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The effect of audit quality and auditor reputation on the relationship between the auditor's tenure and the auditor's fee

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Abstract

The purpose of this study was to investigate the effect of audit quality and auditor reputation on the relationship between auditor tenure and audit fees. Companies listed on the Tehran Stock Exchange for a period of 10 years from 2011 to 2021, was the statistical population of the present research. The sampling method was systematic elimination; Which, based on the constraints raised, the 132 accepted listed have been selected in the Tehran Stock Exchange as a research sample . In this study, information was collected in two stages. In the first stage, the library method has been used to formulate the theoretical foundations of the research, and in the second stage, Rahavard Novin software and financial statements of companies have been used to collect the desired data. The analysis of companies' financial information was performed using the self-return model with distributed interrupts (ARDL) in the Eviews software environment. The results showed that the auditor's tenure had a positive and significant effect on the audit fee and the quality of the audit and the auditor reputation had a positive and significant effect on the audit fee. It has significantly intensified the relationship between the auditor's tenure and the auditor's fee.

Keywords: Audit fee, Auditor tenure, Audit quality, Auditor reputation

1. Introduction

Audit fees reflect the economic costs of efficient auditors [4]. From the auditor's point of view, auditors seek to minimize total costs by balancing the costs of their resources (the costs of performing

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more audit work) and future losses arising from statutory debt. Managers have the potential to motivate profit manipulation [14]. This incentive may be due to the nature of explicit contracts such as manager reward programs or implicit contracts such as contracts with buyers and sellers [1]. The auditors' fees have a special importance both from the point of view of the management and the shareholders of the audited units and from the point of view of the audit firms. From the point of view of management and shareholders, the report of the auditors that in return they are willing to pay the auditors' fees, is very important [7]. In the first part, they must announce to the unit under consideration a fee that is commensurate with the services provided by them [5] and in the second part, the Proposed price should be able to compete with the Proposed price of other auditing firms [6]. In fact, in the first part of determining the pricing services, auditors can use risk-based auditing techniques to determine the volume of audits and based on that, to formulate the necessary time budget and also to determine the required forces at different levels for the desired work, that according to the required working hours in different categories (assistant auditor, auditor, senior auditor, supervisor and manager) and the estimation of other costs, the fee related to the services provided is determined [3]. Evaluation of service prices in the second part, which is competitive, refers to economic theories, especially microeconomics (allocation of scarce economic resources to meet various forms of demand) [13].

Another factor affecting the audit fee is the auditor's tenure. In today's world, management has a decisive role in increasing the efficiency and productivity of companies. Among the four key success factors in organizations, including labor, capital, raw materials, and management, the role of management is more important today than ever before. The personal characteristics of the chief executive officer (CEO) affect the financial reporting of the company [6]. According to Upper Echelon Theory, the personal characteristics of managers play an important role in their strategic decisions and important choices in the company stem from the inherent characteristics of decision makers, including the CEO. These characteristics (such as age, education and experience) indicate their tendencies and abilities. On the other hand, one of the main topics of stakeholder theory is related to managers' views on management and how to run company. In this theory, the leadership role of management is considered important due to strategic decisions. Since the CEO's ideal decisions shape the leadership activities of managers, it is reasonable to expect the CEO to have a major impact on the company's issues, such as audit issues, and especially the quality and auditor's fee [15]. One of the contradictions between the manager and the company's stakeholders is that the managers 'decision horizon for the company is shorter than the shareholders' investment horizon. Managers' claims to the company are limited to their tenure and this issue may reduce the interests of shareholders and the value of the company [2].

Agency theorists state that CEOs with a long tenure, they are fixed for three reasons. First, the effectiveness of the CEO increases with the length of the tenure due to good performance. Second, CEOs who have a long tenure, influence the composition of the board of directors [6]. The CEO with a long tenure has a role in appointing new members of the board of directors that this leads to the formation of a board of directors loyal to him. In the third stage, CEOs may increase their relative strength by controlling processes and internal information systems at the same time [15]. The two variables that were considered as mediating variables in this study and can affect the audit fee are the quality of the audit and the auditor reputation. Considering the importance of audit services and the impossibility of directly observing audit quality, it is essential finding an effective method for controlling audit quality [16]. The most important aspect of auditing quality control and management can be considered as audit fees. The fee for auditing services is a necessary condition for ensuring the quality of auditing [8]. although, a higher audit fee does not always reflect the auditors fee with of a higher quality however, in addition to having good audit quality, auditing firms consider

a standard fee for doing their work; that naturally, the their received fee is more than these costs. If there is competition in the market, auditing firms in addition to receiving lower fees; they may also lose their owners [11]. If auditing firms charge a much higher fee than the cost of auditing, The community's view of the quality of their work will be questioned [12].

Therefore, it can be seen that; Experimental research on auditing fees of listed companies in Iran provides relevant information for investors to interpret auditing fees. Audited financial statements can provide this assurance to investors and lenders that reliable information is provided to them. Given the importance of audit services and the impossibility of directly observing of audit quality, it is necessary to find an effective way to control audit quality. On the other hand, the reputation of the auditing firm significantly affects the audit fee and more and more reputable institutions are usually demanding higher fees [15]. On the other hand, the intellectual capital of the employer and how it interacts with this non-renewable resource can significantly affect the determination of auditors' fees [6].

According to the above explanations, this study examines the effect of the auditor's tenure on the audit fee according to the mediating effect of the audit quality and the auditor's reputation; and it raises the question of whether the auditor's tenure affects the decisions regarding the audit fees of companies listed on the Tehran Stock Exchange? And does the audit quality and the auditor reputation have a significant effect on this relationship?

2. Research methodology

2.1. Research method

This research is a descriptive correlation method and is applied in terms of purpose because it aims to apply these results in the capital market. The research area is the companies listed on the stock exchange and its time area is from 2011 to 2021. In this research, systematic elimination method has been used to select a statistical sample. In order to select a statistical sample, companies with the following characteristics were selected as a statistical sample and the rest were removed:

A) Selected companies are manufacturing; B) In order to select active companies, it was listed on the Tehran Stock Exchange before 2011 and the transactions of these companies are active in the stock exchange during the years 2011-2021 and the length of the trading interval should not more than three months, D) In order to be able to compare and to avoid heterogeneity, their fiscal year should have ended on March 20 and should not have changed the fiscal year between 2011-2020, E) financial statements and explanatory notes with them are available; Thus, 132 companies were studied.

2.2. Research model and how to calculate variables

Given that this research uses past information to test hypotheses, it is a post-event research. On the other hand, this research is a quasi-empirical research in the field of financial accounting research. The statistical model used in the research is a multivariate regression model. In this study, the audit fee was a dependent variable and the auditor's tenure, the quality of the audit and the auditor's reputation are independent variables. According to the purpose of the research, the model is specified as follows:

$$LN\ AUDFEE_{it} = \alpha_0 + \alpha_1 AUDIT_{it} + \alpha_2 BIG_{it} + \alpha_3 REP_{it} + \alpha_4 BIG_{it} * AUDIT_{it} + \alpha_5 REP_{it} * AUDIT_{it} + \alpha_6 MB_{it} + \alpha_7 LEV_{it} + \alpha_8 ROE_{it} + \alpha_9 SIZE_{it} + \epsilon_{it} \quad (1)$$

2.2.1. Dependent variable

LN AUDFEE: Audit Fee: Equivalent to the natural logarithm of auditor's fee [10].

2.2.2. Independent variable

AUDIT: Auditor's tenure: equal to the number of years the auditor has audited the company. To measure this variable, the base year of 2011 is considered.

2.2.3. Modifier variable

BIG: Audit Quality: It is a fictitious variable that is equal to one if the auditor is the auditing organization and otherwise equal to zero.

REP: Auditor reputation: This variable, if the auditing firm is known, it is one; Otherwise it is considered zero. In order to distinguish a reputable auditing firm from a non-reputable auditor; A number of companies under their control have been used; In fact, they are classified by the method of workload of their stock exchange and if the auditing firm is among 20 top firms in terms of workload; It is considered as a famous auditor and otherwise it is considered as a non-famous auditor [9].

2.2.4. Control variables

MB: as a growth opportunity for the company and is calculated from the ratio of market value to book value of equity.

LEV: It was the financial leverage of the company and is obtained to dividing the book value of total liabilities by total assets at the end of the year.

ROE: It represents the return on equity and is calculated from the dividend before the contingent items on the book value of equity at the end of the year.

SIZE: It indicates the size of the company and from the logarithm of the market value of equity is obtained at the end of the year.

2.2.5. Analysis methods and data collection tools

The present study applied the approach to distributive interruptions (ARDL) for the collective review of variables. Most recent studies suggest that the ARDL model is superior to other common methods for investigating co-integration, such as the Engle and Granger methods. The first reason is that regardless of whether the available variables are in model $I(0)$ or $I(1)$, it can be used. Another reason is that this method is relatively more efficient in small or limited samples compared to other methods. Therefore, this method has been used in this study. It should be noted that the ARDL method Cannot be used in the presence of $I(2)$; The general form of the ARDL pattern $(p, q1, q2, \ldots, qk)$ can be expressed as follows:

$$\begin{aligned} &\varphi(L,P)Y_t = \sum_{i=1}^{k} \beta_i(L,q_i)X_{it} + \delta W_t + \mu_t \qquad (2)\\ &Q(L,P) = 1 - \varphi_1 L - \varphi_2 L^2 - \cdots - \varphi_P L^P \\ &\beta_i(L,q_i) = \beta_{i0} + \beta_{i1}L + \beta_{i2}L^2 + \cdots + \beta_{iq_i}L^{q_i}, i = 1,2,\ldots,k \end{aligned}$$

In the above relation, L represents the time interrupt operator of the first order, such that $LY = Y_{t-1}$, Expresses the dependent variable, X_t represents the vector of explanatory variables, q_i the number of optimal interrupts associated with each of the explanatory variables, P he number of optimal interrupts related to the dependent variable and Wt are vectors of definite variables such as the width of the origin, seasonal variables, time trends or exogenous variables with fixed intervals. The corresponding equation is estimated using Eviews software. In the next step, using one of the criteria of Akaik, Schwartz-Bayesian, Hanan-Quinn or adjusted coefficient of determination, the optimal interruptions of the model are selected. From the above criteria, Pesaran and Shane propose the Schwartz-Bayesian criterion for determining the optimal interruptions of the model. This criterion

saves the number of interruptions due to the small sample size; In the end, fewer degrees of freedom are lost. To determine the long-run relationship, the value of t-statistic can be compared with the critical quantities presented by Benerji, Dolado, & Mister. The value of t-statistic to test the hypothesis of a long-run relationship ($H_0 : \sum_{i=1}^{p} \varphi_i - 1 \geq 0$) is calculated as follows:

$$t = \sum_{i=1}^{p} \widehat{\beta}_i - 1 / \sum_{i=1}^{p} S_{\widehat{\beta}_i} \tag{3}$$

Where $S_{\widehat{\beta}_i}$ is the standard deviation of the coefficients of the intermittent variables. If the computational value of t is greater than the critical value, Hypothesis zero based on which indicates the absence of a long-term relationship is rejected and we accept the existence of a long-term relationship. In addition, Eviews software provides an error correction model (ECM) according to the selected model. In order to derive the error correction model based on the $ARDL(p, q_1, q_2, \ldots, q_k)$ model, the variables $W_t, Y_t, X_{1t}, \ldots, X_{kt}$ are considered in terms of values with interrupts and their first-order difference; and the ECM model gives the following relation.

$$\Delta Y_t = -\phi(L, P) ECM_{t-1} + \sum_{i=1}^{k} \beta_{i0} \Delta X_{it} + \delta \Delta W_t - \sum_{j=1}^{p-1} \varphi_j \Delta Y_{t-j} - \sum_{i=1}^{k} \sum_{j=1}^{qt-1} \beta_{ij} \Delta X_{i,t-j} + U_t \tag{4}$$

The above equations are estimated by the OLS method; And by performing the necessary tests, the short-term dynamic structure of the model is determined. In the error correction model, ECM_{t-1} indicates the rate of adjustment toward long-run equilibrium. This coefficient shows what part of the imbalance of the dependent variable Yt during the previous period; Corrects in the current period. It is expected that the sign of this variable is negative and its value is between zero and -1. In this research, the library method was used to collect data and information; and data related to sample companies were extracted from sources such as Denasaham, Rahavard Novin, Bourse site, etc.

3. Findings

In order to study the general characteristics of variables and their detailed analysis, it is necessary to be familiar with descriptive statistics related to variables. Table 1 shows the descriptive statistics of the data related to the variables used in the research.

The table above shows the descriptive statistics for the model variables, which represent the descriptive parameters for each variable separately. These parameters mainly include information about central indicators, such as maximum, minimum, mean and average, as well as information about dispersion indicators, such as standard deviation. The most important central indicator is the average, which represents the equilibrium point and center of gravity of the distribution, and is a good indicator to show the centrality of the data. For example, the average variable of an audit fee is 18.39 which shows that most of the data related to this variable is centered around this point. Also, the median of the auditor's tenure is equal to 2; Which indicates that half of the data is less than this value and the other half is more than this value. Dispersion parameters are generally a criterion for determining the degree of dispersion of data from each other; Or the extent of their dispersion relative to the average. One of the most important parameters of dispersion is standard deviation. The value of this parameter is 0.231 for the company size variable and 0.098 for the financial leverage variable.

Before testing the research hypotheses to determine the relationship between research variables, a single root test for the variables should be performed. The econometrics and unit root text indicate

Table 1: Descriptive statistics related to research variables

Variables	Average	Middle	Max	Min	SD
Audit fee	18.39	18.07	21.62	16.34	0.673
AUDIT	2.08	2	6	1	0.314
BIG	0.43	0	1	0	0.089
REP	0.48	0	1	0	0.115
SIZE	7.39	7.14	9.19	5.13	0.231
LEV	0.541	0.533	1.221	0.192	0.098
MB	3.17	2.07	51.83	0.941	1.317
ROE	0.34	0.17	18.52	-4.31	3.29

that the unit root test based on panel data is more powerful and accurate than the unit root test of time series. In this research, in order to test the unit root has been used the Lin and Chou method has been used. Hypothesis zero in this test indicates the instability of the variable. in this case, if the probability values are less than 0.05, assumption zero will be rejected.

H0: Variables are unstable.

H1: Variables are stable.

Table 2: Stability test results for model variables

Variables	Coefficient	Sig
Audit fee	-21.42	0.00
AUDIT	-9.28	0.00
BIG	-13.83	0.00
REP	-10.24	0.00
AUDIT* BIG	-6.86	0.00
AUDIT* REP	-9.59	0.00
SIZE	-16.48	0.00
LEV	-6.05	0.00
MB	-28.14	0.00
ROE	-6.38	0.00

Stability results for panel data are presented in the table above. Based on the results, all variables are stable because the probability values of all variables are less than 0.05; and the zero hypothesis based on instability will be rejected.

To estimate the research models, first, the optimal model selection test is performed. In order to determine the optimal interruption, the Schwarz-Bayesian criterion was used, That the results are presented in Table 3.

According to the results of the above test, the optimal model for determining the relationships of selected variables can be determined. According to the results of the above test, the optimal model can be used to determine the relationships of the selected variables. For example, the optimal interrupt for a five-factor model was (1,1,1,1,1,1,1); And the numbers from left to right represent the number of interruptions 1 for the independent, moderator and control variables, respectively. To confirm the robustness of the selected model, the following diagram shows that the optimal models are preferable to other self-explanatory vector modes:

Since the selected criterion for determining the optimal interruptions of the model is Schwartz-Bayesian and also, the basis of the Schwarz-Bayesian criterion is large and is the absolute value of this

Table 3: Optimal model selection test

Variables	Coefficient	Sig
D(-1) AUDIT	0.09	0.0000
D(-1) BIG	0.11	0.3428
D(-1) REP	0.15	0.0461
D(-1) AUDIT* BIG	0.16	0.0891
D(-1) AUDIT* REP	0.19	0.0000
D(-1) SIZE	0.067	0.0659
D(-1) LEV	0.098	0.0000
D(-1) MB	-0.054	0.0328
D(-1) ROE	0.075	0.01113
Optimal interruption in model	(1,1,1,1,1,1,1)	

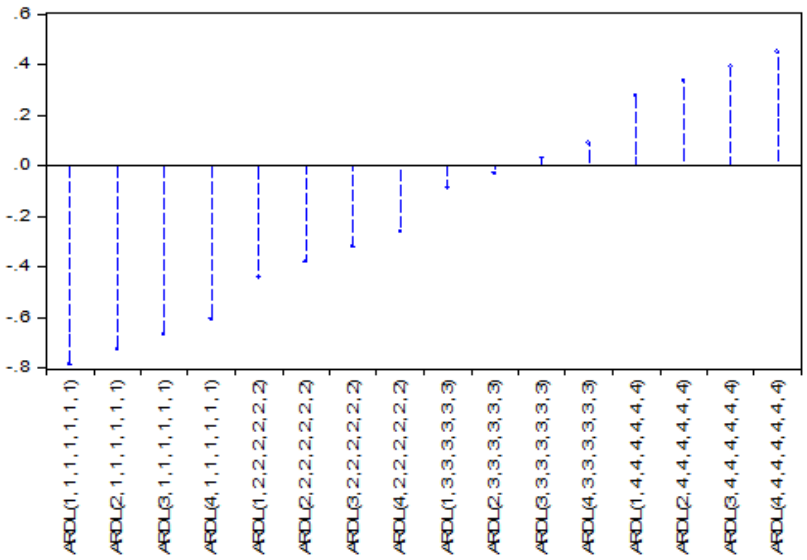

Figure 1: Drawing some examples of the best cases for selecting the optimal interrupt in the research model

criterion. Therefore, using this criterion, some of the best states for selecting the optimal interrupt are drawn; for example, in the research model, the interval (1,1,1,1,1,1,1) with a statistical value of (11.65) on the interrupts (2,1,1,1,1,1,1) (3,1,1,1,1,1,1) and other interruptions with a standard value of less than 11.65 are preferred. With these interpretations, by selecting the optimal models, long-term relationships between variables between research variables are estimated. To determine the long-run relationship, the value of t-statistic can be compared with the critical committees presented by Benerji, Dolado, & Mister (1992). If the computational value of t is greater than the critical value, Hypothesis zero is rejected due to the lack of a long-term relationship and the existence of a long-term relationship is accepted. The result of computational statistics t in the research model was -7.48; and since it is greater in absolute magnitude than the critical value of Benarji, Dolado, and Master (-3.28), Therefore, the null hypothesis is rejected in favor of the opposite hypothesis due to the lack of a long-term relationship. The results of long-term and short-term relationships of variables are presented in the following table:

Research results show that the auditor's tenure, both in the short and long term, has a positive effect on the audit fee; and considering that the significance level is less than 0.05; therefore, this effect is statistically significant. On the other hand, the quality of the audit and the auditor's reputation,

Table 4: Estimation of the research model

Variables	Coefficient	Sig
Long-term Effect		
AUDIT	0.153	0.0000
BIG	0.176	0.0052
REP	0.253	0.0006
AUDIT* BIG	0.318	0.0000
AUDIT* REP	0.548	0.0000
SIZE	0.092	0.4298
LEV	0.108	0.0000
MB	-0.091	0.0472
ROE	0.085	0.1284
Short-term Effect		
D(-1) AUDIT	0.084	0.0000
D(-1) BIG	0.123	0.0329
D(-1) REP	0.181	0.0313
D(-1) AUDIT* BIG	0.216	0.0000
D(-1) AUDIT* REP	0.245	0.0000
D(-1) SIZE	0.043	0.2851
D(-1) LEV	0.084	0.0095
D(-1) MB	-0.063	0.0128
D(-1) ROE	0.053	0.0762
C	0.197	0.0000
ECM	-0.763	0.0000

despite having a positive and significant effect on the audit fee, both in the short and long term has intensified the relationship between the auditor's tenure and the audit fee; and considering that the level of significance of the coefficients corresponding to the interactive effect of audit quality and auditor tenure and the interactive effect of auditor reputation and auditor tenure is less than 0.05; Therefore, this effect is statistically significant. Then, To examine how the short-term imbalance in the audit fee towards the long-term equilibrium is addressed. The error correction model (ECM) is used. The ECM coefficient shows that in each period a few percent of the short-term imbalance is adjusted to achieve the long-term equilibrium. Based on the results, the ECM coefficient was -0.76; and considering that the significance level of the coefficients is less than 0.05, it is significant. This figure indicates that in each period 76% of the short-term imbalance of the audit fee is adjusted to achieve the long-term equilibrium; Therefore, it can be said that the adjustment towards equilibrium is relatively fast.

4. Conclusion

This study investigated the effect of audit quality and auditor reputation on the relationship between the auditor's tenure and the audit fees of companies listed on the Tehran Stock Exchange during the period 2011-2021. The results showed that the auditor's tenure had a positive and significant effect on the audit fee. The results also showed that the quality of the audit and the reputation of the auditor, despite having a positive and significant effect on the audit fee; It has significantly intensified the relationship between the auditor's tenure and the audit fee. Researchers

believe that the length of the tenure is one of the factors affecting the audit fee and indicates the number of years that auditors provide financial statements of audit services to customers and conclude an audit contract with the client. Large auditors demand higher fees due to their high reputation and experienced and knowledgeable auditors as well as high quality work. According to the studies, a study that is completely similar to the subject of this study has not been done; However, the existence of a positive and significant effect of the auditor's tenure on the audit fee is somewhat consistent with the findings of Griffin and Lunt, Choi et al. and Zinhua; However, it is not consistent with the findings of Desai and Vaez et al. [16]. The long tenure of the auditor in companies causes the owner's economic dependence on the auditor. As a result, it is likely that as the auditor's tenure increases, the auditing firm will be more likely to receive a fee, which indicates a lack of information certainty and these economic dependencies also cause the auditor to lose their independence. According to the results of this study, it is suggested that a mechanism be developed to shorten the period of cooperation between the auditor and the client. Also, since the goal of the board and directors is to build the trust of owners and investors, they are advised to use large auditing firms and shorter tenure.

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