Role of Audit Committees and Board of Directors in Reducing Earning Management of Companies Listed in Tehran Stock Exchange

Marzieh Khosheghbal[1*], Ali Amiri[2], Ali Homayoon[3]

[1]MA in Accounting, Qeshm International Branch, Islamic Azad University, Qeshm, Iran, [2]Department of Accounting, Bandar Abbas Branch, Islamic Azad University, Bandar Abbas, Iran, [3]Faculty member, Bandar Abbas Branch, Islamic Azad University, Bandar Abbas, Iran. *Email: marzieh.khosheghbal@yahoo.com

ABSTRACT

The purpose of this study was to examine role of audit committees and board of directors in reducing earning management of companies listed in Tehran Stock Exchange. In this research, audit committees and board of directors were selected as independent variable and earning management as dependent variable. Statistical population of study consisted of all companies listed in Tehran Stock Exchange during 2009-2014 selecting manufacturing companies with available data listed in stock market during 2009-2014 as sample companies. To estimate research models, generalized least squares (GLS) method was employed and to test independency of regression model's error, Durbin–Watson test was used. Significance of regression model was examined using F value; t-student value was used to confirm or reject research hypotheses through Eviews Software. Results of research showed a positive relationship between firm size and earning management; while there was not any relationship between board size, independence of board of directors, audit committee and earning management.

Keywords: Earning Management, Board Size, Firm Size, Independence of Board of Directors, Audit Committee
JEL Classifications: L25, M4

1. INTRODUCTION

Earning management is a form of earning manipulation that may reduce reliability of earnings. The lower the reliability of earnings, the lower their beneficial data will be. On the other hand, if opportunistic earning management is under the control of surveillance systems, accounting earnings will be more reliable and consist of more beneficial information (Dechow et al., 1996). Managers expect from firm to prepare and provide the information in a best way as they have more data; on the other hand, managers may overestimate firm's status or handle earnings intentionally or unintentionally due to some reasons such as retaining in company or receiving rewards (Demerjian et al., 2006). According to studies on financial reporting, there is a positive (direct) relationship between governance power and good quality of financial reporting. In fact, corporate governance is related to good quality of financial reporting. One of subjects discussed in conducted studies is interaction between responsibilities of audit committee and board

of directors for quality of financial reporting and relationships of auditor that contributes to tasks and responsibilities of audit committee and board of directors. The study of relation between governance and significant criteria of financial reporting such as earning management lead to better understanding of quality of financial reporting provided by audit committee and relationships with board of directors. Bold decisions of managers may lead to earning renewal (Cohen et al., 2007). Hence, the relationship between auditors and audit committee is essential to decrease such decisions. On the other hand, conducted studies in this field indicate that encouragement of audit committee granting rewards would increase demand for supervision on financial reporting process and improve audit quality and performance of audit committee (Engel et al., 2010).

When showing financial competency of management, audit committee supports stakeholders within financial statements. Therefore, audit committee can potentially improve quality and

reliability of financial reporting. Various methods have been tested and suggested to control opportunistic behaviors of managers. For instance, an audit can be effective in such process. Auditor can provide a rational confidence that financial statements do not consist of significant distortions. The higher the quality of auditing, the more management abuses are identified reducing effective accruals (Noravesh et al, 2005). Quality of audit in audit committee plays a vital role in management responsibility to support from stakeholders. According to the mentioned points, this study was conducted to examine the relationship between role of audit committee and specialty of board of directors in earning management of companies listed in Tehran Stock Exchange.

1.1. Theoretical Literature

Management rate and its fluctuations are significant factors for stakeholders of company so that this factor can effect on stock value. One of initial objectives of management is retaining firm credit since the credit leads to efficiency and dynamism of firm. A good situation among competitors in capital market would attract attention of investors and creditors toward firm so that the firm can spent lower costs in competition with similar companies receiving credits and loans more simply. The most important intensive for income smoothing is this belief that companies with proper earning process without fluctuations have more value compared to similar firms since smoothing increases stock value in stock market leading to attraction of potential investors. According to conducted studies about earning management, it is important to understand why and how managers implement earning management and what consequences of such behavior are (Elahi et al., 2015).

Swastika (2013) studied data of 51 firms during 2005-2007 in Indonesia and indicated that variables of corporate governance such as board size have positive relationship with earning management while quality of audit and firm size have negative significant relationship with earning management.

Alhadab et al. (2012) conducted a study on 280 companies in U.K. to examine effect of audit quality on earning management. Results of their study showed that increase in audit quality (auditing by four large institutions) reduced discretionary accruals management. In addition, high quality of audit declines manipulation of cost operation and operational costs.

Studied the relationship between corporate governance and earning management dividing variables of corporate governance to two internal and external categories. Internal variables can be named as ownership concentration and structure of board of directors and external variable consisted of institutional ownership. Results of this research showed that companies with robust internal variables more manage earnings compared to companies with robust external variables.

Examined structure of board of directors and earning management in Canada considering the effect of structure of board of directors on earning management procedure. Accruals management was introduced as a factor to achieve goals of earning management and it was concluded that earning management could reduce unusual accruals. Middle managers reduce earning management more and

agents of institutional investors in board of directors also reduce earning management considerably.

Chang et al. (2003) examined the role of board of directors and audit committees in preventing from earning management focusing on current discretionary accruals. Results of this research showed a reverse relation between number of independent managers and discretionary accruals. Moreover, there was a reverse significant relationship between logarithm of sale, logarithm of market value, equity, logarithm of book value of total assets, and accruals.

Chang et al. (2002) studied the relationship between major institutional investors and earning management and found that major institutional investors could prevent management form using discretionary accruals that increase earning when management is willing to overestimate earning; the reverse case can be also imagined when management is willing to underestimate earning then major institutional investors prevent management from such willing. In addition, results of this research showed that if manager has no incentive to increase or decrease earning, there will not be any relationship between institutional investors and earning management. Of control variables, cash flows and financial leverage had reverse and significant relationship with earning management while firm size had direct relationship with earning management.

Park and Shien (2002) assessed the relation between structure of board of directors and earning management in Canada considering current discretionary accruals as agent for earning management. Results obtained from study showed no relationships between non-executive managers in board of directors and manipulation in accruals; it means non-executive managers do not do anything in monitoring earning management of companies. However, some evidences showed that presence of financial managers in board of directors can prevent form earning management. Also, presence of an agent from active institutional investors could more reduce earning management and duration of management of non-executive managers had no effect on reducing earning management. Of control variables, firm size had a reverse relation with earning management; there was a reverse significant relationship between financial leverage and earning management indicating supervision of creditors on firm.

Moses (1987) assumes that the larger the size of firm, the stringer the incentive of managers to manipulate earning; in his opinion, enlargement of companies would increase their responsibility and managers should meet demands of a large number of demanders.

Yousefi (2014) conducted a study to examine the relation between ownership and managerial properties of board of directors and earning management in Tehran Stock Exchange; hypotheses of this study were tested using panel data method for time interval of 2007-2012 indicating a negative significant relationship between independence of board of directors, board size, duality of chief executive's task, managerial ownership and earning management.

Poorheidari and Hemmati (2012) carried out a study and showed that large size of firm led to increase in incentive of mangers to

increase earning in order to show good performance of company to shareholders and officials.

Gholami-Hosseinabad (2011) examined effect of real earning management and accrual-based earning management on investment behavior of companies listed in Tehran Stock Exchange. Results of this research implied a positive significant relationship between accruals-based earning management and improper investment in companies. Moreover, there was a significant relationship between real earning management and improper investment in companies and there was a significant relationship between discretionary accruals, unusual discretionary costs and improper investment of future financial period.

Sedighi (2011) conducted a study entitled structure of corporate governance, earning management, and informational content of accounting profit examining whether structure of corporate governance is in relation with informational content of accounting profit affecting on earning management rate. In this research, informational content of profit was measured using reaction coefficient of measured profit and earning management was obtained using unusual accruals that were estimated using Modified Jones Model. Some factors such as stock percent within ownership of institutional investors, ownership concentration, board size, membership of CEO in board of directors, duality of CEO's responsibility, independence of board of directors, percent of floating stock, reliance on debt, and size of audit committee were selected as variables for capital structure. Results of this study were as follows: 1. earning management rate is directly related to informational content of profit; 2. Ownership concentration, board size, independence of board of directors, and size of audit committee are related to earning management rate directly. In addition, reliance on debt is reversely related to earning management but the sign of reliance on debt and size of audit committee can be anticipated; 3. Size of audit committee is reversely directed to informational content of accounting profit; 4. Earning management rate has more effect on informational content of accounting profit compared to structure of corporate governance; 5. There is a direct relationship between structure of corporate governance and informational content of profit regardless of presence or absence of earning management.

Kordestani (2010) conducted a study on 101 companies in stock market during 2004-2008 to examine effect of audit quality on earning management and found no significant relationship between audit quality and earning management.

Talebnia and Taftian (2009) conducted a study entitled "the relationship between institutional investors, board of directors, and earning management among 75 companies listed in Tehran Stock Exchange during 2004-2007" and found a significant relationship between ownership percent of institutional investors. Ownership percent of members of board of directors, number of independent members of board of directors, and earning management. In this regard, increase in ownership percent of institutional investors, ownership percent of members of board of directors, and number of independent members of board of directors lead to reduction in earning management.

Mashayekh and Ismaili (2006) examined the relationship between earning quality, ownership percent of members of board of directors, and number of independent members in board of directors in manufacturing companies listed in Tehran Stock Exchange and found no significant relationship between accruals, as a criterion for earning management, ownership percent of members of board of directors, and number of independent members in board of directors.

Moddares et al. (2005) concluded in their study that firm size is a driving force for earning management in companies associated with oil industry, chemical and steel industries. Moreover, obtained results showed the stringer incentive of firm size in steel and mineral industries compared to oil and chemical industries regarding earning management.

1.2. Hypotheses
1. There is a significant relationship between firm size and earning management in companies listed in stock exchange.
2. There is a significant relationship between board size and earning management in companies listed in stock exchange.
3. There is a significant relationship between independence of board of director and earning management in companies listed in stock exchange.
4. There is a significant relationship between audit committee and earning management in companies listed in stock exchange.

2. METHODOLOGY

Since this study aimed at examining the effect of investment efficiency on financial performance of companies listed in Tehran Stock Exchange, this is a descriptive-correlational study. In fact, a correlational study analyzes the relationship between variables based on the research objective.

Sample companies were selected from all companies listed in Tehran Stock Exchange with available data during 2009-2014 using systematic removal method; accordingly, 142 companies were selected and their data were confirmed.

2.1. Research Model and Variables
In this research, audit committee, board size, independence of board of directors, and firm size were selected as independent variables and earning management as dependent variable. Research variables were determined as follows:

2.1.1. Independent variables
Audit Committee (AC)

Audit committee was used as dummy variable based on its presence or absence in companies; in this case, presence of audit committee in studied firms was shown by 1 and absence of AC in companies was indicated by 0.

Independence of Board of Directors (IOBOD)

Independence of board of directors is assessed using the ratio of independent managers in board of directors to total members of board of directors.

Board Size (BS)

Number of members in board of directors indicates board size in each company; hence, number of members in board of directors was selected to calculate board size in each company.

Firm Size

Firm size is a criterion that is used to determine largeness or smallness of studied firms. To measure this size, some indicators such as assets' value, sale rate, value of stock market and number of stocks can be used (Shoorvarzi and Pahlevan, 2010). Natural logarithm of total assets of company was used as indicator for firm size in this research.

2.1.2. Dependent variable
Earning Management (TAEM)

To measure earning management, Modified Jones Model (presented by Dechow et al., 1995) was employed since this model is able to solve research problem. Moreover, the mentioned authors (1995) concluded that Modified Jones Model is the most appropriate and strong test to examine earning management based of four conducted tests. This model is as follows:

$$TAC_{it}/TA_{it-1}=a_{0j}(1/TA_{it-1})+a_{1j}(\Delta REV_{it}-\Delta REC_{it})/TA_{it-1}+a_{2j}(PPE_{it}/TA_{it-1})+e_{it} \quad (1)$$

Where,
TAC_{it} = Total accruals (earnings before unexpected items minus operating cash flows) in year t for studied company i
TA_{it-1} = Total assets in year t-1 for studied company i
ΔREV_{it} = Changes in revenue during years t-1 to t for company i
ΔREC_{it} = Changes in receivable accounts during years t-1 to t for company i
PPE_{it} = Price of properties and equipment in year t for company i
e_{it} = Total regression error; it is assumed that these errors are not correlated and have normal distribution with mean equal to 0.

These estimated coefficients obtained from regression of studied companies are obtained to estimate managed accruals for each firm deducting unmanaged accruals from total accruals. The process is as follows:

$$TAEM_{it}=TAC_{it}/TA_{it-1}-a_{0j}(1/TA_{it-1})-a_{1j}(\Delta REV_{it}-\Delta REC_{it})/TA_{it-1}-a_{2j}(PPE_{it}/TA_{it-1}) \quad (2)$$

Where, $TAEM_{it}$ is total accruals earning management in company I during year t that is equal to total discretionary accruals.

3. DATA ANALYSIS METHOD

First, data are described for independent and dependent variables. Descriptive statistics including mean, med, variance, Skewness, and kurtosis were calculated for all variables. Regression analysis was employed at major part of study because of dummy variables. To test hypotheses, combined data were used; in this method, F-Limer test was used to select one of panel or integrated data methods. Hausman test was conducted to select fixed or random

effects in case of panel data method. In addition, presented models were estimated using cross-section method then retested based on results of hypotheses. Statistical analyses were done through Eviews7 Software. Finally, research variables were tested using t and F-Fischer tests and determination coefficient (R^2).

4. FINDINGS

4.1. Analysis of Central and Dispersion Indicators
Table 1 describes the variables. And Average, Medium, Maximum, Minimum and Standard Deviation are reviewed. and Variables are well dispersed.

4.2. Results of Hypothesis Analysis
4.2.1. Presumptions for regression model's fitness
Test for model's fitness

Table 2 represents ANOVA of regression to examine linear relation between independent variables and dependent variables as well as overall significance of regression model.

According to Table 2, overall significance of regression models is confirmed since significance levels and F values are lower than 5%.

Durbin-Watson Test

Durbin-Watson test examines serial correlation between regression residuals based on following null hypothesis:
H_0: There is not autocorrelation between errors.
H_1: There is an autocorrelation between errors.

If value of Durbin-Watson test is at interval of 1.5-2.5, H_0 (lack of autocorrelation between errors) will be confirmed; otherwise, H_1 will be confirmed.

Table 1: Descriptive statistics of data

Indicator	SIZE	BS	IOBOD	TEAM
Mean	5.935	5.940	0.550	0.00001
Median	5.862	6	0.500	0.015
Maximum	8.172	9	1	0.500
Minimum	4.380	2	0	−0.500
Standard deviation	0.655	0.766	0.766	0.348
Sample size	852	852	852	852

Table 2: Result of ANOVA for regression model

Regression model	Sig	F value
Model 1	0.000	22.466
Model 2	0.000	2.687
Model 3	0.000	2.669
Model 4	0.000	2.667

Table 3: Independence test for residuals

Regression model	R^2	D-W value
Model 1	0.025	2.387
Model 2	0.001	2.036
Model 3	0.348	2.386
Model 4	0.349	2.388

Durbin-Watson value and determination coefficient are indicated in Table 3.

According to Table 3, D-W values of all regression models are at range of 1.5-2.5; hence, H_0 is confirmed and there is not autocorrelation between errors.

4.3. Chow Test

Results of F test are indicated in Table 4 for all regression models. Null and opposite hypotheses are as follows:

H_0: Hybrid model (pool) is appropriate.
H_1: Panel model is appropriate.

Judgment method: If the calculated F value in regression equation is lower than F value obtained from table at confidence level of 95% (error of $\alpha = 5\%$), H_0 will not be rejected; otherwise, H_1 will be rejected.

Hausman Test

If it is revealed that intercept is not same for different years, the method of model estimation (fixed or random effects) should be determined; for this purpose, Hausman test should be used. H_0 and H_1 are as follows:

H_0: Panel data with random effects is appropriate.
H_1: Panel model with fixed effects is appropriate.

If the calculated is lower than obtained from table at confidence level of 95% ($\alpha=5\%$), H_0 cannot be rejected; otherwise, H_1 is rejected.

Results related to Hausman test for regression model of this study are described in Table 5.

4.3.1. Results of fit of regression models
Hypothesis 1

H_0: There is not any significant relationship between firm size and earning management.
H_1: There is a significant relationship between firm size and earning management.

According to Table 6, significance level between two variables obtained to 0.000 that is lower than considered significance level (5%) in this research; also, absolute value of t is equal to 4.725 is

above 1.96 that is equal to normal standard distribution of 0.95; therefore, H_0 (there is not any relationship between firm size and earning management of companies listed in Tehran Stock Exchange) is rejected at confidence level of 95%. Accordingly, the main hypothesis of study is accepted.

Hypothesis 2

H_0: There is not any significant relationship between board size and earning management.
H_1: There is a significant relationship between board size and earning management.

According to Table 7, significance level between two variables obtained to 0.343 that is above the considered significance level (5%) in this research; also, absolute value of t is equal to -0.947 is lower than 1.96 that is equal to normal standard distribution of 0.95; therefore, H_0 (there is not any relationship between board size and earning management of companies listed in Tehran Stock Exchange) is confirmed at confidence level of 95%. Accordingly, the main hypothesis of study is rejected.

Hypothesis 3

H_0: There is not any significant relationship between independence of board of directors and earning management.
H_1: There is a significant relationship between independence of board of directors and earning management.

According to Table 8, significance level between two variables obtained to 0.623 that is above the considered significance level (5%) in this research; also, absolute value of t is equal to -0.490 is lower than 1.96 that is equal to normal standard distribution of 0.95; therefore, H_0 (there is not any relationship between independence of board of directors and earning management of companies listed in Tehran Stock Exchange) is confirmed at confidence level of 95%. Accordingly, the main hypothesis of study is rejected.

Hypothesis 4

H_0: There is not any significant relationship between audit committee and earning management.
H_1: There is a significant relationship between audit committee and earning management.

Table 4: Chow test

Regression model	F value	P	Comparison with 0.05	Test result
Model 1	2.302	0.000	<	H_0 is rejected-panel model
Model 2	2.699	0.000	<	H_0 is rejected-panel model
Model 3	2.574	0.000	<	H_0 is rejected-panel model
Model 4	2.566	0.000	<	H_0 is rejected-panel model

Table 5: Hausman test

Regression model	χ^2	P	Test result
Model 1	0.080	0.785	H_0 is accepted-panel model with random effects
Model 2	0.073	0.785	H_0 is accepted-panel model with random effects
Model 3	11.997	0.0005	H_0 is accepted-panel model with fixed effects
Model 4	3.967	0.041	H_0 is accepted-panel model with fixed effects

Table 6: Results of fit of regression equation

TEAM= $\beta_0+\beta_1 SIZE+\mathcal{E}_i$				
Variable	Coefficient	t value		Sig level
SIZE	β_1	4.752	0.000	It is effective
Determination coefficient	2.5%	F value		22.466
D-W value	2.387	Significance (P-value)		0.000

Table 7: Results of fit of regression equation

TEAM= $\beta_0+\beta_1 BS+\mathcal{E}_i$				
Variable	Coefficient	t value		Sig level
BS	β_1	−0.947	0.343	It is not effective
determination coefficient	0.1%	F value		2.687
D-W value	2.036	Significance (P-value)		0.000

Table 8: Results of fit of regression equation

TEAM= $\beta_0+\beta_1 IOBOD+\mathcal{E}_i$				
Variable	Coefficient	t value		Sig level
IOBOD	β_1	−0.490	0.623	It is not effective
determination coefficient	34.8%	F value		2.669
D-W value	2.386	Significance (P-value)		0.000

Table 9: Results of fit of regression equation

TEAM= $\beta_0+\beta_1 AC+\mathcal{E}_i$				
Variable	Coefficient	t value		Sig level
AC	β_1	0.053	0.957	It is not effective
determination coefficient	34.9%	F value		2.677
D-W value	2.388	Significance (P-value)		0.000

According to Table 9, significance level between two variables obtained to 0.957 that is above the considered significance level (5%) in this research; also, absolute value of t is equal to 0.53 is lower than 1.96 that is equal to normal standard distribution of 0.95; therefore, H_0 (there is not any relationship between audit committee and earning management of companies listed in Tehran Stock Exchange) is confirmed at confidence level of 95%. Accordingly, the main hypothesis of study is rejected.

5. DISCUSSION AND CONCLUSION

The objective of this study was to examine the relationship between roles of audit committee, specialty of board of directors, and earning management of companies listed in Tehran Stock Exchange, results obtained from hypothesis 1 indicated the significant relationship between firm size and earning management of companies listed in Tehran Stock Exchange. According to regression equation of this hypothesis, 2.5% of changes in earning management of studied companies are explained by independent variable. Results of this hypothesis are in line with results obtained from studies conducted by Pahlevan (2010), and Nooresh et al. (2005). Results of hypothesis 2 indicted no significant relationship between board size and earning management of companies; considering regression equation of this hypothesis, only 0.1% of changes in earning management of companies are explained by independent variables. Results of this hypothesis are matched with results of study conducted by Mashayekh and Ismaili (2006) and are not matched with results obtained from studies conducted by Khasronezhad (2009) and Swastika (2013). In case of hypothesis 3, about 34.8% of changes in earning management of studied companies are explained by independent variable, but the relationship between independent of board of directors and earning management of studied companies was not confirmed. Results of this hypothesis are in line with results of studies conducted by Sadigh-Gharaee (2011), Chalaki (2011), Ahmadpoor and Montazeri (2011), Khosronejad (2009), Kurtabar (2008), Mashayekh and Ismaili (2006), while this result was not matched with results obtained from study conducted by Mehrani et al. (2001). Hypothesis 4 indicated no significant relationship between audit committee and earning management in companies listed in Tehran Stock Exchange. The mentioned result is matched with results obtained by Sadigh-Gharaee (2011), Chalaki (2011), Ahmadpoor and Montazeri (2011), and Khosronejad (2009), while it is not in line with results obtained from studied conducted by Swastika (2013) and Alhadab et al. (2012).

Considering the research findings, following recommendations are proposed:

1. Investors should pay attention to earning management when using financial statements to make decisions on investment in firms' stocks or stock sale. Reliance of earning per share regardless of possible consequences of earning management may lead to undesired implications. Recognition of earning management by investors may contribute to better understanding of accounting profit identifying properties and constraints of such phenomenon. According to the obtained results, there is a direct and significant relationship between firm size and earning management; hence, it is recommended to investors using opinion of financial analysts and firm size when making financial decisions.

2. Since there was not any significant relationship between board size and earning management, it is recommended to investors not paying attention to board size when making financial decisions and they should consider other items.

3. In accordance with lack of relationship between independence of board of directors and earning management, it is recommended to investors not paying attention to number of dependent and independent members in board of directors.

4. There was not any significant relationship between audit committee and earning management; hence, it is recommended to investors not taking audit committee into account as a criterion for earning management.

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