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The Relationship between Audit Quality and Fraud in Listed Companies in Tehran Stock Exchange

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Abstract: The present study examines the relationship between audit quality and fraud in listed companies in Tehran Stock Exchange. The study tries to found that to what extent the annual adjustments and restatements of balance sheet figures and restatements of profit and loss figures, which are called fraud here, can mislead auditors and reduce the audit quality. Research up to now has been done on the basis of audit firm size and firm size. We sought to analyze these variables and come to conclusions according to previous research. The research sample consists of 122 companies in Tehran Stock Exchange in the period of 2007 to 2011. The research statistical model is logistic regression (stepwise). For this study, three hypotheses have been considered. Comparison of dependent variables averages indicate that the restatements rate of balance sheet figures, relative to the other dependent variables, is more. This means that restatement of balance sheet figures influences audit quality more than other dependent variables (fraud) and has an inverse relation with it. That is to say, the lower the value of these items, the higher is the quality of audit. Thus, audit quality cannot explain the fraud alone, so that after entering the control variables a significant relationship between fraud and audit quality can be found.
Key words: Fraud, Audit Quality, Audit Firm Size, Firm Size, Restatements, Annual Adjustments

INTRODUCTION

Fraud and corruption in the companies has become increasingly a significant concern of countries around the world. Audit role in addressing these concerns has been critically examined. There is a growing expectation that audit institutions should be effective, through coordinated action, in the promotion of the culture of value orientation, honesty, responsibility and answerability in authorization implementation and the implementation of the national resources. Researching fraud records and its detection is important because it makes a better understanding of the underlying frauds and raises legislators and inspectors' capabilities in fraud detection, and it can be used as a basis of future research. Fraud detection can largely prevent the fraud of organizations, employees, shareholders and the creditors, and the costs related to fraud can be used for market efficiency. It is also useful to investigators, and they ensure that the

companies which have financial open statements of customer selection and subsequent judgments are not defrauding.

Research Literature

Fraud: Fraud is referred to the intentional actions of one or more directors, employees or third parties that lead to the misrepresentation of financial statements. Fraud may include the following cases:

1. Manipulation, falsification or alteration of accounting documents and records or other documents in order to obtain unfair and illegal financial benefits, misuse or steal assets.
2. Misrepresentation of the financial effects of transactions or omission of them from documents and records.
3. Transactions recorded without supporting documentation (external transactions).
4. Incorrect application of accounting procedures

There is no universally accepted definition of financial fraud. Wang et al. have defined fraud as "targeted efforts for gaining illicit financial interest that is in violation of laws, rules, or politics". In recent years, various types of financial fraud such as credit card fraud, corporate fraud and money laundering caused great concerns and have attracted lots of considerations. Nagay et al. in a general classification have divided financial fraud types into four categories; bank fraud, insurance fraud, securities and commodities fraud, and other financial fraud. In practice, two types of fraud can be detected in the companies. The first type is the misuse of assets; for example in the form of theft, embezzlement, falsifying expense accounts, personal use of corporate assets, and so on. And the second type is fraudulent financial reporting. Fraudulent financial reporting involves intentional distort of financial statements.

Saghafi and Motamedi due to reference constraints and as a result of increasingly importance of the growing efficiency of investing in this study examined the relationship between audit quality and investment efficiency in firms with high investment opportunities [1].

Hasas Yeganeh and Azin Far on a study examined the relationship between audit quality and auditor (audit firm) size in Iran. Therefore, the audit firms that were members of certified public accountants were considered small auditors (small audit firms) and the Audit Organization due to the large number of staff and being much more ancient is considered great auditor[2].

Safar Zadeh on a study using logit analysis in cross-sectional data, examined the role of accounting data in the formation of a model to explore the factors associated with fraudulent in financial reporting [3].

Douglas et al. in an investigation studied the events surrounding the failed auditing of Chuoaoymas of Kanebo Company, a great cosmetics company that its director engaged in major accounting fraudulent. The company is dependent to Japan pwc and is one of the Japan largest auditing firms. Due to the role of this

audit firm the Financial Services Agency of Japan suspended it from services that caused great harm[4].

Ettredge et al. expressed that provision of false financial figures presentation is related to the amount of earnings manipulation. They also showed that in some cases false financial statements are due to the intentional manipulation of the management, rather than misconception of principals and standards which is called scam[5].

Cohena et al. investigated the role of managers' behavior of in fraud commitment. This paper combined the triangle of fraud (FT) and the theory of planned behavior (TPB) to achieve a better understanding of fraud cases[6].

MATERIALS AND METHODS

Research hypotheses

First hypothesis: There is a significant relationship between audit quality and extent of important annual adjustments in companies

Second hypothesis: There is a significant relationship between audit quality and extent of restatements of profit and loss figures

Third hypothesis: There is a significant relationship between audit quality and extent of restatements of balance sheet figures

The research population included all companies listed in Tehran Stock Exchange .

To determine the research sample, companies with the following characteristics are considered:

1. Their fiscal year is ended at March of each year.
2. They are listed in Stock Exchange before 2007
3. The study period is a 5 year period from 2007 to 2011.
4. The companies are not involved in financial intermediaries, investments or insurance companies.
5. Their financial reports are available during the research period.

Excel software was used to summarize and organize statistical data and Spas software version 16 was applied for statistical analyses.

Independent variable

In this study audit quality is examined as the independent variable.

Audit quality: In the present study the audit firm size is used to measure audit quality. Previous research considered audit firm size as a general measure of audit quality. The larger audit firms have higher independence degree, experience, and expertise and consequently provide a higher audit quality. In the present study, audit organization is selected as the great auditor, and other audit institutions are selected as small auditor. According to the audit firm size measure, it is assumed that the audit organization, in comparison with other audit

institutions, has higher quality. Therefore, if the audit organization is the sample firm's auditor the value of 1, otherwise the value of 0 is considered.

Dependent variable

Fraud: In this study, similar to studies conducted in other countries, annual adjustment rate and conducted restatements in the financial statements figures have been used as important mistake and as a replace for fraud.

Control Variables

Lev: ratio of debt to total assets of the company.

Size: firm size that is defined using the natural logarithm of the market value of equity.

ROA: return on assets of the firm that is obtained using net income ratio to average assets during the period.

The total assets / net income % = (Net income margin) * (turnover ratio of total assets) = (ROA)

Fin_Distress: the financial situation of the company in terms of exposure to the risk of bankruptcy that is defined using Altman Z' model and its operational definition is as follows:

Edward Altman presented Model Z in 1968. Then in the next years by modifying the Model Z, presented Model Z'. Model Z' is the modified Model Z. Altman using multiple discriminant analysis and among 22 financial ratios to be the best predictors of the forecasting of bankruptcy, selected five combinational ratios as the best predictor of bankruptcy. Five combinational ratios are:

1. The ratio of working capital to total assets (x1)

2. Ratio of retained earnings to total assets (x2)

3. Ratio of earnings before interest and taxes to total assets (x3)

4. Ratio of book value of equity to book value of debt (x4)

5. Ratio of sales to total assets (x5)

The model used by Altman is presented as follows:

If Z '<1.2 complete bankruptcy, if Z' <2.9> 1.2 between bankruptcy and non-bankruptcy, and if Z '> 2.9 entity is in perfect health.

BTM: is the ratio of book value to stock market value of the company.

The research model

To evaluate and test research hypotheses, logistic regression is used as follows:

$$\mathrm{Fraud}_{i,t} = \alpha_0 + \alpha_1 \mathrm{Audit\ Quality}_{i,t} + \alpha_2 \mathrm{Lev}_{i,t} + \alpha_3 \mathrm{Size}_{i,t} + \alpha_4 \mathrm{ROA}_{i,t} + \alpha_5 \mathrm{Fin\_Distress}_{i,t} + \alpha_6 \mathrm{BTM}_{i,t} + \varepsilon_{i,t}$$

RESULTS

Table 1 . Descriptive statistics

		annual adjustments	audit quality	balance sheet	profit and loss
	Valid N.	122	122	122	122
	Missing N.	0	0	0	0
Mean		51241.07	.87	287699.33	141564.62
Std. Deviation		211900.00	.339	996137.874	452577.271
Skewness		7.39	-2.213	5.833	5.632
Std. Error of Skewness		0.22	0.219	0.219	.219
Kurtosis		62.94	2.944	34.898	34.333
Std. Error of Kurtosis		0.44	0.435	0.435	0.435
Minimum		26.00	0	1635	3318161
Maximum		2011977.00	1	7272277	1919
Percentile	25	1873.50	1.00	28695.25	3320080
	50	4557.50	1.00	60469.50	10629.25
	75	16147.50	1.00	127154.25	25084.50

Descriptive results of the research variables in the descriptive statistics table can be seen. The comparison of dependent variables average shows that restatements of balance sheet figures rates are much more than other dependent variables. This means that restatements of balance sheet figures provide audit quality more than the other variables and they are inversely related. That is to say, the lower the value of these items, the higher is audit quality.
The mean of the independent variable of audit quality is equal to 0.87. Given the independent variable dual choice the mean represent that the majority of companies have high audit quality.

Summary of first hypothesis testing results of the study

To calculate the first hypothesis the following model is used:

$$\text{FRAUD} = \propto_0 + \propto_1 \ (\text{size}_{i,t})$$

Statistical summary results indicate that audit quality cannot explain significant changes in the company's annual adjustments. Due to the model significance test and f-statistic level it can be concluded that there is no significant relationship between the independent and dependent variables. So the statistical hypothesis H_0 is rejected and H_1 accepted. In the coefficients significance test the significance level of regression coefficients of audit quality is greater than 5 %. So H_0 is accepted and H_1 can be rejected with high confidence.

Notable point in this assumption is the coefficient direction of audit quality. So that, the audit quality variable, according its positive coefficient, has an incremental effect on the important annual adjustment rate in companies. This means that the higher the audit quality, the higher the important annual adjustments will be in the companies. It is also important to note that this effect is not significant. After entering the firm size variable to the model 69.4% of the total changes in the

important annual adjustments rate in the company have been able to be explained.

Table 2. Analysis of variance

Model		ss	df	Squares Average	F	Sig.
1	Regression	0.140	1	0.14	0.410	0.839[a]
	Residual	407.196	120	3.393		
	Total	407.336	121			

Results of variance analysis table of the only fitted logistic regression model by the stepwise method show that the significance level of F-statistic is significant at the 5% error level (sig =0.000), then H0 is rejected and H1 accepted with confidence level higher than 95%. Thus, the assumption of linearity of fitted models by stepwise regression method is approved.

These results indicate that the independent variables remaining in the model have high explaining abilities and they are well able to explain the changes and the variance of the dependent variable. In other words, the fitted regression models are adequate.

Summary of the second hypothesis test results

To calculate the second hypothesis the following model is used:

$$FRAUD= \propto_0+\propto_1 (size_{i,t})+ \propto_2 (BTM_{i,t})$$

In this hypothesis, H_0 is accepted and H_1 is rejected. It means that there is no significant relationship between the audit quality and the restatements of profit and loss figures.

Based on the model, coefficients of 5% error level sig is higher, then H_0 is rejected and H_1 is accepted. After the main hypothesis, the control variables are entered into the model using stepwise regression method. Among the six variables, firm size variable and the ratio of market book value variable are the effective variables on profit and loss figures. By entering these two variables, H_0 is rejected and H_1 is accepted with confidence level of 95%.

Table 3. Coefficients

Variables		Non-standardized Coefficient		Standardized Coefficient	t	Significance	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-2.354	0.554		-4.251	0		
	Firm Size	0.953	0.041	0.903	23.071	0	1.000	1.000
2	(Constant)	-2.229	0.548		-4.070	0		
	Firm Size	0.956	0.041	0.906	23.498	0	0.999	1.001
	Book Value	-0.165	0.074	-.086	-2.223	0.028	.999	1.001

The regression models coefficients also show that the regression coefficient of firm size variables is 0.956 and market book value is -0.165 and they are significant at 5% error level. This means that they have a significant impact on the dependent variable of restatements rate of the balance sheet figures in the companies at 5% level.

Summary of the third hypothesis test results

To calculate the third hypothesis the following model is used:

$$FRAUD= \propto_0+\propto_1 (size\_{i,t})+ \propto_2 (LEV\_{i,t})+ \propto_3 (ROA\_{i,t})$$

For the coefficient of the regression model of the second hypothesis, R2 = 0.0001. This means that audit quality is only able to explain 1% of changes in restatements of the balance sheet figures rate.

Table 4. Analysis of variance

Model		ss	df	Squares Average	F	Sig.
1	Regression	0.261	1	0.261	0.116	0.734[a]
	Residual	269.963	120	2.250		
	Total	270.224	121			

Since the F statistic is 0.116 and less than sig = 0.05, H_0 is rejected and H_1 is accepted. The linearity assumption of the regression model of the main hypothesis of the study is not confirmed. These results indicate that audit quality is not that much able in explaining the rates of restatements of profit and loss figures. It means that the defined model is not an appropriate model.

Table5. The coefficients significance test

Variables		Non-standardized Coefficient		Standardized Coefficient	t	Sign.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	11.195	0.387		28.908	0		
	audit quality	-0.141	0.414	-0.031	-.341	0.734	1.000	1.000

Significant level of audit quality variable is 0.0141 and is higher than 5%, in which case H_0 is accepted and H_1 is rejected. That is to say, audit quality has no significant effect on restatements of balance sheet figures.

Audit quality independent variable coefficient is also interesting. So that is has a decreasing effect on the rate of restatements of balance sheet figures. That means that the higher the audit quality, the lower the rate of restatements of figures. So this effect is not significant.

After entering the six control variables, only the three variables of firm size, financial leverage , and asset returns are accepted, and by entering these variables

into the model H_0 is rejected and H_1 is accepted. The linearity assumption of stepwise regression is confirmed.

DISCUSSION

Restatements of balance sheet figures are respectively 51241.07, 141564.62 and 287699.33. The comparison of dependent variables average shows that restatements of balance sheet figures rates are much more than other dependent variables. This means that restatements of balance sheet figures provide audit quality more than the other variables and they are inversely related. That is to say, the lower the value of these items, the higher is audit quality.

Testing the hypotheses give the conclusion that fraud (annual adjustments and restatements of balance sheet figures and profit and loss figures) cannot explain the audit quality alone, and with the help of control variables (firm size, financial leverage, bankruptcy indicators, rates of return on assets and the ratio of book value to market) can have a significant relationship between the independent and dependent variables.

According to the calculations it can be concluded that logistic regression model is not a good model to examine the relationship between these variables. In future research other models should be used.

Most of the research that has been done came to the conclusion that audit firm size can be effective on audit quality. However, it must be considered that there are other factors that will affect audit quality. Abbas Hashi concluded that large audit firms, in comparison with the smaller audit firms, have higher-quality audit reports [7]. Azin Far in his study also concluded that the audit organization must be separated from audit firms2. Babatunde et al. concluded that financial leverage and firm size are significantly associated with audit quality [8]. They suggested a combination of non- executive directors in board members.

Rahimian and Rezapour considered the role of institutional owners very effective on audit quality. Due to the high concentration of ownership they can play an effective role in the increase or decrease of audit quality [9]. Yaghub Nejad and Amiri came to the conclusion that there is no significant relationship between the variety of audit job and audit firm size, and the theory rejection must be searched for in other factors [10]. Saghafi et al. studied the effect of audit quality in the reduction of discretionary accruals manipulation and found that companies with large investments use higher-quality auditors[1]. Sajjadi concluded that auditor selection continuity has no significant impact on audit quality [11].

Suggestions for future research

Almost all over the world, the issue of responsibility of auditors in detecting and reporting fraud is a priority and the following questions in this regard are worthy of investigation:

• What are the ways to enhance the auditor's ability to discover fraud?

• To what extent can assessing the control environment help the discovery and decrease of the fraud?

The other item that can be used in future studies is employing other model except the Jones model (evolutionary algorithm Model).

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