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EVALUATING AVERAGE EARNINGS MANAGEMENT OF
CORPORATES BY THE MANAGERS BEFORE AND AFTER AUDIT
COMMITTEE FORMATION

Soheil Harivandi¹, Hossien Khanjani²

^{1,2} Master of Accounting, Islamic Azad University, Birjand Branch, Birjand, Iran,

Email: hossienkhanjani92@gmail.com

Corresponding Author: soeilharivandi8@gmail.com.

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ABSTRACT

The present research aims to evaluate the average earnings management of the corporates listed on the Tehran stock exchange. The statistic population included the corporates listed on the Tehran stock exchange from 2008 to 2013. Eighty-seven corporates were selected as the sample volume by screening method and after omitting the wild observations. In this study. The audit committee expertise was regarded as the independent variable to study its influence on the quality of earnings forecasts and corporates earnings management. The mixed models and the panel data with fixed effects were applied in this research. The results obtained from the corporates data analysis by applying multivariable regression at a %95 confidence level reveal that the average earnings management has been reduced after the audit committee formation.

INTRODUCTION

De George et al. (1999) defines earnings management as an artificial manipulation of earnings by the managers to obtain an expected level of earnings for specific decisions such as the analysts' forecasts or evaluation of former earnings procedures for future earnings forecasts. For them, the main goal of earnings management is to manage the investors' attitude toward the business entity since the investors evaluate the corporates in which they have invested. The earning as one of the most important items of financial statements provide the principal information of that for their evaluations. In

this way, they can compare the status of corporate with other ones and with their status in the previous years and predict the future earnings procedure. Therefore, regarding the significance of earnings information for all the investors, the directors act intelligently in case of information disclosure. They usually aim to obtain the analysts' forecasts in addition to the presentation of earnings growth and reduction of uncertainty about future earnings (Hodac, 2009).

Roychoudhary (2006) indicated that to prevent the earnings reduction, the corporates increase the production to reduce the product cost. Further, they increase the optional costs to improve the earnings margin.

If the managers unnaturally and expansively show their interest in the use of mentioned methods they reveal their tendency toward the real earnings management, and the presence of connoisseur investors restricts the manipulation of real activities. Therefore, although the managers can obtain their intended earnings during the short term, they would not increase the corporate's value in long term (Noravesh, 2005). On the other hand, the corporate governance structure is one of the effective factors in the quality of management earnings forecast.

The corporate governance mechanisms are classified into two inside system and outside system categories. The inside systems mechanisms include the internal audit, audit committee, board size, board composition, percentage of executive/ non-executive members, governance structure, and so on. The outside system mechanisms include all the rules and regulations the organization should apply in its structure and operation such as the rules related to the corporate financial structure and executive compensation (Bazargan, 2011).

Different studies have been accomplished about the corporate governance systems of different countries. The evidence indicates that there is a radical difference between the corporate governance systems of countries. What is noticeable is what kind of system is better. The studies done in the case of corporate governance systems of different countries such as Germany, Japan, and England indicate that there exists no best system and no system can resist for a long time (Charkman, 1994). On the other hand, every system has some weak and strong points (Kesler, 1992). The governance structure (Laporta et al., 1997), financial rules and regulations, and capital markets are considered as the main factors effective on the corporate governance structure. Further, other factors such as the business market and its rules, debt structure, bankruptcy rules (Shive, 2004), legal system, government system, culture, and others affect the corporate governance systems. Nowadays, the most popular and important classification of corporate governance systems in different countries are inside system and outside system categories.

The audit committees as one of the most important properties of corporate governance that evaluate the corporate economic performance based on its financial information. The audit committee properties such as independence,

committee members' competence, members' composition, efficiency, dominance, and other factors have been emphasized as the principles of corporate governance.

Independence is one of the most important features of audit committee members in the operation of optimal supervision. Most of the stock exchanges apply some rules and regulations related to the independence of audit committee members independence of the corporates listed on the stock exchange. Most of the rules of the New York Stock Exchange in case of audit committee composition were indeterminate until 1999. The corporates with independent audit committees were awarded but no definition was presented for the independence. In December 1999, the New York Stock Exchange and the National Association of Securities Dealers altered their rules about the audit committee of all the corporates listed on the stock exchange of America. Regarding the new standards, the audit committees of the corporates should have at least three independent members who have no relationship with the corporate and cannot destroy its independence. The new standards were enacted in response to the stock exchange commission's request for the efficiency of audit committees to supervise the financial reporting procedure. In new terms of Sarbanes–Oxley Act (2002) enacted to improve the audit committee; it has been assumed that the independence improves the efficiency of the audit committee. According to Blue Ribbon Committee's report, recent studies have revealed that there is a relationship between the audit committee's independence, effective active supervision, and the probability of fraud in financial statements. Moreover, according to the Fraudulent Financial Reporting Commission and Board of Control, the audit committee should comprise the non-executive members (Hilli, 1999).

Matsura (2013) studied the optional forecast of earnings by the managers in the corporates listed on the Japan stock exchange from 1997 to 2012. The results revealed that the first earnings forecast often exceeds the real earnings, but this forecast is moderated and reduced through the year. Further, these predictions have informational content, but the earnings forecast of corporates with weak performance and managers with weak and optimistic forecasts have few reliable informational contents.

The study of earnings forecast accuracy can help the users and investors to make optimal decisions and can be regarded as applied researches in the recognition of exact predictions of investors and capital market specialists. Therefore, concerning the significance of per-share earnings disclosed by the corporates in the capital market, the limited number of studies done in case of predicting the corporates' earnings in the country and concerning this matter that the relationship between the audit committee and earnings management has not been directly considered in these studies, the necessity of such study is revealed.

METHODOLOGY

The present study is applied to descriptive-inductive research. A correlational method with retrospective data was applied. Regarding the research purposes,

the applied statistic method is the mixed correlation (time and cross-sectional series). It means to study the relationship between the variables via regression. The statistic population of research includes all the corporates listed on the Tehran stock exchange from 2008 to 2013. The systematic removal sampling method was used, applying the following conditions:

- 1- The required information is accessible for them to calculate the operational variables of the research.
- 2- The studied corporates should be listed and active in the stock exchange from 2008 until the research termination.
- 3- Their financial year ends on March 20.
- 4- They should not include the financial, investing institutes, and banks.

The informational banks of Rahavard Novin and Tadbirpardaz were used for data collection to calculate the research variables. When the existing data were incomplete, the manual archives existing in the stock exchange library and the website of research management, development, and Islamic studies of the stock exchange (www.rdis.ir) were used. The library method was applied for data collection.

RESEARCH MODEL AND HYPOTHESES

The average earnings management of the corporates done by the managers before and after the audit committee formation are meaningfully different.

The comparative test of two populations' means was applied to test the first research hypothesis, i.e., the existence of a meaningful difference between the average earnings management before and after the audit committee formation. For the equality test of two population means, it is required to examine the quality of variance of two populations. In other words, the test for equality of variances has priority to the test for equality of means.

Research Procedure

The present research aims to examine the relationship between the audit committee expertise; earnings forecast quality, and earnings management in the corporates. With regard to the matter that the examined relationship in this study is a correlational one, the multiple regression analysis is used for determining the influence of independent variables on the dependent ones. The research includes the following stages:

- 1- The sample corporates are selected with regard to the mentioned criteria. Then, the required data for the accomplishment of intended models for testing the research hypotheses are collected using related informational sources.
- 2- The required criteria for testing the research hypotheses are calculated by using the collected data based on the methods and formula specified for them.
- 3- The model parameters are evaluated by using the multiple regression analysis.

- 4- After assessing the fitness of the tested regression model, the obtained results are compared with the expected ones and the research hypotheses are accepted or rejected based on these results.
- 5- Finally, the rejection or acceptance of hypotheses is discussed.

DATA ANALYSIS

Two methods were applied for data analysis as follow:

A. Descriptive Statistics

The tables and frequency diagrams were used for describing the findings. Further, the central and dispersion indexes were applied for a better description of the data.

B. Inferential Statistics

First, Kolmogorov–Smirnov test is used for testing the normalness of data. Then, Durbin- Watson test is applied for testing the randomness and independence of the number of samples (observations). If the value of Durbin-Watson statistics is obtained near to two (nearly 2 ± 0.5), it means that the intended sample is random and this is indicative of a lack of self-correlation. Pearson correlation coefficient among the variables is evaluated. The coefficients of regression model variables are tested by using the t-student test. In this research, Fisher statistics at a %95 confidence level are used for testing the overall meaningfulness of the processed regression model. Moreover, Durbin- Watson test is applied for testing the non-correlation between the model errors. Finally, the error components curve is drawn in the regression model to evaluate their normalness. The hypotheses are tested by the use of linear regression. In this research, the multivariable regression is used as the statistic method. The main goal of the regression method is to examine the relationship between the independent variables and the dependent ones. Further, the data analysis of the descriptive statistic section was begun by calculating the central indexes such as average, and mean, and the dispersion indexes such as standard deviation, skewness, and kurtosis. In this study, mixed data was used for testing the hypotheses. In this method, the F-Limer test is applied for the selection of panel data methods or the pooling ones. If the panel method is selected, the Hasman test would be used for selecting the fixed impacts methods or the random impacts ones. In addition, for testing the reliability of variables, Dicky- Fuller test was applied in case of using the pooling method, and the Hadri test was applied in case of selecting the panel method. The data collected by Excel software were reformed and classified based on the studied variables and then, they were applied in EVIEWS7, SPSS, and MINIAB software. The final analysis was done and the acceptance or rejection of hypotheses was discussed.

RESULTS

Data Descriptive Statistics

The descriptive statistics of research variables during the studied interval (2008- 2013) have been represented in table 1. They include the average, mean, standard deviation, maximum and minimum.

Table 1- Descriptive Statistics of Research Variables

Variables description		Average	Mean	Standard deviation	Minimum	Maximum
EM	Earnings management	0.07822	0.07897	0.02342	0.01510	0.17761
EFQ	Earnings Forecast Quality	0.01173	0.00101	0.17113	-0.26578	0.32328
AC_EXP	Audit committee's expertise	0.56447	0.33333	0.27668	0.33330	1.00000
MVE	Market value of shareholders' equity	2396970	531580	9045747	8602	14382000 0
MTB	Ratio of market value to book value of shareholders' equity	1.51019	1.74964	9.63860	-139.98721	17.29779
LEV	Financial leverage	0.65186	0.65812	0.19513	0.12583	1.48010
LOSS	loss	0.17816	0.00000	0.38302	0.00000	1.00000
DUAL	Duality of manager	0.13602	0.00000	0.34313	0.00000	1.00000
DECRO	Decrease of net profit before extraordinary items	0.15709	0.00000	0.36423	0.00000	1.00000
NOA	Net of operational assets	0.35268	0.35622	0.04460	0.26894	0.42609
SIZE	Corporate size	27.50502	27.3474 6	1.52589	24.32006	32.36518
EARNING	Earnings dispersion coefficient	4.32357	4.19729	1.76829	1.26967	7.41986

Inferential Statistics

Testing Variables' Reliability

In this section, the reliability of research variables was tested. To do so, Im, Pesaran, and Shin test were applied. The results have been presented in table 2.

Table 2- Im, Pesaran, and Shin test

Variables		w-stat	p-value
EM	Earnings management	112.567	0.000
EFQ	Earnings Forecast Quality	33.832	0.009
AC_EXP	Audit committee's expertise	59.543	0.0001
MVE	The market value of shareholders' equity	21.003	0.0015
MTB	The ratio of market value to book value of shareholders' equity	21.809	0.0014
LEV	Financial leverage	8.534	0.026
LOSS	loss	6.128	0.043
DUAL	Duality of manager	14.732	0.017
DECRO	Decrease of net profit before extraordinary items	78.121	0.0087
NOA	Net of operational assets	8.665	0.039
SIZE	Corporate size	10.503	0.017
EARNING	Earnings dispersion coefficient	27.656	0.0012

Concerning the results of the IPS test (table 2.4), since the p-value of all the variables is less than 0.05, the research variable was reliable during the research process. The results reveal that the average and variance of the variables during the time and their covariance during the studied years have been fixed. Therefore, using these variables in the model does not cause the regression fallacy.

Determining Appropriate Model for Regression Model Estimation

With regard to the research literature and hypotheses, mixed data have been used in this study. For determining the appropriate model (mixed, panel, fixed, or random impacts), Chav and Hasman tests were applied for testing the hypotheses.

Table 3- Chav Test

Regression model	Description
First model	$LEV_{jt} = 4\beta_1 MTB_{jt} + 3\beta_2 MVE_{jt} + 2\beta_3 AC_EXP_{jt} + \beta_4 + \beta_5 EM_{jt} = \beta_6 BIG_{jt} + \beta_7 NOA_{jt} + 8\beta_8 DECRO_{jt} + 7\beta_9 DUAL_{jt} + 6\beta_{10} LOSS_{jt} + 5\beta_{11} + \varepsilon_{jt}$ $EARNING_{jt} = 12\beta_{12} + \beta_{13} AGE_{jt} + 11\beta_{14} SIZE_{jt} + 10\beta_{15} + \varepsilon_{jt}$
Second model	$LEV_{jt} = 4\beta_1 MTB_{jt} + 3\beta_2 MVE_{jt} + 2\beta_3 AC_EXP_{jt} + \beta_4 + \beta_5 EFQ_{jt} = \beta_6 BIG_{jt} + \beta_7 NOA_{jt} + 8\beta_8 DECRO_{jt} + 7\beta_9 DUAL_{jt} + 6\beta_{10} LOSS_{jt} + 5\beta_{11} + \varepsilon_{jt}$ $EARNING_{jt} = 12\beta_{12} + \beta_{13} AGE_{jt} + 11\beta_{14} SIZE_{jt} + 10\beta_{15} + \varepsilon_{jt}$

A. Chav Test

The results of F- test obtained for the regression model of the present research have been represented in table 4.4. With regard to the significance level, the Chav test results reveal that the zero hypotheses (H₀) are rejected. In other words, there exist individual or group impacts and the panel data method should be used for evaluating the research regression model. To continue, the Hasman test is applied to determine the type of panel model (random impacts or fixed impacts).

Table 4- Chav test

Regression model	F statistics	Probability	Test results	
First	16.543	0.0167	Zero hypothesis rejection	Panel model
Second	2.121	0.561	Zero hypothesis acceptance	Mixed model

B. Hasman Test

After this matter was specified that the intercept elevation is similar in different years, the model used for the model (random or fixed impacts) evaluation should be determined. To do so, the Hasman test is applied. In this test, the zero hypotheses (H₀), i.e., consistency of random impacts estimation, is tested in contrary to the first hypothesis (H₁), i.e., inconsistency of random impacts estimation.

Table 5- Hasman Test

Regression model	statistics χ^2	Probability	Test results	
First	37.126	0.0009	Zero hypothesis rejection	Panel or fixed impacts methods

The results of the Hasman test related to the first regression model of the research have been shown in table 4.5. The results reveal that the statistics χ^2 of the Hasman test are meaningful at %95 confidence level for the mentioned regression model. This indicates that the zero hypotheses are confirmed. Therefore, regarding the Hasman test results, the fitness of research regression models by using the panel data model with the fixed impacts method would be appropriate.

Testing Regression Classic Hypotheses

The hypotheses of linear regression should be tested before the fitness of regression models.

Testing Normalness of Dependent Variable

Kolmogorov–Smirnov test has been applied for evaluating the normalness of dependent variable distribution. Table 6 represents the K-S test output in SPSS software in the case of dependent variable "restatement of financial statements. With regard to the aforesaid table and statistic Z of the K-S test, the zero hypotheses are confirmed since the significance level has been more than 0.05 in the case of the dependent variable. Therefore, it can be said that this variable has a normal distribution in the mentioned model.

Table 6- Kolmogorov–Smirnov Test

Variable		Kolmogorov–Smirnov test Z value	Significance level	Result
EM	Earnings management	1.567	0.118	Normal distribution
EFQ	Earnings forecast quality	1.209	0.193	Normal distribution

Errors' Independence Test

Durbin-Watson test is used for testing the serial correlation between the remaining regression errors based on the following statistic zero hypotheses:

- H₀: There is no self-correlation among the errors.
- H₁: There is self-correlation among the errors.

Table 7 indicates the Durbin-Watson statistic with the critical values at the %1 error level. Concerning this matter the Durbin-Watson statistic value calculated for the research regression model is higher than the critical value at 0.01 error level, the consecutive or serial non-correlation of the remaining in the regression model is confirmed at a 0.01 significance level.

Table 7- Testing Errors' Independence

Research regression models	Critical values (%1 error level)		Durbin-Watson statistic
	DU	DI	
First	1.654	1.428	1.686
Second	1.812	1.463	1.870

Heteroscedasticity Of Variances

The heteroscedasticity of variances is one of the most important subjects in economics. It means that the disturbance term values have unequal variances in the regression model estimation white test has been used in this research to evaluate the heteroscedasticity of variances. The results of this test have been shown in table 4.8.

Table 8- Results Of Variance Heteroscedasticity

Research regression model	White statistic	p-value	Test result
First	2.433	0.422	Lack of heteroscedasticity
Second	1.839	0.276	Lack of heteroscedasticity

The results obtained from the White test (statistic F) have been shown in table 8. The results reveal that the statistic F of research regression models is not meaningful at 0.05 error level. Therefore, the zero hypotheses, i.e., lack of variance heteroscedasticity among model data at 0.05 error level, is confirmed. Therefore, the OLS model is applied.

After testing the classic hypotheses, the results of regression model fitness and consequently the research hypotheses are tested.

There is a meaningful difference between the average earnings management before and after the audit committee formation.

For testing the equality of two populations' means (average earnings management before and after audit committee formation), it is required to evaluate the variances of two populations. In other words, the variances equality test has priority to the averages' equality test.

$$H_0: \sigma_1^2 = \sigma_2^2$$

$$H_1: \sigma_1^2 \neq \sigma_2^2$$

In this test, if the significance level of Levene's test (statistic F) were more than 0.05, the first-row results would be used that accept the hypothesis of equality of variances in two groups. But if this significance level is less than 0.05, the second-row results would be applied that accepts the hypothesis of inequality of variances in two groups.

Table 9- Testing the Average of Two Populations

T-test (averages' equality)							Levene's test (variances equality)			
%95 confidence distance		Standard error difference	Difference of average	Significance level	Degree of freedom	Statistic t	Significance level	Statistic F		
High level	Low level								Variances' equality	Average earnings management
-0.0483	-0.1335	0.1042	-0.0909	0.0127	34.1789	-3.0478	0.0400	7.5233	Variances' equality	Average earnings management
-0.0570	-0.1248	0.1107	-0.0909	0.0205	28.1908	-2.8408			Variances' inequality	

Source: EVIEWS software

As the results are shown in Table 9 reveal, since the statistic F of Levene's test at 0.05 error level is less than %5 (sig= 0.0400), the second-row t-test is applied. The test results show that since the statistic t (t= -2/8408) is higher than -2 and its significance level (sig=0.0205) is less than %5, the zero hypotheses, i.e., there is no meaningful difference between the average earnings management before and after the audit committee formation, is rejected and H₁ is accepted.

CONCLUSION:

The average earnings management before and after the audit committee formation are meaningfully different''. According to the obtained results, since the statistic F of Levene's test at 0.05 error level is less than %5 (sig= 0.0400), the second-row t-test is applied. The test results show that since the statistic t (t= -2/8408) is higher than -2 and its significance level (sig=0.0205) is less than %5, the zero hypotheses, i.e., there is no meaningful difference between the average earnings management before and after the audit committee formation, is rejected and H₁ is accepted. On the other hand, due to being negative of high and low levels, it can be concluded that the average earnings management has been decreased after the audit formation. These results correspond to the results of studies done by Frost (2012), Hutton and Stacken (2012), and Rib and Zhao (2013). Considering the obtained results that the earnings management is reduced after the audit committee, the investors, analysts, legislative entities (such as Tehran

stock exchange, audit organization, Iranian Association of Certified Public Accountants, and so forth) are suggested to consider the obtained results in their decision makings to evaluate the effective factors in the earnings management.

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