

A Study of the Factors Affecting Earnings Management: Iranian Overview

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Abstract

The present study examines the factors affecting earnings management of listed companies in Tehran Stock Exchange. So, the effects of the debt-equity ratio, firm size, managers' bonus and effective tax rate on earnings management are examined. Totally, 114 listed companies in Tehran Stock Exchange during 2006-2010 are studied. Statistical method used was cross-sectional ordinary least square regression, correlation analysis. The results indicate that there is a significant as well inverse relationship between debt-equality ratio and earnings management. Also, there is a significant and positive relationship between firm size and earnings management. However, there did not found any significant relationship between changes in managers' bonus and effective tax rate with earnings management.

Keywords: earnings management, discretionary accruals, debt-equality ratio, firm size, effective tax rate

1. Introduction

Effective transfer of valid and on-time financial information into outsiders is the main role of financial reporting. To this purpose, managers have opportunities to apply their judgments in financial reporting. Managers can use their knowledge about business activities to improve effectiveness of financial statements as a tool for transferring information to potential investors and creditors. However, if managers had incentives to mislead users of financial statements through exerting their authorities on accounting options in financial reporting, earnings management would be possible to occur. Today, earnings management is considered as one of interesting subject in accounting studies and it is defined as conscious behavior performed to reduce periodic fluctuations of earnings. Generally, researchers believe that managers consider income smoothing in order to present a sustainable picture of profitability procedure in the flexible framework of common accounting principles and methods. Some evidence indicates that most of stockholders and creditors incline to invest in firms the management of which is able to provide a smoother picture of profitability. Such behaviors can result from incentives including increased management welfare, increased stockholders welfare and facilitation of earning predictability.

Motivationally, earnings management is a qualitative item affected by several factors. In the present study it has been tried to study the effect of debt-equity ratio, managers' bonus, firm size and effective tax rate on earnings management as incentives of earnings management. Identifying incentives of earnings management by managers can provide an opportunity for different groups to take more appropriate decisions using accounting information.

2. Theoretical issues

The earnings management literature attempts to understand why managers manipulate earnings, how they do so and the consequences of this treatment. These questions are the focus on a significant area of inquiry within financial reporting research.

Managers can perform earnings management using variety of methods such as operational decisions, financing and investment. Earnings manipulating methods include method modification and estimation modification; changes in accruals, discretionary accruals and changes in research and development costs. The current study focuses on discretionary accruals as earnings management index.

There are different incentives for managers to perform income smoothing.

Gordon et al., (1966) suggested four hypotheses for income smoothing:

1. Managers' measure for selecting among different accounting methods is maximizing desirability or managers' welfare.
2. Managers' welfare or desirability is a function of job security, growth level and rate of bonus and management salary and growth level and rate of firm size.
3. Desirability or welfare of management depends on stockholders' satisfaction of firm performance. So, if other things are equal, as stockholders become more satisfied, job security, position, earning, and managers' bonus are higher.
4. Satisfaction of stockholders depends on stability of growth rate of earning.

To this purpose, in the present paper, the effect of four factors including debt-equity ratio, firm size, managers' bonus and effective tax rate on earnings management by managers are studied.

3. Literature review

There is a large literature on earnings management. Beginning with Healy's (1985) landmark study of how managers' bonus plan incentives affect their accruals choices, many papers examine managers' discretionary accruals choices.

Khoshtinat and Khani (2003) found that there is a behavior of income smoothing in the society studied and profitability ratio is a factor affecting income smoothing. They concluded that managers are willing to exert earnings management in order to increase their bonus. This result was supported in Poorheidari and Hemati (2004).

Poorheidari and Aflatooni (2006) concluded about incentives of income smoothing that Iranian managers exert income smoothing using discretionary accruals. Income tax is also one of the most important incentives for income smoothing.

Zmijewski and Hagerman (1981) studied the effect of bonus and debt ratio on using earnings management and found that managers in firms their bonus are based on accounting profit, more likely use profit increasing method to receive bonus. This result was also supported in researches of Zimmerman and Watts (1986), and Moses (1987).

Healy and Wahlen (1999) also studied the relationship between bonus contracts and earnings management. His results indicated that in order to increase their bonus, management takes decisions to increase profit; however, when increased profit does not affect on bonus, management decrease profit intensively to increase their future bonus by increasing future profits.

Beneish (2001) found that debt contracts motivate managers to increase profits in order to avoid costs excess of contract. Jelinek (2007) studied the effect of increased debt ratio on earnings management. The results indicated that changes and different levels of financial leverage can have different effects on earnings management and increased financial leverage is associated with reduced management earnings.

4. Research hypotheses

In the present research, four independent variables were considered. So, the following hypotheses are postulated in the study:

H₁: There is a significant relationship between debt-equity ratio and earnings management.

H₂: There is a significant relationship between firm size and earnings management.

H₃: There is significant relationship between changes in bonus extent paid to management and earnings management.

H₄: There is a significant relationship between effective tax rate and earnings management.

Moreover, multiple regression model is employed to study the effects of independent variables on earnings management simultaneously.

4.1. Research method

The present research is application and research design is post-event (descriptive-analytical based on past experiences).

4.2. Data collection method

To calculate research variables, information of financial statements of firms, board of directors' report and protocols of associations through data bank was used.

4.3. Statistical universe and research sample

Statistical universe of the research include all listed companies in Tehran Stock Exchange in the period 2004-2009. To select the underlying sample, some limitations were considered which resulted in 114 companies.

5. Research variables

5.1. Dependent variable

In the present paper, earnings management (income smoothing) was considered as dependent variable. The most general method used for measuring earnings management is discretionary accruals method which supposes that for earnings management managers rely on their options as for accounting accruals (Jones, 1991). So in the present research, discretionary accruals concept and the model developed by Dechow et al., (1995) known as modified Jones model were used.

In the present paper, using modified Jones model, first accruals for each of sample firms was calculated:

$$TACC_t = \Delta CA_t - \Delta CL_t - \Delta CASH_t + STDEBT_t - DEPTN_t$$

Where

$TACC_t$ = total accruals during period t

ΔCA_t = the change in current assets during period t

$\Delta Cash_t$ = the change in cash and cash equivalents during period t

ΔCL_t = the change in current liabilities during period t

$\Delta STDEBT_t$ = the current maturities of long-term debt and other short-term debt included in current liabilities during period t

$DEPTN_t$ = depreciation and amortization expense during period t

Then, using the following equation, coefficients used in estimating non-discretionary accruals were obtained:

$$TACC_{it} / A_{it-1} = \alpha_1 (1 / A_{it-1}) + \alpha_2 [(\Delta REV_{it} - \Delta REC_{it}) / A_{it-1}] + \alpha_3 (PPE_{it} / A_{it-1}) + \epsilon_i$$

In which

$TACC_{it} / A_{it-1}$: total accruals for the firm i in year t divided by total assets of firm i in end year $(t-1)$

$\Delta REV_{it} / A_{it-1}$: change in revenue of the firm i in the year t divided by total assets of the firm i in end year of $(t-1)$

$\Delta REC_{it} / A_{it-1}$: change in net of receivable accounts of the firm i in the year t divided by total assets of the firm i in end year of $(t-1)$

PPE_{it} / A_{it-1} : properties, plant and equipments of the firm i in the year t divided by total assets in end year $(t-1)$

ϵ_{it} : residuals

Then using cross sectional model, the following equation for non discretionary accrual (NDACC) will be estimated.

$$NDACC_{it} = \alpha_1 (1 / A_{it-1}) + \alpha_2 [(\Delta REV_{it} - \Delta REC_{it}) / A_{it-1}] + \alpha_3 (PPE_{it} / A_{it-1})$$

Finally, after estimating non discretionary accrual, discretionary accrual (DACC) will be measured using following equation.

$$DACC_{i,t} = TACC_{it} / A_{it-1} - NDACC_{i,t}$$

5.2. Independent variables

Debt-equity ratio is the ratio of total liability of the firm to stockholders equity indicating what percent of stockholders equity and liability are used by the firm to finance its assets.

Firm size is considered total annual sales of the firm as index of firm size.

Managers' bonus: the sum of bonus paid to board of directors is selected as managers' bonus and its change compared to previous year is used.

Effective tax rate: is the rate calculated by dividing total payable tax by taxable income of the firm.

6. Research findings

To test the hypotheses, correlation coefficient and ordinary least square regression were used.

H_1 : There is a significant relationship between debt-equity rate and earnings management.

The results of testing of H_1 were studied using linear regression which is shown in Table 1.

Table 1. Results of the first hypothesis

Model	t	Coefficient	Sig.
constant	3.523	0.041	0.000
Debt-equity rate	-2.009	-0.007	0.045
R:-0.084	sig: 0.045	R ² : 0.007	D-W: 1.868

Given model sig which is 0.045, the model is significant and given independent variable sig (0.045) which is less than 0.05, there is a significant relationship between debt-equity ratio and earnings management. Negative coefficient of independent variable indicates an inverse relationship between them. So, H₁ is accepted however, model R² is not significant.

H₂: There is a significant relationship between firm size and earnings management.

The results of regression processed for this hypothesis are shown in Table 2. Given model sig which is 0.11, the model is significant and given independent variable sig (0.11) which is less than 0.05, there is a significant relationship between firm size and earnings management and positive coefficient of independent variable indicates a direct relationship between them. So, H₂ is accepted, however, model R² is not significant.

Table 2. Results of the second hypothesis

Model	t	Coefficient	Sig.
constant	0.805	0.008	0.421
Firm size	2.560	0.000	0.011
R: 0.108	Sig: 0.011	R ² : 0.012	D-W: 1.857

H₃: There is a significant relationship between change in payable bonus and earnings management.

The results of regression processed for this hypothesis are shown in Table 3. Given model sig which is 0.441(more than 0.05) the model is not significant so there is not a significant relationship between bonus changes and earnings management. Thus H₃ is rejected and alternatively null hypothesis is accepted.

Table 3. Results of the third hypothesis

Model	t	Coefficient	Sig.
constant	1.704	0.019	0.089
Bonus changes	0.772	0.011	0.441
R: 0.041	Sig: 0.441	R ² : 0.002	D-W: 1.799

H₄: There is a significant relationship between effective tax rate and earnings management.

The results of regression processed for this hypothesis are shown in Table 4. Given model sig is 0.842 (more than 0.05), there is not significant relationship between effective tax rate and earnings management. So, H₄ is rejected.

Table 4. Results of the fourth hypothesis

Model	t	Coefficient	Sig.
constant	1.619	0.021	0.106
Effective tax rate	0.200	0.019	0.846
R: 0.008	sig: 0.842	R ² : 0.000	D-W: 1.846

6.1. Multiple regression model process

To examine the effects of independent variables on earning management simultaneously, the following multiple regression model is used.

$$DACC_t = \beta_0 + \beta_1 \frac{Dbet}{Equ} + \beta_2 Size + \beta_3 Bo + \beta_4 Etr + \varepsilon_t$$

Where

DACC= discretionary accrual

$\frac{Dbet}{Equ}$ = the ratio of debt to equity

Size= annual total sales

Bo= change in bonus payable to managers

Etr = effective tax rate

Based on above model and variance analysis table, average F-statistic is 1.738 and P-value is 0.141. Since respective P-value is more than 0.05, significance of total regression model is not accepted. Also, values of

coefficient of determination and adjusted coefficient of determination are 0.02 and 0.008, respectively, which are insignificant. Based on regression coefficients and t-value and p-value it is found that only p-value of firm size is smaller than significance level of 0.05. It means that it is not necessary to have constant value and other variables in regression model.

Table 5. Significance test of multiple regression coefficients

Model	t	Coefficients	sig.
constant	-0.215	-0.005	0.83
Debt-equity ratio	-0.589	-0.003	0.556
Firm size	1.989	3.48E-08	0.047
Change in bonus payable to managers	1.515	0.016	0.131
Effective tax rate	1.239	0.156	0.216

So, only the variable firm size affects on discretionary accruals. However, its coefficient of determination is very insignificant and the final regression model is as follow:

$$DACC = \frac{3}{48} \times 10^{-8} Size$$

Linear regression method is used when there is no correlation between model errors. To examine this, Durbin-Watson statistic is used. If the statistic is in the range 1.5-2.5, independence of the fundamental hypotheses of the model is assured which in all cases are in the respective range.

Errors should be of normal distribution with the average zero so to this purpose, the curve of error components was plotted in regression model which supported normality of errors distribution.

Distribution of dependent data should be also normal. Normal probability curve was used to examine this indicating normality of data.

7. Conclusion and remarks

Earnings management and the factors affecting it have been received attention of investors and financial researchers. However, financial researchers haven't agreed so far for a model being able to predict earnings management definitely. In this research, the effects of four factors, debt-equity ratio, firm size, change in managers' bonus and effective tax rate on earnings management were studied. According to the results of statistical tests, there is a significant and inverse between debt-equity ratio and earnings management. As to the relationship between firm size and earnings management, it was found that there is a direct relationship statistically between them, however because of low R^2 , firm size doesn't play an important role in determining earnings management.

7.1. Suggestions for future researches

1. In this research, discretionary accruals were used using modified Jones model (balance sheet method) to measure earnings management. So, it is recommended to use other accruals models in order to be assured of the relationship between earnings management with managers' bonus and effective tax rate.
2. It is suggested to study the relationship between independent variables and earnings management in different industries separately.

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