The study of the relationship between firms' board of directors' structure and criteria in assessing the firm performance

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The main purpose in this article is to study the relationship between firms' board of directors' structure and accounting and economic criteria in assessing the performance of companies listed at Tehran Stock Exchange. To do this, 94 firms from our statistical society were chosen. We had access to the needed information for a period of six years (2004 to 2009) about those firms. Some criteria were chosen as dependent variables as follows: return on investment, stock return yearly and P/B ratio for financial performance assessment criteria and Tobin's Q, market value-added and economical value-added for economic performance assessment criteria have been considered. Then, the data related to independent variables, in which two criteria of firms' board of directors' structure as ratio of independent members of board of directors and financial specialty of members of board of directors were studied. The research results indicate that there is a positive and meaningful relationship between ratio of independent members of board of directors and financial specialty of members of board of directors with financial and economic criteria in assessing the firm performance.

Key words: Corporate governance, board of directors' structure, financial criteria, economical criteria.

INTRODUCTION

The board of directors is considered the most important factor in controlling and supervising the firm's management and preserving the resources of stockholders (Jensen and Fama, 1983). The results of studies done show that the board of directors play a crucial role in enhancing the performance and value of the firm. One of the issues discussed in corporate governance tools is the form of board of directors in which the ratio of members of board of directors who are not in charge to the whole members of board of directors is emphasized. According to representative theory, managers may ignore the profits of stockholders in order to maximize their own benefits in the firm. Thus, stockholders put the duty of controlling and supervising the firm's management on the members of board of directors (Fama and Jensen, 1983).

The more members of board of directors from those who are not in charge, there would be the less agency problems (Hermalin and Weisbach, 2003). If the supervision role of the members of board of directors who are not in charge has been more efficient, the independence of members of board of directors and dividends policy in controlling agency problems will act as alternative tools. On the contrary, if the supervision of members of board of directors who are not in charge is not sufficient, may be more profit will be distributed to improve managerial...
supervision (Abdosalam et al., 2008).

On the other hand, the thing that is considered highly important in economical decision-makings is firms' performance assessment. For firms' performance assessment, different criteria and methods are used. Performance assessment in the process of decision-making is one of the most important issues discussed in financial economics field, regarding the importance of capital market role. So, the function of financial and economic criteria in order to assess the performance of the firms is necessary.

The main purpose of this article is to study the relationship between firms' board of directors' structure and financial and economic criteria in assessing the performance (return on investment, stock return yearly and P/B ratio for financial performance assessment criteria and Tobin’Q, market value-added and economic value-added for economic performance assessment criteria) of companies listed at Tehran Stock Exchange.

THEORETICAL RESEARCH

Corporate governance

Shleifer and Vishny (1997) believe corporate governance is a system for controlling mechanisms which assures financial supporters from one hand and firms from the other hand that their investment yield will be achieved. Jensen and Meckling (1997) state that, ‘corporate governance has been derived from the classic isolation of ownership and control, because the conflicts between the interests of owners and managers cause the costs of agency’.

In the year 1976, Jensen and Meckling posed the framework of principal-agent in order to describe the conflicts between mangers and stockholders. Agency issue, which was developed by some researchers such as Coas (1960), Jensen and Meckling (1976), and Jensen and Fama (1983), was the base for this discussion.

Corporate governance mechanism

The theoretical fundamental of corporate governance include 6 different mechanisms in order to control agency costs (Kumar, 2003). They are: 1) ownership structure, 2) capital structure, 3) board of directors’ structure, 4) managerial remuneration, 5) product market competition and 6) takeover market.

This research studies the different dimensions of board of directors’ structure (independent members of board of directors and financial specialty of board of directors) in companies listed at Tehran (Iran) Stock Exchange.

Independent members of board of directors

To control the agency problems, agency expenditures (supervision, contract conclusion, residual loss) are incurred in order to decrease the conflict between the profits of owner and agent. One of the kinds of supervising expenditures in order to control agency problem is to use members who are not in charge (independent members) and have financial skills in the board of directors (to control manager's behavior). Those members, who are not in charge, are professional managers with skills in controlling the decisions whose duty is to control the activities along with serious agency problems between in charge members and stockholders such as defining the reward system of administrative managers and controlling and supervising to alter top managers. In addition, the literature among academics show that members who are not in charge support the profits of stockholders better and they are better agents for them. Thus, independent members control agency problem and informational asymmetry between the manager and stockholders is decreased by revealing better and with more quality (Lim et al., 2007). Fama (1980) also claims that the efficiency of board of directors will improve by entrance of members who are not in charge. The results of researches done by Ajinikya et al. (2005) and Karamanou and Vafeas (2005) also approve this claim (Hassaseywgane, 2005).

Financial specialty

The board of directors needs to have skills about accounting, banking and law to effectively control the decisions of the management in order to increase the value of the firm (Hillman and Patzol, 2000). The principle presupposition is that those members without having the experience and knowledge in accounting and financing have less ability in discovering the present problems in financial reporting. Also, the presence of an experienced financial agent can provoke other members to be sensitive and conscious. Many aspects of different leadership principles in the field of firms' board of directors have been studied by different researchers. The experimental studies bring evidences showing that independent managers bring more effective signs of success to the firms. Also, independent managers may decrease the agency expenditures greatly and increase the value of the firm (Xie and Davidson, 2003). The theoretical foundations and findings of experimental researches indicate that there is a meaningful relationship between board composition and agency expenditures.

Performance assessment criteria

We can consider performance as measurable result of organization's decisions and actions which shows the amount of success of the organization and the set of achieved accomplishments (Nejat, 2006). Companies' performance assessment is a necessity and accepted
Financial criteria study how a company achieves its financial goals and shows how the stockholders want it to look like (Tsamenyi et al., 2008).

Accounting models of performance assessment

The result of accounting data system is financial reports in which the reported profit is highly important for users. In accounting model of performance assessment, company's value is derived by multiplying 2 numbers; the first one is company's profit and the second is the profit to value transformation index.

In accounting models of performance assessment, the value of a company is a function of different criteria such as profit, earning per share, profit growth rate, owners' equity yield, investing yield, free cash flow and dividend (Stewart, 1991). Regarding the data accessibility advantage in these models and the simplicity of related calculations, this group of performance assessment criteria is widely used by financial data users. Studies carried out by researchers show that accounting profit and data gained presents efficient information for users which is very effective in their decision-making (Balsam and Lipka, 1998).

Accounting profit is the most traditional performance assessment criterion which is considered to be highly important for investors, stockholders, managers, creditors and analysts of bonds. Accounting profit which is calculated by commitment presupposition seems to be one of the most important performance assessment criteria.

Economic models of performance assessment

In order to remove the defects of performance assessment models which are caused by using accounting information, some researchers started to search for presenting a new criterion for performance assessment. The emergence of theories about economical profit or remaining profit suggested some models to calculate economic profit (Stewart, 1991). In these models, net profit of performance after subtraction of tax and capital expenditures was defined to show economical profit or remaining profit.

In economic models, company's value is a function of profitability power, present preferences, potential investments and the difference of yield rate and capital cost of the company (Bausch, 2003). Economic criteria try to consider economic information as a base for assessing the performance of companies by changing accounting information through performing some balances in economic data. The most important criterion in performance assessment by using economic criteria is economic value-added (Ansari and Karimi, 2005).

Kaplan and Minton (1994) found out that when firms have weak performance and profitability, they use financial managers in their board of directors. Beasley (1996) analyzed the relationship between board of directors' form and fraud actions in financial payment statements.

In this study, it was tested whether the presence of more members of board of directors not being in charge (independent members) will decrease the probable frauds in financial statements or not. Also in this study, the auditors committee was studied and it was concluded that the auditors committee has an important effect on the probability of fraud in financial statements.

The results of studies done by Young (2000) about profit management showed that the number of managers not in charge have a positive and strong effect on performance and market value of the firm. Most studies done, confirm the presence of a positive relationship between members of board of directors not in charge and firm's performance. On the other hand, Weir et al. (2001) considered the role of board of directors in firm's performance not to be important.

Yermack (1996) found a negative relationship between members of board of directors who are not in charge and Tobin'Q. Erickson et al. (2005) studied the relationship between the skills of board of directors and firm's value among Canadian firms between the years 1993 to 1997. The results of their study showed that board of directors having financial and accounting knowledge, can have an efficient supervision over the firm's management and it increases the value of the firm (according to Tobin'Q criterion).

Rachdi et al. (2008) showed that there is a direct relationship between firm's performance and independence of board of directors. Omran (2009) found out in a research that the high ratio of members of board of directors, who are not in charge, has a positive effect on firm's performance after privatization.

Also, the results of studies done by Fosberg (1989) and Bhagat and Black (2002) confirm that there is no relationship between members of board of directors who are not in charge and different performance criteria such as Tobin'Q, capital return period and assets' return period.

METHODOLOGY

This research is descriptive-correlation type, and to test the hypotheses, we have used the least common squares' regression and it is applied in scope because our aim is to utilize these results
in capital market. Location range for the research is firms accepted in Tehran Stock Exchange and time range is the years between 2004 and 2009.

Statistic society

The accepted firms in Tehran stock exchange consist of statistical society of this research. The statistic sample of present research has been extracted by deleting sampling from statistic society as follows:

1) Since the nature of activity is different for the investment firms, insurance, leasing, and banks, the activity of firms selected should be production.
2) To choose a convergent sample, firms should have been chosen before the year 2004 in Tehran Stock Exchange and its stocks should have been purchased from the start of the year 2004.
3) In order to select active firms, the exchanges of these firms should have been active during the years between 2004 and 2009 and there should not be any stops more than three months in their activities.
4) In order to be compared properly and avoid divergences, the fiscal year should end on 29th of Esfand (March 21st) and during the years between 2004 and 2009 they shouldn’t have changed their fiscal year.
5) Financial statements and descriptive notes about them should be accessible.

In this research, in order to collect required data on theory issues, method of library has been used, also in line with collection of required financial data, the audited financial statements of sample firms and software system which has been provided by Islamic studies research, and development management of exchange and also Rahavad software system (provided by Novin Idea firm) have been used.

Hypothesis

H1: There is a relationship between firms’ board of directors’ structure and accounting criteria in assessing the performance.
H1a: There is a relationship firms’ board of directors’ structure and Return on Investment.
H1b: There is a relationship between firms’ board of directors’ structure and annual stocks yield.
H1c: There is a relationship between firms’ board of directors’ structure and P/B ratio.
H2: There is a relationship between firms’ board of directors’ structure and Economic criteria in assessing the performance.
H2a: There is a relationship between firms’ board of directors’ structure and Economic value-added.
H2b: There is a relationship between firms’ board of directors’ structure and market value added.
H2c: There is a relationship between firms’ board of directors’ structure and Tobin’Q.

Variables

Independent variables

It includes methods of financing, which are divided to:

i. Ratio of independent members of board of directors (IMBD).
ii. Financial specialty of members of board of directors (FS).

Dependent variables

1. Accounting criteria
   i. Return on investment (ROI).
   ii. Stock return yearly (SRY).
   iii. P/B ratio (P/B).

2. Economic criteria
   i. Tobins’Q (Q).
   ii. Market value-added (MVA).
   iii. Economic value-added (EVA).

Controlled variables

i. Firm size (size).
ii. Firm’s financial lever (FL).
iii. Systematic risk of the firm (β).

Model test research hypothesis

The hypotheses are tested by the results gained by economic measurement patterns and multiple regressions. In order to identify the meaningfulness of the regression pattern, Fisher’s F has been utilized. To study the meaningfulness of independent variables’ coefficient in each pattern, T-student with 95% assurance level has been used. The statistical results gained by Durbin-Watson resulted from software in all tests show that there is not any problem of co-efficiency. To do this, EXCELL and SPSS software have been used.

Regarding the aforementioned issues about variables described, research patterns include pattern related to the first hypothesis to the pattern related to hypothesis six. There are six multiple regression patterns which are commonly shown as follows:

\[
ROI = \beta_0 + \beta_1 IMBD + \beta_2 FS + \beta_3 FL + \beta_4 BET + \beta_5 SIZE + \epsilon \\
(SModel 1)
\]

\[
SRY = \beta_0 + \beta_1 IMBD + \beta_2 FS + \beta_3 FL + \beta_4 BET + \beta_5 SIZE + \epsilon \\
(Model 2)
\]

\[
P : B = \beta_0 + \beta_1 IMBD + \beta_2 FS + \beta_3 FL + \beta_4 BET + \beta_5 SIZE + \epsilon \\
(Model 3)
\]

\[
EVA = \beta_0 + \beta_1 IMBD + \beta_2 FS + \beta_3 FL + \beta_4 BET + \beta_5 SIZE + \epsilon \\
(Model 4)
\]

\[
MVA = \beta_0 + \beta_1 IMBD + \beta_2 FS + \beta_3 FL + \beta_4 BET + \beta_5 SIZE + \epsilon \\
(Model 5)
\]

\[
TobinQ = \beta_0 + \beta_1 IMBD + \beta_2 FS + \beta_3 FL + \beta_4 BET + \beta_5 SIZE + \epsilon \\
(Model 6)
\]

In this formula; dependent variables include return of investment (ROA), stock return yearly (SRY), the ratio of market value to journal value (P/B), economical value added (EVA), Tobin’Q (Q) and market value added (MVA).

Also, independent variables include; IMBD: ratio of independent members of board of directors, FS: financial specialty of members
of board of directors. Controlled variables include; FL: financial leverage, Size: firm size, $\beta$: systematic risk. The constant co-efficient of $\beta$ and $\varepsilon$ error co-efficient which is calculated for each period separately, has a normal distribution and is independent of regression factors. If the presupposition $H_0$ is disapproved, $H_1$ will be accepted. This means that, there is a meaningful relationship between dependent and independent variables being tested.

### FINDING AND RESULTS

#### Descriptive statistics

Table 1 includes descriptive statistics of data studied to be used in linear regression. Regarding the fact that we will use, the aggregation of time series data and temporary data to test the hypotheses of the research, the number of firm observations for the year according to the equilibrated data was 564. Regarding the descriptive statistics, the distribution criterion of these variables in different firms is low.

#### Analysis

The results of regression model can be valid when the presuppositions of its usage are approved. One of these presuppositions is that the research variables should be normal. To test the normality of the data, Kolmogorov-Smirnov (K-S) test has been used. Also, Durbin-Watson test has been used to study any problem of co-efficiency among leftover sentences. The resulted statistics of Durbin-Watson test resulted from the software in all tests show that there is no problem of co-efficiency itself.

Regarding the results in Table 2, by comparing the meaningfulness level of variables studied for our sample firms, and since the amount of meaningfulness level is more than 0.05 and there exists the assurance level of 95% (with 5% error level), the presupposition $H_0$ is accepted and variables studied, benefit from a normal distribution.

#### Testing $H_1$

The first main hypothesis of the research studies the relationship between firms' board of directors' structure and accounting criteria of assessing firm's performance. This hypothesis includes three sub-division hypotheses as:

1. The first sub-hypothesis ($H_{1a}$) studies the relationship between firms' board of directors' structure and Return on Investment of the firm. The results of regression are shown in Table 3. As is shown in this table, the variables of independent members of board of directors, financial specialty and financial leverage have a meaningful relationship with return on investment. The variables' co-efficient show that the effect of financial leverage on return on investment is more than other variables studied. Independent members of board of directors and financial specialty have a direct relationship and financial leverage has a reverse relationship with return on investment. Regarding the amounts of figure F, the balanced regression patterns are meaningful; and considering the identification co-efficient, these variables explain 75% of changes in return on investment.

2. The second sub-hypothesis ($H_{1b}$) studies the relationship between firms' board of directors' structure and stock return yearly rate of the firm. The results of regression are shown in Table 4. As it is shown in this table, the variables of independent members of board of
directors and financial specialty have a meaningful relationship with stock return yearly rate. The variables’ co-efficient show that the effect of financial specialty on stock return yearly rate is more than other variables studied. Independent members of board of directors and financial specialty have a direct relationship with stock return yearly rate. Regarding the amounts of figure F, the balanced regression patterns are meaningful; and considering the identification co-efficient, these variables explain 66.26% of changes stock return yearly rate.

3. The third sub-hypothesis (H3c) studies the relationship between firms’ board of directors’ structure and P/B ratio of the firm. The results of regression are shown in Table 5. As it is shown in this table, the variables of independent members of board of directors, financial specialty, financial leverage and firm size have a meaningful relationship with P/B ratio.

The variables’ co-efficient show that the effect of firm size on P/B ratio is more than other variables studied. Independent members of board of directors, financial specialty and firm size have a direct relationship and financial leverage has a reverse relationship with P/B ratio. Regarding the amounts of figure F, the balanced regression patterns are meaningful; and considering the identification co-efficient, these variables explain 61% of changes in P/B ratio.

### Testing H2

The second main hypothesis of the research studies the
relationship of firms' board of directors' structure and economic criteria of assessing firm's performance. This hypothesis includes three sub-division hypotheses as:

1. The first sub-hypothesis (H2a) studies the relationship between firms' board of directors' structure and Economical value added of the firm. The results of regression are shown in Table 6. As it is shown in this table, the variables of independent members of board of directors, financial specialty and firm size have a meaningful relationship with economical value added. The variables' co-efficient show that the effect of firm size on economic value added is more than other variables studied. Independent members of board of directors, financial specialty and firm size have a direct relationship with economical value added. Regarding the amounts of figure F, the balanced regression patterns are meaningful; and considering the identification co-efficient, these variables explain 58.9% of changes in economic value added.

2. The second sub-hypothesis (H2b) studies the relationship between firms' board of directors' structure and Market value added of the firm. The results of regression are shown in Table 7. As it is shown in this table, the variables of independent members of board of directors, financial specialty, financial leverage and firm size have a meaningful relationship with market value added. The variables' co-efficient show that the effect of firm size on market value added is more than other variables studied. Independent members of board of
Table 7. The results of regression between firms’ board of directors’ structure and Market value added of the firm.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Symbol</th>
<th>Variables name</th>
<th>Coefficient</th>
<th>t</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dependent variable</td>
<td>Y</td>
<td>Market value added</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Constant</td>
<td>α</td>
<td>α</td>
<td>103.544</td>
<td>11.024</td>
<td>0.000</td>
</tr>
<tr>
<td>Independent variable</td>
<td>X1</td>
<td>Independent members of board of directors</td>
<td>0.0177</td>
<td>4.953</td>
<td>0.002</td>
</tr>
<tr>
<td></td>
<td>X2</td>
<td>Financial specialty</td>
<td>0.210</td>
<td>0.952</td>
<td>0.003</td>
</tr>
<tr>
<td>Controlled variable</td>
<td></td>
<td>Financial leverage</td>
<td>-0.311</td>
<td>-1.686</td>
<td>0.092</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Systematic risk</td>
<td>-0.008</td>
<td>-0.149</td>
<td>0.882</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Firm size</td>
<td>22.126</td>
<td>17.726</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Durbin-Watson</td>
<td>1.703</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>F</td>
<td>51.163</td>
<td>-</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>R</td>
<td>0.831</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>R²</td>
<td>0.692</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Adjusted R²</td>
<td>0.691</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Table 8. The results of regression between firms’ board of directors’ structure and Tobin’Q of the firm.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Symbol</th>
<th>Variables name</th>
<th>Coefficient</th>
<th>t</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dependent variable</td>
<td>Y</td>
<td>Tobin’Q</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Constant</td>
<td>α</td>
<td>α</td>
<td>-5.121</td>
<td>-0.532</td>
<td>0.595</td>
</tr>
<tr>
<td>Independent variable</td>
<td>X1</td>
<td>Independent members of board of directors</td>
<td>0.39</td>
<td>2.14</td>
<td>0.030</td>
</tr>
<tr>
<td></td>
<td>X2</td>
<td>Financial specialty</td>
<td>0.130</td>
<td>3.640</td>
<td>0.000</td>
</tr>
<tr>
<td>Controlled variable</td>
<td></td>
<td>Financial leverage</td>
<td>-1.530</td>
<td>-8.106</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Systematic risk</td>
<td>0.010</td>
<td>0.180</td>
<td>0.858</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Firm size</td>
<td>-2.667</td>
<td>-1.998</td>
<td>0.046</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Durbin-Watson</td>
<td>1.931</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>F</td>
<td>10.530</td>
<td>-</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>R</td>
<td>0.802</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>R²</td>
<td>0.644</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Adjusted R²</td>
<td>0.643</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

directors, financial specialty and firm size have a direct relationship and financial leverage has a reverse relationship with market value added. Regarding the amounts of figure F, the balanced regression patterns are meaningful; and considering the identification co-efficient, these variables explain 69.2% of changes in market value added.

3. The third sub-hypothesis (H₃c) studies the relationship between firms’ board of directors’ structure and Tobin’Q of the firm. The results of regression are shown in Table 8. As it is shown in this table, the variables of independent members of board of directors, financial specialty, financial leverage and firm size have a meaningful relationship with Tobin’Q. The variables’ co-efficient shows that the effect of firm size on Tobin’Q is more than other variables studied. Independent members of board of directors and financial specialty have a direct relationship and financial leverage and Firm size have a reverse relationship with Tobin’Q. Regarding the amounts of figure F, the balanced regression patterns are meaningful; and considering the identification co-efficient, these variables explain 66.4% of changes in Tobin’Q.

DISCUSSION

Board composition is one of the most important discussions in financial management. This research studied the relationship of firms’ board of directors’ structure and accounting and economic criteria of performance assessment of firms accepted in Tehran Stock Exchange. According to the findings of this research:
1. There is a positive and meaningful relationship between independent members of director and accounting and economic performance assessment criteria. Based on the research results, independent members of director protect the rights of stockholders better and they are better agents for them; their existence improves financial performance of the companies. This result agrees with the researches of Fuerst and Kang (2000), Weir et al. (2001), Rachdi et al. (2008) and Omran (2009) and does not accord with researches of Fosberg (1989), Yermak (1996) and Baghat and Black (2002).

2. There is a positive and meaningful relationship between financial specialty of board of director and accounting and economic performance assessment criteria. They can control firm’s management by having enough knowledge and experience in related financial and professional fields. This result agrees with the researches of Kaplan and Minton (1994) and Erickson et al. (2005).

REFERENCES


