Contents lists available at Science-Gate

International Journal of Advanced and Applied Sciences

Journal homepage: http://www.science-gate.com/IJAAS.html

Investigation effect of corporate governance on capital structure of listed companies in Tehran Stock Exchange

Esmaeilasad Monsef*

Tonekabon Branch, Islamic Azad University, Tonekabon, Iran

ARTICLE INFO

Article history:
Received 7 December 2015
Received in revised form
20 January 2016
Accepted 21 January 2016

Keywords:
Corporate governance
Capital structure
Board composition
Profitability

ABSTRACT

In this study, the impact of corporate governance on capital structure of accepted companies in Tehran Stock Exchange was evaluated. This was performed by examining the effect of corporate governance component on the capital structure of the company as an independent variable on the dependent variable to be tested. A survey was done for 58 companies listed between 2007 to 2012 using multiple regression models with Eviews software. Results reveal that profitability is significantly negatively correlated with capital structure. This negative relationship is consistent with the pecking order theory. So that more profitability firms prefer to makes internal funds until they turn to external finance. Results are expressed by variables related to corporate governance; including the composition of the board composition is a significant positive correlation with the capital structure that these results and the others corresponded. However, control variable company size is found to have a no significant effect on capital structure.

1. Introduction

Corporate governance, structures and processes that are used to guide and control the companies; good corporate governance to improve relationships between management, shareholders and other stakeholders and to improve the performance of companies and their access to foreign capital, increase shareholder value and protect the interests of all stakeholders. In the twentieth century, most companies rely on their managers. While in the early twenty-first century is predicted that more companies will focus on a set of factors that related to corporate governance. Today, if a company wants to enjoy the benefits of globalization of capital and the ability of supply the own shares on stock exchanges around the world, until in this way it can attract low cost capital and long-run capital, Factors such as a regular and continuous under the corporate governance system is necessary. Corporate development and introduce of agency theory and the rise of corporate functions and powers of the company's Board, This question will be discussed later, the managers who actually are not owners of companies, how could make the benefit for shareholders? With unlimited powers delegated by the owners of the company's board, according to the corporate governance system has dramatically increased. For this purpose, a reinforcement of culture of Accountability and Promoting transparency of information in Corporations is required (Andrew et al., 2002).

Agency theory is based on the conflict between shareholders and company's managers, is effective on the decision about financing. On the other hand, one of the mechanisms of corporate governance is the key in reducing agency costs and good corporate governance mechanisms is Impressive on Performance Improvement and increase the value of the company (Akbarimoghadam and Piry, 2010).

Today the capital structure is introduced as the most important factor affecting on the valuation of companies and grading of companies according to credit depends on the capital structure (Myers and Majluf, 1984). The first time issue of capital structure examined with Modigliani and Miller (1958). They express that under special assumptions, including perfectly competitive market, there is no income tax and no bankruptcy costs, the value of company, independent of its capital structure.

Modigliani and Miller (1958), in later years, taking into consideration the corporate income tax revised of the basic theory. Modigliani and Miller (1958), in later years, taking into consideration the corporate income tax revised of their basic theory and argued that, with regard that the debt makes tax shield for companies so rather than between different sources of financing, the use of debt is better; because greater use of debt will increase the

* Corresponding Author.
Email Address: e.a.monsef@hotmail.com

company's value. In developing countries, improving corporate governance mechanisms can be used on public policy. Good corporate governance lead to reduce vulnerability to financial crises in emerging markets, increases the Property rights, reduces deal cost and capital cost and lead to the development of the capital market (Claessens et al., 2002). Improving corporate governance mechanisms are of great importance for developing countries; because they are trying to attract foreign investors and through the capital markets, will be saved greater reserves. With economic liberalization and public limited companies on the stock market, has been felt the need for better corporate governance practices. That study sought to determine the relationship between corporate governance and capital structure of the company. In other words, the aim of this study was to determine the effect of corporate governance on the total debt to equity ratio of listed companies in Tehran Stock Exchange. However relationship between corporate governance and capital structure has not been fully explored. Only few studies discuss the said relationship. Berger et al. (1997), Wen et al. (2002) and Abor (2007) discuss the influence of corporate governance on the capital structure decisions of firms for developed and emerging markets. This study can be determining the relationship between corporate governance and the amount of company's debts, and in this way as guides be used for appropriate amount of debt in capital structure and to help financial managers to make more informed choices financing decisions.

2. Materials and methods

2.1. Data description

This study analyses relationship between capital structure and corporate governance for 58 companies listed at Tehran Stock Exchange. The sample period is 2007 to 2012 which gathered from www.rdis.ir and www.codal.ir. Board Size**,** Board Composition, Institutional Investors are used as measures of Corporate governance. Similarly, impact of control variables Ikea Profitability (Return on Assets) and company Size on capital structure has also been studied. Statistical population in this study consists of total companies listed at Tehran Stock Exchange. Statistical sample consist of 58 companies listed at Tehran Stock Exchange that are obtained from systematic sample (Multistage sampling) method. In this study, coefficient of regression analysis is estimates with using generalized least squares (GLS).

2.2. Variables

Variables included in study have been measured as follows:

The dependent variable in this study is the company's capital structure. Capital structure is defined as "total debt to equity ratio". The ratio is also "total liabilities to total asset ratio". In the model is shown with V_{it}. The independent variables in this study, the mechanism of internal corporate governance and ownership structure, which consists of five indicators, are as follows:

Board size (S): The size of the board to be measured by the natural logarithm of the number of board members.

Board Composition(C): Variable Board composition represents the proportion of non-executive directors on board and is calculated as the number of non-executive directors divided by total number of directors.

Institutional Investors (I): Shares that are owned by institutional establishments.

Control variables: The research model includes some specific control variables that are associated with properties of company and may effective on the capital structure of the company. These variables are as follows:

Profitability (B): Profitability, equal with return on assets of the companies, in this study Return on Assets (B) is used as measure of profitability and it is calculated by dividing a company's net earnings by its total assets.

Company Size (SI): Company size is the natural logarithm of the book value of total assets (Arshad, 2009).

2.3. Research hypotheses

The first hypothesis: there is negatively significant relationship between Board size and Ratio of total debt.

The second hypothesis: there is positively significant relationship between Composition of the Board and Ratio of total debt.

The third hypothesis: there is positively significant relationship between Institutional Investors and Ratio of total debt.

2.4. Econometric model

This study employs multivariate regression analysis in a panel data framework to measure the dependence of capital structure on corporate governance variables. The panel data analysis helps to explore cross-sectional and time series data simultaneously (Arshad, 2009).

To test the research hypothesis is used multivariate regression model. That shown in the fallowing equation (Eq. 1):

$$LV_{it} = \beta_0 + \beta_1(\text{Log } S)_{it} + \beta_2(\%\ C)_{it} + \beta_3(\%\ I)_{it} + \beta_4(B)_{it} + \beta_5(SI)_{it} + \varepsilon_t \quad (1)$$

LV_{it} = capital structure

S = Board size

C = Board Composition

I = Institutional Investors

B = Profitability (Return on Assets)

SI = Company Size

β_0 = Intercept of the equation

Marginal effect of variable on debt to equity ratio $= \beta_i$

ε = Error Term

To estimate the model followed several steps:

2.4.1. Chow test (F restricted)

Panel data analysis can be done in three ways:

1-Pooled Data

2- Fixed Effect Panel Data

3- Random Effect Panel Data

We can use the Chow test for selected between Pooled data and Fixed Effect Panel data. If the conditions affecting the surveyed companies (economy conditions, politics conditions, etc.) are almost identical in all years of the study, constant term of all those years, significantly with each other will be the same then for all those years we have only one constant term(pooled data). If the conditions affecting of each year is significantly different from the other years, surely constant term of each year is significantly different from the other years (Fixed Effect Panel Data) Chow test can be done for the following hypotheses:

$H_0: \alpha_1 = \alpha_2 = \ldots = \alpha_k$

All of constant terms is equal (Pooled model),

$H_1: \exists\, r \neq S \Rightarrow \alpha_r \neq \alpha_s$

At least one of the constant terms is different from the others (Fixed effect).

The test statistic is calculated as follows (Eq. 2):

$$F = \frac{(R^2_{LSDV} - R^2_{Pooled})/(T-1)}{(1-R^2_{LSDV})/(NT-T-K)}$$

or

$$F = \frac{(RSS_{Pooled} - RSS_{LSDV})/(T-1)}{RSS_{LSDV}/(NT-T-K)} \quad (2)$$

In above equations R^2_{LSDV} and RSS_{LSDV} are Coefficient of Determination and sum of squares of residuals from the unrestricted model in respectively. R^2_{Pooled} and RSS_{Pooled} are Coefficient of Determination and sum of squares of residuals from the restricted model in respectively. N, is number of cross (in here is companies) and T, is during the period (years). To understand the Pooled model or fixed effects model is better, we use the Chow test. If was preferred the Pooled model (H0 can't be rejected) finished this step. But if was preferred the Fixed Effect (H0 can be rejected) we should test Fixed Effect against the Random effect Panel data. In this way can be determined appropriate model to estimate.in next step we need to use from Hausman test.

2.4.2. Hausman test

Hausman test comparing random effects (RE) and fixed effects in a linear model. Hausman test is formed based on the presence or absence of a relationship between the special effect of each company and the independent variables of the model. If there is not such relationship, was used random effect model. If there is such relationship, was used fixed effect model. If specific effects of each company with other independent variables are not correlated, In this case, shouldn't be exist significantly different between the estimates of the fixed effects model and random effects model. Thus, Null hypothesis and alternative hypothesis are presented as follows:

H_0: there are not correlation between individual effects and independent variables (random effect model).

H_1: there is correlation between individual effects and independent variables (fixed effect model).

Hausman test statistic is shown below (Eq. 3):

$$H = (\hat{\beta}_{FEM} - \hat{\beta}_{REM})'(v\,\hat{a}r(\hat{\beta}_{FEM}) - v\,\hat{a}r(\hat{\beta}_{REM}))^{-1}(\hat{\beta}_{FEM} - \hat{\beta}_{REM}) \sim \chi^2 \quad (3)$$

In this equation $\hat{\beta}_{FEM}$ are the estimated slope coefficients in the fixed effects model, $\hat{\beta}_{REM}$ are the estimated slope coefficients in the random effects model and $v\,\hat{a}r$ shown the estimated variance. From Hausman we know that H is asymptotically distributed as χ 2 (kγ).

2.4.3. Wald test

Wald test used to verify that information and the significance of the variables in the model. According to the research model, which was expressed in (Eq. 1), Wald test assumptions are expressed as follows (Eq. 4):

$H_0: \beta_1 = 0, \beta_2 = 0, \beta_3 = 0, \beta_4 = 0, \beta_5 = 0 = 0$

$H_1: \beta_1 \neq 0, \beta_2 \neq 0, \beta_3 \neq 0, \beta_4 \neq 0, \beta_5 \neq 0 \neq 0 \quad (4)$

3. Results and discussion

3.1. Descriptive statistics

Table 1 exhibits the descriptive statistics. Results reveal that nature logarithm of average size of board in Tehran listed companies is 1.62. To obtain average size of board use to the number Napier (e) to be scored 1.622.threfore the average size of board is 5.the average of capital structure is 0.614. This ratio indicates that debt is more than half of the company's capital. Natural logarithm of the Average rate of return on assets ROA (Profitability) is 0.238. This ratio is equal to net profits divided by the book value of total assets. The natural logarithm of the average company size is 12.945. Size of company is measured as logarithm of total assets. Board composition consist of Non-executive directors constitute 55% of boards which is a fairly good representation. Institutional Investors is Shares that are owned by institutional establishments. Average of Institutional Investors is 67% that shown 67% of the company's stock exchange is owned by institutional establishments.

3.2. Test hypotheses

3.2.1. The first hypothesis

The results of the chow test for the first hypothesis are presented in Table 2. Regarding the F statistics and zero significance level, test the null

hypothesis is rejected. Therefore the Hausman test should be used to determine the state fixed effects.

Table 1: Descriptive Statistics

	Capital structure	Board size	Profitability(ROA)	Company size	Board Composition	Institutional Investors
Mean	0.614	1.622	0.238	12.945	0.550	0.670
Maximum	0.932	1.954	0.819	15.967	0.98	1
Minimum	0.100	0.693	0.00	8.753	0.200	0.1
Std Dev	0.153	0.105	0.149	1.225	0.126	0.123
Number of observation	400					

Table 2: Chow test result

F statistic	df	P-value
13.086	5	0.01

Hausman test results for the first hypothesis are presented in Table 3. The significance level of 73%, indicating the null hypothesis is not rejected. So we use to the random effects method to estimating model.

Table 3: Hausman test result

χ 2 statistic	df	P-value
1.310	3	0.726

Test results of significant regression mode, separate regression coefficients test, durbin-watson test and adjustment coefficient of determination are shown in Table 4. Results reveal that the intercept of model is 0.691and t-statistic of interception is 1.235 and there is no significant. ROA ratio is -0.376 that significant at level α= 0.01 this variable has negative effect on capital structure. This means Profitability (ROA) has negatively relation with debt to equity ratio which is consistent with pecking order theory that firms use internally generated funds as first option to finance projects before resorting to debt. On the other hands an increase of 1% in Profitability (ROA) leads to 3.76% decrease in capital structure.

Coefficient of board size and company size equal to -0.024, 0.002 in respectively; calculated t statistic shown there are not significant. On the other hands result of analysis indicates there are not significant relation between board size and company size with capital structure.

Adjustment coefficient of determination equal to 0.37; this factor indicates that 37 percent of capital structure changes are explained by the independent variables in the model. F statistic is 11.795 that significant at level α= 0.01. Therefore, the regression equation is meaningful and acceptable. Durbin-Watson statistic is 1.465 and indicates the absence of autocorrelation in the error term. Consequently statistics of model are reliable.

There is a negative relationship between ROA (Profitability) and capital structure. This relation is significant in order to estimate result. Board size and company size, in respect have the negative and positive relationship with capital structure also these relationships are not significant in order to estimate result.

Table 4: Results multivariate regression analysis

variables	Coefficients	t Statistics	P-value	F statistic	P-value	DW statistic	Adjusted R^2
Intercept	0.691	1.235	0.52	11.795	0.01	1.465	0.375
Board size	-0.024	-0.233	0.815				
Profitability(ROA)	-0.376	-4.572	0.01				
Company size	0.002	0.240	0.810				

Wald test results for the first hypothesis are presented in Table 5. F statistic is 10.473 that significant at level α= 0.01.therefore null hypothesis can be rejected and alternative hypothesis can be accepted. Therefore all variables in the random effect model are significant.

Table 5: Wald test result

F statistic	df	P-value
10.473	3	0.01

3.2.2. The second hypothesis

The results of the chow test for the second hypothesis are presented in table 6. Regarding the F statistics and zero significance level, test the null hypothesis is rejected. Therefore the Hausman test should be used to determine the state fixed effects.

Table 6: Chow test result

F statistic	df	P-value
12.647	5	0.01

Hausman test results for the first hypothesis are presented in Table 7. The significance level of 94%, indicating the null hypothesis is not rejected. So we use to the random effects method to estimating model.

Table 7: Hausman test result

χ 2 statistic	df	P-value
0.370	3	0.94

Test results of significant regression mode, separate regression coefficients test, durbin-watson test and adjustment coefficient of determination are shown in Table 8. Results reveal that the intercept of model is 0.724 and t-statistic of interception is 4.972

and there is significant at level α= 0.05. ROA ratio is -0.380 that significant at level α= 0.01 this variable has negative effect on capital structure. This means Profitability (ROA) has negatively relation with debt to equity ratio, which is consistent with pecking order theory that firms use internally generated funds as first option to finance projects before resorting to debt. On the other hands an increase of 1% in Profitability (ROA) leads to 3.80% decrease in capital structure.

Coefficient of board Composition equal to 0.117 that significant at level α= 0.05. This variable has positive effect on capital structure. This means board Composition has positively relation with debt to equity ratio. On the other hands Presence of non-executive directors on the board has significant impact on capital structure which is consistent with Abor (2007) find evidence of a positive relationship between debt levels and composition of the Board. Research results have shown that small and medium companies in Ghana that have more non-executive directors, generally will be have higher levels of debt in the capital structure.

Coefficient of board size equal 0.002 calculated t statistics shown there is not significant. On the other hands result of analysis indicates there is not significant relation between board sizes with capital structure.

Adjustment coefficient of determination equal to 0.19; this factor indicates that 19 percent of capital structure changes are explained by the independent variables in the model. F statistic is 13.179 that significant at level α= 0.01. Therefore, the regression equation is meaningful and acceptable. Durbin-Watson statistic is 1.47 and indicates the absence of autocorrelation in the error term. Consequently statistics of model are reliable.

Table 8: Results multivariate regression analysis

variables	Coefficients	t Statistics	P-value	F statistic	P-value	DW statistic	Adjusted R^2
Intercept	0.724	4.972	0.01	13.179	0.01	1.478	0.193
Board Composition	0.117	1.84	0.032				
Profitability(ROA)	-0.380	-4.703	0.01				
Company size	0.001	0.183	0.854				

Wald test results for the first hypothesis are presented in table 9. F statistic is 11.64 that significant at level α= 0.01.therefore null hypothesis can be rejected and alternative hypothesis can be accepted. Therefore all variables in the random effect model are significant.

Table 9: Wald test result

F statistic	df	P-value
11.641	3	0.01

3.2.3. The third hypothesis

The results of the chow test for the third hypothesis are presented in Table 10. Regarding the F statistics and zero significance level, test the null hypothesis is rejected. Therefore the Hausman test should be used to determine the state fixed effects.

Table 10: Chow test result

F statistic	df	P-value
12.89	5	0.01

Hausman test results for the first hypothesis are presented in Table 11.

Table 11: Hausman test result

χ 2 statistic	df	P-value
0.320	3	0.94

The significance level of 94%, indicating the null hypothesis is not rejected. So we use to the random effects method to estimating model.

Test results of significant regression mode, separate regression coefficients test, durbin-watson test and adjustment coefficient of determination are shown in Table 12. Results reveal that the intercept of model is 0.622 and t-statistic of interception is 4.419 and there is significant at level α= 0.05. ROA ratio is -0.397 that significant at level α= 0.01 this variable has negative effect on capital structure. This means Profitability (ROA) has negatively relation with debt to equity ratio which is consistent with pecking order theory that firms use internally generated funds as first option to finance projects before resorting to debt. On the other hands an increase of 1% in Profitability (ROA) leads to 3.97% decrease in capital structure.

Coefficient of Institutional Investors and company size equal to 0.108 and -0.001 in respectively; calculated t statistic shown there are not significant. On the other hands result of analysis indicates there are not significant relation between Institutional Investors and company size with capital structure.

F statistic is 13.755 that significant at level α= 0.01. Therefore, the regression equation is meaningful and acceptable. Durbin-Watson statistic is 1.484 and indicates the absence of autocorrelation in the error term. Consequently statistics of model are reliable.

There is a negative relationship between ROA (Profitability) and capital structure. This relation is significant in order to estimate result. Institutional Investors and company size, in respect have the positive and negative relationship with capital structure also these relationships are not significant in order to estimate result.

Wald test results for the third hypothesis are presented in Table 13. F statistic is 10.473 that

significant at level α= 0.01.therefore null hypothesis can be rejected and alternative hypothesis can be accepted. Therefore all variables in the random effect model are significant.

Table 12: Results multivariate regression analysis

variables	Coefficients	t Statistics	P-value	F statistic	P-value	DW statistic	Adjusted R^2
Intercept	0.622	4.419	0.01	13.755	0.01	1.484	0.33
Institutional Investors	0.108	1.224	0.075				
Profitability(ROA)	-0.397	-4.897	0.01				
Company size	-0.001	-0.136	0.891				

Table 13: Wald test result

F statistic	df	P-value
10.473	3	0.01

4. Conclusion

This paper empirically examines the relationship between corporate governance, and capital structure for Tehran listed companies for the period 2007-2012 by using multivariate regression analysis. Results of first hypothesis test reveal that there is not significant relation between board size and capital structure. This result is against with the research conducted by Fosberg (2004), Lipton and Lorsch (1992) and Berger et al. (1997); the result shown control variable, ROA has negatively significant relation with capital structure. Also result shown control variable of company size is not significantly related to capital structure. In the second hypothesis, the relationship between board compositions was examined by the capital structure. Result reveal that board Composition has significant positively relation with debt to equity ratio. This means that the high ratio of non-executive director of the Board lead to increase the ratio of total debt to asset. This implies that non-executive directors have use to short run and long run debt to financing in the company that this result is consistent with Abor (2004) and Jensen (1986) that found evidence of a positive relationship between debt levels and composition of the Board. In the third hypothesis, the relationship between Institutional Investors was examined by the capital structure. Result reveal that Institutional Investors has no significant relationship with capital structure. This result is against with the research conducted by Thomsen and Pedersen (2000) this result can be related to difference Institutional Investors Framework in each country.

Investors are recommended to when they make decision about Invest in stock or stock sale pay attention to board composition and related whit board composition and capital structure.

References

Abor J (2007). Corporate governance and financing decisions of Ghanaian listed firms. Corporate Governance, Vol. 7(1): 83-92.

Akbarimoghadam B and piry A (2010). The effect of corporate governance mechanisms on the capital structure. Journal of Management Development and Evolution, 7:31-37

Andrew K, Revost T, Ramesh P and Hossain R (2002). Board composition in New Zealand: An agency perspective. Journal of business finance and accounting, 29(5): 731-760

Arshad H (2009). Impact of ownership structure and corporate governance on capital Structure of Pakistani listed companies. International Journal of Business and Management, 4 (2): 50-57

Berger P, Ofek E and Yermack DL (1997). Managerial entrenchment and capital structure decisions. Journal of Finance, 52 (4): 1411-1438.

Claessens S, Djankov S, Fan JP and Lang LH (2002). Disentangling the incentive and entrenchment effects of large shareholdings. The Journal of Finance, 57(6): 2741-2771.

Fosberg R (2004). Agency Problems and Debt Financing: Leadership Structure Effects. Corporate Governance: International Journal of Business in Society, 4(1): 31- 38.

Jensen MC (1986). Agency costs of free cash flow, corporate finance and takeovers. American Economic Review, 76 (2): 323-329

Lipton M and Lorsch J (1992). A modest proposal for improved corporate governance. The Business Lawyer: 59-77.

Myers SC and Majluf NS (1984). Corporate financing and investment decisions when firms have information that investors do not have. Journal of financial economics, 13(2): 187-221.

Modigliani F and Miller M.H (1958). The cost of capital, corporation and the theory of investment. American economic review, 68 (3): 261-297

Thomsen S and Pedersen T (2000). Ownership structure and economic performance in the largest European companies. Strategic Management Journal, 21 (6): 689-705

Wen Y, Rwegasira K and Bilderbeek J (2002). Corporate Governance and Capital Structure Decisions of Chinese Listed Firms. Corporate Governance: An International Review, 10 (2): 75-83.