Studying the relation between elements of corporate governance and stock price jerks in Stock Exchange of Tehran

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Abstract

In this research, we examined the relation between elements of corporate governance and stock price jerks in the Stock Exchange of Tehran. The research period has been from 2009 to 2014, and the variables were used to measure the elements of corporate governance, institutional ownership, managerial ownership, the board member's independence, duality of executive manager's task and transparency of accounting information, and the variables of company size, financial leverage and market value to book value are also used as control variables, and the variable of stock price jerks is also used as dependent variable. In this research, six hypotheses were provided and logistic regression is used to test the hypotheses. Results showed that there is a significant and negative relation between institutional ownership and the board's independence and stock price jerks, and a significant and positive relation between private ownership and duality of executive manager's task and stock price jerks, and there is no significant relation between managerial ownership and stock price jerks.

Keywords: Corporate governance elements, Stock price jerks, Logistic regression, Stock Exchange of Tehran.
Introduction
Mobilization and allocation of human resources are not easily possible without the help of financial markets especially the extensive and efficient capital market. In a healthy economy, presence of an efficient financial system has a key role in properly distributing the capital and financial resources, because in the financial markets, the individuals having deficient financial resources encounter with the people having surplus financial resources, therefore, any agent that can disturb the proper distribution of the capital and financial resources in the economy of the country confronts companies and industries that need financial resources with crisis and even disturbs the investment development. One of the destructive and devastating agents of the capital market is formation explosive price bubbles in the stock exchange, because as creating a nuclear weapon and explosion can destroy all the environmental underlying physical structures of a country, formation of price bubbles of stock and lack of its strategic control causes more becoming bubble of prices in the capital market and eventually by the price bubble explosion, or in other words, financial bomb explosion, the economy and industry of the country is pushed towards bankruptcy and recession. Formation of stock price bubble or sharp rise of assets prices is bring about primarily as a result of improper economic policies, and partly as a result of speculation operations, the presence of asymmetric information in the market, shareholder's collective behavior due to incorrect predictions in pricing assets, pyramid plans of some shareholder and companies and low depth of the capital market and etc. So, the sharp rise of exchange stock prices brings about the expectations of shareholders for more rising of prices in the future. These too much expectations cause investors' speculating on potential revenues from investment, and a phenomenon named speculation illusion arises. This phenomenon will ultimately lead to decrease investment in exchange companies and economic growth.

Research literature
One of the issues that has been raised during the recent decades is "corporate governance", that many researchers and experts of different disciplines such as Accounting, Business, Economics, Law, ..., have examined it from different perspectives and studied it and anybody has explained and interpreted it from his point of view. Therefore, the first and oldest concept of corporate governance has been taken from the Latin word " Gubenerell" that is usually applied in directing ship and implies that the first definition of corporate governance is more focused on directing than controlling. Studying the available literature shows that there is no agreed definition of corporate governance, and remarkable differences are observed in defining corporate governance based on economical and cultural states of any country. In 2004, international Federation of Accounting (IFAC) has defined corporate governance as following: " Corporate governance is the responsibilities and methods used by the board of directors and executive managers aiming at identifying strategic way that enables achieving at goals, controlling risks and responsible consumption. The available definitions of corporate governance are in a wide range. In restricted viewpoints, the corporate governance is restricted to the relation between corporate and shareholders. It is an old pattern that is started in terms of Agency theory. On the other side of the range, corporate governance can be seen as a network of relations that are not only between company and its owners, but also between company and many stakeholders such as employees, customers, sellers, creditors and bondholders; such a viewpoint is considered in terms of stakeholder theory.
By a restricted viewpoint, corporate governance is expressed in terms of Agency theory, and thus, differentiating ownership from management control led to a problem named agency
problem, indicating necessity of controlling company management by shareholders and arose heavy costs for this control.

One of the control methods is the contract concluded between direct and shareholders. On the other hand, in the broad definition of corporate governance, the corporate responsibility is arose against all the society, and according to the fact that the agency problems are available worldwide, and made the market mechanisms and shareholders’ ability for controlling and observing the directors' behavior are not enough, for this, the government and legislator institutions interfere in this issue by codifying the corporate governance laws for the better performance of organizations, so that the companies can promote their own governance standards and be responsible against shareholders and other stakeholders (Hassan Yeganeh, 2005). So the elements that are present in the corporate governance area are vast and include shareholders and their ownership structure, board members and their combination, company management directed by the executive manager or executive top manager and other stakeholders that can influence on corporate movement. Of course, the most basic element of corporate governance discussion is ensuring shareholders' correctly applying governance in managing the company (Selman, 2005).

Volatility of stock price is one of the financial controversial issues that has been considered by capital market researches in the emerging markets, in recent years. The reason for this orientation is traced to the relation between price volatility and consequently its efficiency and impact on financial sector performance as well as the total economy. On the other hand, the utility of studying stock price volatility by investors is why they consider stock price as a criterion for risk, and also the policy-makers of capital market can use this criterion as a tool to measure the vulnerability of the stock market. Positive and negative changes of the stock price have a direct relation with the levels of investors’ wealth and welfare. It seems that the normal fluctuations around index output of total market are not considered seriously by investors.

However, if drastic changes occur in the stock price of a particular company, as the stock price fluctuations of a particular company has a intense reflection at the level of shareholders and even the public. The shareholders combination of different companies are different, a part of corporate ownership is in the hands of shareholders and real persons. To control the performance of corporate directors, this group mainly relies on the information available for the public, such as the issued financial statements. Whereas another part of corporate ownership is in the hands of the professional shareholders that, unlike the first group of shareholders, get the valuable internal information about future prospects and business strategies and long-term investments of corporate through direct contact with corporate directors (Mehrmanesh, 2013). Bedrinath, Gerald and Jaiant (1989) and Arbel (1983) have suggested that the decrease of the institutional investors’ transactions leads to reduce price fluctuation compared to its increase. Sayaz and Setark (1997) all have presented evidence of the positive effect of institutional ownership on the transactional positive feedback (Mehrmanesh, 2003).

Therefore, studying the effective factors on stock price volatility can help make many decision of capital market, and its outcome is usable for the actives of exchange including financial institutions, corporate directors, and economical system controllers and common investors, but the issue that has been raised recently in the reputable exchanges in the world is stock price jerks that is very close to stock price fluctuations theoretically. Researches believe that stock price fluctuations are different from stock price jerks, and stock price jerks occur in the circumstances in which market does not have the normal state the circumstances in which market does not have the normal state and investors decide excitedly along with the lack of
proper governance mechanisms, an opportunity is provided for directors to hide information inside the corporate for preserving their job and professional validity. Hence, this hidden information is accumulated hidden information mass reaches at its peak, preserving it (for a longer period of time) becomes impossible and costly. As a result, the information mass enters market suddenly leading to stock price jerks. It is argued that corporate governance mechanisms can be effective in controlling the issue. Based on this, the research wants to study the effects of availability of corporate governance mechanisms on stock price jerks of listed joint-stock companies in the stock exchange of Tehran.

**Corporate governance (Conservatism) (Independence Variable):**
Corporate governance generally a complicated system that a company is managed, directed and controlled. In fact, it is a set of laws, regulations, structures, processes, cultures, and system that cause achieving at the goal of responsibility, transparency, justice and observation of the stakeholder's rights (Hassan Yeganeh, 2006). In this research, six corporate governance mechanisms are used as follows:

**Institutional ownership (IO):**
Institutional owner (investor) is a person or firm that engages in buying and selling a large amount of securities; such as the public and private banks, pension funds, insurance companies, investor companies and funds, foundations and institutions (Hassan Yeganeh, 2005).
Also, according to clause 27 of article one of act of securities of Islamic Republic of Iran, institutional investor includes: banks and insurance companies, holdings, investment companies, pension funds, capital supplying company and the investor funds listed in Stock Exchange of Tehran, any legal or real person who buys more than 5 percent or 5 milliards of nominal value of securities that are soon issued by issuer, organizations and public institutions, public companies, board members and directors of issuer or the persons having a function.

**Managerial Ownership (MO):**
It means the percentage rate of shareholders who are members of board that is extracted from the notes attached to financial statements.

**Private ownership (PO):**
It means the percentage rate of the stocks in the hands of the private investors that is identified from the notes attached to financial statements (and) of sum of the investors' stock percentages.

**Independence of board members (IND):**
The board is considered as one of the important mechanisms of corporate governance and plays a significant role in improving the quality of financial reporting and increasing accountability. By correct understanding their leading and controlling role, the independent directors can present financial health and prevent profits conflict among the actor of corporate governance system. Based on this, in most of the conducted researches in the field of corporate governance, non-executive directors' role in improving the reporting process has been emphasized and the position of the board of company as a leading institution responsible for attending and controlling the executive directors' working becomes more important than before.
From the perspective of Agency theory, it can be assumed that the non-executive directors are responsible for controlling the other members of the boards, some scientific studies have showed that non-executive directors have performed their role of controlling the management effectively (Esmail zadeh et al, 2010).

**Duality of executive’s manager task (CEO):**
A major task of the board is controlling performance of management. Based on Agency theory, by the independence of the board of directors from management, the president of the board and the highest executive post should not be the same person.

Non-selecting one person for two positions (non-duality) is a binary value to which value one is belonged when two different persons take over the positions of president of the board of directors and the executive manager and both of them are not among the major shareholders. In fact, this relative variable states that weather in the studied company, executive manager is different from president of the board of directors or its members, or not. In other words, is the executive manager a person other than the board members and or one of the members of the board of the company has taken over executive manager responsibility, that the nominal variables (0 and 1) were used to show them.

**Stock price jerks (dependent variable):**
In this research, the model presented by Van et al. (2014) is used to calculate price jerks as follows:

\[
RV_t = \sum_{i=1}^{n} r_{t,i}^2 = \int_{t}^{t+1} \sigma^2(s) ds + \sum_{i=1}^{n} k_{t,i}^2
\]

Where \( \sigma^2 \) is variance integral of stock price and \( K \) is every day pauses of stock price that should not be zero. The important point is separating stock price fluctuations from stock price jerks to which, variance integral should be estimated using many data. For this separation, deviation of the integrals is calculated as follows:

\[
BV_t = 0.5. \pi. \sum_{k=0}^{n} r_{t,i}^2 |r_{t,i-1}| |r_{t,i}|
\]

Also, to calculate the significance level of stock price jerks, the following formula used:

\[
Z(t) = \frac{\sqrt{n}(RV_t - BV_t)}{\sqrt{0.6087. \text{Max}\{1,TQ_tBV_t^{-2}\}}}^{1/2}
\]

Where, \( TQ_t \) is an estimation of variance of realized fluctuations calculated as follows:

\[
J_t = (RV_t - BV_t). I[Z(t) > \theta(1 - \alpha)]
\]

Where \( \alpha \) is the significant level that is considered 01,0 in this research following Van et al. (2014).

Stock output volatility is the dependent variable that is estimated by the model of dissimilar self-regression of conditional variance named CARCH2(p,q). The reason for applying this method is that fluctuations change in the financial markets is somehow an indication of variance dissimilarity in a period of time. If the output data of a company be available, the standard deviation of this output indicates the level of stock risk. Naturally, stock risk will change during the time. So, variance of sentences of conditional mean error of stock output
that is an indication of fluctuations rate will change. As a result, confronting with variance dissimilarity is inevitable during the time. To solve this problem, there are different methods. One of these methods is estimating volatility (conditionally) according to the last observations. This method that has been raised by Angle in 1982, is the model of dissimilar self-regression of conditional variance, named "Arch". The model of Carch that is a generalization of Arch model was introduced by Barcello in 1986. He raised the model of GARCH (p,q) or generalized Arch (p,q) in which, both parts of self-regression and moving mean enter the conditional variance equation. In this research, for estimating volatility of the stock output, GARCH (1,1) model has been used due to its great power, in which p and q by a value of 1 express the first order self-regression part and the first order moving Mean. The conditional dissimilar self-regression model named CRACH is a model that explains the future variance by using the last variance.

Size of company:
It means bulk and extent of company activities. The important point in measuring size of company is that which factor should be used as standard and criterion of sizing so that the companies can be differentiated correctly and precisely in respect of size and bulk, so, the important issue in explaining size of company is scale and standard of measurement. Some extensive and different criteria have been raised for sizing bulk and size of company. To calculate size variable, criteria such as assets size, sell rate, stock market value, ..., are used. In this research, size of company means sale rate (natural logarithm of sale).

SIZE,t = Ln(sale J,t).
Where,
Sale: sale some of company.

Financial Leverage (LEV):
Leverage is the existence of fixed costs in the cost list of company. Financial leverage is determined by dividing total debts by total assets. The bigger the degree of financial leverage, the more the degree of financial risk, so it is expected that affects on stock price jerks too.

LEV = TL I,t – TA I,t
Where,
TL: total debts
TL: total assets

Market value of equity to book value of equity ratio (MB):
This ratio will be achieved from dividing rights market value of owners of company stocks at the end of financial period by its book value. It is expected that there would be significant relation between market value to book value ratio and stock price fluctuations (Andrew et al.2012).


Research Methodology
Considering the aim of this research based on analyzing the relation between corporate governance elements and stock price jerks among the companies enlisted in stock exchange of Tehran, the research is an applied research in respect of goal. Based on nature and method, it is considered a descriptive research of correlation kind that uses library study methods. The information related to research literature and theoretical discussions has been collected from
library resources such as books, Persian and Latin journals. Date and information required for research have been collected by library method and mainly, financial statements and the notes accompanied with the companies in the sample, weekly and monthly reports, calendars and exchange statistics of stock exchange of Tehran, databases available in the library of stock exchange organization of Tehran as well as Tadbirpardaz and Rahavard novin Softwares. The study population includes all listed companies in the stock exchange of Tehran.

**Research Hypotheses**

**The first Hypotheses:**

H 0= there is no relation between institutional ownership and stock price jerks.

H 1= there is a relation between institutional ownership and stock price jerks.

The significant level of chi-square is less than 5 percent that indicates the regression model is totally significant, but given that the significant level associated with each variable other than institutional ownership is more than significance level at 95 percent level, it cannot be claimed that variables of company size, financial leverage and book value to stock market value are as effective control variables in controlling stock price jerks, but institutional ownership affects on some price jerks.

**Table1:** the results of Logistic Regression

<table>
<thead>
<tr>
<th>Correlation coefficient</th>
<th>Significance level</th>
<th>Freedom degree</th>
<th>Chi-square coefficient</th>
<th>description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.022</td>
<td>0.046</td>
<td>4</td>
<td>9.695</td>
<td>Result of hypothesis</td>
</tr>
<tr>
<td>Institutional ownership</td>
<td>Market value to book value</td>
<td>Financial leverage</td>
<td>Company size</td>
<td>description</td>
</tr>
<tr>
<td>0.559-</td>
<td>8.312-</td>
<td>0.144</td>
<td>7.981</td>
<td>Variable coefficient</td>
</tr>
<tr>
<td>0.001</td>
<td>0.537</td>
<td>0.177</td>
<td>0.193</td>
<td>Significance level</td>
</tr>
</tbody>
</table>

**The second hypothesis:**

H0: there is no relation between managerial ownership and stock price jerks.

H1: there is a relation between managerial ownership and stock price jerks.

Significance level of Chi-square is less than 5 percent indicating that the regression model is significant totally, but given that the significant level associated with each variable is more than significance level at 95 percent level, it cannot be claimed that managerial ownership as the independent variable and company size, financial leverage and book value to stock market value as control variables affect on controlling stock price jerks.

**Table2:** the results of Logistic Regression

<table>
<thead>
<tr>
<th>Correlation coefficient</th>
<th>Significance level</th>
<th>Freedom degree</th>
<th>Chi-square coefficient</th>
<th>description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.022</td>
<td>0.043</td>
<td>4</td>
<td>9.864</td>
<td>Result of hypothesis</td>
</tr>
<tr>
<td>Managerial ownership</td>
<td>Market value to book value</td>
<td>Financial leverage</td>
<td>Company size</td>
<td>description</td>
</tr>
</tbody>
</table>
The third hypothesis:
H0: there is no relation between private ownership and stock price jerks.
H1: there is a relation between private ownership and stock price jerks.
Significance level of Chi-square is less than 5 percent indicating that the regression model is significant totally, but given that the significant level associated with each variable other than private ownership is more than significance level at 95 percent level, it cannot be claimed that company size, financial leverage and book value to stock market value as control variables affect on stock price jerks, but private ownership affects on stock price jerks, and there is a significant and positive relation between these two variables.

Table 3: The results of Logistic Regression

<table>
<thead>
<tr>
<th>Correlation coefficient</th>
<th>Significance level</th>
<th>Freedom degree</th>
<th>Chi-square coefficient</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.022</td>
<td>0.046</td>
<td>4</td>
<td>9.666</td>
<td>Result of hypothesis</td>
</tr>
<tr>
<td>private ownership</td>
<td>Market value to book value</td>
<td>Financial leverage</td>
<td>Company size</td>
<td>description</td>
</tr>
<tr>
<td>0.530</td>
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<td>0.144</td>
<td>7.980</td>
<td>Variable coefficient</td>
</tr>
<tr>
<td>0.014</td>
<td>0.536</td>
<td>0.178</td>
<td>0.193</td>
<td>Significance level</td>
</tr>
</tbody>
</table>

The forth hypothesis:
H0: there is no relation between the board's independence and stock price jerks.
H1: there is a relation between the board's independence and stock price jerks.
According to the output, it is observable that Significance level of Chi-square is less than 5 percent indicating that the regression model is significant totally, but given that the significant level associated with each variable other than the board members' independence is more than significance level at 95 percent level, it cannot be claimed that the board members' independence as the independent variable as well as size company, financial leverage and book value to stock market value as control variables affect on controlling the risk of stock price fall.

Table 4: The results of Logistic Regression

<table>
<thead>
<tr>
<th>Correlation coefficient</th>
<th>Significance level</th>
<th>Freedom degree</th>
<th>Chi-square coefficient</th>
<th>Description</th>
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</thead>
<tbody>
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<td>0.046</td>
<td>5</td>
<td>9.715</td>
<td>Result of hypothesis</td>
</tr>
<tr>
<td>the board members' independence</td>
<td>Market value to book value</td>
<td>Financial leverage</td>
<td>Company size</td>
<td>description</td>
</tr>
<tr>
<td>0.563-</td>
<td>0.144</td>
<td>8.311-</td>
<td>7.980</td>
<td>Variable</td>
</tr>
</tbody>
</table>
The fifth hypothesis:
H0: there is no relation between the duality of executive manager's task and stock price jerks.
H1: there is relation between the duality of executive manager's task and stock price jerks.
According to the output, it is observable that Significance level of Chi-square is less than 5 percent indicating that the regression model is significant totally, but given that the significant level associated with each variable other than the duality of executive manager's task is more than significance level at 95 percent level, it cannot be claimed that size company, financial leverage and book value to stock market value as control variables affect on controlling the risk of stock price, but it can be stated that there is a significant and positive between the duality of executive manager's task and stock price jerks.

Table 5: the results of Logistic Regression

<table>
<thead>
<tr>
<th>Correlation coefficient</th>
<th>Significance level</th>
<th>Freedom degree</th>
<th>Chi-square coefficient</th>
<th>description</th>
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</thead>
<tbody>
<tr>
<td>0.022</td>
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<td>9.607</td>
<td>Result of hypothesis of the duality of executive manager's task</td>
</tr>
<tr>
<td>Market value to book value</td>
<td>Financial leverage</td>
<td>Company size</td>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>0.575</td>
<td>0.144</td>
<td>8.316-</td>
<td>7.983</td>
<td>Variable coefficient</td>
</tr>
<tr>
<td>0.006</td>
<td>0.538</td>
<td>0.177</td>
<td>0.193</td>
<td>Significance level</td>
</tr>
</tbody>
</table>

Conclusion and suggestions
In this research, we examined the relation between elements of corporate governance and stock price jerks in the Stock Exchange of Tehran. The research period has been from 2009 to 2014, and the variables were used to measure the elements of corporate governance, institutional ownership, managerial ownership, the board member's independence, duality of executive manager's task and transparency of accounting information, and the variables of company size, financial leverage and market value to book value as control variables, and the variable of stock price jerks is also used as dependent variable. In this research, six hypotheses were provided and logistic regression is used to test the hypotheses. Results showed that there is a significant and negative relation between institutional ownership and the board's independence and stock price jerks, and a significant and positive relation between private ownership and duality of executive manager's task and stock price jerks, and there is no significant relation between managerial ownership and stock price jerks.
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