Investigating the Influence of Board Characteristics on the Performance of Companies Listed in Tehran Stock Exchange

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ABSTRACT

This study aims to investigate the influence of board characteristics on the performance of companies listed in Tehran Stock Exchange in different industries. For this purpose, 47 companies were selected from different industries as sample. The relationship between characteristics of the board and the performance of companies was examined by fitness of multivariate regression models using panel data during a three-year period (2008-2010) initially for sample companies as a whole and then individually for each industry.
Results show that there is no evidence indicating significant effects of CEO duality and outside board institutional members on return on assets (ROA) as a measure to evaluate performance in the studied sample. However, it can be concluded that there is a significant relationship between board characteristics (including variables of CEO duality and outside board institutional members) and return on equity (ROE) as the second measure to evaluate performance.
KEYWORDS: CEO duality, outside board institutional members, firm performance, panel data.

1. INTRODUCTION

According to International Monetary Fund (IMF) and Organization for Economic Co-operation and Development (OECD), 2001, corporate governance is defined as the structure of relationships and responsibilities among a chief group including shareholders, board of directors and CEO in order to better promote comparative performance required to achieve primary goals of participation (Hasas Yegane, 2006). Corporate governance is an important subject in both theoretic and practical terms. Corporate governance is internal and external control mechanisms which determine how and by who a company is managed and includes needed mechanisms to organize the organization and make assure that firm resources are efficiently managed and protect interests of related participants in the market (Al Mutairi and Hasan, 2010). Considering dominant environment on modern economic markets and severity of privatization even more separation of ownership from management as well as occurrence of agency and characterization of weak corporate governance as a basic reason of 1997 financial crisis in Asia and scandals of credited companies such as Enron and WorldCom has become an essential interdisciplinary subject among law, economics, management and accounting fields.

As there are differences in economy, society, law framework and market behavior between developed and developing countries, there are differences in nature, significance, leadership and operational processes between developed and developing markets (Heinrich, 2002). Little is known about the role of corporate governance mechanism and its effect on firm performance in developing countries. Thus, examination of such theories is essentially required in countries such as Iran with a different policy, economy, culture and other factors.

Major characteristics of corporate governance include ownership structure, size and independence of board, influence and responsibilities of CEO. According to Corporate Governance Regulations, board of directors is the final responsible of operation and financial health of the company. It is generally accepted that board of directors plays an essential role in corporate governance (Liang and Li, 1999). Also, the board of directors provides the strategic leadership, objective judgment and independence for the manager in the company; since the board has to be constantly responsive to shareholders, it performs controls in the company (Catterjee, 2011).

In this regard, we examine the combination of board (including institutional members outside the board and separation of CEO, chairman or vice chairman roles) and its effect on corporate performance.

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2. LITERATURE REVIEW

There is a close relationship between members outside or inside the board of directors in economic firms and administrative system of firms. The board of directors is considered as the most important factor in controlling and monitoring management and protecting resources of shareholders (Fama and Jensen, 1983). Findings show that the board of directors plays a significant role in promoting performance and value of the company.

2.1. Board Structure

Agency theory claims that managers tend to violate interests of shareholders in order to maximize their utility function; hence the shareholders left the responsibility of controlling and monitoring of corporate management on board of directors (Fama and Jensen, 1983). An important problem for board of directors is the board structure; it is considered as the ratio of members outside the board to total members; here, institutional members outside the board are discussed. Outside manager is a part-time member of the board without any executive responsibility in the company. Institutional outside board members are those who include: 1) banks and insurances; 2) holdings, investor companies, pension fund, funding companies and investment funds listed in stock exchange; 3) lateral or legal entities who buys more than 5% or 5 billion Rials nominal value of securities; 4) public organizations; 5) public companies.

The more independent members constituting the board the less agency problems it faces (Hermalin and Weisbach, 1991). CEO is the highest executive; he has a complete power selecting executive (inside) directors. So according to implicit relationship between inside board members and CEO, inside directors may not be able to effectively carry out their regulatory duties. On the other hand they may abuse their position through control over salary plans. Unlike inside directors, outside board directors are independent from firm management therefore they are able to more effectively perform in their regulatory role. Thus, when the board is independently comprised from high proportion of outside members, firm performance will be improved (Muth and Donaldson, 1998). In England and Australia, at least three outside members are required to attend in the composition of the board. The law also requires companies in America that at least two-thirds of the board is composed of outside members (Bhagat and Bernard, 2000). Cadbury and Higgs reports also placed great emphasis on independent board having at least three outside members. The results of empirical evidence on the relationship between outside board members and firm performance are complex and contradictory. In Ghalibaf and Rezaee (2007) performed tests showed that there was no significant relationship between outside members and firm performance. Forest and Kong (2000) examining 947 U.S. firms, found that outside directors had a strong positive impact on the performance and market value of the company. Rachdy *et al.* (2008) showed a direct relationship between board independence and firm performance. Bisinger and Butler (1985) based on the results of a study on 266 sample companies in 1997-1980, claimed that companies with higher proportion have higher performance than independent board. Omran (2009) concluded that the high proportion of outside board members and changes in the composition of the board following firm privatization has a positive effect on company performance. Kaplan and Minton (1994) showed that poor performance and operational losses immediately followed by selection of an independent board lead to a positive response to market price in Japanese companies. Many studies have also confirmed the positive relationship between outside board members and firm performance (Mehran, 1995; Pinteris, 2002; Weisbach, 1988).

2.2. CEO Duality

CEO duality refers to a situation where CEO is the chairman or vice chairman. This led to vast executive authorities and finally increases the risks posed by agency problem due to reduced ability of board to monitor company. As CEO influence on board reduces, corporate governance empowers and thus the risk of agency problem reduces.

Regarding ownership structure, since in a system where ownership is separated from management, agency problem occurs, owner supervision on company can greatly reduce the problems caused by this interest conflict. However it requires many resources that small shareholders cannot afford. It is supposed that owners such as governments and investment enterprises considered as professional shareholders and own enough resources to monitor company can greatly reduce the risks posed by agency problem.

Peng *et al.* (2003) studied a positive relationship between outside board members and firm performance in Russian companies. Findings show that assumed positive relationship in 5% significance level is not approved. Theoretically, when CEO is Chairman a conflict of interest arises. In such a case, supervisory performance of the board is reduced. Combining the roles of board chairman and CEO represents the separation of control and supervision from management. Thus, the theoretical literature suggests that separating the role of board and CEO results in firm performance. While related empirical research includes different results (Gillan *et al.,* 2003). Taylor and Water (2004) examining 313 cases of initial offering of Australian companies shares during 1976-1993 concluded that separation of board and CEO is associated with higher performance. On the other hand, separation of

board and CEO role includes costs such as lack of coordination and lower decision power which can inversely influence on firm performance. Rachdy *et al.* (2008) showed that there is a negative relationship between firm performance and composition of board chairman and CEO role. Boyd (1995), using data from 192 companies in 12 industries concluded that in terms of good corporate governance, firm performance promotes when CEO simultaneously holds the position of chairman. Dalton *et al.* (1998) reviewing 69 conducted study over 40 years found similar results. Brickley *et al.* (1997) showed that there is no functional advantage for separation of chairman and CEO role. Chiang and Lin (2011) concluded that companies in which the CEO and chairman are not the same have a better performance Also, there is a positive relationship between outside board institutional members and firm performance.

3. RESEARCH METHODOLOGY

3.1. Research Hypotheses

In this study, we review two features of board composition and its impact on firm performance. Therefore, hypotheses are as follows:
1. There is a significant relationship between CEO duality and firm performance;
2. There is a significant relationship between outside board institutional members and firm performance.

3.2. Statistical population and Sampling

Statistical community includes listed companies in Tehran Stock Exchange. Selected samples are chosen among the statistical population according to following restrictions. They include:
1. The fiscal year of sample companies is equivalent up to end of March per year.
2. Sample companies have not changed financial year during studied period.
3. Companies are not in trading halt condition during the period under study.
4. They may not among investment and financial intermediation and insurance companies.
5. Required corporate information is available.
6. The company is listed on Tehran Stock Exchange by the end of March 2006.
7. Financial statements and accompanying notes for companies are fully available during mentioned period in Tehran Stock Exchange site.
8. Book value of their equity is not negative during the period under study.

Accordingly, based on above restrictions, 47 companies met above conditions during 2008-2010 based of which sampling conducted; total companies selected for the study. Financial information required for companies were collected vie Tehran Stock Exchange website and financial information CDs of companies listed in Tehran Stock Exchange.

3.3. Methods of data analysis and Hypotheses testing

In the present study, a multivariate regression model to test the hypotheses and panel data econometrics to estimate regression models were used. In this method, time series (the years studied) and sectional (companies studied) data are combined. Integration sectional and time-series data and the necessity to use them is mostly due to the increased number of observations, raising the degree of freedom, reduced variance difference and reduced collinearity between variables. In order to estimate the efficiency of a regression model using panel data, it is necessary to select one of the common effects, fixed effects and random effects models using appropriate tests. Therefore, statistical T test and F test are initially used to select between common effects and fixed effects models; then if fixed effects method is selected, Houseman test is performed to select between fixed effects and random effects methods. Excel and Eviews software packages were used for calculations and statistical analysis.

3.4. Research Variables
3.4.1. Dependent Variables
Return on assets (ROA): the ratio of annual net income after tax to average total assets of a business at the end of a financial year.
Return on equity (ROE): the ratio of annual net income after tax to equity of a business at the end of a financial year.

3.4.2. Independent Variables
The followings were used as independent variables:
CEO duality: a dummy variable, if CEO is the chairman or vice chairman, it is equal one otherwise zero.

The ratio of outside board institutional members (OFD/BS): the number of outside board institutional members to total members.

Company size: the logarithm of total assets.

Sales growth rate (SAG): is the ratio of net sales difference in current financial period and net sales in last fiscal period on net sales of the previous fiscal period.

Financial leverage (LEV): the ratio of total debt to total assets.

3.5. Models used to test the Research Hypotheses

The following model was used to test the research hypotheses. Thus:

$$Y_j = \beta_0 + \beta_1(Duality) + \beta_2\left(\frac{OFD}{BS}\right) + + \beta_3(Size) + \beta_4(SAG) + \beta_5(LEV) + \varepsilon$$

Sample consists of firms with CEO duality. For companies without CEO duality, the regression model is as follows:

$$Y_j = \beta_0 + \beta_1\left(\frac{OFD}{BS}\right) + + \beta_2(Size) + \beta_3(SAG) + \beta_4(LEV) + \varepsilon$$

Where, Y_j is the firm performance and j=ROA and ROE.
Here, firm performance is evaluated based on ROA and ROE.

4. RESEARCH FINDINGS

As table below shows, on average, in 25 percent of companies among sample studied, CEO and chairman or vice-chairman of the board are the same. Clearly, about 65.43% of the board members among studied sample are outside board institutional members. It is worth noting that here two variables, return on assets (ROA) and return on equity (ROE) are considered as representative of the performance evaluation of the companies.

Table 1: descriptive statistics of variables

	ROA	ROE	DUA	OFDBS	SIZE	SAG	LEV
Mean	10.69766	19.10950	0.248227	0.436454	11.71035	12.89362	63.03667
Median	8.900000	25.32000	0.000000	0.400000	11.68000	10.68000	63.00000
Maximum	87.00000	71.18000	1.000000	1.000000	13.12000	108.7300	214.3700
Minimum	-31.27000	-396.6600	0.000000	0.000000	7.320000	-73.63000	18.00000
Std. Dev.	13.23989	48.71969	0.433524	0.213268	0.818609	32.75221	21.69845
Skewness	1.556843	-5.215047	1.165659	0.064913	-1.155458	0.254174	2.268792
Kurtosis	11.01055	41.05057	2.358760	2.777258	7.761600	3.645536	18.21062
Jarque-Bera	433.9504	9145.218	34.34660	0.390505	164.5773	3.966418	1480.222
Probability	0.000000	0.000000	0.000000	0.822627	0.000000	0.137627	0.000000
Sum	1508.370	2694.440	35.00000	61.54000	1651.160	1818.000	8888.170
Sum Sq. Dev.	24541.25	332305.1	26.31206	6.367627	93.81688	150179.0	65915.20
Observations	141	141	141	141	141	141	141
Cross sections	47	47	47	47	47	47	47

4.1. Estimated Model Explaining Returns on Assets

To test hypotheses, the effect of variables including CEO duality, outside board institutional members, firm size, financial leverage and sales growth on return on assets were estimated among studied companies. The results of this process will be examined on regression equation.

4.1.1. Covariance Test

The result of this test on the estimated model explains return on assets in studied companies and related p-value as follows:

$$F_{(46, 89)} = 18/375 \qquad p\text{-}value = 0/0000$$

Given the amount of statistic constrained F calculated from above equation and p-value less than .05, H0 hypothesis is strongly rejected based on intercept covariance between sections. Thus estimating the proposed model, a general model with a common intercept cannot be used for all sections.

4.1.2. Houseman Test

Therefore, given that a general model cannot be used for all sections with a common intercept to estimate the proposed model, it is necessary to use Houseman test in order to choose between fixed and random effects. The result from this test on estimated model explains ROA among studied companies and related p-value, as follows:

$$\chi_5^2 = 3/014 \qquad P\text{-}value = 0/6979$$

Obviously, result of Houseman test confirms random effects model; it can be used to test hypotheses in studied equation.

4.1.3. Estimated Model

Accordingly, the results of estimated coefficients of the regression model can explain the effects of CEO duality, the ratio of outside board institutional members to total members, firm size, sales growth and financial leverage on ROA in studied panel sample, given the random effects model and it is presented as follows:

$$ROA_{it} = 27/87 + \gamma_i + \underset{(1/022)}{2/802}\,DUA_{it} + \underset{(0/538)}{3/111}\,OFDBS_{it} + \underset{(0/116)}{0/126}\,SIZE_{it} + \underset{(1/870)}{0/051}\,SAG_{it} - \underset{(-3/413)}{0/339}\,LEV_{it}$$

$$n = 141 \qquad\qquad DW = 2/0102$$

$$\overline{R}^2 = 0/2797$$

Where, γ_i is random effects term, numbers in parentheses indicate statistical t related to estimated coefficients of descriptive variables. Thus, statistical t indicates the significant effects of financial leverage and boundary significant effects (in 93% confident level) of sales growth on ROA among panel sample. Based on statistical t, there is no evidence showing significant effects of CEO duality, the ratio of outside board institutional members to total members and firm size on ROA among studied sample.

Table 2: the result of estimation related to estimated model describing ROA

Variables	Coefficient	Std. Error	t-Statistic	Prob.
C	27.86857	14.00901	1.989331	0.0487
DUA	2.801751	2.741908	1.021825	0.3087
OFDBS	3.110745	5.781093	0.538090	0.5914
SIZE	0.125539	1.082384	0.115983	0.9078
SAG	0.051116	0.027339	1.869735	0.0637
LEV	-0.338743	0.099249	-3.413080	0.0008

Obviously, there is no evidence confirming the main hypothesis that there is a significant relationship between board characteristic and studied firm performance as well as other hypotheses that there is a relationship between CEO duality and the ratio of outside board institutional members to total members in studied companies and their performance.

4.2. Estimated Model Explaining ROE

To test hypotheses, the effect of variables including CEO duality, outside board institutional members, firm size, financial leverage and sales growth on return on equity were estimated among studied companies. The results of panel data analysis will be examined on regression equation.

4.2.1. Covariance Test

The result of this test on the estimated model explains return on equity in studied companies and related p-value as follows:

$$F_{(46,89)} = 26/571 \qquad p\text{-}value = 0/0000$$

Given the amount of statistic constrained F calculated from above equation and p-value less than .05, H0 hypothesis is strongly rejected based on intercept covariance between sections. Thus estimating the proposed model, a general model with a common intercept cannot be used for all sections.

4.1.2. Houseman Test

Therefore, given that a general model cannot be used for all sections with a common intercept to estimate the proposed model, it is necessary to use Houseman test in order to choose between fixed and random effects. The result from this test on estimated model explains ROE among studied companies and related p-value, as follows:

$$\chi_5^2 = 11/821 \qquad P\text{-}value = 0/0373$$

Obviously, result of Houseman test confirms random effects model; it can be used to test hypotheses in studied equation.

4.1.3. Estimated Model

Accordingly, the results of estimated coefficients of the regression model can explain the effects of CEO duality, the ratio of outside board institutional members to total members, firm size, sales growth and financial leverage on ROE in studied panel sample, given the random effects model and it is presented as follows:

$$ROA_{it} = -72/14 + \gamma_i + \underset{(5/829)}{8/002\,DUA_{it}} + \underset{(1/797)}{6/872\,OFDBS_{it}} + \underset{(14/828)}{7/982\,SIZE_{it}} + \underset{(15/121)}{0/123\,SAG_{it}} - \underset{(-2/572)}{0/140\,LEV_{it}}$$

$$n=141 \qquad\qquad DW=2/8379$$

$$\overline{R}^2 = 0/9567$$

Where, γ_i is a random effect term, numbers in parentheses indicates statistical t related to estimated coefficients of descriptive variables. Thus, statistical t indicates the significant effects of CEO duality, firm size, sales growth and financial leverage and boundary significant effects (in 92% confidential level) of the ratio of outside board institutional members to total members on ROE in studied panel sample.

Table 3: the results of estimation related to estimated model explaining ROE

Variables	Coefficient	Std. Error	t-Statistic	Prob.
C	-72.13619	8.561312	-8.425834	0.0000
DUA	8.002070	1.372796	5.829031	0.0000
OFDBS	6.872453	3.824198	1.797097	0.0757
SIZE	7.982179	0.538305	14.82836	0.0000
SAG	0.122850	0.008125	15.12063	0.0000
LEV	-0.139574	0.054270	-2.571860	0.0118

Obviously, there is no evidence confirming the main hypothesis that there is a significant relationship between board characteristic and studied firm performance. Accordingly, based on results of other hypotheses that there is a significant relationship between CEO duality and firm performances in studied sample is strongly confirmed. While, second hypothesis that there is a significant relationship between outside board institutional members in studied companies and their firm performance is confirmed (in 92% confidential level).

5. DISCUSSION AND CONCLUSION

CEO duality refers to a situation where CEO is simultaneously chairman or the vice-chairman. This situation is likely to increase CEO Powers. As a result t is expected that the risk of agency problems increases because of the reduced ability of board in corporate governance. According to findings and the first hypothesis test based on ROA as the dependent variable, there is no advantage in separating the roles of CEO and chairman or vice-chairman; as a result the first hypothesis is rejected. Nikbakht *et al.* (2010) found similar results. Based on ROE as a factor to evaluate performance, there is a significant relationship between CEO duality and firm performance; as a result the first hypothesis is rejected.

Institutional directors constitute the largest group of shareholders; it is supposed that these shareholders provide enough resources to monitor company and reduce risks related to agency problem. It is expected that outside board directors empower corporate governance. Therefore, a significant relationship is expected between outside board institutional members and firm performance. According to findings and second hypothesis test based on ROA as a dependent variable, there is no significant relationship between outside board institutional members and firm performance among studied sample; thus the second hypothesis is rejected. However, based on ROE, there is a significant relationship between outside board institutional members and firm performance; thus the second hypothesis is approved.

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