

An Investigation on the Relationship between Debt ratio and product market competition: Evidence from Iran^{*}

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ABSTRACT: This study investigates the relationship between debt and product competitiveness in firms listed in Tehran stock exchange. Debt ratio as the dependent variable and the characteristics of a product competitiveness ability as independent variables have been considered. Based on the criteria considered for the selection, 85 firms listed on the Tehran Stock Exchange (statistical population) during the period 2006 to 2010 were selected as samples. For data analysis, linear regression analysis was used. Testing results show a significant relationship between debt and competitiveness ability of product.

Keywords: Debt ratio, Competitiveness ability of product.

INTRODUCTION

Today, the credit rating of companies largely depends on their capital structures and debt situations. In fact, the basis of production and service depends on how the funds are provided and used. Debt is one of the major components of capital structure of most companies which plays an important role in their financing; particularly in recent years has increased (Talebnia & Sepehri, 2006). One of the reasons for the increasing desire to use of debt is tax savings and application of financial leverage, which increases the return on assets (ROA).

Liability of any company is an early warning in connection with financial hardship and requires serious concern to determine the factors that affect their financial efficiency in strategic planning.

On the other hand, the level of product market competition will determine the major role success in business. Firms compete to increase their return on investment, to strengthen their position in the market and to do out-compete their rivals. Therefore, understanding the relationship between corporate debts with market competitiveness ability of product can help the corporate decision makers in their strategic planning for market power (Banimahd & Frahanifard, 2011).

According to different and non-congruent capital structure in various countries which is rooted in dissimilar social, economic and legal conditions of them, the correlation between the debt ratio and the competitiveness ability of product with the financial markets will be different in developed countries and in developing ones. In this paper, the researchers sought to assess the relationship between these two variables in the Tehran Stock Exchange.

Background of research

A firm may use financial leverage strategically to affect arrival's behavior. Scholars have developed three main modeling approaches to explain how firms' debt choices and product market behavior may be related; limited liability models, deep purse or predation models, and investment effect models. In the limited liability approach, equity-maximizing firms use debt levels to strategically affect product market competition. As a result, oligopoly firms may choose higher strategic debt levels than firms in competitive markets, either to soften Bertrand price competition or toughen Cournot quantity competition. Therefore, limited liability models predict a positive relationship between the leverage ratio and product market power. In predation models, a highly-leveraged firm is subject to predatory threat by a low-leveraged firm.

According to these models, an entrant has a more vulnerable financial structure than an incumbent when he just comes into a new market. Therefore, an incumbent with a "deep-pocket" can engage in predatory behaviors (such as a price war or an output increasing) in order to exhaust the entrant financially and drive him out of the market. Implication of these arguments is that there might be a negative relationship between the relative use of debt and product market competition. Hence, the limited liability and predation models provide

opposite predictions. The limited liability model predicts a positive relationship between market power and debt, while the predation model predicts a negative relationship (Guney et al, 2010).

Fernandez (2001) research concluded that much of the debt ratio increases; return on assets ratio will increase. It means that more debt will increase profitability and ultimately firm value.

Liu et al (2003) were examined a sample of 3,526 companies listed in China Stock Exchange from 1997 to 2001 and found that the debt ratio significantly and positively related to product market competition rate. They found that companies use leverage strategically to influence the product market competition.

Akhtar (2005) studied factors affecting the capital structure of the Australian domestic and multinational companies. The results indicate that in all studied companies, growth opportunities, profitability and firm size are crucial components of debt ratio. By dividing industries in some group, the researcher concluded that the above factors in each industry are more important than other industries.

Smith et al (2008) studied the relationship between capital structure and competitiveness ability of New Zealand firms and concluded that, in compared to other industry, the use of long-term debt also increased by increasing sales of an industry.

Kouki & Guizani (2009) studied the effect of ownership structure on dividend policy. The results show a significant negative relationship between dividends and institutional owners. Also, there is a positive relationship between dividend policy and public ownership.

Aggarwal et al (2010) examined the relationship between capital structures in multinational firms. They concluded that the activity and increase the competitiveness of companies abroad, compared with the companies that are operating in the country, the less debt in the capital structure are used.

Kaio and Kimura (2011) analyzed the levels influence of time, the company, industry and country as factors affecting capital structure. At first, they applied hierarchical linear model to achieve the relative importance of the levels and found that levels of time and company explain 78 percent of financial leverage. Then they examined random intercept and random coefficients to analysis of the direct and indirect impact of components as company, industry and country on firm financial leverage. In addition, they found several structural differences in the financial behavior of studied firms between developed and the developing countries. Their results have important managerial implications. They considered most of financial leverage deviations in financing decisions are due to levels of the company so that causes directors to focus more on intrinsic component of company.

Hypothesis

According to the aim of the research and the related literature, the following hypotheses are proposed:

Hypothesis 1: There is a significant relationship between debt ratio and Tobin's q ratio.

Hypothesis 2: There is a significant relationship between debt ratio and return on assets.

Hypothesis 3: There is a significant relationship between debt ratio and firm size.

Operational definition of variables

The independent variable: In this study, Tobin's q as an independent variable is considered as a proxy indicator of products competitive ability. Tobin's q ratio is calculated as the market value of a company divided by the replacement value of the firm's assets.

The dependent variable: In this study, debt ratio is considered as the dependent variable. This ratio is calculated as assets divided by liabilities.

The control variables include:

Rate of return on assets: It is obtained as net income divided by the sum of the assets.

Firm size: It is obtained from natural logarithm of sales.

METHODS OF DATA COLLECTION

In this study, library method has been used for collecting data. Therefore, research papers taken from the internet, books, journals and English and Persian specialized journals are used in the study of literature and history of the research. Financial data were collected from financial statements of companies and from a variety of sources such as Databases as Tadbir Pardaz, Pars portfolio, Sahra, and official website of Research and development Islamic Studies of Tehran Stock Exchange.

Community and statistical sample

The companies are listed in Tehran Stock Exchange is the population in this study. Financial statements of companies; Rahavarde Novin and Dadeh Pardaz soft ware's and related internet sites are the resources for data collection.

According to above studies and for more validity and accuracy of research results, a 5 years period from the beginning of 2006 until the end of 2010, was chosen as the study period. The studied companies have the following features:

Their stocks have been traded on the stock exchange in the years 2006 to 2010.

Their financial year ended 12/29.

Their stock trading days in any fiscal year is at least 80.

They're not included in financial intermediary or investment (holding) companies.

Finally, 85 companies were selected as the study population.

Method of data analysis and hypothesis testing

In this study, the relationship between variables included in the debt ratio as the dependent variable and the independent variables were used as measures of competitive products.

One variable linear regression equation has been used to determine the relationship between the dependent and independent variables, and hypotheses were tested upon the results of econometric regression models. The F statistic is used to determine the significance of the regression model.

To evaluate the significance of the coefficients of independent variables in each model of the Student t test at 95% confidence level is used. The Durbin-Watson test to evaluate the autocorrelation between sentences hysteresis was not his problem.

The results of testing the hypotheses

1Test the first hypothesis

Hypothesis (1): There is a significant relationship between debt ratio and Tobin's q ratio.

H₀: There is not a significant relationship between debt ratio and Tobin's q ratio.

$$H_0 : \beta = 0$$

H₁: There is a significant relationship between debt ratio and Tobin's q ratio.

$$H_1 = \beta \neq 0$$

Table 1. the results of the first hypothesis

regression equation	regression coefficient	T- statistic	P-value	Adjusted R-squared	F-statistic	Durbin-Watson
1	11.217	2.602	0.000	0.141	6.772	1.841

As can be seen in figure 1 two-variable regression model was fitted to the 5% significance level manner is significant. P-Value equal to the amount of 0/000 is the coefficient of determination adjusted to test this hypothesis with 0/141 and the F statistic of the model with the 6/772 is. Positive regression coefficient indicates a direct relationship between the two variables.

Test the second hypothesis

Hypothesis (2): There is a significant relationship between debt ratio and return on assets.

H₀: There is not a significant relationship between debt ratio and return on assets.

$$H_0 : \beta = 0$$

H₁: There is a significant relationship between debt ratio and return on assets.

$$H_1 = \beta \neq 0$$

Table 2. the results of the second hypothesis

regression equation	Regression coefficient	T-statistic	P-Value	Adjusted R-squared	F-statistic	Durbin-Watson
2	-9.014	-1.152	0.000	0.111	4.014	1.62

As can be seen in figure 2 two-variable regression model was fitted to the 5% significance level Manner is significant. P-Value equal to the amount of 0/000 is the coefficient of determination adjusted to test this hypothesis with 0/111 and the model F statistic equal to 4/014. Negative regression coefficient indicates an inverse relationship between the two variables.

Test the third hypothesis

Hypothesis (3): There is a significant relationship between debt ratio and firm size.

H₀: There is not a significant relationship between debt ratio and firm size.

$$H_0 : \beta = 0$$

H₁: There is a significant relationship between debt ratio and firm size.

$$. H_1 = \beta \neq 0$$

Table 3. the results of the third hypothesis

regression equation	Regression coefficient	T-statistic	P-Value	Adjusted R-squared	F-statistic	Durbin-Watson
3	5.021	1.741	0.000	0.122	4.701	1.59

As can be seen in figure 3 two-variable regression model was fitted to the 5% significance level Manner is significant. P-Value equal to the amount of 0/000 is. The coefficient of determination adjusted to test this hypothesis with 0/122 and the F statistic of the model with the 4/701 is. Positive regression coefficient indicates a direct relationship between the two variables.

CONCLUSION

In this study, the relationship between debt ratio and some measure of competitive product markets (Tobin Q ratio, return on assets and firm size) of listed companies in Tehran stock exchange was studied. This research is intended testing the relationship in the environmental conditions of Iran according to the theoretical study of accounting literature. Debt ratio is considered as the dependent variable and measures of products market competitive ability (Tobin's q ratio, return on assets and firm size) are considered as the independent variables. The hypotheses were tested using data related 85 firms listed in Tehran Stock Exchange (TSE) during 2006 to 2010.

The hypothesis test evidences show that there is a positive significance relationship between ratio debt and Tobin's q ratio and firm size at 95% confidence level during 2006 to 2010. But there is a negative significant relationship between the ratio of debt and return of assets during the years 2006 to 2010 at 95% of confidence level.

REFERENCES

- Aggarwal R, Kyaw NA. 2010. Capital structure, dividend policy, and multinationality: Theory versus empirical evidence. *Interactional Review of Financial Analysis*. 9(2), 140-150.
- Akhtar S. 2005. The Determinant of capital structure for Australian multinational and Domestic Corporation, *Australian journal of management*, Vol 3.
- Banimahd b, Farahanifard M. 2001. Relationship between the capital structure and competitive power of TSE Listed companies, *journal of Financial Studies*, 3(8), 89-102.
- Guney Y, Li L, Fairchild R. 2010. The relationship between product market competition and capital structure in Chinese listed firms, *International Review of Financial Analysis*, Contents lists available at Science Direct.
- Kouki M, Guizani. 2009. Ownership structure and dividend policy: Evidence from the Tunisian stock market, *European journal of scientific research*, Vol 25, 1, 42-53.
- Liu ZB, Jiang FX, LU EP. 2003. "Capital structure for competition in product market". *Economics Research*, 7, 60-67.
- Smith David j, Chen J, Anderson H. 2008. The relationship between capital structure and product market: Evidence from Newzealand, www.ssrn.com.
- Talebnia GH, Sepehri P. 2006. Comparative review of relation between the Debt Ratio and Return, *journal of Financial research*, 8(22), 21-32.