

Research Article

**The study of relationship between free cash flows and earnings management
in companies listed in Tehran Stock Exchange**

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ABSTRACT

The study aimed to the study of relationship between free cash flows and earnings management in companies listed in Tehran Stock Exchange. Free cash flows as an independent variable and earnings management, as a dependent variable. The statistical population consists of companies listed in Tehran Stock Exchange during the years 2010 till 2012, which based on the systematic removal method, 67 companies were sampled. In this study, to measure earnings management, Jones' the modified model was used and to determine free cash flow, Len and Pelson's model. In the present study, it was conducted to investigate first descriptive statistic of the research variables and then test variance heterogeneity and test F-Limaer; and finally carry with regression test to confirm or reject any of the research hypotheses. There is a significant relationship between free cash flows and earnings management.

Keywords: Free cash flow, Earnings management, Stock exchange.

1- INTRODUCTION

In accounting literature, earnings management is an issue that is offered in the accounting earnings field. The field has been evolved after 20 century along with various researches by accounting experts. Each of these researches has dealt with special dimensions such as earnings manipulation, earnings smoothing and earnings management. Earnings management is in the center focus of attentions due to notorious of some firms in recent years. Some legislative references have their shade on this issue and have changed some legislative issue (Jasson et al, 2004). Haily & Vallen (2008) defined earnings management as: "earnings managements is happened when managers use their personal judgment for financial reporting, consequently

financial structure changes are happened. The changes are caused some misleading of stakeholders in financial reporting about business agency performance or impact on consequences of business unit contacts which is dependent on reported accounting numbers. Skipper (2001) defined earnings management as voluntary intervention during financial reporting process in order to gaining personal interests for shareholders and managers. When earnings management give private information to shareholders, or when it is used to prevent re-contract and costly borrowings which finally leads to decreased political costs, shareholders would be benefited from. Managers also can utilize earnings management for taking some

privileges from shareholders such as increased reward, decreased probability of axing the poor performance managers (Titman et al, 2009).

Nowadays, earning management is one of the most discussable subjects in accounting researches. From the point of behavior, these researches are very important because investors really care about earning number as the one of the important factors in decisions. Many researches show that a little sustainable fluctuation in earning is the result of its quality (Fan, 2007). So, investors invest confidently in companies which have sustainable profitability. When companies are under increasing economic inappropriate pressure, managers ask from accounting unit to improve the last line of financial statement (profit) and thereby, change the informational content. In this situation, it doesn't seem that accounting with all flexibilities is able to provide useful data for manager (Boulton et al, 2011). thus, Richard Cheung et al 2004 cited in their research such that the companies with low growth and high free cash flow in order to compensate for their low or negative profit, which is inevitably accompanied by negative NPV, utilize discretionary accruals increasing their profits. The free cash flow with low investment opportunities as a major agency problem arises; in this situation managers create costs for shareholders, reducing shareholders' properties and wealth. They to cover the effects of investments that do not maximize shareholders' wealth utilize accounting options enhancing their reported earnings, which will lead to earnings management (Kurdish et al., 2012). We in this study examine relationship between free cash flows and earnings management in companies listed in Tehran Stock Exchange

2- Literature

Chiraz and Anis (2012) investigated the relation between earning management and the performance of French IPO companies. They

realized that companies with strict earning management suffered from poor performance in initial offering. So after initial offering, managers will be removed from the future program list. Nagata (2013) investigated the relation between earning management and under-pricing for countries in Japan. The results show that strict earning management is the reason of increasing suspicious of IPO companies and breaking down of prices.

Badolato et al. (2013) investigated the relationship between earnings management and the audit committee's financial expertise. The legal pressure on the increased audit committee's financial expertise has faded dependency relationship between the audit committees and management. The results suggest that the more the audit committee financial expertise is, the more effectiveness the earnings management prevention. The legal pressure on the audit committee's increased financial expert may reduce some audit committee's ability in commitment of earnings management.

Chandrsaram et al. (2013) investigated the effect of audit committee's characteristics on earnings management of the companies listed in the Stock Exchange of Malaysia.

In this study, using 153 sample companies listed in the Stock Exchange of Malaysia, given the annual report in 2011, the results showed that regulatory factors and kind of the audit committee's view leads to a balanced and handling mechanisms which is effective in preventing the earnings management outbreak.

Reina and Takyia (2014) investigated the relationship between free cash flow, earnings management and the audit committee. The purpose of this study was to investigate whether a high level of free cash flow is associated with earnings management or not. Using 911 sample companies listed in the Stock Exchange of Malaysia in the year 2001, the results have confirmed the research hypothesis and suggested that an independent audit committee assists to the

company with a high free cash flow to reduce the revenue from the increase in earnings management.

Soleyman and Ragheb (2014) investigated the relationship between the effectiveness of the audit committee, audit quality and earnings management. the role of audit committee and audit quality is highly regarded in support of the company's quality of financial reporting with regard to recent high earnings management of the companies in the world. The results show the members of the audit committee the audit committee's meetings and audit quality are significantly and negatively related to optional obligations which are indicators of earnings management.

3- Methodology

3-1- The research hypothesis

- There is a significant relationship between free cash flow and earnings management.

3-2- Statistical population and sample

The statistical population consists of companies listed in Tehran Stock Exchange, between 2010 and 2013. Selection criterion for this study is in the systematic removal method with regard to the following terms:

- 1- Company's fiscal year ends in March
- 2- Listed in the Stock Exchange, before 2010
- 3- Not belonging to investing and mediated, leasing and insurance companies
- 4- Their necessary information is available

Considering the primary studies, thus the companies from statistical population were selected among 37 industries divided in the stock, more than 341 companies. Using the Cochran method, it is selected 76 companies from 341 companies.

3-3- The operational definition of the variables

Earnings management

To measure earnings management in this study, Jones' adjusted model, since this is able to

resolve the problem under study. This is as follows (Ghalibaf Assell et al, 2010):

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

TAC_{it}: sum of the accruals (profit before extraordinary items minus operating cash flow) in year t for company i under study

TA_{it-1}: total of assets in year t-1 for company i under study

ΔREV_{it}: changes in revenues during t-1 to t for company i under study

ΔREC_{it}: changes in accounts and documents receivable during years t-1 to t for company i under study

PPE_{it}: The gross amount of property, plants and equipment in year t for company i under study

Then the estimated coefficients from the regressions of the company under study to estimate accruals amount managed for each sample company by subtracting the accruals unmanaged by a total accruals are obtained as follows:

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

TEAM_{it}: managed components of the accruals of the company under study in year t which is equivalent to the total of optional accruals

Free cash flow: in this study, Len and Pelson's model to determine a firm's free cash flow was used. Based on the model, the free cash flow is calculated by the following formula.

$$FCF_{i,t} = (INC_{i,t} - TAX_{i,t} - INTEP_{i,t} - PSDIV_{i,t} - CSDIV_{i,t}) / A_{i,t-1}$$

FCF_{it}: the ith company's cash flow in year t

INC_{it}: Operating profit before depreciation of the company i in year t

TAX_{it}: the total tax paid by the company i in year t

INTEP_{it}: costs of interest paid by company i in year t

PSDIV_{it}: The dividends to preferred shareholders paid by company i in year t

CSDIV_{it}: The dividends to ordinary shareholders by company i in year t

A_{i,t-1}: total book value of assets of the company i at year t-1 (Noravesh et al, 2010)

Audit Committee: In this study, the measure of the audit committee (the number of members present in the audit committee Inc.) to size the variable was used (Roustam et al. 2013)

Firm size: The natural logarithm of book value of total assets

Financial leverage: Ratio of total debt to total assets of the company

Firm age: How many years being listed in Tehran Stock Exchange

3-4- The research regression model

Earnings management_{it}

$$= a_0 + a_1 \text{Cash flows}_{it} + a_2 \text{Size}_{it} + a_3 \text{Age}_{it} + a_4 \text{Leverage}_{it} + \varepsilon_{it}$$

3-5- Data analysis

In this study, first, to determine whether time series x_t is a stationary process (accumulation rank of 0) and or divergent one (accumulation rank of 1), we use Dickey-Fuller test generalized (ADF). Like examining the variables' stationary here we also need to use appropriate methods for combined data. We use modified Wald test to check the group variance heterogeneity between remained fixed-effects regression model. Also two tests: Hausman and F are used in order to determine one of two methods of fixed effects or random effects. To illustrate explanatory power to the explaining variables, the adjusted determination coefficient (Adjusted R²) was used, to study significance of the variables, t-statistic and to examine total model adequacy, F-statistic. As well, the statistical analysis will be done by EXCEL and EViews 7.

4- RESULTS

4-1- Variance heterogeneity test

To evaluate variance heterogeneity of the disturbing terms, LM Arch test was used. The results are as follows:

The table 1-1: results of variance heterogeneity test of LM Arch in the research model

Explanation	Statistics value	Probability
F-statistic	1.914115	0.116
Obs*R-squared	1.026512	0.116

* 5% error level

According to table 1-1, f-statistic in test is not significant at level of 5%, so hypothesis on the variance homogeneity was confirmed and the

Table 1-2- results of F-statistic and Hausman test

F-Lymear test			
Explanation	Statistic value	Freedom degree	Probability
Cross-section F	1.516226	67	0.000*
Cross-section Chi-square	124.036748	67	0.006*
Hausman test			
Explanation	7.005162	11	0.002*

* 5% error level

According to table 1-2, the results of two tests conducted (F, Hausman), the probability obtained in both tests was less than 5% and so it

Variance heterogeneity of disturbing terms rejected.

4-2- Testing significance of fixed effect method

should be used fixed-effects method in relevant regression model.

4-3- hypothesis testing

Table 1-3- regression test and the model significance

Variable name	Estimated coefficients	Estimated deviation	t-statistics	Significance level
Fixed	0.619	0.175	3.538	0.027*
Free cash flow	1.165	0.322	3.618	0.023*
Firm size	3.364	0.705	4.772	0.015*
Financial leverage	0.417	0.342	1.219	0.084
Firm age	0.552	0.413	1.336	0.089
Durbin-Watson	Determination coefficient	Adjusted determination coefficient	F-statistic	Significance level
1.686	0.583	0.571	52.247	0.000**

*5% error level and **1% error level

According to 1-3- table there is no correlation between the error terms, because the Watson-Durbin statistic ranges between 1.5 and 2.5 and regression testing can be used. The estimated coefficient of free cash flow on earnings management of companies is equal to 1.165, if an increase in free cash flow, earnings management will also increase. This relationship is statistically significant, as the significance level of t-statistic is significant at 5% error level and H_0 can be rejected but not H_1 at 95% confident level. Also, the independent and control variables of the research can explain 57.1% of variability of the dependent variable. A significant level of F-statistic is significant at 1% error level, showing that the regression model is statistically significant. According to the results obtained, an empirical regression model can be written as follows:

$$\text{Earnings management}_{it} = 0.619 + 1.165 \text{ Cash flows}_{it} + 3.364 \text{ Size}_{it} + 0.552 \text{ Age}_{it} + 0.417 \text{ Leverage}_{it} + \varepsilon_{it}$$

5- CONCLUSIONS AND RECOMMENDATIONS

The results of the first hypothesis test showed there is a significant relationship between free cash flow and earnings management. Therefore, Mehran and Bagheri (2009) showed there is direct and significant between earnings management and high free cash flow of the low-

growth companies. Bandy (2012) showed a significant positive relationship between earnings management and free cash flows. In contrast, Etemadi and Shafa Kheibari (2011) investigated the impact of free cash flow on earnings management and the role of audit committee. The results of second hypothesis test showed that the audit committee has a significant impact on the relationship between earnings management and free cash flow. Reyna and Takia (2014) investigated the relationship between the free cash flow, earnings management and audit committee. The results indicate that independent audit committee assists to the companies with high free cash flow to reduce revenues of when increasing the earnings management. Given the importance of free cash flow, the Audit Institutes as the only reference to developing Accounting Standards is recommended to investigate financial statement based on calculating and disclosing free cash flows in the accompanying notes and if feeling the need for and requirement of it, the companies are required to calculate their free cash flows and the accompanying notes to disclose the financial statements.

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