

The Effect Of Affiliate Loan Guarantees On Cost Of Debt: Evidence From Korea

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ABSTRACT

A loan guarantee occurs when a company guarantees payment of an affiliate's loan. Conflicting arguments regarding loan guarantees provided to affiliates have prevailed. First, some suggest that loan guarantees provided to affiliates would decrease firm value because they are contingent liabilities (Shim, 1996; Berkman, Cole & Fu, 2009). Second, others suggest firm value is high when the amount of loan guarantees provided to affiliates is large because loan guarantees would be regarded as a positive indicator of future cash flow (Lee, 2005). The purpose of this study was to present additional empirical evidence of these arguments.

The result of this study showed that cost of debt is high when the amount of loan guarantees provided to affiliates is large. This result indicates that creditors demand higher risk premiums when the amount of loan guarantees provided to affiliates is large because they regard loan guarantees as contingent liabilities. Therefore, this result supports the assertion that loan guarantees decrease firm value.

Keywords: Loan Guarantees; Contingent Liabilities; Cost of Debt

I. INTRODUCTION

A loan guarantee occurs when a company guarantees payment of an affiliate's loan. Loan guarantees allow companies to easily take out loans, be granted lower interest rates or borrow more from creditors. However, a company that provides loan guarantees to affiliates might incur the responsibility of paying the loan in the event of default. Therefore, a loan guarantee might be regarded as a contingent liability because it can reduce the value of a provider (Shim, 1996; Berkman et al., 2009). However, providing loan guarantees to affiliates can be interpreted as a signal that a company has sufficient liquidity or can be equal to future liability. Therefore, investors would evaluate this signal positively and highly value the firm (Lee, 2005).

In order to present empirical evidence on the conflicting characteristics of loan guarantees, this study analyzes their effect on cost of debt. If loan guarantees are more likely to be contingent liabilities, creditors would demand higher risk premiums, and the cost of debt would increase. However, if the loan guarantee's signaling effect is stronger than its effect as a contingent liability, creditors would interpret this as a signal of liquidity and accept a lower risk premium. The cost of debt would decrease in this case. Liu, Cullinan, Zhang and Wang (2016) found that Chinese guarantors' cost of debt is higher than that of other firms. This result suggests that Chinese creditors regard loan guarantees as contingent liabilities. However, this study's generalizability is limited because of its use of only Chinese data and the index variable to determine whether a company provides loan guarantees or not.

Previous studies of loan guarantee characteristics have presented conflicting results. This study provides additional empirical evidence of these conflicting results through an empirical analysis of the relationship between loan guarantees and cost of debt.

The following section includes a literature review of cost of debt and loan guarantees. This study's hypothesis is developed in the third section. In the fourth section, the research model is explained. The results of the empirical analysis are shown in the fifth section. Finally, conclusions are drawn in the sixth section.

II. LITERATURE REVIEW

2.1. Cost of Debt

There are many previous studies of the determinants of cost of debt. Sengupta (1998) found that high corporate disclosure quality decreases cost of debt. Ahmed, Billings, Morton and Harris (2002) discovered that accounting conservatism has an effect on cost of debt. Francis, LaFond, Olsson and Shipper (2004) found that earnings quality has an effect on cost of debt. Leuz and Verrecchia (2004) found that accounting information quality is negatively associated with cost of debt. This finding is because information risk is high, and investors demand a high risk premium when the quality of accounting information is poor. Pittman and Fortin (2004) found that firms audited by a Big 6 auditor may pay lower costs of debt than those who are audited by a non-Big 6 auditor. They suggested that cost of debt is lower in such cases because Big 6 auditors enhance the credibility of financial statements and decrease debt-monitoring costs. Francis, LaFond, Olsson and Shipper (2005) ascertained that accrual quality is negatively associated with cost of debt. Ashbaugh-Skaife, Collins and LaFond (2006) analyzed the relationship between corporate governance and firms' credit ratings, finding that the number of blockholders and CEO power are both negatively associated with ratings. They also found that takeover defenses, accrual quality, earnings timeliness, board independence, board stock ownership and board expertise are positively associated with credit ratings. Fortin (2007) found no significant association between Big 4 auditor retention and either yield spreads or credit ratings. Jiang (2008) found that beating earnings benchmarks decreases cost of debt. Dhaliwal, Gleason, Heitzman and Melendrez, (2008) found that non-audit fees are positively associated with cost of debt in investment-grade firms. They also found that audit and non-audit fees decrease the negative association between earnings and cost of debt in investment-grade firms. Kim, Simunic, Stein and Yi (2011) found that private firms with voluntary audits enjoy lower costs of debt than private firms with no audits.

2.2. Loan Guarantees Provided to Affiliates

Loan guarantees serve to supplement credit for affiliates seeking to raise funds through loans. Affiliates can raise funds with lower interest rates and increase the amount of funding received through this strategy. Although companies do not lend money directly to affiliates in this case, loan guarantees to affiliates can have a similar effect as lending money directly to affiliates because they lower interest rates or increase credit lines. Stein (1997) insisted that the internal capital market is able to decrease a transaction cost and improve resource allocation efficiency. Thus, internal capital market growth can increase affiliate firm values. Chang and Hong (2000) found that internal capital markets, such as debt payment guarantees, can make up for the inefficiency of external capital markets, such as banks or stock exchanges. Johnson, LaPorta and Lopez-De-Silanes (2000) suggested that loan guarantees offer a legal way of tunneling into emerging markets and developed countries. Doh and Ryu (2004) asserted that loan guarantees may indicate a lack of agency problems or government intervention. Berkman et al. (2009) found a significant negative relationship between loan guarantees and the value of Chinese firms providing loan guarantees. Liu et al. (2016) investigated the effect of loan guarantees on the cost of debt in China, finding that firms which provide loan guarantees experience higher costs of debt.

However, results from Korean firms have differed. Shim (1996) found that loan guarantees are negatively associated with abnormal stock returns for Korean firms providing loan guarantees. Lee (2005) found that firm value and the amount of providing loan guarantees are positively correlated in Korean samples. Because of these conflicting results, an in-depth investigation of the effect of loan guarantees on firm value is needed.

III. HYPOTHESES DEVELOPMENT

Previous studies have found that the value of a firm that guarantees its affiliates' loan decreases (Shim, 1996; Berkman et al., 2009). However, some research has suggested that guaranteeing affiliate loans provides a good signal to investors because it indicates sufficient future cash flow (Lee, 2005). The contingent liability perspective suggests that firm value will decrease when it provides a loan guarantees to affiliates because this company bears contingent liability. As the amount of loan guarantees increases, this value decreases because the amount of contingent liability increases. However, if loan guarantees provided to affiliates signal positive future cash flow,

investors would highly estimate firm value. Thus, firm value is estimated to be higher as the amount of a loan guarantee increases. Therefore, the following hypothesis is developed.

Hypothesis: *Ceteris paribus*, there is no significant association between the amount of loan guarantees provided to affiliates and the cost of debt of firms providing loan guarantees.

IV. RESEARCH DESIGN

4.1. Research Model

The model that is used to investigate the hypothesis is as follows.

$$COD_t = \beta_0 + \beta_1 LGRD_t + \beta_2 SIZE_t + \beta_3 LEV_t + \beta_4 ROA_t + \beta_5 CFO_t + \Sigma ID + \Sigma YD + \varepsilon_t \quad (1)$$

where

- COD_t : cost of debt in year t;
- $LGRD_t$: 1 if the amount of loan guarantees provided for affiliates divided by total assets at the end of year t is bigger than the median of the amount of loan guarantees for affiliates divided by total assets, otherwise 0;
- $SIZE_t$: natural logarithm of total assets at the end of year t;
- LEV_t : debt ratio at the end of year t;
- ROA_t : return on assets in year t;
- CFO_t : proportion of operating cash flow on total assets of year t;
- ID : industry dummy;
- YD : year dummy;

COD is the cost of debt, which is defined as the total interest divided by the average liabilities in year t. If creditors regard loan guarantees provided to affiliates as contingent liabilities, they would demand higher risk premiums when the amount of loan guarantees provided to affiliates is large. This trend makes the cost of debt higher. Therefore, the coefficient β_1 would be significantly positive. However, providing loan guarantees to affiliates might be regarded as a signal of sufficient payment ability. In this case, creditors would demand lower risk premiums when the amount of loan guarantees provided to affiliates is large. Therefore, the coefficient β_1 would be significantly negative in this situation.

Other independent variables are used as control variables. $SIZE$ is used to control the effect of the company's size on cost of debt. Sengupta (1998) asserts that the size of a company is negatively associated with its cost of debt. LEV is used to control the effect of the debt ratio on cost of debt. Pittman and Fortin (2004) and Francis et al. (2005) found positive relationships between debt ratio and cost of debt. ROA indicates a company's profitability. When the profitability of a company is high, a creditor would not demand a high risk premium because its default risk is estimated to be low. Therefore, cost of debt would be low when the profitability of a company is high. According to Pittman and Fortin (2004), cost of debt is low when the amount of operating cash flow is large. Therefore, CFO is expected to be negatively associated with COD . Industry and year dummy variables are also included in model (1) to control for the effects of specific industry and economic fluctuations.

4.2. Sample Selection

The sample of this study consists of companies that were listed on the Korea Exchange (KRX) from 2004 to 2014. Only firm-years whose financial data are available in TS2000 and KisValue are included in the sample. Firm-years with fiscal year-ends other than December 31 and those operating in the financial industry were eliminated. The final sample consists of 2,660 firm-years.

V. EMPIRICAL RESULTS

5.1. Descriptive Statistics

Table 1 shows the descriptive statistics for the variables used in this study.

Table 1. Descriptive Statistics

	Mean	St. Dev.	1st Quartile	Median	3rd Quartile
COD _t	0.0288	0.0170	0.0159	0.0287	0.0817
LGR _t	0.1307	0.4624	0.0139	0.0479	0.1318
SIZE _t	27.1100	1.6392	25.8827	26.7791	28.1445
LEV _t	1.3991	1.8928	0.5718	0.9969	1.6876
ROA _t	0.0269	0.0742	0.0058	0.0303	0.0624
CFO _t	0.0477	0.0730	0.0064	0.0447	0.0850

Variable Definitions

COD_t: cost of debt capital in year *t*;

LGR_t: the amount of loan guarantees provided for affiliates divided by total assets at the end of year *t*;

SIZE_t: natural logarithm of total asset at the end of year *t*;

LEV_t: debt ratio at the end of year *t*;

ROA_t: return on asset in year *t*;

CFO_t: proportion of operating cash flow on total asset of year *t*;

The mean *COD* is 0.0288, which shows that the average cost of debt is approximately 3% during the sample period. The median *COD* is 0.0287, suggesting the difference between the mean and median *COD* value is small. The mean *LGR* is 0.1307, showing that the average loan guarantee provided for affiliates was approximately 13% of total assets during the sample period. The mean *SIZE* is 27.1100, showing that the average total assets of sample companies is approximately 594 billion Korean Won. The mean *LEV* is 1.3991, showing that the average debt ratio of sample companies was approximately 140% during the sample period. The mean *ROA* is 0.0269, showing that the average return on assets of the sample companies was approximately 3% during the sample period. The mean *CFO* is 0.0477, showing that the average operating cash flow of sample companies was approximately 5% of total assets during the sample period.

5.2. Correlation Analysis

Table 2 shows the Pearson's correlation coefficients for the variables used in the model (1).

Table 2. Correlation Coefficients

	LGR _t	SIZE _t	LEV _t	ROA _t	CFO _t
COD _t	0.0120 (0.5364)	-0.1537 ($<.0001$)	0.2304 ($<.0001$)	-0.3415 ($<.0001$)	-0.2215 ($<.0001$)
TAV _t		-0.0603 (0.0019)	-0.0009 (0.9624)	-0.0307 (0.1135)	-0.0281 (0.1477)
SIZE _t			0.1686 ($<.0001$)	0.1426 ($<.0001$)	0.1452 ($<.0001$)
LEV _t				-0.3029 ($<.0001$)	-0.1564 ($<.0001$)
ROA _t					0.4402 ($<.0001$)

The value in parenthesis is p-value. See Table 1 for definitions of the variables used.

LGR is not significantly related to *COD*. However, it is necessary to include other control variables that might have an effect on the cost of debt. *SIZE* is significantly negatively related to *COD*, confirming the results of Sengupta (1998). This finding indicates that creditors demand lower risk premiums from larger companies. *LEV* is significantly positively related to *COD*, confirming the findings of Pittman and Fortin (2004) and Francis et al.

(2005). This result indicates that creditors demand higher risk premiums when debt ratios are high. *ROA* is significantly negatively related to *COD*. This result indicates that creditors demand lower risk premiums when the profitability of a company is high. *CFO* is significantly negatively related to *COD*, supporting Pittman and Fortin (2004).

5.3. Regression Results

Table 3 presents the results of the multivariate regression analysis. The main independent variable of this study is *LGRD*, which presents whether the amount of loan guarantees provided to affiliates is large or not. The coefficient of *LGRD* is 0.0034, which is significant at a 1% level. This result indicates that cost of debt is high when the amount of loan guarantees provided to affiliates is large. Because creditors regard loan guarantees provided to affiliates as contingent liabilities, they demand higher risk premium when a company provides larger loan guarantees. This result supports those of Shim (1996) and Berkman et al. (2009), who also found that loan guarantees provided to affiliates are contingent liabilities.

All control variables used in this study are significantly associated with *COD*. *SIZE* is significantly negatively associated with *COD*, supporting the results of Sengupta (1998). *LEV* was significantly positively related to *COD*, confirming the results of Pittman and Fortin (2004) and Francis et al. (2005). *ROA* is significantly negatively related to *COD*, indicating that cost of debt is low when the profitability of a company is high. This finding supports this study's expectation. *CFO* is significantly negatively associated with *COD*, which supports Pittman and Fortin (2004). In order to check the existence of multicollinearity, I calculate a Variance Inflation Factor (VIF) of variables used in my multivariate regression model. The maximum value of VIF is only 2.18, which means there is no critical problem from multicollinearity in my model.

Table 3. Regression Results

Variables	Estimated Coefficients	t-stat
Intercept	0.0339	5.75***
LGRDt	0.0034	5.69***
SIZEt	-0.0005	-2.28**
LEVt	0.0016	9.43***
ROAt	-0.0551	-12.14***
CFOt	-0.0174	-3.85***
ID	Included	
YD	Included	
Observations	2,660	
Adj R2	0.3039	
F-value	20.34***	

*** and ** denote significance at the 1% and 5% levels, respectively, based on a two-tailed test. See Model (1) for definitions of the variables used.

VI. CONCLUSION

This study investigated the relationship between loan guarantees provided to affiliates and cost of debt. Conflicting arguments regarding loan guarantees provided to affiliates have prevailed. First, some suggest that loan guarantees provided to affiliates would decrease firm value because they are contingent liabilities (Shim, 1996; Berkman et al., 2009). Second, others suggest firm value is high when the amount of loan guarantees provided to affiliates is large because loan guarantees would be regarded as a positive indicator of future cash flow (Lee, 2005). The purpose of this study was to present additional empirical evidence of these arguments.

The result of this study showed that cost of debt is high when the amount of loan guarantees provided to affiliates is large. This result indicates that creditors demand higher risk premiums when the amount of loan guarantees provided to affiliates is large because they regard loan guarantees as contingent liabilities. Therefore, this result supports the assertion that loan guarantees decrease firm value.

These findings offer additional evidence of the conflicting arguments surrounding loan guarantees and may help increase the understanding of their nature. This study also suggests that the amount of loan guarantees provided to affiliates might be classified as a liability in the calculation of the debt ratio and credit rates.

Some limitations were present in this study. First, there are various methods of estimating cost of debt. However, this study used only one method. Therefore, measurement error may have been present in the empirical results. Second, the dummy variable used in this study served as a main independent variable because a continuous linear relation could not be assumed in the relationship between loan guarantees provided to affiliates and cost of debt. A limitation was present in the implication of this dummy variable. Therefore, further studies are needed that examine the relationship between loan guarantees and cost of debt.

AUTHOR BIOGRAPHY

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AUTHOR'S NOTE

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