A study of the interaction of audit quality and ownership structure on earnings management of listed firms on Tehran Stock Exchange

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Abstract

In this study, the interaction of audit quality and ownership structure on earnings management of listed firms on Tehran Stock Exchange is studied. In this research, the auditor reputation, auditor tenure, ownership concentration and institutional ownership as a indicator of audit quality and ownership structure have been used. Also, the absolute value of discretionary accruals model of Modified Jones (1995) as a direct indicator of earnings management have been used. In order to respond the questions of this study, four hypothesis has been made and 100 firms from listed firms on Tehran Stock Exchange 5 years (2009-2013) has been tested. This study is descriptive of correlation type and to test the hypotheses, multiple linear regression model with panel data and fixed effects is used. The results of research hypotheses show that, ownership concentration weaken the negative impact of auditor reputation and auditor tenure on earnings management. Also, institutional ownership amplifies the negative impact of auditor reputation and auditor tenure on earnings management. The results of this study could be argued that, the establishment of an effective corporate governance system in Shadow of the interaction between the measures of auditor reputation, auditor tenure and institutional ownership, earnings management will reduced.

Key word: audit quality, ownership structure, earnings management.
Introduction
In economic affairs to make decisions and perform analysis, users need to accurate and reliable information and naturally a lack of appropriate and relevant information might jeopardize their decisions. Figures and financial reports are an important part of the required data for this process. The results of numerous empirical studies prove the idea that earnings are considered the most important source of information, and decision-makers rely on the earning more than any other criteria (Saghafy and Sadidi, 2007). However, it should be noted that earning as the most important source of information, may not reflect the actual performance of companies and their management.

In order to avoid such problems, the company must be equipped with control mechanisms to ensure that the equity capital is not misappropriated or used for non-useful purposes. This means that the company must guarantee that the agency costs stay as minimum. Corporate governance is the system by which business corporations, are monitored and controlled (Kouaib and Jarboui, 2014).

Studies show that poor disclosure in financial reports and lack of transparency of information on companies causes problems due to the separation of ownership from management to increase (Fan and Wong, 2005). In the meantime, independent audit that is considered as a measure of external control effective on corporate governance protects the rights of all stakeholders in the company through accreditation to the financial statements, ensuring reliability and confirming the quality of financial information. Moreover, investors, creditors and other stakeholders to evaluate the financial performance of the various business units and decision-making on the various investment opportunities rely on the results of the audit performed by valid independent audit companies. Thus, the greater the auditor reputation, the value, reliability and acceptability by the users of the financial statements increase and consequently earnings management and agency costs reduce (Ashbaugh et al., 2003). One of the other factors that limits earnings management is audit firm’s tenure. In the case of auditor tenure two theories are important; first, auditor tenure gradually decreases auditor's independence that in long run may result in loss of motivation and weaker goals by auditors, due to a close relationship with management (Gul et al., 2007). On the other hand, opponents argue that a long tenure helps auditors' to acquire better knowledge and experience about their customers, as a result this experience may cause the quality of audit to increase (Manry et al., 2008).

Another external controlling factor which affects corporate governance is ownership structure. Ownership structure or shareholders’ composition refers to how is the distribution of equity or ownership rights in terms of votes and capital as well as the nature and identity of the equity owners. The researchers believe that the increased ownership concentration and institutional ownership provides sufficient incentive to monitor management, which ultimately will reduce earnings management. In contrast, some believe that the high ownership concentration and institutional ownership may move in line with their own interests and to the detriment of minority shareholders and other stakeholders (Miglani et al., 2015).

The establishment of an effective corporate governance system which can be fulfilled in light of interaction between external and internal control standards effective on corporate governance, will align the interests of managers and owners in one direction (Fama and Jensen, 1983) and
improve the company's performance, and companies grow and spread (Shleifer and Vishny, 1997). The results of many empirical studies conducted in other countries show that good corporate governance leads to better performance of company and lower earnings management (Kouaib and Jarboui, 2014).

Jerry and Lin (2009), in a study titled, audit quality, corporate governance and earnings management, measure the audit quality using three criteria of the auditor size, auditor industry specialization and auditor tenure, and found these criteria have negative relationship with earning management.

Gul et al. (2013), investigate the role of ownership structure and corporate governance in reducing earnings management. The results showed that a higher percentage of institutional, corporate, and managers ownership reduce the level of earnings management.

Inaam et al. (2014), in a study titled, audit quality and earnings management in Tunisia, investigate the impact of audit quality (auditor size, auditor industry specialization and auditor tenure) on limiting the amount of real earnings management (manipulation of real activities) and accruals-based earning management. The results indicate that industry specialist auditors and auditors of four big audit firms are associated with lower levels of accrual-based earnings management. Also, there is a significant positive relationship among four big audit firms auditors and real earnings management. In addition, they found that no relationship exists among increasing auditor tenure with real earnings management and accruals based earnings management.

Kouaib and Jarboui (2014), investigate the impact and relation of audit quality and ownership structures on earnings management of Tunisia's industrial and commercial firms. Therefore, audit quality criteria included auditor reputation and auditor tenure, and the ownership structures criteria included the ownership concentration and institutional ownership and earnings management included discretionary accruals. Their results suggest that only the auditor reputation on earnings management have a significant negative impact on both industries. Also, only the interaction between auditor reputation and ownership concentration had a significant negative impact on the earnings management of industrial companies. Finally, the interaction of audit firm size and institutional ownership had a significant negative impact on earnings management, and interaction of auditor tenure and institutional ownership had a negative significant effect on earnings management. Lakhal (2015) investigated the relationship between ownership structure and earnings management in companies and France’s securities exchange companies. Results showed that family ownership, institutional investors and numerous large shareholders have a negative impact on earnings management and thus good corporate governance limits the authorities of management. This research shows that investors have a regulatory role in the company. Nonahal-Nahr et al. (2013) assessed the impact of audit quality on earnings management in firms listed in Tehran Stock Exchange. The results regardless of the control variables indicate that larger audit firms and longer tenure of auditors have a negative impact on earnings management in the new firms listed in Tehran Stock Exchange. However, by adding control variables results showed no effect of a larger audit firms on earnings management and audit longer tenure had a negative impact on earnings management in new firms listed in Tehran Stock Exchange. Mehrazin et al. (2013) examined the relationship between (non)family
ownership of firms and earnings management. The results showed that there is a significant relationship between the structure of corporate ownership and earnings management, where on average more nonfamily companies do more earnings management. Darabi and Emamjomeh (2014) examined the impact of ownership structure on the accuracy of their earnings forecasts. The findings indicate that no significant relationship exists between the percentage of equity ownership (large and small) and earnings forecast accuracy. Thus, this study aims to show whether audit quality and ownership structures interact on earning management or not.

Research methodology

The hypotheses are formulated as follows:

The first hypothesis: the interaction of auditor reputation and ownership concentration has a significant impact on earnings management.

The second hypothesis: the interaction of auditor tenure and ownership concentration has a significant impact on earnings management.

The third hypothesis: the interaction of auditor reputation and institutional ownership has a significant impact on earnings management.

The fourth hypothesis: the interaction of auditor tenure and institutional ownership has a significant impact on earnings management.

This study is included in the category of financial research. Regarding the historical information used in testing its hypotheses, it is classified in quasi-experimental studies. Since the goal of this study is to investigate the relationship between free cash flows and firm’s performance, the nature of research methodology is a correlational descriptive study.

In the present research, data were gathered in two ways:

1. In order to enrich the theoretical background of the study, Persian and English specialized books and magazines were used.

2. The information regarding research variables are gathered by reference to financial records, explanatory sheets and using the software "Rahavard Novin ed3."

The statistical population of this study includes all listed firms on Tehran Stock Exchange during 2009-2013.

Regarding the goals of research and some inconsistencies among companies listed in Tehran securities and stock exchange organization, the systematic deletion method of sampling was used. The following conditions were regarded necessary for being in research population:

1. It is not considered as a bank, financial, investment, holding or leasing institution. Because their special area of activity affects the relationship between factors which are investigated in this study and they cannot be generalized.

2. The firm must be listed in stock exchange organization before the end of 2007 and it must not have exited from stock exchange list during 2009-2012.

3. For comparability issues, the financial year of firm must end 29th Esfand (20th March) of every year.

4. The firm had no change of financial year during 2009-2013, and it is not broken.

5. Financial accounts of firm must be available.

http://www.ijhcs.com/index.php/ijhcs/index
100 companies met the above criteria during 2009-2013, in other words 500 years of companies are selected as statistical sample.

To test the hypothesis, the following regression model will be used:

\[
EM_{i,t} = \alpha + \beta_1 AR_{i,t} + \beta_2 AT_{i,t} + \beta_3 OC_{i,t} + \beta_4 AR_{i,t} \times OC_{i,t} + \beta_5 AT_{i,t} \times OC_{i,t} + \beta_6 SIZE_{i,t} + \beta_7 LEV_{i,t} + \delta_{i,t}
\]

\[
EM_{i,t} = \alpha + \beta_1 AR_{i,t} + \beta_2 AT_{i,t} + \beta_3 IO_{i,t} + \beta_4 AR_{i,t} \times IO_{i,t} + \beta_5 AT_{i,t} \times IO_{i,t} + \beta_6 SIZE_{i,t} + \beta_7 LEV_{i,t} + \delta_{i,t}
\]

Supposed as:

- \(EM_{i,t}\): earnings management of firm \(i\) in year \(t\);
- \(AR_{i,t}\): auditor reputation of firm \(i\) in year \(t\);
- \(AT_{i,t}\): auditor tenure of firm \(i\) in year \(t\);
- \(OC_{i,t}\): ownership concentration of firm \(i\) in year \(t\);
- \(IO_{i,t}\): institutional ownership of firm \(i\) in year \(t\);
- \(AR_{i,t} \times OC_{i,t}\): interaction of auditor reputation and ownership concentration of firm \(i\) in year \(t\);
- \(AT_{i,t} \times OC_{i,t}\): interaction of auditor tenure and ownership concentration of firm \(i\) in year \(t\);
- \(AR_{i,t} \times IO_{i,t}\): interaction of auditor reputation and institutional ownership of firm \(i\) in year \(t\);
- \(AT_{i,t} \times IO_{i,t}\): interaction of auditor tenure and institutional ownership of firm \(i\) in year \(t\);
- \(SIZE_{i,t}\): size of firm \(i\) in year \(t\);
- \(LEV_{i,t}\): financial leverage of firm \(i\) in year \(t\);
- \(\delta_{i,t}\): model errors.

Test of the normal distribution of dependent variable

Using the Jarque-Bera test normal distribution of dependent variable is examined. Jarque-Bera test results are presented in Table (1).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Test statistic</th>
<th>Probability</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>EM</td>
<td>1.700666</td>
<td>0.427273</td>
<td>(H_0) Accepted</td>
</tr>
</tbody>
</table>

As observed in the above table, Due to the significance of variable is more than 0.05 so the hypothesis \(H_0\) of normal distribution of variables at 95% will be approved.

Test research hypotheses

In this section, for the research hypotheses, the related model has been estimated and test of actuarial assumptions related to them will be done.

The result of beforehand choosing model for selecting method of the choosing appropriate regression model for combined data of first and second hypotheses is provided in table (2).

<table>
<thead>
<tr>
<th>Type of test</th>
<th>Test statistic</th>
<th>Degrees of freedom</th>
<th>Probability</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chow test</td>
<td>3.229216</td>
<td>(99-393)</td>
<td>0.0000</td>
<td>Panel method</td>
</tr>
<tr>
<td>Hausman test</td>
<td>20.800961</td>
<td>7</td>
<td>0.0041</td>
<td>Performance fixed effects</td>
</tr>
</tbody>
</table>

According to the results of the Chow test, since the Chow test significance level is less than 0.05 (0.0000), anisotropy of intercept is verified and panel data methods should be used in estimating. Also according to the results of the Hausman test, since the level of significance of the test is less
than 0.05 (0.0041), there is verified and fixed effects model should be estimated using the fixed effects approach.

The results of estimating the model and also the test results and the assumptions of the classical regression are provided in Table (3).

Table 3. The results of estimating regression models to test the first and second hypothesis

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>-0.840254</td>
<td>0.217710</td>
<td>-3.859507</td>
<td>0.0001</td>
</tr>
<tr>
<td>AR</td>
<td>-0.079823</td>
<td>0.020108</td>
<td>-3.969787</td>
<td>0.0001</td>
</tr>
<tr>
<td>AT</td>
<td>-0.040311</td>
<td>0.015016</td>
<td>-2.684582</td>
<td>0.0075</td>
</tr>
<tr>
<td>OC</td>
<td>0.057766</td>
<td>0.015319</td>
<td>3.770957</td>
<td>0.0002</td>
</tr>
<tr>
<td>AR*OC</td>
<td>-0.064067</td>
<td>0.021778</td>
<td>-2.941819</td>
<td>0.0035</td>
</tr>
<tr>
<td>AT*OC</td>
<td>-0.029846</td>
<td>0.009055</td>
<td>-3.296172</td>
<td>0.0011</td>
</tr>
<tr>
<td>SIZE</td>
<td>0.084018</td>
<td>0.021902</td>
<td>3.836143</td>
<td>0.0001</td>
</tr>
<tr>
<td>LEV</td>
<td>0.074768</td>
<td>0.031172</td>
<td>2.398534</td>
<td>0.0168</td>
</tr>
<tr>
<td>F-statistic</td>
<td>3.332333</td>
<td>Prob(F-statistic)</td>
<td>0.000000</td>
<td></td>
</tr>
<tr>
<td>Adjusted R-squared</td>
<td>0.529206</td>
<td>Durbin-Watson stat</td>
<td>2.211854</td>
<td></td>
</tr>
</tbody>
</table>

In the overall significance of model, due to the significant level (sig) F-statistic is smaller than (0.050) with a significant 95% of the overall model is confirmed. Determining factor model also suggests that %52.9 of the earnings management are explained by changing the variables in the model. Moreover, since the camera Watson value is a number between 1.5 and 2.5 (2.21), therefore the independence of the rest of the model is confirmed.

**Testing the first hypothesis:** Regarding the results obtained from the estimation of model provided in table (3), the significance level of the interaction of auditor reputation and ownership concentration variable is equal to (0.0035) and less than 0.05 error and the coefficient of this variable (-0.064067) is less than the coefficient of auditor reputation variable (-0.079823). These figures indicate that by adding ownership concentration variable, there was still the negative impact of auditor reputation on earning management but the intensity of the relationship is reduced. In other words, ownership concentration weakens the negative impact of auditor reputation on earnings management.

**Testing the second hypothesis:** Regarding the results obtained from the estimation of model provided in table (3), the significance level of the interaction of auditor tenure and ownership concentration variable is equal to (0.0011) and less than 0.05 error and the coefficient of this variable (-0.029846) is less than the coefficient of auditor tenure variable (-0.040311). These figures indicate that by adding ownership concentration variable, there was still the negative impact of auditor tenure on earning management but the intensity of the relationship is reduced.
In other words, ownership concentration weakens the negative impact of auditor tenure on earnings management.

The result of beforehand choosing model for selecting method of the choosing appropriate regression model for combined data of third and fourth hypotheses is provided in table (4).

Table 4. The results of the model selection to estimate second model of Research

<table>
<thead>
<tr>
<th>Type of test</th>
<th>Test statistic</th>
<th>Degrees of freedom</th>
<th>Probability</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chow test</td>
<td>3.125363</td>
<td>(99-393)</td>
<td>0.0000</td>
<td>Panel method</td>
</tr>
<tr>
<td>Hausman test</td>
<td>20.925985</td>
<td>7</td>
<td>0.0039</td>
<td>Performance fixed effects</td>
</tr>
</tbody>
</table>

According to the results of the Chow test, since the Chow test significance level is less than 0.05 (0.0000), anisotropy of intercept is verified and panel data methods should be used in estimating. Also according to the results of the Hausman test, since the level of significance of the test is less than 0.05 (0.0039), there is verified and fixed effects model should be estimated using the fixed effects approach.

The results of estimating the model and also the test results and the assumptions of the classical regression are provided in Table (5).

Table 5. The results of estimating regression models to test the third and fourth hypothesis

Cross-section fixed effects test equation:
Dependent Variable: EM
Method: Panel EGLS (Cross-section weights)
Sample: 1388 1392
Included observations: 5
Cross-sections included: 100
Total pool (balanced) observations: 500

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>-0.388920</td>
<td>0.129903</td>
<td>-2.993921</td>
<td>0.0029</td>
</tr>
<tr>
<td>AR</td>
<td>-0.033425</td>
<td>0.007946</td>
<td>-4.206541</td>
<td>0.0000</td>
</tr>
<tr>
<td>AT</td>
<td>-0.025967</td>
<td>0.007762</td>
<td>-3.45237</td>
<td>0.0009</td>
</tr>
<tr>
<td>IO</td>
<td>-0.068056</td>
<td>0.015500</td>
<td>-4.390801</td>
<td>0.0000</td>
</tr>
<tr>
<td>AR*IO</td>
<td>-0.077907</td>
<td>0.014971</td>
<td>-5.203933</td>
<td>0.0000</td>
</tr>
<tr>
<td>AT*IO</td>
<td>-0.092671</td>
<td>0.032854</td>
<td>-2.820697</td>
<td>0.0050</td>
</tr>
<tr>
<td>SIZE</td>
<td>0.031849</td>
<td>0.009071</td>
<td>3.511047</td>
<td>0.0005</td>
</tr>
<tr>
<td>LEV</td>
<td>0.092939</td>
<td>0.044471</td>
<td>2.089869</td>
<td>0.0373</td>
</tr>
<tr>
<td>F-statistic</td>
<td>3.201779</td>
<td>Prob(F-statistic)</td>
<td>0.000000</td>
<td></td>
</tr>
<tr>
<td>Adjusted R-squared</td>
<td>0.548668</td>
<td>Durbin-Watson stat</td>
<td>2.345366</td>
<td></td>
</tr>
</tbody>
</table>

In the overall significance of model, due to the significant level (sig) F-statistic is smaller than (0.050) with a significant 95% of the overall model is confirmed. Determining factor model also suggests that %54.8 of the earnings management are explained by changing the variables in the model. Moreover, since the camera Watson value is a number between 1.5 and 2.5 (2.34), therefore the independence of the rest of the model is confirmed.

**Testing the third hypothesis:** Regarding the results obtained from the estimation of model provided in table (5), the significance level of the interaction of auditor reputation and institutional ownership variable is equal to (0.0000) and less than 0.05 error and the coefficient of this variable (-0.077907) is more than the coefficient of auditor reputation variable (-0.033425). These figures indicate that by adding institutional ownership variable, there was still
the negative impact of auditor reputation on earning management but the intensity of the relationship is added. In other words, institutional ownership amplifies the negative impact of auditor reputation on earnings management.

Testing the fourth hypothesis: Regarding the results obtained from the estimation of model provided in table (5), the significance level of the interaction of auditor tenure and institutional ownership variable is equal to (0.0050) and less than 0.05 error and the coefficient of this variable (-0.092671) is more than the coefficient of auditor tenure variable (-0.025967). These figures indicate that by adding institutional ownership variable, there was still the negative impact of auditor tenure on earning management but the intensity of the relationship is added. In other words, institutional ownership amplifies the negative impact of auditor tenure on earnings management.

Discussion and Conclusion
One of the components of the financial statements used as a benchmark to evaluate the performance and ability of profitability units is earnings reporting. The calculation of net income of an entity is affected by the practices and accounting estimates. For more information of managers of the company’s situation, it is expected to prepare and present information in a way that best reflects the company's situation. But for reasons such as trying to survive in the enterprise, rewards, etc., business unit management may intentionally or unintentionally manipulate the earnings so that the company's situation seem favorable. Under such circumstances, the real earnings may conflict with the reported earnings in the financial statements and events and earnings management occurs. The overall objective of auditors is to protect the interests of shareholders against significant distortions and errors in financial statements and in the meantime, managers' incentives to impose their personal interest in the quality of earnings prevents auditors from reaching their goals. In contrast, auditors can increase the quality of audit in order to discover potential earnings management by managers and pressure the managers regarding earnings management. On the other hand, audit quality that determines the performance of audit is a function of several factors such as auditor capabilities (including knowledge, experience, adaptability and technical efficiency) and professional performance (including independence, objectivity, professional care, conflict of interest and judgment). Auditor quality also refers to the auditor's reputation and professional care, where increased credibility of financial statements is a result of the auditor's reputation, and auditor’s monitoring and professional care will increase the quality of financial information. Another parameter for evaluation of auditor quality is the term of auditor’s tenure. As the tenure of auditor increases, his/her recognition of the employer and the specific industry will increase leading to higher quality of auditor. On the other hand, a long tenure may challenge the independence of auditor and reduce the quality of audit. In addition to audit quality, corporate governance reports indicate that the ownership structures has the ability to exercise control over the actions of firm managers, and play the main role in creating many of the changes in their corporate governance systems. Institutional investors have a powerful place in the company's governance that can effectively monitor and influence the company's management, and to align the interests of shareholders by
penetrating in the management. In contrast, the high ownership concentration allows this group to use their controlling rights for personal gain and exploitation of other shareholders. Statistical analysis of the first hypothesis shows that, ownership concentration weaken the negative impact of auditor reputation on earnings management. This is because ownership concentration leads to eliminating the motivation of owners in using high quality auditing. Ownership concentration makes institutions inform of major part of internal information, so they have no tendency to transfer clear and high quality financial information to market. In this situation, high ownership concentration decreases the use of famous auditing firms which effects on earning management.

Statistical analysis of the second hypothesis shows that, ownership concentration weaken the negative impact of auditor tenure on earnings management. This is because companies with a majority share held by major shareholders, in particular controlling shareholders are more exposed to the risks and difficulties of agency problem. Since the opinion of controlling shareholders is predominant at all decisions of board of directors and these shareholders ignore controlling processes easier than other shareholders and to reach themselves interests, perform against these processes and make impossible other shareholders’ supervision. In this situation the high ownership concentration decreases the auditor tenure duration (increasing auditor rotation) which affected on earning management.

Statistical analysis of the third hypothesis shows that, institutional ownership amplifies the negative impact of auditor reputation on earnings management. This is because institutional investors because of their special ability in financial analysis require more high quality information and because they have special influence in the company, they would push managers to use high quality auditing services. In this situation high institutional ownership leads to increasing use of famous auditing firms which effects on earning management.

Statistical analysis of the fourth hypothesis shows that, institutional ownership amplifies the negative impact of auditor tenure on earnings management. This is because by entering institutional investors, the dominant thinking on firm performance is profit making and better performance. So they require high quality information and push managers to use high quality auditing services. In this situation high institutional ownership leads to increasing auditor tenure duration (decreasing auditor rotation) which effects on earning management.
References