



## A Study on the Effect of Auditor Mandatory Rotation on the Audit Quality Improvement in Companies Listed at Tehran Stock Exchange

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**Abstract:** This study has examined the relationship between the rotation of auditors and audit quality in listed companies at Tehran Stock Exchange. To measure audit quality discretionary accruals indicators are used. Research data have been analyzed using statistical sample of 100 listed companies at Tehran Stock Exchange, for the time period 2008 to 2012 through panel data analysis method and least squares regression method. According to the results of the regression model estimation, research hypothesis is confirmed with a confidence level of 95%. In other words, there is a significant positive relationship between rotation of auditors and audit quality.

**Key words:** Audit Quality, Discretionary Accruals, Auditor Rotation

### INTRODUCTION

People outside the organization, such as investors and creditors, cannot directly monitor the managers' performance and opportunistic behavior, because earnings accruals are largely in control of the manager and he can manipulate earnings accruals and in today words manage earnings to show the company performance better and increase the predictability of future earnings. Therefore, the auditors by precise and high quality considerations can control managers' financial behavior and reduce accruals used by managers and limit incorrect decisions of managers. Since the report of independent auditors leads to the accounting information validation and is a basis for decision making of interested groups in the companies, selection of independent auditors is necessary for the monitoring and validation of the accounting information.

### Research problem and theoretical bases

The issue of auditors change and the reduction of their auditing in the company have been discussed for years in the United States of America<sup>1</sup>. However, the growing financial scandals in recent decades in the world, from Enron and WorldCom in the United States to Parmalat in Europe, have led to concerns regarding the reliability of audited financial statements. While the

company management has the primary responsibility for preparing the financial statements, but in the aftermath of these events, the finger is pointed at the auditors. These events are generally referred to as "audit failure". It is generally considered that the lack of independence and the poor quality of the audit caused such events.

To maintain the independence of the auditor, special attention has been paid to the auditors' mandatory rotation. Small number of countries such as Brazil, India, Italy, Singapore and South Korea has legal requirements to rotate audit firms within a certain period. In recent years, a lot of research has been done on the need for rotation of audit firms and its impact on a variety of factors such as auditor independence, audit quality, audit fees, audit market competition and capital market reaction. The research has been mainly done on the relationship between audit institutions rotation laws and the five factors mentioned. Results of conducted research do not approve the positive effectiveness and efficiency of auditor rotation rules on any of the aforementioned factors<sup>2</sup>.

Following these events, legislators and compilers of accounting and auditing standards tried to set the standards and laws that improve auditors' independence, audit quality, and financial reporting<sup>3</sup>. One of the most important cases of these rules and guidelines is the approval of Sarbanes-Oxley Act on 25 July 2002 in America Congress. Section 203 of the Act compels audit firms to change their auditing partners and managers after each successive five-year audit on a single client<sup>4</sup>. In Iran, according to Article 10, Section 2 of the Exchange Organization trustee auditing guidelines, after 4 years audit firms are not permitted to accept the independent auditor and legitimate inspector position of a single company again. However, before this date there was no requirement regarding mandatory rotation of audit firms.

Opponents of mandatory rotation argue that a new auditor does not have the advantage of firm-specific knowledge and this poor knowledge of new auditor disrupts the effectiveness of the audit process and can impose heavy losses to the society<sup>5</sup>. Sander goes one step further and expresses his opposition so that "mandatory audit must be deleted and each company be allowed to decide that is it interested in an audit certification (audit report) about its financial statements?"

Gaining further understanding about the auditor changing phenomenon and assessing the factors affecting it as well as its possible consequences and therefore the optimal use of these tools will not be achieved except by doing extensive research in this field. In our study we investigated the effect of auditor mandatory rotation on the improvement of audit quality in Iran's capital market.

Numerous studies have been conducted on the desired subject from different aspects. This section refers to a number of them .

Ghosh and Moon on a study observed that audit quality improves by increasing tenure<sup>6</sup>.

## **RESEARCH VARIABLES**

### **Dependent variable**

According to the correlation coefficient, the negative accruals and cash flows are versus positive cash flows. This measure has been used by Ball (2005) and Radak (2006). Its pattern is as follows:

$$ACC = \varepsilon.t + \varepsilon1t DCFOt + \varepsilon2t CFOt + CON3t DCFO \times CFO + \varepsilon t$$

ACC: The difference between operating income and cash flows from operations in the year divided by the assets total value of the beginning of the period

CFO: operating cash flow divided by market value of total assets at the beginning of the period

DCFO: if CFO is negative, it is equal to 1 and otherwise it is zero.

CON<sub>3t</sub>: degree of conservatism based on Ball and Shiwakumar criteria.

### **Independent variable**

Mandatory rotation of audit firms: it points out that the independent auditor of a profit making unit should be replaced in at most a 4 year period and among other eligible institutions, an institution be selected as the new auditor. As there is no legal requirement for rotation of audit firms in the temporal territory of the study, the rotation periods of audit firms are not the same for all companies. Therefore, at most a 4 year period (period approved by Tehran Securities and Exchange instructions) is considered as a measure of the rotation. In other words, the present study used data from the companies that have replaced their auditors every one, two, three or four years.

### **Control variables**

In a study the effects of all variables on each other can not be studied simultaneously. So the effect of some variables must be controlled or they should be thwarted, such variables are called control variables.

#### **Firm size**

Firm size is calculated as the natural logarithm of total assets of the end of the period<sup>6</sup>.

#### **Financial Leverage**

It is obtained through total liabilities of the company divided by total assets of the company<sup>7</sup>.

#### **Return on assets**

Rate of return on assets is calculated as follows:

Rate of return on assets (ROA) = (Sales / Net Income) × (Assets / Sales) =  
Net income/Assets

### **Initial offering of shares**

Dual variable: if the company has had initial offering at the current year, it is one and otherwise it is zero.

### **Firm losses**

Dual variable: if the company has had losses, it is one and otherwise it is zero.

### **Sales growth rate (Log of Sale)**

The difference of the current year sales over the base year divided by the base year sales multiplied by 100 is called sales growth rate.

$$[(\text{current year's sales} - \text{last year's sales}) / \text{last year's sales}] \times 100$$

### **Firm age (Log of Age)**

It is the time that is passed from the company establishment.

To test the hypotheses, the following model is used:

$$\text{ACCRUALS}_{i,t} = \beta_0 + \beta_1 \text{ROTATION}_{i,t} + \beta_2 \text{SIZE}_{i,t} + \beta_3 \text{CFO}_{i,t} + \beta_4 \text{LEV}_{i,t} + \beta_5 \text{SALEGR}_{i,t} + \beta_6 \text{ROA}_{i,t} + \beta_7 \text{LOSS}_{i,t-1} + \beta_8 \text{IPO}_{i,t} + \beta_9 \text{AGE}_{i,t} + \beta_{10} \text{DSHR}_{i,t} + \varepsilon_{i,t}$$

In this model:

Accruals<sub>i,t</sub> = accruals (indicating audit quality);

ROTATION<sub>i,t</sub> = represents auditor mandatory rotation;

SIZE<sub>i,t</sub> = firm size (control variable);

CFO<sub>i,t</sub> = is the operating cash flow (control variable);

LEV<sub>i,t</sub> = financial leverage (control variable);

SALEGR<sub>i,t</sub> = firm's sales growth rate during the year (control variable);

ROA<sub>i,t</sub> = is the rate of return on assets (control variable);

LOSS<sub>i,t-1</sub> = indicates loss (control variable);

IPO<sub>i,t</sub> = represents the stock initial offering (control variable);

AGE<sub>i,t</sub> = is firm age (control variable) and

DSHR<sub>i,t</sub> = is ownership of major shareholders (control variable);

ε<sub>i,t</sub> = the error component

## **RESEARCH HYPOTHESES**

According to previous research and theoretical bases, the research hypotheses have been formulated as follows:

There is a significant relationship between auditor mandatory rotation and the improvement of audit quality in listed companies at Tehran Stock Exchange.

## **MATEREALS AND METHOD**

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This research based on objective is descriptive – applied study and based on the nature and method is a correlational one. The study is based on a quasi-experimental research design using a post-hoc approach (through the past data).

### STATISTICAL POPULATION AND SAMPLE

The statistical population of the present study included all companies that have been listed at Tehran Stock Exchange between the years 2008 and 2012 and have preserved their membership in this period. The easy access to financial information of these companies as well as having more homogeneous information due to the regulations of Tehran Stock Exchange are reasons for selecting and investigating Stock Exchange companies .

The sampling method in this research is the systematic removal method. Thus, among all the listed companies those that do not meet any of the following conditions have been removed and finally all the remaining companies were selected for testing.

1.The companies must have complete information to all financial statements such as balance sheet, profit and loss and cash flow statements.

2.The companies which ended their fiscal year at the end of March.

3.The companies that have been active in Stock Exchange during the study period.

4The companies which have not changed their fiscal year during the study period.

5.The companies which are not investment companies, insurance companies or banks.

Applying the above conditions and limitations and investigating companies listed in Tehran Stock Exchange, 100 companies (equivalent to 500 years-companies) are selected to estimate the models and test the research hypotheses.

## RESULTS

### Descriptive statistics

In order to understand the study population better and learn more about the research variables before analyzing the statistical data, description of the data is essential. Statistical description of data is the first step for the detection of their dominate pattern and a base to explain the relationship between the variables that have been applied in the research. Descriptive statistics of dependent and independent variables used in the research model are available in Table 1. This table presents an overview of the research data.

**Table 1.** Descriptive statistics results of research variables

Variables	Sig.	M	Median	Maximum	Minimum	SD
Audit quality(accruals)	ACCRUALS	0.0636	0.0611	0.2839	-0.0812	0.0274
Auditor's rotation	ROTATION	0.4761	0.4089	1.0000	0.0000	0.1904

Firm size	SIZE	5.4483	5.3877	7.8236	4.3698	1.4326
Operating cash flow	CFO	0.2834	0.2648	0.4983	-0.2167	0.1275
Financial Leverage	LEV	0.3476	0.3082	0.7829	0.1833	0.2329
Sales growth	SALEGR	0.1698	0.1786	0.6132	-0.2136	0.1165
Return on assets	ROA	0.0618	0.0662	0.2684	0.0043	0.0366
Firm losses	LOSS	0.0897	0.0812	1.0000	0.0000	0.1867
Initial offering of shares	IPO	0.0276	0.0138	1.0000	0.0000	0.0029
Firm age	AGE	19.4293	21.4236	58.0000	9.0000	2.7880
Major shareholders ownership	DSHR	0.2967	0.2063	1.0000	0.0000	0.0842

As it can be seen in table (1), the mean of the accruals variable as an index of audit quality measure (model dependent variable) is 0.0636 and audit tenure variable (model independent variable) is 2.7884 and standard deviation of the above mentioned variables are 0.0274 and 0.6132 respectively. These figures show that the data related to independent and dependent variables have sufficient distribution and diversity.

### Chow test results

In this research, to choose a suitable method for estimating the models in different levels and time durations of panel data, the Chow test is used. If the F-statistic is greater than the critical value, the null hypothesis is rejected and fixed effect model is accepted. Fixed effects approach is acceptable when the difference between the companies can be explained by the intercept terms differences. In the case of the existence of same intercepts, pooled data approach is used to test the hypotheses. The Chow test results are presented in Table (2).

**Table 2.** Results of the Chow test

Chow test statistic	p-value	Test result
2.1326	0.2839	Pooled data model

As Table (2) represents, the Chow test results have confirmed the hypothesis of the test based upon the sameness of intercept in all periods and the null hypothesis is rejected. Therefore, pooled data estimation method is a more appropriate option for research model estimation and there is no need to perform Hausman test. Under this method, all data are combined together and are estimated by ordinary least squares regression.

### Results of research hypothesis testing

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The research hypothesis examines the relationship between auditor's tenure and audit quality. The statistical assumptions of the hypothesis are as follows:

**H<sub>0</sub>:** There is no significant relationship between auditor's rotation and the audit quality.

**H<sub>1</sub>:** There is a significant relationship between auditor's rotation and the audit quality.

In this hypothesis, the dependent variable is quality audit, and independent variable is the auditor's rotation. As stated before, accruals indicator is used to measure audit quality. This means that the more is the correlation between operating cash flow and accruals in the company, the higher is the quality of the auditor's audit performance in current year. Test results of the research model using pooled data analysis are shown in the table (3).

**Table 3.** Results of significance test of the research model.

Description		Coefficient	t-static p-value
Fixed coefficient	$\beta_0$	-0.08	-4.12 0.00
ROTATION	$\beta_1$	0.34	3.66 0.03
SIZE	$\beta_2$	0.07	6.82 0.00
CFO	$\beta_3$	0.06	4.11 0.01
LEV	$\beta_4$	-0.14	-4.36 0.00
SALEGR	$\beta_5$	0.17	6.26 0.00
ROA	$\beta_6$	0.31	3.54 0.00
LOSS	$\beta_7$	0.00	2.66 0.07
IPO	$\beta_8$	-0.22	-1.19 0.21
AGE	$\beta_9$	0.08	3.54 0.00
DSHR	$\beta_{10}$	0.14	3.94 0.00
Adjusted R <sup>2</sup>		0.32	
F-static		4.89	
F (p-value)		0.00	
D-W		1.96	
Observations No.		500	

Model dependent variable: Audit quality (ACCRUALSE)

As can be seen in Table (3), the F-statistic is significant at the 99% confidence level. Thus, the research model is significant generally, and the independent and control variables are able to explain the dependent variable.

In this table *Adjusted R Square* represents adjusted determination coefficient. The coefficient of adjusted determination measures the distribution rate of points around the regression line (in two-dimensional space). Adjusted determination coefficient resulting from the model estimation is equal to 0.32. This means that almost 32% of the variability of the dependent variable, i.e. audit quality results from changes in the independent and control variables and the other 68% of the variability is due to other factors.

Durbin-Watson test statistic is 1.96. This test is used to check the error autocorrelation. Its optimal rate for the lack of autocorrelation is 2. If the value of this statistic is between 1.5 and 2.5, the autocorrelation is rejected at values of the model error. Due to the fact that Durbin-Watson statistic value is obtained 1.96, the presence of autocorrelation in the model error values is rejected.

The coefficients significance test is what researchers are looking for. This test actually, in addition to determining the significance of coefficients, it also determines the direction of those coefficients effects on the dependent variable. The statistic to determine the significance of the coefficients is the t-statistic.

The results indicate that the t-statistic for the independent variable i.e. auditor's rotation and its significance level (p-value) are respectively, 3.66 and 0.03. As the considered error level for this study is 0.05, and error level related to this variable coefficient is less than 5%, therefore it is concluded that there is a significant relationship between auditor's rotation variable and audit quality as the dependent variable. So, the research hypothesis is confirmed at confidence level of 95%. The coefficient of the independent variable in the model that is tenure ( $\beta_1$ ) is positive. As a result, the relationship between the rotation of auditors and audit quality is direct a relationship. In other words, by reducing the tenure of the auditor in the company, the quality of audits performed will also increase and vice versa.

## CONCLUSIONS

The research hypotheses using a sample of 100 companies listed at Stock Exchange for the period 2008 to 2012 have been investigated through panel data analysis method. Panel data analysis results indicate the confirmation of the first to fourth hypotheses.

The dependent variable of the study is the improvement of audit quality. Audit quality implies lower accruals in the examined firms. According to the theoretical bases of the study it is expected that auditor's mandatory rotation has a significant correlation with audit quality improvement. Model to test the research hypothesis is as follows:

## A Study on the Effect of Auditor Mandatory Rotation ...

$$\text{Accruals}_{i,t} = \beta_0 + \beta_1 \text{TENURE}_{i,t} + \beta_2 \text{SIZE}_{i,t} + \beta_3 \text{CFO}_{i,t} + \beta_4 \text{LEV}_{i,t} + \beta_5 \text{SALEGR}_{i,t} + \beta_6 \text{ROA}_{i,t} + \beta_7 \text{LAGLOSS}_{i,t-1} + \beta_8 \text{IPO}_{i,t} + \beta_9 \text{AGE}_{i,t} + \beta_{10} \text{DSHR}_{i,t} + \varepsilon_{i,t}$$

In this model, the dependent variable represents the quality of the audit and the independent variable is mandatory rotation of auditors. If the  $TENURE_{i,t}$  coefficient resulted from the model test is positive, mandatory rotation of auditor leads to an increase in audit quality and has a direct relationship with it, and if the sign of the coefficient ( $\beta_1$ ) is negative, it has an inverse relationship with it. According to the research results, the model is significant generally. Also,  $t$  statistics of model test is significant for independent variable that is auditor mandatory rotation at 5% error level and 95% confidence level and the relationship is direct. Therefore, the research results using pooled data analysis imply confirmation of the research hypothesis. In other words, mandatory rotation of auditors within the tested companies leads to audit quality increase. Therefore, the direct relationship between mandatory rotation of auditors and audit quality in the research hypothesis is confirmed.

Due to crediting the issued financial statements by publicly traded companies and thus reducing the risk of data, independent auditors play a valuable role in the capital market. Respect and value of this auditing role depends heavily on the nature of the auditors' testimony. After testing the research hypothesis, the argument that long-term relation of auditor-client can lead to auditors' bias seeking, negligence and failure to perform their role of being a witness approved. Lack of auditor independence is an important subject that has a lot of concerns. One proposed solution to address this concern is the mandatory rotation of auditors.

The results of the study hypothesis test are consistent with the research results of Bellovary et al.,<sup>7</sup> Chan et al.<sup>8</sup>. But the research findings are not consistent with the study results of Ghosh and Jain<sup>6</sup>, Chen et al.<sup>9</sup>. This study examined the association between auditor's activity continuity time duration and conservatism in earnings report. In this study, they showed that the change from the short term auditor tenure to mid-term auditor tenure makes the conservatism increased. However, such an increase is not evident in the change from mid-term auditor tenure to high auditor tenure. Furthermore, their study showed that conservatism in earnings reporting is relatively low in the early years of the adoption of a new auditing job.

According to the present study results, the following recommendations are offered for future research:

- A) Evaluation of the effect of auditor's tenure on investors' behavior.
- B) Evaluation of the effect of auditor's rotation on the information content of earnings and other accounting information.
- C) Evaluation of the relationship between auditor's rotation and earnings quality, and standards set forth in the Iranian accounting standards.
- D) Evaluation of the same subject, however, to increase the reliability of the results, with increased number of firms and time periods.

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