

EVALUATING THE EFFECT OF MANAGERIAL CAUTION ON REAL EARNINGS MANAGEMENT

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Abstracts

High emphasis on the profit and loss and the net profit has motivated the management to manipulate the company's activities in order to achieve the target profit and consequently created the concept of earnings management. On the other hand, according to uncertainty to reduce the likelihood of losses and better illustrate organizational performance researchers examined a new method as managerial caution. This issue is more important at the stock exchanges. Therefore, this study aimed to investigate the effect of managerial caution on real earnings management. For this purpose and in order to survey hypotheses after screening, 118 listed companies on the Tehran Stock Exchange (TSE), in the period of 2009 to 2013, were studied. The results showed that there is a significant negative relationship between managerial caution and real earnings management. This means that, in that period, the companies that have benefited from precautions management show less interest to use real earnings management actions and it has shown that using managerial caution leads to reduce the use of earnings management.

Research paper

Keywords: Managerial caution, Earnings management, Real earnings management

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Introduction

In the economic environment, uncertainty and unreliability about the occurrence of a particular event causes different expectations. As in competitive environment of the capital market, companies search to achieve and maintain reputation and to develop in this environment. This matter is not achieved only with the growing functioning. Therefore, managers are always seeking to improve their performance and show better results of their organizations. Prior research results introduced earnings management as a way for managers to reach the target performance. In new researches, a new approach in the earnings management, under the managerial caution, has been studied. Two mechanisms in economics to explain the precautionary measures include: Investment authority in capital assets and precautionary savings. Based on the theory of investors in capital assets, cautious managers by postponing to decisions making until elimination of uncertainty, react to uncertainty. Related research has shown that damping and stability of earnings are indicatives of its quality and therefore, investors with more confidence, invest in the stock of companies which have more stable profitability. Considering the importance of this issue, the use of earnings management tool can be considered as a way to favorable picture of the financial condition of the company and accomplished through management intervention in the process of determining the profits (Noorvash et al., 2005). Given the above, this study sought to examine the impact of managerial discretion on the real earnings management. In other words, this study has been examined the managers' use of precaution activities impact on real earnings management and lead to reduce real earnings management by them or not.

Theoretical Foundations

Managerial caution

Caution means the tendency and willingness to make decisions to take precautionary measures and preventive in the face of uncertainty conditions. The meaning of uncertainty is the probability of occurrence of a specified event in a state of possible scenarios. Since uncertainty is an integral part of any economic environment, one should be look for a way to reduce the adverse effect of uncertainty. One of the things that can be done in the face of uncertainty is *caution*. At the most basic level, the decision maker can do two precautions actions: (i) postponing decisions making, at least until that uncertainty is resolved to some extent; and (ii) deliberate reduction of discretionary spending, to increase precautionary savings. On the other hand, most of the companies' attempt is to maintain their financial positions and cash flows to reduce or maintain the recruitment of personnel, investment in capital assets and discretionary expenses (Hsihe et al., 2012). Bloom (2009) argues that companies in response to an uncertainty reduce their payable salary. In fact, companies in the face of uncertainty significantly increase precautionary savings and the only way to achieve this goal is to reduce discretionary spending. Two mechanisms in economics to explain the precautionary measures include: (i) Investment authority in capital assets, and (ii) precautionary savings.

The first mechanism to explain the managerial caution is the mechanism of investment authority in capital assets. Changing the attitude due to economic changes and increasing complexity related activities, lead to a new approach in financial and economic decisions named investment authority in capital assets. This approach is based on the complexity of deci-

sion-making in an uncertain situation in which, determining the expectations of future changes plays a vital role in the view of the uncertainty. The highest application of investment authority in capital assets is investment decision making or valuation of the activities in the area that have higher risks. The second mechanism to explain the managerial caution is precautionary savings mechanism. According to some scholars, savings means buying stocks or participation in a retirement program as well, but saving has only one meaning for economists that include: Taking less than a fixed amount of resources at present, more consumption in the future. Savings is considered as to postpone making any decisions of consumption and saving the deferred consumption in an asset framework. In fact, precautionary savings is an additional saving that occurs as a result of knowing the uncertain future (Carroll & Kimball, 2006).

Real Earnings Management

Income statement, due to provision of useful information about the profitability of business units, is important for financial information users. The importance of the accounting income for the users of financial information has caused business unit management pay special attention to the amount and method of preparation and presentation. Therefore, there is always a concern that profits as one of the most important indicators of financial performance, are managed by managers who are in conflicts with ordinary shareholders with particular purposes. Earnings management can be defined as the choice of accounting practices by administrator or actions affecting profit to achieve a certain personal amount (target profit).

Earnings management can be done based on accrual anomaly or real action. Earnings management by taking advantage of accrual anomaly and accounting basics is called *artificial earnings management* and earnings management by taking advantage of real actions is called *real earnings management*. In artificial earnings management, management through discretionary accruals such as storage by reducing the value of inventory, restructuring reserves and other accrual anomaly or by using the principles and procedures of accounting, such as choosing between different methods of depreciation, pay to arrangement of accounting numbers according to their own desire and to manage profit to achieve the profit target (Nazemi ardekani, 2009). In another form that earnings management happens by management through items and real action, managers are not involved in accounting choices. In this case, through making change in the structure and timing of transactions and activities (including operations, investment and financing), or otherwise, management manipulates real financial events and manages the earnings. Controlling and management the real variables, such as research and development expenditures, overproduction and development, timing of purchase and withdrawal of capital assets are examples of actions that management used the actual earnings. Following the Enron scandal and the failure of WorldCom and approval of new laws such as Sarbanes Oxley, earnings management cost increased through using accounting variables and this expectation is that administrators use to manage interest on their real variables (Karami et al., 2011). In this research, the second form of earnings management has been studied is real earnings management, on which the impact of managerial caution is investigated.

Given that managerial caution in organizations to reduce the risk of loss and is done in response to uncertainty in the economic environment and where managers to postpone investment decisions making on assets, reduce discretionary expenses and stop or reduce hire employees to uncertainty and activities leads the results of the organization's performance to its desired position, so it is expected to take precautions through the mentioned factors leading to decreased desire and real earnings management in companies that do care management.

Table 1. Some of the most important related research

Author(s) (Year)	Purpose	Key findings
Mahmoudi et al. (2016)	Prediction of earnings management by use of multilayer perceptron neural networks with two hidden layers in various industries	A significant level of earnings management happens in different industries which is predictable by multilayer perceptron neural networks approach.
Sun et al. (2014)	Assessment of relationship between audit committee features and real earnings management of US companies	There is a positive correlation between over monitoring and control of audit committees with the real earnings management
Hsieh et al. (2012)	Evaluating the relationship between managerial caution, operational performance, and accounting conservatism	Managerial caution while reducing conservatism accounting management, increases operational performance
Qi et al. (2011)	Evaluating the relationship between presence of large audit firms and high reputation with an increase in the actual management earning	Increased auditors scrutiny by major audit; Reduces the flexibility of the company's accounting practices; Audited companies by large accounting firms are likely to manipulate the actual activities
Cohen &	The two types of earn-	Managers at seasonal stock often involve in

Author(s) (Year)	Purpose	Key findings
Zarowin (2010)	ings management	management of actual earning and yield loss during the seasonal offerings in stock has increase as a result of earnings management through actual activities to manage earnings through accrual anomaly, because manipulating real activities has real economic consequences.
Chang et al. (2010)	Examining the effect of earnings management on earnings forecast	Earnings management cause decrease predictive power of earnings. However, Once in different deciles, earnings management sizes, predictability is measured, the results show that in the decile with the highest level of earnings management, not only predictable earning will not decrease, but the results of this group can be seen that the behavior of earnings management awareness.
Gunny (2010)	Categorizing the earning manipulation methods	Method to manipulate profits through real activities in five group 1. Save money on research and development expenses 2. Savings in administrative, general and selling costs 3.Changes in the timing of withdrawal of long-term assets and investments 4. Discount to increase sales and ultimately 5. Overproduction to reduce cost of sold goods, identify and classify

Research hypothesis

H: There is a significantly negative relationship between managerial caution and real earnings management.

H₁: there is a significantly negative relationship between managerial caution and changes of abnormal discretionary expenses in listed companies on Tehran Stock Exchange.

H₂: there is a significantly negative relationship between managerial caution and changes in abnormal production costs in Tehran Stock Exchange.

H₃: there is a significantly negative relationship between managerial caution and abnormal changes in operating cash flows in listed companies in the Tehran Stock Exchange.

Research Methodology

This research, in terms of the correlation and methodology, is a quasi-experimental study and is a positive research in accounting field which used actual data. Data related to hypotheses and variables has been extracted from financial statements, notes to the financial statements, and databases of the Tehran Securities Exchange. The period of conducting this study was year 2009 to year 2013. The spatial domain and the population of this research are the listed companies in Tehran Stock Exchange that are selected according to the following conditions and restrictions: (i) The fiscal year ended March of each year, (ii) Company did not change its financial year during the 2009 to 2013, (iii) By the end of the fiscal year 2008 was approved on the Tehran Stock Exchange, and (iv) because of the different nature of the activity does not constitute as investor companies and banks.

Research Variables

Managerial caution (TYPE): As mentioned in the theoretical foundations of research, in confronting with a situation of uncertainty, most companies to maintain its financial position and cash flows and trying to employee employability, optional expenses (based on the mechanism of precautionary savings) and reduce or maintain investment in capital assets (based on the mechanisms of available to investors in capital assets). In this study, the company has managerial caution that in one year out of the three above

steps, in which at least two actions simultaneously took place. In the following sections, calculating the rate of change of this criterion is discussed.

Fixing (Decreasing) the number of employees and reducing investments in capital assets: following the study by Hsieh et al. (2012) the three-year weighted average number of employees and investments in capital assets, is intended basis for measuring the reduction or failure to reduce the number of employees and investments in capital asset. Two dummy variables, i.e. INV and EMP, are defined for this purpose and the weighted average number of employees and investments in capital asset in three years before t years in any company, to be deducted of the number of employees and investments in capital assets in the year t, if obtained number is negative, EMP and INV dummy variables are assumption equal to one and otherwise will be zero.

$$\text{Equation 1. } \Delta CP_t = cp_t - \frac{(CP_{t-1} + cp_{t-2} + cp_{t-3})}{\varepsilon}$$

ΔCP_t : is Changes in the number of employees or investment in capital assets
 CP: The number of employees or investment that is calculated in capital assets for the three consecutive years, i.e. t to t-3.

Reduction of discretionary expenses: Based on the mechanism for precautionary savings, companies which face uncertainty significantly increase precautionary savings and the only way to achieve this goal is decreasing the discretionary expenses. Similar to a research conducted by Roy Chowdhury (2004), the following model is used to estimate abnormal discretionary expenses, separately in each industry.

$$DISX_t / A_{t-1} = \alpha_0 + \alpha_1 (1/A_{t-1}) + \alpha_2 (S_{t-1}/A_{t-1}) + \varepsilon_t$$

$DISX_t$: Total discretionary expenses (advertising costs, research and development, distribution, sales and administrative expenses) in year t. If there is no cost of research and development in a company, the value will be zero.

$[[A]]_{t-1}$: Total assets at year t-1

S_{t-1} : Sales in year t-1

ε_t : Remaining model

Moreover, the abnormality level of discretionary expenses was measured based on regression. Then, by defining a dummy variable regression EXP trend was continued and if the remainder of this dummy variable was negative, this variable is assumed equal to one and otherwise, will be equal to zero. After the above steps, the company has managerial caution if at the same time in one year, has reduced two items of the three investments in capital assets, discretionary expenses and employment. In other words, two variables of three dummy variables- INV, EMP, and EXP- in company will be equal to one; otherwise it will not be participated in the managerial caution. Finally, a virtual variable- TYPE- is defined. If the company has managerial caution the value equals to one and otherwise equals to zero.

Real Earnings Management: the dependent variable of this study is real earnings management, which is measured through three indicators of abnormal production costs (overproduction), abnormal discretionary expenses, and unusual changes in operating cash flow. In this study, according to the study by Cohen & Zarowin (2010), the following expected models for estimating the indicators of earnings management through real activities had been used, so that the remaining models as an indicator of earnings management through real activities (the dependent variable) are entered into the original model:

Measuring abnormal production costs (Model 1):

$$\text{PROD}_{it}/\text{TA}_{it-1} = \alpha_0(1/\text{TA}_{it-1}) + \alpha_1(\text{Sales}_{it}/\text{Ta}_{it-1}) + \alpha_2(\Delta\text{Sales}_{it}/\text{TA}_{it-1}) + \alpha_3(\Delta\text{Sales}_{it-1}/\text{TA}_{it-1}) + \varepsilon_{it}$$

Measuring abnormal discretionary expenses (model 2):

$$\text{DISEXP}_{it}/\text{TA}_{it-1} = \alpha_0(1/\text{TA}_{it-1}) + \alpha_1(\text{Sales}_{it}/\text{Ta}_{it-1}) + \varepsilon_{it}$$

Measuring of Unusual operating cash flows (Model 3):

$$\text{CFO}_{it}/\text{TA}_{it-1} = \alpha_0(1/\text{TA}_{it-1}) + \alpha_1(\text{Sales}_{it}/\text{Ta}_{it-1}) + \alpha_2(\Delta\text{Sales}_{it}/\text{TA}_{it-1}) + \varepsilon_{it}$$

In the above equation

CFO: operating cash flows, TA: Total Assets, Sales: Sales changes, PROD: Production expenses (cost of sold goods plus changes in inventory), and DISEXP: Optional expenses (administrative costs and sales).

Control variables: based on the described principles and the literature review, several variables to control other factors affecting earnings management through the company's actual activities are considered to be as follows:

1. Firm size (Size, t): through logarithm of the market value of equity is calculated at the end of the period.
2. The ratio of market value to book value of equity (M / Bi, t).
3. The company's financial leverage (LEVi, t): the ratio of debt to assets in the year t.

Hypotheses Testing

In this study, from Cohen & Zarowin's model (2010) was used to measure the earnings management through real activities and it seems that three criteria of abnormal production expenses, abnormal discretionary expenses,

and abnormal operating cash flows have more applications. The general model is consistent with the hypothesis, as follows:

H₁: abnormal changes in production costs (overproduction), (Model Number 4):

$$ABCOST = \alpha_0 + \alpha_1 TYPE_{i,t} + \alpha_2 SIZE_{i,t} + \alpha_3 MB_{i,t} + \alpha_4 LEV_{i,t} + \varepsilon_{i,t}$$

H₂: abnormal changes in optional expenses, (Model Number 5):

$$DISEXP = \alpha_0 + \alpha_1 TYPE_{i,t} + \alpha_2 SIZE_{i,t} + \alpha_3 MB_{i,t} + \alpha_4 LEV_{i,t} + \varepsilon_{i,t}$$

H₃: abnormal changes in operating cash flows, (Model No. 6):

$$ABCASH = \alpha_0 + \alpha_1 TYPE_{i,t} + \alpha_2 SIZE_{i,t} + \alpha_3 MB_{i,t} + \alpha_4 LEV_{i,t} + \varepsilon_{i,t}$$

Here; ABCOST: abnormal production expenses, DISEXP: abnormal discretionary expenses and ABCASH: abnormal operating cash flow.

Findings

Table 2 shows the descriptive statistics of independent variables and the dependent variable, as well as the control variable related research hypotheses.

Table 2. Descriptive statistics

Research variables	Mean	Median	Maximum	Minimum	Standard deviation
abnormal discretionary expenses	0.057	0.047	0.280	0.003	0.039
abnormal production expenses	0.043	0.034	1.003	0.001	0.049
Abnormal operating cash flow	0.029	0.014	0.651	-0.336	0.013
Managerial caution	0.479	0.000	1.000	0.000	0.400
Firm size	5.934	5.882	8.078	4.476	0.614
Rate of return on assets	0.123	0.108	1.549	-0.439	0.167
Financial Leverage	0.676	0.664	2.153	0.096	0.236

To estimate the model and to choose the panel data and data compilation methods, an integration capabilities test was used. Table 3 shows the results of the integration testing capabilities for the estimated model for the first hypothesis

Table 3. Result of the integration capabilities - first hypothesis

Test statistics	Degree of freedom	Significance
9.301	(117.468)	0.000

As Table 3 shows, the F statistic is significantly smaller than 0.05. Since the null hypothesis of integration testing capabilities is not accepted, so to choose one of the methods of fixed effects and random effects, Hausman's test had been used. Table 4 shows the results of the Hausman's test for the first hypothesis.

Table 4. Results of Hausman's test- first hypothesis

Chi-square statistics	Degree of freedom	Significance
1.163	4	0.884

As table 4 shows, the significant value of chi-square statistic is larger than 0.05 that indicating the preferred using random effects panel data methods versus fixed effects. So, to estimate the related model of the first hypothesis was used of Random effects panel data methods that the results of the regression model are provided in Tables 5 and 6.

Table 5. The results of the overall model - first hypothesis

Coefficient of determination	Adjusted coefficient of determination	F statistic	Statistical significance F	Durbin-Watson statistic
0.627	0.603	18.451	0.000	1.872

As shown in Table 5, the amount of F-statistic and the significance level related to this statistic indicates that the statistical null hypothesis is rejected and the regression estimated model is significant. In this model, the coefficient of determination is equal to 0.627. It means that 62.7 percent of the dependent variable changes explained by the independent and control variables. Also, the Durbin-Watson statistic model, which is equal to 1/872, are located in distance between 1.500 and 2.500 and suggests that there is no correlation between the errors model. In the following presented results of the coefficients of the variables in Table 6 are explained.

Table 6. The results of the partial factors - first hypothesis

Variables	Coefficients	Standard error	T statistic	Significance
Managerial caution	-0.001	0.001	-0.589	0.025
Firm size	-0.026	0.002	-3.917	0.000
Rate of return on assets	0.038	0.003	2.395	0.000
Financial Leverage	0.025	0.001	3.694	0.000
The coefficient C	0.192	0.023	3.181	0.000

As one could see, the negative coefficient of the independent variable in this study suggests a negative impact of managerial caution on the abnormal discretionary expenses. A significant level related to t statistic of independent variable indicates that this relationship statistically is the significant level. Thus, the first hypothesis is accepted at 95 percent significant level. Coefficients and statistical significance level of t related to control variables indicated that the financial leverage and return on assets has a significant positive correlation and the firm size has a significant negative correlation with the abnormal discretionary expenses.

To estimate the model, first in order to choose one of the panel data methods and compilation data is used of integration testing capabilities. Table 7 shows the results of the integration testing capabilities for estimates model for the second hypothesis.

Table 7. Result of the integration capabilities - second hypothesis

Test statistics	Degree of freedom	Significance
15.071	(117.468)	0.000

As Table 7 shows, the significant amount of statistics F is smaller than the 0/05 that shows superior using panel data methods against the integrate data. Now to choose a method of fixed effects and random effects, the Hausman's test is used that the results of which are as follows:

Table 8. Results of the Hausman's test - second hypothesis

Chi-square statistics	Degree of freedom	Significance
3.076	4	0.131

As Table 8 shows, the significant value of chi-square statistic is larger than 0/05 that indicating the preferred using random effects panel data methods versus fixed effects. So, to estimate the related model of the first hypothesis was used of Random effects panel data model that the results of the regression model are provided in Tables 9 and 10.

Table 9. Results of overall model - second hypothesis

Coefficient of determination	Adjusted coefficient of determination	F statistic	Statistical significance F	Durbin-Watson statistic
0.565	0.534	20.393	0.000	2.093

As seen in Table 9, the amount of F-statistic and the significance level related to this statistic indicates that the statistical null hypothesis that is the same meaningless entire model (zero of all coefficients) is rejected and the regression estimated model is significant. In this model, the coefficient of determination is equal to 0.565. It means that 56/5 percent of the dependent variable changes explained by the independent and control variables. Also, the Durbin-Watson statistic model, which is equal to 2.093, that suggests that there is no correlation between the errors model. In the following, the results of the coefficients of the variables that presented in Table 10 are explained.

Table 10. Results of the partial factors - second hypothesis

Variables	Coefficients	Standard error	T statistic	Significance
Managerial caution	-0.006	0.003	-0.293	0.038
Firm size	-0.073	0.055	-1.325	0.185
Rate of return on assets	0.458	0.111	2.123	0.000
Financial Leverage	0.468	0.090	1.337	0.000
The coefficient C	0.711	0.339	2.093	0.036

As one can see, the negative coefficient of the independent variable in this study suggests the negative impact of managerial caution on the abnormal production expenses. The significant level related to t statistic of independent variable indicates that this relationship statistically is in the significant level. Thus, the second hypothesis is accepted at 95 percent significant level. Coefficients and statistical significance level of t related to control variables indicated that the financial leverage and return on assets has a significant positive correlation with abnormal production expenses but firm

size has a significant negative correlation with the abnormal production expenses.

In order to choose one of the panel data methods and compilation data the integration capability test was used. Table 11 shows the results of the integration capability test for estimated model for the third hypothesis.

Table 11. Result of the integration capabilities - third hypothesis

Test statistics	Degree of freedom	Significance
8.760	(117.468)	0.000

As Table 11 shows, the significant value of chi-square statistic is smaller than 0.05 that indicating the priority of using Random effects panel data methods versus Data integration method. Since the null hypothesis of integration capability test has not accepted, so to choose one of the methods of fixed effects and random effects, Hausman's test was used. Table 12 shows the results of the Hausman's test for the first hypothesis.

Table 12. Hausman's test results - third hypothesis

Chi-square statistics	Degree of freedom	Significance
2.853	4	0.000

As Table 12 shows, the significant value of chi-square statistic is smaller than 0.05 that indicating the preferred using Random effect panel data methods versus Random effects. So, to estimate the related model of the first hypothesis, Random effects panel data method was used that the results of the regression model are provided in Tables 13 and 14.

Table 13. Results of the overall model – third hypothesis

Coefficient of determination	Adjusted coefficient of determination	F statistic	Statistical significance F	Durbin-Watson statistic
0.541	0.508	10.258	0.001	2.236

As seen in Table 13, the amount of F-statistic and the significance level related to this statistic indicates that the statistical null hypothesis that is the same meaningless entire model (zero all coefficients) is rejected and the regression estimated model is significant. In this model, the coefficient of determination is equal to 0.541. It means that 54.1 percent of the dependent variable changes explained by the independent and control variables. Also, the Durbin-Watson statistic model, which is equal to 2.236, is located in distance between 1.500 and 2.500 and suggests that there is no correlation between the errors of model. In the following the results of the coefficients of the variables that presented in Table 14 are explained.

Table 14. Results of the partial factors - third hypothesis

Variables	Coefficients	Standard error	T statistic	Significant
Managerial caution	-0.001	0.008	-0.163	0.025
Firm size	-0.003	0.001	-0.153	0.020
Rate of return on assets	0.028	0.023	1.465	0.000
Financial Leverage	-0.027	0.024	-1.104	0.0026
The coefficient C	0.122	0.058	2.084	0.037

As you can see, the negative coefficient of the independent variable in this study suggests a negative impact of managerial caution on the abnormal operating cash flows. A significant level related to t statistic of independent variable indicates that this relationship statistically is in the significant level. Thus, the third hypothesis is accepted at 95 percent significant level. Coefficients and significance level of statistical t related to control variables indicated that the rate of return on assets has a significant positive correlation with firm size and the financial leverage has a negative and significant relationship with abnormal operating cash flows.

Conclusion

Based on the results of the our analysis in this study, the significant and negative relationship between managerial caution with abnormal discretionary expenses, as well as between abnormal operating cash flows and abnormal production expenses were approved, and none of the hypotheses were rejected. Finally, according to the hypotheses testing and based on the main hypothesis of this study, it can be concluded that there is a significantly negative relationship between managerial caution and earnings management through real activities. This means that, in the period of the research, the companies that have benefited from precautions management showed less interest to use real earnings management practices and its use has shown that using managerial caution led to reduction of earnings management

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