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Relationship between Capital Structure and Economic Performance Separated by Ownership in Listed Companies in Tehran Stock Exchange

Mostafa Hosseinzadeh
Department of Accounting, Islamic Azad University, Boroujerd Branch, Boroujerd, Iran

Saeid Valadbeigi
Department of Accounting, Sama Technical and Vocational Training College, Islamic Azad University, Rudehen Branch, Rudehen, Iran

Amin Azizi
Department of Accounting, Islamic Azad University, Boroujerd Branch, Boroujerd, Iran

Sanam Bakhtiarnezhad[1]
Department of Accounting, Sama Technical and Vocational Training College, Islamic Azad University, Damavand Branch, Damavand, Iran

Abstract

The main purpose of this research is to study the relationship between capital structure and firms' economic performance separated by ownership. This study measures capital structure by company's total liabilities and total assets; and economic performance and ownership structure are weighted by the two dimensions of institutional and corporate ownerships. Research used systematic elimination sampling method. Research statistical population included listed companies in Tehran Stock Exchange (414 companies) within 2009 to 2012. Sample volume determined as 88 companies. Research objectives are applied and it is considered as a correlation study. Research data collected through using stock exchange software. Further, collected data analyzed using SPSS software. The research used descriptive and inferential statistics (Spearman test). Results of research hypotheses show that economic performance in companies with institutional ownership is inversely related to capital structure; whereas, in non-

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[1] *Corresponding author's email: sbakhtiarnezhad61@yahoo.com*

institutional economic ownership (corporate ownership) no correlation is seen with capital structure.

Introduction

Any organization, company or institute seeks for achieving specific goals of which profit institutions are not excluded. They also attempt to maximize shareholders' wealth as goals and guarantee sustainment. Capital structure is one of these effective factors. Capital structure considered as one of key issues in financing companies. Importantly, it is also used in decision making on financing firms' current operations and investment plans.

Belkoue (1999) introduces capital structure as the general claim on company's assets. According to his attitude, capital structure consists of securities public release, private investment, bank debt, commercial debt, rental agreements, tax debt, pension debts, deferred compensation of management and employees, good performance deposits, obligations associated to the products as well as other contingent liabilities (Belkoue, 1999).

Generally, capital structure is measured through ratios such as debt to total assets ratio, ratio of equity to total assets, debt to equity ratio as well as the ratio of equity to debt. This research particularly investigated the ratio of total liabilities to total asset.

One objective of the present research is to study the effect of ownership type on the relationship between capital structure and economic performance of listed companies in Tehran stock exchange. Ownership, here, is divided into two institutional and private classes. In further classification, private ownership is divided into three corporate, foreign and management classes. This research investigates the relationship between capital structure and performance in two institutional and private ownerships, in particular corporate ownership. According to agency theory, "institutional owners" may reduce agency contrast through monitoring management measures. In recent decades, shares hold by institutional investors significantly increased. Institutional investors referred to insurance companies, investment funds, financial institutes, banks and corporations that invest in other public companies. Therefore, institutional investors are the largest group of public corporation shareholders. The second understudied ownership is private ownership, in particular corporate ownership. By emerging corporate investors, the dominant thinking of company's performance is to obtain profit and better performance. It means that effective participation of corporate owners in firms' ownership structure improved firms' performances. Since these typical investors seek for profit and better performance, they attempt to achieve these goals through dominance and penetration in firms' ownership structure. The other reason is that in this case ownership structure is

more concentrated; further, the purpose of profit gain causes more monitoring over firm performance. Moreover, these companies report more information relating to future performance and profits, as there are clear and detailed reporting requirements for such firms (Ahmadpour and Salimi, 2006).

This research examines firms' performances. Economic performance measurement criteria are assessed in terms of economic concepts and criteria, the power of profit gain of current assets as well as potential investment regarding rate of return and the rate of cost of capital. Economic criteria try to evaluate firms' performance by converting accounting data into economic data through manipulating economic information; in other word, these criteria assess firm performance considering the power of profit gain of current assets and potential investment and regarding rate of return and rate of cost of capital. The critical criteria of performance evaluation using economic criteria are as follows: Market value added (MVA) and Economic value added (EVA).

Market value added (MVA)

The primary goal of many companies is to increase shareholders' wealth. Evidently, this objective meets shareholders' interests. In addition, it also helps to ensure efficient allocation of scarce resources. Shareholders' wealth is intensified through maximizing the difference between firm's market value and the amount of capital contributed by investors. This difference referred as market value added.

Economic value added (EVA)

While market value added measures the effect of management measures since company initialization, economic value added emphasizes on management efficacy in a given year. EVA is estimating a company's true economic benefit in one year, which is significantly different from accounting profit. Economic value added represents remaining profit subtracting cost of capital; it also is management ability measurement standard to enhance performance and value added to the new capital. It is noted that economic value added may be used for both the company and its individual sectors.

Therefore, economic value added provides the foundation of determining management performance at all levels. The higher this value in the company, the better status the company has; economic value added is mainly viewed as basic of management reward (Ahmadpour and Salimi, 2006).

This research seeks to find the answer to this question that whether the relationship between capital structure and economic performance differs in institutional ownership comparing corporate ownership.

Literature review

Izadi et al (2012) studied the relationship between capital structure and performance pharmaceutical companies within 2003-2010. The paper considered financial notions of short-term and long-term capital structure and introduced ratios to firms' financial performance including earnings per share and profitability. They concluded that there is

a significant relationship among capital structure, debt ratio, return on equity, and firms' performances (Izadi and Saeidi, 2012).

Rayburn (1986), studying the relationship between unexpected elements of accruals and cash flows with stock return, showed that both elements contain information that is used. Therefore, it is impossible to view profit increasing information content larger than cash flows (Rayburn, 1986).

Setayesh et al (2009), in a paper naming "genetic algorithm application in determining optimum capital structure of listed companies in Tehran stock exchange", expressed that according to correlation results, the relation between capital structure and profitability depends on definition of profitability variable. Due to significant relationship between capital structure and return on assets at companies and industry levels, this variable is used as profitability criterion and determinant of optimum capital structure in genetic algorithm. Results of genetic algorithm indicate that the highest profitability obtained at the cost of less using of financial leverage (debt). This finding is consistent with correlation results indicating the negative relationship between capital structure and return on assets rate (Setayesh et al, 2009).

Mirbagheri et al (2012) focusing on determining the relationship between capital structure and revised economic value added (REVA) to promote firms' general strategies and offer better solutions for determining desired capital structure in term of REVA tried to find the answer to this hypothesis that there is a significant relationship between ratio of capital structure and revised economic value added. Results revealed that there is a significant relationship between ratio of capital structure and revised economic value added (REVA) (Mirbagheri et al, 2012).

Ahmadpour and Salimi (2006) initially investigated difference of capital structure in industrial groups by using debt ratio. Research null hypothesis stated that listed companies in Tehran stock exchange have similar (identical) capital structure.

The cross-section test was carried out by using nonparametric statistical Kruskal-wallis method and research null hypothesis rejected. In the next section, companies were studied disregarding industry type. The objective was to confirm the relation between capital structure and size by measuring Spearman rank correlation coefficient. Since correlation coefficient was not important in all under testing years (1993-2002), the relationship between capital structure and size was rejected (Ahmadpour and Salimi, 2006).

Kimiagari and Einali (2008) studied effective factors of capital structure by analyzing 78 listed companies in Tehran stock exchange within 2001-2005. Obtained results demonstrated that profitability is one of effective factors influencing capital structure that has a negative significant relationship (Kimiagari and Elinali, 2008).

Kordestani and Najafi (2008) studied determinants of capital structures of listed companies in Tehran stock exchange. Results of studying 93 companies during 1999-2006 indicate that profitability is an effective factor of capital to debt ratio and according to hierarchy theory there is a negative significant relationship between these two variables (Kordestani and Najafi, 2008).

Mahdavi and Midari (2005), in the paper "ownership structure and efficiency of active companies in Tehran stock market", also studied ownership structure and efficiency of active companies and concluded that concentrated ownership positively and significantly influences companies' efficiency in Iran similar to China and Czech (Mahdavi and Midari, 2005).

Ali and Pope (1995) tried to examine unexpected relations of profit elements and cash flows with return and their variations through using nonlinear relations. Nonlinear relationships increase correlation coefficients and represent information content of cash flows (Ali and Pope, 1995).

Booth et al (2001) investigated effective factors on capital structure of ten developing countries. They provided evidences indicating that capital structure decisions of these countries are influenced by similar variables of developed countries. Obtained results indicate that more profitable companies have less ratio debt (Booth et al, 2001).

Harris and Raviv *(1991),* Maksimovic and Zechner (1991), Chevaller (1995), Kovenock (1995) and Mackay and Philips (2001) investigated the effect of type of various industries on capital structure decisions and concluded that industry type influences companies' debt and performance.

Crnigoj and Meramour (2009) findings also demonstrated that observed financial leverage has a negative significant relationship with assets, profit variability and profitability; whereas, it shows positive significant relationship with growth size and rate.

Setayesh et al (2009) analyzed the relationship between capital structure and institutional ownership along with other effective factors in Tehran stock exchange. Other effective factors included stock dividend in percent, profitability, commercial risk, assets structure, liquidity, as well as companies' growth and size. Findings revealed that all factors are capital structure effective factors at firm level excluding institutional ownership. Percentage of institutional ownership, percentage of stock dividend, commercial risk, liquidity and firm's sizes considered as effective factors influencing capital structure. Capital structure effective factors were liquidity, assets' structure and firms' sizes; and percentage of institutional ownership, percentage of stock dividend, commercial risk, assets' structure, liquidity and firm size in food and metal industries, respectively. Liquidity introduced as effective capital structure in nonmetal mineral industries. Commercial risk and liquidity; and liquidity and firm size influenced capital structure in tile industry and pharmaceutical industry, respectively.

In Zariffard et al study, the accrual contribution in relations between earnings and cash flows is investigated in performance measurement of companies listed in Tehran stock exchange. Obtained results show that firms' sizes significantly influence the relations between earnings and cash flows with stock returns; however, the effect of industry type is not clear on cash and accrual variables (Zariffard and Nazemi, 2003).

Huang and Song (2006), studying over 1200 Chinese companies during 1994-2003, concluded that leverage is directly related to firm size as well as fixed assets; whereas, it

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has indirect relationship with profitability, growth opportunities and management ownership.

Pao (2008) studied effective factors influencing capital structures of companies in Taiwan by using multiple linear regression and neural network models. Research findings within 2000-2005 indicate that capital structure effective factors are distinguished in two types of industries with high and traditional technology. Moreover, neural network models showed better predictability and fitness comparing linear regression models. It seems that the relation between debt ratio and independent variables (determinants) is not linear.

Rajan and Zingales (1995) examined capital structure determining factors of corporations of seven large countries including USA, England, Canada, France, Germany, Italy, and Japan. Research findings demonstrate that financial leverage is negatively related to profitability and book to market value; whereas, it has a positive relation with visible fixed assets and firm sizes.

Chen and Strange (2005) also researched effective factors of capital structure in listed companies in Shanghai and Shenzhen stock exchange, China in 2003. Research results revealed that profitability has an inverse relationship with capital structure (debt ratio).

Research methodology

The present research is an applied study in term of goals. Further, it is a descriptive-correlation research in term of method and a survey study in term of time. The objective is to determine the relationship between research variables. Statistical population included all listed companies in Tehran stock exchange within 2009- 2012. Samples were selected by systematic elimination method such that only those with the following requirements were selected from statistical population: 1. They were listed in stock exchange prior to 2009; 2. They are active in stock exchange until the end of 2012; 3. Investment companies are excluded; 4. Companies fiscal year ends in December 31; 5. They have comprehensive financial information in understudied period. Then, of the companies that their fiscal year ended in 31 December those with over six months transaction intervals were excluded; and finally, 88 companies were selected according to aforementioned requirements. It is worth notifying that the research data are of secondary data, which certainly have proper validity and reliability. Research hypotheses were tested by variables normal distribution test (Kolmogorov–Smirnov *test)* and correlation test (Spearman).

Proposed model and measuring variables

In this study, we investigated the ratio of total liability to total assets in order to determine capital structure as follows:

Capital Structure Ratio = Total liabilities/Total assets

And, in term of economic criteria, firm's performance is assessed according to profitability of current assets and potential investment and regarding to return rate and cost of capital.

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The critical criteria in the area of performance evaluation using economic criteria are as follows:

Market value added

Economic value added

Market value added= equity market- equity

Market value added= (number of issued shares) (stock price) – equity

Economic value added= (shareholders' expected rate of return – real rate of return) × capital

Where in model:

Capital employed= long-term liabilities (debt) + current portion of long-term liabilities+ equity

In this formula, cost of employed capital is computed using assets net book value.

Control variables

Research control variables include firm size and future growth opportunities.

Firm size

Since smaller companies have less public information and regarding to studies conducted in the past, it is expected that larger companies relatively distribute more dividend, which is measured by sale log.

Firm size= sale log

Future growth opportunities

In companies where their values determined through upcoming growth opportunities, information asymmetry is higher; thus, cost of external financing is higher. For this reason and in order to prevent limiting or losing investment opportunities, these companies are expected to distribute fewer dividends. Future growth opportunities are computed as follows (Vakilifard, 2011):

GROWPIT= company's current value/ assets' book value

Research hypotheses

1.   There is a relationship between capital structure and market value added in companies with institutional ownership listed in Tehran stock exchange.

2. There is a relationship between capital structure and economic value added in companies with institutional ownership listed in Tehran stock exchange.

3. There is a relationship between capital structure and market value added in companies with corporate ownership listed in Tehran stock exchange.

4. There is a relationship between capital structure and economic value added in companies with institutional ownership listed in Tehran stock exchange.

Testing and analyzing Research hypotheses

Research hypotheses are tested and analyzed following dependent and independent variables determined. First, central tendency and dispersion (mean, median, mode, frequency, frequency percentage, valid percentage, cumulative frequency, skewness, kurtosis, maximum, minimum, variance, standard deviation, etc.) were obtained; then, the relation between dependent variable and independent variables were tested by normality test. Indeed, Spearman analysis helped to study the linear relationship ($y = \square + \beta x$) between understudied variables.

Descriptive statistics

Table 1: Kolmogorov–Smirnov *test* for measuring data normality in companies with institutional ownership

	Structure	MVA	EVA
Number	155	155	155
Mean	0.63089	1.46E12	2.12186E5
Standard deviation	0.188821	2.919E12	4.349583E5
Absolut value limit	0.074	0.309	0.313
Positive limit	0.074	0.270	0.287
Negative limit	-0.059	-0.309	-0.313
Test value	0.924	3.852	3.895
Significance level	0.360	0.000	0.000

According to the above table, significance level of Kolmogorov–Smirnov *test* for MVA and EVA data is less than 1%; therefore, variables' data are abnormally distributed. In order to use parametric tests, it is required to normalize data through using mathematical functions of LN, LOG, and ARSC. Regarding that some research variables are negative, it is impossible to use these functions (however, ABC mathematic function is used for absolute value, analysis is not based on main data; therefore, real data may not achieve). In cases where data are not normal and parametric tests (Pearson and regression tests) may not be used; it is better to use nonparametric equivalents (Spearman) (Azar and Momeni, 1996).

Table 2 Kolmogorov–Smirnov *test* for measuring data normality in companies with corporate ownership

	Structure	MVA	EVA
Number	285	285	285
Mean	0.66165	4.97E11	1.10044E5
Standard deviation	.192614	6.368E11	2.528936E5
Absolute value limit	0.073	0.222	0.332
Positive limit	0.073	0.212	0.308
Negative limit	-0.035	-0.222	-0.332
Test value	1.224	3.740	5.600
Significance level	0.100	0.000	0.000

According to above table, significance level of Kolmogorov–Smirnov *test* for MVA and EVA is less than 1%; therefore, the data distribution is abnormal. Thus, data must be normalized based on the aforementioned descriptions.

Inferential statistics

- **First hypothesis:** *There is a relationship between capital structure and market value added in institutional ownership companies listed in Tehran stock exchange.*

H_0: *There is no relation between capital structure and market value added (MVA).*

H_1: *There is a relation between capital structure and market value added (MVA).*

Table 3 Spearman test for first hypothesis

Significance level	Number	Spearman P
0.000	155	-0.507

According to the table, test error (significance level) is less than 1%; therefore, there is a relation between first hypothesis variables. Thus, H_0 is rejected and H_1 is maintained; therefore, it is stated that there is a relation between capital structure and MVA in institutional ownership companies.

- **Second hypothesis:** There is a relation between capital structure and economic value added in institutional ownership companies listed in Tehran stock exchange.

H_0: There is no relation between capital structure and economic value added (EVA).

H_1: There is a relation between capital structure and economic value added.

Table 4: Spearman test for second hypothesis

Significance level	Number	P spearman
0.005	155	-0.223

As seen in the table, test error (significance level) is smaller than 1% meaning that there is a relation between variables; thus, H_0 is rejected and H_1 is maintained. Therefore, it may be stated that there exists a relation between capital structure and economic value added in institutional ownership companies.

- **Third hypothesis:** There is a relation between capital structure and market value added in corporate ownership companies listed in Tehran stock exchange.

H_0: There is no relation between capital structure and market value added (MVA).

H_1: There is a relation between capital structure and market value added (MVA).

Table 5: Spearman test for fifth hypothesis

Significance level	Number	P spearman
0.331	285	-0.058

According to table data, test error (significance level) is larger than 51% indicating that the hypothesis variables are not correlated; as a result, H_0 maintained and H_1 rejected. Thus, it can be stated that capital structure and MVA are not correlated in corporate ownership companies.

- **Forth hypothesis:** There is a relation between capital structure and economic value added in corporate ownership companies listed in Tehran stock exchange.

H_0: There is no relation between capital structure and economic value added (EVA).

H_1: There is a relation between capital structure and economic value added (EVA).

Table 6: Spearman test for sixth hypothesis

Significance level	Number	P spearman
0.408	285	-0.049

As seen in the table, test error (significance level) is larger than 5% meaning that the hypothesis variables are not correlated; therefore, H_0 is maintained and H_1 is rejected. Thus, it may be stated that there is no relation seen between capital structure and EVA in corporate ownership companies.

Results

- **First hypothesis**: There is a relation between capital structure and market value added in institutional ownership companies listed in Tehran stock exchange.

Results show that there is a significant relation between the two variables at 1%; hence, it is stated that capital structure is correlated with MVA. Whereas, Spearman test value (-0,507) denotes a negative relation meaning an inverse correlation. In other word, the more MVA variable increased, capital structure variable decreased.

- **Second hypothesis**: There is a relation between capital structure and economic value added in institutional ownership companies listed in Tehran stock exchange

Findings demonstrate that there is seen a significant relation between these variables at 1% i.e. capital structure is correlated with EVA. However, according to Spearman test value (-0.223), this is a negative correlation meaning an inverse relation. In better word, the more EVA variable increased, the higher capital structure variable decreased.

- **Third hypothesis**: There is a relation between capital structure and market value added in corporate ownership companies listed in Tehran stock exchange.

Test results reveal that according to Table 17-4 test error of these two variables is larger than 5% (0.331); therefore, there is no correlation between these two variables.

- **Forth hypothesis:** There is a relation between capital structure and economic value added in corporate ownership companies listed in Tehran stock exchange.

According to test results (Table 18-4), test error was larger than 5% (0.408) for the two variables indicating that there is no relation seen between the variables.

Conclusion

Results of testing research hypotheses show that economic performance in institutional ownership companies is inversely related to capital structure; while, in corporate ownership companies, economic performance is not correlated with capital structure.

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