Effects of Audit Fee Adjustment on Relationship between Auditor Time Pressure and Quality of Earnings

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ABSTRACT
Audit time pressure may cause auditors to work harder in an attempt to improve audit efficiency. However, if the time pressure is unreasonable, negative consequences will occur. In fact, unreasonable time pressure can have an adverse (negative) influence on audit effectiveness, diminish audit quality, and raise the likelihood of audit errors and major material misstatement in financial statements, either directly or indirectly. Consequently, managers exhibit more opportunistic behavior. The quality of earnings (QoE) will eventually deteriorate. Moreover, increasing the load of audit work can help to prevent earnings manipulation and increase QoE. Furthermore, auditors demand higher fees for larger loads of work; hence, the QoE is expected to improve when the audit fee increases.

The purpose of this study was to investigate the effects of audit fee adjustments on the relationship between auditor time pressure and QoE. The regression analysis was performed to test hypotheses using panel data obtained from 105 companies listed on the Tehran Stock Exchange between 2014 and 2019. According to the findings of the research hypothesis, auditor time pressure reduced QoE. According to the findings, the audit fee mitigated the negative association between auditor time pressure and QoE.

Keywords:
Auditor Time Pressure, Quality of Earning (QoE), Audit Fee
1. Introduction

The quality of earnings (QoE) will assist users of financial statements in making accurate judgments and evaluations of earnings in the present period, as well as correctly estimating future earnings. It should be emphasized that accounting and financial reporting goals are derived from users' informational needs and demands. The primary goal of financial reporting is to describe the economic consequences of financial events and activities on the status and performance of business units in order to assist potential and actual users in making financial decisions about those units (Baker, 2010). Time budgeting has been an important, pervasive management tool in many of the contemporary planning operations, because it serves as a foundation for cost estimation and control, promoting the concept of timely project completion, evaluating performance, and presenting evidence in accordance with the standards for auditing, planning, and supervising audit appropriately for the first time ever (Baliry, 1997).

Audit fees obtained from contracts signed with employers supply the economic interests of audit firms. Auditors price audit services based on a variety of factors. Some of the factors addressed by the majority of research are risk, size, and complexity of activities in an audited unit.

The audit fee is supposed to act as a moderator in the relationship between auditor time pressure and a company's QoE. Nonetheless, the majority of Iranian studies overlooked this area; as a result, there is a gap in the accounting and auditing literature, indicating the research motivation. Therefore, the purpose of this research is to assess the effects of audit fees on the relationship between time pressure and QoE. The research findings are expected to meet the following objectives and value-added research.

First, the research findings can help to strengthen the theoretical basis of previous studies on audit fees and audit concepts in developing countries such as Iran's capital market. Second, research evidence demonstrates how the audit fee affects the relationship between audit time pressure and QoE. This finding, which is considered a scientific accomplishment, can provide useful information for investors, capital market legislators, audit standard setters, and other users of accounting information.

2. Theoretical Foundations

The financial statements of companies are the most essential sources of information for investors' decision-making. High-quality audit can validate financial statements. Evidently, the fees paid to auditors can affect the audit quality (Gholami Gifan, Bazrafshan, & Salehi, 2019). The audit fee is imposed as an economic cost on enterprises and is calculated based on the time required for audit activities. Despite competition in the audit market, auditors might receive lower fees in a bid to attract more employers.

The audit fee is the most critical part of audit quality control and management. In fact, the audit service fee is a requirement for ensuring audit quality. Although higher audit fees do not usually imply a higher level of audit quality, audit firms establish a standard pricing for their services in addition to delivering a suitable degree of quality. Naturally, their fees exceed their costs. The reason for this is that raising the volume of audit work avoids earnings manipulation and raises the QoE. Additionally, auditors seek higher fees for heavier loads of work; thus, the QoE is projected to improve as the audit fee rises.

Coram, Nag, and Woodlif (2004) argued that the auditor time pressure would make auditors overlook risks. This would result in the detection of substantial manipulation of financial statements. D'Angelo (1981) stated that the likelihood of auditors failing to report significant errors is determined by their independence. Hence, it can be stated that if auditors are unable to submit their mistakes due to time pressure, they will be unable to preserve their independence. However, this can decline the audit quality (Emilia et al., 2019). Unreasonable time pressure can have a detrimental (negative) impact on audit efficiency, audit quality, and the likelihood of audit errors and material misstatement of financial statements, either directly or indirectly. As a result, managers tend to show more opportunistic behavior. Evidently, the QoE will decline. If auditors face higher levels of time pressure in their work, their behavior will change in auditing financial statements, and the QoE will decrease. Swanberg and Ohman (2016) found that the time budget pressure has a lower effect than reality on reporting; thus, it has no effects on the audit quality decline measures.

Analyzing the relationship between the auditor time pressure and the QoE through the available
annual reports, Lambert et al. (2017) concluded that a change in legislation imposing time pressure on the audit of listed companies would have a negative impact on the QoE. They regarded the effect as evidence of poor audit quality. Auditor time pressure, which can have either positive or bad consequences, may cause auditors to work harder in an attempt to improve audit efficiency. However, if the time pressure is unreasonable, its negative effects will emerge. The unreasonable time pressure can either directly or indirectly have adverse (negative) effects on the auditor work efficiency, decline the audit quality, increase the likelihood of audit errors and material misstatement of financial statements. As a result, managers tend to show more opportunistic behavior. Evidently, the QoE will decline. Hence, if auditors face higher levels of time pressure, their behavior will change in auditing financial statements, something which will decline the QoE. Accordingly, the following is the research hypothesis:

3. Research Hypothesis

The audit fee moderates the relationships between the auditor time pressure and the quality of earnings (QoE).

4. Empirical Research Background

Mohammad Alhadab examined the effects of audit fees on QoE using 1055 samples from company-year observations in England from 2006 to 2015 and discovered a negative relationship. Alhadab indicated that a higher level of the audit fee was the main factor in increasing the QoE, thereby decreasing the flexibility of managers in using the management of real and accrual earnings.

Kiarana and Ramanta (2020) used auditor expertise as a moderating variable to examine the impact of auditor rotation, time pressure, and audit management on audit quality. According to their findings, the time pressure affected the audit quality. In a study entitled “Effect of Time Pressure on Relationship between Independence and Audit Quality”, Ayo Amalia et al. (2019) selected a sample of 45 auditors as respondents employed in the public community of auditors in East Java. They reported that independence and auditing procedures have positive, significant effects on the audit quality. They also stated that auditor time pressure heightened the relationship between independence and audit quality. Gaol et al. (2017) analyzed the effects of audit time budgeting and control source on decline of auditor quality behavior. They also investigated the function of auditor control sources in modulating the relationship between time budgeting pressure and auditor quality decline. Their study's statistical findings revealed a positive, significant relationship between time budgeting pressure and auditor quality degradation. Moreover, the source control had no direct relationships with the decline of auditor quality, whereas the interaction between the control source and auditor time budgeting pressure had a significant effect on the decline of auditor quality behavior.

Regarding the domestic research background, since domestic research has not explicitly addressed the topic of this study, the most relevant studies are examined here.

Bakhshi et al. (2021) analyzed the effect of auditor time pressure on the QoE with an emphasis on the moderating role of auditor tenure. According to their results, the auditor time pressure reduced the QoE, but the auditor tenure exacerbated the negative relationship between auditor time pressure and QoE.

Sarlak et al. (2020) addressed the relationships of auditor fee discount with audit error and QoE. According to their results, there was a positive relationship between auditor fee discount and the second-type audit error. However, there was no significant relationship between the auditor fee discount and the first-type audit error. In addition, the relationship between the auditor fee discount and the audit error was unaffected by the economic recession, whereas the auditor fee discount decreased the QoE. Finally, economic recession intensified the negative relationship between the audit fee discount and the QoE. Karami et al. (2016) analyzed the relationships of time pressure, work complexity, and audit effectiveness in the Supreme Audit Court of Iran by using a sample of all auditors in different positions from auditors to the auditor general of Iran. Their research findings showed the negative relationships of time pressure, work complexity, and audit effectiveness in the Supreme Audit Court of Iran. The findings also indicated the direct relationship between audit activity planning and audit effectiveness. Abbas Zadeh et al. (2013) analyzed the audit work density and audit quality for 2002-2009 and reported that there was a significant relationship between the audit work...
density and the levels of accruals used as a criterion for measuring the audit quality of financial statements. In other words, the auditor work density increased the levels of accruals and decline the QoE.

5. Research Methodology

This is an applied quasi-experimental causal-comparative accounting study, in which a descriptive-correlational method was used for data analysis. The research data were collected from the compact disks of statistical and image archive of the Tehran Stock Exchange, the Internet portal of the Tehran Stock Exchange, and Rahavard Novin. The Excel Spreadsheet was then employed for data analysis after the necessary calculations were performed and summarized. The final analysis was then performed in EViews 11. The statistical population included all the companies listed in the Tehran Stock Exchange for 2014-2019. The research sample was selected from the companies meeting the following criteria:

1) TSE membership from March 21, 2014 to March 19, 2020 (the companies of interest had public and private structures, for Iran’s state had a minor role in their poor financial performance).
2) The fiscal year should end on March 19 in order to increase comparability.
3) There should be no changes in activities or fiscal years during the study period.

Following the implementation of the aforementioned criteria, 105 companies were selected as the research sample.

6. Research Regression Model and Variables

6.1. Research Regression Model

The following regression equation was used for hypothesis testing.

\[ EQ_{it} = \beta_0 + \beta_1 TP_{Ait} + \beta_2 \text{Audit-Fees}_{it} + \beta_3 (\text{Audit-Fees} \times \text{TPA})_{it} + \beta_4 \text{Growth}_{it} + \beta_5 \text{SIZE}_{it} + \beta_6 \text{ROA}_{it} + \varepsilon_{it} \]

In the above model:
| \( EQ \) | = quality of earning
| \( TP \) | = auditor time pressure
| \( Size \) | = Company size
| \( Growth \) | = Company growth
| \( ROA \) | = Return on asset

IEV = Financial leverage

6.2. Measurement of Variables

Independent variable: auditor time pressure

Time pressure is defined as a common constraint on the allocation of resources for the audit profession. In two aspects, time pressure includes job completion before a deadline and budget pressure. These two concepts are different but not necessarily independent. For instance, if an auditor does an audit operation in the year before the first change deadline, the enrollment date will be 85 days before the end of the year, and the pressure will be the same. This hypothetical auditor should decrease audit.

Dependent variable: quality of earnings (QoE)

Dicho et al. (1995) made a few adjustments to Jones’ early model and proposed a better model of nonaccrual measurement.

\[ NAD_{it} = \alpha_1 \left( \frac{1}{A_{t-1}} \right) + \alpha_2 \left( \frac{\Delta \text{REV}_{it} - \Delta \text{RE}_{it}}{A_{t-1}} \right) + \alpha_3 \left( \frac{\text{PPE}_{it}}{A_{t-1}} \right) \]
\[ T_{it} = \alpha_1 \left( \frac{1}{A_{t-1}} \right) + \alpha_2 \left( \frac{\Delta \text{REV}_{it} - \Delta \text{RE}_{it}}{A_{t-1}} \right) + \alpha_3 \left( \frac{\text{PPE}_{it}}{A_{t-1}} \right) + \varepsilon_{it} \]

Parameters \( \alpha_1 \), \( \alpha_2 \), and \( \alpha_3 \) are obtained from the following equation for each specific company during the estimation period:

When authority was applied to income, the adjustment was done to remove the probabilistic aspect of Jones’ model in the false measurement of nonaccruals. The adjustment process included subtracting changes from the accounts receivable for the year \( t \) in comparison with the previous year. The idea is that applying authority to the identification of income in relation to credit sales in proportion to cash sales would make it much easier to manage earnings (this adjustment would decrease the unidentified authority of credit incomes). After the above model was estimated for every company-year, the values of model error \( (\varepsilon) \) were also obtained. They indicate accruals, high earnings management, and low QoE.

Moderating variable: audit fee

The economic interests of an auditor are provided by the audit fee obtained from contracts signed by employers. The audit fee includes any amounts of money that should be paid to an auditor or an audit
institution for audit services based on a contract or agreement (Hanlon et al., 2009).

Company size: The natural logarithm of company sales was calculated to measure the company size.

Company growth: The ratio of market value of equity to the book value of equity was used as a representative of company growth. The market value of equity is equal to the company share price at the end of the year multiplied by the number of shares, whereas the book value of equity is equal to the summation of equities on the balance sheet date.

Company age: This parameter is obtained from the logarithm of years of company activity in the Tehran Stock Exchange up to 2019.

Financial leverage: This parameter is equal to the ratio of debts to the book value of assets at the end of the company year.

Return on asset: The ROA indicates the return on assets, meaning the ratio of net profit (loss) after the subtraction of tax to the book value of assets at the end of the year.

7. Normality Test of Dependent Variables

For this purpose, the Jarque–Bera test was used in EViews to test data normality. The statistical distribution of this test is as follows:

H0: The dependent variable has a normal distribution.

H1: The dependent variable does not have a normal distribution.

The following table reports the test results.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Jarque–Bera test</th>
<th>Jarque–Bera statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>quality of earnings</td>
<td>QoE</td>
<td>2.4872</td>
</tr>
</tbody>
</table>

Since the Jarque–Bera statistic was above 5%, it can be concluded that the dependent variable had a normal distribution.

8. Inferential Statistics

8.1. Reliability Test (Unit Root) of Variables

The presence of non-reliable variables in a model can deprive t and F tests of the necessary reliability; therefore, the critical quantities of t and F distributions lack the correct values for tests. As a result, it is essential to ensure the reliability of all dependent and independent variables before a regression model is estimated. According to Table 3, since the probability of every variable was below 0.05, all independent and independent variables were reliable during the study period. In fact, reliability means that the mean and variance of every research variable have been constant over time with the covariance of variables being also constant over different years; hence, the problem of false regression does not exist.

8.2. Model Detection Tests

Prior to hypothesis testing, the multiple regression model should be used to run detection tests to determine the best model estimation approach based on accumulative or panel data. The F-Limer test or the Chow test was adopted to select the best model estimation method through accumulative data or panel data. The Hausman test was then used after the appropriate model was identified by using panel data to select between the methods with fixed effects or random effects. Table 4 reports the results of these two tests. According to the F-Limer test results for the model, the panel data method and the Hausman test results indicated that the model with fixed effects was appropriate for the model fitness.

8.3. Variance Inconsistency Test and Model Residual Independence

In this study, the variance consistency was determined using the Breusch-Pagan test. According to Table (5), the significance of the test statistic for both model indicated that the null hypothesis (stating the
consistency of variances) was rejected. Therefore, the generalized least square model was used instead of the ordinary least square model. This decision changed the method of calculating the standard errors of coefficients; as a result, the $t$-student statistic and relevant significance levels were corrected in terms of the existing variance consistency.

The ARCH test was conducted to confirm the variance consistency of error components in the model. The significance level of this test was above 0.05 ($p$-value= 0.2263), which indicated the variance consistency of error components in the model. The Breusch-Godfrey test was adopted to check the independence of model residuals. The significance level of this test was ($p$-value= 0.0736) also greater than 0.05; therefore, the null hypothesis was confirmed in this model. In other words, the model error expressions were independent.

### 9. Hypothesis Testing Results

Before the model was estimated, it was necessary to analyze the regression model assumptions including the normality of model residuals, variance consistency of error components, nonlinearity of explanatory variables, and lack of auto-correlation among the model error expressions. The Jarque-Bera test was employed to analyze the normal distribution of error components in the model. Since the significance level of this test was above 0.05 for the research models, the null hypothesis stating the normal distribution of error components was confirmed. The White correction method was employed to solve the probable problem of variance inconsistency. In addition, the collinearity test was used along with the variance inflation factor (VIF) to ensure the absence of multiple collinearity among variables. Based on the values of this statistic for explanatory variables less than 10, it can be stated that multiple collinearity problems were not seen as a severe threat to the model. Finally, the Durbin-Watson test was utilized to analyze the correlation of error components in the model. Table 7 reports the results of this test as well as the research hypothesis testing outcomes.

The value of the F statistics indicate the total significance of the regression models fitted at the error level of 5%. Moreover, the Durbin-Watson statistic showed the absence of auto-correlation among the residual expressions. According to the table, the estimation coefficient and the $t$ statistic of the auditor time pressure were negative and significant at 0.05, indicating the presence of a negative, significant relationship between the auditor time pressure and the QoE. With the research model and a 0.05 error level in mind, it is possible to conclude that the auditor fee mitigated the relationship between auditor time pressure and QoE. Accordingly, the research hypothesis was confirmed at 0.05.

### Table 5. Research hypothesis testing results

<table>
<thead>
<tr>
<th>Variables</th>
<th>Coefficient</th>
<th>Standard Error</th>
<th>$t$-statistic</th>
<th>$p$-value</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>constant</td>
<td>-1.206</td>
<td>0.248</td>
<td>-4.861</td>
<td>0.0000</td>
<td>-</td>
</tr>
<tr>
<td>auditor time pressure</td>
<td>-0.289</td>
<td>0.055</td>
<td>-5.228</td>
<td>0.0000</td>
<td>1.560</td>
</tr>
<tr>
<td>audit fee</td>
<td>0.104</td>
<td>0.030</td>
<td>3.472</td>
<td>0.0006</td>
<td>1.289</td>
</tr>
<tr>
<td>auditor time pressure audit fee*</td>
<td>-0.236</td>
<td>0.028</td>
<td>-8.199</td>
<td>0.0000</td>
<td>1.304</td>
</tr>
<tr>
<td>Company size</td>
<td>0.068</td>
<td>0.007</td>
<td>8.652</td>
<td>0.0000</td>
<td>1.561</td>
</tr>
<tr>
<td>Return on asset</td>
<td>0.008</td>
<td>0.010</td>
<td>-0.744</td>
<td>0.4556</td>
<td>1.052</td>
</tr>
<tr>
<td>Financial leverage</td>
<td>0.101</td>
<td>0.016</td>
<td>6.037</td>
<td>0.0000</td>
<td>1.726</td>
</tr>
<tr>
<td>Company growth</td>
<td>0.002</td>
<td>0.007</td>
<td>0.308</td>
<td>0.7575</td>
<td>1.059</td>
</tr>
<tr>
<td>$R^2$</td>
<td></td>
<td></td>
<td>0.462</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F statistics</td>
<td></td>
<td></td>
<td>5.9563</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F-Distribution</td>
<td></td>
<td></td>
<td>0.0000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Durbin-Watson</td>
<td></td>
<td></td>
<td>2.1653</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
10. Conclusion

Financial statement auditing is an important approach for assuring the transparency of financial information in companies. Auditors play an important role in capital markets when it comes to the fair presentation of financial reports. The auditor certification services ensure that the financial statements adhere to accepted accounting principles, hence improving the legitimacy and value of financial information. The companies with low QoE select low-quality auditors, who have to demand lower fees. Recently, the audit literature has proposed that the audit fee represents the audit quality. Auditors who receive considerably high fees may exert greater effort; thus, higher fees result in higher levels of quality. Nevertheless, Audit firms that get relatively higher charges may rely more on consumers economically and be willing to allow their employers more leeway in financial reporting.

The time pressure is always present in an audit environment. In addition to maintaining the audit quality, auditors should try to complete the audit within the deadline and budget limits set by employers. Time budgeting pressure can have both beneficial and negative consequences. This pressure might make auditors work harder and thus try to boost their efficiency. However, if the time budgeting pressure is unreasonable, its negative effects will emerge.

According to the findings, audit firm managers should pay particular attention to an effective aspect such as time budgeting pressure, which can produce a slew of issues. The study’s findings revealed an inverse relationship between time budgeting pressure and QoE, a significant topic that demands more attention than ever before from audit firm partners. Thus, firms that are under time budgeting pressure are urged to relieve this pressure on their personnel. The unreasonable time budgeting pressure can decline the motivation of auditors in audit operations. It can also lead to certain actions that will decline the audit quality.

The audit procedure requires sufficient efforts made by auditors. Less time spent on observation collecting and evaluation will undoubtedly have a detrimental impact on the quality of audit procedures. When auditors make fewer efforts, the abnormal accruals will proliferate, and customers will probably start to manage the incremental earnings to meet their criteria, declining the QoE in financial reporting. Hence, the results were consistent with those of Amirodin (2019), Amalia et al. (2019), and Foroughi Rad and Bazaz Zadeh Torbati (2019). The results also indicated that there was a direct, significant relationship between the auditor fee and the QoE. Furthermore, the auditor fee moderated the relationship between the auditor time pressure and the QoE.

The findings of this study can be used to draw the attention of regulatory institutions such as the Tehran Stock Exchange, the Audit Organization of Iran, and the Iran’s Community of Certified Accountants to the implications of auditor time pressure and auditor fee on QoE. Users of financial statements, such as financial analysts and investors, should evaluate the implications of auditor time pressure and auditor fee on QoE in their decision-making model studies.

Nevertheless, this study did not address all of the auditors’ work conditions and business characteristics that could affect QoE. Hence, those who desire to use the findings of this study should be aware of this significant limitation. Future studies are expected to continue the path taken by this study in order to conduct more serious research attempts with respect to the high conceptual and empirical potentials of this study.

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