Investigating the effect of auditor time pressure on earning quality
with emphasis on the role of auditors' tenure

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ABSTRACT
The present study was an attempt to explain the effect of time pressure on auditors on earnings quality, with an emphasis on the adjusting role of the auditor tenure. For this applied research, a descriptive-correlational method was used. Theoretical basis and statistical data of the study were collected using desk and field studies from 2014 to 2019. Data of 105 companies were collected from capital market companies (Tehran Stock Exchange) as a statistical sample, through systematic elimination. The research hypotheses were tested using regression analysis statistical method with combined data at a level of 5% error using EViews. The results of the data analysis indicated that the time pressure on auditors reduces the earnings quality. In addition, the result of the second hypothesis indicated that the auditor tenure intensifies the negative relationship between the time pressure on auditors and earnings quality. In other words, increased time pressure on the auditor decreases earnings quality. The probable reason is that when auditors are under time pressure, the legal requirements of work, the exercise of strict control by supervisors, and the requirements of employers, in other words, they are under workload pressure, auditors will have far more unethical decisions and behaviors.

Keywords: Auditor Tenure, Earnings Quality, Auditor Time Pressure.
1. Introduction

The main purpose of accounting data in financial markets is to lay the required grounds for the optimal allocation of resources. In the wake of recent financial scandals, investors' trust in the financial reporting system was declined and earnings quality emerged as an important factor in determining the credibility and reliability of reported figures (Schiper and Vincent, 2003). At the same time, time pressure is a common and well-known thing in auditing firms. Time budget pressure implies a time when the required time for auditing is more than the time projected in the budget and the auditor is required to finish the auditing on time (Mehrami and Naimi, 2003). According to Svanberg and Ohman (2013), auditors respond to time budget pressure in two ways. The first way is by working harder and devoting more hours to the client (Otley and Pierce, 1996) and requesting for increased time budget from senior officials (Cook and Kelley, 1991; Coram et al., 2003), and focusing on more relevant information (Glover, 1997). The second way is by using more effective auditing techniques (Coram et al., 2003). If the second method is doubled with audit quality reduction measures or under-reporting of chargeable time, then the result is an inefficient response. Research has shown that time pressure on auditing may contribute to auditors' failure to detect false financial statements (financial misstatements) (Low and Tan, 2011). Time pressure can cause an auditor to act inefficiently. Reasonable time budgets and increased training in time-pressure management have been proposed to address such issues. Barzideh and Kheirollahi (2011) examined the effect of occupational pressures in auditing on the opportunistic behavior of auditors. The results showed that when auditors encounter evidence that contradicts the initial findings in the audit process; accountability for the audit work performed on assigned projects and time pressure lead to concerns about loss of reputation and increase the likelihood of concealing audit evidence. However, this has been overlooked in most domestic studies, and there is a gap in the accounting and auditing literature. This in itself prompted the present study. Therefore, the present study seeks to explain the relationship between time pressure on auditors and earnings quality with an emphasis on the adjusting role of the auditor tenure. The results of the study are expected to have the following achievements and academic added value: First, the results of the research can help expand the theoretical foundations of previous studies with regard to earnings quality studies and auditing subjects in developing countries such as the Iranian capital market. Second, research evidence will show the extent to which auditor tenure can affect the relationship between auditor time pressure and earnings quality. As an academic achievement, this study can provide valuable information to investors, capital market legislators, regulators of accounting standards, and other users of accounting data.

2. Literature Review and Hypotheses Development

Most studies conducted on audit pressure suggest that audit pressure can lead to dysfunctional audit behavior (Yang et al., 2018). Thus, budget pressure is a chronic and pervasive pressure that is caused by limitations in allocating resources. In other words, time budget pressure may lead to auditors' underreporting behavior, which ultimately results in poor employee performance, which in turn reduces audit efficiency and effectiveness, which may increase the auditor's stress level. For example, McNamara and dan Liyanarachchi (2008) believes that auditor time pressure causes occupational stress, reducing the auditor's performance significantly, and leading to reduced auditor effectiveness and efficiency. For instance, if the auditor does not perform the audit method effectively and efficiently or there is negligence, the quality of the audit is consequently affected. In a study titled "Assessing the Behavior Pattern of Independent Auditors Encountered with Time Budget Pressure Using Motivation Theory", Azizkhani and Hashemian (2012) stated that adjusting time budget for audit operations is a common practice in auditing firms. However, in some auditing firms, the application of unconventional time budgets on the one hand and the emphasis on meeting them on the other can lead to problems. The most important of such problems is the loss of motivation and subsequent unprofessional work. Performing unprofessional work is one of the most common ways auditors adopt when faced with time budget pressures. These unprofessional behaviors reduce the audit quality. The most important of such behaviors is failing to do some auditing stages and under-reporting of chargeable time. Using motivation theory, this study examines the behavioral pattern of independent auditors encountered...
with time budget pressure. The results showed that time budget pressure reduces independent auditors' motivation and auditors inevitably adopt unprofessional behavior in order to comply with unconventional time budgets that are impossible to meet. The results also showed that the most important cause of unprofessional behaviors is time budget pressure. Furthermore, auditors believe that managers do not use time budgets to increase the motivation of auditors, but use it as a control tool. Mehrani and Naimi (2003) conducted a study titled "Ethical Theory and the Effect of Time Budget Pressure on Independent Auditors' Behaviors." They found that although auditors considered themselves bound by professional ethics, they adopted unprofessional behaviors faced with time budget pressures. The results of this study also showed as time budget pressure increases, the likelihood of unprofessional behaviors increases. Auditors believe that such behaviors are more likely to occur in other auditors than in themselves. Mehrani (2001) conducted a study titled "Investigating the Effect of Time Budget Pressure on Independent Auditors' Behaviors". Focusing on the various auditors' behaviors encountered with time budget pressure, he concluded that the application of unconventional time budgets leads to auditors' unprofessional behaviors and reduces the audit quality. When auditors are encountered with conflicting objectives, they either must work at the lowest cost, where the quality of audit work is affected as some essential audit procedures are reduced, or perform all audit procedures to maintain a high-quality audit where profitability may decrease as audit costs increase. Hence, auditing has long been recognized as a profession with high levels of stress (Wal et al., 2013). Examining the relationship between auditor time pressure and earnings quality using the data obtained from available annual reports, Lambert et al. (2017) found that changes in the law that impose time pressure on the audits of registered companies have a negative effect on earnings quality. They interpreted this as evidence of poor audit quality. Audit time pressure can have positive or negative effects. This pressure may force auditors to work harder and thus increase audit performance. However, if the time pressure is unusual, negative effects will occur. Unusual time pressure can directly or indirectly adversely affect the effectiveness of audit work, reduce audit quality, increase the likelihood of audit failure and material misstatement, and consequently increase the likelihood of managers' opportunistic behaviors. All this can ultimately lead to reduced profit quality. Therefore, the higher the auditors' time pressure, the auditors' behaviors in handling financial statements changes, reducing the quality of earnings. Based on these arguments, the first research hypothesis is as follows:

Hypothesis 1: The auditor's time pressure reduces the quality of the earnings.

Regarding the auditor tenure of the auditing firm, two theories are worth mentioning. The first theory is that the audit firm tenure has led to a decline in the auditor's independence over time, a process that can lead to a long-term loss of motivation and diminished auditors' purpose. Having a close relationship with the manager causes this issue (Gul et al., 2007). On the other hand, the opponents of decreased audit independence with long-term audit tenure believe that auditors can gain better knowledge and experience about their clients, so this can increase the audit quality and ultimately the quality of financial reporting. The present discussion is mainly related to information asymmetry. In order to reduce information asymmetry between users of financial statements and managers, the auditor needs a longer audit tenure to access more information about the company, and in turn to detect material misstatements (Manry et al., 2008).

Shadabi et al., (2019) found that the higher the independent auditor's workload, the lower the quality of financial reporting, affecting the audit tenure. The proponents of auditor change believe that in the event of an auditor mandatory change, auditors will be in a position to withstand the managers' pressures and demands and to make more fair and impartial judgments. The auditor's long-term presence with the client creates a desire to support and respect the client's opinion; a situation that undermines the auditor's independence and impartiality. They also refer to the auditors' desire to retain the client by supporting him/her as another reason for enacting restrictive laws because the auditor incurs initial costs in the early years of the activity for the new client, which tends to retain in order to compensate them. The opponents of the auditor mandatory change, on the other hand, have a different view. They believe other factors compel auditors to maintain independence. For example, the efforts auditors make to maintain
credibility or reputation, or the fear of legal action against them, are reasons that prevent auditors from engaging in inappropriate behavior. They believe that over time, auditors will gain a better knowledge of the client's activities and gain more experience, thus increasing their ability to determine whether accounting and reporting methods are appropriate or not. Therefore, the long-term relationship between the auditor and the client can improve the audit quality. They believe that changing the auditor will reduce investors' confidence in the reliability of the financial statements, and thus reduce the audit credibility. At the same time, auditing costs, both for the auditor and the client, will increase (Karami et al., 2011). Copley and Doucet (1993) also found that poor-quality audits increase with the increased tenure. The findings of Vanstraelen (2000) indicate that long-term cooperation between the auditor and the client increases the likelihood that auditors' acceptable reports. The results of Bates et al., (1982) study showed that auditors' judgment is influenced by the long-term relationship between the auditor and the client. Geiger and Raghunandan (2002) reported an increase in audit failure in the early years of the auditor's tenure. Johnson et al., (2002) reported lower earnings quality for new audit firms compared to firms with mid-term tenure. Myers et al., (2003) found that the magnitude of discretionary accruals and current accruals has a positive relationship with the audit firm's tenure. Ghosh and Moon (2005) stated that the audit firm's tenure affects the audit quality perceived by investors. Since the behavioral influence of the auditing firm's tenure in relation to the effect of auditor time pressure on earnings quality has not yet been investigated, this moderating role has been formulated as the second research hypothesis that is as follows:

**Hypothesis 2:** The auditor's tenure affects the relationship between the auditor's time pressure and earnings quality.

### 3. Methodology

This research adopts a correlational study, which analyzes the correlation between variables using secondary data extracted from the financial statements of companies listed on the Tehran Stock Exchange. This is done in deductive-inductive reasoning. The reason why the correlational method is adopted is to discover the correlation relationships among the variables. Correlational research is a type of descriptive research. In the present study, first, the correlation between the research variables is tested and if there is a correlation between the research variables, multiple regression models are assessed. Moreover, this descriptive-correlational research is a retrospective study (quasi-experimental). The availability of information is a prerequisite for any research. Under the current circumstances in Iran, information about companies listed on the stock exchange is available. Additionally, according to the standards set by the Securities Exchange Organization for the acceptance, continuation of activities, and the manner of companies' reporting, the information about listed companies is of higher quality, more coherent, and homogeneous. The statistical population studied in this study includes all companies listed on the Tehran Stock Exchange for 2014-2019. Selected samples are companies that have the following set of conditions:

1. Companies that are listed stock exchange from the beginning of 2014 to the end of 2019 (the companies are public and private because, in such companies, the role of the government is less in line with their poor financial performance).
2. In order to increase comparability, their fiscal year should end in March.
3. They should not change their activity or financial year during the said year.

After applying the above limitations, 105 companies were selected as the research sample. The final analysis was done using EViews 11.

#### 3.1. Research Regression Models

The following multivariate regression models were used to test the research hypotheses.

**Model 1:** To test the first hypothesis, the following regression model was used:

\[
EQ_{it} = \beta_0 + \beta_1 TPA_{it} + \beta_2 SIZE_{it} + \beta_3 GROWTH_{it} + \beta_4 AGE_{it} + \epsilon_{it}
\]

In the above model, in order to test the first hypothesis, the \(\beta_1\) coefficient must be significant at a 5% error level in the relationship between time pressure on the auditor (TPA) and earnings quality (EQ) in order to prove the first hypothesis.

**Model 2:** To test the first hypothesis, the following regression model was used:
In the above model, in order to test the second hypothesis, the $\beta_3$ coefficient must be significant at a 5% error level in the interaction of auditor tenure and time pressure on the auditor (ATxTPA) and earnings quality (EQ) in order to prove the second hypothesis.

3.2. Operational Definition of Variables

Dependent variable: Earnings quality (EQ): In 1995, Dechow et al., modified the original Jones model to provide a more complete model for measuring non-discretionary accruals. The parameters $\alpha_1$, $\alpha_2$ and $\alpha_3$ in the estimation period and for each specific company are obtained using the following equation:

$$ EQ_{it} = \beta_0 + \beta_1 TP_A_{it} + \beta_2 AT_{it} + \beta_3 AT \times TP_A_{it} + \beta_4 SIZE_{it} + \beta_5 GROWTH_{it} + \beta_6 AGE_{it} + \epsilon_{it} $$

In the above model, in order to test the second hypothesis, the $\beta_3$ coefficient must be significant at a 5% error level in the interaction of auditor tenure and time pressure on the auditor (ATxTPA) and earnings quality (EQ) in order to prove the second hypothesis.

3.2. Operational Definition of Variables

Dependent variable: Earnings quality (EQ): In 1995, Dechow et al., modified the original Jones model to provide a more complete model for measuring non-discretionary accruals. The parameters $\alpha_1$, $\alpha_2$ and $\alpha_3$ in the estimation period and for each specific company are obtained using the following equation:

$$ NAD_t = \alpha_1 \left( \frac{1}{A_{t-1}} \right) + \alpha_2 \left( \frac{\Delta REV_t - \Delta REG_t}{A_{t-1}} \right) + \alpha_3 \left( \frac{PPE_t}{A_{t-1}} \right) $$

Time pressure has been considered from two aspects, including the pressure to do work on time and the budget pressure. The two concepts are distinct, but not necessarily independent of one another. For instance, if an auditor audited the year before the first change deadline, the registration date is 85 days after the end of the year, then the pressure will be the same. This auditor should reduce the audit.

Moderating variable: Auditor tenure (AT)

Auditor tenure is defined as the number of years that the auditor has been a party to the company contract.

Control variables:

- Company Size: Company size: is the natural logarithm of i company sales in year t.
- Company growth: Growth: is the ratio of the market value of equity to the book value of equity of i company in year t. The market value of the company's equity is the product of the cost per share multiplied by the shareholders' equity.
- Company age: Age: This is the logarithm of the company's age from the date of its establishment until this year.

4. Results

4.1. Test of Normality of the Dependent Variable

In order to check the normality of the data, the Jarque-Bera Test was used in EViews. The results of the test are presented in the figure below.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Jarque-Bera Test</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>EQ</td>
<td>103.005</td>
<td>0.062</td>
</tr>
</tbody>
</table>

Considering that the probability value of the Jarque-Bera Test is more than a 5% error level, it can be concluded that the dependent variable has a normal distribution.

4.2. Stationary Test (unit root) of Variables

The non-stationary variables in the model cause the t and F tests to be invalid and the critical quantities provided by the t and F distributions are not the correct values to perform the test. Therefore, before estimating...
a regression model, it must be ensured that all independent and dependent variables are stationary. According to Table (2), since the probability values of all variables were less than 0.05, all independent variables were stationary in the research course. Stationary means that the mean and variance of the research variables have been stable over time and the covariance of the variables has been stable in different years. Therefore, there is no false regression problem.

4.3. Model Diagnostic Tests

Before testing the research hypotheses using a multiple regression model, it is necessary to perform diagnostic tests to select the appropriate method for estimating the model using collective data or combined data. F-Limer test (Chow) selects between model or collective estimation methods and combined data (panel data). After a proper diagnosis of the model with combined data, the Hausman test was used to select between fixed and random effect methods. The results of these two tests are shown in Table (3). The results of F-Limer test for the model show that the combined data (panel) method and the results of the Hausman test for the models show that the model with fixed effects are suitable for fitting this model.

4.4. Variance Heterogeneity Test

In this study, Breusch–Pagan test was used to detect variance homogeneity. According to Table (4), the significance of test statistics for both models shows that the null test assumption (based on variance homogeneity) is rejected. Thus, the generalized least squares (GLS) should be used instead of ordinary least squares (OLS). This changes the method of calculating the standard error of the coefficients and, consequently, corrects the T student statistic and the relevant significance levels for the homogeneity of the variance.

4.5. Hypothesis test results

Before estimating the model, it is necessary to examine the assumptions of the regression model including the normality of the model residuals, the homogeneity of disturbance variance components, nonlinearity among the explanatory variables, and the lack of autocorrelation among the error components of the model. Since the significance level of this test for research models is more than 0.05, so the null hypothesis that the distribution of disturbance components in the studied models is normal is confirmed. The White test was used to solve the possible problem of variance heterogeneity. Furthermore, to ensure that there is no multicollinearity among the variables, the collinearity test was examined using the variance inflation factor (VIF). Given that the values of this statistic are less than 10 for the explanatory variables, it can be concluded that multicollinearity is not a serious threat to the model. Finally, Durbin Watson (DW) statistic was used to test the correlation among the error components of the model, the results of which are presented in Table (5). The results of testing the research hypotheses are shown in Table (5):
Considering the values of F statistics in this table indicates the overall significance of the regression models fitted at the 5% error level. Durbin Watson (DW) statistic values also indicate the absence of autocorrelation among residual terms. As can be seen in this table, the estimated coefficient and t-statistic for the time pressure on the auditor in the research model is negative and significant at the error level of 0.05, which indicates a significant negative relationship between the time pressure on the auditor and earnings quality in the model. Accordingly, the research hypothesis is confirmed at the error level of 0.05.

Table 6: Test results of the second research hypothesis

<table>
<thead>
<tr>
<th>Variables</th>
<th>Model 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coefficient</td>
</tr>
<tr>
<td>Intercept</td>
<td>0.518</td>
</tr>
<tr>
<td>TPA</td>
<td>-0.909</td>
</tr>
<tr>
<td>AT</td>
<td>-0.491</td>
</tr>
<tr>
<td>AT × TPA</td>
<td>-1.535</td>
</tr>
<tr>
<td>SIZE</td>
<td>0.146</td>
</tr>
<tr>
<td>GROWTH</td>
<td>0.831</td>
</tr>
<tr>
<td>AGE</td>
<td>0.386</td>
</tr>
<tr>
<td></td>
<td>R²</td>
</tr>
<tr>
<td></td>
<td>F test</td>
</tr>
<tr>
<td></td>
<td>F probability</td>
</tr>
<tr>
<td></td>
<td>Durbin Watson</td>
</tr>
</tbody>
</table>

Considering the values of F statistics in this table indicates the overall significance of the regression models fitted at the 5% error level. Durbin Watson (DW) statistic values also indicate the absence of autocorrelation among residual terms. As can be seen in this table, the estimated coefficient and t-statistic for the auditor tenure in the research model is positive and significant at the error level of 0.05, which indicates that the auditor's tenure intensifies the negative relationship between the time pressure on the auditor and earnings quality. Accordingly, the research hypothesis is confirmed at the error level of 0.05.

5. Discussion and Conclusions

Data about estimating the regression model to test the first hypothesis shows that there is a negative and significant relationship between the time pressure on the auditor and earnings quality at the expected error level. In other words, increased time pressure on the auditor decreases earnings quality. The probable reason is that when auditors are under time pressure, the legal requirements of work, the exercise of strict control by supervisors, and the requirements of employers, in other words, they are under workload pressure, auditors will have far more unethical decisions and behaviors. Thus, it is expected that in unexpected situations where the achievement of individual and organizational goals is questionable, and in environments with strict supervision, the dysfunctional behaviors intensified and such dysfunctional behaviors reduce the earnings quality. Moreover, the data on the estimation of the regression model for testing the second hypothesis shows that there is a significant negative relationship between the product of time pressure on the auditor multiplied by the auditor's tenure on the earnings quality at the expected error level. That is, the shorter the auditor's tenure, the stronger the relationship between the time pressure on the auditor's and earnings quality. One reason is that when the auditor's tenure is reduced and other independent auditors do not replace auditors who are not afraid of engaging in unprofessional behavior under work pressure, this causes them to continue their unprofessional behavior and further reduce the quality of reported earnings. Accordingly, the auditor's tenure can increase the earnings quality by reducing the effect of unprofessional behavior among auditors. Given the confirmation of the first hypothesis, since the earnings quality decreases when auditors are under work pressure, the community of certified public accountants is advised to adopt flexible work schedules and take measures to cause less stress to the auditors. This increases the reported earnings quality and ultimately enhances the credibility of the auditing in the community. The Securities and Exchange Organization is advised to reduce the unprofessional behavior among auditors who are under pressure by enacting rules and regulations and implementing special measures because if the auditor's workload is reduced, the earnings quality also increases. Investors are advised to pay attention to the date on the auditor's tenure when deciding to make investments because according to the result of the second hypothesis, the auditor's tenure increases the earnings quality by reducing the time pressure on the auditor.
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