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Investigating the impact of audit quality on earnings response coefficient of the listed companies in Tehran stock exchange

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Abstract: This investigation aims to examine the audit quality on earnings response coefficient of the listed companies in Tehran stock exchange. All listed companies in Tehran stock exchange were selected as the statistical population of the investigation during 2009 to 2013. To measure audit quality, audit firm size measurement is used in this research. In this investigation, audit quality and earnings response coefficient are regarded as the independent and dependent variables, respectively. The research method is inductive-deductive here. Regarding the imposed restrictions between 421 listed firms in Tehran stock exchange, 331 cases with the systematic eliminating method and the other 83 firms were selected through Cochrane method as the final sample. The research suggested that audit quality significantly impact on earnings response coefficient of the listed companies in Tehran stock exchange.
Keywords: Audit quality; Earnings response coefficient; Tehran stock exchange.

1- Introduction

Acountants' role in validation on earnings information of firms is essential following recent firms' earnings restatement and bankruptcy of big firms. Difference arising from earnings quality is reflected as a difference provided validation by auditors and their earnings quality of employer. Okolie (2014) showed that audit quality significantly impact on earnings response coefficient. He also noted that firms improve earnings quality only in quality of earnings report, cost control and cost reduction strategy. Therefore, quality of earnings reporting and audit quality successfully result in restrictions in earnings manipulation (Nans et al, 2014).

The previous researches (Myers et al, 2003; Namazi et al, 2011), indicate that higher audit quality causes earnings management to be significantly reduced by firms' managers. In this regard, considering dfferent measurements of audit quality significantly influence on the obtained results. Higher quality auditors are able to discover earnings management because have more knowledge than other auditors, and try prevent from opportunistic earnings management and keep their reputations. On the other hand, in firms using industry specialization auditors, increased discretionary accruals and decreased earnings response coefficients are lower than other firms (jenkinz et al, 212).

Earnings response coefficient measures market unexpected returns in response to the reported unexpected return components by the firm issued securities. In other words, earnings response coefficient measures market sensitivity to earnings announcements by regression slope coefficient among abnormal and unexpected returns (Scot, 2003). The researches have indicated that earnings response coefficient is higher in firms with industry specialization auditors (Balsam et al, 2013). As well, earnings response coefficient considerably lower than firms paying higher non-audit services fees in comparison with other firms (Francis, 2014).

Karroliou et al, (2010) found that earnings response coefficient is related with non-audit services. Hence, as earnings response coefficient is lower, the provided non-audit services is higher by auditors. In one side, the harmful impact of non-audit services is observed on quality of financial information with regard to lower earnings response coefficient. The investigations show that this negative relation in firm with influential and effective audit committee is weaker (Kamaroddin et al, 2012). Consequently, the main research problem is the relation between audit quality and earnings response coefficient of the listed companies in Tehran stock exchange.

2. Research background

Aghaei & Nazemi Ardakani (2012) examined the relation between industry specialization auditor and discretionary accruals management of the listed companies in Tehran stock exchange. The results suggested that firms with expert auditor in a special industry, have lower discretionary accruals management level.
Vakilifard et al, (2013) investigated earnings response coefficient in Tehran stock exchange. The obtained results have emphasized the difference in earnings response coefficient in high-yield and low-yield companies, and have not confirmed the significant relation between bad and good news and market reaction. The only significant relation is about bad news in low-yield companies, i.e. market overreact to bad news (negative adjustments) related to low-yield companies.
Ghorbanzadeh (2014) examined earnings response coefficient and the reasons of market reaction. The results indicate that earnings response coefficient has adverse relation with Beta, capital structure, informing price and board composition, and direct relation with earnings quality, growth opportunities and similarity in shareholders' expectations, and not significant relation with firm size and audit quality.
Kamaroddin et al, (2012) investigated the impact of audit committee efficieny on the relation between non-audit services and earnings management. The statistical test show that the negative relation is weaker in firms with influential and effective audit committee. These results are roubost with regard to controlling firm growth, earnings volatility, loss and probability of debt convenants violations.
Marshall et al, (2013) examined the interests of audit disclosure about the market components of shareholders' equity. The results show that earnings announcement decrases information asymmetry, reagrding evolved auditing. Regarding the measurement of earnings response coefficient, market valuably and relatively understand earnings announcement of the firms with evolved auditing. The results also indicated that audit financial statements have more interests for investors.
Okolie (2014) examined the relation between audit quality and earnings response coefficient in Nigerian firms. The research examined whether audit quality impact on or relates with response coefficient. The results suggested that audit quality significantly impact on earnings response coefficient.

3. Research methodology

3-1- The research hypothesis

- Audit quality significantly impact on earnings response coefficient of the listed companies in Tehran stock exchange.

3-2- Research method

In this research, the research is based on inductive-deductive method; it is deductive due to describing the research hypotheses with the help of the available theories; and its inductive characteristic is for testing hypotheses which is empirical in positive accounting researches and based on real data infirms' financial statements. The rsearch methology is a kind of descriptive-regression.

3-3- The operational definiton of the variables

3-3-1- Audit quality (independent variable)

In this research, audit institutions size is used to measure this variable. If financial statements auditted by audit organization, the considered digit is one, otherwise zero.

3-3-2 Earnings response coefficient (independent variable)

The studies about earnings response coefficient consider the following equation suitable for calculating:

$$CAR_i = a + b\ (SUE_i) + e_i$$

In which:
CARi: Modified return of the firm i for a 12-month period t
SUEi: Annual dividend of the firm i in the year t
Ei: residual term
In the above equation, slope of a curve or independent variable coefficient indicated with b is named earnings response coefficient or ERC.

3-3-3- Firm size (control variable)

Natural logarithm of book value of total assets

3-3-4- Financal leverage (control variable)

Total debts to total assets ratio

3-3-5- Growth rate (control variable)

(current year sale- previous year sale)/ previous year sale

3-4- The statistical population and sample

The statistical population of the research includes all listed companies in Tehran stock exchange were listed during 2009 to 2013. The sample selection criteria is based on the systematic elimination method:

Table 1-1: The imposed restrictions on firms

Row	Restrictions	No.
1	The number of all firms before restrictions	421
2	There were not listed in the stock exchange before 2009	23
3	Their fiscal year was not ended in 13/3/20..	19
4	The firms that changes their fiscal year during the study	10
5	They should not be part banks, insurance and investment companies…	18
6	The information about the studied variables were not available in all studied year	20
The total number of remaining firms		331

Regarding the imposed restrictions between 421 listed firms in Tehran stock exchange, 331 cases with the systematic eliminating method and the other 83 firms were selected through Cochrane method as the final sample. The Cochrane method is as follows:

$$n = \frac{(331)(1.96)^2 \times (0.5)(0.5)}{(331)(0.1)^2 + (1.96)^2(0.5)(0.5)} \cong 74$$

In the above formula, maximum permissible error (d) is 0.1, confidence coefficient is 0.95, t= 1.96, p and q are 0.5 and population volume is N. The amount of P is considered 0.5, because if p=0/5, so m would find his maximum amount and it causes the sample to be big enough.

3-5- The reseach regression model

$$\text{Earnings response coefficients}_{it} = a_0 + a_1 \text{Audit quality}_{it} + a_2 \text{Firm Size}_{it} + a_3 \text{Leverage}_{it} + a_4 \text{Growth}_{it} + \varepsilon_{it}$$

3-6- Data analysis method

In the first section, the central and distribution indices of each variables in distribution table (min, maxm mean and standard deviation, and in the second section, Hausman, F-Limer and Jarque-Bera are used to examine the posibility of the primary test of the research, and finally, using regression test, we examine the hypotheses of the research. EVIEWS 7 software is used here to analyze data.

4- Results

4-1- Descriptive statistics

Table 1-2- Descriptive statistics of data

Indices	Min.	Max.	Exponent	Mean	SD
Earnings response coefficient	-0.225	0.841	-	0.516	0.392
Audit quality	0	1	0	-	0.512
Firm size	1.326	12.625	-	6.305	3.558
Financial leverage	0.102	0.825	-	0.406	0.147
Sale growth	-0.306	0.839	-	0.327	0.518

Regarding to the table 1-2, earnings response coefficientm, the average firm size, the average financial leverage and average sale growth are 0.516. 6.305, 0.406 and 0.327, respectively. Zero is the exponent of audit quality which their financial statements were auditted by the most other audit institutions.

4-2- Examination of heteroskedasticity

To examine heteroskedasticity, Arch error terms test (LM) is performed. The obtained results are as follow:

Table 1-3- LM Test

Description	Statistics amount	Probability
F-statistic	1.602336	0.095
Obs*R-squared	2.714152	0.095

* 5% error level

Regarding table 1-3, due to the significance level of f-statistics is not significant in 5% error level, homogeneity of variance is confirmed and heteroskedasticity of error terms are rejected.

4-3- Significance test of fixed effects method

Table 1-4: F-Limer and Hausman test

F-Limer test			
Description	**Statistics amount**	**Freedom degree**	**Probability**
Cross-section F	1.332014	73	*0.000
Cross-section Chi-square	126.714269	73	*0.003
Hausman test			
Description	Statistics amount	Freedom degree	Probability
Cross-section F	8.162336	26	*0.018

* 5% error level

Regarding the results of both table (F and Hausman), the obtained probability were less than 5% in each tests, so fixed effects method should be used in the related regression model.

In panel data, Lin & Levene indicated that cumulative unit root tests used in these data has more power than common tests such as Dickey-Fuller, Augmented Dickey-Fuller and Philips-Peron tests. Lin-Levene test is used in this research. H0 indicates the unit root of the variables.

Table 1-5- Test of cumulative unit root test on variables by Lin-Levene

Variables	Statistics	Probability
Earnings response coefficient	4.869	*0.0130
Audit quality	3.179	*0.0230
Firm size	-8.938	*0.0010
Financial leverage	-7.222	*0.0015
Sale growth	6.254	*0.0020

* 5% error level

According to the table 1-5, the examination of calculated statistics and their acceptance probability indicates that H0 is rejected and all variables of the study are durable.

4-5- The research hypothesis test

Table 1-6: The regression and model significance test

Variable	Estimated coefficients	Estimation of deviation	t-statistics	Significance level
Fixed	0.845	0.247	3.421	*0.042
Audit quality	3.415	0.394	8.667	*0.000
Firm size	9.036	0.816	11.073	*0.000
Financial leverage	-0.745	0.198	-3.762	0.068
Sale growth	1.663	0.207	8.033	*0.000
Durbin-Watson	2.347			
F-statistics	102.369			
Significance level	**0.000			
Adjusted coefficient of determination	0.492			

Regarding the table 1-6, since Durbin-Watson statistic test value is determined among 1.5 to 2.5, there is no correlation between errors and regression can be used. Independent variable of earnings management has positive and direct impact on dependent variable of earnings response coefficient regarding estimated coefficient 3.415. This relation is significant in 5% error level, regarding significane level of t-statistics. It

can be said that, therefore, audit quality significantly impact on earnings management coefficient of the listed companies in Tehran stock exchange. The independent and dependent variables can predict about 49.2% of the independent variable changes, and significance leve of F-statistics show that the research model is significant in 1% error level. The empirical model of the research is wrote:

$$\text{Earnings response coefficients}_{it} = 0.845 + 3.415\ \text{Audit quality}_{it} + 9.036\ \text{Firm Size}_{it} - 0.745\ \text{Leverage}_{it} + 1.663\text{Growth}_{it} + \varepsilon_{it}$$

5- Conclusion and recommendations

The results of the research's hypothesis showed that audit quality significantly impact on earnings response coefficient of the listed companies in Tehran stock exchange. Hence, Akolie (2014) examined the relation between audit quality and earnings response coefficient in Nigerian firms. The results suggested that audit quality significantly impact on earnings response coefficient. Batacharia (2011) examined the relation industry specialization auditor and earnings response coefficient. The obtained results indicated that the relation among industry specialization auditor and earnings response coefficient is not observed in Newzeland market. Khaled (2009) investigated the correlation among audit quality and earnings quality and concluded that in firms with higher quality auditted financial statements, inevstors are able to predict their future earnings well. It can be concluded that, therefore, increased earnings response coefficient is expected, and this information can be useful for stakeholders. Based on the obtained results, the following recommendation can be made:

1. It is suggested to shareholders, investors and other stakeholders to pay more attention to the kind of audit institution which examine firms' financial statements when they want to choose stocks based on earnings response coefficient.
2. It is recommended to Tehran stock exchange to rate firms baed on earnings response coefficient so that stakeholders can use the information.
3. It is recommended to firms' managers to notice the kind of audit institution when they audit their financial statements, because it can impact on earnings response coefficient and make changes in the firm.

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