Firms' Corporate Governance and the Cost of Debt: An Analysis of U.S. Firms' GMI Ratings

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Prior Research

We, in conjunction with Daniel Collins, undertook a study in 2004 to investigate the relation between governance and firms' credit ratings.[1] In that study, we discuss in detail the theoretical link between governance and the cost of debt capital, and how credit ratings proxy for firms' cost of debt. The results of that paper demonstrate that specific attributes of governance (for example, board independence) are associated with firms' credit ratings. In this executive summary, we provide a short summary of the theoretical link between governance and the cost of debt capital as well as how credit ratings can be used to proxy for firms' cost of debt. We then summarize our research that examines the relation between the GMI Home Market Overall Rating and firms' credit ratings.

Theoretical Link between Governance and Cost of Debt Capital

Within the Jensen and Meckling (1976) agency theory framework, debt stakeholders face two types of agency conflicts that can increase the probability of default resulting in increased default risk and therefore higher debt costs to the firm. The first is the conflict that results from the separation of ownership and control in corporate organizations,

[1] Ashbaugh-Skaife, Hollis, Daniel Collins, and Ryan LaFond. 2006. The Effects of Corporate Governance on Firms' Credit Ratings. Forthcoming in the *Journal of Accounting and Economics*.

which leads to information asymmetry problems between external stakeholders and managers. Information asymmetry creates a moral hazard problem when managers have incentives to pursue their own interests at the expense of external stakeholders. Self-interested managerial behavior can take several forms including shirking, consumption of perquisites, over compensation, and empire building, all of which increase the agency risk faced by external stakeholders and decrease the expected value of the cash flows to the firm. As the firm's expected cash flows decline, the default risk of debt stakeholders increases leading to higher debt costs to the firm.

The second agency conflict faced by debt stakeholders is the conflict with shareholders. Shareholders in levered firms have incentives to undertake actions that can transfer wealth from debt stakeholders to themselves. Shareholders may demand direct payouts of firm assets (dividends or share repurchases) as opposed to supporting manager's investments in positive net present value projects that increase a firm's future cash flows. The reduction in a firm's expected future cash flows increases debt stakeholders' default risk. Or shareholders can influence managers to invest in riskier projects that increase the variance of a firm's future cash flows resulting in debt stakeholders facing greater default risk. In both examples, debt stakeholders bear greater risk that their fixed contractual claims on the firm's cash flows will not be paid while shareholders potentially are better off. The greater default risk results in higher debt costs for the firm.

Credit Ratings Proxying for Firms' Cost of Debt

Firm credit ratings are determined by rating agencies' assessment of the probability distribution of future cash flows to debt stakeholders, more specifically bondholders. A firm's creditworthiness is determined by assessing the likelihood that its future cash flows will be sufficient to cover debt service costs and principal payments. As the mean of the firm's future cash flow distribution shifts downward or the variance of its future cash flows increases, the likelihood of default increases and the firm's credit rating will decline. Firms' credit ratings are used to proxy for the cost of debt as there is a positive correlation between firms' credit ratings and the likelihood of default.

Current Project

Governance Metrics International (GMI) asked us to extend the seminal work of Ashbaugh-Skaife, Collins, and LaFond (2006) by investigating whether GMI governance ratings are associated with U.S. firms' cost of debt capital as proxied by firms' overall credit rating. Below is a summary of our research design and findings.

Firm Characteristics Known to Affect Firms' Credit Ratings

Table 1 summarizes the partitioning of firms' credit ratings into seven categories to ensure adequate sample sizes to conduct the empirical tests. Higher ratings proxy for lower debt costs.

Prior research identifies firm characteristics that affect firms' credit risk and therefore credit ratings. To draw valid inferences about the relation between the GMI governance score and the cost of debt, the empirical tests must control for other known

factors that affect firms' credit ratings. Research has demonstrated a negative relation between credit ratings and leverage (LEV). In addition, credit ratings are a function of profitability. We use the return on assets (ROA), the reporting of a loss (LOSS), and the interest coverage ratio (INT_COV) to proxy for profitability, where ROA and INT_COV are expected to be positively related to firms' credit ratings and LOSS is expected to be negatively related to firms' credit ratings.

Firm size (SIZE) is included as a control variable because larger firms face lower default risk, and thus are expected to have higher credit ratings. We also control for differences in firms' debt structure by including SUBORD, which is coded one if the firm has subordinated debt. We expect a negative relation between SUBORD and credit ratings because subordinated debt is considered to more risky due to the differential claims to assets by debt stakeholders. Capital intensity (CAP_INTEN) is included in the model to control for differences in firms' asset structures, where firms with greater capital intensity present lower risk to debt providers, and thus are expected to have higher credit ratings. FIN_UTILITY is set equal to one if a firm is a financial institution or utility firm (and zero otherwise) to control for lower default risk for firms operating in regulated industries. The variable definitions and data sources are provided in Table 2.

Sample

Table 3 displays the mean and median credit ratings of the 936 firms that are represented in the January 2005 GMI data base and have the necessary data from the 2004 Compustat data base to conduct our empirical tests. We use firms' January 2005 GMI Home Market Overall Rating, hereafter referred to as GMI SCORE, in an attempt to align the

governance data with financial data. The GMI SCORE of sample firms range from one (n=8) to ten (n=18) with the most frequent score being seven (n=248). The mean (median) credit rating for the lowest GMI SCORE is 2.75 (3.00), indicative of a speculative grade rating. The mean (median) credit rating for the highest GMI SCORE is 4.44 (4.50), which represents an investment grade rating. To provide an economic interpretation of the variation between speculative versus investment grade ratings, the difference in the cost of debt between speculative and investment grade firms is approximately 800 basis points (Ashbaugh-Skaife, Collins, and LaFond 2006). The firms receiving a GMI SCORE of seven had a mean credit rating of 3.98.

Methodology

To test whether the GMI SCORE is associated with credit ratings, we estimate an ordered logit model. We use ordered logit because the seven categories of credit ratings convey ordinal risk assessments; we can rank order firms' preferences across the rating categories but cannot assume uniform differences in benefits (costs) between the categories.

If the GMI SCORE captures the reduction in agency risk due to strong corporate governance, we expect a positive relation between the GMI SCORE and credit ratings (i.e., the coefficient on GMI SCORE will be positive and significant at p-values of .10 or less).

Results

Table 4 displays the results of the empirical test. Note that the results of Model 1 demonstrate the explanatory power of the firm characteristics before considering the effect of governance as measured by the GMI SCORE. All of the estimated coefficients reported in the Model 1 column are significant with the expected sign with the exception of CAP_INTEN which is not statistically significant. The generalized R^2 of .48 indicates that the firm characteristics explain 48% of the variation in credit ratings.

The Model 2 column of Table 4 reports the results of the ordered logit regression that includes GMI SCORE. The results indicate a positive and highly significant relation between GMI SCORE and credit ratings after controlling for firm characteristics. This finding suggests that firms with higher GMI SCOREs face lower debt costs. The addition of the GMI SCORE to the credit rating model increases the explanatory power to .50 and the model is highly significant (Likelihood ratio χ^2 statistic of 640.71), suggesting that the GMI SCORE adds insight into firms' credit ratings beyond firm characteristics.

Summary

This executive summary reports the results of our investigation of whether U.S. firms' GMI Home Market Overall Rating scores are associated with their credit ratings. For a sample of 936 firms, we find that firms with higher GMI Home Market Overall Rating scores have better credit ratings. Our finding suggests that firms with higher GMI Home Market Overall Rating scores face lower debt costs.

References

Ashbaugh-Skaife, H., D. Collins, and R. LaFond. 2006 "The Effects of Corporate Governance on Firms' Credit Ratings." *Forthcoming in the Journal of Accounting and Economics*.

Jensen, M. and W. Meckling. 1976. "Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure," Journal of Financial Economics 3: 305-360.

Table 1
Credit Rating Classifications

S&P Debt Rating	Compustat Data 280	Issuer Long Term Credit Rating	Grade
AAA	2	7	Investment
AA+	4	6	Investment
AA	5	6	Investment
AA-	6	6	Investment
A+	7	5	Investment
A	8	5	Investment
A-	9	5	Investment
BBB+	10	4	Investment
BBB	11	4	Investment
BBB-	12	4	Investment
BB+	13	3	Speculative
BB	14	3	Speculative
BB-	15	3	Speculative
B+	16	2	Speculative
B	17	2	Speculative
B-	18	2	Speculative
CCC+	19	1	Speculative
CCC or CC	20,23	1	Speculative
C	21,24	1	Speculative
D or SD	27,29,90	1	Speculative

Table 2
Variable Definitions

	Variable Definitions
CAP_INTEN	Gross PPE (Compustat #7) divided by total assets (Compustat #6)
FIN_UTILITY	One if firm is a financial institution (one-digit SIC code 6) or a utility (two-digit SIC code 49), zero otherwise
INT_COV	Operating income before depreciation (Compustat #13) divided by interest expense (Compustat #15) or (Compustat #339)
LEV	Total debt (Compustat #9 plus Compustat #34) divided by total assets (Compustat #6)
LOSS	One if the net income before extraordinary items is negative in the current fiscal year, zero otherwise
RATING	See Appendix 1 for coding
ROA	Net income before extraordinary items (Compustat #18) divided by total assets (Compustat #6)
SIZE	Natural log of total assets (Compustat #6)
SUBORD	One if the firm has subordinated debt, zero otherwise

Table 3
Credit Ratings by Home Market Overall Rating Score (GMI SCORE)

GMI HOME MARKET OVERALL RATING (GMI SCORE)	n	Mean Credit Rating	Median Credit Rating
1 (low GMI SCORE)	8	2.75	3.00
2	18	3.44	3.00
3	31	3.29	3.00
4	50	3.30	3.00
5	80	3.63	4.00
6	212	3.54	4.00
7	248	3.98	4.00
8	182	4.14	4.00
9	89	4.33	4.00
10 (high GMI SCORE)	18	4.44	4.50

Table 4
GMI SCORE and Credit Ratings

Variables	Predicted Sign	Model 1	Model 2
Dependent variable = Credit Rating			
LEV	−	-2.097***	-2.005***
ROA	+	14.456***	13.584***
LOSS	−	-0.848***	-0.783***
INT_COV	+	0.007*	0.008**
SIZE	+	0.881***	0.851***
SUBORD	−	-0.869***	-0.777***
CAP_INTEN	+	0.204	0.090
FIN_UTILITY	+	0.604***	0.566***
GMI SCORE	+		0.155***
Generalized R-square		0.48	0.50
Likelihood ratio χ^2		626.33***	640.71***
Sample Size		936	936

The table reports the results of estimating an ordered logit model. ***, **, * indicates significance at the 0.01, 0.05, 0.10 levels, respectively. See Table 2 for variable definitions.