of equity) to its book value of assets. R&D is the ratio of the borrower's R&D expenditures to sales. ZSCORE is Altman's Z-score. TAX is the ratio of taxes paid to total assets. SDEBIT is the standard deviation of the change in EBIT for five years' preceding deal date and scaled by average total assets for that period. EPS is the difference between next year's earnings per share and this year's earnings per share, scaled by this year's common stock price. LEVHAT is the predicted values of leverage from reduced form estimate. FACSIZE is the natural logarithm of the size of the loan facility. *** 1% level of significance, ** 5% level of significance, and * 10% level of significance, respectively. p-value in parentheses.

Model	A	B	C	D	E	F	G	H
Constant	4.397*** (0.000)	3.018*** (0.000)	5.478*** (0.000)	5.495*** (0.000)	0.603 (0.405)	0.106 (0.896)	2.206*** (0.000)	2.768*** (0.000)
LARSH	0.003*** (0.000)	0.002*** (0.009)	0.002*** (0.006)	0.000 (0.277)				
FORSH					-0.022*** (0.000)	-0.020*** (0.000)	-0.021*** (0.000)	-0.019*** (0.000)
MKBK	-0.15 (0.855)		0.146 (0.127)		0.071 (0.409)		0.139 (0.151)	
R&D		-28.084*** (0.000)		-32.518*** (0.000)		-22.948*** (0.000)		-26.847*** (0.000)
ZSCORE	-0.178*** (0.000)	-0.197*** (0.000)	-0.185*** (0.000)	-0.204*** (0.000)	-0.124*** (0.000)	-0.138*** (0.000)	-0.181*** (0.000)	-0.193*** (0.000)
TAX	-3.338** (0.031)	-0.089 (0.956)	-5.351*** (0.001)	-3.627** (0.023)	-0.831 (0.601)	0.862 (0.603)	-3.786** (0.017)	-3.667** (0.023)
SDEBIT	-0.060*** (0.000)	-0.047*** (0.000)	-0.062*** (0.000)	-0.048*** (0.000)	-0.071*** (0.000)	-0.060*** (0.000)	-0.070*** (0.000)	-0.059*** (0.000)
EPS	1.600*** (0.000)	7.500* (0.067)	1.730*** (0.000)	1.480*** (0.001)	1.680*** (0.000)	1.270*** (0.002)	1.840*** (0.000)	1.810*** (0.000)
LEVHAT	-0.963*** (0.000)	-0.376 (0.176)	-1.499*** (0.000)	-1.231*** (0.000)	-0.779*** (0.005)	-0.411 (0.139)	-1.428*** (0.000)	-1.308*** (0.000)
ASSETS	-0.002 (0.906)	0.052** (0.036)			0.128*** (0.000)	0.150*** (0.000)		
SALES			-0.039** (0.030)	-0.025 (0.173)			0.078*** (0.000)	0.073*** (0.000)
FACSIZE	0.027** (0.029)	0.018 (0.136)	0.028** (0.027)	0.014 (0.240)	0.082*** (0.000)	0.074*** (0.000)	0.081*** (0.000)	0.063*** (0.000)
Pseudo R2	8.93	11.73	9.09	11.42	15.10	16.95	14.52	15.71

Ⅳ. Summary and Conclusions

In spite of a number of academic explanations on the maturity of bond, empirical studies dedicated to the identification of the determinants of syndicated loan maturity are relatively new, especially the influence of ownership structure on syndicated loan maturity. Consequently, this paper provides important international evidence by examining the role of ownership structure on the determinants of syndicated loan maturity originated in Korea, aiming a major financial hub in Asia.

Incorporating the simultaneous nature of the relation between maturity and leverage, we estimate the model using two-stage least squares estimation. We highlight the relationship between loan maturity and ownership structure, controlling for the impacts of agency costs, credit risk, tax effect, and signaling.

As the large shareholder's stock portion increases, it has greater incentives to monitor the management but simultaneously desires to reduce duplicative monitoring costs through extending loan maturity. Additionally, we show that foreign investors with higher stock ownership choose a larger proportion of short-maturity of syndicated loans thereby committing to more frequent monitoring. That is, foreign institutional investors serve valuable monitoring functions as their equity shares increase and they fully take advantage of frequent renewals through the short maturity of loans. We also find that the predicted value of leverage is systematically and positively related to the maturity of syndicated loan when modeled endogenously.

This study extends Datta et al. (2005) in the sense that the structure of equity ownership plays an important role in determining syndicated loan maturity originating in the emerging market. It is important to note that the significant and robust relationship between loan maturity and ownership structure emerges after controlling for previously identified determinants of debt maturity and modeling loan maturity and leverage as jointly endogenous variables.

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