

## Investigate the relationship between capital structure and rate of return on the listed companies in Tehran Stock Exchange

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**Abstract:** The present study was designed to investigate the relationship between capital structure and returns of companies listed in Tehran Stock Exchange markets. Capital structure is one of the most important topics in financial management that is regarded by many management officials. In the present study collected data on 66 companies from various industries in Tehran Stock Exchange during the period 2008 to 2011, it is tried to use regression and correlation analysis to examine the relationship between variables. The independent variable in this study is capital structure. The ratio of debt to shareholders' rights, long-term debt to equity and shareholders' rights to asset express it. Dependent variables include the rate of return on equity (ROE), return on assets (ROA), and return on sales (ROS). The results, based on data analysis with SPSS software suggests that there is not significant relationship between ratio of debt to shareholders right, and no one of the dependent variables and between the variables of Debt-to-equity ratio, equity to assets variable ROE, but there is a significant relationship between variables of debt-to-equity ratio, equity to assets, ROA and ROS-related variables.

**Key words:** *Capital structure; Return on equity; Rate of return on assets; Return on sales*

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### 1. Introduction

In general, studies of capital structure can be divided into two parts. The first part is trying to find effective factors impact on capital structure and other part tries to study impact of capital structure on the performance of business units (Zeynali, 2012). Most studies on this subject in the first place, what factors affect the company's capital structure? How to determine the optimal capital structure of the company? for many years, these questions, in the area of corporate finance has preoccupied the minds of many researchers (Ansari, 2013). A significant number of assumptions and various theories have been proposed in order to answer these questions. Because of the need for a comprehensive view of the complexity of the problem and the lack of theory, some researchers have attempted to test various theories of multiple simultaneously. Today, investors, creditors and other persons whose decisions are based on data from financial statements. Demand to use their investment in activities that maximize its efficiency (Malekan, 2011).

As the external factors including Opportunities for growth, interest rates, political conditions, cultural conditions, and internal factors including Firm size, degree of risk of company, company flexibility are effective to make decision about capital structure of company, therefore we can say

that choosing method and decisions of capital structure are important too (Rahimiyan, 2013). Corporate managers should be given to the incoming and outgoing cash flows to determine the company's borrowing capacity. Then considering other conditions they should borrow money (Azarbayjani, 2012).

A question is here to answer as according to financial ratios, financial costs and to have optimal performance and making wealth, which debt ratio and which share ratio should be in capital structure in order to prevent bankruptcy and to pay less cost. In other words, what should be high in a capital structure, debt or shares? Finally, there is another question to answer which is topic of research as: "is there relationship between capital structure and Rate of return on corporate to use it for making decisions by financial managers. Some firms do not consider the pre-determined plan for their capital structure their investment and financial decisions are made only in proportion to the financial management, no specific plan of action to take changes of capital structure (Rahimzade, 2012). Although they may succeed in the short term, but eventually face major problems for funding activities (Sajjad, 2008).

These companies are not able to use their resources optimally. Therefore, it is obvious that a company should plan its capital structure in a method to be able to maximize its efficiency level of fund to adapt itself with situations (Ali Nejad, 2012). The financial manager should always be careful with

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the type of financing is consistent investment company and use the leverage within reasonable limits to maximize value of company and to prevent adverse consequences of financial risks through the use of debt (Sajadi, 2007). Additionally, an incentive should be created for optimum use the business to source of funding which is limited. This optimal use is shown at increasing profitability indicators of Performance measure of productivity of any organization represents the state of the organization's performance. It is the feedback from the decisions and implementation of strategic and operational programs of the organization that are necessary to identify problems and continuously improve the organization's activities. Many studies have been done to obtain a suitable criteria to assess performance of companies and managers to ensure about it that company is align with the interests of potential investors to make economic decisions of potential investors and a base for making decision for creditors (Azarbayjani, 2011). This study is limited to accounting approach that is aimed to find a significant relationship between profitability and capital structure to collect data to show relationship.

## 2. Optimal capital structure

In the real world capital structure varies widely. In order to obtain the most optimal capital structure, companies should seek the balance of costs and benefits of debts to obtain the best combination of capital to maximize value of company (Ebaid, 2009). Debt and shares have been defined as two main groups of equity financing of companies. Using resources made of making debt creates fixed assess and increases leverage and increases risk consequently. Therefore, a study on financing by leverages considering various factors is very important. It means that choosing any cheap or expensive debt by company changes capital cost and creates suitable profit situation or creating critical position (Li et al., 2009).

Company needs capital to establish. It needs more money for development. The required funds are provided by different methods of different resources. Capital is classified into 2 main groups as debt and shares. Relationship between components of capital is one of the most important issues as a problem of financial managers. It is a mixture of bonds and shares to finance and shares price of company.

The main question is which one is better? Capital structure is defined as the most important factor impact on Valuation of companies and for orientation in the capital markets. Under current changing and changeable environment; corporate credit rating is partly dependent on their capital structure. Therefore, their strategic planning is close to selecting effective resources (maximizing wealth of shareholders). Therefore, capital structure should be selected in a method to minimize cost average of capital. If selecting a capital structure result in less capital cost, then it is better than others.

## 3. Capital cost

Capital cost is the minimum of return rate that obtaining it is essential for company value or its shares price. Managers should be aware and informed of capital cost enough to make decisions. Capital cost is calculated by average of different parts of capital of company including debt, Preferred stock and common stock (Parklar, 2010).

## 4. History of research

Saidi and Shahini (2011) studied Coaxial model and concluded that capital structure does not impact on performance efficiently alone.

Zeynali and shilan (2011) investigated about the effect of capital structure on the rate of return on equity and earnings per share of the companies listed in Tehran Stock Exchange in the pharmaceutical industry. Results showed that companies of pharmacy industry had similar financial structure in 2005-2007. Additionally, there is a significant relationship between financial structures of these companies and their sizes. On the other hand, there is not a significant relationship between their financial structure and return on investment and earnings per share.

Izadi and Saidi (2012) investigated about capital structure and function of pharmaceutical companies in 2003-2010 and concluded there is a significant relationship between variables of capital structure, debt ratio, return on equity and corporate performance.

Shamsi (2012) studied about relationship between variables of capital structure and different performance approaches (economic, accounting, Consolidated). Results showed a significant relationship between capital structure and companies performance.

Saidi and Mahmoudi (2011) studied about capital structure and Iranian companies' performance. They concluded that EPS has a positive relationship with capital structure. There is a negative relationship between capital structure and ROA. They stated there is a positive relationship between capital structure and Q Tobin.

Cole (2008) concluded there is a negative relationship between financial leverage ratio and return on assets Cole (2008) and Li et al., (2009) studied about capital structure... they used ROA and ROS as standard of performance in a part of this research and concluded there is a negative relationship between Financial leverage and the ratio of short-term debt. So, Chinese's companies use less short-time debts.

Abid (2009) used 3 standards in his investigation as Equity, return on asset and gross profit margin to calculate financial performance and concluded that making decision about capital structure does not impact on company performance significantly.

Sue (2010) in a study showed that managers should work on improvement of management than Liquidity development. Investors should insist on

capital structure strongly, because capital structure impacts on general performance of companies.

Yong et al., (2010) by LISREL in Taiwanese companies concluded that Stock returns, asset structure, sales growth, profitability and industry determinants capital structure of listed companies in Taiwan Stock Exchange. Nawaz et al (2011) examine the relationship between capital structure and corporate performance in the textile sector in Pakistan. They concluded there is a significant and positive relationship between capital structure and firm performance.

**5. Methodology**

This is an applied research. Also it is a descriptive-correlative research. Finding significant relationship between capital structure and profit Returns for firms listed in Tehran Stock Exchange for a 5-year period in 2008- 2012. Equity (ROE), return on assets (ROA) and return on sales (ROS) are considered as dependent variables in this research. Statistical population includes all companies listed in Tehran Stock Exchange for a 5-year period in 2008-2012.

Library method is used to collect data for this research. Available data of stock exchange is used to collect financial information to test hypothesis. Financial information is studied through the company's audited financial statement. Rah Avard Novin software is used too. Data mining and database of document are used as tools of collecting data. The required data were collected through studying statements and financial reports published by stock exchange organization. Some data base including Rah Avard Novin, Tadbir Pardaz, and The official website of the Tehran Stock Exchange. Checklists of financial statements were used as main tools of this research.

**6. Discussion and Results**

In table 1, average of Variables of Debt-to-equity ratio, the ratio of long-term debt, equity ratio to equity assets are respectively as 1.86, 0.055, 0.43, 0.4, 0.16,0.28. The maximum mean is for the variable of the ratio of debt to equity. In addition, standard

deviation of these variables is respectively as 1.82, 0.07, 0.19, 0.36, 0.12 and 0.32.

Mostly it has Normal distribution. The minimum amounts of each variable are respectively as 0.04, 0.001, 0.02, 0.001, 0.001, and 0.001. The maximum amounts of variables are respectively as 14.35, 0.64, 0.96, 4.54, 0.78, and 3.08.

**Inferential statistics**

In this section with respect to the data, using statistical tests, hypothesis of research are tested.

Hypothesis testing (correlation):

**To investigate the relationship between variables, Pearson's correlation coefficient was used. Suppose H0 and H1 hypothesis is as following**

**Table 1:** descriptive statistics of the studied variables

	Average	SD	Min Amount	Max amount
Debt to equity ratio	1.86	1.82	0.04	14.35
Long-term debt to equity ratio	0.055	0.07	0.001	0.64
Equity to assets ratio	0.43	0.19	0.002	0.69
ROS	0.4	0.36	0.001	4.54
ROE	0.16	0.12	0.001	0.78
ROA	0.28	0.32	0.001	3.08

$$\begin{cases} H_0 : \rho_x = 0 \\ H_1 : \rho_x \neq 0 \end{cases}$$

Hypothesis 1:

H0: there is not relationship between Debt-to-equity ratio and ROE

H1: there is relationship between Debt-to-equity ratio and ROE

Main purpose of this investigation is to study about relationship between 2 variables. As variables have normal distribution, Pearson correlation coefficient is used.

**Table 2:** The correlation coefficient between the ratios of debt equity to ROE

Between Debt-to-equity ratio	ROE	
	correlation coefficient	0.102
Significance level	0.065	
Number	330	

Results of research shows that significant level between Debt ratio to equity with ROE is 0.065. It is larger than 0.05 (error level). So, H0 is confirmed and H1 is rejected. So, there is not relationship between these 2 variables.

Hypothesis 2:

H0: there is not relationship between Debt-to-equity ratio of the company and ROA

H1: there is relationship between Debt-to-equity ratio of the company and ROA

Aim of these hypotheses is to study about relationship between these 2 variables. Note that the variable has a normal distribution Pearson's correlation coefficient was used.

Results of table 3 shows that significant level between Debt to equity ratio is 0.05 (error level) is smaller than 0.05. Therefore, H0 is rejected and H1 is

accepted. There is a significant relationship between these 2 variables.

**Table 3:** Correlation coefficients between the Debt-to-equity ratio and ROA

Between Debt to equity ratio	ROA	
	Spearman correlation coefficients	0/474
	Significance level	0/001
	Number	330

Correlation coefficient amount between debts to equity ratio with ROA is 0.474. it is a strong and positive relationship.

Hypothesis 3:

H0: there is no relationship between Debt-to-equity ratios with ROS.

H1: there is relationship between Debt-to-equity ratios with ROS.

Aim of these hypotheses is to study about relationship between 2 variables. As these variables have normal distribution, Spearman correlation coefficients were used.

**Table 4:** A correlation coefficient between the ratios of debt to equity with ROS

Between Debt to equity ratio	ROS	
	Spearman correlation coefficients	0.336
	Significance level	0.001
	number	330

Results of Table 4 shows that significance level between Debt to equity ratio with ROS is 0.001 which is smaller than 0.05 (error level). Therefore, H0 is rejected and H1 is confirmed. There is relationship between these 2 variables. Correlation coefficient of Debt-to-equity ratio with ROS is 336/0 that is a positive relatively strong correlation.

Hypothesis 4 :

**Table 5:** A correlation coefficient between long-term debt to equity ratio with ROE

Long-term debt to equity ratio	ROE	
	The correlation coefficient	0/077
	Significance level	0/165
	Number	330

Results of table 5 shows that significance level of Long-term debt to equity ratio with ROE is 0.165 which larger than 0.05 (error level). Therefore, H1 is rejected and H0 is confirmed. Therefore there is no relationship between ratios of long-term debt to finance with company's ROE.

Hypotheses 5:

H0: There is no relationship between ratios of long-term debt to property with the company's ROA

H1: There is relationship between ratio of long-term debt to property with the company's ROA

Aim of this hypothesis is to study about relationship between 2 variables. As one of these variables has normal distribution, Pearson correlation coefficient is used.

**Table 6:** correlation coefficient between long-term debt to equity ratio with ROA

Between Debt-to-equity ratio	ROA	
	Spearman correlation coefficients	0/104
	Significance level	0/059
	Number	330

Results of Table 6 shows that Significance level between Long-term debt to equity ratio with ROA is 0.059 which is larger than 0.05 (error level). Therefore H1 is rejected and H0 is confirmed. Therefore, there is no relationship between ratios of long-term debt to property with the company's ROA.

Result of hypotheses 1 is similar to results of researches by Delavari (1998), Bagher zadeh Khajeh and Feyzi (2007), Nazari poor and zaki zadeh (2010), Lara and Mskuita (2003), Aber (2005).

Result of hypotheses 2 is similar to results of reserches by Glysen and Mchur (2000), Anderson (2005), Ziton and tian (2007).

According to above results of this research:

Result of hypotheses 3 is similar to result of researches by Glysen and Mchur (2000), and Aber (2005).

Results of hypothesis 4, and 5 are similar to results of researches by Delavari (1998), Bagher zadeh Khajeh and Feyzi (2007), Nazari poor and zaki zadeh (2010), Lara and Mskuita (2003) and Aber (2005).

## 7. Conclusion

Descriptive results showed that averages of Variables of debt-to-equity ratio, Long-term debt to equity ratio, ROS, ROE and ROA are respectively as 1.82, 0.07, 0.19, 0.36, 0.12 and 0.32. And have mostly Normal and minor distribution.

Minimum amount of each variables are respectively as 0.04, 0.001, 0.02, 0.001, 0.001.

The maximum amount of each variable is respectively as 14.35, 0.64, 0.96, 4.54, 0.78, and 3.08.

There is not relationship between Debt-to-equity ratio and ROE

There is relationship between Debt-to-equity ratio of the company and ROA

There is relationship between Debt-to-equity ratios with ROS.

There is no relationship between ratios of long-term debt to finance with company's ROE.

There is no relationship between ratios of long-term debt to property with the company's ROA.

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