

Board of Directors Characteristic and Cost of Debt in Tehran Stock Exchange

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Abstract

This study investigates the effect of board composition on debt cost of firms listed in Tehran Stock Exchange (TSE). To do so, 90 firms are selected to be studied during the period of 2008 to 2012 using panel data and regression model. Board composition involved in this study are outside board, board size and board independence. Results show that there is a negative and significant relationship between outside board and debt cost. Board size has positive significant relationship and board independence has no significant relationship with debt expense. Control variables of return of assets, return of equity and debt size have a negative relationship and market to book value, financial leverage and firms size have a positive and significant relationship with debt cost.

Keywords: Board Size, Board Independence, Debt Expense, Independence Size of Board of Directors

Introduction

Corporate governance is a set of firm's guidance, controlling tools, process which by that firm try to be responsible for stakeholders. Firm's corporate governance determines the rights and responsibility of firm's stakeholders including managers, employees, investors and others. This mechanism also determines the tools to reach firms strategic goals and plans control systems for firm to insure that firm's capital financiers will receive

their expected return through reducing agency conflict (Amadpour et al., 2010). Board of director is one of the most important factors in corporate governance.

Major Stock Exchanges and financial accounting standards boards regularly emphasize the role of board of directors in supervising the financial accounting process. Boards comprising inside directors may be more willing to conceal bad news to gain private benefits or to limit stakeholder intervention in the firm (Anderson et al., 2003). Corporate governance mechanisms may have an impact on the cost of debt through mitigating agency costs that stem from not convergence between shareholders and debtholders as well as managers and all stakeholders (Byun, 2007). The agency problems stem from the separation of ownership and control resulting in information asymmetry and moral hazard when managers are motivated to act on their own interests instead of shareholders (Morales et al., 2010).

The difference between debtholders and shareholders is that debtholders have no substantial supervision on the use of the cash they provide. Corporate managers may misuse these capitals acting in their self-interest or shareholders. Debtholders forecast this behavior and demand a higher interest for their funds. Thus, those external capital providers may consider the quality of monitoring devices established within companies. Increasing agency costs of debt results in high demanded interest. Another key determinant of cost of debt is information risk. In the presence of asymmetrical information, lenders are concerned about: (1) the company ignores information

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that increases the default risk of the loan and (2) the company is not faithful in information disclosures. By motivating firms to disclose information in a timely manner and assuring the controlling of the quality of financial reports, governance mechanisms can mitigate information risk (Morales et al., 2010). Cost of debt provides information about not only on how the firms are financed but also indicates managers' ability to increase the bottom line-income statement item. Thus, with a good corporate governance practice, firms are expected to have optimum level of cost of debt (Amrah, 2011).

Majority of previous research has studied the relationship between corporate governance mechanisms and the manager-shareholder agency problems. However, although debt financing is more common than equity capital, a little researches are investigated the relation between board of director's characteristic and cost of debt. However, the aim of this study is to investigate the relationship between board of directors characteristic and cost of debt in Tehran Stock Exchange.

Literature Review

Schauten and Blom (2006) examined the relation between the quality of corporate governance and the cost of debt. They find that corporate governance performance is negatively related to the cost of debt and firms with strong corporate governance have lower cost of debt financing while firms with a relatively weak corporate governance performance are associated with higher cost of debt financing. Their findings support the idea that debt holders use the quality of corporate governance in their assessment of risk profiles of firms. Their results imply good corporate governance pays off for both equity and debt holders.

Frantz and Instefjord (2012) analyzed the link between governance and the cost of borrowing. They find that improvements in governance reduce the likelihood of default. They find that improvements in governance increase or reduce the cost of debt, where the sign of the relationship depends on the firm's restructuring cost in default.

Zhu (2012) shows that firms with good corporate governance are associated with both lower cost of equity and cost of debt capital in an international setting and the association between corporate governance and the cost of

equity is more pronounced in countries with strong legal systems and extensive disclosure practice. Their results show that corporate governance has larger impacts on the cost of debt in countries with weak legal protection, low transparency, and poor government quality suggesting that corporate governance is important to creditors when a firm is exposed to high political risks.

Jandik and McCumber (2012) find that internal and external governance have an influence on cost of private debt, and lenders evaluate agency-related costs and takeover risks when determining loan spreads. Firms with stronger internal governance have lower debt costs, consistent with the mitigation of agency costs for shareholders and debtholders. They also show that because lenders consider acquisitions of borrowing firms value-reducing, they demand higher debt costs to firms more likely to be taken over. They indicate that debt cost savings because of anti-takeover provisions are associated with firms that are financially stronger and/or expected to be taken over, while lower debt costs because of stronger internal governance are considered to firms that are financially weaker and/or less likely to be acquired.

Klock et al. (2004) examined the relation between the cost of debt financing and a governance index that contains various anti-takeover and shareholder protection provisions and find that anti-takeover governance provisions lower the cost of debt financing while weak anti-takeover provisions increases cost of debt financing.

Anderson et al. (2003) find that the board independence and board size have a negative relationship with cost of debt. They also find that fully independent audit committees results in lower cost of debt financing. In addition, they indicate that yield spreads are also negatively related to audit committee size and meeting frequency. Overall, their results provide market-based evidence that boards and audit committees are important elements affecting the reliability of financial reports.

Francis et al. (2012) investigated the role of corporate boards in bank loan contracting. They find that when corporate boards are more independent, both price and nonprice loan terms (e.g., interest rates, collateral, covenants, and performance-pricing provisions) are more favorable, and syndicated loans comprise more lenders. In addition, they find that board size, audit committee structure, and other board characteristics influence bank loan prices. However, they do not consistently affect

all nonprice loan terms except for audit committee independence.

Byun (2007) indicate that sound corporate governance practices reduces the cost of debt capital and corporate governance practices is more prevalent in firms that have assets of more than \$2 billion.

Morales et al. (2010) explored the relation between board and cost of debt and show that director ownership, board activity and the presence of women on the board have an influence on risk assessment of debtholders. They also indicate that there is a non-linear relationship between board size and cost of debt and do not find any relationship between independent directors and borrowing cost.

Amrah (2011) investigated the relationship between characteristics of board of directors and cost of debts. He finds that the relationship between board size and board independence with cost of debts is negative but not significant. However, the results show that there is a positive relationship between CEO duality and cost of debts. The results show that there is a negative relationship between board meetings and multiple directorships with cost of debts and there is not a significant relationship between major director ownership and cost of debts.

Piot and Missonier-Piera (2009) investigated the effects of governance characteristics on debt financing costs and find a negative relation between board independence, the existence of a compensation committee composed of non-executive directors, and the presence of significant institutional shareholders in the firm's equity with the ex post cost of debt. They also find the existence of an independent audit committee have no effect on cost of debt.

Nikomaram et al. (2013) investigated the effect of audit reputation on the relationship between accruals quality and cost of debt in firms listed in Tehran Stock Exchange and show that there is a negative relationship between accruals quality and cost of debt and audit reputation increasens the negative relationship between accruals quality and cost of debt.

Amadpour et al. (2010) studied the effects of corporate governance and audit quality on cost of debt in firms listed in Tehran Stock Exchange. Their results show that existence of institutional ownership in firms ownership structure reduces cost of debt while audit quality not.

Hypotheses Development

1. There is a significant relationship between outside board of director and debt cost in firms listed in TSE.
2. There is a significant relationship between board independence and debt cost in firms listed in TSE.
3. There is a significant relationship between board size and debt cost in firms listed in TSE.

Research Model and Variables Definition

$$DE_{it} = \alpha_0 + \alpha_1 OUTD_{it} + \alpha_2 DirInd_{it} + \alpha_3 DirSize_{it} + \alpha_4 ROA_{it} + \alpha_5 ROE_{it} + \alpha_6 LoanSize_{it} + \alpha_7 BM_{it} + \alpha_8 Lev_{it} + \alpha_9 Size_{it} + \varepsilon$$

DE: debt expense

OUTD: outside board of director

DirInd: board independence where if number of outside board is more than insider board of director takes 1 otherwise 0.

DirSize: number of board members

ROA: Income before tax and interest divided by total assets

ROE: Income before tax and interest divided by firms equity

LOANSIZE: natural logarithm of debt size

BM: equity book to market value

LEV: leverage captured by dividing total debts to total assets

SIZE: natural logarithm of total assets

Empirical Results

Descriptive Statistic

Descriptive statistic of research variable is presented in Table 1.

According to table 1, leverage mean is 0.6 that shows firms of TSE are mostly financed through debts. Equity book value to market value mean is 0.81 indicates that firms of TSE have a market value more than their book value. Return of assets and equity are rather high which

Table 1. Descriptive Statistic

	SIZE	LEV	BM	LOANSIZE	ROE	ROA	DIRSIZE	OUTIND	OUTDIR	DC
Mean	13.19	0.684	0.814	11.97	36.54	9.381	5.013	0.842	0.654	15.05
Median	13.04	0.654	0.690	11.75	29.06	9.120	5.000	1.000	0.600	15.02
Maximum	19.61	3.223	4.349	17.79	2829	62.73	7.000	1.000	1.000	27.26
Minimum	9.821	0.096	0.050	7.664	-491.4	-54.81	3.000	0.000	0.000	2.720
Std. Dev.	1.394	0.282	0.593	1.653	173.9	13.428	0.306	0.365	0.174	3.260
Skewness	0.762	3.071	2.522	0.536	11.11	-0.349	2.897	-1.875	-0.307	0.109
Kurtosis	4.378	21.80	12.85	3.527	159.0	5.990	31.59	4.517	3.325	4.943

Notes: SIZE is firm's size, LEV is financial leverage, BM is equity book to market value, LOANSIZE is loan size, ROE is return on equity, ROA is return on assets, DIRSIZE is board size, OUTIND is outside board independence, OUTDIR is outside director, DE is debt cost.

may result from application of historical cost and high inflation in Iran. Board size mean is 5.013 showing that TSE firms have mostly 5 board member. Outside board mean is 0.654 indicating that 65 percent of firm's board consists of outside board which is more than half.

Heteroskedasticity Test

To test Heteroskedasticity, Autoregressive Conditional Heteroskedasticity (ARCH) approach is used.

Table 2. Autoregressive Conditional Heteroskedasticity test

	Value	Sig.
F-statistic	0.146409	0.7022
Obs*R-squared	0.147076	0.7013

According to the results of Table 2, there is not a Heteroskedasticity problem since the significance of test is more than 5 percent.

F-Limer Test

F-Limer test is used to choose between panel data method and pooled data method. If obtained probability for F-Limer test is smaller than 0.5, panel method and if not, pooled data method will be used.

Table 3. F-Limer test

	Value	DF	sig
Cross-section F	0.0000	(354,67)	1.0000

According to the results, pooled model is preferred to panel model.

Hypotheses Test

The following regression model is used to test hypotheses:

$$DE_{it} = \alpha_0 + \alpha_1 OUTD_{it} + \alpha_2 DirInd_{it} + \alpha_3 DirSize_{it} + \alpha_4 ROA_{it} + \alpha_5 ROE_{it} + \alpha_6 LoanSize_{it} + \alpha_7 BM_{it} + \alpha_8 Lev_{it} + \alpha_9 Size_{it} + \varepsilon$$

The results of hypotheses test is presented in Table 4.

Table 4. Results of Hypothesis Test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-10.7063	0.060297	-177.561	0.001
OUTDIR	-1.08341	0.025825	-41.9525	0.001
OUTIND	-0.01419	0.012333	-1.15052	0.2499
DIRSIZE	0.093799	0.010386	9.031226	0.001
ROA	-0.04433	0.000354	-125.044	0.001
ROE	-0.00015	1.80E-05	-8.54553	0.001
LOANSIZE	-0.16085	0.004907	-32.7815	0.001
BM	0.069369	0.005198	13.34494	0.001
LEV	2.254368	0.016897	133.4197	0.001
SIZE	2.028298	0.0058	349.6875	0.001
R-squared	0.693541	Adjusted R-squared	0.693001	
F-statistic	1284.116	Durbin-Watson stat	1.910166	
Prob(F-statistic)	0.000			

The results show that there is a negative relationship between outside board and debt cost considering the coefficient (-1.08341) and significance (0.001) and there is a positive relationship between board size and debts cost considering the coefficient (0.093799) and significance (0.001). However, there is not a significant relationship between board independent and debts cost,

significance (0.2499). Taking all results together, the first and third hypotheses are accepted and second hypothesis is rejected.

Durbin-Watson stat (1.910166) is between 1.7 and 2.2 showing that there is not a autocorrelation problem among models residual. F-statistic (0.000) shows that the whole model is significant since it is less than 5 percent confidence level. Adjusted R-squared (0.693001) indicate that 69 percent of dependent variable is explained by independent and control variables.

Further results as to return on assets, return on equity and firms loan size indicate that there is a negative significant relationship between return on assets, return on equity and firms loan size and costs of debt, coefficient are (-0.04433), (-0.00015) and (-0.16085) and significance are (0.001), (0.001) and (0.001), respectively. However, decreasing return on assets, return on equity and firms loan size lead to increasing cost of debt.

The results as to book to market value, financial leverage and firms size indicate that there is a positive significant relationship between book to market value, financial leverage and firms size, coefficient are (0.069369), (2.254368) and (2.028298) and significance are (0.001), (0.001) and (0.001), respectively. However, increasing book to market value, financial leverage and firms size lead to increasing cost of debt.

Conclusion and Suggestion Remarks

This study investigated the effect of board composition on debt cost of firms listed in Tehran Stock Exchange (TSE). To do so, 90 firms are selected to be studied during the period of 1387 to 1391 using panel data and regression models. Board composition involved in this study are outside board, board size and board independence.

Three hypotheses developed in this study. First hypothesis supposes that higher outside members in board of director reduces debt cost in firms listed in TSE since outside boards supposed to be independent and have better supervision on firm's activities. The results indicated that there is a negative relationship between outside board and debt cost considering the coefficient (-1.08341) and significance (0.001) showing that with decreasing outside board in board of directors, cost of debt increases. The results are consistent with Schauten and Blom (2006), Frantz and

Instefjord (2012), Jandik and McCumber (2012), Francis et al. (2012), Byun (2007), Piot and Missonier-Piera (2009) and against with Morales et al. (2010). Second hypothesis posits that there is a significant relationship between board independence and debt cost in firms listed in TSE. Expectation is that board independence, decrease cost of debt. The result was contrary to expectation and indicated that there is not a significant relationship between board independent and debts cost, significance (0.2499). The results are against with Schauten and Blom (2006), Frantz and Instefjord (2012), Jandik and McCumber (2012), Anderson et al. (2003), Francis et al. (2012), Byun (2007), Morales et al. (2010), Piot and Missonier-Piera (2009) and consistent with Morales et al. (2010) who argues this may result from the lack of investor confidence in the role and true independence of that kind of directors. Third hypotheses argues that there is a significant relationship between board size and debt cost in firms listed in TSE. Bigger board size may have a good supervision on firm's management controlling his or her efforts. However, the results show that there is a positive relationship between board size and debts cost considering the coefficient (0.093799) and significance (0.001) showing that with increasing board size, cost of debt increases. The results are against with Schauten and Blom (2006), Frantz and Instefjord (2012), Jandik and McCumber (2012), Anderson et al. (2003), Francis et al. (2012), Byun (2007), Piot and Missonier-Piera (2009).

Further results as to return on assets, return on equity and firms loan size indicate that there is a negative significant relationship between return on assets, return on equity and firms loan size and costs of debt, coefficient are (-0.04433), (-0.00015) and (-0.16085) and significance are (0.001), (0.001) and (0.001), respectively. However, decreasing return on assets, return on equity and firms loan size lead to increasing cost of debt.

The results as to book to market value, financial leverage and firms size indicate that there is a positive significant relationship between book to market value, financial leverage and firms size, coefficient are (0.069369), (2.254368) and (2.028298) and significance are (0.001), (0.001) and (0.001), respectively. However, increasing book to market value, financial leverage and firms size lead to increasing cost of debt.

Considering the above results following suggestions are presented:

Considering the negative relationship between outside board of director and debt cost, more outside board of director leads to lower debts cost. However, it is suggested to investors to invest in the firms with more outside board of director.

Considering the positive relationship between board size and debt cost, more members of board of director leads to higher debts cost. However, it is suggested to investors to invest in the firms with smaller board of director.

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