

THE EFFECT OF COMPETITION CRITERIA (MEASURES) IN THE INDUSTRY ON THE LEVEL OF INVESTMENT OF THE COMPANY LISTED ON THE TEHRAN STOCK EXCHANGE

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ABSTRACT

Considering developments in the developing countries, adaption some strategies for better use of resources and God-given resources to solve the economic problems of the utmost importance. In this regard, one of the main strategies is the expansion and development of investment. The aim of this study is to investigate the relationship between the investment in company and competition in the industry. The statistical population consists of all companies listed on the Stock Exchange Tehran from 1389 till 1393 [in Persian date] that 129 companies were selected as sample. Using multivariate regression, panel data model and estimated generalized least squares estimator (EGLS) the developed hypotheses were tested. The results show a significant and direct relationship between the Herfindahl-Hirschman index and entrance fees to industry with investment of firms listed in the Tehran Stock Exchange; there is a significant and reverse relationship between market size in industry and investment in companies listed on the Tehran Stock Exchange. But there is no significant relationship between the number of companies of industry and concentration ratio in the industry with investment in companies listed on the Tehran Stock Exchange. In general results of the survey show that the increased concentration and monopoly in the industry, increases the investment and competition in the industry will be accompanied by a reduction in investment of companies.

INTRODUCTION

According Demsetz (1982), if not competition, the economy is not more than maximizing mathematics of a Robinson Crusoe economy. For decades, economists' ideas about competition, was focused on a form of competition meaning competing on price, in a market where full competition ruling over it. But the main problem of this attitude was elsewhere. In this kind of markets, despite a title that has been given to it, there was no competition on price or other variable (Seyf al, 1996). In recent years, economists agreed that competition comes in different forms and even in the imperfect competition market, imperfect monopoly for example, the competition is not on form price and primary competitive practice (Devine et al., 1985). Years earlier, when Schumpeter (1952) wrote of different aspects of competition, spoke about moral destruction that although was placed in the opposite orientation of neoclassical balance review, but it is also argued that the results not only as acceptable, but more acceptable conditions from perfect competition can be achieved. In the view of Schumpeter (1952), in any time period, a market may be dominated by one firm, an exclusively firm or nearly exclusively which obtains monopoly profits, but exclusive benefits, absorbs other large firms to this market. One or more of these new firms introduce a new product and pull out the market from the dominant firm in the past. New dominant firm earns massive profits and following these profits the same process would be repeated .

Generally, it is argued that the relationship between competition in product market and company investment is subjected to the specific characteristics of company or environmental factors (Gilbert & Harris, 1984; and Liu, 1998; Akdoğu & MacKay, 2012). Khanna and Tice (2000) found that current profitable companies attempt to increase their investment when existing lever companies (with high level of financial leverage) attempt to reduce investment. & MacKay (2008) with production Companies review of United States, came to the conclusion that in competitive industries, firms with more quickly than existing firms invest in monopolistic industries. So they reported a direct relationship between competition the industry and investment. Recently, researchers have begun to study the issue that how globalization effects on firm's investment (Mello & Wang, 2012 Frésard & Valta, 2015). It should be said that the globalization indicating increase in competition. In the mentioned studies a reduction in firm's investment in the face of global competition have been reported. According to the description provided, the present study is an attempt the impact of types of competition criteria in the industry (Herfindahl-Hirschman index of industry, the number of industry firms, the concentration in the industry, market size in the industry and costs to industry) on the level of investment of firms listed in the Tehran stock exchange to be examined.

2. LITERATURE

2.1. Competition in the industry

The competition is one of the most important concepts of economical theory, so the definition presented of this term, should be very precise. Accordingly, a review of some of the meanings associated with competition word seems useful. In theories of economics, the term competition is called as a special market structure and organization of market. Classical economists believe that the best mechanisms for coordination and allocation of resources, is market system or in other words, the market competition (Verdi, 2006). The market or competitive structure has features that students and people familiar with the economics are aware of it. In this system, the mobility of resources and factors is very high and market participants have sufficient knowledge as well as the products from different companies are homogeneous. The competition as sources allocator has an important effect causing proximity of prices to normal (natural) prices. The normal (natural) prices are competitive prices in the sense that the normal (natural) prices corresponded to a situation in which the resources allocation is such a way the wage rates and investment interest rate in the all economic activities are the same. Following each disruption in the economic system finally, the market price will return to above mentioned normal (natural) price (Webster, 2002).

Marshall (1920) by inserting time dimension, adjusted the concept of competition. He considered the competition as a process and always had emphasized that things are not fixed and in fact, Marshall reluctantly used the competition term and more willing to use the term of freedom of industry and business. In the view of neoclassical school thinkers such as Jevons, Edgeworth and Cournot, competition in terms of business activity and balance (equilibrium) position was expressed and in fact this equilibrium position is the end of firms trying to dominate and ascendancy on the market. Various factors, such as makers, businessmen and firms are effective in determining the price. Hicks (1965) breakdown the involved factors in the price into two groups: the first group are those institutions and market practices that facilitate the price flexibility and the second group are factors causing prices bond. Undoubtedly, market institutions and arrangements which cause spreading information on the market, are integral part of shaping competition in the industries and markets. But what in neoclassical theory of competition is of much attention, is the emphasizing of this theory on the competitive balance.

Introduction of full competition in the economic literature is the crowning achievement of the neoclassical school of thought. Neoclassical theory of perfect competition put together three independent concepts of full market, atomistic behaviors and the freedom of entry. Of the three above concepts, the first and third

are reflection of the classics. Clark (1961) stated that one challenge in front of competitive point of view, is the issue of transfer from the "process" to "balance". According to Clark for the realization of effective competition, four elements are necessary: The competing consumers with the ability to properly evaluate manufacturers' products; the activity freedom in any branch of the trade for any individual or organization; access to all the tools necessary to produce and ultimately, the market has conditions in which the firms take independent strategy and the behavior. Considering the above elements, real competition condition is a function of the market organization and the competitive behavior of competitors and the changing nature of what is supplied. When new opportunities arise, competition leads to a "continuous process" with opportunities for growth and profitability. The competitive nature of this process can't be understood based on the theory of "static balance of competition". Competitive process creates the pattern of change. Schumpeter (1944), in his work entitled "Capitalism, Socialism and Democracy" presents evidence to show, economic development even in the absence of competition in the neoclassical concept also takes place continuously. Progress is quite relevant to competition and competition inherent in the capitalist mechanism which itself is a form of economic change and never was and never will be static (Khodadad Kashi, 2009).

2.2. Investment

Investment is the important economic variables that have major issues to be allocated. Different schools of thought have provided different definitions of investment. In one of the definitions, investment has been stated as follows:

Investment is to postpone current consumption for more future consumption. Investment may also be defined as follows:

Investment is the expenditure for the acquisition an asset expenses which is expected to provide the service (Pakdelan, 2012). Mendel considers the investment as a process where, investor, after the acquisition of assets (money, land, machinery), mainly is generated through savings or taking less revenue, examine different methods and then chooses the option which its return is commensurate with its expected risk. This option can be a real asset, such as buildings, machinery or financial assets such as stocks, bonds or futures contract (Mousavi Jahromy, 2008). According to another definition, investment can be considered as a source to obtain financial income and the investment can be defined as the use of current resources for gaining future resources that are not deterministic and have probabilistic aspects (Pakdelan, 2012).

The more uncertainty about the general conditions of a society, the greater the likelihood of reduced investment in the community. Economic and investment firms, using two methods can take their investment decisions. These two methods are:

- ✓ Net present value that remembered as the classical theory of investment.
- ✓ The marginal efficiency of capital investment is that the Keynes's theory (Mousavi Jahromy, 2008).

The investment of funds in different asset classes only is one part of the whole decision-making and financial planning that most people do it. Before individuals do invest should have an outline. Such a plan should include decisions related to the transaction, ownership, length of asset life and the profitability of it. The expression of investment opportunities process involves analyzing the primary nature of investment decisions (Mousavi Jahromy, 2008). Investment opportunities do not occur spontaneously. Rather, they should be identified or created. Different types of investment opportunities may come from different levels of sections of the company. Some investment opportunities may be submitted by senior

management of organization or members of the board. Involvement of senior management in providing investment opportunities usually is limited to strategic actions such as the expansion and outspread of the company's activity through financial policies and entry into new markets (Shoorvarzi and Azadro, 2010 .(

Investment opportunities create incentives (motivation) and are considered as rewards for the investors. The investors should consider the risks in their investment decisions, because what will lead to success is the efficient use of available investment opportunities that for this fiscal policies affecting on creating investment opportunities should be identified in the business units. The investment opportunities have a significant impact on financing, policies and investment strategies of the companies and are considered as a part of the company's future value (Myers & Majluf, 1984).

2.3. Background of research

Laksmana and Yang (2014) in their study examined the effect of competition in the industry on accrual-based earning management and real earning management. Their study results showed that there is significant inverse correlation between competition in product market and a variety of earnings management. Huang and Li (2013) in a study examined the relationship between market structure and credit risk of companies and came to the conclusion that between the two, there is a positive correlation. That is, the greater the competition in the industry, the more credit risk in the firms (companies). Fosu (2013) examined the effect of capital structure and competition in product market on performance of company. The results of his studies showed a direct relationship between capital structure and firm (company) performance, but competition in the product market had no impact on performance. Of course the variable of competition in product market increases the positive impact of capital structure on the performance of company. Datta and colleagues (2013) in their analysis, showed the inverse relationship between products market power and earning management. They also concluded that there is a direct relationship between the increased competition in the industry and increasing earnings management, and active firms in the more competitive industries, more address the earnings management .

The results of Danesh-Noshary0 (1393) study represents a significant and inverse correlation (relationship) between competition in industry and power of company product market with the earnings management in firms listed in the Tehran Stock Exchange. Badavar –Nahandi and Darkhor (2013) showed that cash about companies with financial constraints than firms that do not have financial limitations, more causes increase the value of the company; cash and investments directly are related, and changes in cash flow in companies with financial constraints than firms that do not have financial limitations, more causes increase in excess return. Namazi and Ebrahimi (2012) found a direct and significant correlation (relationship) between stock returns and competitive structure of the market in Tehran Stock Exchange. The findings of Arabsalehi and Ashrafi study (2011) indicate a positive role of cash reserves in reducing investment sensitivity of cash flow of companies. On the other hand, no more significant advantage was seen in using the optimal cash reserves model compared to the traditional criteria of financial constraints.

3. RESEARCH METHODOLOGY

This research in terms of purpose is an applied research and in terms of understanding about study hypotheses is placed in the correlation research. Since we will get a result through testing available data, our research in will be in positive theories groups. In this study, this question arises is there a relationship between product market competition and investment now? In this regard, the research hypotheses are presented as follows:

- ✓ H1: There is a significant relationship between Herfindahl-Hirschman index of industry and investment in companies are on the Tehran Stock Exchange.

- ✓ H2: There is a significant relationship between the number of industry firms and investment of firms listed on the Tehran Stock Exchange.
- ✓ H3: There is a significant relationship between industry concentration ratio and investment of firms listed on the Tehran Stock Exchange.
- ✓ H4: There is a significant relationship between market size in the industry and investment of firms listed in the Tehran Stock Exchange.
- ✓ H5: There is a significant relationship between entrance fees to industry and investment of firms listed in the Tehran Stock Exchange .

The study population includes all companies listed on the Tehran Stock Exchange from 2010 until 2014 and studied sample was selected using systematic elimination of the population. The sample consists of all firms in the population that meet the following criteria: during the study period be present in the stock, during the period of investigation should have no change in the fiscal period, they shouldn't be of the companies active in the field of fiscal activities, including investment firms, banks, insurances and financial institutions; data needed for the research variables during the period 2010 to 2014 are available, their fiscal period ended to 29/12 each year so that data together and, if necessary, in panel form are used. Considering the certain circumstances, a number of 129 companies were selected as samples in this research .

In order to collect information on explaining the literature, library and documentary methods were used and to achieve the desired data to process research hypotheses, the information contained in the new software and investigation of financial bills firms listed in the Tehran stock exchange by visiting the official website of the Tehran stock exchange, have been used. In this study, to data analysis using estimated generalized least squares (EGLS) the Eviews software version 9 has been used .

To test the hypotheses following models are used:

$$H1) \text{INVEST}_{i,t} = \beta_0 + \beta_1 \text{HHI}_{j,t} + \beta_2 \text{SIZE}_{i,t} + \beta_3 \text{CFO}_{i,t} + \beta_4 \text{TQ}_{i,t} + \epsilon_{i,t}$$

$$H2) \text{INVEST}_{i,t} = \beta_0 + \beta_1 \text{N}_{j,t} + \beta_2 \text{SIZE}_{i,t} + \beta_3 \text{CFO}_{i,t} + \beta_4 \text{TQ}_{i,t} + \epsilon_{i,t}$$

$$H3) \text{INVEST}_{i,t} = \beta_0 + \beta_1 \text{CR4}_{j,t} + \beta_2 \text{SIZE}_{i,t} + \beta_3 \text{CFO}_{i,t} + \beta_4 \text{TQ}_{i,t} + \epsilon_{i,t}$$

$$H4) \text{INVEST}_{i,t} = \beta_0 + \beta_1 \text{MKTSIZE}_{j,t} + \beta_2 \text{SIZE}_{i,t} + \beta_3 \text{CFO}_{i,t} + \beta_4 \text{TQ}_{i,t} + \epsilon_{i,t}$$

$$H5) \text{INVEST}_{i,t} = \beta_0 + \beta_1 \text{ENTCOST}_{j,t} + \beta_2 \text{SIZE}_{i,t} + \beta_3 \text{CFO}_{i,t} + \beta_4 \text{TQ}_{i,t} + \epsilon_{i,t}$$

$\text{INVEST}_{i,t}$ = investment of firm i in year t , which is equal to net fixed assets in year t minus net fixed assets in the year $t-1$ divided by net fixed assets in the year $t-1$.

$\text{HHI}_{j,t}$ = Herfindahl-Hirschman index of industry j in year t , which is equal to:

$$\text{HHI}_{j,t} = \sum_{j=1}^N (\text{Sales}_{jit} / \sum_{j=1}^N \text{Sales}_{jit})^2$$

HHI_{jt} = HHI industry j at time t ; and Sales_{jit} = sales revenue of the company i in industry j in year t . The less Herfindahl-Hirschman index, the less revenue concentration in industry, and competition will be more .

$\text{SIZE}_{i,t}$ = the size of company i in year t is equal to the natural logarithm of total assets.

CFO_{i, t} = operational cash flow of the company *i* in year *t*, which is the ratio of cash flow to total assets.

TQ_{i, t} = Tobin's Q index company *i* in year *t* which is the ratio of the sum of the market value of share holders rights and book value of total debt to book value of total assets

N_{j, t} = the number of firms in industry *j* in the year *t* which is the natural logarithm of the number of firms in the industry.

CR_{4j, t} = concentration ratio in industry *j* in year *t*, which is the ratio of sales revenue (market share) of four big firms of industry to industry total sales revenue.

MKTSIZE_{j, t} = market size in the *j* industry in year *t*, which is the natural logarithm of sales revenue of the entire industry.

ENTCOST_{j, t} = costs of entering to industry *j* in year *t*, which is equal to the mean proportion of property, plant and equipment to total assets of firms in the industry

4.RESEARCH FINDINGS

The sample studied during the periods 2010 to 2014 consists of 129 companies. In this section, mean, median (central criteria [indices]), standard deviation, maximum and minimum (scattering parameters) of used variables were calculated and are shown in Table 1 below.

Table 1.Descriptive indices of studied variables

SD	Minimum	Maximum	Median	Mean	Variables
0/504	-0/364	3/772	0/034	0/187	Investment
0/124	0/019	0/884	0/16	0/196	Herfindahl-Hirschman
0/504	1/791	3/912	3/295	3/051	The number of industry firms
0/198	0/234	0/987	0/741	0/667	Industry concentration ratio
0/63	6/472	9/123	7/506	7/582	Industry market size
0/091	0/048	0/504	0/24	0/239	Costs of entering to industry
1/428	10/031	19/009	13/62	13/754	Market size
0/119	-0/219	0/563	0/097	0/111	Operational cash flow
0/6	0/489	3/803	1/306	1/481	Tobin's Q index

The inferential statistics used in this study consists of Pearson correlation and multivariate regression, in order to explore the relationship between independent and dependent variables controlling other variables. In order to analyze data, software Eviews 9 has been used. In addition, to ensure the reliability of results, the default tests of regression use have been taken. As in the table (2) is evident, in the Pearson correlation there is no significant correlation between investment and competition indices in the industry. In addition, the independent variables are not very strong correlated (the correlation statistics is lower than the ±0/8) and therefore there is no problem in estimating the model.

Table 2 .Pearson correlation

Tobin's Q index	Operational cash flow	Market size	costs of entering to industry	market size in industry	industry concentration ratio	number of industry firms	Herfindahl-Hirschman	investment	Variable
0/048 0/231	0/029 0/471	0/11** 0/005	-0/019 0/635	0/021 0/598	-0/068 0/09	0/044 0/23	0/044 0/269	1	investment
0/029 0/469	-0/007 0/844	0/019 0/168	- 0/168** 0/000	0/112 0/005	0/523** 0/000	- 0/237** 0/000	1		Herfindahl-Hirschman
- 0/121** 0/002	0/012 0/753	0/088* 0/027/	0/024 0/547	0/649** 0/000	-0/51** 0/000	1			The number of industry firms
0/1 0/802	-0/042 0/293	0/015 0/692	- 0/187** 0/000	0/164 0/000	1				Industry concentration ratio
-0/032 0/414	0/04 0/27	0/268** 0/000	-0/056 0/157	1					Industry market size
-0/03 0/447	0/1** 0/012	-0/004 0/909	1						Costs of entering to industry
-0/04 0/312	0/103* 0/01	1							Market size
0/27** 0/000	1								Operational cash flow
1									Tobin's Q index

* = Significance at 95% confidence level ** = significance at 99% confidence level

In order to evaluate the reliability of variables, Im–Pesaran–Shin test was used. The results of this test in Table 3 show the amount of significance level of variables is less than 5% and all variables are stable in the period under review.

Table 3. Im–Pesaran–Shin test

significance level	t-statistic	Variables
0/000	-21/674	investment
0/000	-4/673	Herfindahl-Hirschman
0/000	-6/628	The number of industry firms
0/000	-5/899	Industry concentration ratio
0/000	-8/522	Industry market size
0/000	-5/423	Costs of entering to industry
0/000	-8/801	Market size

0/000	-18/708	Operational cash flow
0/000	-15/696	Tobin's Q index

In the estimation of regression coefficients related to research hypotheses, firstly to determine the panel data method and to determine whether they are homogeneous or heterogeneous, the Chow test and statistic F Limer are used. The results are shown in Table 4 below.

Table 4 .Chow test results

Chow test result	significance level	F statistic	null hypothesis	hypothesis
null hypothesis is rejected	0/033	1/282	The use of consolidated data model	H1
null hypothesis is rejected	0/031	1/285	The use of consolidated data model	H2
null hypothesis is rejected	0/039	1/268	The use of consolidated data model	H3
null hypothesis is rejected	0/017	1/327	The use of consolidated data model	H4
null hypothesis is rejected	0/019	1/322	The use of consolidated data model	H5

Chow test result shows that the obtained probability for F statistics in all hypotheses is less than 5 percent, so to test this model data are used in panel form. The following table (5) with Hausman test, the necessity of using fixed or random effects model is investigated.

Table 5. Hausman test

test result	significance level	Chi-square statistic	null hypothesis	hypothesis
null hypothesis is rejected	0/000	19/123	using a random effects model	H1
null hypothesis is rejected	0/003	15/864	using a random effects model	H2
null hypothesis is rejected	0/005	14/601	using a random effects model	H3
null hypothesis is rejected	0/001	17/914	using a random effects model	H4
null hypothesis is rejected	0/000	18/903	using a random effects model	H5

The significance level Hausman test is less than 0/05, so to estimate the coefficients of mentioned model, fixed effects model should be used. The first hypothesis test results using fixed effects model and the method estimated generalized least squares (EGLS) in the table (6) indicate that t-statistic of Herfindahl-Hirschman variable is greater than +1/965 and its significance level is less than 0/05, there is a significant and direct correlation (relationship) between Herfindahl-Hirschman index and investment firms listed in the Tehran stock exchange .

Table 6. The first hypothesis test results

significance	t-statistic	standard error	coefficients	Variable
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level				
0/000	-7/747	0/219	-1/701	fixed amount
0/000	7/603	0/044	0/334	Herfindahl-Hirschman
0/000	8/508	0/015	0/135	Company size
0/000	3/348	0/038	0/128	Operational cash flow
0/000	-3/841	0/011	-0/042	Tobin's Q index
0/74	coefficient of determination	10/844	F-statistic	
0/678	adjusted coefficient of determination	0/000	significance level of F-statistic	
2/393	Durbin-Watson amount	EGLS method (Fixing potential effects of heterogeneity of variance)		

The second hypothesis test result in Table (7) shows that the t-statistic of variable of number of industry firms (companies) is smaller than $\pm 1/965$ and its significance level is greater than 0/05 and there is no significant correlation (relationship) between the number of industry firms and investment of firms (companies) listed in the Tehran stock exchange.

Table 7. The second hypothesis test results

significance level	t-statistic	standard error	coefficients	Variable
0/000	-7/9	0/242	-1/933	fixed amount
0/052	1/944	0/041	0/08	number of industry firms
0/000	8/375	0/016	0/137	Company size
0/141	1/471	0/041	0/06	Operational cash flow
0/096	-1/663	0/008	-0/014	Tobin's Q index
0/67	coefficient of determination	7/653	F-statistic	
0/583	adjusted coefficient of determination	0/000	significance level of F-statistic	
2/292	Durbin-Watson amount	EGLS method (Fixing potential effects of heterogeneity of variance)		

The third hypothesis test result in Table (8) shows that the t-statistic of variable of number industry concentration ratio is smaller than $\pm 1/965$ and its significance level is greater than 0/05 and there is no significant correlation (relationship) between the industry concentration ratio and investment of firms (companies) listed in the Tehran stock exchange.

Table 8. The third hypothesis test results

significance level	t-statistic	standard error	coefficients	Variable
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0/000	-7/502	0/214	-1/822	fixed amount
0/054	-1/924	0/103	-0/198	Industry concentration ratio
0/000	9/752	0/016	0/157	Company size
0/113	1/584	0/042	0/067	Operational cash flow
0/021	-2/307	0/009	-0/022	Tobin's Q index
0/708	coefficient of determination	9/116	F-statistic	
0/63	adjusted coefficient of determination	0/000	significance level of F-statistic	
2/289	Durbin-Watson amount	EGLS method (Fixing potential effects of heterogeneity of variance)		

The fourth hypothesis test result in Table (9) shows that the t-statistic of variable of market size is smaller than $\pm 1/965$ and its significance level is greater than 0/05 and there is no significant correlation (relationship) between the market size and investment of firms (companies) listed in the Tehran stock exchange.

Table 9. The fourth hypothesis test results

significance level	t-statistic	standard error	coefficients	Variable
0/000	-5/822	0/278	-1/623	fixed amount
0/002	-3/071	0/043	-0/132	Industry concentration ratio
0/000	7/624	0/026	0/205	Company size
0/373	0/89	0/043	0/038	Operational cash flow
0/37	-0/897	0/011	-0/01	Tobin's Q index
0/647	coefficient of determination	6/912	F-statistic	
0/554	adjusted coefficient of determination	0/000	significance level of F-statistic	
2/283	Durbin-Watson amount	EGLS method (Fixing potential effects of heterogeneity of variance)		

The fifth hypothesis test result in Table (10) shows that the t-statistic of variable of costs of entering the industry is smaller than $\pm 1/965$ and its significance level is greater than 0/05 and there is no significant correlation (relationship) between the costs of entering the industry and investment of firms (companies) listed in the Tehran stock exchange.

Table 10. Fifth hypothesis test results

significance level	t-statistic	standard error	coefficients	Variable
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0/000	-6/822693	0/257	-1/79	fixed amount
0/000	4/28	0/061	0/264	Industry concentration ratio
0/000	7/685	0/018	0/141	Company size
0/163	1/396	0/045	0/063	Operational cash flow
0/008	-2/638	0/01	-0/026	Tobin's Q index
0/637	coefficient of determination	6/611	F-statistic	
0/541	adjusted coefficient of determination	0/000	significance level of F-statistic	
2/31	Durbin-Watson amount	EGLS method (Fixing potential effects of heterogeneity of variance)		

Also, the results of tables (6 to 10) show that the control variables of firm (company) size and operating cash flow have direct and significant relationship (correlation) with the company's (firm) investment and Tobin's Q index variable, has a significant inverse correlation (relationship) with the investment. The Watson-Durbin statistic of models is between 1/5 and 2/5. Additionally, significance level of F statistics also is less than 0/05 indicating significance of model. The adjusted amount of coefficient of determination of model shows that a high percentage of dependent variable changes are explained by independent and control variables that is a substantial amount.

5. CONCLUSION

In order to test hypotheses, regression models were used. In the mentioned models the independent variables of the "Herfindahl-Hirschman industry, the number of industrial companies, industry concentration ratio, market size in the industry and the costs of entering to industry" alongside three control variables of "company size", "operating cash flow" and "Tobin's Q index", and finally a dependent variable of "investment" the fixed effects model and estimated generalized least squares (EGLS) method was used. The results showed a significant and direct correlation (relationship) between the Herfindahl-Hirschman and investment of companies (firms) listed in Tehran Stock Exchange; a significant correlation (relationship) isn't established between the number of industry firms and investment of companies (firms) listed on Tehran Stock Exchange; a significant correlation (relationship) between the industry concentration ratio and investment of companies listed in Tehran Stock Exchange isn't established; there is a significant and inverse correlation between the size of the market in the industry and investment of companies (firms) listed on the Tehran Stock Exchange; and finally, a direct and significant relationship (correlation) between the costs of entering to industry and investment of companies listed in Tehran Stock Exchange is established .

Herfindahl-Hirschman index is a measure of income (revenue) concentration in the industry. Thus the results of this study revealed the increasing effect of concentration in industry on investment of companies. The inverse relationship (correlation) of market size with the investment of companies (firms) shows that the increase in sales volume in the industry, firms will reduce investment of companies (firms). In this way, the more active companies in the industry and on the other hand competition is increased in the industry, the amount of investment of firms evenly will be reduced. In addition, the results show that the increase in costs of entering to the industry makes the investment firms will increase. Overall, the results show an increase in concentration and monopoly in the industry lead to increasing investment and competition in the industry will be accompanied by reducing investment of firms (companies).

So far no study has directly addressed the hypotheses of this research, therefore, not only the case by case examination of the results of this study isn't possible, the whole analogy of the obtained results is only possible with the results of Akdoğu and MacKay (2008), Melo and Wang (2012) and Frésard and Valta (2015). It should be said that Mello and Wang (2012) and Frésard and Valta (2015) reported reduced investment in the face of global competition which is in accordance with the results of the present study. Akdoğu and MacKay (2008) with production companies review of United States, came to the conclusion that in competitive industries, firms invest with more speed than firms in monopolistic industries that suggests there is a direct relationship (correlation) between competition in the industry and investment that is in contrasts with the results of this study.

The managers of listed companies in Tehran Stock Exchange are suggested that in addition to considering the risks of increased competition in the industry, take note lack of necessary investments to advance the goals of the company, although in the short term may be associated with maintaining profitability and relative position of company and somehow improve the management performance report of company, but in the long run would weaken the company's competitive position in the industry and undermine the performance foundations of company. The economic and governmental decision makers also are recommended that in the adoption and implementation of anti-monopoly policies, note that this can increase the risk of firms' activity and reduce the long term vision of them. As such, it should be very cautious in implementing these policies and the negative consequences of increased competition be taken into account .

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