

Research Article

AN INVESTIGATION INTO THE RELATIONSHIP BETWEEN AUDITOR INDUSTRY SPECIALIZATION AND LENGTH OF AUDITOR TENURE, AND EARNINGS MANAGEMENT IN THE FIRMS LISTED IN TEHRAN STOCK EXCHANGE

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ABSTRACT

This study is mainly concerned with examining the relationship between audit quality and earnings management in the firms listed in Tehran Stock Exchange (TSE). To measure the audit quality, auditor industry specialization and length of auditor tenure are used while discretionary accrual is used as a proxy of earnings management. To do so, a sample of 91 firms listed in TSE over the period 2008-2012 is investigated. The results revealed that firms audited by auditor industry specialization allow for lower earnings management. Moreover, no significant relationship was found between length of auditor tenure and earnings management.

Keywords: *Audit Quality, Earnings Management, Auditor Industry Specialization, Length of Auditor tenure*

INTRODUCTION

One of the most important responsibilities of the directors is to provide financial reports and information on which investors, creditors and other potential users can rely on for making decisions on investing and financing. Current and past earnings of the company are among factors the above users employ to evaluate the profitability capacity of the company, predict the future earnings and its related risks, and assess the management performance. In fact, Earnings, as the fruit of economic activities and accounting process, are affected by different managerial procedures. Earnings have consisted of cash equivalents and discretionary accruals, and its discretionary accruals are under the control of director. Directors can falsify discretionary accruals and reduce the quality of the reported earnings to portray the company's performance better and increase the predictability of the future earnings. For various reasons, directors try to apply various accounting methods to change their financial earnings and eventually, achieve their goals (Baharmoghadam and Koochi, 2010). Some scholars such as Piot and Janin (2005), Chen *et al.*, (2005) and Rusmin (2010) believe that high audit quality is likely to be one of the mechanisms used for preventing or reducing earnings management. Therefore, the present study aims to find empirical evidence to show whether auditor industry specialization and length of auditor tenure, as criteria of audit quality, reduce earnings management in Iranian market or not.

Review of Literature

Balsam *et al.*, (2003) in a study entitled "auditor industry specialization and earnings quality" compared the discretionary accruals and earnings response coefficient of the firms audited by auditor industry specialization with those firms not audited by auditor industry specialization. The results of their study indicated that the clients of the auditor industry specialization have less discretionary accruals and higher earnings response coefficient than clients of non-specialists. Generally speaking, the findings of this research reveal that clients of auditor industry specialization enjoy higher earnings quality than clients of non-specialists.

Chen *et al.*, (2005) in their research entitled "audit quality and earnings management for Taiwan IPO firms" examined the relationship between various dimensions of audit quality and earnings management in firms listed in Taiwan IPO firms. To evaluate earnings management, they used discretionary accruals, and to assess audit quality, they used audit firm's size and auditor industry specialization. Their findings

Research Article

suggested that firms audited by 5 big firms allow for lower earnings management. They also pointed to the lack of significant relationship between using auditor industry specification and earnings management.

Rusmin (2010) examined the relationship between audit quality and earnings management. They enjoyed modified Jones model to evaluate discretionary accruals and earnings management, and also considered the relationship between auditor industry specialization and audit firm's size as criteria for evaluating audit quality. The results showed that there is a negatively significant relationship between audit firm's size and discretionary accruals. Additionally, they found that firms audited by auditor industry specialization have less discretionary accruals than other firms.

Research Hypotheses

To answer the research questions, the following hypotheses are formulated based on the theoretical framework of the research and empirical studies conducted by Chen *et al.*, (2005) and Rusmin (2010) and finally tested.

- 1- There is a significant relationship between auditor industry specialization and earnings management.
- 2- There is a significant relationship between length of auditor tenure and earnings management.

MATERIALS AND METHODS

Research Variables

Different variables including independent, dependent and control variables are used and evaluated as follow:

Independent Variables

In this study, audit quality is examined as the independent variable. Drawing on professional literature, one can define audit quality based on its accordance with auditing standards. DiAnjelo (1981) defined audit quality as "the market assessed joint probability that a given auditor will both discover a breach in a client's accounting system, and report the breach." In recent decades, many of the biggest corporate accounting scandals such as those of Enron and WorldCom shook auditors confidence in audit quality since they believe that it is the result of poor audit quality. The inherently invisible and multi-dimensional nature of Audit quality is less straightforward in its measurement as well. Following Chen *et al.*, (2005) and Rusmin (2010), therefore, this study benefits from the following criteria to evaluate the audit quality.

1- Auditor Industry Specialization

In this study, auditor industry specialization is considered as a zero-one dummy variable. The auditor takes the value of 1 and is considered as a specialist in that industry if he holds at least 15 percent market share of that particular industry, 0 otherwise. To calculate the market share of an audit firm in industry k, the following equation is used:

$$MS_{ik} = \frac{\sum_{j=1}^{I_k} ClientSales_{ijk}}{\sum_{i=1}^{I_k} \sum_{j=1}^{J_k} ClientSales_{ijk}}$$

In which:

$ClientSales_{ijk}$. = sum of sales of client firm j in industry k, audited by audit firm i

i=1, 2,..., I: audit firm index

J=1, 2,..., J: client firm index

K=1, 2,..., K: industry index

I_k : Number of audit firms in industry k

J_{ik} : Number of client firms audited by audit firm i in industry k

2- Length of auditor tenure

Length of auditor tenure is the number of consecutive years that an audit firm is responsible for auditing a client firm.

Dependent Variable

Having considered Earnings management as a dependent variable, this research uses discretionary accruals as a factor for measuring earnings management. According to Chen *et al.*, (2005) modified Jones

Research Article

model is the strongest model for detecting earnings management. Hence, it is used to estimate discretionary accruals. First of all, the total of discretionary accruals is calculated as follow:

$$TA_{i,t} = \Delta CA_{i,t} - \Delta CL_{i,t} - \Delta CASH_{i,t} + \Delta STD_{i,t} - DEPI_{i,t}$$

where:

$TA_{i,t}$: sum of discretionary accruals for Firm i in year t

$\Delta CA_{i,t}$: change in the current assets of firm i between year t1 and year t

$\Delta CL_{i,t}$: change in the current liabilities of firm i between year t and year t1

$\Delta CASH_{i,t}$: change in the cash of firm i between year t1 and year t

$\Delta STD_{i,t}$ change in current portion of long-term liabilities of firm i between year t and year t1

$DEPI_{i,t}$: cost of depreciation of fixed and intangible assets of firm i in year t

Having calculated the sum of discretionary accruals, parameters a1, a2 and a3 are employed to compute the non-discretionary accruals as follow:

$$TA_{i,t} / A_{i,t-1} = \alpha^1 (1 / A_{i,t-1}) + \alpha^2 (\Delta REVI_{i,t} / A_{i,t-1}) + \alpha^3 (PPE_{i,t} / A_{i,t-1}) + \varepsilon_{i,t}$$

Where:

$TA_{i,t}$: sum of discretionary accruals for firm i in year t

$A_{i,t-1}$: book value of the firm i's assets in year t1

$\Delta REVI_{i,t}$: change in revenue of firm i between year t and year t1

$PPE_{i,t}$: gross value of tangible fixed assets for firm i in year t

$\varepsilon_{i,t}$: unknown effects of accidental factors

Then, parameters a1, a2 and a3, obtained from the above model, are used to calculate the non-discretionary accruals as follow:

$$NDA_{i,t} = \alpha^1 (1/A_{i,t-1}) + \alpha^2 (\Delta REVI_{i,t} - \Delta RECI_{i,t})/A_{i,t-1} + \alpha^3 (PPE_{i,t} / A_{i,t-1})$$

Where:

$NDA_{i,t}$: non-discretionary accruals of firm i in year t

$\Delta RECI_{i,t}$: change in accounts receivables of firm i between year t and year t1

Finally, discretionary accruals are calculated as follow:

$$DA_{i,t} = TA_{i,t}/A_{i,t-1} - NDA_{i,t}$$

Control Variables

Control variables, which may potentially affect the relationship between audit quality and earning management of the firms, are as follow:

- 1- Firm size = natural logarithm of annual sales
- 2- Financial leverage = debt to total assets ratio
- 3- Operating cash flows = cash flows from operating activities divided by average total assets.

Statistical Sample

Firms conforming to the following conditions are adopted while others are rules out.

- 1- Firms listed in TSE before 2008 and remained there till 2012.
- 2- Their fiscal year's end on 29 Esfand
- 3- They changed neither their activities nor their fiscal year (during the assumed period)
- 4- They are not member of investment firms and financial intermediations
- 5- Their trading halt would generally last less than six month.

Having considered the above conditions, a number of 91 firms were selected and studied.

Models Used for Testing Hypotheses

To test the research hypotheses, the multivariate regression model adopted from Rusmin (2010) is used:

Model of testing the first hypothesis

$$DA_{i,t} = \beta_0 + \beta_1 SPEC_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 LEV_{i,t} + \beta_4 CFO_{i,t} + \varepsilon_{i,t}$$

Model of Testing the Second Hypothesis

$$DA_{i,t} = \beta_0 + \beta_1 TENURE_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 LEV_{i,t} + \beta_4 CFO_{i,t} + \varepsilon_{i,t}$$

Where

$DA_{i,t}$: discretionary accruals of firm i in year t

$SPEC_{i,t}$: auditor industry specialization for firm i in year t

Research Article

TENURE_{it}: length of auditor tenure for firm i in year t

SIZE_{it}: natural logarithm of sale for firm i in year t

LEV_{it}: debt to total assets ratio for firm i in year t

CEO_{it}: cash flows from operating activities divided by average total assets for firm i in year: error of regression model

RESULTS AND DISCUSSION

These descriptive statistics explains the condition of 91 firms over the period 2008-2012. Accordingly, discretionary accruals fall within the range of 0.009 to 0.746, showing a mean of 0.016.

About 44 percent of the studied firms are audited by an industry specialist audit firms. On the other hand, the average length of auditor tenure is five years, pointing to the long history of the cooperation between firms listed in TSE and audit firms.

Firm size, calculated through logarithm of firm's annual sales, enjoys mean of 12.05 and median of 11.98, for which the minimum and maximum values are supposed to be 9.18 and 13.99, respectively.

Also, the value of financial leverage (0.635) indicates that about 64 percent of the firms' assets are financed through debts.

Table 1: Descriptive statistics of the research variables

SD	Max.	Min.	Median	Mean	Variable
0.172	0.746	0.009	0.019	0.015	DA
0.483	1.000	0.000	0.000	0.443	SPEC
4.097	13.000	1.000	5.000	5.427	TENURE
0.59	13.994	9.187	11.984	12.054	SIZE
0.173	0.813	0.119	0.641	0.635	LEV
0.631	0.825	0.016	0.331	0.368	CFO

DA: discretionary accruals, SPEC: auditor's industry specialization, TENURE : length of auditor tenure
 SIZE: firm size, LEV: financial leverage CFO : cash from operational activities divided by total assets

Testing Hypotheses

1- Results of testing the first hypothesis

The first hypothesis claims that there is a significant relationship between auditor industry specialization and earnings management. To test this hypothesis, the following equation is used:

$$DA_{i,t} = \beta_0 + \beta_1 SPEC_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 LEV_{i,t} + \beta_4 CFO_{i,t} + \varepsilon_{i,t}$$

H0 and H1 are formulated as follow:

H₀: $\beta_1 = 0$ no significant relationship between two variables

The H₁: $\beta_1 \neq 0$ a significant relationship between two variables

The results of testing the first hypothesis are presented in Table 2.

Research Article

Table 1: Results of testing the first hypothesis

Dependent Variable: DA				
Method: Panel EGLS (Cross-section weights)				
Date: 07/22/14 Time: 02:06				
Sample: 1 455				
Periods included: 5				
Cross-sections included: 91				
Total panel (balanced) observations: 455				
Linear estimation after one-step weighting matrix				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.363218	0.134408	2.702350	0.0073
SPEC	-0.019800	0.005532	-3.579313	0.0004
SIZE	-0.021272	0.011655	-1.825128	0.0690
LEV	0.052860	0.016914	3.125126	0.0020
CFO	-0.047858	0.012026	-3.979696	0.0001
Effects Specification				
Cross-section fixed (dummy variables)				
Weighted Statistics				
R-squared	0.623104	Mean dependent var		0.271072
Adjusted R-squared	0.603854	S.D. dependent var		0.257047
S.E. of regression	0.116781	Sum squared resid		4.091338
F-statistic	6.278160	Durbin-Watson stat		2.113078
Prob(F-statistic)	0.000000			

Table 2: Results of testing the second hypothesis

Dependent Variable: DA				
Method: Panel EGLS (Cross-section weights)				
Date: 07/22/14 Time: 02:03				
Sample: 1 455				
Periods included: 5				
Cross-sections included: 91				
Total panel (balanced) observations: 455				
Linear estimation after one-step weighting matrix				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.297017	0.135236	2.196291	0.0288
TENURE	-8.38E-05	0.010175	-0.008237	0.9934
SIZE	-0.015583	0.011780	-1.322846	0.1869
LEV	0.040108	0.017857	2.246016	0.0254
CFO	-0.047362	0.012708	-3.727020	0.0002
Effects Specification				
Cross-section fixed (dummy variables)				
Weighted Statistics				
R-squared	0.563762	Mean dependent var		0.267983
Adjusted R-squared	0.539419	S.D. dependent var		0.252270
S.E. of regression	0.116354	Sum squared resid		4.061445
F-statistic	5.086339	Durbin-Watson stat		2.096336
Prob(F-statistic)	0.000000			

Research Article

Considering F statistic (=6.278) in this table, one can conclude that the fitted regression model is significant at 1 percent level. The adjusted R-squared also shows that the independent variables of the research explain about 60 percent of the changes in earnings management. In addition, Durbin-Watson statistic value confirms the presence of self-correlation among disturbing elements of the regression model since D-W statistics tends towards 2. According to this table, the estimated coefficient and T statistics relating to SPEC variable is negative and significant at 1 percent level. Therefore, H0 is rejected and thus the first hypothesis is accepted. In other words, there is a negatively significant relationship between auditor industry specialization and earnings management.

1- Results of testing the second hypothesis

According to the second hypothesis, a significant relationship is found between length of auditor tenure and earnings management. To test the second hypothesis, the following equation is adopted:

$$DA_{i,t} = \beta_0 + \beta_1 TENURE_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 LEV_{i,t} + \beta_4 CFO_{i,t} + \varepsilon_{i,t}$$

H0 and H1 are formulated as follow:

H₀: $\beta_1 = 0$ no significant relationship between two variables

The H₁: $\beta_1 \neq 0$ a significant relationship between two variables

Table 3 presents the results of testing the second hypothesis.

Considering F statistic in this table, one can conclude that the fitted regression model is significant at 1 percent level. The adjusted R-squared coefficient (=0.539) also indicates that the independent variables of the research explain about 54 percent of the changes in earnings management. In addition, D-W statistics tends towards 2, pointing to the lack of self-correlation among disturbing elements of the regression model. As can be seen, the estimated coefficient and T statistics relating to TENURE variable is negative and insignificant. Therefore, H0 is accepted and thus the first hypothesis is rejected at 5 percent level of significance. In other words, no significant relationship was observed between length of auditor tenure and earnings management. Having tested the relationship between auditor industry specialization and length of auditor tenure, and earnings management, this study comes up with the following conclusions:

Results of the first hypothesis indicate that there is a negatively significant relationship between auditor industry specialization and earnings management. According to the first hypothesis and due to the better familiarity with accounting procedures, reporting requirements and trading operations of that industry, therefore, the auditors specialized in the industry of the client firm have better understanding of the client firm's issues, which enables them to identify the frauds in the audit of financial statements and eventually, offer higher audit quality, which in its own merits reduces the earnings management. These findings conform to the findings of Chen *et al.*, (2005), Rusmin (2010) and Ghosh *et al.*, (2005), suggesting that firms audited by auditor industry specialization confront less earnings management. The findings of the second hypothesis, on the other hand, pointed to the lack of significant relationship between length of auditor tenure and earnings management. Therefore, one can claim that length of auditor tenure will not affect earnings management. The positive and negative effects of the long-term relationship between auditor and his client, i.e. identifying accounting procedures and reporting or reduction in his independence due to his close relationship with client can neutralize each other. These findings are in line with those found by Piot and Janin (2005).

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Research Article

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