



## Studying the Relationship between the Financial Incentives of Board Members and Disclosure of Corporate Risk, Emphasizing the Levels of Corporate Performance and Risk

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### ABSTRACT

The study aims to investigate the relationship between the financial incentives of board members and disclosure of corporate risk, emphasizing the levels of corporate performance and risk in Iran. The research sample includes 98 listed firms in Tehran Stock Exchange during 2011-2015 (490 years-firms); the firms have selected by using a systematic removal method. Regarding the aim, the present research is classified as an applied research and concerning its method, it is categorized as a descriptive research. The research hypotheses are examined using the linear regression testing method; Eviews software has employed for data analysis and hypotheses testing. Based on the regression results, financial incentives of board members are effective on the quality and extend of firm's risk disclosure.

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## 1 Introduction

As the quality of disclosure increases, investors' efforts to access confidential information are decreased and as a result the information asymmetry is reduced. The reduction of information asymmetry is accompanied by decrease of stock liquidity, and transaction costs along with the increase of shares demand. Disclosure is the process of transferring information from the reporting company to the financial markets. Firms that voluntarily disclose information which are not mandated by legislators put their efforts in shaping the expectations of market participants and thus, by disclosing additional information they benefit from dealing with such people. Due to the role of substitution played by direct supervision and disclosure, other shareholders use their monitoring power on directors without paying any cost. Therefore, there would be less demand for public information. Consequently, they disclose information with lower volume and quality [5]. Regarding the subject importance, the research tries to study the relationship between the financial incentives of board members and disclosure of corporate risk stressing the levels of corporate performance and risk [13].

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## 2 Theoretical Framework and Research Background

When an investor intends to get a high degree of disclosure, she/he would invest in the firms with higher governmental (institutional) ownership and lower number of key owners. The managerial motivation for achieving higher profitability causes more information to be available to investors and thus leads to greater trust that will bring more rewards for managers [7]. Based on the agency theory, there is a conflict of interest between owners and managers; the conflict increases the cost of agency. Managers turn to disclosure in order to show that their efforts are in the best interests of shareholders. Disclosure as a regulatory mechanism plays an important role in decreasing the agency costs and the conflict between the owner and manager [3]. In the following, some researches undertaken in Iran and abroad are mentioned. Chung et al. [5] examine the disclosure of information in relation to managers' compensation and its impact on the relationship between compensation of managers and firm value. Their results show that there is a negative relationship between the surplus compensation and the firm value, while the voluntary disclosure balances the relationship. In addition, managers' surplus compensation has a positive impact on the firm value when the comprehensive information is disclosed voluntarily. DeFond et al. [7] examine the relationship between the board members' financial incentives, competency, and risk disclosure. The study results indicate that there is a significant relationship between the board members' financial incentives and risk disclosure proportional to their share and ownership.

The competency of board members has a significant relationship with the firm risk disclosure mediated by their experience in the firm, which is measured based on the managerial capability and education level. Zafary et al. [11] study 140 firms during 2008-2009. The study results reveal that risk is lower in the firms with less cognitive conflict in decision-making process of board of directors and more efforts by non-executive members of the board. In an article, Subramanyam [14] examine the relationship between the corporate governance and risk based on the structure and board of directors' processes and show there is a relationship between the corporate governance and firm risk [14]. In the suggestion section of the mentioned study, the process dimensions of board of directors as communication loop between the corporate governance and financial behaviour is emphasized. In another study, Wernerfelt [15] examine the relationship between the structure of board of directors and the firm's ownership with voluntary disclosure. They reveal that there is a significant positive relationship between the ratio of non-executive board members and corporate governance with voluntary disclosure. There is not any significant relationship between the size of board of directors, managerial governance, and institutional ownership with voluntary disclosure. Zafary et al. [11] investigate the impact of independent board supervision on risk reduction. The research results specify that there is a significant relationship between the independence of board and reduction of investment risk among the listed firms in Tehran Stock Exchange. Furthermore, the results of testing the research secondary hypotheses show that there is a significant relationship between the independence of board, percent of non-executive board members, and non-systematic risk among the listed firms in Tehran Stock Exchange.

## 3 Research Hypotheses and Methodology

Based on the theoretical framework of research, and in order to achieve the research objectives, the following hypotheses are examined:

**Main Hypothesis:** The board member's financial incentives are effective on the quality and extend of corporate risk disclosure.

**Secondary Hypotheses:**

1. The financial incentives of board members are effective on the quality of corporate risk disclosure.
2. The financial incentives of board members are effective on extend of corporate risk disclosure.

The present research is an applied research with a descriptive design. Moreover, panel data are used for testing the research hypotheses. The library method is employed for gathering information needed for the research and data are collected from the selected firms by referring to their financial statements and explanatory notes and using RAHAVARD NOVIN and TADBIR PARDAZ software.

### 3.1 Statistical population and sample selection

The statistical population of research statistical population includes all of the listed firms in Tehran Stock Exchange during 2011-2015 periods. Sample selection steps are presented in Table 1:

**Table 1:** Sample selection steps

Number	Sample selection steps
538	The number of listed firms in Tehran Stock Exchange at the end of 2015
(94)	The number of firms exited from the Stock market during the research period
(57)	The number of firms entered the Stock market during the research period
(42)	The number of firms with change in their fiscal year during the research period
(68)	The number of investor and financial intermediary firms
(127)	The number of firms with more than six months trading interruption during the research period
(52)	The number of firms whose financial year does not end up to 03.20
98	The number of sample firms

According to Table 1, the data of 98 firms are used in testing the statistical hypotheses.

### 3.2 Research model and variables

In the present research, the following regression models are used for testing the research hypotheses. The model of the first secondary hypothesis is as follows (Model 1):

$$Q_{it} = \alpha_0 + \beta_1 Av\_NED_{it} + \beta_2 HA_{it} + \beta_3 Clshs_{it} + \beta_4 Mcap_{it} + \beta_5 P/B_{it} + \beta_6 Levit + \beta_7 ROA_{it} + \epsilon_{it} \quad (1)$$

The model of the second secondary hypothesis is as follows (Model 2):

$$Cov_{it} = \alpha_0 + \beta_1 Av\_NED_{it} + \beta_2 HA_{it} + \beta_3 Clshs_{it} + \beta_4 Mcap_{it} + \beta_5 P/B_{it} + \beta_6 Levit + \beta_7 ROA_{it} + \epsilon_{it} \quad (2)$$

Where:

Q: Risk disclosure quality (dependent variable)

Cov: Risk disclosure extend (dependent variable)

Av-NED: Board member's financial incentives (independent variable)

HA: Reduction rate of board members (control variable)

Clshs: Percentage of shares owned by internal customers (control variable)

Mcap: Firm size (control variable)

P/B: Book value to market value (control variable)

Lev: Leverage (control variable)

ROA: Return on asset (control variable)

$\varepsilon_{it}$ : Regression error (control variable)

The research variable measurement method is presented below:

Dependent variable is as Risk Disclosure Quality: The quality and extend of risk disclosure is measured according to Mikenin's research (2012 and 2013).

Risk Disclosure Quality: is determined by calculating the logarithm of the total number of issued values in the annual risk disclosure statements with the following formula

$$\text{QUANTITY}=\ln(\text{Total number of risk disclosure words}) \quad (3)$$

At first, information disclosure is extracted based on the defined risk management model using content analysis. The content analysis employed in the present research is based on the sentences contained in the reports of the board of directors and audited financial statements of the sample firms. Accordingly, the authors here study the sentences which are contained in the related reports; every sentence that discloses information about an individual risk for users is considered as disclosure of risk management information. Eventually, all sentences disclosed for a particular risk over a year are considered as information disclosure. The operational content analysis is as follows:

1. Reports from the sample firms are thoroughly examined and items related to each risk disclosure in the form of individual sentences are noted as the related risk disclosure item.
2. On occasions that some sentences refer to more than one risk, the considered sentence is used for the risk with higher emphasize.
3. Sentences which equally refer to several risks are noted as information disclosure for one of the referred risk based on the authors' discretion.
4. In the cases where the tables provide information linked to a specific risk, one sentence is added to the related risk sentences based on the table.
5. In some occasions, one paragraph which refers to a specific risk is considered as a sentence in the risk disclosure information.
6. The examined sentences will be considered risk information disclosure if they address a specific issue in relation to the intended risk.

B. Risk Disclosure Extend: indicates how much the firm's main risks are dependent on the annual report of the firm, and also it shows how the risk disclosure involves various risk issues; its calculation is as follows:

$$\text{COVERAGE} = [(1/H)/\text{The number of main topics}], \quad (4)$$

Where H represents Herfindahl Index and is computed as follows:

$$H = \sum_{i=1}^n p_i^2$$

$p_i$ : Risk disclosure ratio for item i.

The number of main topics: Number of disclosure sentences

Independent variable is: Board member's financial incentives

AvSalary\_NED: Board of directors' average compensation during the study period

Control variable is HA: Reduction rate of board members

It is a dummy variable and it will be equal to one if the reduced rate of board members is greater than the average value of the normal reduced rate; otherwise it will be zero.

Ratio (NBM\_NED/NBM): Ratio of the total number of board members to the number of non-executive members

Clshs: Percentage of shares owned by internal customers

Mcap: Firm size

It is calculated using the natural logarithm of share market value

B/P: Book value to market value of shares

Lev: Leverage

It is equal to the ratio of total debt to total assets

ROA: Return on asset

It is equal to net profit divided by firm's total assets

## 4 Research Findings

### 4.1 Descriptive statistics

The research variables are presented in Tables 2 and 3 as indexes for describing the research variables. As it can be seen from Table 2, the mean value indicates the distribution equilibrium and centre of gravity, which is 2.169878 for risk disclosure quality. The median is another core index, which shows the sample conditions; similarity between the mean and median values indicates the normality of the variable, which is equal to 2.20000 for risk disclosure quality. Standard deviation is one of the most important dispersion indexes, which is equal to 0.300730 for risk disclosure quality.

Skewness coefficient obtained for risk disclosure quality is positive and close to zero, which indicates a normal distribution with very slight skewness to the right. In the present research, Kurtosis is positive for all of the considered variables. Because the significance level of Jarque and Bera Test for risk disclosure quality is equal to 5%, the null hypothesis i.e. the normality of the variable is confirmed. Therefore, the risk disclosure quality variable has a normal distribution.

**Table 2:** Descriptive statistics of firms' studied variables

	Risk disclosure quality	Board members financial incentives	Board members reduction rate	Percentage of shares owned by internal customers
Mean	2.169878	775.6857	0.320408	0.387102
Median	2.200000	678.0000	0.000000	0.330000
Maximum	3.000000	3000.000	1.000000	0.860000
Minimum	1.100000	24.00000	0.000000	0.000000
Standard deviation	0.300730	554.6564	0.467110	0.172196
Skewness	0.013580	1.891022	0.769734	0.044488
Kurtosis	3.046581	6.812588	1.592491	3.104693
Jarque and Bera	0.059359	0.584759	0.888254	0.385415
Probability	0.970757	0.421565	0.125466	0.824723
Total	1063.240	380086.0	157.0000	189.6800
Standard deviation sum	44.22439	1.50E+08	106.6959	14.49948
Observations	490	490	490	490
Sections	98	98	98	98

**Table 3:** Descriptive statistics of firms' studied variables

	Firm size	Book value to market value	Leverage	Return on asset	Risk disclosure extend
Mean	13.85180	0.335694	0.636612	0.118306	0.465878
Median	13.43000	0.250000	0.690000	0.080000	0.450000
Maximum	18.45000	1.660000	2.040000	0.630000	1.000000
Minimum	9.470000	-2.800000	0.010000	-2.440000	0.200000
Standard deviation	1.186990	0.341343	0.201702	0.174845	0.097302
Skewness	0.599288	-0.513568	0.257565	-6.327838	1.846855
Kurtosis	5.690756	19.04289	7.791105	96.88262	11.26942
Jarque and Bera	0.177550	0.532555	0.458878	0.185226	0.165454
Probability	0.832500	0.475500	0.532655	0.725546	0.845454
Total	6787.380	164.4900	311.9400	57.97000	228.2800
Standard deviation sum	688.9738	56.97601	19.89438	14.94909	4.629673
Observations	490	490	490	490	490
Sections	98	98	98	98	98

#### 4.2 Testing the research variables stationarity

The results of the variables stationary test are reported in Table 4. As it can be seen from Table 4, based on Levin, Lin, and Chaw method, and also Im, Pesaran and Shin test, ADF-Fisher and PP-Fisher methods, the null hypothesis indicating the presence of a unique root based on common unique root process is rejected at a significant level of 5% considering 90 sections and 360 observations. The

results of unique root testing on all variables shows the absence of a unique root.

**Table 4:** Risk disclosure quality test

Number of observations	Number of sections	Probability value	Test statistics value	Method
Null hypothesis: A single root (common unique root process)				
360	90	0.0000	-36.7927	Levin, Lin, and Chaw
Null hypothesis: A single root (singular unique root process)				
360	90	0.0000	-6.07644	Im, Pesaran and Shin (W test)
360	90	0.0009	245.137	ADF-Fisher (chi-square)
360	90	0.0000	286.390	PP-Fisher (chi square)

**Table 5:** Results of Lemur and Hoffman F Test

Result	Significance level	Degrees of freedom			Research hypotheses
Panel data	0.0000	(97,385)	5.617587	F statistics	First secondary hypothesis
Panel data		(97,385)	3.715769	F statistics	Second secondary hypothesis
Result	Significance level	Degrees of freedom	Chi square statistics		Research hypotheses
Fixed effects	0.0000	7	77.387675		First secondary hypothesis
Fixed effects	0.0000	7	35.346946		Second secondary hypothesis

**Table 6:** Summary of results obtained for the first secondary hypothesis model:

Variable	Coefficients	Standard deviation	t-statistic	Probability
y-intercept	1.777438	0.091604	19.40350	0.0000
Board members financial incentives	0.043711	0.014451	3.024766	0.0012
Firm size	0.034665	0.006478	5.351398	0.0000
Book value to market value	0.137843	0.022721	6.066702	0.0000
Leverage	-0.094556	0.050321	-1.879046	0.0610
ROA	0.014879	0.005520	2.695296	0.0073
Determination coefficient 0.88		Adjusted determination coefficient 0.853	Durbin-Watson 1.83	Probability level F:0.000

### 4.3 Lemur and Hoffman F test

The results of Lemur and Hoffman F test for the research hypotheses are reported in Table 5. As can be seen from Table 5, the probability of Lemur F Test is less than 5% and it is necessary to use a

panel method for the model estimation; Hoffman Test is employed to determine the applicability of fixed effects versus random effects model. The random effects model is used because the chi square value is less than 0.05.

#### 4.4 Analysis of the first secondary hypothesis

The results of analysing the first secondary hypothesis are reported in Table 6. Based on Table 6, board member's financial incentives are effective on the firm risk disclosure quality, so the first secondary hypothesis is confirmed. The adjusted determination coefficient is equal to 85% indicating the high explanatory power of the proposed model.

#### 4.5 Analysis of the second secondary hypothesis

The results of analysing the second secondary hypothesis are reported in Table 7.

**Table 7:** Summary of results obtained for the second secondary hypothesis model:

Variable	Coefficients	Standard deviation	t-statistic	Probability
y-intercept	0.504713	0.042552	11.86115	0.0000
Board members financial incentives	0.099792	0.005192	19.21876	0.0000
Firm size	-0.000254	2.92E-05	-8.702534	0.0000
Book value to market value	0.020146	0.008772	2.296637	0.0222
Leverage	-0.017511	0.001975	-8.866664	0.0000
ROA	0.025104	0.001303	19.27274	0.0000
Determination coefficient 0.88		Adjusted determination coefficient 0.853	Durbin-Watson 1.83	Probability level F:0.000

In Table 7 it can be seen that the board member's financial incentives are effective on extend of risk disclosure by firms, so the second secondary hypothesis is confirmed. The adjusted determination coefficient is equal to 85% revealing the high explanatory power of the proposed model.

According to the above explanations, and in the light of the confirmation of the first and second secondary hypotheses, the research main hypothesis is also confirmed indicating the financial incentives of board members are effective on the quality and extend of risk disclosure by the firms.

### 5 Discussion and Conclusion

The present research tries to examine the impact of board member's financial incentives on corporate risk disclosure highlighting corporate performance and risk levels among the listed firms in Tehran Stock Exchange. Based on the results obtained from testing the research hypotheses, the financial incentives of board members are effective on the quality and extend of firm's risk disclosure. The re-



sults of the present research are somehow compatible with the theoretical framework of research and background. The collapse of large businesses and the global financial crisis have caused instability and widespread concern in the world's key financial markets. Furthermore, incorrect or inadequate criticisms about corporate disclosure in relation to governance methods, especially risk management activities disclosure have always been an important subject. Regarding the main hypothesis of the research, it is suggested that in their evaluation, the users of financial statements should focus more on the financial incentives of board members; and also the stock exchange market should consider the important subject in pricing the firms' shares. The findings can also be valuable for stock exchange and accounting policy makers as well as financial managers. Financial managers are able to increase the quality of financial reports through changing the financial incentives of board members. Based on the first secondary hypothesis, it is suggested that managers should pay a particular attention to the board members financial incentives and implement risk forecasting strategies to increase the return on investment. Regarding the results of the second secondary hypothesis, it is suggested that the audit organization and other regulatory and supervisory bodies should take into account the risk forecasting subject in developing accounting standards and financial rules, and also provide necessary directions for further limiting managers in order to help the users of financial information to make optimal and informed decisions more than ever. Based on the proposed methodology, some subjects are suggested for future researches:

- Effect of financial reporting quality on corporate disclosure quality.
- Effect of corporate governance factors on stock unusual return fluctuations.
- Effect of the financial incentive of board members on return quality.

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