Impact of earning management on value-relevance of accounting information of the Firms Listed on the Tehran Stock Exchange

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Abstract

The present study mainly aims at examining the impact of earnings management on the value relevance (explanatory power) of the accounting information. To determine the earnings management, Leuz model has been used and this is the distinction point of this study with the similar studies. To calculate the earnings management, the cumulative measure of earnings management based on four scales is used. The indicators of accounting information are the book aggregate earnings management and book values and earnings alone. The sample is composed of 63 firms listed on the Tehran Stock Exchange over a period from 2003 to 2011. The selected industries include metal products, automobiles and parts, cement and pharmaceutical products. The data is analyzed using panel data approach through EVIEWS software. The findings reveal that there is no significant relationship between earnings management and value relevance of the accounting information.

Keywords: Earning Management, value relevance of the accounting information.

1. Introduction

The shareholders seek for returns on their funds given to the firms as the investments. They have

to use the financial statements and other related reports to find the way they should use their

investment and evaluate the performance of the managers to make decisions. The creditors,

analysts and researchers use this information to make better decisions. For the various reasons,

the government is known as the user of the financial information. The managers hold the

responsibility of the stewardship and accountability and also are responsible for preparing

financial reports. The conflict of interest among the managers and owners (shareholders) increases the risk of providing unreliable information.

The most important information source available to the users is the earnings which might be manipulated by the managers for various motivations. Earnings management is a way to manipulate the earnings. Earnings management occurs when the managers use their personal judgments in the financial reports and transaction structure to provide reports about the firm's performance to mislead the stakeholders.

Flexibility in selecting the accounting numbers might motivate the managers to select the accounting methods or change the employed methods (in order to increase, decrease or modify the earnings numbers). In doing so, the opportunistic behavior of the managers might reduce the reliability of earnings and reduce the value relevancy of the earnings. Therefore, when the users realize the opportunistic earnings management, they might change their decisions. Based on the fact that the earnings management reduces the reliability of the financial reports, the present study seeks to find the impact of earnings management on the value relevance of the accounting information. In other words, this study examines whether the earnings management explains the firm's value.

2. Literature Review

2.1. Bases and Concepts of earnings management

There are various definitions provided for the earnings management. In fact, some definitions have completely positive approaches toward the earnings management; while, the other definitions take completely negative looks at the earnings management. The completely positive approach means that the earnings management is only occurred to improve the position of the firm. However, based on the negative approach, earnings management is a tool to overvalue the firm performance and achieve more advantages. According to Sharma and Jones, earnings management occurs when the managers use their personal judgments to manipulate the earnings

The most important definitions of earnings management are as follows:

Earnings management is an informative function used to show that the earnings are natural and aimed at achieving a satisfactory level (Healy and Helen, 1999).

Targeted intervention of the managers in the process of the financial reporting to achieve the personal advantages through manipulating the information in the current period.

Based on Scott (2000), earnings management is the authority of the companies to select the accounting methods and procedures for achieving the specific objectives of the managers.

Fischer (1994) explains that earnings management includes the managerial operation in order to increase or decrease the reported earnings without any changes in the profitability of the economic entity in the long term.

Schipper (1989) argues that earnings management is the intentional interference in the process of the outside financial reporting in order to achieve earnings.

2.2. Earnings Management Tools

In brief, the earnings management tools are divided into five categories:

1. Accounting attitude in terms of the management's opinion

Some tasks such as the timing of sales records, reducing the value of the inventories and equipments are accomplished by the management authorities and the outside users might not discover it immediately. These functions aim at earnings management.

2. Selecting and changing the accounting principles and trends

Generally accepted accounting principles permit some transactions to be recorded in different methods. For example, FIFO or average method for the inventory accounting, straight line or declining balance method for the depreciation of the plant assets, the completed contract method or the percentage-of-completion method for the long-term contracts might be selected by the managers and changed after some time. The primary selection and the subsequent changes in the accounting principles are observable to the outsiders. Most of the empirical studies about the earnings management are related to these tools. However, changing the accounting principles is not a flexible tool for managers and might not be repeatedly used.

3. Accruals Management

Estimations such as the useful lives of the plant assets, the collectability of the receivables, the discount rate of the pension obligations and other accruals which adjust the reported earnings are the traditional tools used by the managers and are not directly observable. The costs of the organizational reforms, known as relatively new phenomena, are also classified in this group.

4. Transfer prices

The companies located in the countries with the progressive tax rates not only transfer their earnings from the high tax rates fields to the low tax rates fields; but also they smooth incomes in

two tax fields. The transfer prices for exchanging the goods and services between the subsidiaries are interesting tools for this objective.

5. Real economic decisions

The economic decisions including advertisement, cash payments for the pension plans, bonus of the managers, research and development and investments are made by considering the short-term impacts on the earnings. In doing so, disaggregating the events into the usual operating activities for the purpose of income smoothing is a difficult task. The real decisions might be identified through studying the proposals and their comparison with the related information. The problem in disaggregating these events is a major barrier for providing the clear evidences about income smoothing. Most of the studies are concentrated on one or two tools of earnings management; however, most companies use several tools simultaneously

3. Research Background

The prior studies have been conducted about the relationship between the return on securities and a set of the accounting variables. An accounting number is termed "value relevant" if it is significantly related to the dependent variable (Beaver, 2002). The accounting data is a suitable measure for the firm's performance when its impact on the stock price is obvious (Raffoumier & Dumontier, 2002).

Himma Putri (2013) examined the relationship between earnings management and firm's value by evaluating the impact of earnings management on the value relevance of the earnings and the book value. They used ROA for measuring accruals. The population is composed of the whole firms listed on the Indonesian Stock Exchange over a period from 2009 to 2011. They found that the earnings management leads to the reduction of value relevance of the earnings and book value.

Stefano (2012) examined the relationship of accounting information and market value in a sample composed of 103 firms listed on the Milan Stock Exchange. They concluded that the operating cash flows, discretionary accruals and non-discretionary accruals have different value relevant and this relevance decreased after the financial and economic crises.

Eman (2010) investigated the impact of earnings management on the value relevance of the earnings and book values. He defined earnings management as a combination of the real earnings management and earnings management of the accruals. The findings revealed that the earnings and the book values are related to the market value of the firms. Furthermore, it was found that

the earnings management mitigated the relationship between the earnings and book values with the firm value.

In a study by Narasimhan & Srinivasan (2010), it was concluded that the value relevance of the earnings and the book value has changed over the past forty years. Wigraha (2011) believes that the earnings and book value have value relevancies. Similar to Wahlen & Namara (2004), Indra and Syam (2004), Suwardi (2005) and Iatridis (2010) examined the impact of adopting IFRS on the quality of the reported accounting figures. In addition, these studies also examined the relationship of the prepared financial statements based on the firm value. The results of the studies revealed that implementing IFRS enhances the quality of the accounting figures and reduces the authorities in the earnings management. As a result, the accounting information which is mostly associated with the firm value is reported and this contributes the investors to have informed and unbiased judgments. Chang and Shiva (2010) evaluated the effect of earnings management on the prediction ability of the earnings. These authors believe that earnings management reduces the prediction ability of the earnings.

Obinata and Suda (2006) also found that the companies with income smoothing have lower relative earnings and lower book value and cash flow per share. Marquard and Wiedman (2006) investigated the impact of earnings management on the relative accounting information. They concluded that earnings management reduces the relevance of the earnings and this is higher for the discretionary components than the non-discretionary components.

4. Methodology

This is an empirical study seeking to examine the impact of earnings management on the value relevance of the accounting information. This is an applied study using correlation analysis to test the relationship between the variables. One main hypothesis and two subsidiary hypotheses are developed.

The main hypothesis: There is a significant relationship between earnings management and value relevance of the accounting information.

1.1. The first subsidiary hypothesis: There is a significant relationship between earnings management and earnings relevance and book value to the stock price.

1.2. The second subsidiary hypothesis: There is a significant relationship between earnings management and the relevance of the earnings to the stock price.

To obtain the data to test the hypotheses, a sample is selected from the whole firms listed on the Tehran Stock Exchange. The sample is composed of the industries including metal products, automobile and parts, cement and pharmaceutical products. These specific industries are selected based on two reasons:

1. Calculating earnings management is based on the industry type.

2. The selected samples have received more attention during the recent years.

To select the sample, filtering criteria is used. The data is collected over 2003 to the end of 2011. Some criteria are considered for the sample, including:

1. The end of the fiscal year should be consistent with the calendar year.

2. There should be no changes in the fiscal years over 2003 to 2011.

3. The companies should have been listed on the Tehran Stock Exchange until the end of 2003.

4. The databases of the selected sample should be complete over 2003 to 2011.

Considering the above criteria, 63 firms are selected as the sample. The required data for the literature review and research background is collected by library method. The required information to confirm or reject the data is exploited from Rahavarde Novin software. The multivariate regression model, correlation coefficient and R2 are used for the inferential statistics in EVIEWS and EXCEL software.

5. Variable Measurement and Research Model Development

5.1 Variables Definition

Using earnings management as the independent variable, the impact of earnings management on the relevancy of the earnings and the book value to the stock prices has been examined. Earnings management is known as the intervention of the management in determining the income which is mostly intended to gain the managerial objectives.

To measure the earnings management, an aggregate measure is used which is based on the four measures of earnings management and is shown by EAR-AGGREGATE. This variable is obtained by averaging the ranks of EM1 to EM4. The definitions are provided below:

EM_1: Standard deviation of the current earnings divided by the standard deviation of the operating cash flows

$$EM1 = \partial \text{Current Profit}/\partial \text{Cash flow Operation (CFO)}$$

EM₂: The correlation between the changes in the accruals and changes in the cash flows. The accruals are calculated based on the model of Dechow, Sloan and Sweeny (1995):

$$TACCR = (\Delta CA - \Delta Cash) - (\Delta CL - \Delta STD) - \text{depreciation}$$

Where;

TACCR: Total accruals

ΔCA: Changes in the current assets

ΔCL: Changes in the current liabilities

$\Delta Cash$: Changes in cash

ΔSTD: The debt included in the current liabilities

EM2 is calculated as follows:

$$EM2 = \rho(\Delta \text{Accounting accrual} \, \& \Delta CFO)$$

EM₃ is the median of the calculated amounts based on the ratio of the absolute value of the accruals to the absolute values of the operating cash flows:

$$EM3 = \text{Median}(|\text{Accrual}|/|\text{CFO}|)$$

EM₄ is the proportion of the firms with the positive earnings but negative operating cash flows.

The dependent variables of the study are the relationship of the value relevancy of the earnings and book value and the value relevancy of the earnings (alone) in relation to the stock price. The information contents of these two measures are measured by the following regression models:

Pit = a0+ a1BVit+ a2EARNit+ eit

Pit = b0+ b1EARNit+ eit

In the above equation, P is the stock price at the end of year, BV is the book value per share and EARN is the earnings per share.

EARN: The earnings per share is calculated by dividing the earnings of the common stockholders by the number of the issued common stocks

Book value per share: is the result of dividing total equity by the number of the common stocks.

5.2 Research Models

As mentioned before, the dependent variable is the information content of the numbers and figures which is used to find whether earnings management results in reducing the information content of the accounting numbers. Two measures are used for this purpose. The first measure is the combination of the two variables of earnings and book value; while the second measure is

earnings alone. Finally, the earnings management is added to the model and the regression model for testing the hypotheses is as follows:

Pit = a0+ a1BVit + a2EARNit + a3EAR-AGGREGATEit + eit   -

Pit = a0+ a1EARNit + a2EAR-AGGREGATEit + eit

The negative coefficient of a3 and a2 represent the opportunistic earnings management; while the positive coefficient of a3 and a2 show the useful earnings management.

6. Analyzing the Empirical Findings

The first and second hypotheses of the study are as follows:

The first subsidiary hypothesis: There is a significant relationship between earnings management and the earnings relevance and book value to the stock price.

The second subsidiary hypothesis: There is a significant relationship between earnings management and the relevancy of the earnings to the stock price.

These hypotheses aim at investigating the impact of earnings management on the relationship between the earnings and book value to the stock prices. The dependent variable is the information content of the numbers and information to see whether earnings management results in reducing the information content of the accounting numbers and figures. Two measures are selected for this purpose. The first measure is the combination of the two variables of earnings and the second measure is the information content of earnings alone.

Testing regression1: As shown in table 1 the relationship between earnings and book value to the stock price

To test the relationship between earnings and book value to the stock price, the first regression model is used and tested in EVIEWS7.

To test the significance of total regression model, F statistic is used. When there is no relationship between the dependent, independent and controlling variables in a multivariate regression model, the whole coefficients of the independent and controlling variables in an equation should be zero. In doing so, the significance of the regression model should be tested. As shown above, the significance level of the F statistic is 0.000 which confirms the significance of the regression model.

The coefficients of the independent variables and the constant value of the model are represented in the above table. The significance level of a variable which is lower than the expected level confirms the significance of the variable. As shown above, the significance level of the book

value is 0.031 and this coefficient amounts to 0.000 for earnings (both are lower than 5 percent). As a result, both variables are significantly associated with the stock prices. In fact, these two variables have information content. Both coefficients are positive which confirms the direct association between these two variables and the stock price. The coefficient of the book value is 0.0000521 and the coefficient of earnings is 0.481993 which is much higher than the book value. As a result, earnings have more information content.

Testing H1

To examine the impact of earnings management on the information content of the earnings and book value in relation to the stock price, this variable is added to the regression model:

$$Pit = a0 + a1BVit + a2EARNit + a3EAR\text{-}AGGREGATEit + eit$$

The results of the first hypothesis are provided in table2.

Earnings management impacts the relevancy of the earnings and book value to the stock price.

As shown in table 2, the significance of F statistic is 0.000 which confirms the significance of the total regression model. P-values related to the book value and earnings are 0.0273 and 0.000, respectively which is lower than 5% and the significance of the variables is confirmed. It is then concluded that there is a significant relationship between these variables and the stock price. Furthermore, the negative coefficient of the earnings management refers to the opportunistic earnings management; while, the positive coefficient indicates the useful earnings management. The coefficient of the earnings management in the above model is 0.0535 which confirms the positive earnings management. By adding the earnings management to the model, the information content and the coefficients of the two variables (book value and earnings) increase. The coefficient of book value changed from 0.0000521 to 0.0000533 and the coefficient of earnings increased from 0.481 to 0.488 which shows that the positive earnings management has a positive impact on the information content of the earnings and book value. However, the coefficient of earnings management is 0.1134 and confirms that earnings management is not significant at the 95 percent level of significance. As a result, the first hypothesis is rejected.

In addition, R2 of the model is 0.657 and it means that 65.7% of the changes in the dependent variable are explained by the variables added to the model.

Testing the second regression- The relationship between earnings and stock price

As shown in table3, the significance of the F statistic is 0.000 and it confirms the significance of the total regression mode. In addition, P-values of the earnings is 0.000 which is lower than 5% and its significance is confirmed. As a result, it is concluded that there is a significant relationship between the earnings and the stock price. In other words, the earnings in relation to the stock price have information content

In addition, R2 of the model is 0.649 and it shows that 64.9% of the changes in the dependent variable are explained by the variables added to the model.

Testing H2

There is a significant relationship between earnings management and relevancy of the earnings to the stock price.

To examine the impact of earnings management on the information content of the earnings in relation to the stock price, this variable is added to the model:

$$Pit = a0 + a1EARNit + a2EAR\text{-}AGGREGATEit + eit$$

The results of the second hypotheses are presented in table4

Table 4 represents that the significance of F statistic is 0.000 which confirms the significance of the total regression model. P-Value of the earnings is 0.000 which is lower than 5% and is significant. The significant relationship between the earnings and the stock price is then confirmed. The positive coefficient of the earnings management (0.0514) also confirms the useful earnings management. This results in an increase in the information content and the coefficients of the two variables (book value and earnings). The earnings coefficient of model 2 is 0.0513 which changed to 0.0519 by adding the earnings management to the model (model 4). It represents that the useful earnings management has positive impact on the information content of the earnings. However, based on the significant coefficient of the earnings management (0.1291), the second hypothesis is rejected. In addition, R2 of the model is 0.651 and it means that 65.1% of the changes in the dependent variable are explained by the variables added to the model.

Discussion and Results

The first hypothesis is about the impact of earnings management on the value relevance of the book value and earnings per share to the stock price. The findings reveal that earnings management has no impact on the value relevancy of the book value and earnings per share. However, it was empirically expected that the earnings management was perceived by the market

and the earnings management had negative impact on these two variables. This result might be attributed to the ignorance of the accounting numbers by the capital market and market participants.

The results of this hypothesis are not consistent with the results of Lu and Zarvin (1999) and Habib (2004) who found that the value relevancy of the earnings and book value decrease by the earnings management.

The results of the second hypothesis showed that the earnings management has no impact on the value relevance of the earnings; however, it was empirically expected that the earnings management had a negative impact on this variable. This finding is consistent with the study of Lu (1989). Furthermore, the findings of Namera and Wilen (2004) and, Marquard and Wiedman (2006) are not consistent with the findings of the present study. They concluded that earnings management reduces the relevance of the earnings.

Applicable Suggestions

As presented above, the findings reveal that earnings management has no significant impact on the value relevance of the fundamental accounting numbers (earnings per share and book value). This might be attributed to the little attention paid to the accounting numbers by the investors and the users. Consequently, the results should be generalized with caution. In doing so, the Tehran Stock Exchange (as the trustee of the capital market), the standard setters of the Audit organization of Iran and the CPAs are suggested to take effective actions to assure the capital market in order to use more accounting information by the investors and other users. The topics related to the earnings management are the significant subjects which might contribute the investors, financial analysts and the audit organization in establishing the accounting and auditing standards.

Suggestion for Further Studies

The other subjects for the future research are as follows:

- Examining the impact of earnings management on the capital market variables
- Examining the relationship between accruals and future earnings
- Examining the earnings management and financial analysts' predictions
- Conducting the present study based on the average financial information
- Investigating the impact of earnings management on the relevancy of the financial ratios

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Annexure

Table1. Testing the relationship between earnings and book value to stock price

Variable	Coefficient	Std.Error	T.Statistic	Prob
BV	5.21E-05	2.41E-05	2.167040	0.0310
EARN	0.481993	0.049642	9.709449	0.000
C	-0.155969	0.091610	-1.709449	0.0897
AR(1)	0.551142	0.048927	11.26457	0.000
R-squared	0.654505	Mean dependent var		-0.023386
Adjusted R-squared	0.651162	S.D. dependent var		0.986359
S.E. of regression	0.582568	Akaike info criterion		1.769917
Sum squared resid	105.2096	Schwarz criterion		1.817680
Log likelihood	-273.8769	Hannan-Quinn criter.		1.789002
F-statistic	195.7546	Durbin-Watson stat		2.2211919
Prob(F-statistic)	0.000000			

Table2. Testing the first hypothesis

Variable	Coefficient	Std. Error	t-Statistic	Prob.
BV	5.33E-05	2.40E-05	2.217078	0.0273
EARN	0.488375	0.049646	9.837213	0.0000
EARAGGREGATE	0.053589	0.033758	1.587442	0.1134
C	-0.158651	0.090657	-1.750008	0.0811
AR(1)	0.545133	0.049316	11.05380	0.0000
R-squared	0.657289	Mean dependent var		-0.023386
Adjusted R-squared	0.652853	S.D. dependent var		0.986359
S.E. of regression	0.581154	Akaike info criterion		1.768195
Sum squared resid	104.3618	Schwarz criterion		1.827899

Table 3. The relationship between earnings and stock price

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EARN	0.513826	0.046284	11.10158	0.0000
C	0.036833	0.077023	0.478209	0.6328
AR(1)	0.570687	0.047830	11.93153	0.0000
R-squared	0.649402	Mean dependent var		-0.023386
Adjusted R-squared	0.647147	S.D. dependent var		0.986359
S.E. of regression	0.585911	Akaike info criterion		1.778211
Sum squared resid	106.7638	Schwarz criterion		1.814034
Log likelihood	-276.1792	Hannan-Quinn criter.		1.792525
F-statistic	288.0273	Durbin-Watson stat		2.218418
Prob(F-statistic)	0.00000			

Table4. Testing the Second hypothesis

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EARN	0.519712	0.046299	11.22500	0.0000
EARAGGREGATE	0.051458	0.033816	1.51678	0.1291
C	-0.036925	0.076200	-0.0484526	0.6284
AR(1)	0.567016	0.048099	11.78845	0.0000
R-squared	0.651996	Mean dependent var		-0.023386
Adjusted R-squared	0.648629	S.D. dependent var		0.986359
S.E. of regression	0.584680	Akaike info criterion		1.777152
Sum squared resid	105.9736	Schwarz criterion		1.824915
Log likelihood	-275.0129	Hannan-Quinn criter.		1.796237
F-statistic	193.5984	Durbin-Watson stat		2.223849
Prob(F-statistic)	0.00000			