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Research Article

THE IMPACT OF EARNINGS MANAGEMENT INCENTIVES ON EARNINGS RESPONSE COEFFICIENTS OF COMPANIES

***Hossein Ashrafi Soltan Ahmadi[1] and Faramarz Kazemi Hasirchi[2]**
[1]Department of Accounting, Payame Noor University, Behsahr, Iran
[2]Department of Accounting, Science and Research Branch,
Islamic Azad University, Tehran, Iran
**Author for Correspondence*

ABSTRACT
This aim of the current study is to investigate the impact of earnings management incentives on earnings response coefficients of companies. In this regard, incentives for signing debt contracts and poor performance were desired. Research methodology is descriptive and correlational, and the hypotheses were analyzed based on regression-based tests. The sample includes 80 companies listed in Tehran stock market whose data, for a period of 9 years, from 2005 to 2013, as a period of testing, was statistically analyzed. The findings suggest that financial leverage has a negative and significant correlation with earnings response coefficients. In other words, more debt has lower earnings response coefficients. Also, the more the financing by borrowing, the less the earnings response coefficients will be. About poor performance motivation, the results show that business loss for the first time will cause to reduce undesirable response of investors. Other results show lack of significant relationship between capital growth and earnings response coefficients and second time of company's loss with earnings response coefficients. The results suggest that the relationship between high levels of financial leverage and earnings response coefficients is weaker than the low level of financial leverage.

Keywords: *Earnings Response Coefficients, Earnings Management, Motivation of Debt Contracts, Incentive for Poor Performance*

INTRODUCTION
Accounting earnings are calculated based on the commitment approach. On that basis, in case revenues and expenses, earnings can be reported. Thus, managers of profit sectors will have incentives for optimistic financial reporting. These incentives can be discussed in the following two cases.

1) Signing debt contracts hypothesis: providing cheap financing will lead to using investment opportunities more and will lead to the company's growth (Richardson et al., 2003). So, it seems that earnings management with debt incentives would be plausible for investors and investors may have desirable reaction to this kind of earnings management and evaluate the stock of these kinds of companies more valuable than those of other companies.

2) Poor Performance Motivation: when the results of the actual operating activities get away from the expected results, earnings management incentive increases. As the actual operating activities have greater deviation from the expectations of users, there will be a greater incentive for more efficiency power which has been reported (Lee *et al.*, 2006). Thus, it seems that managers of companies that have higher losses will have greater incentive to manage earnings.

Based on the above discussions, the main issue of the present study is to investigate the effect of earnings management incentives on capital market reaction. Incentives related to earnings management are consistent with the available evidence explanation and its impact on the behavior of investors in the capital market, which will be discussed. So, incentives for existing debt covenant restrictions and other incentives have been investigated. Also, earnings response coefficient, as an indicator of investors' behavior, has been paid attention to (Nwaeze, 2011).

Literature Review
Jenifer *et al.*, (2012) studied the impact of constraints of the balance sheet on earnings management and earnings management behavior by managers. The results showed that companies with a higher level of

net operating assets are more likely to lead earnings forecasts downwards, and through reducing production costs and discretionary expenses, will have real earnings management.

Cohen *et al.*, (2012) found that managers, after the SOX law, from accrual management tended to earnings actual management. This indicates that, after the SOX law and the disclosure of accounting and financial scandals, the need to escape from the detection of increased accruals and led administrators turn to actual earnings management.

Nazemi (2009) investigated the role of auditor industry specialization on two aspects of the management, i.e. accrual earnings management and earnings actual management. In this study, three criteria of manipulated sale, reducing discretionary and extra production spending as the criteria for the actual management have been used. The results showed that firms with specialist auditors in industry, after being limited in the management of discretionary accruals, turn to earnings actual management.

Michael (2010) found that the stock market valuation of the accrual is more than cash flows. Also, in companies with a higher level of conservatism, yield differential response to accruals is more. They found that the characteristics of each company, such as the magnitude of accruals, operating cycle length, sales standard deviation, cash flow accrual and earnings and size of company can be used as a tool for the evaluation of earnings.

Mojtahedzadeh and Valizadeh (2011), in a research entitled the relationship between earnings management and future efficiency of assets and future operating cash flows, investigated earnings management's influence on future returns of assets and operating cash flows. The results showed that there is no significant relationship between future efficiency of assets and future operating cash flows and earnings management. Nwaeze (2011) studied the impact of earnings management incentives on earnings response coefficient. In that study, the incentives for debt contracts, remuneration and poor financial performance were considered. He found that earnings response coefficient of companies with greater incentives for earnings management are less than those of other companies. Those results continued after controlling affecting variables on earnings response coefficient. Also, the effect of management incentive on cash flow response coefficient was negative. The results of the components of earnings and accruals are also confirmed and showed that the investors understood the symptoms associated with earnings management and their incentives, and have been involved in the decisions of the investors. Yazdi and Kerani (2011) examined the relationship between strategy to increase earnings and earnings response coefficient in the companies listed in Tehran Stock Exchange. The results indicate that there is a significant relationship between the strategy to increase earnings and earnings response coefficient. In other words, companies with strategies to increase revenue, compared to those with reduction in costs, have larger earnings response coefficient.

Formulating Research Hypotheses

First hypothesis: there is an inverse relationship between financial leverage and earnings response coefficient.

The second hypothesis: there is an inverse relationship between the financing through debt and earnings response coefficient.

The third hypothesis: there is an inverse relationship between increasing capital and earnings response coefficient.

The fourth hypothesis: there is an inverse relationship between loss of business and earnings response coefficient of companies.

MATERIALS AND METHODS

Methods

Regarding purpose, the present study is applied, and, regarding data collection, it is descriptive; regarding data analysis, it is correlational.

Population and Sample

The population in this study includes 12 industrial groups of companies listed in the Tehran Stock Exchange.

Table 1 shows the number of sample, and, Table 2, the way to select and extract the sample appropriate for the research with respect to sampling, observations, data and information presented in the Stock Exchange, according to separations in the industry.

Table 1: The number of the sample companie

The number of firms which were present in the stock from 2004 to 2013.	211
The number of companies whose fiscal year leads to the end of March.	210
The number of companies that have not changed their financial year in the period of the study.	157
The number of companies which are not considered as non-manufacturing companies, financial and investment institutions, banks, insurance, leasing and holding companies.	141
The number of companies whose book value equity was not negative.	111
The number of companies whose complete information is available during the period of investigation.	90
The number of companies which did not have trading symbol stop more than 6 months per year.	8
The number of companies whose data has been collected (final sample).	80

Operational Definition of research Variables

Dependant Variable of the Research

The dependant variable of this research is stock return of companies. The formulation to calculate this variable is as follows:

$$R_{i,t} = \frac{\left(P_{i,t} - P_{i,t-1}\right) + D_{i,t}}{P_{i,t-1}}$$

in which:

R: Return of stocks during the financial year

P: Price of stocks in the capital market

D: distribution of the benefits of ownership of stocks in the fiscal period, including dividends, bonus shares, etc.

Independent Variable of the Research

In this study, earnings response coefficient is investigated which this variable is measured through reported earnings regression of sample firms on stock returns. For this purpose, a regression model is used which has been modified and tested by Collins *et al.*, (1994) and by Lundholm and Myers (2002). The pattern is as follows.

$R_{t+1,i} = \beta_0 + \beta_1 EARN_{t,i} + \varepsilon_t$

In fact, to test the hypothesis, a number of moderator variables have been added to the regression model. Moderator variables of the investigation are as follows.

Moderator Variables of the Research

Moderator variables of the present study are earnings management incentives which are defined and explained based on the motivation and incentive contracts debts and poor performance. Thus, the independent variables include the level of financial leverage and the method of financing (as a measure of debt contracts) and the number of business losses (as a measure of poor performance motivation), calculated as follows.

1) Financial Leverage

$$Lev_{i,t} = \frac{\text{Total debts}}{\text{Total assets}}$$

2) Financing through Borrowing

This variable reflects the financial resources of the company during the financial period through business facilities, and is calculated as follows (Wiz 2011).

$$XFD = \frac{LLoan_t - LLoan_{t-1}}{Mv_t}$$

LLoan: Total long-term loans and short term loans
Mv: Market value gained by the number of shares multiplied by the price per share in the capital market.

3) Financing through Increasing Capital

This variable reflects the financial resources which the company has gained during the financial period by increasing the capital brought by shareholders or the cumulative profit, and is calculated as follows (Wiz, 2011).

$$XFE = \frac{Equity_t - Equity_{t-1}}{Mv_t}$$

Equity: Book value of equity shares

4) Number of Business Losses

This variable is a dummy variable reflecting the company's losses in the sample and in two levels, measured as follows.

Hypothesis Testing

The First Hypothesis Testing

$R_{t+1,i} = \beta_0 + \beta_1 EARN_{t,i} + \beta_2 Lev_{t,I} + \beta_3 EARN * Lev_{t,i} + \beta_4 EARN * |DAC|_{t,i} + \beta_5 EARN * Size_{t,i}$
$+ \beta_6 EARN * \delta ROA_{t,i} + \beta_7 EARN * MTB_{t,i} + \beta_8 EARN * Beta_{t,i} + \varepsilon_t$

In the regression pattern, coefficient β_3 shows financial leverage as the effect of earnings management incentives debt contracts on earnings response coefficient. If the coefficient is statistically significant (not zero), the first hypothesis is accepted. Thus, the statistical hypotheses of the first hypothesis have been proposed as follows.

H0: $\beta_3 \geq 0$
H1: $\beta_3 < 0$

Also, the coefficients β_4 and β_8 show the effect of each of the control variables on earnings response coefficient.

The Second Hypothesis Testing

- The relationship between high levels of financial leverage and earnings response coefficient is stronger than the low level of financial leverage.

$R_{t+1,i} = \beta_0 + \beta_1 EARN_{t,i} + \beta_2 Lev_{t,i} + \beta_3 EARN * HLev_{t,i} + \beta_4 EARN * LLev_{t,i}$
$+ \beta_5 EARN * |DAC|_{t,i} + \beta_6 EARN * Size_{t,i} + \beta_7 EARN * \delta ROA_{t,i} + \beta_8 EARN * MTB_{t,i}$
$+ \beta_9 EARN * Beta_{t,i} + \varepsilon_t$

HLev: high financial leverage (if the financial leverage of the year –company is higher than total median financial leverage of the sample, it will be equal to the financial leverage, otherwise, it will be zero).
LLev: low financial leverage (if the financial leverage of the year –company is lower than total median financial leverage of the sample, it will be equal to the financial leverage, otherwise, it will be zero).

H0: $|\beta_3| \leq |\beta_4|$
H1: $|\beta_3| > |\beta_4|$

The Third Hypothesis Testing

$R_{t+1,i} = \beta_0 + \beta_1 EARN_{t,i} + \beta_2 XFD_{t,i} + \beta_3 EARN * XFD_{t,i} + \beta_4 EARN * |DAC|_{t,i} + \beta_5 EARN * Size_{t,i} + \beta_6 EARN * \delta ROA_{t,i} + \beta_7 EARN * MTB_{t,i} + \beta_8 EARN * Beta_{t,i} + \varepsilon_t$

H0: $\beta_3 \geq 0$
H1: $\beta_3 < 0$

The Fourth Hypothesis Testing

$R_{t+1,i} = \beta_0 + \beta_1 EARN_{t,i} + \beta_2 XFE_{t,i} + \beta_3 EARN * XFE_{t,i} + \beta_4 EARN * |DAC|_{t,i} + \beta_5 EARN * Size_{t,i} + \beta_6 EARN * \delta ROA_{t,i} + \beta_7 EARN * MTB_{t,i} + \beta_8 EARN * Beta_{t,i} + \varepsilon_t$

H0: $\beta_3 \leq 0$

H1: $\beta_3>0$

The Results of the First Hypothesis Test

In the first hypothesis, the added mediator variable is the financial leverage. As the significance level of Chow test is less than the error level (0/05), panel data method was chosen as a regression model fitness of the first hypothesis test, and as the significance level of Hausman test is less than the error level (0/05), the fixed effects method for regression model fitting of testing hypothesis was selected. Thus, the first hypothesis testing regression, based on panel data and fixed effects, was fitted. The results of fitting model are in Table 2.

Determination coefficient regression model is 0.14 and showed that the model has explained 14 % of the earnings response coefficients of sample companies through independent and control variables. Also, the results show that Durbin Watson statistic is between 1.5 and 2.5, thus, there is not a strong correlation between the errors of the regression model, and lack of correlation between errors is accepted as one of the basic hypotheses of the regression about the fitted model.

Table 2: Results of statistical analysis to test the first hypotheses

	Dependant variable:R	**Type of pattern**: **Panel Least Squares**	
variable	**Coefficient β**	**Statistic t**	**Significant level**
β_0	-0.417	-1.921	0.055
EARN	463/2	2.371	0.018
Lev	0.307	0.985	0.324
EARN * Lev	-3/08	-3.405	0.000
EARN * |DAC|	-0.804	-1.55	0.121
EARN * Size	-0/016	-0.226	0.82
EARN * δROA	1.598	0.937	0.348
EARN * MTB	0.315	2.337	0.019
EARN * Beta	-0.042	-0.542	0.52
F Limer statistic:	2.759	Adjusted Determination Coefficient:	0.14
Significant level of F Limer:	0.003	Durbin-Watson Statistic:	2.025
Hausman statistic:	15.606	Statistic F:	2.888
Significant level of Hausman:	0.048	Significant level of F statistic:	0.000

The estimated coefficient for EARN * Lev variable, which shows the relationship between financial leverage with earnings response coefficient, is -3.08 and a significance level of 0.000, which is less than 0.05 (test error). These findings suggest an inverse and significant relationship between these variables. In other words, an increase in financial leverage causes a negative response of shareholders towards earnings.

The Results of the Second Hypothesis Test

The results of fitting models are presented in Table 4.

Table 4: Results of statistical analysis to test the second hypothesis

Dependant variable:R		**Type of pattern :Panel EGLS**	
variable	**Coefficient β**	**Statistic t**	**Significant level**
β_0	-0.48	-2.247	0.024
EARN	2.686	2.371	0.018
Lev	0.412	0.985	0.324
EARN * HLev	-3.109	-3.204	0.001
EARN * LLev	-3.3	-2.678	0.007
EARN * |DAC|	-0.781	-1.53	0.126
EARN * Size	-0.031	-0.478	0.626
EARN * δROA	1.571	0.949	0.342
EARN * MTB	0.32	2.492	0.012
EARN * Beta	-0.041	-0.621	0.536
F Limer statistic	2.689	Adjusted Determination Coefficient:	0.129
Significant level of F Limer:	0.003	Durbin-Watson Statistic:	2.01
Hausman statistic:	8.798	Statistic F:	3.69
Significant level of Hausman:	0.456	Significant level of F statistic:	0.000

The estimated coefficient for EARN * HLev variable, which shows the relationship between the high level of financial leverage with earnings response coefficient, is -3.109 and a significance level of 0.001, which is less than 0.05 (test error). Also, the estimated coefficient for EARN * LLev, which shows the relationship between low levels of financial leverage with earnings response coefficient, is - 3/3 and a significance level of 0.007, which is less than 0.05 (test error). These findings indicate that the relationship between the high level of financial leverage and earnings response coefficient is lower than the low levels of financial leverage. This finding is inconsistent with the claim in the second hypothesis, and it is rejected at the 95% confidence level.

The Third Hypothesis Test Results

Table 5: Results of statistical analysis to test the third hypothesis

Dependant variable: R		**Type of pattern : Panel EGLS**	
variable	**Coefficient β**	**Statistic t**	**Significant level**
β_0	-0.015	-0.018	0/928
EARN	0.764	0.882	0/337
XFD	0.218	1.537	0.124
EARN * XFD	-0.304	-2.017	0.044
EARN * |DAC|	0.428	1.094	0.274
EARN * Size	-0.034	-0.526	0.598
EARN * δROA	0.108	0.067	0.946
EARN * MTB	0.199	1.551	0.121
EARN * Beta	-0.038	-0.57	0.568
F Limer statistic	1.886	Adjusted Determination Coefficient:	0.119
Significant level of F Limer:	0.044	Durbin-Watson Statistic	1.98
Hausman statistic:	13.334	Statistic F:	2.833
Significant level of Hausman:	0.1	Significant level of F statistic:	0.004

The estimated coefficient for the variable EARN * XFD, which shows the relationship between financing through debt and earnings response coefficient, is – 0.304 and a significance level of 0.044, which is less than 0.05 (test error). These results suggest an inverse relationship between financing through debts and earnings response coefficient, which corresponds with the claim in the third hypothesis, therefore, this hypothesis is accepted at 95 % confidence level.

The Fourth Hypothesis Test Results

The results of the fitted model are shown in Table 6.

Table 6: Results of statistical analysis to test the fourth hypothesis

Dependant variable: R		**Type of pattern :Panel EGLS**	
variable	**Coefficient β**	**Statistic t**	**Significant level**
β_0	-0.03	-0.187	0.851
EARN	0.926	1.069	0.285
XFE	-0.057	-0.327	0.743
EARN * XFE	-0.123	-0.964	0.335
EARN * |DAC|	0.711	1.456	0.145
EARN * Size	-0.043	-0.664	0.506
EARN * δROA	-0.604	-0.346	0.729
EARN * MTB	0.194	1.529	0.126
EARN * Beta	-0.087	-1.292	0.196
F Limer statistic	2.322	Adjusted Determination Coefficient:	0.116
Significant level of F Limer:	0.018	Durbin-Watson Statistic	1.987
Hausman statistic:	14.059	Statistic F:	2.458
Significant level of Hausman:	0.08	Significant level of F statistic:	0.011

Results show that the significant level of estimated coefficient for the variable EARN * XFE, which shows the relationship between the increase in capital and earnings response coefficient, is higher than 0.05. These findings suggest that, statistically, there is not significant relationship between these coefficients. The results are inconsistent with the claims in the fourth research hypothesis, therefore, the hypothesis is rejected at the 95% confidence level.

Summary and Interpretation

The findings of this research, which show inverse relationship between financial leverage and earnings response coefficients, can be interpreted in a way that it is likely that investors have considered high-level debt of sample companies as a sign of the willingness of company directors for earnings management, hence, do not believe earnings reported by companies with high debt to be valid and show an undesirable reactions to it.

About the findings of the second hypothesis ant its inconsistency with the claims in hypothesis, it is argued that investors believe financial leverage to be a sign of financial risk but do not have a full understanding of the intensity of its effect and that the higher level of financial leverage, compared to its lower level, has a greater impact on efficiency.

There is not significant relationship between increasing capital and earnings response coefficient. It is argued that the investors of sample firms are likely to have fewer concerns about financing through the capital increase, compared to financing through borrowing because the capital increase does not put the company at undesirable financial risks.

Recommendations Arising from the Research

1. Investors do not have a full understanding of the effects of financial leverage. It is recommended to consider the high levels of debt as a sign that reduces future returns.

2. Investors do not have a full understanding of the times of losses. It is recommended to consider the times of loss as an indication which causes more reduction of future returns.

Suggestions for Future Research

The future researchers are suggested to focus on the following points.

1. In this study, the pattern of Kothari has been used to measure earnings management. It is recommended that other models such as Kaznyk, Jones, or modified model of Jones be used.
2. Investigating the relationship between reward incentives to manage earnings with earnings response coefficient of companies listed in Tehran stock market,
3. Investigating the relationship between company size incentives to manage earnings with earnings response coefficient of companies listed in the Tehran stock market.
4. Investigating the relationship between tax incentives to manage earnings with earnings response coefficient of companies listed in Tehran stock market.

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