Investigating the Relationship between Auditors’ Job Stress and Audit Quality in the Companies Accepted to Tehran Stock Exchange

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Abstract: An individual’s job performance is also of a great importance in auditing for the effect it has on the audit quality. The primary goal of the present study was investigating whether there was a relationship between auditors’ job stress and audit quality in the companies accepted to Tehran stock exchange or not? To find an answer to this question, a study sample volume comprised of 75 companies accepted to Tehran stock exchange was examined for a six-year time span from 2012 to 2017. The data were collected through library research. Field method was utilized to test the hypothesis. The data required for testing the hypotheses of the present study were extracted from the financial statements and the notes added to the financial statements by the company members of Tehran stock exchange. These data were also used for models’ testing in Eviews and Stata Software Packages. Regression analysis was the method of choice for estimating the model and testing the hypotheses. Moreover, to determine the type of the model to be used, the tests related to the panel data were employed. The results obtained from testing the study hypotheses were indicative of the idea that according to the negative value of job stress coefficient, it could be concluded that the increase in auditors’ job stress, would reduce the quality of companies’ audit. Furthermore, it was figured out that the auditors’ job stress, as a result of auditing a new client, did not have a significant effect on the audit quality.

Key words: Audit Quality, Auditors’ Stress, New Client

INTRODUCTION

Based on accreditation theory, attainment of a higher audit quality entails increasing the number of versatile auditing workforce, elongating the audit time and constant training for elevating skills and knowledge of the auditing staff. The collection of the foresaid factors bring about an increase in the finished auditing price and the subsequent augmentation of the auditing wages. Since, auditing wage is effective in appropriate planning and implementation and/or auditing task quality (Nikbakht, 2017), the insufficiency of the wage sets the ground to be motivated to reduce the auditing costs. As a result of which, the auditing time of test numbers are decreased and the auditing methods are implemented improperly and inadequately, more attentions are paid to work forms (making files) than to the contents and, eventually, reduces audit quality (Abdullah Azad et al., 2013).

Issuing proper auditing reports on the employer’s observance of generally accepted accounting principles sets the ground for inferring audit quality regarding auditing standards. The definition by De Angelo (1981) is amongst the ones frequently substantiated. He has defined audit quality as “the market’s assessment and evaluation of the auditing abilities in discovering the important distortions and reporting the discovered violations”. In addition, De Angelo underlines that the auditor who discovers and reports
incorrect cases, is an independent auditor in its real sense. (Gholami, 2012) Thus, according to his definition, audit quality includes the elevation of the auditing abilities in discovering the accounting distortions and evaluating the auditor’s competencies and independence by the market. The accepted accounting standards describe financial statements as management offerings. Since the managers are also parts of the stakeholders, their offerings are quite likely to be biased (Gul, 1998). Therefore, independent auditors play the role of the supervisors who do their best in reducing these malicious intentions. Managers have considerable effects on recruiting, retaining and changing auditors. Taking advantage of such an influence, managers can choose auditors issuing ideas and notions favored by the management, thereby to maximize their interests (Hamilton, 1978). Such a managerial influence leads to the degradation of auditing quality and gives rise to the factors that may end in auditing failure.

Theoretical Foundations and Background of the Study:
Higher quality auditing is more likely to discover the doubted accounting performances because the high quality and specialized auditing firms have more resources and motivations for discovering the mistakes and frauds (Yan et al., 2016). Auditing institutions are developing the domain of their non-auditing services to their employers. Some believe that many of the auditing institutions sustain losses in the hope of being able to endorse more gainful contracts in future with their employers. Such conditions imposes considerable pressures on the auditors, especially in management ranks and institutional partnership for preserving the business and keeping it flourishing (Setayesh, 2014). Accordingly, there comes an increasing concern that the economic pressures questions the auditor’s impartiality and independence for maintaining good business relations with the employers. But, in order to reduce the doubt about the independence, protections like investigating the peers and quality control methods are exercised in auditing firms (Hassas Yeganeh, 2009). Profit management includes an informed and active manipulation in the accounting results for creating change in showing the business status of an economic entity (Williams et al., 2001). Accounting profit is identified based on accrual premises. The use of accrual premise usually causes the taking of such an intervention as reporting a series of accrual items in the financial statements in the sections on the cash accounting profits. This means that the cash sums obtained from the company’s operations (cash flow) are included by this profit, parts of which are consisted of accrual items (Chang and Maero, 2015). The daily increasing growth and complexities of the society justify the need for the relevant economic information, information systems and also the information generation processes and this, in between, adds to the need for accounting as a part of the reporting and information provisioning process (Wiryathi, 2014). The enjoyment of the various societies’ parts of the accounting services will be maximized under the conditions that the accounting role is clearly specified in the society with the full-scale efforts made by the financial area’s activists, whose offered services are found with the required qualities (Solaimani, 2014). Hence, the high quality of the auditing services necessitates the auditors’ high job performance that is also proposed in industrial and organizational psychology as a very important construct. In Rogelberg’s idea, the success and failure of an organization depends on the performance of its staff and nearly all the most important efforts by the industrial and organizational psychologists and managers are directly or indirectly aligned with the improvement of the staff’s occupational performance (Rogelberg, 2007). Organizations’ performance is effective when the staff members engage in the accomplishment of their tasks in a level beyond the technical and formal aspects. In auditing, as well, an individual’s job performance is of a great importance for the effect it exerts on the audit quality. Moreover, the delay in offering audit reports directly influences the efficiency and performance of auditing (Kalbers, 2008 and Va’ez, 2014). Thus, neglecting or compromising with a weak job performance might also lower the audit quality, as a result of which, the audit firms become exposed to legal liability and loose their credibility (Fisher, 2001). But, the important thing here is that job stress differs from general stress for it is being more related to an organization (Parkerd, D., 1983). The national job security and health institute, realizes job stress as stemming from the abundant problems existent in the workplace, constant out-of-control changes, constant displacements, overtime working, long work hours and work hour disorders (Edwards, 2000). Kazemi and others, as well, have defined job stress as a change in the physical or mental status that might have positive or negative effects on the occupational performance of the staff in a workplace wherein stress is
caused by the stressing events (Kazemi, 2009). The common source of stress with which the staff members are faced in the workplace or organization is the job-related stressing factors (Fisher, 2001). These stressing factors include role ambiguity, role conflict and role overload (Jones and Guthrie, 2012). Role ambiguity occurs when an employee receives insufficient information and vague policies and instructions. Therefore, role ambiguity is created in an organization due to the pressure originating from non-transparency or misunderstanding of an individual’s role (Soltani and Abedi, 2012). Role conflict occurs when the expectations, wants and pressures that an individual encounters be inconsistent with the expectations, wants and pressures that are imposed on him or her. In other words, an individual is exposed from two sides to paradoxical expectations, wants and pressures (Hajiha and Zareie, 2017). Role overloading is the situation wherein an individual feels that there is no proportion between his work expectations and work skills and/or in the time she or he has for getting the assigned tasks done. This is usually manifested within the format of two aspects, namely quantitative role overload and qualitative role overload. The former being a result of disproportionateness of the requested task and the allocated time and the latter being defined as an individual’s lack of the required qualifications for performing the assigned task. According to these stressing factors, Reel and Michael believed that the independent auditors’ role is very sensitive due to 1) its being of a linking nature; 2) paradoxical expectations by the employers and the institution and 3) the novel complicacies of the auditing; the outcomes stemming from weak performance and 4) the stressing part, to wit role ambiguity, role conflict and role overload.

Study Methodology:

The present study has been conducted based on an applied and descriptive method of correlation nature within the framework of a retrospective research. The study has been performed for a time span from 2012 to 2017 on the companies accepted to Tehran stock exchange. The sample volume of the present study has been selected based on screening in such a way that the initial population of the study included all companies accepted to Tehran stock exchange with the inclusion criteria being the followings:

1) Having the company’s shares transacted in Tehran stock exchange from 2012 to 2017 (six years) and having proved continuous activity therein.
2) No change of activity or fiscal year during the aforementioned period of time
3) Having the fiscal year ended in the last day of March
4) Not being amongst the banks or financial institutions (investment companies, financial mediators, holdings companies or leasing firms) (otherwise, the companies were eliminated due to the special nature of their activities and also for the use of the investment companies’ output are used in the other companies of the group).
5) Availability of the requested data
6) No operational loss during these years hence no negative equity of the shareholders during the studied period of time

Study Hypotheses:

According to the theoretical foundations, the study hypothesis has been introduced as explained below:

➢ **Hypothesis 1: Auditors’ job stress has a significant effect on audit quality.**

\[ MSCORE_{it} = \beta_0 + \beta_1 WS_{it} + \beta_2 DEBT_{it} + \beta_3 SIZE_{it} + \beta_4 CF_{it} + \beta_5 LOSS_{it} + \beta_6 INU_{it} + \beta_7 REC_{it} + \beta_8 TQ_{it} + \beta_9 SPU_{it} + \beta_{10} AG_{it} + \beta_{11} AUDITFIRM CGARA_{it} + \beta_{12} AUDITOR CHARA_{it} + \epsilon_{it} \]

Where,

**The dependent variable:**

MSCORE: MSCORE has been considered as the means of calculating audit quality in the model.

To compute the profit management, logistic test was used that has been calculated based on MSCORE method as explained in the formula below:
\[ MSCORE_{it} = -0.065 + 0.823DSRI + 0.906GMI + 0.593AQI + 0.717SGI + 0.107DEPI - 0.172SGAAI - 0.327LVGI + 4.679TATA \]

DSRI: company’s sales
GMI: company’s profit margin
AQI: company’s total assets
SGI: company’s sales growth
DEPI: depreciation
SGAAI: administrative and public costs
LVGI: financial leverage
TATA: the ratio of total accruals to total assets

**Independent Variable:**
WS: auditors’ work stress

Job stress is calculated based on the following formula:

\[ WS = \frac{\sum A_{ij}}{m} \]

Where, \( j \) denotes the study population’s companies; \( i \) designates the companies audited by an auditor; \( \sum A_{ij} \) points to the natural logarithm of the entire assets; \( m \) is the number of auditors endorsing the audit report for a company; \( m \) shows the average work stress transferred by two or three auditors signing the audit report and it is obtained through dividing the total assets of the audited companies in one year of the institute by the number of the audits signing the audit report.

**Control Variable:**
DEBT: the ratio of the assets to debts
SIZE: the natural logarithm of the company size
CF: the net cash flow stemming from operational activities
LOSS: the company’s loss that is given a value equal to unity in case of the company’s net loss otherwise it is assigned a value equal to zero
INU: total inventory divided by the operational income
RECE: receivables divided by operational income
TQ: market value divided by replacement cost
SPU: number of the members of B of D
AGE: company’s age
AUDITFIRM CGARA: it takes a value equal to unity if the audit firm has been changed otherwise it is given a zero value
AUDITOR CHARA: the mean number of auditing years of an audit firm for a company

WS indicates the average work stress transferred by two or three auditors signing the audit report and it is obtained through dividing the total assets of the audited companies in one year by the institute by the number of the auditors signing an audit report.

**Results of Testing Research Hypotheses:**

Table (1) has summarized the information pertinent to descriptive statistics of the study variable including the central indices, scattering indices and deviation from symmetry.

<table>
<thead>
<tr>
<th>Variable</th>
<th>MSCORE</th>
<th>WS</th>
<th>DEBT</th>
<th>SIZE</th>
<th>CF</th>
<th>LOSS</th>
<th>INU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>6.582673</td>
<td>5.337335</td>
<td>0.593306</td>
<td>5.952540</td>
<td>0.023594</td>
<td>0.851111</td>
<td>0.537927</td>
</tr>
<tr>
<td>Median</td>
<td>6.317679</td>
<td>5.276103</td>
<td>0.616210</td>
<td>5.711956</td>
<td>0.007174</td>
<td>1.000000</td>
<td>0.577747</td>
</tr>
</tbody>
</table>
Maximum | 77.3426 | 7.582470 | 0.969923 | 11.56761 | 0.099785 | 1.000000 | 1.050093
Minimum | -5.938136 | 3.129155 | 0.005663 | 4.272283 | -0.084086 | 0.000000 | 0.037553
Standard deviation | 5.289295 | 0.638402 | 0.166135 | 1.186156 | 0.033125 | 0.356375 | 0.218760
Skewness | 7.905412 | 0.318421 | -0.554743 | 3.074616 | 0.192497 | -1.972651 | -0.379888
Kurtosis | 93.22627 | 4.096368 | 3.421151 | 13.71718 | 2.866071 | 4.891353 | 2.386113
Jarque-Bera | 157326.8 | 30.14232 | 26.40618 | 2862.582 | 3.115444 | 358.9242 | 17.88969
Jarque-Bera probability | 0.000000 | 0.000000 | 0.000002 | 0.000000 | 0.210615 | 0.000000 | 0.000130
Observations | 450 | 450 | 450 | 450 | 450 | 450 | 450

Table 2: Descriptive statistics of the study variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>REC</th>
<th>TQ</th>
<th>SPU</th>
<th>AGE</th>
<th>AUDITFIRM CHARA</th>
<th>AUDITOR CHARA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>46.77834</td>
<td>13144880</td>
<td>6.037778</td>
<td>32.82000</td>
<td>0.775556</td>
<td>5.428889</td>
</tr>
<tr>
<td>Median</td>
<td>15.21377</td>
<td>2722708.</td>
<td>6.000000</td>
<td>32.00000</td>
<td>1.000000</td>
<td>10.00000</td>
</tr>
<tr>
<td>Maximum</td>
<td>895.0888</td>
<td>2.23E+09</td>
<td>8.000000</td>
<td>43.00000</td>
<td>1.000000</td>
<td>2.000000</td>
</tr>
<tr>
<td>Minimum</td>
<td>0.003070</td>
<td>0.000000</td>
<td>3.000000</td>
<td>18.00000</td>
<td>0.000000</td>
<td>2.000000</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>85.45647</td>
<td>1.11E+08</td>
<td>0.932413</td>
<td>6.328150</td>
<td>0.417680</td>
<td>1.696469</td>
</tr>
<tr>
<td>Skewness</td>
<td>4.240737</td>
<td>18.35436</td>
<td>-0.537076</td>
<td>0.035432</td>
<td>-1.320925</td>
<td>0.123682</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>30.01557</td>
<td>363.0848</td>
<td>2.365962</td>
<td>1.741017</td>
<td>2.744844</td>
<td>2.411617</td>
</tr>
<tr>
<td>Jarque-Bera</td>
<td>15033.31</td>
<td>2456412.</td>
<td>0.000000</td>
<td>0.000000</td>
<td>0.000000</td>
<td>0.021945</td>
</tr>
<tr>
<td>Observations</td>
<td>450</td>
<td>450</td>
<td>450</td>
<td>450</td>
<td>450</td>
<td>450</td>
</tr>
</tbody>
</table>

Investigating the Existence or Nonexistence of Collinearity:
The coefficients showed the correlation between the study variables of the data. The outputs were indicative of the idea that the correlations between the independent variables are below 0.45. Thus, there was experimentally no concern for the existence of linear relationship between the independent variables.

Unit Root Test:
Before analyzing and testing the hypotheses, the reliability of the study variables was examined. The null hypothesis expressed the existence of a single root, which was rejected with a 95% confidence, if the table’s probability statistic was found below 0.05 and the alternative hypothesis, i.e. the absence of a unit root, was accepted. The results obtained from the unit root test for the study model’s variables and data have been as given in table (3).

Table 3: The results of the variables’ durability test for the extracted data

<table>
<thead>
<tr>
<th>Variable</th>
<th>Levin, Lin and Chu test</th>
<th>Test result</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Statistic</td>
<td>Probability value</td>
</tr>
<tr>
<td>AGE</td>
<td>-14.5468</td>
<td>0.000</td>
</tr>
<tr>
<td>AUDITFIRM CHARA</td>
<td>-15.0556</td>
<td>0.000</td>
</tr>
<tr>
<td>AUDITOR CHARA</td>
<td>-14.9963</td>
<td>0.000</td>
</tr>
<tr>
<td>CF</td>
<td>-96.0179</td>
<td>0.000</td>
</tr>
<tr>
<td>DEBT</td>
<td>-17.2922</td>
<td>0.000</td>
</tr>
<tr>
<td>FST</td>
<td>-13.6416</td>
<td>0.000</td>
</tr>
<tr>
<td>INU</td>
<td>-16.3465</td>
<td>0.000</td>
</tr>
<tr>
<td>LOSS</td>
<td>-6.5442</td>
<td>0.000</td>
</tr>
<tr>
<td>MSCORE</td>
<td>-25.1935</td>
<td>0.000</td>
</tr>
<tr>
<td>REC</td>
<td>-14.3002</td>
<td>0.000</td>
</tr>
<tr>
<td>SIZE</td>
<td>-133.372</td>
<td>0.000</td>
</tr>
</tbody>
</table>
Variance Inconsistency Test:
The results of the variance inconsistency test can be found in table (4).

### Table 4: Variance inconsistency test for the study model's data

<table>
<thead>
<tr>
<th>Test methods</th>
<th>Degree of freedom</th>
<th>Test statistic</th>
<th>Significance level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bartlett</td>
<td>12</td>
<td>184911.9</td>
<td>0.000</td>
</tr>
<tr>
<td>Levin</td>
<td>(12.5837)</td>
<td>11.98468</td>
<td>0.000</td>
</tr>
<tr>
<td>Brown-Forsythe</td>
<td>(12.5837)</td>
<td>5.143261</td>
<td>0.000</td>
</tr>
</tbody>
</table>

As it is observed, the probability values (significance level) were equal to 0.0 for all of the methods and they were below 0.05. So, the null hypothesis indicating the nonexistence of variance inconsistency was rejected and the alternative hypothesis holding the existence of variance inconsistency was accepted. According to the existence of variance inconsistency, generalized least squares method was used to overcome this problem.

The Results of F-Limer Test (Chow):
The results of F-Limer test (Chow) have been given in table (5) for the pre- and post-embargo data. According to the fact that the test statistic was larger than the critical point (95% confidence level) or, in other words, the probability level (significance level of the statistic) was smaller than 0.05, the hypothesis indicating the use of an integrated or aggregated model was rejected. Thus, panel data method should be used for model estimation.

### Table 5: F-Limer Test’s outputs for the model’s data

<table>
<thead>
<tr>
<th>Test effect</th>
<th>Statistic</th>
<th>Degree of freedom</th>
<th>Significance level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cross-section F</td>
<td>1.5252</td>
<td>(74.363)</td>
<td>0.006</td>
</tr>
</tbody>
</table>

The Results of the Hypotheses Test:

The results of the first hypothesis:

- First Hypothesis: Auditors’ work stress has a significant effect on audit quality.

The results of the study model’s estimation over the data using the fixed effects method and considering the variance inconsistency and overcoming it through generalized least squares method (GLS) have been presented in tables (6) and (7).

### Table 7: The results of the first study model for the data

<table>
<thead>
<tr>
<th>Variable</th>
<th>Variable’s coefficient</th>
<th>Standard deviation</th>
<th>t-statistic</th>
<th>Significance level</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>8.496656</td>
<td>4.255176</td>
<td>1.996781</td>
<td>0.0485</td>
</tr>
</tbody>
</table>
As it is observed, based on the results of the first model's estimation and according to the significance level of F-statistic, it was clear that the model was affirmed in a 99% confidence level. In addition, Durbin-Watson value was 1.85, which was in a range between 1.5 and 2.5. This was reflective of the nonexistence of autocorrelation between errors. Also, the adjusted determination coefficients of the variables used in the model have been suggestive of the idea that these variables accounted for a total of 60.5% of the variance of the dependent variable, audit quality, in the study sample volume. As for the first hypothesis, the auditors’ work stress had a significant effect on the audit quality considering its significance level being found below 0.05, the first hypothesis was confirmed. According to the negative value of the work stress coefficient, it can be stated that the increase in the auditors’ works stress reduced the companies’ audit quality.

### Conclusion

Being interested in achieving high quality benefits and rewards is served as a motivational factor stimulating the creation of the conditions required for increasing the quality. Auditors are more motivated to offer a higher quality of auditing task when an auditing applicant gives a higher value to the reception of higher quality auditing services and considers audit quality as a scale when selecting an auditor and also when a higher and more proportionate wage is paid for high quality auditing. Financial reporting crises during the recent years have caused the collapse of large companies and this has drawn the attentions of the researchers and professional qualities to the elevation of the report quality of the audits and reduction of the defaults. The behavioral auditing researches are suggestive of the idea that auditing experience influences the auditors’ judgement precision. When making judgements, the auditors should recall the required information for performing their duty from their memories (Danaie, 2013). Larson and others dealt in a study entitled “concepts and outcomes of job stress in internal auditors” with the way the job stress influences the job burnout and job satisfaction of the internal auditors. Their study findings indicated that the stressing organizational factors (reward, organizational structure and supervision style) were the sources of higher stress for the internal auditors as compared to individual stressing factors (temporal pressures, role ambiguity, role conflict and role overload). Moreover, the stress variables were introduced in this study in the regression pattern, including two factors of environment and work volume,
and the results indicated that the environmental factors were positively associated with the two other factors of job burnout and job dissatisfaction. Furthermore, work volume, as another stressing factor, was found negatively correlated with job dissatisfaction and positively associated with the increase in job burnout.

References