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DECISIONS OF MANAGERS ON CHANGE OF AUDITORS FROM THE PERSPECTIVE OF MANIPULATING THE REAL ITEMS BY THEM

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ABSTRACT

Earnings management is considered as one of the important dimensions of financial reporting quality and main issue among all shareholders of the company. The level of earnings is considered as one of the important criteria in evaluating the performance. One of the indicators limiting the earnings management is extending the audit tenure by the audit firm. There are two important theories on audit firm tenure. First, audit tenure of audit firm reduces the independence of the auditor over time. However, opponents of reduced audit independence as a result of increased audit tenure argue that auditors are capable to obtain better knowledge and experience on their customers, which this experience might enhance the quality of audit. The present study examines the relationship between manipulation of real items and the clients' decisions with regard to changing of auditors in the listed companies in the Tehran Stock Exchange during 2010-2015. Information of 78 companies was used to test the research hypotheses. Given the double value of the dependent variable, logistic regression was used to test the hypotheses of study. Findings of testing the hypotheses revealed a positive and significant relationship between all three types of real earnings management, including abnormal operational cash flow, abnormal production costs, and abnormal discretionary expenditures and change of auditors. In other words, all three types of earnings management are increased through real items in the companies where an independent auditor is replaced.

Keywords: *Real Earnings Management, Auditor Change.*

INTRODUCTION

Studies conducted on earnings management area are divided into two types of earnings management using accounting accruals and real earnings management. The management of accounting earnings using opportunistic accruals refers to using the flexibility in accounting-accepted standards to change the reported earnings, without any change in cash flows of the company (Chen, 2009), such as selecting the balanced mean method against first-in-first-out (FIFO) method to evaluate inventory and selecting among different methods to calculate the depreciation cost. Real earnings management includes real decisions of production and investment, such as reducing the costs of research and development, and recognizing the sales costs and non-real execution costs (Matsuura, 2008). Nowadays, earnings management is being considered more from accounting earnings management's perspective. For this reason, to better understanding of real earnings management concept, it is necessary here to provide some examples of manipulation in real activities:

In this research, manipulation of real activities is a deviation from the normal operating methods, performed to mislead some beneficiaries through methods such as giving price discounts and

reducing the discretionary expenditures, such as research and development expenditures (Matsuura, 2008). Di Aangelo (1981) argues that increasing the audit quality is an approach used for the aim of reducing information asymmetries between managers and foreign investors. In this regard, Vanstralen (2000) revealed that long-term cooperation between the auditor and client increases the likelihood of issuing an acceptable report by auditors, which is might be due to the conflict of interests between managers and auditors. On the other hand, Antoine and Ramesh (1981) believe that the level of information asymmetry and representative conflicts increases, when companies move from growth stage to maturity stage. Thus, the long-term relationships between the auditor and the client affect more companies, which are in their maturity and decline stage, rather than companies, which are at their growth stage. Additionally, as risk level of business units in the decline stage is more than other stages, it is likely that the high distribution of tenure in the decline stage to be more considerable. The regulations specified on obligation of companies to disclose the reasons to change the auditor and the regulations for the periodic change of auditors in the listed companies in the stock exchange suggest the importance of this issue for those using accounting information. Opportunities to manipulate the earnings may indicate potential controversy with the auditors and, as a result, the provision of conditions to think about changing the auditor. Findings of studies conducted by Haley (1985), Dufand (1992) and Woo and Chico (2001) are in line with this claim. They proved the positive relationship between opportunities to manipulate the earnings and changing the auditors by companies. Dye (1991) also revealed that the difference between client and auditor can result in changing the auditor to an auditor with similar quality or with lower quality. One of the factors, which might result in fluctuations in earnings of companies, is the effects of opportunistic behaviors of managers. Managers' opportunistic behaviors refer to investment decisions made by managers in uncertain and high-risk situations and it usually involves different returns from normal flow of company operations. The effects of such decisions cause fluctuation in earnings of the business unit. While Mutez and Sharaf did not recommend the periodic change of audit in their audit philosophy dissertation, they acknowledged that a long-term relationship would cause doubts on independence of the auditor. Haley and Kim argue that mandatory change of auditors will result in increased independence of auditors, and thus, investors' confidence will be enhanced. Moor et al and Bazzerman claim that periodic change of auditors is an instrument for maintaining independence and eliminating the conflict of interests between ownership and management. Another issue that should be considered is that limiting the auditor tenure can be investigated from two dimensions. The first dimension is related to change in audit firms, and the next dimension includes periodic change of the audit staff, especially at the level of managers and supervisors responsible for auditing and the relevant partner. Many studies conducted in this regard show superiority of changing the audit staff and relevant partner over changing the audit firms. In addition, professional associations such as the International Federation of Accountants. stressed on change in partners and audit team members. Costs of the first year of client audit, such as lost costs should not be considered in the audit decision-making process of the next years based on the concepts of decision-making knowledge, according to the concepts of decision making knowledge, while research conducted by Stave (1976), and Clineman and Palman (2000) indicate that auditors usually consider these costs in the decision making. Therefore, they tend to maintain their clients at least as much as possible to depreciate the costs of the first year. It is possible that the revenue of auditors in the



first year of cooperation with new client to be less than the costs of that year, and this has been done with the hope of compensating of losses in next years.

REVIEW OF LITERATURE

Foreign studies

In his research entitled “audit quality and abnormal accruals”, Payne (2011) concluded that there was a negative and significant relationship between the operating returns related to abnormal accruals and audit quality. In another study, he concluded that increasing the quality of audit resulted in increased capability of accruals in financial statements. Chan and Zarvin (2012) provided two alternative results for earnings management through accruals and real items. Accordingly, non-business decisions rely on their relative costs and the level of accounting earnings management, moderated based on earnings management level through real items. Kim and Shan (2013) found that the cost of capital after the control of accounting earnings management is positively correlated with earnings management through real items. As selection of accounting earnings management and earnings management through real items depend on strategic decisions of the company, Cohen and Zarvin (2015) examined two types of earnings management and realized that managers are usually involved in real earnings management in seasonal supply of stocks, and reduced performance in seasonal supply of stocks is more due to the earnings management through real activities rather than earnings management through accruals, since manipulation of real activities results in real economic results. Ghani (2016) realized that companies are often involved in earnings management through manipulating the real activities. Findings of investigation revealed that reduction in research and development costs and excessive production are positively correlated with earnings obtained as a result of manipulating the real activities. In addition, earnings obtained through management of real earnings have a reverse correlation with future performance of company. Jee and Kim (2016) examined the relationship between costs of issuing bonds and real earnings management. Findings of the investigation revealed that the borrowing cost is reversely correlated with the real earnings management criteria such as excessive production and the reduction of discretionary expenditures.

Domestic studies

Hassas Yeganeh and Jafari (2010) examined the impact of changing the audit firms on the quality of audit reports of listed companies in Tehran Stock Exchange. Findings revealed that changing the audit firms does not lead to increased quality of the audit report. Arab Salehi et al (2011) indicated that professional behaviors reducing the audit quality are not affected by auditor's perception of implementation or violation of a psychological contract or organizational emotional commitments. Namazi et al (2011) revealed a positive and significant correlation between earnings management and auditor's tenure. Aghaei and Ardakani (2012) examined the audit quality impact on earnings management. They used industry expertise index for audit quality. Findings of their study revealed that companies having industry expertise auditor have lower level of discretionary accruals. Kashani Pour et al. (2012) concluded that there is a positive and significant relationship between the discretionary accruals and the audit tenure. Bani Mahd et al (2013) conducted a study entitled earnings management and auditors' comments: Evidence from private sector of audit. Their study findings revealed that earnings management, company



size, profitability, liability level, audit fees, and public ownership have significant correlation with number of audit articles before commenting article. Results of this study also suggest that complexity of company, change of auditor, and change of management have no significant correlation with the number of audit articles before commenting article. Research evidence emphasizes on the point that direct relationship between earnings management and the number of audit articles can be due to increased quality of audit in the private sector. Ghasemi Nejad and Garkes (2014) conducted a study entitled examining change in management and auditor comment: testing the hypothesis of management alignment and the auditor. Findings of this study revealed that management change and the number of audit articles before comment articles in the audit report have a negative and significant relationship. In other words, as change in management increases, the number of articles before comment will decrease. Izadi Nia et al (2015) examined the earnings management based on accruals and real earnings management in the periods before and after passing the Iranian Securities Market Law. Results indicated that when economic conditions, when special differences of companies, and some other factors affecting the earnings management are controlled through multiple regression analysis, in the period after passing Securities Market Law, accrual-based earnings management followed decreasing trend, but real earnings management followed increasing trend. In fact, managers have real earnings management methods with manipulating the accruals.

METHODOLOGY

Research hypotheses

Main hypothesis: There is a significant relationship between earnings management using real items and change of auditor.

First sub-hypothesis: There is a significant relationship between real earnings management using abnormal operating cash flow and change of auditors.

Second sub-hypothesis: There is a significant relationship between real earnings management using abnormal production costs and change of auditors.

Third sub-hypothesis: There is a significant relationship between real earnings management using abnormal discretionary expenditures and change of auditors.

Research population

The research population included all listed companies in Tehran Stock Exchange in 6-year period (2010-2015). The sample selected for should be desired representative of whole population and consistent with main variables of the research. Accordingly, sample is selected among the listed companies in Tehran Stock Exchange by considering the following criteria:

- 1) Financial year of company should be ending month of each year.
- 2) Financial year should not be changed during the research period.
- 3) The selected company should be active in the Stock Exchange during the research period, and their symbol should not have trading interruption for more than six months.
- 4) Information required to extract the information should be available.
- 5) They should be among the financial intermediate or investing companies

Finally, given the limitations of the study, 78 companies were investigated in period of 2010-2015 (number of observations 468 companies).



Research methodology

First, the collected information was entered to work pages created in the Excel software environment. Then, calculations needed achieve the variables of this research were carried out. After calculating all variables required to be used in models of this research, these variables were combined in work pages to be electronically transferred to the software, used in the final analysis. Eviews7 software was used in this research for final analyses.

Research variables and model

Independent variable

The components of manipulating of real activities, including abnormal operating cash flows, abnormal production costs, abnormal discretionary expenditures, and a combination of three of them are considered as independent variables.

The components of manipulating real include as follows:

1. Abnormal operating cash:

The following model was used to calculate abnormal operating cash flow (Kim and Park 2014):

$$CFO_{it}/A_{it-1} = \alpha_0 + \alpha_1(1/A_{it-1}) + \beta_1(S_{it}/A_{it-1}) + \beta_2(\Delta S_{it}/A_{it-1}) + \varepsilon_{it}$$

Cfo

CFO is operating cash flow of end of year

A is total assets of the first year

S is the sales of company at the end of year

After estimation of the mentioned model, the regression residue is recognized as an abnormal cash flow.

2. Abnormal production costs

The following model was used to calculate the abnormal production costs:

$$COGS_{it}/A_{it-1} = \alpha_0 + \alpha_1(1/A_{it-1}) + \beta_1(S_{it}/A_{it-1}) + \varepsilon_{it}$$

Cogs is cost of goods sold

A is total assets of the first year

S is the sales of company at the end of year

$$\Delta INV_{it}/A_{it-1} = \alpha_0 + \alpha_1(1/A_{it-1}) + \beta_1(\Delta S_{it}/A_{it-1}) + \beta_2(\Delta S_{it-1}/A_{it-1}) + \varepsilon_{it}$$

Inv is the inventory of company at the end of year

A is total assets of the first year

S is the sales of company at the end of year

$$PROD_{it}/A_{it-1} = \alpha_0 + \alpha_1(1/A_{it-1}) + \beta_1(S_{it}/A_{it-1}) + \beta_2(\Delta S_{it}/A_{it-1}) + \beta_3(\Delta S_{it-1}/A_{it-1}) + \varepsilon_{it}$$

After estimation of the mentioned model, the regression residue is recognized as an abnormal cash flow.

1- Abnormal discretionary expenditures

The following model was used to calculate the abnormal discretionary spending:

$$DISEXP_{it}/A_{it-1} = \alpha_0 + \alpha_1(1/A_{it-1}) + \beta_1(S_{it-1}/A_{it-1}) + \varepsilon_{it}$$



Disexp is discretionary expenditures which equals to costs of research and development and cost of advertising

A is total assets of the first year

S is the sales of company at the end of year

Three criteria were used in this study to measure real earnings management (abnormal operating cash flow, abnormal production costs, and abnormal discretionary expenditures). After estimating the above-mentioned models, the regression residue is recognized as a criterion of real earnings management.

Dependent variables

In this study, auditor change is a qualitative variable, in which if the independent auditor of company is switched, it takes number 1; otherwise, it takes the number zero.

Control variables

Ab-acc is abnormal accruals

LONG-TENURE is the tenure in which an auditor has been the independent auditor of company

NON-AUDFEE is the non-auditor fee

BIG4 is type of audit firm, in which if the auditor is organization, it takes the number 1. Otherwise, it takes the number zero.

LOSS is the qualitative variable, in which if the company report loss at the end of year, it takes the number 1; otherwise it takes the number zero.

ΔSALES is the changes in sales in the current year compared to previous year

LEVERAGE is the leverage obtained by dividing total liabilities to total assets.

SIZE is the company size which equals to natural logarithm of assets of end of year

Roa is the return on assets, obtained by dividing the net profit on total assets.

AUDFEE is the audit fee

Data analysis method

After collecting the data, the researcher should classify and analyze them. Then, he should test the hypotheses help him find answer for research questions. Data analysis is a multi-stage process in which the collected data are summarized, classified, and finally processed in different methods in order to analyze them and find the relationship among the data to test the hypotheses. In this process, data are refined both conceptually and experimentally. Different statistical methods play role in their inference. Generally, two main groups of processing are performed on the data in various studies, which descriptive statistics and inferential statistics are used for this purpose. In "descriptive statistics", describing the data, central tendency indices and distribution indices are used to express collected data. To represent the results of studies, frequency distribution tables (based on the number of absolute relative cases, percentages) and various diagrams, including histogram, bar, or circular diagrams are used. In addition, distribution indices such as variance and standard deviation are also used in this regard.

In the "inferential statistics", the hypotheses of study are tested. Various tests such as chi-square, regression, analysis of variance, and so on are used in this regard.

Models used to test the hypotheses

In the current research, these models are estimated using linear regression and combined data model.

$Pr(RESIGN = 1)$



$$= F \left(\alpha_0 + \alpha_1 RAM_PROXY + \sum_{j=2}^9 \alpha_j OTHER\ AUDIT\ RISK\ CONTROL\ VARIABLES + \sum_{k=10}^{14} \alpha_k FINANCIAL\ PERFORMANCE\ CONTROL\ VARIABLES + \sum_{l=15}^{19} \alpha_l OTHER\ CONTROL\ VARIABLES + INDUSTRY\ INDICATORS \right).$$

After defining the statistical assumptions, the next step is to determine the level for significance of differences. The procedure is as follows: the hypothesis H_0 is rejected in favor of the hypothesis H_1 , provided that we obtain a value that probability of that value with regard to H_0 is equal to or less than very small probability, shown by β . This small probability of occurrence is called significant level. The common values for β are between 0.01 and 0.05. The significant level, which researcher chooses to determine β in the research depends on his estimation of the importance or degree of its applicability. In financial and accounting studies, this value is often considered to be 0.05. Additionally, t and p -value statistics are used to determine the significance of β coefficients.

RESULTS

Descriptive statistics

Table (1) illustrates the descriptive statistics related to variables of research models. It indicates that descriptive parameters are separate for each variable. These parameters mainly include information on central indicators, such as maximum, minimum, mean, and median, and information on distribution indicators such as variance, Skewness, and Kurtosis. The number of observations for each variable is 468 observations in this table.

Table 1: descriptive statistics related to variables of secondary models of research

Variable/statistic	Mean	Median	Max	Min	SD	Skewness	Kurtosis
$CFO_{i,t}/A_{i,t-1}$	0.248	0.131	3.594	-1.629	0.455	2.516	16.33
$DISEXP_{i,t}/A_{i,t-1}$	0.099	0.056	4.705	0.0001	0.278	11.874	174.257
$PROD_{i,t}/A_{i,t-1}$	0.876	0.653	5.689	0.0011	0.792	3.136	15.954
$S_{i,t}/A_{i,t-1}$	1.081	0.965	3.920	0.0022	0.654	1.578	6.704
$\Delta S_{i,t}/A_{i,t-1}$	0.157	0.131	3.072	2.066-	0.34	1.758	24.323
Number of sample	78	78	78	78	78	78	78
Number of observations	468	468	468	468	468	468	468

Table 2: Descriptive statistics of variables in the main model of research

Variable/statistic	Mean	Median	Max	Min	SD	Skewness	Kurtosis
SIZE (company size)	11.63	11.69	13.65	9.80	0.640	0.18	0.313
LEV(financial leverage)	0.243	0.130	1.65	0.0001	0.273	2.149	70.880
ROA (return on assets)	0.214	0.142	3.564	0.017	0.287	5.589	53.131
$\Delta SALE$ (sales changes)	0.37	0.125	3.072	-2.066	0.342	1.758	24.323



LOSS	0.016	0	1	0	0.128	7.532	57.731
BIG(type of audit firm)	0.248	0	1	0	0.432	1.162	0.350
Ab-ACC (Discretionary accruals)	0.0001	0.050-	9.530	-2.98	0.598	101.126	164.866
LONGTENURE (audit tenure)	2.294	2	6	0	1.92	0.36	1.914
NONADU (non-auditor fee)	1020.514	276	18326	0	3143.723	5.882	40.954
ADU (auditor fee)	1266.87	409	16353	7	3336.081	5.584	36.133
Number of sample	78	78	78	78	78	78	78
Number of observations	468	468	468	468	468	468	468

Testing the normality of dependent variables of secondary models

Before estimating the model, the normality of the dependent variable should be tested. Non-normal distribution of this variable violates the hypotheses of this method to estimate the parameters. Thus, the normal distribution of the dependent variable should be tested. The dependent variables of this study in secondary models are CFO, DISX, and PROD. It is examined through Jarque and Bera statistic in this research. The null hypothesis and the opposite hypothesis in this test are as follows:

$$\begin{cases} H_0: \text{data distribution is normal} \\ H_1: \text{data distribution is not normal} \end{cases}$$



As probability of Jarque and Bera statistics in Table (3) is less than 5% for dependent variables of secondary models, the null hypothesis stating that distribution of the variables is normal is rejected. Johnson transformation was used to normalize the mentioned variables. It is also found that the probability of the primary data statistic for the dependent variable is less than 0.05, suggesting that it is not normal, which increased normalization through software. Therefore, the H_0 hypothesis, normality of variable, is accepted. Table (3) illustrates the results obtained from normality of dependent variable before and after normalization.

Table 3: results obtained from normalization of dependent variable

Variable		$CFO_{i,t}/A_{i,t-1}$	$DISEXP_{i,t}/A_{i,t-1}$	$PROD_{i,t}/A_{i,t-1}$
before normalization	Jarque-Bera	316.70	466.33	323.18
	Probability	0.000	0.000	0.000
after normalization	Jarque-Bera	3.044	5.461	4.052
	Probability	0.075	0.126	0.691

Testing the stationarity of variables

As stated in the third chapter, we performed the stationary test and calculated the unit root of research variables in models before estimating the model in order to ensure the findings of the study and significance of the variables. This test was performed using Eviews7 software and Levin, Lin and Chu (2002) tests. In the unit root test, null hypothesis indicated unit root, and if the probability of table is less than 0.05, then the null hypothesis will be rejected with probability of 95%. Findings of t unit root test for the variables of the model are described in Table (4-5):

Based on the findings of Table 4, it was revealed that all variables were at the stationary level. The full findings of this test have been shown in the appendix at the end of dissertation.

Table 4: root test findings of LLC unit (Levin, Lin & Chu) with intercept and process

Variable	Levin, lin & chu	
	Statistic	Probability

SIZE (company size)	-8.56	0.000
LEV(financial leverage)	-22.22	0.000
ROA (return on assets)	-17.35	0.000
ΔSALE (sales changes)	-10.59	0.000
LOSS	-13.46	0.000
BIG(type of audit firm)	-۷,۵۳	0.000
Ab-ACC (Discretionary accruals)	-12.21	0.000
LONGTENURE (audit tenure)	-10.13	0.000
NONADU (non-auditor fee)	-9.34	0.000
ADU (auditor fee)	-11.59	0.000

Multicollinearity test

Before estimating the model, it is required to test the absence of multicollinearity among independent variables. To examine the presence or absence of multicollinearity among independent variables, correlation analysis was used, which it was performed by calculating Pearson correlation coefficient. Table 5 illustrates the Pearson correlation coefficients among the independent variables of study:

Based on findings of Table 5, it was seen that the correlation coefficient is neither very high nor very low (nearly 1+ or 1) to affect the findings of the regression analysis. Hence, there is no multicollinearity among independent variables. The full findings of this test are shown in the appendix at the end of dissertation.

Table 5: Matrix of Pearson correlation coefficients for independent variables of the main model of study

Variable	REM1	Ab-AC	LONG	NONADU	BIG	LOSS	ΔSAL	LEV	SIZE	ROA	ADU
REM1 (abnormal operational cash flow)	1										
Ab-ACC (Discretionary accruals)	-0.053	1									
LONGTENURE (audit tenure)	-0.037	0.037	1								
NONADU (non-auditor fee)	0.003	0.27	0.105	1							
BIG (type of audit firm)	-0.001	0.056	0.085	0.13	1						
LOSS	-0.028	0.029	0.034	0.126	0.054	1					
ΔSALE (sales changes)	0.040	0.002	0.122	-0.017	0.058	-0.009	1				
LEV (financial leverage)	-0.006	-0.050	0.008	-0.096	0.029	0.094	-0.016	1			
SIZE (company size)	0.042	0.083	0.34	0.25	0.044	0.029	0.178	-0.17	1		
ROA (return on assets)	0.300	-0.042	0.085	0.015	-0.014	-0.096	0.215	-0.13	0.37	1	
ADU (auditor fee)	-0.005	0.25	0.052	0.83	0.189	0.087	-0.20	-0.086	0.13	-0.027	1

Estimating and analyzing the secondary models of study



In the current research, three secondary models were analyzed in order to measure the three variables, representing real earnings management (REM) as the independent variable of the research (abnormal operating cash, abnormal discretionary expenditure, and abnormal production costs).

Roy Chowdhury regression model (2006) to collect information for real earnings management, The first secondary model

$$CFO_{i,t}/A_{i,t-1} = \beta_0 + \beta_1(1/A_{i,t-1}) + \beta_2(S_{i,t}/A_{i,t-1}) + \beta_3(\Delta S_{i,t}/A_{i,t-1}) + \varepsilon_{i,t}$$

The residual of this model indicates abnormal operational cash flow.

The second secondary model

$$DISX_{i,t}/A_{i,t-1} = \beta_0 + \beta_1(1/A_{i,t-1}) + \beta_2(\Delta S_{i,t-1}/A_{i,t-1}) + \varepsilon_{i,t}$$

The residual of this model indicates abnormal discretionary expenditures

The third secondary model

$$PROD_{i,t}/A_{i,t-1} = \beta_0 + \beta_1(1/A_{i,t-1}) + \beta_2(S_{i,t}/A_{i,t-1}) + \beta_3(\Delta S_{i,t}/A_{i,t-1}) \\ + \beta_4(\Delta S_{i,t-1}/A_{i,t-1}) + \varepsilon_{i,t}$$

The residual of this model indicates abnormal production costs.

After measuring the above-mentioned variables as an independent variable, they are entered to main model of study to test the hypotheses. Additionally, in order to calculate the abnormal accruals variable (Ab-ACC), which is one of the control variables, the residual of the Jones model (2005) is used as follows:

$$ACC_{i,t}/A_{i,t-1} = \beta_0 + \beta_1(1/A_{i,t-1}) + \beta_2(\Delta S_{i,t}/A_{i,t-1}) + \beta_3(PPE_{i,t}/A_{i,t-1}) + \varepsilon_{i,t}$$

These models are estimated using the combined data model. Accordingly, several companies are analyzed over time. In the analysis of combined data, an information-rich environment is provided for the development of estimation techniques and analyzable results. Researchers can use combined data for cases, which cannot be investigated using only time series or cross-sectional methods. As stated in the third chapter, F Limer test is used first to choose one of the panel data and the pooled data methods in the combined data. If the calculated p-value is higher than the 5% error level, pooled data will be used, otherwise, the panel data will be used. If the data is panel, the Hausman test is used to investigate if intercept is a fixed effect or operates randomly in the structure of the cross sectional units. If the Hausman test probability is less than 5%, null hypothesis (random effects) is rejected and the fixed effects are selected. If the Hausman test probability is higher than 5%, null hypothesis is not rejected and random effects are selected. The following regression is the model of testing the research hypothesis:

$$RESIGN_{i,t} = \alpha_0 + \beta_1 REM_{i,t} + \beta_2 Ab - ACC_{i,t} + \beta_3 LONGTENURE_{i,t} + \beta_4 NONAUD_{i,t} + \beta_5 BIG_{i,t} \\ + \beta_6 LOSS_{i,t} + \beta_7 \Delta SALE_{i,t} + \beta_8 LEV_{i,t} + \beta_9 SIZE_{i,t} + \beta_{10} ROA_{i,t} + \beta_{11} AUD_{i,t} + \varepsilon_{i,t}$$

To test the research hypothesis, the main model is estimated three times, given the three indices representing the real earnings management as independent variable of study (A_CFO, A_DISX, A_PROD).

F Limer test for secondary models

Table 6 illustrates the findings of F Limer test for research hypotheses. As P-value obtained from F Limer test in all research models is lower than 5%, in panel data model will be used order to estimate these models, the. The full findings of this test are shown in the appendix at the end of dissertation.

Table 6: F Limer test of secondary models of study

Model	Statistic	Value	P-Value	Test result
Secondary model 1	F Limer	2.6263	0.000	Panel
	Chi-square(χ^2)	211.497	0.000	
Secondary model 2	F Limer	1.629	0.000	Panel
	Chi-square(χ^2)	143.153	0.000	
Secondary model 2	F Limer	2.595	0.000	Panel
	Chi-square(χ^2)	209.564	0.000	

Hausman test

In the next stage, we examine if intercept acts in the form of fixed effects or randomly in the structure of the cross-sectional units. As stated third chapter, the statistic of this test has a chi-square distribution with a degree of freedom equal to the number of independent variables. Table 7 illustrates the findings of the Hausman test in secondary models of study. As P-value obtained from the Hausman test is less than 5% in the first, second, third, and fourth models, in order to estimate these models, it is justified that fixed effect model is an appropriate model. If the P-value is larger than 5% for the estimates, the random effects method was used. The full findings of this test are shown in the appendix at the end of dissertation.



Table 7: results of Hausman test in secondary models

Model	Statistic	Value	P-Value	Test result
Secondary model 1	Cross-section Random	3.88	0.004	Fixed effects (FE)
Secondary model 2	Cross-section Random	65.6	0.000	Fixed effects (FE)
Secondary model 3	Cross-section Random	5.31	0.005	Fixed effects (FE)

Results of estimating the secondary models of research

Tables 8, 9 and 10 illustrate the results of estimating the secondary models to measure independent variables of research (real earnings management) using Eviews7 software:

Table 8: results of estimating the first secondary model

(dependent variable: $CFO_{i,t}/A_{i,t-1}$)				
Variable	Estimated coefficient	Standard error	T statistic	P-value
intercept C	0.064	0.004	13.322	0.000
$1/A_{i,t-1}$	2.59	8.38	30.9	0.000
$S_{i,t}/A_{i,t-1}$	0.117	0.003	30.84	0.010
$\Delta S_{i,t}/A_{i,t-1}$	-0.005	0.007	-0.73	0.004
Coefficient of determination=0.52			adjusted coefficient of determination=0.51	

Durbin-Watson statistic= 2.05	F statistic= 673.40	F statistic probability= 0.000
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As the results of Table (8) illustrate, the p-value of the F test is less than 5%, and as F statistic represents the general validity of the model, it can be stated that the model is significant at the probability level of 95% and it has high validity. The full results of this test are shown in the appendix at the end of dissertation.

Table 9: Estimating the second secondary model

(dependent variable: $PRODi,t/Ai,t-1$)				
Variable	Estimated coefficient	Standard error	T statistic	P-value
Intercept	0.106	0.006	15.30	0.000
$1/Ai,t-1$	-17.47	11.76	-14.85	0.000
$S_{i,t}/Ai,t-1$	0.47	0.014	33.83	0.000
$\Delta S_{i,t}/Ai,t-1$	0.35	0.014	24.08	0.000
$\Delta S_{i,t-1}/Ai,t-1$	0.25	0.015	16.66	0.000
Coefficient of determination=0.52			adjusted coefficient of determination=0.51	
Durbin-Watson statistic =1.88	F statistic= 5799.76		F statistic probability= 0.000	

Table 10: estimating the third secondary model

(dependent variable: $DISXi,t/Ai,t-1$)				
Variable	Estimated coefficient	Standard error	T statistic	P-value
Intercept	0.035	0.002	11.90	0.000
$1/Ai,t-1$	-53.96	516.04	-10.45	0.000
$S_{i,t}/Ai,t-1$	0.070	0.002	32.55	0.000
Coefficient of determination=0.38			adjusted coefficient of determination=0.37	
Durbin-Watson statistic =0.2	F statistic= 593.109		F statistic probability= 0.000	

As findings if above tables illustrate, the coefficient of determination number show which percentage of the dependent variable variations can be explained by the independent variables, and since the Durbin-Watson statistic of these models are close to 2, it can be stated that there is no first-order correlation in this model (one of the regression assumptions is confirmed). Findings of the tables also illustrate that the p-value (F statistic probability) of F test is lower than 5%, and as F represents the general validity of the model, it can be stated that these models are significant with probability of 95%, and it has high validity. The full findings of this test are shown in the appendix at the end of dissertation.

Analyzing the main model to test the research hypotheses

The main hypothesis of the research states that there is a relationship between real manipulation of the activities and the decisions of the clients with regard to change of auditors in the companies. To test the mentioned hypothesis, three sub-hypotheses were developed. In order to test the sub-hypotheses of the study, the main model of research is estimated using independent variables, representing the real earnings management. It should be noted that as dependent variable of the experimental model of this research (change of auditors) is a virtual variable

(zero and one), this model is estimated using the Binary logit regression in Eviews7 software, which results as follows:

Table 11: Results of investigating the relationship between abnormal operational cash flows and change of auditors

(dependent variable: RESIGN)				
Variable	Estimated coefficient	Standard error	T statistic	P-value
intercept C	0.56	0.047	11.73	0.000
REM1 (abnormal operational cash flow)	0.037	0.005	6.97	0.000
(Discretionary Ab-ACC accruals)	0.057	0.003	14.53	0.000
LONGTENURE (audit tenure)	0.019	0.001	15.28	0.000
(non-auditor fee) NONADU	-0.12	1.36	-8.23	0.000
BIG (type of audit firm)	-0.206	0.005	-38.59	0.000
LOSS	-0.058	0.017	-3.25	0.000
ΔSALE (sales changes)	-0.0001	0.0007	-0.202	0.000
LEV (financial leverage)	0.115	0.008	13.62	0.000
SIZE (company size)	-0.030	0.004	-7.29	0.000
ROA (return on assets)	0.112	0.009	12.42	0.000
(auditor fee) ADU	0.562	0.04	11.73	0.000
Coefficient of determination 57% :	LR statistic: 37.098		LR statistic probability: 0.0001	

As findings of Table (11) illustrate, the P-value calculated for the REM1 independent variable (abnormal operating cash) is less than the error level of 5%, and the estimated coefficient of that variable (0.037) is positive, it can be stated that this variable has a direct and significant relationship with the dependent variable of the auditor change (RESIGN). In other words, there is a positive and significant relationship between the real earnings management (cash flow obtained from abnormal operations) and the change of auditor. The coefficient of determination of this model is also about 0.57%. This number shows that 57% of the variation in the dependent variable can be explained by the mentioned independent variables. In addition, findings of Table (11) illustrate that the p-value of the F test is less than 5%, and as F statistic represents the general validity of the model, it can be stated that the model is significant at the probability level of 95% and it has high validity.

In addition, all control variables have a significant relationship with the dependent variable. The full findings of this test are shown in the appendix at the end of dissertation.

Table 12: Results of investigating the relationship between abnormal costs and change of auditors

(dependent variable: RESIGN)				
Variable	Estimated coefficient	Standard error	T statistic	P-value
Intercept	0.49	2.36	0.208	0.005
REM1 (abnormal operational cash flow)	0.021	0.003	5.87	0.000
(Discretionary Ab-ACC accruals)	0.017	0.003	5.76	0.000
LONGTENURE (audit tenure)	0.016	0.001	13.35	0.000



(non-auditor fee) NONADU	-9.94	1.35	-7.33	0.000
BIG (type of audit firm)	-0.21	0.005	-42.33	0.000
LOSS	-0.057	0.017	-3.23	0.0012
ΔSALE (sales changes)	-0.001	0.0007	-1.4711	0.0412
LEV (financial leverage)	0.118	0.007	14.88	0.000
SIZE (company size)	-0.012	0.003	-3.07	0.0021
ROA (return on assets)	0.089	0.007	11.33	0.000
(auditor fee) ADU	1.77	1.25	1.41	0.056
Coefficient of determination: %71	LR statistic: 36.890		LR statistic probability: 0.00012	

As findings of Table (12) illustrate, the P-value calculated for the REM2 independent variable (abnormal production costs) is less than the error level of 5%, and the estimated coefficient of that variable (0.021) is positive, it can be stated that this variable has a direct and significant relationship with the dependent variable of the auditor change (RESIGN). In other words, there is a positive and significant relationship between the real earnings management (abnormal production costs) and the change of auditor. The coefficient of determination of this model is also about 0.71%. This number shows that 71% of the variation in the dependent variable can be explained by the mentioned independent variables. In addition, findings of Table (12) illustrate that the p-value of the F test is less than 5%, and as F statistic represents the general validity of the model, it can be stated that the model is significant at the probability level of 95% and it has high validity. In addition, all control variables have a significant relationship with the dependent variable. The full findings of this test are shown in the appendix at the end of dissertation.

Table 13: Results of investigating the relationship between abnormal discretionary expenditures and change of auditors

(dependent variable: RESIGN)				
Variable	Estimated coefficient	Standard error	T statistic	P-value
Intercept C	0.37	2.36	0.156	0.000
REM1 (abnormal operational cash flow)	0.005	0.015	0.34	0.0286
(Discretionary Ab-ACC accruals)	0.016	0.003	5.606	0.000
LONGTENURE (audit tenure)	0.016	0.001	13.64	0.000
(non-auditor fee) NONADU	-9.76	1.36	-7.19	0.000
BIG (type of audit firm)	-0.21	0.005	-42.33	0.000
LOSS	-0.058	0.017	-3.28	0.0010
ΔSALE (sales changes)	0.001	0.001	0.092	0.0262
LEV (financial leverage)	0.119	0.007	15.01	0.000
SIZE (company size)	-0.014	0.003	-3.71	0.0002
ROA (return on assets)	0.087	0.008	10.07	0.000
(auditor fee) ADU	1.52	1.25	1.21	0.0256
Coefficient of determination: %67	LR statistic: 36.578		LR statistic probability: 0.00013	

As findings of Table (13) illustrate, the P-value calculated for the REM3 independent variable (abnormal discretionary expenditures) is less than the error level of 5%, and the estimated

coefficient of that variable (0.005) is positive, it can be stated that this variable has a direct and significant relationship with the dependent variable of the auditor change (RESIGN). In other words, there is a positive and significant relationship between the real earnings management (abnormal discretionary expenditures) and the change of auditors. The coefficient of determination of this model is also about 0.67%. This number shows that 67% of the variation in the dependent variable can be explained by the mentioned independent variables. In addition, as the p-value of the F test is less than 5%, and as F statistic represents the general validity of the model, it can be stated that the model is significant at the probability level of 95% and it has high validity. The general results of estimating testing the research hypothesis are shown in Table 14.

Table 14: General results of estimating the research hypothesis test models

Variable	Abnormal operating cash flow REM1	REM2 Abnormal production costs	Abnormal discretionary expenditures REM3
Dependent variable: RESIGN	Significant and positive relationship	Significant and positive relationship	Significant and positive relationship

Homogeneity of error variance test

One of the pre-assumptions of the regression model is fixed error, so that despite heterogeneity variance in the model, the increase or reduction in the independent variable, variance of the dependent variable, which is equal to the residual variance, changes. In this research, generalized least squares method (EGLS) was used to eliminate the heterogeneity of variance. However, to ensure the results obtained, the Bartlett method (1983) is used to examine the homogeneity of variances in the combined data. In the Bartlett-variance homogeneity method, null hypothesis of homogeneity of variances and the opposite hypothesis of heterogeneity of variances are considered. Table (4-16) shows the results of the testing the heterogeneity of research model.



Table 15: results of the testing the heterogeneity of model

Probability	value	Method	Main model
P-value	Value	Method	
0.19	4.730	Bartlett	REM1
0.08	6.609	Bartlett	REM2
0.15	5.228	Bartlett	REM3

As P-value of the variance heterogeneity test for the secondary model is greater than 0.05, null hypothesis on homogeneity of the variances is accepted. The full findings of this estimate are shown appendix at the end of dissertation.

Testing the normality error terms in models

One of the tests used commonly for normality is Jarque-Bera test (BJ). The test statistic follows a χ^2 distribution with a degree of errors. If the residuals are distributed normally, the histogram should be in the form of a bell and the BJ statistic will not be significant. It means that the p-value shown at the bottom of the page related to normality test should be higher than 0.05, so that null hypothesis on normality at the 5% level to be confirmed. The following table illustrates the results of the normality test of model residual. As p-value for all models is higher than 0.05, the H_0 hypothesis on normality of error terms in the model is accepted.

Table 16: results of the investigating the normality of the residuals of the research models

Main model	Value	Probability
1	0.612	0.154
2	0.575	0.127
3	0.633	0.051

CONCLUSION AND RECOMMENDATIONS

Conclusion

The first sub-hypothesis test:

According to the results of Table (11), the P-value (statistic probability) calculated for the independent variable REM1 (abnormal operating cash flow) is less than the error level of 5%, and the estimated coefficient of that variable (0.073) is positive. Thus, it can be stated that this variable has a direct and significant relationship with the dependent variable of the auditor change (RESIGN). In other words, there is a positive and significant relationship between the real earnings management (abnormal operational cash flow) and the change of auditors.

The second sub-hypothesis test

According to the results of Table (12), the P-value (statistic probability) calculated for the independent variable REM2 (abnormal production costs) is less than the error level of 5%, and the estimated coefficient of that variable (0.021) is positive. Thus, it can be stated that this variable has a direct and significant relationship with the dependent variable of the auditor change (RESIGN). In other words, there is a positive and significant relationship between the real earnings management (abnormal production costs) and the change of auditors.

The third sub-hypothesis test

According to the results of Table (13), the P-value (statistic probability) calculated for the independent variable REM3 (abnormal discretionary expenditures) is less than the error level of 5%, and the estimated coefficient of that variable (0.005) is positive. Thus, it can be stated that this variable has a direct and significant relationship with the dependent variable of the auditor change (RESIGN). In other words, there is a positive and significant relationship between the real earnings management (abnormal discretionary expenditures) and the change of auditors. In general, the results of the research revealed that when clients manipulate real earnings activities, their decisions to change the auditor enhances.

Comparative investigation of the research results

Stock Exchange Organization has been dealing with the subject of the change of auditors according to instruction of audit firms trusted by Stock Exchange, passed in 2017. Based on this instruction and clause 2 of Article 10, audit firms and relevant partners are responsible to audit of each legal entities subject to the instructions (stock companies, their subsidiaries, public corporations, etc.) are not allowed to re-accept the position of the independent auditor and legal inspector of these companies after four years. In addition, in the case of withdrawal of partners from previous firm, the partner responsible in four-year term cannot re-accept that position in the case of presence as partner in the audit firm. On the other hand, the global financial crisis and its destructive impacts on the international economy highlighted the role auditors and the new duties that should undertake them. Following financial scandal of Enron in beginning of the first decade of the new millennium and scandal and dissolution of great audit firm of Arthur Anderson until big financial crisis in 2008 and subsequent financial scandals, new conditions were created in the work environment of auditors. As a result, a new legal environment was



emerged for the activity of auditors. Several studies have been carried out in Iran and other parts of considering the change in audit firms. Findings of some of these studies including the studies conducted by Soo Young Kwon (2010), Dan Li (2010), Aghaei and Ardakani (2012), Kashani Pour et al. (2012), Mojtahed Zadeh and Aghaei (2004) and Namazi et al. (2011) are in line with findings of this research.

Based on the research findings, some recommended are provided to use these results:

1. Paying attention to relationship between real earnings management and auditors' change by legislative institutions such as the Tehran Stock Exchange Organization, Audit Organization, Iranian Formal Accountants Association, etc., is recommended. These two criteria are very influential in decision-making, so they deserve paying much attention. They should review the regulations and rules related to auditor change.
2. It is recommended that users of financial statements to pay attention to variables such as value created for shareholders and audit firm tenure during the analysis to purchase stock of companies.
3. As the goal of managers is to develop trust in owners of company, it is recommended for them to use industry expertise auditors and high tenure.
4. It is recommended for Stock Exchange Organization to adopt rules and regulations to determine the real value of companies and transparency of their information and better understanding of their performance. Listed companies in Stock Exchange should use high-quality auditors to audit their financial statements. In addition, it is recommended that Stock Exchange Organization to take the tenure into consideration in pricing the stock of companies.
5. As results of our study and results of other studies conducted on earnings management suggest, the management of majority of companies manipulate the earnings of company by using real activities. Therefore, it is recommended earnings management issue and its outcomes for both of researchers and legislators to be considered in development of audit and accounting standards and interpretation of earnings. High tendency of managers to manipulate the real activities to manipulate the earnings in the next years suggests that there is always a way to escape from standards and regulations on using the earnings management. It is hoped that this research can contribute in development of research literature of earnings management.



References

- Aghaei, MA, Nazemi Ardakani, M (2012), "Auditor's expertise in industry and management of discretionary Accrual," *Audit Knowledge*, volume 12, issue 46, pp. 4-17.
- Arab Salehi, Kazemi, J, Zulf Alizadeh, M (2011), " Examining the behaviors reducing audit quality from the viewpoint of the psychological contract and organizational emotional commitments", *Journal of Accounting Knowledge*, Volume 2, Issue 5, pp. 127- 147.
- Bani Mahd, B, Hassas Yeghaneh, Y, and Yazdanian, N (2013). "Earnings management and auditor's comment: Evidence from the private sector audit" *Journal of Management and Management Accounting*, Volume 7, Issue 21, pp. 15-25.

- Chen, S., Sun, S.Y.J., Wu, D., 2010. Client Importance, Institutional Improvements, and Audit Quality in China: An Office and Individual Auditor Level Analysis.
- Cohen, D., A. Dey, and T. Lys. (2015).” Real and Accrual Based Earning Management in the Pre and Post Sarbanes Oxley Periods “. The Accounting Review, Vol.83, pp.757-787.
- Dan li. (2010). Does auditor tenure affect accounting conservatism? Further evidence. J. Accounting. Public policy29, 226-241
- De Angelo, L.E, (1981), Auditor size and auditor quality, journal of accounting and economics, Vol. 3, 183-199
- Ghasemi Nejad, E, and Garkaz, M (2014). "Change of management and auditor comment: testing the theory of alignment of management and auditor". Journal of Management and Accounting Knowledge Management, Volume 3, Issue 12, pp. 25-40.
- Gunny, K. (2016).” The relation between earning management using real activities manipulation and future performance: Evidence from meeting earnings benchmarks”. Contemporary Accounting Research, Vol .27, No.3, pp.855-888
- Hassas Yeghaneh, Y and Jafari, V (2010). " Examining the effect of audit firm change on the quality of audit report of listed companies in Tehran Stock Exchange", Journal of the Securities Exchange, Issue 9, p. 25.
- Hausman, J. A. (1978). “Specification tests in econometrics.” *Econometrica*, 46 (6), 1251–1271.
- Izadinia, N, and Dari Sadeh, M, and Narghesi, M (2015) " Examining the earnings management based on accruals and real earnings management in the periods before and after passing Iranian Securities Market Law", *Journal of Accounting Knowledge*, volume 6, issue 21, pp. 55-81
- Jones Jennifer J, (1991), “Earnings management during import relief investigations, “, *Journal of Accounting Reseach*, 29 (2).
- Kashani Poor, M, Maran Jouri, M, Mashhashi, SM (2012). "Examining the relationship between auditor tenure and discretionary accruals ", Tenth National Conference on Accounting of Al-Zahra University, pp. 85-100.
- Kim, J.-B., Sohn, B.C., 2013. Real Earnings Management and Cost of Capital. *Journal of Accounting and Public Policy*, forthcoming.
- Matsuura Souichi, (2008). “on the relation between real earninge mangement and accounting earninge mangement: income smoothing perspective “, *Journal of intrenational business research*, volume 7.
- Namazai, M, Bayazidi, A, Jabarzadeh, S. (2011), "examining the relationship between audit quality and earnings management of listed companies in Tehran Stock Exchange", *Journal of Accounting Research*, Issue 9, pp. 4-21.



Payne, J. and Chambers, D. (2011) "Audit quality and accrual persistence: evidence from the pre- and post-Sarbanes-Oxley periods", *Managerial Auditing Journal*, Vol. 26 Iss: 5, pp.437 – 456

