A Study of the Relationship Between Market Competition and Capital Structure of Companies Listed in Tehran's Stock Exchange

Mehdi Talebian 1,*, Abdollah Zabih Zade 2 and Hasan Abyak 3

1 Student of Accounting Shomal University, Amol, Iran.
2 Department of Accounting, Shomal University, Amol, Iran.
3 Master of Accounting, Islamic Azad University, Kashan Branch.

ABSTRACT

Among the characteristics of the today emerging markets is the focus on the parameter of capital and effective methods in developing and maintaining the value of the corporation and the risk management of the corporation in finance market, which constitute one of the competitive scenes among the corporations in all of the markets. The purpose of this study is to investigate the relationship between the market competition and capital structure of the corporations. For this purpose, we investigated the Tehran's stock exchange for the timeperiod between 2005 to 2009 using the panel data regression model. The results suggest that there is a significant and positive relationship between competitiveness and the capital structure. Also, the results showed that there is no significant relationship between the size of the corporation, uniqueness of the assets, sales growth and the collateral value of the assets variables and the capital structure of the corporations. Moreover, there was a significant and positive relationship between the current ratio of the corporations and the capital structure, and a significant and negative relationship between profitability ratio, capability of generating internal resources, and non-debt tax shield variables and the capital structure.

KEYWORD
capital structure, market competition, the Q Tobin ratio, collateral value of assets, non-debt tax shield, panel data regression.

INTRODUCTION

The latest theories of the capital structure put an emphasis not only on the internal affairs of the corporation but also on the external factors. Smith (1995), with a worldview, differentiates between the organizations competitiveness in the performance manners and working methods; he deems the world-class corporations as sharing the same features for enhancing the capability of competitiveness in contrast to other corporations. Smith was successful in establishing the product market competition with an appropriate mechanism for affecting the resources and, in turn, for affecting the non-effective management. The main purpose of the corporations in intensifying the rate of competitiveness among them is a strategy which leads us to the highest levels of performance as a result of high profits (Giroud, X., Mueller, 2008-2009).

Capital structure is among the most disputable issues of the financial domain of the corporations. Presenting divers theories, many researchers are looking for a way to specify the optimal capital structure which can minimize the cost of the corporation’s capital and maximize its value. In 1958, Miller and Modigliani in an article titled “capital cost, corporate tax, and the theory of investment,” started a revolution in the literature of capital structure. Though these researchers revised their theory and many others criticized it too, but their approach for proving their theory was very novel and opened a new vista for financial researches (Sinaee, 1386).

In this study, at first we have carried out a survey of theoretical basics of capital structure and competitiveness and explained the relationship between these two; then we have reviewed the researches done on this subject. Finally, we have investigated the impact of competitiveness on the capital structure, according to a scientific approach and based on the data collected from the stock exchange corporations of Tehran.

1. THEORETICAL BASICS AND REVIEW OF LITERATURE

1.1. Market Competition

Presently, competitiveness is a pivotal issue all over the world, and is considered as a means of desirable economical growth and consistent development. Of the features of a successful stock exchange is the power of competitiveness, and of the features of an unsuccessful one is the lack of competitiveness (Guadlupe, Cunyat, 2009). The maximization of the value of the corporations involves the execution of profitable projects. What distinguish the today world of the corporations and organizations from that of the
yesterday are the unstable and complicated circumstances, growing competition, fast changes and evolutions, and the ever developing technology and communications. In such a world, there would be no scope for the corporations which are static. According to Martz's definition, competitiveness is equivalent to the economical power of a unit in front of its competitors in a market in which its goods, services, skills, and ideas are supplied beyond the geographical boundaries (Pazhuyan&Nassiri, 88). Market competition is a key benchmark for evaluating the development and success degree of the countries, industries, and the stock exchanges in the political, economical and commercial competitive domains, in that each country, industry, or stock exchange will have more competitiveness if it has higher competition power in the competitive markets (Baggs&Bettignies, 2007). The competitiveness of the exchange involves making coordinated and effective decisions and also making efforts in strategically and operational levels. By intensifying the competition rate among them, the corporations aim to define strategies which we can enhance to the highest levels of performance as a result of high profits. Competitiveness means the ability of the organization in its persistence in the business and protecting its capital, in making returns, and in capitals, and guaranteeing jobs in future (Akimova, 2000). Competitiveness among the corporations means achievement of a premium and constant opportunity in the industry and the market in which the corporation lead their activities (Dorunparvar et al., 2010). According to the abovementioned views, the more the corporations gain power for having the market share of their productions, the more will they overtake their competitors, and accordingly, they will have more growth and development. Competitiveness is defined as the economical power of the exchange for maintaining its share in international markets or increasing its share in the market; and by profitability, we mean economical profits; that is, the profit which is beyond the expectation of investors in other similar investments of similar risk. In this study, we have used the Q Tobin rate for measuring the monopolized power (competitiveness) of the corporations. In a market competition, the Q Tobin of all the corporations will be 1. A corporation with a Q Tobin more than 1 is expected to make use of competition advantage in comparison to monopoly corporations. The competitive corporations have a Q Tobin equal to 1, and as their competitiveness increases, their Q Tobin becomes larger than 1. If the Q Tobin of a corporation be larger than 1, the increase of its market value will exceed replacement cost.

1.2. CAPITAL STRUCTURE

One of the most important objectives which the finance managers should take into consideration in order to maximize the shareholder’s wealth is to specify the best panel of the resources of the corporation or the very capital structure. Changing risks and returns of the corporations is done by the managers through the decisions concerning the capital structure; also, due to the difference of risks between each financing approach, the credit conditions of the corporation will be affected by the financing policies. The capital structure of every corporation is the preliminary warning in relation to the financial distress of the corporation, and it is essential that attention be paid to the specification of the efficiency of financing in the strategic planning of the corporations (Sinaee, 1386). For the capital structure of the corporations, two theories including the pecking order theory and static trade-off theory in financing literature. According to the static trade-off theory, by establishing a trade-off between the financing profits through debts (for example, tax economization gained from debt interests and the reduction of agency cost through the controlling role of debt) and costs related to debt (for example, bankruptcy costs and the agency cost of dept), one can attain a capital structure which maximize the value of the corporation. This is the very optimal capital structure (Huang & Song, 2006). On the other hand, in the pecking order theory, the defects of the capital market are focused on, and a connection is created between transaction costs, information asymmetry, and the corporation’s ability in receiving new investments with internal funds and resources (Titman, 1998). The financiers, investors (shareholders), and creditors are all after their own profits. What encourages the financiers to invest their resources in a specific activity is the desirable performance of that activity following which the value of the corporation and, as a result, the wealth of the shareholders will increase (Aggarwal&Kyaw, 2010).

1.3. MARKET COMPETITION AND CAPITAL STRUCTURE

There are two factors concerning the profitability of a business in the market including; the industrial structure in which the business leads its activity and the location of business competition in that industry. These two are factors of the strategy which leads to the codification and execution of the business strategy (Buckley, 1998). In fact, an industry can be competitive and create more value than the other competitors in the competitive markets as long as it can be coordinated with external factors and take advantage of a balance within the forces of its internal structures (Griffith, 2001). The Exchange structure, the strategy of the conditions which control the nature and essence of the competition in the macro-social level, and the way in which organizations, are established, organized and managed, have a considerable impact on competitiveness. Accordingly, in fact, a corporation can be competitive and create more value than the other competitors in the competitive markets as long as it can be coordinated with external factors and take advantage of a balance within the forces of its internal structures (Kelarck, 1998). By increasing debt, the corporations increase their production and income and achieve more competitiveness. This suggests that the corporations with higher competitiveness tend to use more debt. When market competition increases in different industries, competition in how corporation finance is increased too; as a result, instead of financing through stock, the corporation generally prefer to supply the needed funds through banking and credit system, and the more competitive corporations have a better opportunity in the market. In this study, we define the difference between the market value of the corporation and the replacement cost as
the competitive (exclusive) profits. James Tobin argues as such: when the Q Tobin is larger than 1, the shareholders and creditors should attempt to invest. Since the new investments are more than its cost, clearly, in such chances and interest cost coverage, the monopolized advantage is to give up living. From then on, this decree has been being applied in the economy and review of literature of industrial organizations, especially in the market competition domain. The previous researches show that the monopolized advantage causes a non-shift and lack of evolution in the managers and their inactiveness (Garelli, 2005).

From early 1960s, the scientific and modern investigation of the capital structure of the corporations came into the canon of focus of researchers. For the first time, Miller and Modigliani (MM) remarked that given the efficiency of the market, the capital structure is not an essential factor in determining the value of the corporation. So far, this trend and other divers hypotheses have been able to trial, scientifically and experimentally, the efficiency of the different financing approaches in economical arenas and varying conditions of the corporations (Harris & Raviv, 1991). Investigating the factors affecting the capital structures of the corporations of the middle Asia, Dessomskak (2004) drew the conclusion that the capital structure of each corporation differs from the other due to the internal and external factors and is under the impact of the environment in which it is functioning (Dessomskak, 2004).

According to Rajan and Zingales, the definition “debt ratio or the leverage” as the dependent variable is of much importance in the researches of capital structure, and choosing an appropriate standard for measuring depends on the purpose of the research. The commonest definition of leverage, is the ratio of all the debts to all assets) Antoniou, Guney&Paudyal, 2008). Ghadiri&Asadian (1389) investigated the impact of the features of the corporation on the capital structure of the corporations accepted in the stock exchange of Tehran. Their study methodology was induction and deduction, and they showed that there was a significant relationship between the instantaneous ratio and interest coverage ratio and the capital structure of the corporations. Matanet al (1389) in a study titled “the impact of the features of the corporation on the capital structure of the corporations accepted in the stock exchange of Tehran” remarked that there was a significant and negative relationship between the capital structure of the corporations and assets structure, profitability, expected growth, instantaneous ratio and the return of assets; also, the relationship between the capital structure of the corporation and the corporation’s largeness and interest cost coverage ratio is significant and positive.

In their research, Ganni et al investigated the relationship between product market competition and the capital structure of the corporations accepted in China’s stock exchange. They used the Q Tobin for measuring the competition in the product market. The results of their research showed that there was a significant and positive relationship between market competition and the capital structure. They remarked that the relationship between market competition and the capital structure is not linear but parabolic and cubic. In a research, Cho (2009) investigated the optimal capital structure and product market competition. He concluded that there was a significant and positive relationship between market competition and the capital structure.

2. REVIEW OF LITERATURE

Scott defines competitiveness as the ability to increase income as fast as the competitors do and creating the essential capitals for facing them in future. In a more comprehensive definition, Peace and Stephan explain competitiveness as follows: competitiveness is the ability of the organization in its persistence in the business and protection of its capitals, in making returns, and in capitals, and guaranteeing jobs in future (Akimova, 2000). In a globalized economy, competitiveness means gaining an appropriate and constant opportunity in the international markets (Shurchuluu, 2002). Hicks (1935) remarks: the best monopolized advantage is to give up living. From then on, this decree has been being applied in the economy and review of literature of industrial organizations, especially in the market competition domain. The previous researches show that the monopolized advantage causes a non-shift and lack of evolution in the managers and their inactiveness (Garelli, 2005).

Regarding the theoretical basics and the previous researches, the hypotheses of the this study have been codified as follows:

**The first hypothesis:** there is a significant relationship between market competition and the capital structure of corporations.

**The second hypothesis:** there is a significant relationship between the trade competitors of the corporation and their capital structure.

3. RESEARCH HYPOTHESES

Regarding the impossibility of controlling all the related variables, this research cannot be considered a kind of pure experimental researches, but regarding the analysis of previous data and information, we can say that it is a quasi-experimental research. Furthermore, with respect to the fact that the purpose of this research is to investigate the relationship between the capital structure and the product market competition of the corporations, then the present research is of the correlation-regression type.

4. METHODOLOGY

Regarding the impossibility of controlling all the related variables, this research cannot be considered a kind of pure experimental researches, but regarding the analysis of previous data and information, we can say that it is a quasi-experimental research. Furthermore, with respect to the fact that the purpose of this research is to investigate the relationship between the capital structure and the product market competition of the corporations, then the present research is of the correlation-regression type.

4.1. STATISTICAL COMMUNITY AND THE METHOD OF SELECTING CORPORATIONS

The statistical community of the research is all the corporations accepted in the stock exchange of Tehran for
the timeperiod between 2005 to 2009. For determining the statistical sample, we used sampling method in a purposeful way in that in each stage, out of all the corporations existing in 2005, those which lacked the credentials below were excluded and the rest were selected for testing the research hypotheses:

- The corporations must have had constant activity in the financial year.
- The statistical sample must not include intermediary finance and investment corporations.
- The corporation whose financial year ends with March

Conducting the above-mentioned process, we finally selected 80 corporations for the test.

4.2. DATA-COMPILING METHOD

In this research, the compilation of the data was done in two stages: in the first stage we used survey for codifying the theoretical basics, and in the second stage, to compile the data; we used stock exchange monthlies and website, the website of the Central Bank of Iran, and the software's containing financial data of the corporations. Then, we used Microsoft Office Excel for preparing data. Respectively, after extracting the related data into investigated variables of the above-mentioned sources, we entered these data in the created worksheets in the environment of this software and then carried out the necessary calculations to access the investigated variables.

4.3. DATA ANALYSIS AND DEFINITION OF VARIABLES

In the descriptive statistics section, the analysis of the data has been done using the central indexes such as mean, median, dispersion indexes of standard deviation, skewness, and kurtosis. For selecting from among the approaches of panel data regression model, we used the F LimmerTest. This approach rests on the R squared of two approaches and investigates this test as to whether the fix effect regression R squared is significantly larger than pooled R squared regression or not? The assumption of H₀ and H₁ of this test is as follows:

| The pooled data model = H₀ |
| The fix effect panel data = H₁ |

After putting the model into practice and before specifying the results, we also carried out and investigated the autocorrelation test, through the statistics of Watson-Durbin, on the left sentences and then the results were analyzed. In this respect, for investigating the effect of the independent variables on dependent ones, the below regression model was defined:

\[ Lev_{i,t} = \beta_0 + \beta_1 \text{Q Tobin}_{i,t} + \beta_2 \text{Competitor}_{i,t} + \beta_3 \text{Size}_{i,t} + \beta_4 \text{ROA}_{i,t} + \beta_5 \text{GR}_{i,t} + \beta_6 \text{NDTS}_{i,t} + \beta_7 \text{CVA}_{i,t} + \beta_8 \text{UNIQ}_{i,t} + \beta_9 \text{CGIR}_{i,t} + \beta_{10} \text{CR}_{i,t} + \epsilon_{i,t} \]

4.4. DEPENDENT VARIABLE

In this study the capital structure has been defined as the dependent variable which has been obtained through the ratio of the book value of all the debts to that of all the assets.

4.5. INDEPENDENT VARIABLES

The Q Tobin Ratio: the market competition can be measured by means of three indexes of Learner, HHI and Q Tobin. In this research, like Pandey 2004, Chung & Pruitt (1994), Lindenberg& Ross (1981), and Ganni et al (2011), we have used the Q Tobin for measuring the market competition. In the operation definition, the degree of the market competitiveness depends on the monopolizedness of the corporation. When the Q Tobin ratio is approximate to 1 and larger than 1, it shows the competitiveness of the market. Our research is based on Pandey’s in 2004, in which we obtained the Q Tobin ratio through the book value of all the debts plus the market value of equity divided by the book value of all the assets.

Number of competitors: shows the number of the trade competitors of the corporation in the industry in which they lead their activities. The more the number of competitors, the more will be the competitiveness; and the corporations have to compete with many more competitors to gain market share.

4.6. CONTROL VARIABLES

Assets return: is the operation income divided by the book value of all the assets. The return depends on the corporation’s skills of production and sales and is not affected by corporation’s capital structure.

Corporation’s largeness: is the natural logarithm of the book value of all the corporation’s assets. The larger a corporation be, the more credit will be given to the corporation by capital markets, lenders, and investors, and it can have the benefit of more credit and loan.

Collateral value of the assets: is the ratio of goods and material stock plus fix assets divided by the book value of all the assets. When the tangible assets of a corporation are great, one can use the assets as collateral and lower the risk of the lender’s agency cost of debt. Therefore, the more the tangible assets of a corporation, the more its financial leverage.

Sales growth: which is obtained by the below proportion:

\[ \text{Growth Ratio} = \text{The corporations with fix sales can use} \]

Sales growth: which is obtained by the below proportion:

\[ \text{Growth Ratio} = \text{The corporations with fix sales can use} \]

\[ \text{The non-debt tax shield: is the ratio of depreciation cost to the book value of all the assets. Graham et al (2003)} \]
argued that using non-debt tax shields has cause the corporations to use less debt, and there is a reverse relationship between the size of leverage used by the corporation and the size of non-debt tax costs used.

**Uniqueness of assets:** is the ratio of the operation costs to sales income. One can use the assets with general functions in different areas. They make up a good back-up for financing, whereas this does not hold true about the assets with particular functions.

**Capability of generating internal resources:** is the ratio of the net cash flow from operation divided by the book value of all the assets. According to Jensen’s theory (1986), the capability of generating more cash flow can have a positive relationship with debt rate because the corporations with higher capability in generating internal resources use a high leverage for using tax advantage.

Current ratio: is the ratio of the current assets to current debts. Short-term debts are considered as a cheap resource of financing. The essence of current assets (solvency power) enhances the corporation’s power of payment; accordingly, the corporations with high current ratio use high debt ratio.

5. **Research Findings**

5.1. **Descriptive Statistics**

As is shown in the table (1), the results of descriptive statistics of the research variables are given. Regarding the approximation of the mean and median in most of the variables, and also regarding the statistics obtained from different variables, we can conclude that all the variables are appropriately distributed.

<table>
<thead>
<tr>
<th>Capital structure</th>
<th>Mean</th>
<th>Median</th>
<th>Maximum</th>
<th>Minimum</th>
<th>Standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q Tobin ratio</td>
<td>1.654</td>
<td>1.236</td>
<td>29.58</td>
<td>0.040</td>
<td>2.121</td>
</tr>
<tr>
<td>Number of competitors</td>
<td>8.304</td>
<td>9</td>
<td>2.709</td>
<td>3</td>
<td>11</td>
</tr>
<tr>
<td>Profitability ratio</td>
<td>0.142</td>
<td>0.118</td>
<td>3.90</td>
<td>-0.89</td>
<td>0.253</td>
</tr>
<tr>
<td>Corporation’s largeness</td>
<td>12.63</td>
<td>12.62</td>
<td>16.43</td>
<td>9.816</td>
<td>1.264</td>
</tr>
<tr>
<td>Uniqueness of assets</td>
<td>-0.108</td>
<td>-0.06</td>
<td>-0.002</td>
<td>-1.97</td>
<td>0.179</td>
</tr>
<tr>
<td>Sales growth</td>
<td>0.125</td>
<td>0.036</td>
<td>5.212</td>
<td>-0.84</td>
<td>0.447</td>
</tr>
<tr>
<td>Collateral value of assets</td>
<td>0.51</td>
<td>0.506</td>
<td>2.498</td>
<td>0.058</td>
<td>2.42</td>
</tr>
<tr>
<td>Current ratio</td>
<td>1.33</td>
<td>1.110</td>
<td>16.08</td>
<td>0.018</td>
<td>1.543</td>
</tr>
<tr>
<td>Capability of generating internal resources</td>
<td>0.035</td>
<td>0.025</td>
<td>0.341</td>
<td>0</td>
<td>0.036</td>
</tr>
<tr>
<td>Non-debt tax shield</td>
<td>0.033</td>
<td>0.020</td>
<td>0.489</td>
<td>0.0002</td>
<td>0.049</td>
</tr>
</tbody>
</table>

As was stated in the section concerning the research hypotheses, the purpose of this study is to investigate the relationship between market competitions and determining F Limmer Test was carried out for selecting from among the pooled data models and fix effect panel data models, using Eviews software, the results of which are given in the table (2).

<table>
<thead>
<tr>
<th>Period F</th>
<th>Statistics</th>
<th>P.Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.764495</td>
<td>0.5489</td>
</tr>
</tbody>
</table>

5.2. **Inductive Statistics**

As is shown in the table (2), the results suggest the acceptance of the assumption $H_0$. Consequently, the pooled data model is preferable. Therefore, we have used the pooled data model for putting the model into practice. The results related to the statistics Test of the research model are given in the table (3).
As is shown in the table (3), regarding the F statistics, the obtained (99.54) suggest that in the significance level of 99%, the market competition and other independent variables have relationship with the capital structure of the corporation. Also, the results confirm the fact that about 69% of the changes of the capital structure have been explained by the independent variables of the research. In the following steps, we got to investigate the obtained results for each of the research hypotheses.

### 5.3. RESULTS OF THE TEST OF RESEARCH HYPOTHESES

#### 5.3.1. TEST OF THE FIRST HYPOTHESIS

The first hypothesis investigates the relationship between the market competition and corporation's capital structure. According to the results shown in the table (3), the variable coefficient of the Q Tobin ratio is 0.24 and regarding its P-Value which is (0.000) and is less than the error level of 0.01; as a result, this hypothesis was confirmed at the significance level of 0.99.

#### 5.3.2. TEST OF THE SECOND HYPOTHESIS

The second hypothesis investigates the relationship between the number of the corporation's competitors and its capital structure. According to the results shown in the table (4), the correlation coefficient between the number of the corporation's competitors and its capital structure is significant (0.014, sig=0.023) and less than error level of 0.05. As a result, this hypothesis is confirmed in the significance level of 0.95.

### CONCLUSION

One of the features of the researches conducted in socio-economic domain is their being relative in different temporal situations. This research investigates the relationship between the market competition and features of corporations and corporation's capital structure. The results, in total, showed that market relationship and the decisions concerning the capital structure are related. The result of the hypothesis concerning the market competition and the corporation's capital structure showed that there is a significant and positive relationship between this variable and the corporation's capital structure. The obtained result is also concurrent with other researches including Ganniet al (2011), levet al (2003), and Cho (2009). In this respect we can state that, competitiveness in the market makes the managers be motivated for optimum financing. As market competition is increased in different industries, competition for different ways of financing is increased too, and the more competitive corporations have a better condition for being financed. As a result, the corporations try to attract finance through banking and credit system instead of stock exchange. In sum, the findings show that the corporations which are present in the more competitive markets are more motivated to use optimal financing and to use high financial leverage. The investors and creditors should make note of this fact that the size of competitiveness in every industry has great impacts on the corporation's capital structure.

Also according to the results statistically obtained, there is a significant and positive relationship between the number of competitors and market competition. The more the corporations gain market share, the more they overtake their competitors. In other words, the results confirm this fact that the more is the number of the competitors of a corporation, the more will be their motivation in being financed through debts. The result was concurrent with the research done by Ganni et al (2011), and Cho (2009), and we can state that the capital structure is among the most important decisions of the corporations for survival, maintenance, and increasing the market share.

### APPLICATIONS
According to the results obtained, the following applications are suggested:

- We recommend the investors to pay much attention to the capital structure when they decide on resource allocations. Also, we recommend the creditors to be more careful when they want to grant loans to the corporations with high risk and financial leverage. We recommend them to consider the market competition in different industries as an effective agent in corporation’s policies and other agents related to it.

- We recommend the corporations accepted in the stock exchange to use less debt for increasing financial transparency because this lowers the risk and also this helps increase the financial transparency and, as a result, lower the corporation’s capital cost and increase the liquidity power of the stock.

IMPLICATIONS FOR FUTURE RESEARCHES

- We recommend the other researchers to investigate the other features of the corporation such as external-economical macro-factors affecting the capital structure.

- We recommend them to investigate the impact of corporation’s authority system on debt structures (short-term and long-term debts).

- We recommend the other researchers to investigate the present subject in different industries, in the future researches.

REFERENCES


