

## **THE STUDY ROLE OF COMMERCIAL COMPETITION IN THE MARKET ON INTEREST MANAGEMENT OF ACCEPTED COMPANIES IN TEHRAN STOCK EXCHANGE**

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### **Abstract**

The purpose of this article is to study the relation between competition in product market and interest management of accepted company on the Tehran Stock Exchange. For this purpose, the index of Herfindahl - Hirschman, Lerner and adjusted Lerner as criteria for measuring product market competition is used. Optional accrual items were used as a measure of interest management. 145 accepted companies in Tehran Stock Exchange comprised statistical population that studied over the years 2010 to 2014. Multivariate linear regression analysis was used to test proposal hypotheses. The results of tests showed that generally there is a significant inverse relation between Herfindahl- Hirschman index, Lerner and adjusted Lerner with interest management of companies.

**Keywords:** interest management, competition in product market, Lerner index

### **1. Introduction**

This study is in search of the relation between competition in products market and managers motivation for distorting the reported interest by them. A large literature in economics and accounting in this area have provided theoretical guidance on how to compete in the market can lead to a reduction of agent problems [23] [36] [41] or sometimes led to intensification problems of agents [40] [34] [26]. Experimental researchers based on these guidelines and theoretical predictions have made analyze the effects of competition on managers efforts and consequently, the productivity and efficiency of a company's operations [37] [21]. It is clear that the demand for financial reporting is due to agency conflicts between shareholders and the people within the company (managers) 1..<sup>1</sup>

The effects of competition on agent problems ( even with the effects of ambiguous ) stimulus in this regard that the current study examines the relation between competition in product market and the performance of their financial reporting

Because their financial reporting problems. Because the agent problems can distort financial reporting, the current research to test aspects of financial reporting , which may lead to distort the economic performance through reported interest due to the tempt of managers motivation.

The main reason of economic science is based on competition in the market is formed an excellent mechanism for optimal allocation of resources, and with contraction effects on the behavior of managers and their inefficiency [33].Compatible with this view of recent literature, has shown how appropriate company rule mechanisms are needed when markets

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1 - To review the literature in this regard refer to Haley and palpo [25] and Rezai [3]

are in danger of dying out or disintegrate, [19] [20] Otherwise, if there is no appropriate corporate governance mechanisms, only a good competition will lead managers to maximize shareholder wealth without need to control [33]

According to last subjects, it seems that competitions in products market have the applicant effects on management motivation regarding to interference interest and somehow management of reported interest. In this regard, the current research is about competition analysis in companies' products market in Tehran exchange stock and their effects on the interest interface and management by companies' managers.

The importance of this study is that companies' interest is one of the main criteria of performance evaluation and company situation of proficiency from the viewpoint of shareholders, creditors and others [2]. With clear results of this research could have wider view than market competition structure in Iran and their effects on companies' interest management. In total, the main research question is: whether the competitive structure of the industry have any effects to determine the companies' management motives regarding reported interest management?

According to passing of time and changes in the economic environment and the gradual completion of databases exchange areas, with respect to previous studies this research is done as repeat testing (replication) that in the rest of the article, theoretical basic and background research related to the subject as well the research method and theory derived from the theoretical basic will expressed.

Finally, the theory test results present and conclusion done considering to the results, theoretical basic and the background at the end and will finish with mention of restrictions and proposals.

## **2. Theoretical basic**

In some studies, products market structure of companies is as an effective factor that impress on investment activity, financing, distribution of cash and their company rule. [22] [24] [16]. However, there is conflicting evidence regarding the effects of competition in the market on managers' motivation about interest management and interference. Firstly, Interest management theory was introduced as interest smoothing by Hepworth (1953) and later presented by Gordon (1964) [1].

Skippers [43] defines the concept of interest management as intentional interference management in the financial reporting process to obtain the expected interest. In other words, according to different goals and objectives management, interest may increase or reduce or be smoothed. Schiffler [45] claims that the competitive pressure in the market probably increase interest interference in companies. he says the reason is when there is a intensive competition in markets, managers are under pressure for interest interference to influence actual and potential investors through influence on stock prices and proper interest report before acquirement.<sup>1</sup> In this regard, Markarian and Senatolo [33] also suggest that the intensity of competitive structure of industry influence on financial report decisions of managers. .

So far, the various reasoning by different researchers proposed on the relation between market competition and the interest management of companies.

Datta and colleagues [14] presented evidence in this regard that competition in the products market is an effective factor on companies' interest management.

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1- To provide a sample of the available evidence about the relation between competition and interest interference can mention recent accounting scandals in companies like Enron and WorldCom. Competitive pressures led to wide range of activities of interest management in those companies [28].

First, competition can be used as an infrastructure mechanism 1, which would give ability to create any kind of cost shock to customers, reduce the fluctuation of cash flows and thus reduce the need of interest interference.

Secondly, due to this fact that the market punish companies which fail to achieve the expected interest.

It can be reasoned that the companies under the power of weak pricing (less competition) interference more likely their interest. In another point of view, Datta and colleagues [14] know Another motivated of interest interference by managers as a limited strategy and complicated more the available information for competitors in trying to keep their competitive advantage.

Therefore, based on this reason those companies are faced with more competitive pressures, have possibility to interest management motivation to restricted available information for competitors.

Markarian and Senatalo [33] But when the information process is about the industry, competition has negative effects on interest management of companies.

Totally, based on the reason of Datta and colleagues [14] and Markarian and Senatalo [33], the relation is unknown and uncertain between competition in products market and the interest management of companies.

Delaying or cutting research and development cost and other activities that cause the company's profitability in the short term [28]. Also, in researcher's viewpoint competition lead to increased risk. Therefore, risk-averse managers will more conservative by avoiding or delaying investment projects that potentially cause increase of the potential returns of cash flows in the future, [39] [18]. Smith [42] also says that more competition increases the risk of closing company, which it leads managers to increase capital and debt reduction.

### 3. Research background

Schleifer [45] in his research study the relation between competition and interest management. The results of his study showed that competitive pressure in the market will increase the probability of interest interference.

Tinakar and Su [47] made the study about relation of interest management and completion, entitled "The competition in the product market and interest management".

Markarian, and Senatalo [33] in another study, titled "The competition in the product market, Information and interest management" analyze the effects of competition in the product market on management motivate for interest management. Their research results indicate two interactions Laksmana and Yang [30] study in a research titled "competition in product market and interest management aimed at profitability orientation" to the relationship between competition in product market and the interest management. Their research results indicate that more competitive companies tend more to interest management than companies with less competition tend to manage based on their assurance. Marque Kaytit and Chul Park [32] also in another study examined the relation between interest management and competition in product market. The results of their study showed that companies that manage their own interest have the worst performance in the long-term stock market in completion market.

Datta and colleagues [14] investigated the role of the competitive structure of the industry on interest management companies. Their research results show a strong and significant relationship between pricing power of companies' products market and the degree of interest management and competitiveness in the industry. Also, Datta and colleagues research findings reflect this fact that in the industry level, more competitive of industry is with more interest management. Carona and colleagues. [28] also in another research examine the

relation between competition in product market and the interest management of companies using competitive factors such as product replacement, market size and entry costs to the industry.

The results of their research showed that industry factors have effective role on the company's interest management. In other words, the results showed a positive relationship between competition and interest management.

#### 4. Research hypotheses

1. There is a significant relation between Herfindahl - Hirschman index with companies' interest management.
2. There is a significant relation between Lerner index with companies' interest management.
3. There is a significant relation between adjusted Lerner with companies' interest management.

#### 5. Research method

The research method is cursual and required information of companies collected through Rah avarad Novin, Tadbir pardaz 2 Software and official website of stock exchange. Finally, data got ready with Microsoft Excel 2007 version and then analysis using Eviews software and SPSS version 20.

#### **Related Data to the period of the test, the statistical sample and population**

The period of study is an eight-year period based on financial statements from 2010 to 2014. However, according to test of research period models, it is required to calculate the change in t year to (t-1) year; So actually, research period is limited to seven years. Companies listed on Tehran Stock Exchange, made the population of this research.

Because there is some inconsistency between members, the following condition is set for selecting statistical sample and the sample was selected to targeted statistical sampling method:

1. Fiscal year ended March in each year
2. Company didn't changed fiscal year during 2010 and 2014.
- 3-Required Financial information is available in order to extract the required data.
- 4- Accepted at Tehran Stock Exchange by the end of fiscal year 2009
- 5- The banks and financial institutions (investment companies, financial intermediaries, holding and leasing companies), because financial information disclosure and leading structures of companies are different. According to the mentioned conditions and restrictions, 145 companies were selected for the period time of 2010 to 2014 as sample.

#### **Research hypotheses test method:**

This section study Research hypotheses test methods. It was used low regression model for test.

$$EM_{it} = \beta_0 + \beta_1 (PMC_{it}) + \gamma X_{it} + \varepsilon_{it}(1)$$

In the above model  $EM_{it}$  reflects interest management criteria in defined (t) year in variables section of Research ,  $PMC_{it}$  shows competition criteria in the products market of I company in (t) year and  $X_{it}$  shows a vector of control variables, including the size (natural logarithm of sales), debt ratio, investment opportunities and profitability (return on total assets).

#### **The research variables**

##### **Independent variable**

According to the research question and aim, competition in the company's products market is considered as independent variables.

Herfindahl – Hirschman Index

Herfindahl – Hirschman index obtained from the sum of the squared market shares of all active firms in the industry.

$$(2) \quad HHI = \sum_{i=1}^k S_i^2$$

Where HHI Herfindahl – Hirschman index, k the number of firms in the market and Si i-th company's market share is derived from the following equation:

$$(3) \quad S_i = X_j / \sum_{j=1}^l X_j$$

Where  $X_j$  shows the j company's sales and l shows the type of industry. Herfindahl – Hirschman index measured the level of focus in industry. The higher the index, focus level is the higher too and there is less competition in the industry, and vice versa. It is noteworthy that this index was used in the research of Chen and colleagues [11], Cheng and colleagues [12] and Namazi and Ebrahimi [6].

### **Lerner Index**

Lerner index is equal to the product price of company minus the final cost of products. This index directly shows the strength of the market, means the company's ability to determine the a price more than final cost.

The coming challenge using Lerner index in experiential researches is that final costs are not visible. So, researchers usually estimate Lerner index by price - cost margin [10]. Following Gasper and Massa (18), Cal and Leuven (27) and Booth and Zhou [10], Lerner index is defined in terms of operating interest divided by sales. It is estimated using the following equation [44]:

$$(4) \quad LI = (Sale - Cogs - SG \& A) / Sale$$

Sale shows the Lerner index, LI in the above equation shows the final cost , Coge shows sales A & SG shows the cost of general and old goods , administrative and selling.

### **Adjusted Lerner index**

Although Lerner index is used to determine the market power of the company's product, but this factor does not break up company-specific factors such as the impact of pricing power market from industry level factors. Therefore, in this research, the same research Sharma [44], Pierce [38], Gasper and Massa [18] and Namazi and Ebrahimi [6] is used adjusted version of the Lerner index. How to Calculate the adjusted Lerner index is as follows:

$$(5) \quad LI_{IA} = LI_i - \sum_{i=1}^N \omega_i LI_i$$

### **Dependent variable**

In this research, the interest management of companies shows the research dependent variable. The available study about interest management was noticed for the accrual [1]. Extensive literature of optional accruals was used as a tool for measuring interest management. In this article similar to previous researches about interest management was used of optional accruals model like Dechow and colleagues method [! 5] that is known as the adjusted Jones model [8] [4] [1]. In the first stage accrual is calculated as follows.

$$(6) \quad TA_{it} = NI_{it} - CFO_{it}$$

That in the above equation  $TA_{it}$  shows the total accruals for (i) company in t year,  $NI_{it}$  shows the net interest of (i) company in (t) year and  $CFO_{it}$  shows cash flows from operating activities of (i) company in t year.

Also, the non-optional accrual section is calculated as below:

$$(7) \quad NDA_{it} = \beta_1 (1/T.AST_{it-1}) + \beta_2 (\Delta REV_{it} - \Delta R.A_{it}/T.AST_{it-1}) + \beta_3 (\Delta F.A_{it}/T.AST_{it-1})$$

In the above equation  $NDA_{it}$  shows non-optional accruals for (i) company in (t) year,  $\Delta REV_{it}$  shows change in the (i) company income in t year,  $\Delta R.A_{it}$  shows the change in accounts and receipt documents of I company in t year,  $T.AST_{it-1}$  shows the total assets of the i company in t-1 year and  $\Delta F.A_{it}$  shows the change in fixed assets of I company in t year. In this study,  $\beta_1, \beta_2, \beta_3$  calculated based on adjusted Jones model as follows:

$$(3) TA_{it} = \beta_1 (1/T.AST_{it-1}) + \beta_2 (\Delta REV_{it} - \Delta R.A_{it}/T.AST_{it-1}) + \beta_3 (\Delta F.A_{it}/T.AST_{it-1}) + \epsilon_{it}$$

After calculating the total accruals and non-optional accruals, discretionary accruals are calculated using the following formula:

$$(4) DA_{it} = TA_{it} - NDA_{it}$$

#### **Control variables**

In order to control other variables involved in the analysis of the research issue, the necessary control variables were determined according to literature review. Control variables of this research are as follow:

1- Investment opportunities: interest of companies with investment opportunities may have strong motive in the capital markets that motivated managers to interfere interest [13] [46] [31]. In this research, it was used the ratio of market value to chart value is to measure investment opportunities. The ratio of market value to chart value is equal to the total chart value of total assets and market value of share holders due of minus the chart value of share holders divided by chart value of total assets.

2. Profitability: competition reduces companies' interest in the market and companies with lower interest, more likely to perform interest management [35] [17]. In this research, the output of total assets used as a criterion to measure the companies Level of profitability. Output of total assets is calculated by operating interest before depreciation divided by the chart value of total assets.

3-Ratio of debt: the problems such as the inappropriate selection, variable debt ratio are also used as a control variable [33]. In this research, short-term and long-term debt in total divided by the chart value of total assets to is used as measure criteria of debt ratio.

4. Size: bigger companies may have better control systems than smaller companies, which it may cause to prevent interest management operation [28]. The natural Algorithm of company's sales was used for determining the size of companies.

#### **Research Findings**

The achievement of the research aims, research hypotheses designed and tested. The statistical result of testing this hypothesis is presented in tables 1 to 5.

#### **Descriptive Statistics**

In order to primary data analysis, descriptive statistics for The research variables is presented in Table 1 to use in the linear regression. Table 1 shows the average, maximum, minimum, and standard deviation. As you can see, the greatest dispersion level among the the research variables is related to interest management variable. Moreover, statistics for an average of rate debt variable shows an average of almost half of the total assets of the Company in the Tehran Stock Exchange has been provided through debt.

Variable/statistics	Average	Standard deviation	Max	Min
<b>Herfindahl-Hirschman index</b>	0.129	0.231	1.000	0.00003
<b>Lerner index</b>	0.203	0.212	0.967	-1.437
<b>Balanced Lerner index</b>	0.090	0.201	0.779	-1.148
<b>Interest management</b>	14995.265	614965.872	1296256.311	-6642816.376
<b>Company size</b>	14.916	1.482	18.704	10.551
<b>Investment opportunity</b>	1.215	0.366	5.116	0.685
<b>Debt ratio</b>	.856	0.117	1.264	0.127
<b>Profitability</b>	0.301	1.157	14.602	1.152

**Inferential statistics**

This data is examined to research hypotheses test using multiple linear regressions after measuring the studied data and checking their normality, the first subsidiary hypothesis: in Table 2 is the summary of results of regression analysis for research first subsidiary test. With respect to the F statistic in Table 2, in all companies' levels those are equal to 872/23, indicating the Significant of the model at 95 percent. Moreover, the Durbin – Watson statistic presented in Table 2 in all companies levels are equal to 895/1, doesn't show any problem of autocorrelation series of disturbing components regression. An amount  $R^2_{adj}$  equal to 253/0.

Thus, according to this amount can predicted 3/25 percent of the dependent variable through explanatory variables.

Variable/statistics	Coefficient	Standard Error	T statistics	Sig value
<b>Fixed amount</b>	-315132.608	630502.689	-10.693	0.0005
<b>Herfindahl-Hirschman index</b>	1872329.157	543654.445	2.115	0.014
<b>Company size</b>	0.203	0.212	0.967	-1.437
<b>Investment opportunity</b>	1.215	0.366	5.116	0.685
<b>Debt ratio</b>	0.856	0.117	1.264	0.127
<b>Profitability</b>	0.301	1.157	14.602	1.152
<b>R^2</b>	R^2(adj)	Durbin-Watson	F statistics	Sig value
<b>0.325</b>	0.253	1.895	23.872	0.0005

In Table 2, the coefficient of the regression model is also provided with result of first subsidiary hypothesis test and significance level. As you can see, a significant level of variable related to Herfindahl – Hirschman index variable shows that there is a significant positive relationship between the Herfindahl – Hirschman index and interest management.

. The results related to control variables shows that there is a Significant positive relationship between company size variables, debt ratio and profitability with interest management, but the relationship between investment opportunities and interest management is not Significant statistically.

Second subsidiary hypothesis: in Table 3 is the results summary of research. Considering to the F statistic in Table 3, in which all companies are equal to 521/24, indicating the Significant of the model at 95 percent.

Moreover, the Durbin - Watson statistics presented in Table 3 at the level of all companies equal to 1/718, doesn't show any problem of autocorrelation series of disturbing components regression. An amount  $R_{adj}^2$  is equal to 0/202, which implies that 2/20 percent of the dependent variable, can be predicted by the explanatory variables.

<b>Table 3. evaluation the results of the 2nd sub diary hypothesis test</b>				
<b>Variable/statistics</b>	<b>Coefficient</b>	<b>Standard Error</b>	<b>T statistics</b>	<b>Sig value</b>
<b>Fixed amount</b>	-225863.654	185789.123	-10.067	0.0005
<b>Lerner index</b>	1753357.321	92807.043	-2.335	0.037
<b>Company size</b>	129706.547	17494.034	12.114	0.0005
<b>Investment opportunity</b>	-6904.711	318138.992	-0.157	0.784
<b>Debt ratio</b>	489420.438	116389.506	1.982	0.031
<b>Profitability</b>	76234.424	167855.212	2.997	0.005
<b>R<sup>2</sup></b>	R <sup>2</sup> (adj)	Durbin-Watson	F statistics	Sig value
<b>0.325</b>	0.202	1.718	24.521	0.0005

In Table 3, the coefficients of the regression test, the result of the second subsidiary hypothesis and Significant level is also provided. As you can see, a Significant level of Lerner index variable indicates that there is a Significant negative relationship between the Lerner index and interest management. The results related to control variables also show that there is a positive Significant relation between company size, debt ratio and profitability with interest management, but there is no Significant relationship between investment opportunities and managing interest statistically.

The third subsidiary hypothesis: In Table 4 is summarizes results of analysis regression obtained from third subsidiary hypothesis testing of research. Considering to the F statistic in Table 4, in which all companies are equal to 28/145, indicating the Significant of the model at level of 95 percent. Moreover, the Durbin – Watson statistic presented in Table 4 at the level of all companies is equal to 1/931, doesn't show any problem of autocorrelation series of disturbing components regression.  $R_{adj}^2$  amount equal to 0/206. Therefore, due to the amount of 20.6% of the dependent variable can be predicted by the explanatory variables.

In Table 4, the coefficients of the regression model, the result of the third subsidiary hypothesis and Significant level is also provided. As you can see, a Significant level of adjusted Lerner index variable indicates that there is a Significant negative relationship between the Lerner index and interest management. The results related to control variables also show that there is a positive Significant relation between company size, debt ratio and profitability with interest management, but there is no Significant relationship between investment opportunities and managing interest statistically.

<b>Table 4. evaluation the results of the third sub diary hypothesis test</b>				
<b>Variable/statistics</b>	<b>Coefficient</b>	<b>Standard Error</b>	<b>T statistics</b>	<b>Sig value</b>
<b>Fixed amount</b>	-	200117.975	-10.194	0.0005
<b>Adjusted Lerner index</b>	-149411.285	63951.158	-2.313	0.022
<b>Company size</b>	176845.641	16407.101	12.241	0.0005
<b>Investment opportunity</b>	-10462.653	26147.016	-0.336	0.589
<b>Debt ratio</b>	2816704.281	109191.608	2.379	0.023

<b>Profitability</b>	53627.817	19703.693	2.764	0.005
<b>R<sup>2</sup></b>	R <sup>2</sup> (adj)	Durbin-Watson	F statistics	Sig value
<b>0.242</b>	0.206	1.931	28.145	0.0005

### 5. Conclusions and Recommendations

The current research through linking between the competitive structure of the industry and companies interest management levels lead to new and important cognition in the field of literature .attention to the results of statistical data analysis related to 145 companies in Tehran Stock Exchange over the years 2010 to 2014 shows that totally with increasing competition in products market of Companies (Hirschman, Lerner and adjusted Lerner), their interest management is reduced.

In the other words, current research support this idea that Industry market power is one of the reduction factor of companies interest management in Tehran exchange stock. Therefore, it can be concluded that managers in focused industries, to reduce potential problems resulting from a lack of competitive pressure in the market, interfere and manage their interest.

It is worth noting that these results or evidences do not match in Schleifer [45], Laksmana and Yang [30], Datta and colleagues [14] and Karuna and colleagues [28] research, but it match with the results of Markarian and Senatalo research [33], which showed that if investors have enough information about sales and real output of the company, then the competition may reduce the motivation for interest management.

Perhaps one of the reasons for the lack of consistency between competition and interest dividend policy in current research or foreign research, is that the laws relating to shares interest and the level of company rule in Iran is not similar to developed countries such as America[ 3 ].

Generally, the results with control variables shows that between size ,debt ratio and profitability (return on total assets) of companies with their interest management have direct Significant relation, but between the investment opportunities and management is no Significant relation.

Since the primary purpose of interest report, is providing useful information for those who are most interested in the financial report [5] and on the results of this study showed that the interest management is less in competitive industry, recommended to Legislators and government institutions that taking plan through the use of strategies to increase competition in the market for Iranian companies in the domestic and international level led to prevent interference interest by companies management .

Due to the importance of the subject, suggested to other researchers that use other indicators to measure the competitiveness in the market (for example, Q Tobin's ratio, company concentration ratio n and the number of active companies in the industry) in the similar research to increase the validity of the current research.

Finally, it should be caution for the generalization of the results of this research due to the unavailability of financial information relating to active companies in the studied industries in this research that are not accepted at Tehran Stock Exchange.

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