Investigation the Impact of Cash Flow Volatility and Financial Leverage on Earnings Management in the Context of Listed Companies in Tehran Stock Exchange (Iran)

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Abstract: The purpose of this research is the investigation the Impact of the Cash Flow Volatility and the Financial Leverage on the Earnings Management in the Context of the Listed Companies in Tehran Stock Exchange. We used adjusted Jones model as the earnings management index. In this research, the population data for test of hypotheses is 90 firms listed in Tehran stock exchange that are analyzed for the period of 2006-2011 by using of the Pooled Data and cross sectional system and Ordinary Least Square Regressions (OLS) Model. The results show that Cash Flow Volatility is positive significantly associated with the Earnings Management and Financial Leverage is negative significantly associated with the Earnings Management.
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1. Introduction

The overall accepted accounting principles make it possible to record most of the transactions with one or more different methods. For example, the inventory assessment methods, the depreciation ratio calculation of the fixed assets and/or the interest identification procedures for the long-term contracts can be used and then later change it again. The activities such as the sales schedule record, the depreciation of the inventories and equipment value, implementation, and maintenance and suchlike are done by the authority of the management (Habib[1], 2004). The three beneficiary groups in every company are directors, shareholders, and creditor. It is notable that according to the agency theory, both managers and shareholders groups (owners) try to increase their profits. The shareholders follow the company's profits, because the higher interest increases their wealth, but the profit is always subject to management's manipulation. In contrast, it can be argued that the company has all beneficiary parties considering the cash flows, because they see their profits in the form of output cash flows (Fatma and Chichti[2], 2011).

In fact, the investors invest the cash flows rather on higher access to the cash flows than the profit and loss and have cash earnings in common stocks of the profit entities. On the other hand, the creditors also rather tend to have the cash flow information than the profit and loss (Dechow and Ge[3], 2006).

2. Theoretical Arrangement of Study

The reported operating cash flow in the operating cash flow indicates the company's capability to make the cash flow. The financial analyzers believe that the cash flow from the operating activities in addition to the investment opportunities in the fixed assets and using the investment opportunities should be spent on the distribution of the profits among the shareholders and increase their satisfaction (Bandia[1], 2012).

On one hand, the managers have more knowledge on the company, as it is expected to prepare and present the information on the company status. On the other hand, there may be some reasons about the company's survival, reward, and other factors, in which the managers intentionally or unintentionally to appear the company's status as positive (Demerjian, Lev, and McVay[2], 2006).

The Earnings Management[3] refers to a conscious behavior on behalf of the management to lower the profit periodic oscillations generally.

In general, the researchers believe that the investors prefer to invest in the companies with a uniform and consistent profitability trend and also those companies, which report highly volatile earnings and have a higher risk than the other companies. The financial analysts know earnings as an essential factor in their studies and judgments. Therefore, the managers want to demonstrate a fine image of the company and have strong incentive to reduce the investment risk so they can manage earnings (Ujah and Brusa[4], 2011).

Ever greater the cash flow volatility during the different periods, the shareholders and other interest groups in the company, the higher risk, and uncertainty exists. Therefore, the management may

attain the trust of the actual and potential investors on the earnings and handle and manage it (Ujah and Brusa, 2011). On the other hand, one of the effective factors on the cash inflows and outflows and the management behavior in the earnings reporting, the financing policies, and the financial leverage ratio. The main indicator of the dividend earnings assessment policy is the financial leverage ratio. According to this definition, the financial leverage is the financial fixed or operating costs of the company, in which the company increases the sales to have more profits than the sales increased percentage for the shareholders of the company, so in this viewpoint, there is an unquestionable role unmatched in the dividend earnings policy and reporting (Asif, Rasool and Kamal [1], 2011).

In this study, it is attempted to study empirically the cash flow volatility and the financial leverage ratio on the listed companies in the Tehran Stock Exchange.

3. Study background

Bhundia [2] (2012) in the study of listed companies in the Stock Exchange of India investigated the relationship between free cash flow and dividend earnings management. The results of this study indicated that there is a significant positive relationship between earnings management and the free cash flow. Ujah and Brusa [3] (2011) studied 9775 American companies in the field of the relationship between the cash flow volatility, financial leverage, and earnings management and they found that the cash flow volatility has significant positive relationship with the earnings management and the leverage ratio has negative relationship with the earnings management. Fatma and Chychty [4] (2011) had a study on the relationship between the ownership structure and the financing policy and the free cash flows in the country during 1999-2008 on 35 companies listed on the Tunis Stocks Exchange and they found that the financial leverage ratio and the managers' ownership ratio have positive relationship and the free cash flows and the ownership focus and the institutional shareholders proportion have the inverse relationship with the free cash flows.

Lang et al [5] (1996) in another study among 142 American companies during 1970-1989 found that there is a positive relationship between the financial leverage ratio and the free cash flows. Hant, Moyer and Shevlin [6] (1997) found in their study that the earnings management and the consequent the reduction of the earnings fluctuations reduce the earnings information content, but the market value of the stock increases.

Bukit and Iskandar [7] (2009) studied the relationship of the free cash flow, the earnings management, and the audit committee and found that the audit committee is independent audit that increases the free cash flows and reduces the earnings management. Jones et al [8] (2001) studied the relationship between free cash flow and the earnings management in Australia and they found there is a significant positive relationship between the discretionary earnings items and the free cash flows. They also stated that the above relationship between the companies with higher life cycle is stronger.

Lobo and Zhou [9] (2002) found in a study among 236 companies the management manipulation of the discretionary earnings items has a significant impact on the stock returns. Also, they showed that the companies with the lower stock returns are more involved with the earnings management and vice versa.

Liv [10] (2011) in a study entitled "The role of dividend earnings policy on the actual earnings management" studied the dividend earnings policy impact on the actual earnings management. The study results indicated when the pre-managed earnings (net profit minus actual management) is lesser than the previous year's dividend earnings, the managers manipulate the actual activities to manage the earnings upward. Also when the pre-managed earnings is greater than the previous year's dividend earnings, the managers manipulate the actual activities to manage the earnings downward. Asif, Rasool and Kamal [11] (2011) had a study about the impact of the financial leverage on the dividend earnings policy in the companies of Karachi and there is a negative relationship between the financial leverage and the dividend earnings ratio in results of their study. Also their study showed that the net income changes and the stocks dividend cash affect the dividend earnings policy.

4. Study hypotheses

According to theories and past studies, the hypotheses are arranged as follows:
First hypothesis:
The cash flow volatility has a significant effect on the earnings management.
Second hypothesis:
The financial leverage ratio has a significant effect on the earnings management.

5. Study models and variables

The arranged model for the hypotheses test and the relationship between the independent and dependent variables are mentioned above as the model number (1) is as following:

$$EM_{i,t} = a_0 + \beta_1 CFV_{i,t} + \beta_2 FL_{it} + \beta_3 MB_{it} + \beta_4 Tangibl_{it} + \beta_5 SIZE_{it} + \beta_6 Sales_{it} + \varepsilon_{it} \qquad (1)$$

In this model, the ratio of the market value related to the book value of the equity, the intangible assets, the firm size, the return on assets, and the sales are used as the control variables. The mentioned model is introduced and used by Ujah and Brusa [1] (2011). The used variables in this model are explained as following:

EM: (dependent variable) earnings management,

FL: (independent variable) financial leverage ratio,

CFV: (independent variable) cash flow volatility,

MB: (control variable) the market value to book value of equity ratio,

Tangible: (control variable) indicates the intangible assets ratio,

SIZE: (control variable) the firm size

(by the logarithm of the company's total assets),

Sales: (control variable) indicates the company's sales, and

ε: estimable fault in the model

Dependent variable: earnings management

The Earnings Management will be measured as the dependent variable of the study in the modified model of Jones [2] (1995) with the description of the model number (2). This model represents the compulsory accruals. The accounting earnings include two cash items and the accruals

$$Acc_{it} = \left(\alpha_0 \frac{1}{Assets_{it-1}} + \beta_1 \frac{\Delta Sales_{it} - \Delta Re\, cievables_{it}}{Assets_{it-1}} + \beta_2 \frac{PPE_{it}}{Assets_{it-1}} \right)$$

consist of the discretionary accruals and the compulsory accruals. The final size includes the earnings management, the residues from the model evaluation.

$$(2)$$

In this equation:

$Acc_{i,t}$: the discretionary accruals in the year t for the firm i,

$Sales_{i,t}$: the total sales in year t for firm i, Receivables $_{i,t}$: the receivable accounts in year t for firm i, PPE $_{i,t}$: the sum of the fixed assets (Properties, machinery, and equipments) in year t for firm I, and Assets $_{i,t-1}$: The sum of the total assets in year t-1 for firm i.

Independent variables:

A) Cash flows volatility:

Ever the cash flow volatility is higher during the different periods, the company's shareholders and the other beneficiary groups feel higher risk and uncertainty. In order to measure the cash flows volatility, the standard deviation of the cash flows is used in the current year and the previous four years. Ever higher the result of this calculation, the cash flow volatility of the company will be higher.

B) Financial leverage ratios:

The Financial Leverage Ratio (debt ratio) is calculated by the ratio of the total debt to the total assets. This ratio shows the ratio of the debt of the company related to its assets.

6. Study methodology

The present study is the applied research and the quality and methodology are based on the objective in the descriptive – correlational form. This study is based on the quasi-experimental study and the post hoc approach (by the data after the event). The data analysis of the study data and the models are evaluated by the Pooled Data Approach [1].

7. Statistical population and samples

The statistical population in this study includes all companies registered in the Stock Exchange of Tehran (Iran) in 2007-2011 that retained their membership in this period. Among all of the registered companies, some did not meet the following conditions that are removed and finally all of the remaining companies are selected for testing:

1. Those companies whose fiscal year is not March 29/30 are removed,

2. The banks and the financial institutions, and the investment companies are removed,

3. The companies that had not all of the necessary data to calculate the variables during the study period are removed.

By investigating the registered companies in Tehran Stock Exchange and the above applied conditions and restrictions, 90 companies are selected to estimate the models and the test hypotheses.

8. Study results

8.1. Descriptive study statistics

The descriptive statistics of the independent and dependent variables include the mean, median, maximum, minimum, and standard deviation of the study data as calculated and presented in Table 1. The mentioned values present an overview of the data distribution in the study.

Table 1: Descriptive statistics of variables

Variables	variables	mean	Median	Max	Min	Standard deviation
Earnings management (discretionary accruals)	**EM**	0.026	0.083	3.68	-4.06	0.004
Cash flow volatility	**CFV**	0.063	0.056	0.864	-0.266	0.123
Financial leverage ratio	**FL**	0.326	0.361	0.894	-0.048	1.022
Market value ratio to official stocks value	**MB**	1.429	1.866	12.344	-4.586	2.014
Tangible assets ratio	**Tangible**	0.198	0.281	0.384	0.027	0.134
Firm size	**SIZE**	6.268	5.967	8.926	4.766	1.102
Sales ratio	**Sales**	0.086	0.114	0.329	0.006	0.028

Source: Researcher calculations

8.2. Study hypotheses test

The significance modeling test results of the study and the related coefficients were applied by the Pool Data method on 2007-2011 and 90 registered companies in the Tehran Stock Exchange are represented in Table (2).

Table 2: The estimation results of the model regression

$$EM_{i,t} = a_0 + \beta_1 CFV_{i,t} + \beta_2 FL_{it} + \beta_3 MB_{it} + \beta_4 Tangibl_{it} + \beta_5 SIZE_{it} + \beta_6 Sales_{it} + \varepsilon_{it}$$

Description	Parameter	Coefficient	t-static	p-value
Constant coefficient	α_0	-0.0984	-4.0216	0.0000
CFV	β_1	0.2439	3.4356	0.0041
FL	β_2	-0.4366	-4.6988	0.0000
MB	β_3	0.0856	3.8857	0.0425
Tangible	β_4	0.2363	1.6629	0.5984
SIZE	β_5	1.5764	1.8924	0.0188
Sales	β_6	-0.2287	-6.9078	0.0000
Adjusted R^2	0.2897			
F-static	6.3240			
F (p-value)	0.0000			
D-W	1.8984			

Source: researcher's calculations

As it is seen in the table, the F statistics have significant 99% certainty coefficient. Therefore, the study model is overall significant and the independent variables in the model define the dependent variable of the earnings management model. Additionally, the coefficient of the adopted coefficient in this test modeling was 0.28. This figure shows that approximately 28% of the variable variation is dependent, that means the discretionary accruals are the indicators of the earnings management in the independent variables of the model and 72 percent of the other variations occur due to the other factors.

First hypothesis of study:

The impact of the cash flow volatility on the earnings management is examined. According to the t-statistics values related to the CFV independent variable and the significance level (p-value) presented in Table 2 and the considered fault level in this study is 0.05 and the cash flow fluctuation variable coefficient (0.2439) with 99% certainty level. The coefficient of this variable is positive. Therefore, the fluctuation impact of the operating cash flow on earnings management is negative. Hence, the first hypothesis is confirmed.

Second hypothesis of the study:

The second hypothesis is the effect of the leverage ratio on the earnings management. According to the results in Table 2, the statistics t related to the independent variable FL and the significance level (p-value) of the financial leverage ratio variable is significant (-0.4366). As the significance level for this variable is less than 0.01, thus this independent variable shows the 99% certainty level impact of the financial leverage ratio on the earnings management. The coefficient for the mentioned variable is negative and the impact of the financial leverage on the discretionary accruals (earnings management) is reverse. Thus, the second hypothesis of the study is approved.

9. Conclusion and Recommendations

The study results of the regression model indicated that the first factor of the independent variable in the model, that is the cash flows volatility, is significant. Since the independent variable CFV of the statistic t and the significance level (p-value) of the fault level is in this study is less than 0.05, and the variable of the cash flows volatility (0.2439) with 99% certainty level is significant. Therefore, the cash flow volatility has a direct and positive impact on the

discretionary accruals, as an indicator of the earnings management. In other words, the study results prove this hypothesis. Thus, it can be argued that the fluctuations of the operating cash flow in the registered companies in Tehran Stock Exchange have a significant positive impact on the earnings management. The results of the first study hypothesis are similar to the study of Ujah and Brusa [1] (2011).

They also believed that the cash flow fluctuation has a significant positive relationship with the earnings management. The estimation of the regression model indicates the coefficient of the second independent variable, as the financial leverage ratio (Debt/Assets Ratio) is significant and the financial leverage impact on the discretionary accruals, the indicator of the earnings management, has a negative and reverse effect. In other words, the research findings prove this hypothesis. Thus, it can be argued that the financial leverage ratio in the studied companies has a significant negative impact on the earnings management. The results of the first hypothesis of the study are similar to the study of Ujah and Brusa (2011). As expected the study results are based on the available data, time and spatial limitations and it may be advised to carry out these researches:

1. The impact of the other indicators of the financial leverage ratios, i.e. long-term debt to total assets ratio, the total debt to equity ratios, etc. on the earnings management in the Stock Exchange Companies.

2. The impact of the leverage and cash flow fluctuation ratio indicators on the earnings management in the Stock Exchange Companies in the different industries and the results comparison among industries.

3. The impact of the financial power and the bankruptcy indicator on the earnings management in the Stock Exchange Companies.

4. The relationship between the free cash flow and the earnings management and the stability of the earnings components.

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