European Online Journal of Natural and Social Sciences 2015; www.european-science.com
Vol.4, No.1 Special Issue on New Dimensions in Economics, Accounting and Management
ISSN 1805-3602

The Effect of Capital Structure and Product Market Competition on the Financial Performance among the Companies Listed in Tehran Stock Exchange

Allah Karam Salehi[1*], Maziar Moradi[2]
[1]Department of Accounting, Masjed Soleiman branch, Islamic Azad University, Masjed Soleiman, Iran; [2]Persian Gulf International branch, Islamic Azad University, Iran
*E-mail: a.k.salehi@iaumis.ac.ir

Abstract
The aim of the present study is to investigate the effect of capital structure and product market competition on the financial performance of the companies listed in Tehran's Stock Exchange. To measure the financial performance of the return on assets and quantify capital structure variable, the financial leverage ratio was used. To test the research hypotheses, the pooled data analysis approach was used with a sample of 100 companies listed in Tehran's Stock Exchange for the years 2008 to 2012. The results showed that the hypotheses of the study have been confirmed. The ratio of financial leverage in the companies had a significant positive correlation with asset returns. Also, the results showed that the more the product market competition, the stronger the relationship between the financial leverage ratio and the return on assets.
Keywords: capital structure, asset returns, product market competition

Introduction

One of the most important goals which managers should consider in maximizing shareholder wealth is to determine the best combination of the company's resources or the capital structure. The Capital Structure or Debt-to-equity ratio, which is also called the company's financial leverage, is considered by many financial analysts (Bozorg Asl, 2005). The capital structure puzzle is even more complicated than the dividend puzzle. The Capital structure of companies is affected by the amount of the required capital and a composition of financial resources. The Capital structure is the most important parameter influencing the economic institutes' value determination and policies in capital markets (Izadi and Rahimi Dastjerdi, 2009).

Investors invest their Cash on ordinary shares of profitable units mainly in order to acquire more cash and earn more profit. According to the agency theory, owners and managers are against each other. To increase their wealth, managers use their option of choosing accounting methods (Dechow and Ge, 2006). Therefore, determination of managers' performance and factors affecting their financial performance has long been considered. The fact that product markets are competitive means that various companies compete in the production and sale of goods and their commodities are not much superior to each other. Otherwise, markets would tend toward monopoly or oligopoly stems (Khodami Pour Barzaie, 2013).

The aim of the present study is to investigate the effect of the capital structure and product market competition on the financial performance of the companies listed in Tehran's Stock Exchange. The results can help managers, analysts and investors assess securities better using accounting information. Also, if the hypothesis is confirmed, the findings could help financial analysts use the capital structure and product market competition in order to adopt resolutions on companies' financial performance.

Theoretical foundation of the study

Capital structure discussions are about how to combine companies' financial resources such as debts, bonds, long-term debts and ordinary and premium stock. Some companies consider no pre-

determined plans for their capital structure and take part in restructuring the company's capital only with respect to the financial decisions taken by management without any specific plans. Although the companies may succeed in the short term, they will ultimately encounter major problems in ensuring the financial resources necessary for their activities. Such companies may not be able to use their existing resources efficiently. Thus, it is confirmed that a company must plan its capital structure so that it can maximize cash utilization and adapt its situation more easily with the changes.

Usually, after analyzing several factors operating in the capital structure, companies determine their target. And their goal adapts to the condition changes over time. However, the management, has a certain capital structure in mind at any given time with which financing decisions are consistent. If the amount of the debt is lower than the target level, financing is performed through debt increase; and if the amount of the debt is higher than the target level, common stock is sold. In fact, the capital structure policy creates a balance between risk and return. In other words, usage of more debt increases interest risk and the expected rate of return. Thus, on one hand, the risks associated with the use of more debt will reduce the stock price, and on the other hand, the increase of expected rate of return will increase the stock price; therefore, the optimal capital structure will create an efficient balance between risk and return. Ultimately, this leads to an increase in the stock price (Abde Tabrizi and Miri, 2012).

Leverage ratio represents the amount of debt usage in the company’s capital structure and financing. This ratio indicates whether or not the company will be able to pay its debts in time. In The analysis of the company's ability to pay the debts, factors such as the operational and financial structure of the company and the payment of long-term debts in the capital structure are the focus of attention. The ability to pay the debts at maturity depends on profitability. The company will be able to pay the debts only if it is profitable (Modarres and Abdullah Zadeh, 2011).

Tang and Lee (2011) believe that product market competition, as the primary external authority mechanism, affects disclosure of information in two forms: strategic, and administrative.

Strategic impact: this means that competition in the product market through impressing cost and information benefit affects the quality of information disclosure by companies. In a market with fierce market competition, intense exposure by a company will lead to competitors’ reaction. In these cases, companies tend to have a proactive disclosure policy.

Administrative impact: it means that the product market competition increases role of the board in the quality of information disclosure. In competitive markets, the possibility that companies with poor management are liquidated or merged increases which could lead to harm the management’s reputation.

There are numerous measures of profitability and performance for companies, and they are divided into traditional and new standards. Traditional measures include net income, earnings before interest and taxes, return on assets and return on equity; and new measures include economic additional value and Tobin Q ratio which is used to measure the value of the company. In this section, an important measure of profitability which is the return on equity, along with related definitions and concepts are described. But, some statements must be made on the importance of income and financial ratios, because the return on equity is one of the financial ratios considered.

Shareholders who are the most important users of financial information seek their interests in profit information. Accounting earnings are indicators that affect the attitudes and behavior of would-be investors. Accounting earnings in financial reporting can affect investors’ confidence in financial markets. Factors influencing Profit quality include numerous accounting methods, deficiencies in the estimation process and the predictions, managers’ latitude, influence of reporting principles on benefit, and managers’ decisions. During the recent decades, researchers have paid

special attention to the quality of earnings and have attempted to evaluate profit earnings quality and identify factors affecting it using a reasonable and credible approach (Desai et al, 2009).

Background of the study

Jayginson and Serionson (2000) examined whether the product market competition reduces agency costs? They stated that the temptation to preserve cash and apply it to activities having low earnings exists for companies which work in industries that serious competitions are not involved in. Therefore, an unexpected increase in cash flow due to the past increase in stock returns is likely to reduce the financial leverage. It also will result in the decrease of the future return for companies competing in competition-free environments. Thus, they showed that the current financial leverage for companies involved in in industries with low levels of competition returns correlates negatively with past returns and positively with future returns.

Pandey (2004), in his study of 168 American companies from 1997 to 2002, examined the relationship between the balance of the market and capital structure. The results showed a positive and significant relationship between the capital structure and market balance. Fosu (2013) in his study of 257 companies from South Africa during the period 1998 to 2009, studied the impact of capital structure and product market competition on the financial performance of those companies. Their results showed a positive and significant relationship between the financial leverage ratio and the financial performance. Also, the results showed that high levels of product market competition can exacerbate the impact of the capital structure on financial performance.

Namazi and Shirzad (2005) examined the relationship between the capital structure and profitability of companies listed on the Stock Exchange (with emphasis on the type of industry). In order to test the hypotheses in the essay, they used simple regression and the correlation coefficient and their significance was tested with the statistics z and t. The results indicate that in general there is a positive relationship between capital structure and profitability. But this relationship is statistically weak, and the relationship between capital structure and profitability is dependent on the industry, too. Therefore, the optimal structure has to be searched for in various industries.

Khajavi and Nazemi (2005) in their study of 341 companies in Tehran’s Stock Exchange during the period from 1999 to 2008, investigated the impact of the capital structure on production. Their results showed that there is a significant statistical association between all components of the capital structure and the Company's ability to achieve the expected production.

Khodami Pour and Barzaie (2013) in their study of 105 companies in Tehran’s Stock Exchange during the period 2004 to 2011, examined the impact of product market competition on the quality of information disclosure. Their results showed a significant positive relationship between competition and the quality of disclosure.

Methodology

This study is an applied study with respect to purpose, and descriptive in terms of method; it examines correlation between variables; and it is post-event in terms of time and it uses past information from sample companies. Also, it was used based on the quasi-experimental design.

Statistical population

The number of all companies listed in Tehran’s Stock Exchange from the beginning of 2008 until the end of 2012 was 478, which is considered as the statistical population for the present study. By examining the companies listed in Tehran’s Stock Exchange and imposing the above conditions and restrictions, 100 firms (500 year- firm) were selected for models estimation and research hypotheses testing. Table 1 shows the selection method of the 100 sample companies

Table 1: Selection of the sample companies

Number of companies		Description
478		The total number of registered companies in Tehran Stock Exchange
	92	Not maintained their membership in the Stock Exchange During this ten-year period
	116	companies providing financial, investment and insurance services
	86	Not having a fiscal year ending on
	84	Research variables data for the companies not available
378		Total number of excluded companies
100		Number of sample companies

Source: researcher's collection

The research hypotheses

Based on the theoretical principles and previous research, the hypotheses have been formulated as follows.

The first hypothesis: financial leverage ratio has a significant impact on financial performance.

The second hypothesis: product market competition intensifies the impact of the financial leverage ratio on financial performance.

Data collection method

For data collection in the Theoretical framework fields and the history, Latin and Persian books, theses, articles, databases and websites have been used. Statistical data were obtained from the financial statements of the companies listed in Tehran's Stock Exchange during the period 2008 to 2012. Financial statements of the mentioned companies were extracted from the database of Tehran's Stock Exchange. Analysis of the data and hypotheses test of this research has been done by the software Excel and Eviews. Statistical science used in this study includes descriptive statistics in order to describe and provide the statistical properties of the variables and parameters, and inferential statistics in order to estimate coefficients.

The research model and definition of variables

Based on the role they play in the research, the variables are divided into two categories of independent and dependent ones:

The Independent variable in this study is the financial leverage ratio (an indicator of capital structure), and the dependent variable is the properties return ratio. Competition in the product market is used as a moderating variable to determine the relationship between dependent and independent variables. Table 2 shows the variables mentioned as separated by sets of assumptions and Abbreviations.

Table 2: Dependent and independent research variables

Sign	Variable Type	Variable
ROA	Dependent	Properties Return
LEVER	In Independent	Financial Leverage Ratios
MCOMP	Moderator	Product Market Competition
SIZE	Controlling	Company Size
GROWTH	Controlling	Sales Growth

The method of measuring variables is as follows:

A) Return of assets: This variable which is used as the dependent variable is an indicator of a company's financial performance. The index is given by (1):

$$ROA = \frac{EARN}{ASSETS} \quad (1)$$

In that equation, ROA represents properties return, EARN is the Net Income, and ASSETS is representative of the total of properties.

(B) The Financial leverage ratio: In order to Measure the independent research variable, the financial leverage indicator which is a well-known indicator in the field of capital structure will be used. Financial leverage is calculated as the total of debts divided by the total equity. The index is given by equation (2):

$$LEVER = \frac{DEBT}{EQUITY} \quad (2)$$

In this equation, LEVER represents financial leverage, DEBT is the Total of debts, and EQUITY indicates the total book value of equity.

(C) Competition in the product market: In order to measure the moderating variable, the share of the company's sales in the entire industry will be used. The higher the sales of the company in the industry, the higher the competition capability. The index is given by equation (3).

$$MCOMP_i = \frac{SALES_{i,j}}{\sum SALES_j} \quad (3)$$

In this equation, MCOMPi represents the indicator of product market competition for the company "I", SALESij is the sales of the firm "I" in industry j, and SALESj indicates the total sales of the companies working in the same industrial field as "i" does. The multivariate regression model, developed to test the research hypotheses and investigate the first hypothesis is as follows:

$$ROA_{i,t} = a_0 + \beta_1 LEVER_{i,t-1} + \beta_2 SIZE_{it} + \beta_3 GROWTH_{it} + \varepsilon_{it} \quad (4)$$

In this model which was introduced by Fosu (2013), two controlling variables were used:

ROAit: (dependent variable) firm "I" properties return ratio in year t;

LEVERit-1: (independent variable) financial leverage ratio of firm i in year t-1;

SIZEit% Board: (control variable) size of the company. (Obtained by the logarithm of total properties of the company);

GROWTHit% Board: (control variable) represents sales growth. (Through changes in sales this year compared to last year's sales);

And ε: estimable error assumed to have the mean of zero and a constant variance.

To test the second hypothesis, the product market competition variable is added to the model (4). Therefore, the multivariate regression model which was developed to test the second hypothesis is as follows:

$$ROA_{i,t}=\alpha_0+\beta_1 LEVEL_{i,t-1}+\beta_2 MCOMP_{i,t}+\beta_3 LEVEL_{i,t-1}*MCOMP_{i,t}+\beta_2 SIZE_{i,t}+\beta_5 GROWTH_{i,t+\varepsilon i,t} \quad (5)$$

In this model:

ROAit: (dependent variable) firm properties ration "I" in year t;

LEVERit-1: (independent variable) financial leverage ratio of firm "I" in year t-1;

MCOMPit: (moderating variable) competition in the product market of firm "I" in year t;

SIZEit% Board: (control variable) size of the company (the logarithm of the company's total properties);

GROWTHit% Board: (control variable) represents sales growth. (Through the ratio of changes in sales this year to last year's sales);

And ε: estimable error assumed to have the mean of zero and a constant variance.

Findings of the study

Descriptive statistics of the study

In this study, using the raw data, the variables were calculated and the descriptive statistics of the dependent and independent research variables including mean, median, maximum, minimum and standard deviation of the research data were calculated and are presented in table (3). The values give a general overview of the distribution of the research data.

Table 3: Descriptive statistics in the first regression model

Standard Deviation	Minimum	Maximum	Median	Mean	Sign	Variables
0.2144	-0.2548	0.6453	0.2448	0.2677	ROA	Properties Return
0.0488	0.1178	1.7327	0.3986	0.3893	LEVER t -1	Financial leverage ratio (an indicator of capital structure)
0.1197	0.0298	0.6625	0.1975	0.1663	MCOMP	Competition in the product market
1.4326	4.3698	7.8236	5.3877	5.4483	SIZE	Company Size
0.2980	-0.3658	1.7906	0.3244	0.2985	GROWTH	Sales growth

Source: Researcher's Calculation

As for the return of assets variable (ROA), it is observed that its total average is 0.2677, which indicates that the majority of data for this variable are around this value. The median of this variable is 0.2448 and expresses that about half of the data of the variable is more than this amount and half of it is less. Standard deviation for the variable is 0.2144, which shows that data fluctuation around the mean is 0.21.

Correlation coefficients

The relationship between correlation among variables and their significance statistic (Sig or p-value) is provided in the table (4). The correlation coefficient between the independent variables used in the model should not be high, because the correlation between the independent variables in a model will corrupt the regression results. If the significance coefficient is less than 5% (Sig <5%), H_0 is disapproved and H_1 is approved, and the two variables' significance is acceptable, otherwise it is unacceptable. The results of the Pearson correlation coefficients between financial the leverage ratio (indicator of capital structure) and asset returns indicates a negative correlation between these two variables. The correlation intensity is 33%.

Table 4: Pearson correlation coefficients between variables

GROWTH	SIZE	MCOMP	LEVER t -1	ROA	
				1	ROA
			1	0.33 (0.067)	LEVER t -1
		1	0.18 (0.014)	0.21 (0.089)	MCOMP
	1	0.26 (0.008)	0.21 (0.012)	0.11 (0.000)	SIZE
1	0.08 (0.342)	0.09 (0.024)	0.09 (0.076)	0.28 (0.000)	GROWTH

Source: researcher's calculations

Identifying the appropriate model for the pooled data

Chow test results for the first two models in are provided Table (5). As shown in Table (5) result, the Chow test results in the first and second models confirm the null hypothesis of the test

which assumed the intercepts are equal at all periods. Therefore, the pooled data method is more appropriate for estimating the research models. Under this method, all the data are mixed together and estimated via the least ordinary squares regression.

Table 5: Chow test results

Test Result	P-Value	Chow Test Statistic	Tested Model
Pooled Data Model	0.3899	1.9236	First Model
Pooled Data Model	0.4128	1.3426	Second Model

Source: Researcher's Calculations

Significance test results of the first research model

As shown in Table (6) Find placed, the statistic F (Fisher), with a confidence level of 99%, is significant, because the statistic F corresponds to the model estimation on the significance level which was less than 0.01. Therefore, it is concluded that the research model is generally significant and the independent variables and control variables can explain the independent variables of the model. In addition, the moderated coefficient of determination given by the test model was 0.41. This figure shows that approximately 41% of the independent variable's changes, i.e. the assets return resulted from changes in the independent variables and control variables of the model, and the other 59 percent of the changes were caused by other factors.

The first hypothesis of study examines the impact of the capital structure on the company's financial performance. Statistic hypotheses for this hypothesis are as follows:

H_0: The Financial leverage ratio has no significant impact on financial performance.

H_1: The Financial leverage ratio has a significant impact on financial performance. Test of significance of the coefficients is the same thing that the researchers are pursuing. In fact, this test determines the direction of those coefficients' effect on the dependent variable as well as determining the significance of the coefficients. "t" Student is the relevant statistic in order to determine the coefficients' significance.

$$ROA_{i,t} = a_0 + \beta_1 LEVER_{i,t-1} + \beta_2 SIZE_{it} + \beta_3 GROWTH_{it} + \varepsilon_{it}$$

Table 6: Results of the first study model test

t-static p-value	Coefficient	Description	
4.42 0.00	0.22	β0	Constant Coefficient
6.54 0.00	0.31	β1	LEVER t-1
3.69 0.01	0.16	β2	SIZE
4.46 0.00	0.10	β3	GROWTH
0.41		Adjusted R2	
8.93		F-static	
0.00		F (p-value)	
1.94		D-W	
500		Number of Observations	

Source: Researcher's Calculations

According to the results of table (6) of the t statistic of the independent variable is LEVERt-1 and its significance level (p-value) in the model estimation is 6.54 and 0.00, respectively. Considering the error level expected for this study was 0.05, it can be concluded about the independent variable that the financial leverage ratio has a significant relationship with the performance indicator of the company which is the assets return, with a confidence level of 99%. The variable coefficient is the positive. As a result, the relationship between the independent variable and the dependent variable is positive. In other words, companies whose financial leverage ratios were higher, had higher assets returns. Accordingly, the first research hypothesis has not been denied.

Significance test results of the second research model

As shown in Table (7) View result, the statistic F (Fisher) is significant with a confidence level of 99%, because the statistic F for estimating the model had a significance level less than 0.01. Thus, the second research model is generally significant, and independent variables and control variables models are able to explain the model's dependent variable. The moderated coefficient of determination given by the model test is 0.36. This figure shows that approximately 36% of the variable's changes which is the assets return resulted from changes in the independent and control variables, and the other 64 percent of the changes were caused by other factors.

The second hypothesis of the study concerns the impact of product market competition on the relationship between the capital structure and the company's financial performance. The Statistical hypotheses are as follows: H_0: product market competition does not intensify the impact of the financial leverage ratio on the financial performance.

H_1: product market competition intensifies the impact of the financial leverage ratio on the financial performance.

$$ROA_{i,t} = a_0 + \beta_1 LEVER_{i,t-1} + \beta_2 MCOMP_{i,t} + \beta_3 LEVER_{i,t-1} * MCOMP_{i,t} + \beta_4 SIZE_{it} + \beta_5 GROWTH_{it} + \varepsilon_{it}$$

Table 7: Results of the second study model test

t-static p-value	Coefficient	Description	
1.38 0.13	0.08	β0	Constant Coefficient
4.44 0.00	0.23	β1	LEVER t-1
2.41 0.02	0.16	β2	MCOMP
4.98 0.00	0.61	β3	LEVER t-1*MCOMP
6.08 0.00	0.08	β4	SIZE
4.76 0.00	0.26	β5	GROWTH
0.36		Adjusted R2	
6.14		F-static	
0.00		F (p-value)	
1.77		D-W	
500		Number of Observations	

Source: Researcher's Calculations

According the results shown in the table 7, the statistic t corresponds to the variable LEVER t-1 and its significance level (p-value) are 4.44 and 0.00, respectively. Considering the error level obtained was less than 0.01, it can be concluded about that independent variable that the financial leverage ratio had a significant positive relationship with the financial performance indicator (the variable's coefficient is positive.), with a confidence level of 99%. The statistic t corresponding to the variable MCOMP and its significance level were 2.41 and 0.00, respectively. Therefore, about that independent variable in the model, it can be concluded that the product market competition indicator had a significant positive relationship with the financial performance indicator. That means the more the company's share of sales in the industry, the better its performance. In order to approve or disapprove the second hypothesis of the study, the significance of the coefficient β3 is considered.

The t statistic for the independent variable LEVER t-1 * MCOMP and its significance level (p-value) in the model estimation were 4.98 and 0.00, respectively. Considering the resulting error is less than 0.01, can be concluded about the independent variables in the model that by adding the index of product market competition, the relationship between financial leverage and return of assets was still significant at the confidence level 99%. Also, this variable's coefficient increased from 0.23 to 0.61. Therefore, it is concluded that the addition of the index variable of product market competition intensifies the relationship between capital structure and financial performance. Accordingly, the second research hypothesis is not rejected, either.

Results and Conclusion

Testing the first hypothesis

In the first hypothesis, the impact of the capital structure on the company's financial performance was evaluated. The results of the research based on a regression model suggest the first hypothesis is confirmed. In other words, it can be argued that if the financial leverage ratio as a capital structure indicator in the companies listed in Tehran's stock exchange varies, the return of assets varies in the positive direction as the performance indicator. I.e., firms with more debt in their capital structure performed better, because the ratio of net income to total assets was higher. This result can be interpreted as to say company financing leading to increased financial leverage ratio, was carried out in order to produce and sell more and more products. This hypothesis' results are consistent with the research findings of Fosu (2013) and Namazi and Shirazi (2005).

Testing the second hypothesis

The purpose of the second hypothesis is to investigate the effect of product market competition on the relationship between capital structure and financial performance. The research results based on the regression model test show that there is a significant positive correlation between product market competition and financial performance, and the addition of the product market competition index to the model will lead to an intensification of the relationship between capital structure and financial performance. That means that the greater the company's share of sales is in the industry, the greater impact will financing the company through loans or borrowing have on the company's desired performance, because it provides more opportunities for managers to increase the company's profitability by generating and distributing more products,. This result is similar to the results of Fosu's research (2013) in South Africa.

The results showed a high amount of financial leverage ratio and usage of debts and more debts in the capital structure are not necessarily bad, and can actually lead to increased financial performance indicators. It is recommended that shareholders and creditors pay attention to the company's performance as well as debt and financial leverage ratios. Also, a company's higher share of sales in industry can lead to better use of debts in order to increase profitability. Also, considering

the results of the present study, it is recommended that managers of companies and Fund institutions note the results with more thorough evaluation.

References

Belkoy, E. S., & Mchael F. (2000). Accounting Theory , Irwin.

Chou, J., Ng, L., Sibilkov, & Wang, Q. (2011). Product Market Competition and Corporate Governance, Review of Development Finance 1, 114–130.

Dechow, P., & I. Ge. (2006). The quality of accruals and earnings: The role of accrual estimation errors. The Accounting Review, 77 (4), 35–59.

Desai, M., Gompers, P., & Lerner, J. (2009). Institutions, Capital Constraints and Entrepreneurial Firm Dynamics: Evidence from Europe. NBER Working Paper, No.10165.

Fosu, S. (2013). Capital structure, product market competition and firm performance: Evidence from South Africa, The Quarterly Review of Economics and Finance, 53, 140– 151.

Jagannathan, R. & S. Srinivasan. (2000). Does product market competition reduce agency costs, Working Paper, National Bureau of Economic Research, Cambridge (MA), Available at http://papers.ssrn.com/sol3/papers.cfm abstract_id=227593.

Koroz, M. & Matikar, C. (2014). Product market competition, board structure, and disclosure quality, Frontiers of Business Research in China, 5 (2), 291-316.

Michaely, R & Vincent, C. (2012). Do Institutional Investors Influence Capital Structure Decisions? Working Paper. ssrn.com

Miller , M., & , Modigliami, (1958). Dividend policy, growth, and the valuation of share", Journal of Business, 4 ,132-150.

Pandey, I. M. (2004). Capital structure, profitability and market structure: Evidence from Malaysia, Asia Pacific Journal of Economics and Business, 1, 78-91.

Teng, M. & Li, C. (2011). Product market competition, board structure, and disclosure quality, Frontiers of Business Research in China, 5 (2), 291-316.