Investigating Relationship between Product Market Competition and Capital Structure in Tehran Stock Exchange

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ABSTRACT

Companies require financial resources for investment. But, each company should appropriately determine capital resources and their use in order to have better competitive performance than other rivals performance. This study aims to examining relationship between competitive ability and capital structure of companies and other intervening variables such as sales growth. Hypotheses of this study were tested based on relationship between capital structure, competitive ability and sales growth during 2003- 2010. Statistical sample of this study includes 10 industrial categories that include machinery, vehicles and parts, food, chemicals, medicines, cement, basic metals, metal industries, non-metals, etc. Correlation analysis method is used to test hypotheses and data are analyzed using SPSS software.
Results showed that there is a significant difference between industries capital structures at confidence level of 95%. They also indicated that there is significant difference in various industries product market competition. There is a negative significant relationship between capital structure and product market competition and a positive significant relationship between sales growth and capital structure.
KEYWORDS: Competition, Capital Structure, Economic Competitiveness, Investment, Financial Management.

1. INTRODUCTION

Companies require financial resources for growth and continued activity. Providing these resources is always limited. Therefore, for continued process of absorption of resources, these resources should be used in a way that makes an appropriate share of value created for suppliers and resource users. Since investors can obtain maximum return using most appropriate financial resources, this issue can form main basis of capital structure theories [10].

In financial management view, capital structure is considered as one of the most important issues investigated in recent decades. Nowadays, credit rating of companies largely depends on their capital structure. In fact, production and delivery of services is somehow related to supply and consumption of funds. On other hand, competitive ability plays a central role in success of business and companies are competing to increase their return on investment and strengthen their position in market in order to defeat competitors and hold market power in their own hands [13].

Nowadays, competitiveness is a central issue in the world and it is considered as means of appropriate economic growth and sustainable development. In a global economy, competitiveness is ability of finding appropriate and sustainable position in international market. International competition is considered as an important issue among policy makers at various levels (country, industry and company).

This study aims to examining the relations between competition of product market and capital structure of companies and also to determine the effect of other intervening variables such as sales growth that may be effective in relationship between capital structure and competition of product market.

1 Theoretical framework
1.1 Competition

Tendency to privatization comes from idea of inefficient governments in economic activity. We should trust market system to fulfill efficiency goal. In fact, private firms should compete with each other based on market trust and all of them will benefit from competition results, i.e. increased access to high quality goods and services with low prices. Overall, economic welfare will increase. Michael Porter, in terms of economic view, defines competitiveness synonymous with productivity and method of using human resources, capital and natural resources by an organization or nation.

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1.2 Capital Structure

Capital structure is a limited concept of financial structure. Financial structure includes all left part items of balance sheet. Capital structure refers to combination of long-term financial resources. Items of long-term debt, common stock and preferred stock are considered in capital structure. However, it excludes short-term credit. Therefore, capital structure of company is only a part of its financial structure. Capital structure refers to a combination of debt and equities. Decision of capital structure is dependent on importance of equity and debts. Capital structure decision is one of three financing decisions, including investment, financing and dividends that can be performed by financial management. Moreover, capital structure of a firm determines amount (value) average cost of capital [5].

2   REVIEW OF LITERATURE

Smith and Anderson (2008) investigated relationship between capital structure and competitive ability of New Zealand companies in 1993 -2006. They tried to answer whether use of long-term debt affects relationship between capital structure and competitive ability or not? Results showed that there would be an increased use of long-term debt when an industry's sales increases compared to other industries. May be it is interpreted that companies use competitive venture strategies and more competitive leverage when their sales increases (for example, sales of products with lower prices). On the other hand, they found that excessive long-term debt use in capital structure leads to increased sales of companies [13].

Marques (2010) investigated effects of company's business credit policies on debt and capital structure according to predictions of balance and hierarchical theories in European countries. Their results showed that capital structure and leverage models confirmed balance and hierarchical theories that seems as a continuous negative profit with financial positive effects related to various types of compromises (agreement) between financial benefits and costs [7].

Raunh and Sofi (2010) investigated capital structure and debt structure. Their main finding was that according to high quality (credit) of firms, companies with lower credit quality gave priority to capital structure and companies with high credit quality were dependent on two groups of capital structure including equity and debt. Companies with lower credit quality used multiple debts groups including secured debts, unsecured debts and interlocked (secondary) equity [12].

Brendea (2011) investigated capital structure theories as a vital approach. He demonstrated this fact that Modigliani and Miller [8] theory is not related to modern parallel, hierarchical, agency and market timing models in which it is assumed that company market value is dependent on its debt ratio because of existence of taxes, costs of financial pressure (crisis), agency costs and asymmetry of information and inefficient financial market [2].

3   METHODOLOY

In this study, data are collected by field research and post-event methods (using historical data).This study is an applied study in terms of its purpose. Nature and method of this study is correlation study.

3.1 Research hypotheses

Main hypothesis 1: There is no significant difference in capital structure between different industries

> Sub-hypothesis 1-2: There is a significant difference between total debt ratios in different industries.
> Sub-hypothesis 1-3: There is a significant difference between interest-bearing debt ratios in different industries

Main hypothesis 2: There is a significant difference in product market competition between different industries

Main Hypothesis 3: There is a significant relationship between capital structure and product market competition

> Sub-hypothesis 3-1: There is a significant relationship between product market competitions and total debt ratio
> Sub-hypothesis 3-2: There is a significant relationship between product market competition and interest-bearing debt.

Main hypothesis 4: There is a significant relationship between sales growth and capital structure

> Sub-hypothesis 4-1: There is a significant relationship between sales growth and total debt ratio

Sub-hypothesis 4-2 - There is a significant relationship between sales growth and interest bearing debt ratio.

4   Research model and variables

4.1   Dependent variable

In present study, capital structure is a dependent variable. This ratio is calculated during 2003 - 2010 for 88 sample firms.

DR_1 = Total debt divided by total assets

DR_2 = interest-bearing debt divided by total assets.

4.2   Independent variable

4.2.1   Competitive ability

One of criteria of market competition measurement is H HI stands for Herfindal-Hirschman Index which shows sales performance of company relative to competitors. This index is company ability to create sales and market gains. This variable can be measured by sales ratio of each company to total sales of industry [6].

X_j = Sales of j company

i = Type of industry

$HHI_i = \Sigma (X_j \div \Sigma X_j)^2$

4.2.2   Sales growth

In this study, growth rate is calculated by subtracting total assets ratio of end of this period from beginning of this period to total assets ratio of first period [6].

Companies classified in two groups; DUM_1(top quartile) and DUM2 (bottom quartile) in terms of growth. Number of companies in each industry is determined in top and bottom quartiles and specific or relative content of these two criteria are calculated to total debt ration and interest-bearing ratio. If $DUM_{1=1}$ is top quartile and $DUM_1 = 0$ is other parts, and if $DUM_2 = 1$ is bottom quartile and DUM2 = 0 is other parts, then we have:

GR-TA: growth rate equal to total assets of end f period - total assets of first period divided by total assets of first period.

4.2.3   Value of Guarantee

Capital structure is calculated by fixed assets and inventory ratio [6].

CVA = Fixed assets + inventory.

4.2.4   Return on assets

Ratio of operating profit to total assets to express firm's profitability [6].

ROA = Operating profit divided by total assets

4.2.5   Current ratio

Current ratio can be obtained by total current assets divided by total current liabilities [6].

4.2.6   Size

In this study, sales are preferred over assets since they are reflection of current value. Therefore, we obtained its size by natural log of sales. According to parallel risk and return theory, we assume that there is a positive relationship between size and debt ratio [9].

Size = L n (sale)

4.2.7   Research model

In this study, following   linear regression models are designed to be used for measurement of competitive ability and sales growth impact on e capital structure.

$DR_1 = \beta_0 + \beta_1 HHI + \beta_2 GR\text{-}TA + \beta_3 CVA + \beta_4 ROA + \beta_5 SIZE + \beta_6 CR + \beta_{7\,DUM\,1} + \beta_{8\,DUM\,2}$

$DR_2 = \beta_0 + \beta_1 HHI + \beta_2 GR\text{-}TA + \beta_3 CVA + \beta_4 ROA + \beta_5 SIZE + \beta_6 CR + \beta_{7\,DUM\,1} + \beta_{8\,DUM\,2}$

4.3   Statistical population and sample

Population of this study includes all companies listed in Tehran Stock Exchange. Considering all constraints of this study for studied companies, 83 companies are participated in these research studies that are classified in to 10 different industries based on type of their activity.

4.4   Statistical data analysis methods and hypotheses testing

In this study, statistical methods of Kruskal-Wallis test, Pearson correlation test, Kolmogorov – Smirnov test, Multivariate Regression Analysis, Wald test and Variance Analysis are used to test hypotheses. Statistical error level is 5% to accept or reject hypotheses. Data are classified using Excel software and statistical tests are performed using SPSS and Eviews software.

4.5   Statistical methods of data analysis

Descriptive and inferential statistics are used for data analysis.

5   Data analysis

5.1   *Descriptive statistics of research variables*

As mentioned before, this study is formed by total number of 656 companies during 2003-2010. None of research variables are directly extracted from financial lists. Therefore, for hypotheses testing, first research variables must be calculated. After calculation of values of variable, descriptive statistics will be given in table 1 for each variable. They include observations, mean, minimum, maximum, median and standard deviations in total period of study.

Table 1 Descriptive statistics of total period of study from 2003 to 2010

	DUM2	DUM1	SIZ	CR	CVA	ROA	HHI	GR-TA	DR2	DR1
Observations	656	656	656	656	656	656	656	656	656	656
Average	0.25	0.25	12.679	1.078	0.491	0.115	0.274	0.167	0.367	0.783
Minimum	0.25	0.25	12.679	1.078	0.491	0.115	0.274	0.167	0.367	0.783
Maximum	1	1	18.24	2.91	0.95	1.13	0.99	2.34	0.505	0.983
Median	0.00	0.00	12.602	1.043	0.505	0.098	0.212	0.167	0.323	0.694
Standard deviation	0.433	0.433	1.401	0.424	0.196	0.142	0.163	0.272	0.287	0.408

5.2   *Correlation matrix*

Table 4-5 represents correlation matrix of variables in the model (1) using the Pearson correlation test. In first row and first column of table 2, each variable is provided and each row related to each variable is divided into three rows by itself in which first row is a Pearson correlation test result, second row is level of significant and third row shows observations. Significance level of correlation test for DR_1 variable with HHI is less than 5%   (Sig = 0.00 <0.05). This means rejection of null hypothesis and claimed hypothesis is accepted. It means that variable DR_1 has a negative correlation with HHI, which means an inverse correlation equal to -0.212. According to -0.212 obtained from DR_1 changes by HHI in inverse form (opposite direction), it can be predicted that among variables of model (1), highest amount of correlation is between DR_1 variable with GR_TA value of 0.632. It means that it justifies variable of sales growth of o/632 from changes of total debt variable. Correlation between DR_1 with CVA value of 0.352 is considerable (Sig = 0.00<0.05). In correlation between DR_1 and CR, ROA values are -0.567and -0.493, respectively. Null hypothesis is not rejected between DR_1 with Size (Sig = 0.56> 0.05). In other words, there is no correlation between ratio of total debt and size of company.

Table 2 Variables correlations matrix – model (1)

	DR1	GR-TA	HHI	ROA	CVA	CR	SIZE
DR1	1	0.642	-0.212	-0.493	0.352	-0.578	-0.102
	0.00	0.00	0.00	0.00	0.00	0.00	0.056
GR-TA	0.642	1	-0.122	-0.186	0.304	-0.265	-0.069
	0.00	0	0.002	0.00	0.00	0.00	0.075
HHI	-0.122	-0.122	1	0.057	0.094	0.143	0.054
	0.00	0.002	0	0.141	0.016	0.00	0.169
ROA	-0.493	-0.185	0.057	1	-0.156	0.431	0.276
	0.00	0.00	0.141	0	0.00	0.00	0.00
CVA	0.352	0.304	0.094	-0.156	1	-0.245	-0.188
	0.00	0.00	0.016	0.00	0	0.00	0.00
CR	-0.567	-0.266	0.143	0.431	-0.454	1	-0.304
	0.00	0.00	0.00	0.00	0.00	0	0.385
SIZE	-0.102	-0.069	0.054	0.276	-0.188	-0.034	1
	0.056	0.075	0.169	0.00	0.00	0.385	0

Table 3 represents correlation matrix of variables in model (2). In first row and first column, each variable is provided and each row related to each variable is divided into two rows which first row is Pearson correlation test result and second row is level of significance. Significant level of correlation test for DR_2 variable with HHI is less than 5% (Sig = 0.00 <0.05). This means rejection of null hypothesis and claimed hypothesis is accepted. It means that variable DR_2 has a negative correlation with HHI, which means an inverse correlation equal to -0.140. According to 0.140 obtained from interest-bearing ratio changes can be predicted by market competition variable inversely (opposite direction). Among variables of model (2), highest amount of correlation is between DR_2 variable with CR value of 0.531. It means that it justifies current ratio of 0.531 by changes of interest-bearing ratio

variable in inverse form. Correlation between DR 2 with variables of CVA, ROA, and GR-TA is equal to 0.321, -0.514, and 0.472, respectively. That is more than correlation of this variable with independent variable of HHI. Null hypothesis is not rejected between DR 2 with Size (Sig =0.533>0.05). In other words, there is no correlation between interest – debt ratio and size of company.

Table 3 Variables correlations matrix – model (2)

	DR2	GR-TA	HHI	ROA	CVA	CR	SIZE
DR2	1	0.472	-0.140	-0.541	0.321	-0.531	0.089
		0.00	0.00	0.00	0.00	0.00	0.114
GR-TA	0.472	1	-0.122	-0.186	0.304	-0.265	-0.069
	0.00		0.002	0.00	0.00	0.00	0.075
HHI	-0.140	-0.122	1	0.057	0.094	0.143	0.054
	0.00	0.002		0.141	0.016	0.00	0.169
ROA	-0.514	-0.186	0.057	1	-0.156	0.431	0.276
	0.00	0.00	0.141		0.00	0.00	0.00
CVA	0.321	0.304	0.094	-0.156	1	-0.245	-0.188
	0.00	0.00	0.016	0.00		0.00	0.00
CR	-0.531	-0.265	0.143	0.431	-0.245	1	-0.034
	0.00	0.00	0.00	0.00	0.00		0.385
SIZE	0.089	-0.069	0.054	0.276	-0.188	-0.034	1
	0.144	0.075	0.169	0.00	0.00	0.385	

5.3 Data Analysis
5.3.1 Data normality test
Kolmogorov- Smirnov test (data normality test) was first stage of analysis data normality. Investigation of these data was performed by using Kolmogorov- Smirnov test. According to value of Sig (significant level) in total debt ratio above 5% (A Sig = 0.152> 0.05), H0 is accepted in this test at confidence level of 95% that indicates data normality. It means that data are related to dependent variable (DR $_1$) are normal.

6   RESULTS AND DISCUSS

6.1 First hypothesis
6.1.1   Main hypothesis
H $_0$: There is no significant difference between capital structures of different industries
H$_1$: There is a significant difference between capital structures of different industries
First, capital structure is assumed as leverage (total debt) and interest-bearing ratios that was calculated for each company. Next, averages of these ratios were compared using Kruskal-Wallis test.
6.1.2   Sub-hypothesis 1
H $_0$: There is no significant difference between debt ratios of different industries.
H $_1$: There is a significant difference between debt ratios of different industries.
To test main hypothesis 1, Kruskal-Wallis test is used according to which null hypothesis is rejected since significant level is less than 0.05. Therefore, there is a significant differences between total debt ratio of different industries and sub-hypothesis is accepted. If industries to be classified in terms of variable of total debt ratio (DR$_1$), then their rank from the highest rank to the lowest rank is as follows:
1-Food 2-Machinery 3-cars 4-Chemical 5-Non-Metal 6-Basicmetals 7-Others 8-Metal 9-Medicine 10-Cement
6.1.3   Sub-hypothesis 2
H $_0$: There is no significant difference between of different industries.
H $_1$: There is a significant difference between interest-bearing ratios of different industries
Kruskal-Wallis test hypotheses are as follows:
$H_0 : \mu_1 = \mu_2 = \mu_3 = \ldots = \mu_1$
$H_1 : \mu_1 \# \mu_2 \# \mu_3 \ldots = \mu_{10}$
According to results of Kruskal-Wallis test significant level is less than 0.05, so null hypothesis is rejected and there is a significant differences between interest-bearing ratio of different industries. If industries to be classified in terms of variable of interest-bearing ratio (DR$_2$), then their rank from highest rank to lowest rank is as follows:
1-Machinery 2-Food 3-non-metals 4-others 5-basicmetals 6-metals 7-chemicals 8–car 9-medicine 10-Cement

6.2 Second hypothesis

    6.2.1   Main hypothesis

H_0: There is no significant difference between product market competitions of different industries

H_1: There is a significant difference between product market competitions of different industries

According to test results, significant level is less than 0.05. So, null hypothesis is rejected for product market competition and there is a significant difference between product market competition of different industries. If industries to be classified in terms of variable of competitive ability, then their rank from highest rank to lowest rank is as follows:

1-Others 2–metals 3-car 4–non-metals 5–basicmetals 6-cement 7-medicine 8–food 9–chemicals 10-machinery

6.3 Third hypothesis

As mentioned in hypothesis 1, capital structure is assumed as leverage (total debt) and interest-bearing ratios that was calculated for each company.

    6.3.1   Sub-hypothesis 1

H_0: There is no significant difference between product market competition and total debt ratio.

H_1: There is a significant difference between product market competition and total debt ratio.

To test sub-hypotheses 1, total debt ratio related model is investigated. This variable for independent variable of product market competition (HHI) is as follows:

(1) $DR_1 = \beta_0 + \beta_1 HHI + \beta_2 GR\text{-}TA + \beta_3 ROA + \beta_4 CVA + \beta_5 SIZE + \beta_6 CR + \beta_{7\,DUM\,1} + \beta_{8\,DUM\,2}$

Coefficient of regression- determination (1) is equal to 0.688. Significant test for regression equation of model (1) will be investigated in next part. This test is performed by F-test (Fisher - ANOVA) significant level is less than 0.05. Therefore, regression equation (1) is significant. In the next step, significant test for regression coefficients of model (1) will be performed. To do so, T-Student (t-test) is used:

According to this significant level, regression coefficients in error level of 5% are significant (sig <5%). Therefore, regression coefficients (1) are significant and regression of model (1) can be written as follows:

$DR_1 = 1.16 - 0.224 HHI + 0.528\ GR\text{-}TA - 0.527 ROA + 0.160 CVA - 0.296 CR + 0.075\ DUM_1 + 0.175\ DUM_2$

    6.3.2   Sub-hypothesis 2

H_0: There is no significant difference between product market competition and interest-bearing ratio.

H_1: There is a significant difference between product market competition and interest-bearing ratio

To test sub-hypotheses 2, related model of interest-bearing ratio is investigated at all sample companies. This variable for independent variable of product market competition (HHI) is as follows:

(2) $DR_2 = \beta_0 + \beta_1 HHI + \beta_2 GR\text{-}TA + \beta_3 ROA + \beta_4 CVA + \beta_5 SIZE + \beta_6 CR + \beta_7 DUM_1 + \beta_8 DUM_2$

Coefficient of regression- determination (2) is equal to 0.537. Determination coefficient is a measure for goodness of fit of regression equation. The higher value shows less error and more reliable regression model.

Significant test of regression equation of model (2) will be investigated in next part. This test is performed by F-test (Fisher) as follows:

Regression equation is significant at error level of level of 5 since significant level is less than 0.05. Therefore, regression equation is significant. In the next step, significant test for regression coefficients of model (2) will be performed and T-Student (t-test) is used. According to obtained significant level, regression coefficients are significant at level of 5% (sig <5%). Therefore, regression coefficients (2) are significant and regression of model (2) can be written as follows:

$DR_2 = 0.645 - 0.068 HHI + 0.251\ GR\text{-}TA - 0.489\ ROA + 0.122\ CVA - 0.198\ CR + 0.038\ DUM_1 + 0.127\ DUM_2$

Testing of effectiveness of regression model (2) shows 2.5> 1.86= Durbin - Watson>1.5. Therefore, regression model (2) is effective. Now required tests for model (2) analysis are performed.

6.4 Forth hypothesis

As mentioned in above, capital structure is assumed as leverage (total debt) and interest-bearing ratios that was calculated for each company.

    6.4.1   Sub-hypothesis 1

H0: There is no significant relationship between sales growth and total debt ratio

H1: There is a significant relationship between sales growth and total debt ratio

To test above hypothesis, model (1) and regression (1) that was evaluated in previous section used. Regression coefficient is equal to 0.685. Significant test of regression equation of model (1) is performed via Fischer test (F -test). According to regression table, it is significant at error level of 5% since significant level is less than 0.05. Therefore, regression equation is significant. T-test is used to test significant of coefficients and it is significant according to row of significant level in error level of 5% ($Sig = 0.00 <\% 5$). Regression equation can be written quickly as follows:

$$DR_1 = 1.16 + 0.528GR\text{-}TA - 0.224HHI - 0.527ROA + 0.160CVA - 0.296CR + 0.075DUM_1 + 0.175DUM_2$$

Moreover, according to Durbin- Watson statistics, that is equal to 1.98, remained values are independent of each other and do not make error in model. Final model based on obtained coefficients is as follows:

$$DR_2 = 0.645 + 0.251(GR\text{-}TA) - 0.068HHI - 0.489ROA + 0.122CVA - 0.198CR + 0.038DUM_1 + 0.127DUM_2$$

Above equation can be interpreted as follows:

Relative share of sales growth variable (GR-TA) to total amount of debt used in capital structure is 0.528 that indicates a significant positive relationship between sales growth variable and total debt ratio in capital structure of companies. Therefore first hypothesis is accepted.

6.4.2 Sub-hypothesis 2

First, this hypothesis is expressed statistically:

H_0: There is no significant relationship between sales growth and interest-bearing ratio

H_1: There is a significant relationship between sales growth and interest-bearing ratio

To test sub-hypotheses 1, related model of interest-bearing ratio is investigated at all sample companies. This variable for independent variable of sales growth (GR-TA) is as follows:

$$DR_2 = \beta_0 + \beta_1 HHI + \beta_2 CR\text{-}TA + \beta_3 ROA + \beta_4 CVA + \beta_5 SIZE + \beta_6 CR + \beta_7 DUM_1 + \beta_8 DUM_2$$

To test above hypothesis, model (2) is used and regression (2), evaluated in previous section, is used and analyzed. Regression coefficient is equal to 0.537. Significant test of regression equation of model (2) is performed via Fischer test (F -test) .According to regression table, significant level is less than 0.05; therefore, regression equation is significant. T-test is used to test significant of coefficients and it is significant in error level of 5% is less than 0.05. Regression equation can be written as follows:

$$DR_2 = 0.645 + 0.251(GR\text{-}TA) - 0.068HHI - 0.489ROA + 0.122CVA - 0.198CR + 0.038DUM_1 + 0.127\ DUM_2$$

Moreover, Durbin- Watson statistics is equal to 1.86. Therefore, remained values are independent of each other and do not make error in model.

According to above points, final model based on obtained coefficients is as follows:

$$DR_2 = 0.645 + 0.251(GR\text{-}TA) - 0.068HHI - 0.489ROA + 0.122CVA - 0.198CR + 0.038DUM_1 + 0.127DUM_2$$

Relative share of sales growth variable (GR-TA) to total amount of interest-bearing value used in capital structure is 0.251 that indicates a significant positive relationship between sales growth variable and interest-bearing ratio in capital structure of companies.

6.5   Investigation of information content of DUM $_1$ and DUM $_2$

For investigation of information content of DUM $_1$ and DUM $_2$ in total debt ratio model (3), all regression coefficients are significant at error level of 5% and regression coefficients can also be effective according to this fact that Fisher test results confirm significance of regression equation. Therefore, information content of (Dum $_2$) for estimation of total debt ratio is more than (Dum $_1$).In other words, companies with bottom quartile have more ability for estimation of total debt ratio compared to with top quartile.

In investigation of information content of DUM $_1$ and DUM $_2$ in total debt ratio model (3), all regression coefficients are significant at error level of 5% and regression coefficients can also be effective according to this fact that Fisher test results confirm significance of regression equation.

A general conclusion of information content of these two criteria is that generally models of DR1 group have more prediction power than DR2 group.

7   CONCLUSION

7.1   First hypothesis:There is a significant difference between capital structure of different industries

According to conducted investigations, obtained results show significant difference between capital structures of different industries. According to results of this test, it can be inferred that different industries of Tehran Stock Exchange do not have similar financial structures. This result is consistent with studies of Bowen, et al [3], Kim [6], Long & Matiz [4], Shwartz & Arson [14], Mandelker & Rhee [7].

7.2   Second hypothesis: There is a significant difference between product market competition of different industries

According to conducted investigations, obtained results show significant difference between competitions of product market of different industries. In other words, results show significant differences between product market competition of industries due to a number of market characteristics such as number and relationship of buyer-supplier, level and form of competition, extent and size of market, ease of entry and exit in market. These findings are consistent with obtained results of studies of Guo [4] and Guney et al [6].

7.3   Third hypothesis: relation between capital structure and product market competition there are significant.

According to conducted investigations, obtained results indicate a significant negative relationship between product market competition and total debt ratio that is equal to -0.224. Moreover, there is a significant negative relationship with interest-bearing ratio equal to -0.068. Therefore, there is a negative significant relationship between competitiveness and capital structure. According to negative estimated coefficient in this study that shows that product market competition leads to an increase in financial leverage, it seems that there are important factors that determine decisions about company's capital structure and product market competition in industry. These factors include effect of industry type as well as companies when they need to consider type of industry in capital structure selection. Moreover, companies should determine competition strategy by considering a kind of effective industry with competitive ability. Result of this hypothesis is consistent with results of external studies of Smith & Anderson [13], West Guard et al [15] and Agarwal et al [1].

7.4   Fourth hypothesis: There is a significant relationship between sales growth and capital structure

Obtained findings of investigation of these hypotheses indicate that sales growth has a positive and significant relationship with both total debt ratio and interest-bearing ratio. Therefore, sales growth has a positive significant relationship with capital structure. Consequently, industries with high growth and great future investment opportunities are always trying to have financial flexibility and supply their funds via borrowing and issuing of bonds. This finding is inconsistent with findings of Pandey [9], Smith & Anderson [13], Rajan & Zingales [11], Huang & Song [4], Titmn & Velson [14], Karadniz et al [5].

8   Research limitations

1. Assets and liabilities (debts) are recorded in books based on book value and daily values, respectively. However, their comparison excludes required efficiency.
2. There are various methods to calculate elements of financial statements among different companies.

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9   Appendices

Table 4 Summary of model 1 tests (DR1)

Variables	F-Test	R^2	Adjusted R^2	SIZE	CR	CVA	ROA	GR_TA	α
Coefficients of model variables	178.78	0.688	0.684	-0.117	-0.296	0.160	-0.527	0.528	1.163
Significant level	0.00	_	_	0.089	0.00	0.0003	0.00	0.00	0.00

Table 5 Summary of model 2 tests (DR2)

Summary of model 2 tests(DR2)									
	F-Test	R^2	Adjusted R^2	SIZE	CR	CVA	ROA	GR_TA	α
Variables	178.78	1.86	0.537	0.532	-0.008	-0.198	0.122	-0.489	-0.068
Significant level	0.00	_	_	0.14	0.00	0.001	0.00	0.00	0.00

Table 6 Summary of testing of model 1 (DR1)

Variables	F-Test	R^2	Adjusted R^2	SIZE	CR	CVA	ROA	GR_TA	α
Coefficients of model variables	178.78	0.688	0.684	-0.0177	-0.296	0.160	-0.527	0.528	1.163
Significant level	0.00	_	_	0.089	0.00	0.0003	0.00	0.00	0.00

Table 7 Summary of Model 2 tests (DR2)

Variables	F-Test	R^2	Adjusted R^2	SIZE	CR	CVA	ROA	GR_TA	α
Coefficients of model variables	94.077	0.537	0.532	-0.088	-0.198	0.122	-0.489	0.251	0.645
Significant level	0.00	_	_	0.14	0.00	0.001	0.00	0.00	0.00