Examine Earnings Management in Profitable Companies Listed In Tehran Stock Exchange for the Periods before and after the Global Financial Crisis

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ABSTRACT: This study aimed to examine earnings management in profitable companies listed in Tehran Stock Exchange for the periods before and after the global financial crisis. The statistical population is of the companies listed in Tehran Stock Exchange for the period 2003 to 2011, according to the formula Cochran and among them, a sample of 95 participants randomly were examined. Normally data being distributed, the Kolmogorov - Smirnov test (K-S) was used. To investigate the hypotheses, t-test with two paired/correlated samples was used; to analyze the data, SPSS 18 software has been used. The results of this study confirm the first research hypothesis that there is a significant difference between earnings management in stock companies before and after the financial crisis. The results of the second research hypothesis, there is a significant difference between large and small stock companies’ earnings management during the financial crisis. The third hypothesis at the study that there is a significant difference between earnings management firms of Article 44 and other companies during the financial crisis. The results indicate that earnings management decreased during the financial crisis significantly.

Keywords: Earnings management, Financial crisis, Firms in article 44 of the constitution, Small and large companies.

INTRODUCTION

One method, which sometimes used for configuration in informing on desired state of the companies, is earnings management. Earnings management is regarded to public-intervention management in the process of determining earnings which are often in line with the desired objectives of the management (Reitenga & Tearney, 2003). Earnings management is a method used by management to manipulate data. For example, facilitating earnings for gain more confidence of investors in the sustainability of earnings is an example of data manipulation. These practices may affect data contained in the financial statements significantly. There are various ways in which the registered office can be used to manage earnings. Most time, illegitimacy records of accounting books would be used to cover up the abuses of financial, in other cases, the records may be used as a tool for earnings management (Wong, Firth, & Kim, 2012). The company management, when applying earnings management, clearly understands the purpose of this is maintenance of interests of the company against the owners. Even in other cases, earnings management is in order to earn bonuses dedicated to the managers due to preserving as much of the company versus the owners (Maijoor & Vanstraelen, 2002). Therefore, Zanjirdar, Anier Housseini, and Zamani, (2010) examined the relationship between earnings management and corporate governance mechanisms in Capital market in Iran. The results indicate that they there is an inverse significant relationship between internal auditors, major shareholders’ ownership percentage, ratio of non-duty members of the board composition and earnings management, and in other cases, it observed no a significant relationship between internal and external mechanisms of corporate governance and earnings management.

The results of Khajavi, Bayazid, and Jabbarzadeh (2011) show, that there is a negative relationship between earnings management and firm’s social responsibility. The results of Damvary, Arefmanesh, and Abbasi, (2011) show, that the investors regard the highest value to the firms, who smoothing high-quality earnings; and the lowest value to non-smoothing companies in low-quality earnings. Vadei and Anbarany (2012) investigated the ethical factors affecting earnings management. The findings indicate that many differences exist between the objectives of and importance of
earnings management. That earnings management with personal objectives is more unethical than that with corporate Jones and Sharma (2010) suggest that in low-growth companies there is direct and significant relationship optional accruals and free cash flow. According to the topics above-mentioned, what we're looking at is earnings management objectives and important earnings management is judged less than low important earnings management. The results of study in profitable companies listed in Tehran Stock Exchange before and after the financial crisis.

It seems answering this question can be impressive on duty and non-duty managers of the managers and potential and actual and institutional investors and independent auditors. This is because recognizing any factors affecting on earnings management, ways to prevent earnings management becomes easier, especially for companies’ managers.

METHODOLOGY

The research method

This investigation is a post-event approach (through past information). On the other side, present study is a descriptive-correlated survey. This is a quantitative research, in terms of the nature of data. According to objectives, it is considered an applicable one. To examine research hypotheses and given the nature of information, research data is based on past real and quantitative information.

The research hypotheses

• Earnings management differs significantly in stock companies before and after the financial crisis.
• There is a significant difference between earnings management of big and small companies listed during the financial crisis.
• There is a significant difference between earnings management of companies in Article 44 and other companies during the financial crisis.

The research statistical population and sample

The research statistical population is the companies listed in Tehran Stock Exchange, since 2003 to 2011. The sample selection measure systematic removal for this study, by considering the following conditions:
1. A manufacturing company, not among the banks and financial institutions (investment companies, financial intermediaries, Holding companies, banks and leasing), because the company's strategic structure and financial disclosure are different.
2. Fiscal year ending March, every year, due to the conventional method in Iran at the beginning of each year, increase in wages, energy and other costs, this measure leads to conditions will be the same for all the selected companies.
3. Shares are traded on an exchange; it is not possible to calculate some variables correctly for the company's shares not traded. Therefore, such companies have been removed.
4. During the fiscal year, not changing in the activity and fiscal year.
5. Necessary information is available to the company.
6. There are institutional investors among shareholders.

Due to the restrictions imposed, among 421 companies listed in Tehran Stock Exchange 331 companies were selected using systematic removal using Cochran method 83 companies were selected as final samples. Cochran method is as follows:

\[ n = \frac{(331)(1.96)^2 \times (0.5)(0.5)}{(331)(0.1)^2 + (1.96)^2(0.5)(0.5)} \geq 95 \]

In the above formula, usually, the maximum permissible error (d) is 0.1, significance coefficient, 0.95, t=1.96 and each value of p and q, 0.5 and population size (N). P-value is 0.5, because, if any, n reaches the maximum values, and this causes the sample is large sufficiently.

Operational Definition of Variables

Earnings management

To measure earnings management, the adjusted Jones model is used because this model is able to solve this problem. In literature, edited version of the original model of Jones exists, usually referred to as the adjusted Jones model. This model was first used by Dechow (1994). One of the Jones model imperfections is ignoring the possibility of earnings management practice in accordance with the revenue recognition. Adjustment done is to prevent this.
Dechow (1994) revised and improved their previous models. They modified Jones model with added three independent variables. By modification, of the adjusted Jones model’s explanatory power (R) increases of 9% to 20%. General model in this study is as follows:

\[
\frac{TAC_{it}}{TA_{it-1}} = a_0 \left( \frac{1}{TA_{it-1}} \right) + a_1 \left( \frac{\Delta REV_{it} - \Delta REC_{it}}{TA_{it-1}} \right) + a_2 \left( \frac{PPE_{it}}{TA_{it-1}} \right) + e_{it}
\]

\( TAC_{it} \): total accruals (earnings before extraordinary items minus operating cash flow) in year t for firm i under investigation
\( TA_{it-1} \): Total assets in year t-1 for firm i under investigation.
\( \Delta REV_{it} \): income changes during year t-1 to t for firm i under investigation.
\( \Delta REC_{it} \): Changes in accounts and documents receivable during year t-1 to t for firm i under investigation.
\( PPE_{it} \): gross amount of property, plants in year t for firm i under investigation.

Then these estimated coefficients from the regression of the firms under study to estimate accruals managed for each sample firm are obtained by subtraction unmanaged accruals from total accruals as follows:

\[
TEAM_{it} = \frac{TAC_{it}}{TA_{it-1}} - a_0 \left( \frac{1}{TA_{it-1}} \right) + a_1 \left( \frac{\Delta REV_{it} - \Delta REC_{it}}{TA_{it-1}} \right) + a_2 \left( \frac{PPE_{it}}{TA_{it-1}} \right)
\]

\( TEAM_{it} \): managed components of the accruals for firm i under study in year t, the equivalent to the optional accruals.

Financial crisis
Active firm in financial crisis is 1, otherwise 0 (Basis year is 2007, four years before and after is considered as the period before and after the crisis).

Methods of data analysis
In descriptive statistics, frequency tables and statistical graphs will be benefited. In inferential statistics, t-test will be used with two correlated samples in order to compare the means or the difference in earnings management before and after financial crisis. SPSS 18 will be used in data analysis.

RESULTS

Descriptive statistic

Table 1. Descriptive statistics for variables in the periods before and after crisis.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Median</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earnings management before</td>
<td>-0.89</td>
<td>1.96</td>
<td>0.051</td>
<td>0.042</td>
<td>0.52</td>
</tr>
<tr>
<td>Earnings management after</td>
<td>-0.76</td>
<td>1.82</td>
<td>0.042</td>
<td>0.038</td>
<td>0.44</td>
</tr>
<tr>
<td>Small firm’s earnings management</td>
<td>-0.42</td>
<td>1.42</td>
<td>0.023</td>
<td>0.017</td>
<td>0.12</td>
</tr>
<tr>
<td>Big firm’s earnings management</td>
<td>-0.55</td>
<td>1.15</td>
<td>0.032</td>
<td>0.017</td>
<td>0.12</td>
</tr>
<tr>
<td>Article 44 firms’ earnings management</td>
<td>-0.25</td>
<td>1.77</td>
<td>0.021</td>
<td>0.019</td>
<td>0.33</td>
</tr>
<tr>
<td>Other firms’ earnings management</td>
<td>-0.31</td>
<td>1.63</td>
<td>0.024</td>
<td>0.021</td>
<td>0.27</td>
</tr>
</tbody>
</table>

Normality

\( H_0 \): Data for the dependent variable is of a normal distribution.
\( H_1 \): Data for the dependent variable is not of a normal distribution.

Table 2. Kolmogorov - Smirnov test for testing normal distribution of the variables.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Normal parameter</th>
<th>Maximum differences</th>
<th>Z-value Kolmogorov-Smirnov</th>
<th>Probability value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Absolute value</td>
<td>Positive</td>
</tr>
<tr>
<td>Earnings management before</td>
<td>0.051</td>
<td>0.52</td>
<td>1.07</td>
<td>1.96</td>
</tr>
<tr>
<td>Earnings management after</td>
<td>0.042</td>
<td>0.44</td>
<td>1.06</td>
<td>1.82</td>
</tr>
<tr>
<td>Small firm’s earnings management</td>
<td>0.032</td>
<td>0.24</td>
<td>0.62</td>
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<tr>
<td>Big firm’s earnings</td>
<td>0.032</td>
<td>0.24</td>
<td>0.62</td>
<td>1.15</td>
</tr>
</tbody>
</table>
management
Article 44 firms’ earnings management 0.021 0.33 1.52 1.77 -0.25 1.127 0.162
Other firms’ earnings management 0.024 0.27 1.32 1.63 -0.31 0.421 0.411

Error level of 5%

According Table 2, due to the significance level of earnings management variable is greater than 0.05, so Null hypothesis is confirmed that the data were normalized for the variable in periods before and after the crisis, large and small firms, Article 44 firms and other firms.

**First hypothesis test**

H₀: there is no significant difference between stock companies’ earnings management before and after financial crisis.
H₁: there is significant difference between stock companies’ earnings management before and after financial crisis.

<table>
<thead>
<tr>
<th>Pattern</th>
<th>N</th>
<th>r</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before-after crisis</td>
<td>95</td>
<td>-0.665</td>
<td>0.003</td>
</tr>
</tbody>
</table>

Error level of 5%

T-test with two paired samples, two variables must be from the same group at two different times and or two groups are correlated. It should be fairly strong correlation coefficient between these two variables and a significance level less than 0.05, to achieve more correct and accurate to t-test including two paired samples. But if the correlation coefficient is weak between two variables and significance level more than 0.05, t-test with two independent samples is preferred to test than that with two paired samples. Table 4 shows the correlation is relatively strong between earnings management points in the stock company before and after the financial crisis with 0.95 significance and error level less than 0.05.

<table>
<thead>
<tr>
<th>Pattern</th>
<th>Mean</th>
<th>S.D</th>
<th>Deviation of average error</th>
<th>t</th>
<th>df</th>
<th>Significance level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before-after crisis</td>
<td>0.342</td>
<td>0.215</td>
<td>0.092</td>
<td>1.022</td>
<td>94</td>
<td>0.071</td>
</tr>
</tbody>
</table>

**Error level of 1%

According to Table 4, mean for earnings management in the stock company before and after the crisis, is statistically different, at the 0.99 significance level (due to significance level lower than error level of 1%). Therefore, the hypothesis H₀ is rejected, implying no difference between earnings management of the stock companies before and after the financial crisis and in contrast, hypothesis H₁ is accepted.

**Second hypothesis test**

H₀: there is no a significant difference between earnings management of big and small stock companies during the financial crisis.
H₁: there is a significant difference between earnings management of big and small stock companies during the financial crisis.

<table>
<thead>
<tr>
<th>Pattern</th>
<th>N</th>
<th>r</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Big and small firms</td>
<td>95</td>
<td>-0.775</td>
<td>0.011</td>
</tr>
</tbody>
</table>

' Error level of 5%

Table 5 shows a relatively strong correlation between earnings management points of big and small stock companies during financial crisis at 0.95 confidence level, the error level less than 0.05.
According to Table 6, mean is significantly different for earnings management for big and small companies in the stock market during the financial crisis, at the 0.99 significance level (due to lower significance level than error level of 1%). Therefore, the hypothesis $H_0$ is rejected, implying no difference between earnings management of big and small companies in the stock market during financial crisis, by contrast, $H_1$ is accepted.

**The third hypothesis**

$H_0$: there is no significant difference between earnings management of firms Article 44 and other companies during the financial crisis.

$H_1$: there is significant difference between earnings management of firms Article 44 and other companies during the financial crisis.

Table 7 shows relatively strong correlation between earnings management points of companies Article 44 and other companies during financial crisis at the 0.95 confidence level, the error level less than 0.05.

According to Table 8, mean of earnings management is significantly different for firms Article 44 and other companies during the financial crisis, at the 0.99 significance level (due to significance level less than error level of 1%). Thus, $H_0$ is rejected, implying no difference of earnings management between firms Article 44 and other companies during financial crisis; by contrast, $H_1$ is accepted.

**CONCLUSION**

According to the results of the first test, we see a positive significant relationship between earnings management of the stock companies before and after financial crisis, the fact is that managers are more willing to managing decreasing earnings during the financial crisis. It is recommended that the companies observe appropriate system control regarding risk management, the use of internal audit system and the adaption with rules and regulations to increase transparency of financial statements and expand the culture of accountability. According to the second test results, we see a positive significant relationship between earnings management of big and small companies in stock market before and after the financial crisis. The results of this study report earnings management in 2003-2011 regardless earnings management direction. So it seems that it is effective sufficient supervision and control of the exchange organization and quality of audit taken by audit organization and audit institutions on the phenomenon. Hence, according to incentives described in this study has documented PAT research, it is recommended that the Exchange Organization, Audit Organization and Audit Institutions pay attention more earnings managements and the managers’ incentives for earnings management. And according to the results of the third test, we see a positive significant relationship between earnings management of firms Article 44 and other companies during the financial crisis.

**REFERENCES**