The effects of fluctuations in capital market indexes in the developed countries during the global financial crisis on some corporate governance factors at the companies accepted in Tehran Stock Exchange

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Abstract

Financial and economic crisis of 2007 began without warning and in a short time spreads to more countries. America's financial crisis impressed the economic status of many countries. In early March 2009, the slow effects of the exit from the crisis were seen in the capital markets. This time period is the common timeframe of entering and exiting the crisis in the capital markets, particularly in the five countries including America, England, France, Germany, and Japan. The crisis period is considered from January 2007 to September 2008. Information about variables of this study has been collected three years before the crisis 2004-2006 and three years after that 2009-2011. This study examines the relationship between the fluctuations of capital market indexes in the developed countries and corporate governance factors (institutional ownership, independence board and ownership concentration) in Tehran Stock Exchange before and after the global financial crisis in capital markets and also comparison of the fluctuations of stock market indexes and corporate governance factors has been measured before and after the global crisis.

Keywords: financial crisis, capital markets, corporate governance, fluctuations

Introduction

Capital markets are considered a symbol of economic performance. Today, the role of Stock Exchange is so important that the development of a country has direct relation with expansion of stock market and its shareholders. However, the numerical value of the index has not much informational content, but the changing trend and fluctuations of stock indexes will represent a positive or negative market performance and expansion or downturn of countries. Bankruptcy and scandals of corporates such as Enron and World-Com proposed the need to establish appropriatestrate-gicsystemsto corporate as one of the main issues in all countries. Procedures of corporate governance are not identical between different countries and each country has its own unique corporate governance procedures according to factors such as financial and legal systems, corporate ownership structure, culture and economic status of individuals and investors. In financial crisis of 2007-2008 unprecedented numbers of financial institutions were in trouble or were rescued by governments. America's financial crisis occurred in the wake of a liquidity shortage in the banking and credit system of America.Banks liquidity shortage were caused by sub-prime mortgages. Integrity of financial reporting has been the common concern ofstandard drafters and individuals working in the profession (especially after the financial scandal of reputable and well-known companies such as Enron and World Com). About Asian countries, weak corporate governance is introduced as one of financial crisis reasons in 1997 in Asia. Also European Commission of Europe Union (EU) has been conducted several projects which aim to develop a common understanding of corporate governance. Yet, no attempt has been done to establish uniform rules to the best corporate governance procedures that all member of states are required to accept and adapt to it, and this is because, the Europe Union believes that the harmonization should be done after creating the need for it. Important implication of these studies is that companies' performance affected by corporate governance during the crisis period. Further investigations show that companies with corporate governance

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factor like more independent boards and higher institutional ownership have worse status toward the return on investment during the crisis period.

Theoretical Foundations

Ownership concentration

The term ownership in certain cultures (2005) refers to the right that any human has to the object and can possess it in any form except what is rule exception. The purpose of stock ownership refers to the determination ofthe texture and composition of shareholders of a company and sometimes ultimate stock owner of that company. Many economic theorists believe that each type of ownership can also impact on the companies' performance; Therefore, the methods of managers' performance controlling and factors effecting on their performance and also method of measurement and impact of each types of ownership on companies' performance are some issues that attract the shareholders, managers and researchers attention. Ownership concentration (OWNCON) refers to a condition that a considerable rate of the company's has belonged to major shareholders (the majority) and shows what percentage of any company's stock is in the hands of a few. Mahdavi and Haider (2005) by comparing the ownership concentration indicators in Iran market concluded that the stock market of Iran has more concentrated ownership structure. In addition, more ownership concentration in Iran has been with more efficiency. In other words, we can say that small ownership has a negative impact on efficiency and the end result could be that the higher ownership concentration, the greater control on managers be applied and improve the companies' performance. In this study, in order to calculate the ratio of the ownership concentration (or major shareholders), the total percentage of shares, shareholders who have more than five percent of the company's sharesare used.

Unbound managers in Board (BRDIND)

Board is the highest decision-making source in organizations, both large and small. Selection and withdrawal of the highest executive authority, as well as approval of many decisions of organization and monitoring its implementation are done by members of the board. Since the responsibilities of bound members of board have close relation with managing director, it is expected the duty of management monitoring is mainly given to unbound members of board. Therefore, the unbound members of boardhave an important role in solving the representing problem. The efficiency of

separation of decision making by manager and controlling by the board of directorsis originatedsince unbound managers because of their interests are not willing to collude with other executive managers of company. Since, unbound managers mostly have executive positions of management with decision-making in other companies have great motivation to earn a reputation as adecision-making expert and employment opportunities in the future. Non- alignment of bound managers' motivation to use the owners' wealth for their personal interests withunbound managers' motivation to earn a reputation lead to improvement of company's management monitoringbecause of unbound managers presence in board of directors and consequently will be sought the improvement of company's performance and reduction of agency costs. From the current view of representation, it can be assumed that unbound managers (non-executive) are responsible for monitoring the other board members. Weiss Bach (1998) found evidences that, there was a strong relationship between the displacement of managing directors and company's performance in companies that the majority of the board was under authority of unbound managers.

Institutional owners

The order of institutional ownership (INSOWN) is the share percentage of a stock company thatbelongs to banks, insurers, financial institutions, holding companies, organizations, institutions and governmental companies. The institutional ownership in company is understood as a monitoring mechanism to the management behavior and helps the alignment of the interests of shareholders and managers and prevent any opportunisticall behavior that may be harmful to the shareholders in long-term. If institutional ownership be an effective observer to financial accounting process, in this case, the information content of accounting earnings can be increased by increasing the institutional ownership rate due to the increase in reliability of interest. In many countries, institutional investors have the pervasive role in financial markets. So in many theoretical, historical and empirical evidence studies have been paid to examination of this role and the differences in the ownership structure in countries and the effect of this difference in framework of institutional investors' role in corporate governance have been analyzed.

However, in the second half of the twentieth century, the institutional investors have not playeda basic role, yet had a significant impact on determining the composition of the capital markets; for example, insti-

tutional investors in America have reached from 6.1% ownership in 1950, to 50% ownership in 2002. This event also occurred during the years 1992 to 1999 in Europe Unit (Yazdani, 2007). In the literature of corporate governance, institutional investors have been known as one of the effective foreign mechanism in monitoring the companies. This group of capital market participantsaccording to the having knowledge and adequate expertise, access to effective communication channels and required motivation to monitor the management performance can play an essential role in promotion of corporate governance system and consequently in increasing the efficiency and productivity of company. Shleifer & Vishny (1986) point out thatthe presence of a large shareholder reduces the problem of representation in organization. Also, according to the researches of Gillan and Starks (2003), in countries that involve the presence of major shareholder in the ownership structure of most companies,representation problems caused by the separation of ownership from the management is not common. In fact, institutional investors, especially foreign institutional investors can play a major role in promoting corporate governance system. Many empirical evidence confirms the effective supervisory role of major shareholders. For example, Bethel, Liebeskind & Opler (1998) showed that, once an activist investor buys the major share of company, the company's performance improves. The research results of Bertrand &Mullainathan (2001) indicate that the presence of major shareholder on the board of directors lead to more control over the payroll of managers.Also,the results of Mr. Midri (2002) indicate that, the performance of companies without major owner even is less than the public companies. Considering the center for Iranian investment institutions, according to the Exchange market law of Islamic Republic, Iran has officially started its activities as a self-disciplined organization, by cooperation and systematic activities of this center, thespecialized and management capacity of institutional investors can be used in monitoringand steering of companies toenhance the supervision and improve performance.

Capital Market Indicators

Fluctuations of stock index indicate an increase or decrease in stock value over time. Investors assess the fluctuations of stock index prior to any transaction because one of the most important evaluation criteria of investment condition is the famous indicators of capital market development. However, the numerical value of the index, have not much informational content, but the changing trend and fluctuations of stock index will represent a positive or negative market performance and economical expansion or downturn. Instability of the financial markets has significant negative effects on risk averse investors. The discovery and study of factors affecting on the fluctuations of famous functioning indicators of capital markets, provide the possibility to predict themduring the future periods, and individual and institutional traders operating in the market can make the proper decision.

Whenever, new information is published based on the financial instability or economic recession in future, stock prices tend to declineand alsoits efficiency is reduced. The continuation of this situation and investors flee from the market will lead to a crisis in the capital markets. America's financial crisis impressed the economic situation of many countries (Adamou, 2010).

S & P. index (S & P500): Public stock company of Standard and Poor's is one of the most prestigious publishers in the world's capital markets and money markets which publish 6 indexes. One of the most usual of them is S & P 500 index, composed of 500 shares. For this purpose, it includes the stock of 400 industrial companies, 40 service companies, 20 transport companies and 40 financial institutions and an index is the market value. This index contains the 80% of the market value. S & P indexes are included more stocks than the Dow Jones and in calculation of their types, index has been made based on the market value instead of stock price. For this reason, most of capital market's investors, observers and activists believe that, because the S & P indicators have been made based on the extensive foundation are better able to represent the market fluctuations and its general condition.

FTSE index (FTSE 100): In fact, this index is calculated for the London Stock Exchange's top 100 industrial companies.

CAC index (CAC 40): Comprehensive stock index in the Paris stock exchangeis based on thetop 40 companies from the 100 largest stock companies.This index is comparable with the Dow Jones industrial index.

DAX index: This index represents the stock value of 30 large companies of Frankfurt.

NIKKEI index (NIKKEI 225): This index calculates the mean stock value of 225 Japanese top industrial companies which based on that, the value of New York Stock Exchange are evaluated.

The relation between the capital markets indicators of developed countries with corporate governance factor

Some of the companies have been affected by the crises much more than the others. Recent studies believe that the company's risk management and

financing policies have a significant impact on the level of the companies that have been affected by the financial crisis(Broner Mir 2009). Since the company's risk management and financing policies are the result of fluctuation of gains and losses generated by the company's board of directors and shareholders (Kaship et al 2008). An important implication of these studies is thatcompanies' performance is affected by corporate governance during the crisis period.More research show companies with corporate governance factor like more independent board and higher institutional ownership have worse situation toward the return on investment during the crisis because, first, companies with higher institutional ownership have more risk before the crisis. This indicates that morelosses of major shareholder during the crisis. Second, companies with more independent board during the crisis lead to wealth transfer from existing shareholders to bondholders (Ariknes et al, 2012). The integrity of financial reporting has been the common concern of standard drafters and people working in professional (especially after the financial scandals of known and reputable companies such as Enron and World Com. About the Asian countries, poor corporate governance is introduced as one of the reasons of the financial crisis in 1997(Chen, 2008).

Development of market economies in Central and Eastern Europe and impending achievement of some of these countries to the Europe Union membership have reinforced this view that corporate governance has essential importance to the process of transition, economic restructuring and growth of the socialist countries.Shleifer and Vishny (1997) believed that effective corporate governance is createdeither through advancedlegal framework and active capital market or through concentrated ownership.This analysis was developed by Pistor & others (2000), with more emphasis on efficiency and effectiveness of legal institutions and foreign financing, on transitional economies.

Effective corporate governance is a fundamental factor in the process of rebuilding in transition economies. This system by adjustment of conflicts of interest and reduction of opportunistical and fraudulent behaviors improves the companies' performance, improve the quality of available information to participants in the capital market and-facilitate the access to foreign capital.In transition economies, they have had great improvements in corporate governance framework and have moved toward theadaptation to the OECD principles as voluntary or involuntary (Hashy, 2003).

Some corporate governance factor affect on corporate performance. Companies with a particular corporate factorhave been less affected by the crisis. In this study, crisis has been considered in capital markets fluctuations of developed countries. So, we want to know whether the fluctuations of capital market indices before and after the crisis can have an impact on corporate governance factor or not.And,whetehrcapital market in Iran has been affected by these fluctuations.

The research project is financial global by using the after event approach (through the earlier information) of the stock exchange during the crisis. Empirical analysis of this study requires financial data and corporate governance data. In this model, dependent variables include institutional ownership, independent board and ownership concentration with fluctuations of prices index in capital market of developed countries will be applied along with appropriate control variables. Appropriate statistics to investigate the hypotheses of Pearson tests, along with the scatter plotwere used todetermine the relation between two variables and paired T-test was used to compare variables in different years.

Research hypotheses

The six research hypotheses are formulated as follows:

First hypothesis

There is a significant relationship between fluctuations of capital market indices in developed countries(S & P 500, FTSE 100, CAC 40, DAX and NIKKEI 225) in the period before the global financial crisis and the share of institutional investors in accepted companies in Tehran Stock Exchange.

Second hypothesis

There is a significant relationship between fluctuations of capital market indices in developed countries (S & P 500, FTSE 100, CAC 40, DAX and NIKKEI 225) in the period after the global financial crisis and the share of institutional investors in accepted companies in Tehran Stock Exchange.

Third hypothesis

There is a significant relationship between fluctuations of capital market indices in developed countries (S & P 500, FTSE 100, CAC 40, DAX and NIKKEI 225) in the period before the global financial crisis and the ownership concentration rate in accepted companies in Tehran Stock Exchange.

Fourth hypothesis

There is a significant relationship between fluctuations of capital market indices in developed countries (S & P 500, FTSE 100, CAC 40, DAX and NIKKEI 225) in the period after the global financial crisis and the ownership concentration rate in accepted companies in Tehran Stock Exchange.

Fifth hypothesis

There is a significant relationship between fluctuations of capital market indices in developed countries (S & P 500, FTSE 100, CAC 40, DAX and NIKKEI 225) in the period before the global financial crisis and independent board in accepted companies in Tehran Stock Exchange.

Sixth hypothesis

There is a significant relationship between fluctuations of capital market indices in developed countries (S & P 500, FTSE 100, CAC 40, DAX and NIKKEI 225) in the period after the global financial crisis and independent board in accepted companies in Tehran Stock Exchange.

Research variables

In this study, all variables are continuous. The main variables of this study consist of corporate governance factors and fluctuations of capital market indices in developed countries. In this study, there are three models for each of the six hypotheses.

In this model the dependent variables are the corporate governance factors, including institutional ownership, major shareholders and independent board.

In all models, the global financial crisis in the

(Institutional ownership)

$$Y1 = \beta 0 + \beta 1(S \& P500) + \beta 2(FTSE100) + \beta 3(CAC40) + \beta 4(DAX) + \beta 5(NIKKEI225) + \varepsilon$$

(Ownership concentration)

$$Y2 = \beta 0 + \beta 1(S \& P500) + \beta 2(FTSE100) + \beta 3(CAC40) + \beta 4(DAX) + \beta 5(NIKKEI225) + \varepsilon$$

(Independent board)

$$Y3 = \beta 0 + \beta 1(S \& P500) + \beta 2(FTSE100) + \beta 3(CAC40) + \beta 4(DAX) + \beta 5(NIKKEI225) + \varepsilon$$

βO: Latitude of Source

β: Coefficients of the independent variables in the equation are calculated by statistical software.

S & P. index (S & P500): represents the value of the stock market in America

FTSE index (FTSE 100): indicates the value of the stock market in UK

capital markets which is defined as the mean of monthly percentage changes in indices of S & P 500 of New York, FTSE 100 of London CAC 40 of Paris, DAX of Frankfurt and Tokyo's NIKKEI 225, constitute the independent variables of models.

Data analysis procedure

The main variables of this study consist of corporate governance (institutional ownership, major shareholders and independent board) and fluctuations of the capital market indexes in developed countries.

To calculate the institutional ownership, the amount of total shares in the hands of banks and insurers, holdings, investment companies, pension funds, funding companies and investment funds, governmental organizations and institutions and public companies are divided to general treasury stockand the percentage of institutional ownership is obtained.

The order of ownership concentration refers to total percentage of ownership of shareholders who hold at least 5% shares (major shareholder).

To measure the independence amount of the board, the ratio of unbound board managers to total board members is used.

To calculate the global financial crisis in the capital markets which is defined as the mean of monthly percentage changes in indices of S & P 500 of New York, FTSE 100 of London CAC 40 of Paris, DAX of Frankfurt and Tokyo's NIKKEI 225 are used.

The research model

In this study, three models are presented for each of the six hypotheses.

CAC index (CAC 40): indicates the value of the stock market in France

DAX index (DAX): represents the value of the stock market in Germany

NIKKEI index (NIKKEI 225): represents the value of the stock market in Japan

εo: surplus variable

Institutional ownership (INSOWN): indicates the total percentage of shares which are in the hands of institutional investors.

Ownership concentration (OWNCON): indicates the total percentage of shares which are in hands of the majority shareholders.

Board independence (BRDIND): represents the ratio of the unbound managers to whole managers. In this paper, we examined the effects of fluctuations of capital market indices in developed countries on some of corporate governance factors in Tehran Stock Exchange, before and after the crisis periods and indicators of corporate governance factors are annually measured from 63 active companies in Tehran Stock Exchange. Therefore, years 2007-2008 are considered the crisis period. Years 2004-2006 have been used as the three years before the crisis and the years 2009-2011 as the three years after the crisis.

Information related to stocks exchange indices of New York, London, Paris, Frankfurt and Tokyo has been monthly collected from Yahoo Finance website (www.Finance.yahoo.com) for three years before the crisis 2004-2006 and three years after the crisis 2009-2011.

Data Collection Method

Information related to stocks exchange indices of New York, London, Paris, Frankfurt and Tokyo from Yahoo Finance site and data of institutional ownership and ownership concentration and board independence from the annual reports of companies' board, audited financial statements contained in the Research Site and Islamic studies of the Stock Exchange and softwares of stocks reporting, policy processer and innovative strategy are collected.

Data Analysis Methods

The present study examined the relationship between the fluctuations of the capital markets in de-

veloped countries and corporate governance factors (institutional ownership, board independence and ownership concentration) in common time periods before and after the global financial crisis in capital markets which its results will be generally analyzed. The required data have been collected through the Tehran Stock Exchange companies. A description of the demographic indicators and research hypotheses are presented through tables and bar charts. Then, to check the assumptions the Pearson test, along with the scatter plot were used to determine the relationship between two variables and paired sample t-test was used to compare variables in different years.

First Hypothesis

According to the data analysis, it was found that Pearson correlation coefficient between the two variables of fluctuation of the capital markets indices in developed countries in the periods prior to the global financial crisis and institutional ownership prior to the financial crisis is equal to -0.256 and with -p value (significant) is equal to 0.043, which significant is smaller than the significance level of $\alpha = 0.05$, so, in this level, the null hypothesis which indicates the absence of the relation is rejected. Consequently, there is a significant relationship between fluctuations of capital market indices in developed countries in the time periods prior to the global financial crisis and the institutional ownership in accepted companies in Tehran Stock Exchange. This subject is approved due to the how to distribution points and the fitted line in Figure (1-4). Meanwhile, the negative correlation coefficient indicates an inverse relation between the two variables. Also, the coefficient of determination between two variables is equal to 0.0656 ($R^2=0.0656$) or in other words 6.56 is the changes percent between the two common variables. (6.56 institutional ownership changes prior to the financial crisis are justified by the fluctuations of the capital market indices of developed countries in the time periods before the global financial crisis) (Table 1).

Table 1. Pearson correlation test statistics related to the relation between the fluctuations of the capital market indices of developed countries in time periods prior to the global financial crisis and institutional ownership before the financial crisis

Change	board independence					
Fluctuations of capital market indices of developed countries in time periods after the global financial crisis	Pearson correlation coefficient			R^2	Type of Relationship	Existence of Relationship
	R	P	N	+	-	0.0656
	-0.256	0.043	63			

Second Hypothesis

According to the data analysis, it was found that the Pearson correlation coefficient between the two variables of fluctuation of the capital markets indices in developed countries in the time periods after the global financial crisis and institutionalownership after the financial crisis is equal to -0. 145 and with -p value (significant) is equal to 0.255, which significant is bigger than the significance level of $\alpha = 0.05$, so, in this level null hypothesis which indicate the absence of the relation is not rejected. Consequently, there is no significant relationship between fluctuations of capi- tal market indices in developed countries in the time periods after the global financial crisis and institutionalownership in companies accepted in Tehran Stock Exchange. This subject is approved due to the how distribution points and also the fitted line in Figure (2-4). Also, the coefficient of determination between two variables is equal to 0.0211 ($R^2=0.0211$) or in other words, 2.11 is the percent of changes between the two common variables. (2.11 institutional ownership changes are justified by the fluctuations of the capital market indices of developed countries in the time periodsafter the global financial crisis). (Table 2).

Table 2. Statistics of Pearson correlation test related to the relation between the fluctuations of the capital market indices of developed countries in time periodsafter the global financial crisis and institutional ownership

Change	board independence					
Fluctuations of capital market indices of developed countries in time periods after the global financial crisis	Pearson correlation coefficient			R^2	Type of Relationship	Existence of Relationship
	R	P	N			
	-0.145	0.255	63	-	-	0.0211

Third Hypothesis

According to the data analysis, it was found that the Pearson correlation coefficient between the two variables of fluctuation of the capital markets indices in developed countries in the time period prior to the global financial crisis and ownership concentration amount before the financial crisis is equal to -0.046 and with -p value (significant) is equal to 0.719, which significant is bigger than the significance level of $\alpha = 0.05$, so, in this level, null hypothesis which indicates the absence of the relation is not rejected. Consequently, there is no significant relationship between fluctuations of capital market indices in developed countries in the time periodsprior to the global financial crisis and ownership concentration amountprior to the financial crisis in companies accepted in Tehran Stock Exchange. This subject is approved due to the how distribution points and also the fitted line. Also, the coefficient of determination between two variables is equal to 0.0021 ($R^2=0.0021$) or in other words, 0.21 is the percent of changes between the two common variables. (2.11 changes of ownership concentration amount prior to the financial crisis are justified by the fluctuations of the capital market indices of developed countries in the time periodsprior to the global financial crisis) (Table 3).

Table 3. Statistics of Pearson correlation test related to the relation between the fluctuations of the capital market indices of developed countries in time periods prior to the global financial crisis and ownership concentration amount

Change	board independence					
Fluctuations of capital market indices of developed countries in time periods after the global financial crisis	Pearson correlation coefficient			R^2	Type of Relationship	Existence of Relationship
	R	P	N			
	-0.046	0.719	63	-	-	0.0021

Fourth Hypothesis

According to the data analysis, it was clarified that the Pearson correlation coefficient between the two variables of fluctuation of the capital markets indices in developed countries in the time periods after the global financial crisis and ownership concentration amount is equal to 0.032 and with -p value (significant) is equal to 0.806, which the significant is bigger than the significance level of $\alpha = 0.05$, therefore, in this level null hypothesis namely the absence of the relation is not rejected. Consequently, there is no significant relationship between fluctuations of capital market indices in developed countries in the time periods after the global financial crisis and ownership concentration amount after the financial crisis in companies accepted in Tehran Stock Exchange. Also, the coefficient of determination between two variables is equal to 0.0010 (R^2=0.0010) or in other words, 0.10 is the percent of changes between the two common variables. (2.10 changes of ownership concentration amount are justified by the fluctuations of the capital market indices of developed countries in the time periods after the global financial crisis) (Table 4).

Table 4. Statistics of Pearson correlation test related to the relation between the fluctuations of the capital market indices of developed countries in time periodsafter the global financial crisis and ownership concentration amount

Change	board independence					
Fluctuations of capital market indices of developed countries in time periods after the global financial crisis	Pearson correlation coefficient			R^2	Type of Relationship	Existence of Relationship
	R	P	N	-	-	0.0010
	0.032	0.806	63			

Fifth Hypothesis

Based on the data analysis, it was clarified that the Pearson correlation coefficient between the two variables of fluctuation of the capital markets indices in developed countries in the time periods before the global financial crisis and board independence after the financial crisis is equal to - 0.133 and with -p value (significant) is equal to 0.297, which the significant is bigger than the significance level of $\alpha = 0.05$, therefore, in this level null hypothesis namely the absence of the relation is accepted. Consequently, there is no significant relationship between fluctuations of capital market indices in developed countries in time periodsprior to the global financial crisis and board independence in companies accepted in Tehran Stock Exchange. Also, the coefficient of determination between two variables is equal to 0.0178 (R^2=0.0178) or in other words, 1.78 is the percent of changes between the two common variables. (1.78 changes of board independence are justified by the fluctuations of the capital market indices of developed countries in the time periods prior to the global financial crisis) (Table 5).

Table 5. Statistics of Pearson correlation test related to the relation between the fluctuations of the capital market indices of developed countries in time periodsprior to the global financial crisis and board independence.

Change	board independence					
Fluctuations of capital market indices of developed countries in time periods after the global financial crisis	Pearson correlation coefficient			R^2	Type of Relationship	Existence of Relationship
	R	P	N	-	-	- 0.133
	-0.133	0.297	63			

Sixth Hypothesis

Based on the data analysis, it was clarified that the Pearson correlation coefficient between the two variables of fluctuation of the capital markets indices in developed countries in the time periods after the global financial crisis and board independence after the financial crisis is equal to 0.249 and with -p value (significant) is equal to 0.049, which the significant is smaller than the significance level of $\alpha = 0.05$, therefore, null hypothesis namely the absence of the relation is rejected in this level. Consequently, there is a significant relationship between fluctuations of capital market indices in developed countries in time periods after the global financial crisis and board independence in companies accepted in Tehran Stock Exchange. Meanwhile, positivity of the correlation coefficients indicates the direct relation between these two variables. Also, the coefficient of determination between two variables is equal to 0.0622 (R^2=0.0622) or in other words, 6.22 is the percentage of changes between the two common variables. (6.22 changes of board independence are justified by the fluctuations of the capital market indices of developed countries in the time periods after the global financial crisis)(Table 6).

Table 6. Statistics of Pearson correlation test related to the relation between the fluctuations of the capital market indices of developed countries in time periodsafter the global financial crisis and board independence after the financial crisis

Change	board independence					
Fluctuations of capital market indices of developed countries in time periods after the global financial crisis	Pearson correlation coefficient			R^2	Type of Relationship	Existence of Relationship
	R	P	N	-	-	0.0622
	0.249	0.049	63			

Results

First hypothesis

This hypothesis was tested and the results of statistical analyzes suggest that this hypothesis is accepted and institutional ownership establishes a verse and significant relation with fluctuations ofcapital market indicators of developed countries in the periods before the global financial crisis.But because of the low R^2 and the obtained results in equality of means this hypothesis can be considered as a rejected.

Second Hypothesis

This hypothesis was tested and the results of statistical analyzes indicate that this hypothesis is rejected and institutional ownership did not establish a significant relation with fluctuations of capital market indicators of developed countries in the time periods after the global financial crisis.

Third Hypothesis

This hypothesis was tested and the results of statistical analyzes indicate that this hypothesis is rejected and ownership concentration did not establish a significant relation with fluctuations of capital market indicators of developed countries in the time periodsprior to the global financial crisis.

Fourth Hypothesis

The hypothesis testing and obtained results of statistical analyzes indicate that this hypothesis is rejected and ownership concentration did not establish a significant relation with fluctuations of capital market indicators of developed countries in the time periods after the global financial crisis.

Fifth Hypothesis

The hypothesis testing and obtained results of statistical analyzes indicate that this hypothesis is rejected and board independence did not establish a significant relation with fluctuations of capital market indicators of developed countries in the time periods prior to the global financial crisis.

Sixth Hypothesis

This hypothesis was tested and the results of statistical analyzes indicate that this hypothesis is rejected and board independence establish a significant and positive relation with fluctuations of capital market indicators of developed countries in the time periods after the global financial crisis. But

because of the low R^2 and the obtained results in equality of means this hypothesis can be considered as a rejected.

Discussion and conclusions

Since, there is an reverse and significant relationship between institutional ownership and fluctuations of the capital markets in developed countries before the crisis, but this hypothesis is rejected because of low R^2 and the obtained results in equality of means. Also, there is no significant relationship between institutional ownership and fluctuations of the capital markets in developed countries after the crisis, and given that the institutional ownership after the crisis is more than the institutional ownership prior to the crisis. This enhancement of institutional ownership after the crisis than before the crisis lead to improving theperformance of companies accepted in Tehran Stock Exchange and this has led the impact of global financial crisis be lower on the capital market in Iran.

There is no significant relation between ownership concentration (major shareholders) and capital markets fluctuations in developed countries, before and after the crisis. Because the ownership concentration in accepted companies in Tehran Stock Exchange is high and shares in hand of major shareholders is more than theavailable stock of small shareholders, therefore, before and after the crisis has not changed so much. Since, the ownership concentration of accepted companies in Tehran Stock Exchange have been high and impressive, this can be an effective agent for improving performance of companies and this caused the effect of global financial crisis be lower on the capital market in Iran or affect with delay.

There is no significant relation between board independence and capital markets fluctuations in developed countries, before and after the crisis, but this relation is positive and significant after the crisis. But because of the low R^2 and the obtained results in equality of means, this hypothesis can be considered as a rejected,and given that the percentage of independent board after the crisis is more than the before crisis, this leads to more risk-taking decisions of board and therefore better performance of companies. But in crisis situations because of higher risk, companies experience the crisis.

Suggestions for further research

1. Investigating the relationship of other corporate governance factors (influence of managing director, audit type and the board's size) during the before and after the global financial crisis, with capital markets fluctuation in developed countries

2. Studying the relation of corporate governance factors (institutional ownership, board independence and ownership concentration) during the before and after the global financial crisis, with capital markets fluctuation in Iran.

3. Studying the relation of corporate governance factors (institutional ownership, board independence and ownership concentration) during the before and after the global financial crisis, with capital markets fluctuation in East Asia countries.

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