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Relationship between the Internal and External criteria of evaluation and the reward of board of directors in listed companies of Tehran Stock Exchange

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Abstract

This research aims to investigate the relationship between the internal and external criteria of evaluation and the bonus of board of directors in listed companies of Tehran Stock Exchange. In this regard, all of the listed companies in Tehran Stock Exchange which presented the financial statements (balance sheet, loss and gain bill) and the required information between 2007 and 2012 were investigated. Totally, 96 companies of different industries were selected to test the hypotheses, regression analysis and pane data were used. To test the significance of model and significance of coefficients, F and t statistics were used, respectively; also to test the correlation of model, Durbin - Watson was used. The results showed that there is a significant relationship between the amount of sales and stock return and reward of board of directors in Tehran Stock Exchange but there is no significant relationship between the opportunities of investment and reward of board of directors.

Keywords: Representation theory, reward of board of directors, evaluation criteria of performance, opportunities of investment

Introduction

Between the 1980's and the 1990's, many international companies permitted the managers to use their rights for buying up stocks with basic cost in order to create relationship between the equity of rights of head managers and their performance and in case that their performance lead to development of company , the managers could share the profits of stockholders. For one decade, this approach was popular because Stock Exchange was developed for several years and made huge profits for the manager and investors. But falling the stock markets in 2002, big companies concluded that this system is not favorable (Anand *et al*, 2003). We can infer that there are different approaches for giving reward to the managers. Thus, this question has been always proposed that which method and how much reward is suitable for the managers to make the managers motivated and make them try to gain the outcome. What is obvious is that the investment emphasizes on increasing wealth of investor and stockholders so we should consider that efficiency of managers of economic agents is important and we can increase wealth fast by encouraging the managers. What is proposed here is that what evaluation method is favorable to motivate the managers to increase the profit of stockholders, on the other hand, the managerial aiming at increasing the sale of stock return or the investment opportunity or the commercial criteria can create motivations which are inconsistent with wealth of stockholders. Representation theory states that there is a strong conflict between the interests of stockholders and management and the managers are going to maximizing their interests by means of stockholders of companies which these interests are in conflict with the interests of stockholders (Fong *et al* 2002). To control the representatives of managers in companies and ensure the responsibility fulfillment and their responding to the stock companies and support the rights of stockholders, many approaches should be considered. One of these approaches is mechanism of paying reward to the managers.

Fama (1980) believes that managers are a part of labor market and gain reward based on the individual and organizational performance and their performance principled by labor market. So, in case of inconsistency

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of reward and performance, the manager who receives less than his performance will leave the company. So considering the reward schemes of managers directs toward the interest of stockholders because despite this fact, the value of company and manger decreases.

Jensen and Macling (1976) analyzed the conflict between the stockholders and managers and showed that to decrease the cost of representation, the reward of managers should be relative to the stockholders. Rewarding based on the values is a sound method to reach the aim.

Jensen and Murphy (1990) investigated the relationship between paying reward to managers and their performance in big companies in the 1970's. They inferred that paying reward to the managers is not a stimulus for their performance; they also stated that in stock companies, the reward of senior managers is independent of their performance.

Duru (1998) studied the relationship between the value added of the market and the reward of manager with economic profit and also investigated the effects of investment opportunity on the relationship between the managers' reword and economic profit. Analyses suggested the positive relationship between the value added of the market and economic profit which increases during a period of time.

Elyan *et al.* (2001) investigated the schemes of reward given by executives and its effect on performance of 73 companies listed in New Zealand Stock Exchange during 1994 and 1998. The results of research showed that the company size and commercial risk are the effective factors of the amount of reward. Also, neither the reward nor the motivational schemes of reward is not related with the performance of company, but there is a significant relationship between Tubin Q ratio and stocks in the hand of managers but when the rate of asset return and rate of equity return are used as the basic evaluation of performance, this relationship is not significant.

Hartzell (2002) in his research investigated the relationship between the reward of managers and investment. He showed that even if after controlling the corporate size, industry type and investment opportunities and performance, there is a positive relationship between the organizational ownership and amount of payment based on the performance and negative relationship between the organizational ownership and amount of reward.

Evaluating the performance of company based on the accounting criteria, Kato and Kubo (2004) found that cash reward of Japanese managers is sensitive to the performance of company. They concluded that the processes of market performance in this country plays minor role in the reward of the Japanese managers.

Jang *et al* (2006) investigated the effect of ownership structure on the relationship between the reward of managers and corporate performance. This study was performed on the corporates in New Zealand in 2001. The findings of research in 2005 suggested that in companies with centralized ownership structure, the relationship between the reward of managers and corporate performance is negative and in companies which do not have centralized ownership structure, the relationship between the reward of managers and corporate performance is positive.

Namazi and Seirani (2005) investigated the relationship between the reward given by managers in Iranian companies with accounting profit, growth of profit and growth of value added in market using the representation theory and also investigated the important structures to determine the reward given by the managers. They found that the longer the duration of contract and its stability is, the more the value of company will be and the contracts of present rewards depend on the accounting profit. In this regard, the following hypotheses are suggested:

The primary hypothesis: There is a positive relationship between the evaluation criteria of corporate performance and reward of managers in listed companies of Tehran Stock Exchange.

Secondary hypothesis 1: There is a positive relationship between the amount of sales as a criterion of performance evaluation and reward of board of managers.

Secondary hypothesis 2: There is a positive relationship between Investment opportunities (IOS) and reward of board of managers.

Secondary hypothesis 3: There is positive relationship between the annual stock return as a criterion of performance evaluation of companies and reward of board of managers

Methods and models

To test the hypotheses of this research, regression model and analysis of panel data were used. To test the significance of model and significance of coefficients, F and t statistics were used, respectively; also to test the correlation of model, Durbin - Watson and to investigate the normality of distribution of variables Kolmogorov – Smirnov test were used and each variable in this research was tested regarding the error level of 5%. To test the hypotheses of research, the following model taken from research by Balsam *et al* (2010) was used:

$$\ln Comp_{i;t} = \alpha_0 + \beta_1 \ln Sales_{i;t} + \beta_2 ROA_{i;t} + \beta_3 RET_{i;t} + \beta_4 IOS_{i;t} + \beta_5 ROE_{i;t} + \varepsilon_{i;t}$$

In above equation:

Dependent variable:

$\ln Comp_{i;t}$: normal logarithm of reward of board of directors

Independent variables:

In sales $_{i;t}$: normal logarithm of corporate selling

$RET_{i;t}$: Annual stock return

$IOS_{i;t}$: investment opportunities which equals summing the market value of equity with book value of debts divided by book value of assets

Materials and Methods

Statistical sample and sampling method

Statistical samples of this research included all of the listed companies in Tehran Stock Exchange. To determine the samples of research, companies from the statistical samples were selected:

Their financial year must end on 29th of Esfand (March)

They must attend in Exchange from 2007 to 2012.

Their financial year must not change between 2007 and 2012.

They should not be included in the group of financial intermediation (banks, organizations and investments)

The required information of companies should be available.

Results

Descriptive statistics

Table 1: Descriptive statistics of the variables

Variables	Min	Max	Mean	SD	Variance
ROE	- 6.412	3.241	.443	.674	.472
ROA	-.051	1.692	.451	.184	.0357
ln Sales	4.276	7.667	5.565	.554	.309
RET	.120	.799	.456	.353	.272
IOS	-.927	2.279	0.299	.532	.322
lnComp	3.433	6.203	4.567	.501	.253

In table 1, the mean of variable of return of equity (ROE) is 0.443 and its maximum and minimum equals 3.24 and -6.412, respectively which is consistent with the similar researches about the equity return. Minimum amount of normal logarithm for In Sales equals 4.27 and maximum is 7.66 and its Mean is 5.56 which means that the sampling companies in this research has 5.56 sales. The mean of IOS equals 0.29 which means that in sampling companies, equity return is 29% and it minimum and maximum equals -0.92 and 2.27, respectively.

For reward of board of directors, the normal logarithm was used, its mean equals 4.56, its maximum mean equals 6.20 and minimum mean equals 3.43 and according to the researches performed in country, the corporate size is average.

Table 2 shows the statistics and Sig of Kolmogorov-Smirnov for the variables of this research.

Table 2: Statistics and Sig of Kolmogorov-Smirnov

	ROE	ROA	ln Sales	RET	IOS	lnComp
Kolmogorov-Smirnov	4.643	2.891	3.456	4.876	6.987	5.873
Sig	.072	.055	.065	.112	.327	.076

As shown in table 2, the sig of Kolmogorov-Smirnov for all of the variables is more than 5%. So, these data are normally distributed and normalization of distribution of variables was done by using software and statistical techniques.

Testing research hypotheses

To test the hypotheses of this research, regression and analysis of panel data were used.

The results of this test suggest that F equals 13.64 and P value equals 0.07. So, the hypothesis of integrated model is accepted. In other words, there are individual and mass effects and the method of Pooled data for estimating model should be used.

Table 3: Test of panel or Pooled detection

Test	Statistics	p-value	Result
F	65/12	67/0	Pooled
Qi-square	56/31	087/0	

Investigation of inconsistency of variance

To investigate the inconsistency of variance ARCH LM and Whit test were used in this research the results of test of inconsistency of variance ARCH LM and White is as follows:

Table 4: Results of test of inconsistency of variance ARCH LM

Description	Statistics value	Prob
F-statistic	134.011	0.000
Obs*R-squared	123.145	0.004

Table 5: Results of test of inconsistency of variance White

Description	Statistics value	Prob
F-statistic	5. 3254	0.0033
Obs*R-squared	25.859	0.0010
Scaled explained SS	58.1895	0.0051

The Prob of models equals zero. As the test is not statistically significant , the hypothesis of consistency is rejected and inconsistency of variance is accepted. In this research, to solve the problem of inconsistency of variance, the data were weighted.

Testing the significance of fixed effects method

To test the significance of fixes effects method, both F statistics and Hausman tests were used.

Table 6: Result of Test of cross-section fixed effects

Description	Statistics value	Prob
Cross-section F	7.5671	0.0345

Table 7: Hausman test

Description	Statistics value	df	prob
Cross-section random	14.8765	7	0.0121

As in both tests , for regression model , the Prob is less than 5 % , we use the fixed effects method in this model.

Investigation of autocorrelation (independence of errors)

To test the lack of autocorrelation of the model, Durbin-Watson was used. This statistics equals 2.44 based on the findings of tables of 9. If this statistics value is between 1.5 and 2.5, H0, the lack of correlation between the residuals will be accepted and otherwise H0 will be rejected, so we can accept that there is correlation between the residuals. According to the statistics, we can declare that the autocorrelation of residuals is accepted.

Investigation of the linear relationship between the dependent and independent variables

To test the linear relationship between the dependent and independent variables, F fisher was used and as shown in Tables 8, Sig of F test is less than 5 % (0.0011) so according to this table, the linear relationship between the dependent and independent variables is accepted.

Table 8: F test to evaluate the linear relationship

Description	Statistics	Prob
F-statistic	42.35	0.0011

As shown in table 9, the estimated coefficient for variables of In Sale equals 0.020 and regarding that significance of this coefficient equals 0.017 and this scale is less than the error which suggests the significance of this coefficient with regard to 5% error level and there is significant relationship between In Sales and reward of board of directors with regard to 95% CI. So the first secondary hypothesis is accepted. Also, the results of this study showed that there is a significant relationship between the annual stock return (RET) and reward of board of directors (InComp) because the RET equals 0.047 and Sig column in table shows that this coefficient is significant with regard to 5% error and its Sig equals 0.0003 which is less than 5%. So the second secondary hypothesis is accepted. The results of this study sug-

gest that the third secondary hypothesis was rejected which means that there is no significant relationship between the Investment opportunities and reward of board of directors because the coefficient of this variable is estimated to be 0.034 and its Sig equals 0.225 and less than 5% error , it suggest lack of significance of this coefficient in this study and should be excluded. Regarding that two of three hypotheses were accepted, thus the primary hypothesis of this research was accepted. Determined coefficient of 38% suggests that 38 of changes in dependent variables are determined by independent variables.

Table 9: Results of combined regression analysis

$lnComp_{i;t} = \alpha_0 + \beta_1 ln\ Sales_{i;t} + \beta_2 ROA_{i;t} + \beta_3 RET_{i;t} + \beta_4 IOS_{i;t} + \beta_5 ROE_{i;t} + \varepsilon_{i;t}$				
Variables	**Coefficients**	**Standard Error**	**Statistics**	**Sig**
ROE	1.297964	4.418957	0.293726	0.0292
ROA	.207431	0.798896	2.763104	0.0061
ln Sales	.02064	5.93272	0.648319	0.0173
RET	.04765	4.418957	1.985	.0003
IOS	.13909	0.768896	35.490	.2253
Constant	.03412	10.56327	5.158	.0001
Determined coefficient	0.381124	F statistics		42.35728
Balance Determined coefficient	0.034994	Sig		0.001142
Regression standard error	62.55277	Durbin-Watson		2.448656

Investigation of the first secondary hypothesis: There is a positive relationship between the amount of sales as the evaluation criteria of corporate performance and reward of board of managers. To evaluate the above hypothesis in the companies listed in Tehran Stock Exchange , model 1 was used. The results showed that this hypothesis was accepted because the estimated coefficient for variable of In Sale equals 0.020 and regarding that its Sig equals 0.017 and this scale is less that error level , this suggest the significance of this coefficient in error level of 5 % and there is significant relationship between In Sale and InComp with regard to 95% CI, so according to the results of this study , the first secondary hypothesis is accepted.

Investigation of the second secondary hypothesis: there is significant relationship between the investment opportunities and reward of board of directors. The results of this study suggest that there is no significant relationship between the investment opportunities and reward of board of directors because the estimated coefficient for the variable if IOS equals 0.034 which its Sig is 0.225 and more than 5% error level and this means lack of significance of this variable. So, this hypothesis is rejected which is consistent with the results of study of Hartzell (2002) and inconsistent with the results of study by Elayan (20011) and Duru (1998).

Investigation of the third secondary hypothesis: There is a significant relationship between the annual stock return as a criterion of performance evaluation and reward of board of directors. To evaluate the above hypothesis in the companies listed in Tehran Stock Exchange , model 1 was used. The results of this study suggest that this hypothesis was accepted in companies listed in Tehran Stock Exchange because the estimated coefficient for variable of RET equals 0.047 and regarding that its Sig equals 0.0003 and this scale is less that 5% error level , this suggest the significance of this coefficient in error level of 5 % , so according to the results of this study , the third secondary hypothesis is accepted.

Investigation of the primary hypothesis: There is a positive relationship between the evaluation criteria of corporate performance and reward of managers in listed companies of Tehran Stock Exchange. The results of this study suggest that there is a positive relationship between the evaluation criteria of corporate performance and reward of managers in listed companies of Tehran Stock Exchange because two other hypotheses which evaluate the relationship between the evaluation criteria of corporate performance were accepted, so it is concluded that the first hypothesis is accepted and they are consistent with the results of research by Elayan (2001) , Namazi and Seiri (2005) and inconsistent with the results of study by Jenson and Murphy (1990) and Kato and Kubo (2004).

Table 10 shows the results of test of research hypotheses

Table 10: Summary of the results of test of research hypotheses

No.	Hypothesis	Result
Main hypothesis	There is a positive relationship between the evaluation criteria of corporate performance and reward of managers in listed companies of Tehran Stock Exchange.	Accepted
Secondary 1	There is a positive relationship between amount of sales of companies as the evaluation criteria of corporate performance and reward of board of managers.	Accepted
Secondary 2	There is no significant relationship between investment opportunities and reward of board of managers.	Rejected
Secondary 3	There is a significant relationship between the annual stock return as a criterion of performance evaluation and reward of board of directors.	Accepted

Suggestions

Regarding the results of the first secondary hypothesis showing the relationship between the amount of sales of companies as the evaluation criteria of corporate performance and reward of board of managers and its acceptance , it is suggested that the companies increase the reward of managers by increasing their sales and using the opportunities of investment to increase the reward of managers and persuade the managers to increase the efficiency of the company and thus the values.

Regarding the results of the second secondary hypothesis showing the lack of relationship between investment opportunities as the evaluation criteria of corporate performance and reward of board of managers and it rejection, we can infer that companies have different life expectancy and mangers make profits by recognizing the opportunities of investment in different sections , by this way, the benefits of shareholders increases which is convincing to the managers to be efficient.

Regarding the results of third hypothesis about the significant relationship between the annual stock return as a criterion of performance evaluation and reward of board of directors and its acceptance, it is suggested to make the companies profitable and increase the value of companies with respect to the important factors of return and flexibility of companies against the unexpected events , and this can be a stimulus for persuading the managers to increase their reward.

Regarding the results of the main hypothesis showing the relationship between evaluation criteria of corporate performance and reward of managers and its acceptance, we can infer that if the rewards are efficient the cash funds will be excluded from the company and these expenses are those which have the economic benefits. It is essential to consider that with regard to the economic, industry and political conditions of companies selecting one of the reward schemes (short or long term) is absolutely effective in paying the reward. This issue causes a positive motivation and sense of responsibility in managers.

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