Research Paper

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Investigating The Effect of Real Activity Management on Conditional Conservatism

Accounting

KEYWORDS : real activities, real earning management, conditional conservatism

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ABSTRACT

The purpose of this study is to investigate the effect of real activity management (selling, production and discretionary expenditure related activities) on the level of conditional conservatism. The information from 303 listed companies in Tehran Stock Exchange for the period of 2001 to 2011 are selected in this study model estimation and research hypotheses testing. Regression analysis was used to test the research hypotheses. Roychowdhury (2006) model is used in order to estimate the normal level of operating cash flows and abnormal production costs as well as the abnormal discretionary expenditures.

Conservatism measurement has been performed using Basu (1997) model. The research hypotheses was investigated using Paternoster et al (1998) test. The research findings shows that companies attempt to reduce the level of conditional conservatism by applying real earning management through managing the production activities and managing the activities related to discretionary expenditures.

INTRODUCTION

Earning management or manipulation is often defined as reporting incorrect economic performance level of the company by individuals within the organization (especially management) with the intention to mislead the stakeholders or to influence the contractual outcomes (Healy and Wahlen, 1999). One of the methods for earning management is managing the company's real activities. There are various ways to do that, from which only three methods are considered in this study (similar to the study by Roychowdhury, 2006). Similar to Cohen, Dey and Lys (2008), in this study it is assumed that the company's management, manage the earning by implementation of one of the real activities (accelerate sales by increasing the discounts or facilitating the buying conditions for customers, reporting lower cost of sold goods through producing additional products and decreasing the discretionary expenditures) or a combination of them. Since the company's unprofitability (bad news) would have a negative psychological effects about the company in capital markets, similar to Roychowdhury (2006), this study also assumes that real earning management incentives are loss evasion and reaching the zero profit which is actually a kind of positive news about the company and it is expected to have a negative impact on conditional conservatism index which is dependent on news.

In general it can be said that the status of corporate governance and the aforementioned supervisors and their little impact on the preparation of high quality financial data, provides sufficient incentives for earning management (based on accruals and real activities manipulation) in Iran which justifies the investigation of the real activities manipulation with the purpose of earning management process. It is the first study to answer the question of whether real earning management reduces the conditional conservatism index or not?

This investigation helps in extending the literature on the relationship between earning management through real activities and conditional conservatism topics.

LITERATURE REVIEW

Concept, motivations and methods of earning management

Earning management is the process of taking intentional steps in the framework of generally accepted accounting principles, which enables managers to reach their desired level of reported earnings (Davidson, Stickney and Weil, 1987).

Earning management is the purposeful intervention in the external financial reporting process for reaching some personal interest (Schipper, 1989).

Earning management is largely performed by two methods. Earning management through accruals manipulation (accounting earning management) and earning management through real activities manipulation (real earning management). In earning management through accruals manipulation, there is no direct impact on company's cash and the activities are not manipulated, but only the result of the activities are presented incorrectly. However, in earning management through real activities manipulation, management manipulates some activities that will have an impact on earnings in order to achieve a desired profit level. Real activities manipulation has a direct effect on cash flow (and sometimes on accruals) (Dechow and Scharnd, 2004).

According to the findings of Zhaohui et al (2007), companies manage their earnings through the manipulation of operating and investing activities as well as financing activities.

EARNING MANAGEMENT THROUGH THE MAINPULATION OF OPERATING AND INVESTING ACTIVITIES

Discretionary expenditures manipulation

The role of discretionary expenditures, such as spending on research and development, maintenance, administrative, general and sale have been studied in various researches. Managers adjust these expenses in order to achieve the goals of earning management such as loss prevention, retaining the increased earnings trend, fulfilling the anticipations of analysts and income smoothing (Zhaohui et al, 2007).

If the output of discretionary expenditures is in the form of cash, reducing these expenses will lower the outgoing cash flows and will have a positive effect on cash flow from operating activities in the current period (Daniel et al, 2008). Companies often reduce discretionary expenditures in order to avoid reporting losses or to fulfill the anticipations of analysts (Roychowdhury, 2006).

Production, inventory and sales manipulation

Managers of production companies can manufacture their products more than it is needed to meet expected demand. By increasing the production level, cost of fixed overhead is allocated to larger units and, consequently, fixed overhead cost per unit is lowered.

Sales manipulation is the efforts of the manager to increase the annual sales by offering price discounts, simpler credit terms or other methods (Daniel et al, 2008).

Roychowdhury (2006) findings on earning management through real activities manipulation shows that managers manipulate real activities in order to prevent reported annual losses by reducing the price in order to increase sales, overproduction in order to reduce the cost of sold goods and reducing discretionary expenditures in order to improve profit margins.

Sales of long-term assets

Companies' management use the profit from selling long-term assets for income smoothing and fulfilling the anticipated earning (Zhaohui et al, 2007).

Change in the operation structure and investment transactions

Dye (1988) mentioned the transactions organizing as a manipulation or change in the classification and states that when accounting laws permit the choice of business events and companies prefer one method over the other methods, managers organize their transaction conditions in a way that, in addition to compliance with formal requirements, achieve better classification.

Earning management through manipulation of financing activities

Manipulation methods of financing activities are earning management through stock repurchase, earning management through stock option, earning management through financial tools and earning management through financial transactions' structure.

The concept of conservatism

Watts (2003) stated that conservatism is the differential verification that is needed to identify gains versus losses. Basu (1997) defined conservatism as the accounting tendency to require a higher degree of verification for recognizing the good news than the rate of verification for identifying the bad news. This leads to profit and consequently assets understatement.

Beaver and Ryan (2005) argued that conditional conservatism which is also called causal conservatism or news-dependent conservatism, is the more timely identification of bad news rather than good news in the sense of loss or profit. They also suggest that another type of conservatism is unconditional or preemptive or news-independent conservatism. This type of conservatism results from using those accounting standards which reduce the profits in a way that is independent of economic news. The definition proposed by Basu (1997) which considers conservatism as the differential verification for identifying the revenues and costs indicate conditional conservatism.

Research Hypotheses

In this study it is assumed that the company's management tries to manage their earnings by implementing one of the real activities (accelerate sales by increasing the discounts or facilitating the buying conditions for customers, reporting lower cost of sold goods through producing additional products and decreasing the discretionary expenditures).

Easier shopping conditions for customers will temporarily raise the sales volume and additional sales will increase the profits for the current period, provided that the profit margin is positive, of course. Price discounts and easier purchase conditions for customers, create lower cash flows in the current period.

By producing more goods than it is needed in order to increase the profits for managers, fixed overhead costs will be prorated over a greater number of product units, and fixed costs will decrease for each unit. This procedure, will reduce the reported cost of sold goods, as long as the reduction in fixed costs per unit is higher than any increase in final cost of each unit; and the company will reach higher reported operating margin.

If the company's policy is to pay the general, administrative and sales expenses as well as the advertising expenses in cash, a reduction in the discretionary expenditures will increase the current period cash flow and consequently the current period earnings.

When the management motivation for real activities manipulation is escaping from loss and reaching a zero-profit threshold, lower levels of caution will be applied in profit identification and this will lead to a decrease in time asymmetry for profit and loss identification.

In this study it is assumed that real earning management is performed with the aim of increasing the profit and achieving zero profit threshold; Thus, when instead of reported profit, the non-manipulated profit (profit before real activities manipulation) is used as the dependent variable in Basu (1997) model, the expectation is that the information asymmetry coefficient is greater than if the reported profits were to be used. Given the above, the study hypotheses are presented as follows:

1. Abnormal operating cash flow has a significant and inverse effect on the conditional conservatism index.
2. Abnormal production costs has a significant and inverse effect on the conditional conservatism index.
3. Abnormal discretionary expenditures has a significant and inverse effect on the conditional conservatism index.

CASE STUDY

The population of this study includes all companies listed in Tehran Stock Exchange from 2001 to the end of 2011. 303 companies (equals 2366 year-company) have been chosen for model estimation and research hypotheses testing. Systematic elimination method is applied for determining the statistical sample. Panel data approach is used for data analysis and model estimation. Panel data refer primarily to cross-sectional units' movement over time. Models based on this type of data are called panel data regression models.

In this study, abnormal levels of each of the activities in sale, production and discretionary expenditure related activities are defined as the residuals from the respective estimated model.

In this study, the following regression is estimated according to the model presented in Roychowdhury (2006) in order to estimate the normal level of operating cash flow:

EQUATION-1

$$\frac{CFO_{it}}{A_{it-1}} = \alpha_0 + \alpha_1 \frac{1}{A_{it-1}} + \alpha_2 \frac{S_{it}}{A_{it-1}} + \alpha_3 \frac{\Delta S_{it}}{A_{it-1}} + \varepsilon_{it}$$

Roychowdhury (2006) defined the normal level of operating cash flow (CFO) as a linear function of sales (S) and the change in sales (ΔS) which would homogenize with total assets (A) at the period beginning.

Production costs is defined as the sum of costs of goods sold (CGS) and the change in inventories (ΔInv) during the time period. In order to estimate the normal level of production costs, using the equation (2) and (3), the sum of cost of goods sold and change in inventories during the period is estimated at first.

According to the research of Roychowdhury (2006), the cost of

goods sold is defined as a linear function of sales:

EQUATION-2

$$\frac{CGS_{it}}{A_{it-1}} = \alpha_0 + \alpha_1 \frac{1}{A_{it-1}} + \alpha_2 \frac{S_{it}}{A_{it-1}} + \varepsilon_{it}$$

Now, the change in inventories is defined as follows:

EQUATION-3

$$\frac{\Delta \ln v_{it}}{A_{it-1}} = \alpha_0 + \alpha_1 \frac{1}{A_{it-1}} + \alpha_2 \frac{\Delta S_{it}}{A_{it-1}} + \alpha_3 \frac{\Delta S_{it-1}}{A_{it-1}} + \varepsilon_{it}$$

Then, the normal level of production costs (Prod), which is based on Dechow et al (1998), is defined as follows:

$$\left(Prod_{it} = CGS_{it} + \Delta Lnv_{it}\right)$$

EQUATION-4

$$\frac{Prod_{it}}{A_{it-1}} = \alpha_0 + \alpha_1 \frac{1}{A_{it-1}} + \alpha_2 \frac{S_{it}}{A_{it-1}} + \alpha_3 \frac{\Delta S_{it}}{A_{it-1}} + \alpha_4 \frac{\Delta S_{it-1}}{A_{it-1}} + \varepsilon_{it}$$

Based on the research by Roychowdhury (2006), the normal level of discretionary expenditures (including expenditures for general, administrative and selling) (Disex) is calculated using the following model:

EQUATION-5

$$\frac{Disex_{it}}{A_{it-1}} = \alpha_0 + \alpha_1 \frac{1}{A_{it-1}} + \alpha_2 \frac{S_{it-1}}{A_{it-1}} + \varepsilon_{it}$$

After calculating the above amounts which represent the management of production, sale, and discretionary expenditure related activities, we use the following model, in order to calculate the conditional conservatism level of reported earnings:

EQUATION-6

$$E_{it}/P_{it-1} = \alpha + \beta_1 Dum_{it} + \beta_2 Ret_{it} + \beta_3 Dum_{it} Ret_{it} + \varepsilon_{it}$$

Eit: Reported net income in year t

Pit-1: The market value of shares at the beginning of the period

Dum: Dummy variable that is 1 when return is negative, and is 0 when return is not negative

Retit: Return resulted from the policy of buying and keeping stocks in year t

β3: Indicates the level of conditional conservatism.

Now, the first research hypotheses is examined using the approach introduced by Paternoster et al (1998) and the following model:

EQUATION-7

$$\left(E_{it} - A_{it-1} * ABCFO_{it}\right)/P_{it-1} = \alpha' + \beta'_1 Dum + \beta'_2 Ret_{it} + \beta'_3 Dum.Ret_{it}$$

In the above model, β' 3 is the conservatism level of non-managed earning. If the difference between β3 and β' 3 is significant, the first research hypothesis would not be rejected. For this, the method proposed by Paternoster et al (1998) is used. In this method, the following statistic with t-student distribution is calculated to test the first hypothesis:

$$T = \left(\beta_3 - \beta'_3\right) \Big/ \sqrt{\left(s.e_{\beta_3}\right)^2 + \left(s.e_{\beta'_3}\right)^2}$$

β_3: Information asymmetry coefficient of the equation (6) and $s.e_{\beta_3}$: standard error of the β_3 coefficient

β'_3: Information asymmetry coefficient of the equation (7) and $s.e_{\beta'_3}$: standard error of the β'_3 coefficient

The above statistic and the following estimated models will be used in order to test the second and the third hypotheses respectively:

EQUATION-8

$$\left(E_{it} - A_{it-1} * ABPROD_{it}\right)/P_{it-1} = \alpha' + \beta'_1 Dum + \beta'_2 Ret_{it} + \beta'_3 Dum.Ret_{it}$$

EQUATION-9

$$\left(E_{it} - A_{it-1} * ABDISEX_{it}\right)/P_{it-1} = \alpha' + \beta'_1 Dum + \beta'_2 Ret_{it} + \beta'_3 Dum.Ret_{it}$$

ABCFOit: abnormal operating cash flow adjusted with beginning assets

ABPRODit: abnormal production costs adjusted with beginning assets

ABDISEXit: abnormal discretionary expenditures adjusted with beginning assets EBABCFOit: earnings before sales activities manipulation adjusted with beginning assets

EBABPRODit: earnings before production activities manipulation adjusted with beginning assets

EBABDISEXit: earnings before discretionary activities manipulation adjusted with beginning assets

RESEARCH FINDINGS

The results of estimating equation (1) for the calculation of abnormal operating cash flow

In order to calculate the abnormal operating cash flow, equation (1) is estimated with panel data approach and random effects method.

TABLE – 1
THE RESULT OF ESTIMATING EQUATION (1)

Variable	Coefficient	t-student statistic	Significance	VIF index
y-intercept	0.06***	6.40	0.00	-
$1/A_{it-1}$	-0.31***	-6.74	0.00	1.02
S_{it}/A_{it-1}	0.04***	4.31	0.00	1.13
$\Delta S_{it}/A_{it-1}$	0.01	0.47	0.64	1.13
Adjusted coefficient of determination 3.89%				
Fisher statistic (significance) 21.12***(0.00)				
Lymer statistic (significance) 1.88*(0.08)				
Hausman statistic (significance) 2.92 (0.40)				
Durbin-Watson statistic 1.77				
*** and * are significance in 1% and 10% levels respectively				

The results of estimating equation (4) for the calculation of abnormal production costs

In order to calculate the abnormal production costs, equation (4) is estimated with panel data approach and fixed effects method.

TABLE – 2
THE RESULT OF ESTIMATING EQUATION (4)

Variable	Coefficient	t-student statistic	Significance	VIF index
y-intercept	-0.06***	-4/74	0.00	-
$1/A_{it-1}$	0/16**	2/29	0.02	1.00
S_{it}/A_{it-1}	0/80***	67/76	0.00	1.26
$\Delta S_{it}/A_{it-1}$	-0/08	-5/30	0.00	1.32
$\Delta S_{it-1}/A_{it-1}$	-0/06	-4/00	0.00	1/12
Adjusted coefficient of determination 78/25%				
Fisher statistic (significance) (0.00) 489/04***				
Lymer statistic (significance) (0.00) 9/67***				
Hausman statistic (significance) (0.00) 40/48***				
Durbin-Watson statistic 1.86				
*** and * are significance in 1% and 5% levels respectively				

The results of estimating equation (5) for the calculation of abnormal discretionary expenditures

In order to calculate the abnormal discretionary expenditures, equation (5) is estimated with panel data approach and random effects method.

TABLE – 4
THE RESULT OF ESTIMATING EQUATION (5)

Variable	Coefficient	t-student statistic	Significance	VIF index
y-intercept	0.03***	13/83	0.00	-
$1/A_{it-1}$	0/19***	16/08	0.00	1.00
$\Delta S_{it-1}/A_{it-1}$	0/02***	9/20	0.00	1.00
Adjusted coefficient of determination 19/73%				
Fisher statistic (significance) (0.00) 183/73***				
Lymer statistic (significance) (0.05) 2/09**				
Hausman statistic (significance) (0.24) 2/87				
Durbin-Watson statistic 1.92				
*** and ** are significance in 1% and 5% levels respectively				

The results of estimating equation (6) and the calculation of reported earning conservatism

In order to calculate the amount of conservatism in the reported accounting earning, equation (6) is estimated with panel data approach and fixed effects method.

TABLE – 5
THE RESULT OF ESTIMATING EQUATION (6)

Variable	Coefficient	t-student statistic	Significance	VIF index
y-intercept	0.16***	29/02	0.00	-
Dum_{it}	-0/05***	-4/94	0.00	2/23
Ret_{it}	0/04***	5/56	0/00	1/61
$Dum_{it}\,Ret_{it}$	0/05*	1/65	0/09	2/03
Adjusted coefficient of determination 47/35%				
Fisher statistic (significance) (0.00) 6/61***				
Lymer statistic (significance) (0.00) 5/08***				
Hausman statistic (significance) (0.00) 64/93***				
Durbin-Watson statistic 1.88				
*** and * are significance in 1% and 10% levels respectively				

In order to examine the effect of managing each of the real activities on conditional conservatism index, the impact of those activities (which are presented in the form of abnormal operating cash flow, abnormal production costs and abnormal discretionary expenditures) are deducted from the reported earnings which results in the earning before applying the desired real activities management.

Subsequently, the amount of conservatism applied in earning before applying the management on sale, production and discretionary expenditure activities is calculated and compared to the amount of conservatism applied in recognizing the reported accounting profit.

The results of estimating equation (7) and the first hypothesis testing
In order to calculate the amount of conservatism of earning before sales activities management, equation (7) is estimated with panel data approach and random effects method.

TABLE – 6
THE RESULT OF ESTIMATING EQUATION (7)

Variable	Coefficient	t-student statistic	Significance	VIF index
y-intercept	0.21***	13/49	0.00	-
Dum_{it}	0/00	-0/16	0.88	2/22
Ret_{it}	0/12***	6/83	0/00	1/63
$Dum_{it}\,Ret_{it}$	0/07	0/83	0/41	2/03
Adjusted coefficient of determination 7/27%				
Fisher statistic (significance) (0.00) 12/23***				
Lymer statistic (significance) (0.00) 3/46***				
Hausman statistic (significance) (0.34) 3/38				
Durbin-Watson statistic 1.87				
Paternoster (significance) (0/83) -0/21				
*** is significance in 1% level respectively				

Comparing these results with the results of estimating equation (6) shows that sales activity management can reduce the level of conservatism (to report higher levels of income) from 0.07 to 0.05. However, results of Paternoster et al test (-0.21) indicates that this reduction is not statistically significant, therefore the first research hypothesis about the significant and inverse effect of abnormal operating cash flow on conditional conservatism index is rejected.

The results of estimating equation (8) and the second hypothesis testing
In order to calculate the amount of conservatism of earning be-

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fore production activities management, equation (8) is estimated with panel data approach and restricted method.

TABLE – 7
THE RESULT OF ESTIMATING EQUATION (8)

Variable	Coefficient	t-student statistic	Significance	VIF index
y-intercept	0.11***	10/92	0.00	-
Dum_{it}	-0/02	-0/16	0.25	2/22
Ret_{it}	0/09***	5/55	0/00	1/71
$Dum_{it} Ret_{it}$	0/21***	2/83	0/00	2/03
Adjusted coefficient of determination 13/80%				
Fisher statistic (significance) (0.00) 71/56***				
Lymer statistic (significance) (0.61) 0/77				
Hausman statistic (significance) ----				
Durbin-Watson statistic 1.76				
Paternoster statistic (significance) (0/04) -2/02**				
*** and ** are significance in 1% and 5% levels respectively				

Comparing these results with the results of estimating equation (6) shows that production activity management can reduce the level of conservatism (to report higher levels of income) from 0.21 to 0.05. The results of Paternoster et al test (-2.02) indicates that this reduction is significant, therefore the second research hypothesis about the significant and inverse effect of abnormal production costs on conditional conservatism index is not rejected.

The results of estimating equation (9) and the third hypothesis testing

In order to calculate the amount of conservatism of earning before discretionary activities management, equation (9) is estimated with panel data approach and fixed effects method.

TABLE – 8
THE RESULT OF ESTIMATING EQUATION (9)

Variable	Coefficient	t-student statistic	Significance	VIF index
y-intercept	0.17***	16/16	0.00	-
Dum_{it}	-0/03*	-1/91	0.06	2/24
Ret_{it}	0/09***	6/74	0/00	1/66
$Dum_{it} Ret_{it}$	0/21***	4/18	0/00	2/03
Adjusted coefficient of determination 16/41%				
Fisher statistic (significance) (0.00) 29/30***				
Lymer statistic (significance) (0.00) 8/99***				
Hausman statistic (significance) (0.00) 24/90***				
Durbin-Watson statistic 1.91				
Paternoster statistic (significance) (0/01) -2/73**				
***, ** and * are significance in 1% , 5% and 10% levels respectively				

Comparing these results with the results of estimating equation (6) shows that discretionary activities management can reduce the level of conservatism (to report higher levels of income) from 0.21 to 0.05. The results of Paternoster et al test (-2.73) indicates that this reduction is significant, therefore the third research hypothesis about the significant and inverse effect of abnormal discretionary expenditures on conditional conservatism index is not rejected.

CONCLUSIONS

The results of the first research hypothesis testing showed that the management of sales activities resulted in a decrease in conservatism level (to report higher levels of income). However, results of Paternoster et al test indicates that this reduction is not statistically significant, therefore the first research hypothesis about the significant and inverse effect of abnormal operating cash flow on conditional conservatism index is rejected. The results of the second research hypothesis testing showed that the management of production activities resulted in a decrease in conservatism level (to report higher levels of income) and the results of Paternoster et al test indicates that this reduction is significant, therefore the second research hypothesis about the significant and inverse effect of abnormal production costs on conditional conservatism index is not rejected. The results of the third research hypothesis testing showed that the management of discretionary activities resulted in a decrease in conservatism level (to report higher levels of income). The results of Paternoster et al test indicates that this reduction is significant, therefore the third research hypothesis about the significant and inverse effect of abnormal discretionary expenditures on conditional conservatism index is not rejected. Overall results showed that companies attempt to reduce the level of conditional conservatism by applying real earning management through managing the production activities and managing the activities related to discretionary expenditures. By reducing the level of conditional conservatism through managing the production activities and managing the activities related to discretionary expenditures, the reliability of reported earnings is reduced and the information asymmetry between managers and investors is increased. These findings are consistent with the results of Basu (1997) study. The reduction in conditional conservatism level by the managers with the aim of loss report evasion or fulfilling the anticipations of analysts and reaching the zero profit threshold has been performed by applying real earning management through managing the production activities and managing the activities related to discretionary expenditures which is consistent with the results of Roychowdhury (2006) study. Therefore, if the quality of corporate profits is only presumed by the total accruals and discretionary accruals, it may not provide accurate results and it is essential that researchers and practitioners of capital market, in addition to accruals and earnings management through them, seriously consider real earning management and its impact on earnings quality in order to understand the quality of corporate earnings.

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