



## A Comparative Study of the Relationship between Real Earnings Management and Earnings Management Based on Accruals to Achieve an Average Profitability

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### ABSTRACT

This research aimed to study the behavior of real earnings management and earnings management based on accruals to achieve an average profitability of listed companies in Tehran Stock Exchange. In this study, we focus on the optional operating cash flow, optional cost and production cost as real earnings management representatives as well as discretionary accruals as an earnings management accounting representative. The sample consisted of 84 companies out of 454 companies listed in Tehran Stock Exchange during the period 2011-2016. Multiple regression and combined data and GLS models (generalized least squares) were used to analyze the data. The results show that there is a significant relationship between real earnings management and earnings management based on accruals to achieve an average profitability of stock companies. There is also a positive and significant relationship between accrual-based earnings management and average profitability, a positive and significant relationship between real earnings management activities (production costs and cash flow from operations) and average profitability. Finally, there is a significant negative relationship between real earnings management (discretionary spending) and average profitability

### Keywords:

Real Earnings Management, Earnings Management, Accruals, Average Profitability

## 1. Introduction

Earnings management includes targeted intervention in the financial reporting process with the limitations generally accepted by accounting principles, for the expected profit. Since business unit management is responsible for preparation of financial statements, there may be specific reasons that make managers manage their profit. To achieve certain goals that provide reasonably certain interest, managers reported earnings that may be inconsistent with the objective of public user's interest.

Profit management is generally possible in two ways: Real Earnings Management (REM) and Accrual-based Earnings Management (AEM). Real earnings management occurs when managers do activities that distract them from the best performance, to report higher profits (Mojtahedzade & Valizadeh Layjany, 2010). Profit management theory was initially presented by Hepworth (1953) then introduced by Gordon (1964). For the first time the term "earnings management" was replaced with the term "Earnings Smoothing" by McNichols and Wilson (1998). All in all, earnings management was in the spotlight in this regard which can be used in the preparation of a summary of the firm performance and the achievement of the desired results.

In this study, we examined the relationship between the real earnings management and accrual-based earnings management, to reach the average profitability of companies listed in the Tehran Stock Exchange using paid ROA index. ROA was selected as the basis for profitability as it is an important and useful financial ratio that is calculated by dividing net income by total assets. When companies lose an average revenue (or obtain it), the average return of a negative balance tend to be (negative) positive. When companies have reached an average absolute revenue, revenue adjusted based on the average ROA will be zero.

The main research question is that if the companies surveyed used the real earnings management to achieve an average profitability, or the accrual-based management, or a combination thereof.

## 2. Literature Review

Earnings management is an important topic in the accounting literature. In the theoretical literature, due to the extent of earnings management and earnings

quality, the accepted definition of these two concepts has been presented clearly. In order to provide an operational definition of earnings management and earnings quality fit with materials presented in the present study was to examine the most important definitions of these two subjects.

Earnings management is defined as a practice "when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers" (Healy & Wahlen, 1999).

Schipper (1989) defines earnings management by observing that 'earnings management ... mean[s] "disclosure management" in the sense of a purposeful intervention in the external financial reporting process, with a view to obtaining private gain for shareholders or managers'. Fields et al (2001) state that earnings management occurs when managers exercise their discretion over accounting numbers with or without restrictions. Such discretion can be either firm value maximizing or opportunistic. However, these perspectives can be differentiated through management intent, where management intent is unobservable. "Earning management is the choice by a manager of accounting policies so as to achieve specific objective." (Scott, 2003).

Accounting standards within the regulatory framework allow managers with great discretion in their judgment of accounting for financial reporting and for structuring corporate transactions. Therefore, managers can use their reporting discretion to mislead stakeholders about the true performance of the firm or to provide more informative financial reports. Three types of earnings management are discussed: accrual-based earnings management (AEM), real transaction-based earnings management (REM), and income classification shifting (Wu, 2016).

The practice of AEM is viable when management has room for interpretation or application of accounting choices. Managers can use specific accruals that are related to certain industry or accounting standard to manage earnings that are important enough to increase earnings to a specific level. They can transfer future (current) accruals to current (Future) periods in order to increase (decrease) current (future) earnings. Current earnings can be

accelerated by recognizing future revenue or by deferring current expenses to future periods. This type of earnings management is very costly, since future earnings are borrowed in order to increase current earnings, future earnings are reduced by the same amount when the accruals are reversed (Wu, 2016).

Managers can use restructuring of real transactions or activities to increase or decrease current period earnings (REM). Roychowdhury (2006) states that "Real activities manipulation is defined as management actions that deviate from normal business practices, undertaken with the primary objective of meeting certain thresholds". Some examples are the delay of research and development expenses to increase earnings, delay investing in selling, general and administration expenses to increase earnings, alter the timing of income recognition from the disposal of long-lived assets and investments, cutting prices to boost sales in the current period and overproducing to decrease cost of goods sold expense (Wu, 2016).

These real earnings management activities have negative impact on the future performance of the firm and the identification of these activities is informative about the cash flows and future earnings (Gunny, 2009). AEM and REM techniques alter current earnings, affect future earnings, and raise current expectations of future earnings. However, classification shifting does not affect future earnings but does affect the expectations of it. Classification shifting is "the deliberate misclassification of items within the income statement" (McVay, 2006) and since managers are shifting items between categories, the net earnings number will not be affected and thus no accruals will be reversed in the future.

Reviewing literature related to earnings management, we face the questions of why managers manipulate the earnings, How to manage the earnings and what the consequences of this behavior are. The answers to these questions allocated the majority of empirical research in the field of accounting and financial reporting. Accrual accounting grants managers considerable choice of determining profit in different time periods. In fact, under this type of accounting system, administrators have significant control over time to do some cost items including costs of advertising, research and development. On the other hand, managers in accrual accounting system face different options for revenue recognition time, including faster recognition of income through the sale

of credit (Teoh et al., 1998). These performances are remembered by managers simply as "earnings management".

Graham and et al. (2005) showed that administrators want to manage real benefit rather than accruals, so they reduce 80% of discretionary spending, delay 55% of projects. 28% of managers consider stockpile and 8% of managers' change the assumptions. Their research denies the high cost of real earnings management.

Francis et al. (2005) investigate the relation among the accruals quality as an earnings attribute, the cost of debt and cost of equity. Measuring accruals quality as the standard deviation of residuals from regressions, relating current accruals to cash flows, they find that poorer accruals quality is associated with larger costs of debt and cost of equity.

Bergstresser and Philippon (2006) have examined the drivers of directors and management profit. Their findings suggest the use of discretionary accruals to manipulate reported earnings in companies where all the benefits and executive compensation plans are based on the value of the shares or stock options.

Study of Zhang's (2007) showed that there has been an alternative relationship based on relative cost between actual activities and accruals management approach. In this study, the sequential nature of the earnings management approach was approved.

Suda and Hanaeda (2008) find that 33.52% of managers in Japanese firms attach importance to earnings in other firms within the same industry as target earnings. They also show that most managers in Japanese firms try to achieve earnings benchmarks because it helps to build credibility with the capital market, maintain or increase their firms' stock price, and convey future growth prospects to investors. Thus, Japanese firms' managers are likely to engage in earnings management to achieve industry earnings benchmarks, thereby obtaining rewards from the capital market and providing a signal to investment analysts and investors.

Ahangari and Shakeri (2009) have examined the relationship between earnings management and valuation process by assessing the impact of earnings management on the relevance of earnings and book value. The results showed that benefit poor reliability reduces profit relevance and increases the book value relevance.

Mojtahedzade and Valizadeh Larijani (2010) investigated the effect of earnings management on future returns and future operating cash flow through asset management and company activities. The results showed that although earnings management through active management of the company is used by managers of Iranian companies, but there is no significant relationship between the variables.

Khodadadi and JanJani (2011) examined the relationship between earnings management and profitability of listed companies in the Tehran Stock Exchange. The results indicate that companies that have earnings management were poorer at the level of operating profit and net profit performance, have more growth at the level of pre-tax profit and net profit, have larger size at net profit and eventually have higher rate in the earnings per share than companies that have no earnings management. Also, companies that have earnings management have more growth and less efficiency.

Mahdavi and Zare HoseinAbadi (2011) examined the relationship between management earnings forecast error and the accrual of companies listed on Tehran Stock Exchange. Their results showed that there is a significant relationship between the earnings forecast error and accruals.

Etemadi et al. (2012) have examined the effect of earnings management on four profit properties including accruals quality, stability, predictability and pave. The results indicated that the increase in the amount of discretionary accruals, the reduction in desirable characteristics of interest rates, and among the other features, the quality of accruals is most influenced by earnings management. These results support the theory of opportunistic earnings management, and shows that earnings management is damaging the information content of accounting.

Markarian and et al. (2014) through theoretical models have suggested that when the managed benefits are smaller than competitor's managed interests, the company is likely to be engaged in earnings management.

Markarian and Santalo' (2014) find a negative relationship between the absolute value of discretionary accruals and industry-average adjusted profitability; consequently, this indicates that U.S. firms with better (poorer) performance than industry-average profitability manipulate earnings less (more) through AEM. In addition, they provide evidence

suggesting that firms engage in AEM more frequently when they underperform relative to their competitors in more competitive industries.

Yamaguchi (2015) examine the real and accrual-based earnings management to achieve industry-average profitability in Japanese firms. He finds evidence of income-increasing real and accrual-based earnings management in firms that just meet or slightly beat industry-average profitability. The results also indicate that firms in more competitive industries engage in greater income-increasing earnings management to achieve industry-average profitability.

Shi et al. (2015) show that geographically dispersed firms have lower accrual-based management but higher real earnings management when compared with geographically concentrated firms.

Ahmadpour and Shahsavari (2016) investigates the relationship between earnings management and quality of earnings for the bankrupt and non-bankrupt firms listed in the Tehran Stock Exchange from 2007 to 2012. The results show that earnings management performs better than earnings quality in predicting future profitability. Meanwhile, the non-discretionary earnings more effectively than future change of earnings and future cash flow from operation for providing a picture of the future profitability of the firm.

### 3. Methodology

This study is applied research and its direction is after the event. Also in terms of the nature, the research is descriptive and solidarity. The population consists of all companies listed in Tehran Stock Exchange within 5 years (2011-2016). For sampling, purposive sampling method was used with the following terms and conditions.

- 1) Fiscal year ended in March each year.
- 2) The fiscal year does not change during the study period.
- 3) The period of the study is actively involved in the exchange.
- 4) The information is available to extract data.
- 5) It is not an investment Co., or financial intermediation.

Finally, with regard to the above limitations, 84 companies were studied. To gather information, and to conduct the final analysis, the Eviews7 software was used.

**Hypothesis:** There is a significant relationship between Real Earnings Management (REM) and Accrual-based Earnings Management (AEM) to achieve an Average Profitability.

### 3.1. Data Analysis

#### 3.1.1. Models Used to Test the Hypothesis

$$EM_{i,t} = \alpha + \beta_1 CFO_{i,t}/A_{i,t-1} + \beta_2 ACC_{i,t}/A_{i,t-1} + \beta_3 SIZE_{i,t-1} + \beta_4 MTB_{i,t-1} + \beta_5 JUSTMEET_{i,t} + \beta_6 ROA + \epsilon_{i,t}$$

Roychowdhury (2006) regression model was used to collect data for management of real benefit:

$$CFO_{i,t}/A_{i,t-1} = \beta_0 + \beta_1 (1/A_{i,t-1}) + \beta_2 (S_{i,t}/A_{i,t-1}) + \beta_3 (\Delta S_{i,t}/A_{i,t-1}) + \epsilon_{i,t}$$

$$DISX_{i,t}/A_{i,t-1} = \beta_0 + \beta_1 (1/A_{i,t-1}) + \beta_2 (\Delta S_{i,t-1}/A_{i,t-1}) + \epsilon_{i,t}$$

$$PROD_{i,t}/A_{i,t-1} = \beta_0 + \beta_1 (1/A_{i,t-1}) + \beta_2 (S_{i,t}/A_{i,t-1}) + \beta_3 (\Delta S_{i,t}/A_{i,t-1}) + \beta_4 (\Delta S_{i,t-1}/A_{i,t-1}) + \epsilon_{i,t}$$

$CFO_{i,t}$  : Cash flow from operations that is reported in the event flow.

$DISX_{i,t}$  : Optional costs is calculated as the cost of research and development, advertising, sales and personnel, and welfare costs .

$PROD_{i,t}$  : Production costs is calculated as cost of goods sold plus changes in inventory.

$A_{i,t-1}$  : Total assets at the beginning of the financial period

$S_{i,t}$  : Total sales

$\Delta S$  : sales changes

Jones model (1991) for accrual-based earnings management

$$ACC_{i,t}/A_{i,t-1} = \beta_0 + \beta_1 (1/A_{i,t-1}) + \beta_2 (\Delta S_{i,t}/A_{i,t-1}) + \beta_3 (PPE_{i,t}/A_{i,t-1}) + \epsilon_{i,t}$$

ACC: Total accruals is calculated as net income minus cash flow of operations

PPE: Property, machinery and equipment requirements

A-ACC: Abnormal accruals multiplied by -1

EM: Represents an approximation of earnings management:

A\_CFO, A\_DISX, A\_PROD, and A\_ACC

#### 3.1.2. Variables

**Independent variable:** in this research the independent variable is average profitability.

**Dependent variable:** real earnings management and management of benefit accruals are the dependent variables.

JUSTMEET is a dummy variable profit of company that is one if it is higher than the average industry profitability, otherwise is zero.

**Control variables:**

SIEZ: is the natural logarithm of the market value of equity and controls the size and dimensions effects.

MTB: is the market value of equity divided by the book value of shareholders' equity and controls growth opportunities.

ROA: A measure of corporate performance and profitability index that is achieved from net income divided by total assets.

## 4. Result

### 4.1. Descriptive Statistics

Table 1 shows the descriptive statistics of the variables in the research model which represents the descriptive parameters for each variable separately. In this table, the number of observations for each variable is 84 views. The difference between minimum and maximum data indicated a range suitable for variable usage. The appropriate amount of standard deviation of the data represents the appropriate integrity of sample data.

**Table1. Descriptive statistics of the variables of the study**

Kurtosis	Skewness	S.D	Minimum	Maximum	Median	Average	Variable / Statistic
3/32	0/42	0/58	10/31	13/65	11/75	11/72	SIZE
2/53	0/64	0/78	0/21	3/63	1/49	1/62	MTB
99/89	9/23	0/81	0/00029	10/51	0/13	0/28	ROA
1/38	0/61	0/47	0/00	1/00	0/00	0/35	JUSTMEET
2/566	3/722	4/09	-5/16	73/90	-0/18	1/019	EM1(A_CFO)
2/76	1/15	0/08	-0/59	0/708	0/003	1/45	EM2(A_DISX)
4/719	2/93	0/53	-4/20	5/22	0/042	1/43	EM3(A_PROD)
1/656	1/015	0/59	-9/53	2/98	0/04	1/90	EM4(A_ACC)
420	420	420	420	420	420	420	Number of observation

### 4.2. Normality Test of the Dependent Variables

Since the possibility of Jark-Bra statistics for the dependent variables (Table 2), including (A\_CFO) EM1, EM2 A\_DISX), A\_PROD) EM3) and) EM4 A\_ACC), is less than 5%, the normality of the dependent variable is rejected. In order to normalize the variables Johnson conversion is used. Table 2 shows the results of the normality of the dependent variable, before and after normalization.

### 4.3. Correlation Test

Table 3 shows Pearson correlation coefficients between independent and control variables of the

research. Given that all variables have a correlation analysis that end to 1 so there is not Alignment test between them.

### 4.4. Analysis Model to Test the Hypothesis

To test the hypothesis, according to four indices of earnings management as the dependent variable (A\_CFO, A\_DISX, A\_PROD, A\_ACC), the original research model is estimated 4 times. This means that variables A\_CFO, A\_DISX, A\_PROD are considered as an indicator of real earnings management, and variable A\_ACC as an indicator of accruals management.

Table 2- results of the dependent variable normality

(A_ACC) EM4	(A_PROD) EM3	(A_DISX) EM2	(A_CFO) EM1	Variable	
4043/56	2991/83	9214/3	9816/28	Jarque-Bera	Before normalization
0/000	0/000	0/000	0/000	Probability	
3/044	4/052	5/461	3/044	Jarque-Bera	After normalization
0/075	0/691	0/126	0/075	Probability	

Table 3- Pearson correlation coefficient matrix of independent variables

JUSTMEET	ROA	MTB	SIZE	ACC <sub>i,t</sub> /A <sub>i,t-1</sub>	CFO <sub>i,t</sub> /A <sub>i,t-1</sub>	
					1	CFO <sub>i,t</sub> /A <sub>i,t-1</sub>
				1	-0/081	ACC <sub>i,t</sub> /A <sub>i,t-1</sub>
			1	0/035	-0/077	SIZE
		1	0/185	0/067	0/022	MTB
	1	0/074	0/277	0/319	0/088	ROA
1	0/231	0/072	0/573	0/072	-0/028	JUSTMEET

Table 4- The Results of Investigating the Relationship between Real Earnings Management and Average Profitability

(Dependent variable: EM1)				
P-value	T-statistics	SE	Estimated coefficient	Variable
0/000	4/199	0/08	10/07	Intercept
0/000	7/1171	0/0008	0/977	CFO <sub>i,t</sub> /A <sub>i,t-1</sub>
0/000	12/23	0/005	0/072	ACC <sub>i,t</sub> /A <sub>i,t-1</sub>
0/000	8/112	0/007	0/83	SIZE
0/000	27/46	0/004	0/121	MTB
0/000	11/31	0/004	0/53	ROA
0/000	10/31	0/008	0/09	JUSTMEET
R <sup>2</sup> : 0.47				
Probability of F statistics 0/000		F statistics 232/018		Durbin-Watson statistic 1/98

**Table 5 - The Results of Investigating the Relationship between Real Earnings Management and Average Profitability**

(Dependent variable: EM2)				
P-value	T-statistics	SE	Estimated coefficient	Variable
0/000	6/08	0/009	0/059	Intercept
0/008	2/64	9/68	0/002	CFO <sub>i,t</sub> /A <sub>i,t-1</sub>
0/000	73/50	0/006	0/050	ACC <sub>i,t</sub> /A <sub>i,t-1</sub>
0/000	5/51	0/0008	0/004	SIZE
0/000	10/02	0/0005	0/005	MTB
0/000	21/11	0/0005	0/011	ROA
0/000	-13/43	0/001	-0/013	JUSTMEET
R <sup>2</sup> : 0.53				
Probability of F statistics 0/000		F statistics 978/5		Durbin-Watson statistic 2/04

**Table 6 Results Of Investigating The Relationship Between Actual Earnings And Average Profitability**

(Dependent variable: EM3)				
P-value	T-statistics	SE	Estimated coefficient	Variable
0/000	9/15	0/113	1/806	Intercept
0/0013	-1/4006	0/0005	-0/0008	CFO <sub>i,t</sub> /A <sub>i,t-1</sub>
0/000	6/81	0/004	0/028	ACC <sub>i,t</sub> /A <sub>i,t-1</sub>
0/000	15/97	0/009	0/15	SIZE
0/000	10/41	0/005	0/052	MTB
0/000	6/82	0/003	0/203	ROA
0/000	6/82	0/008	0/058	JUSTMEET
R <sup>2</sup> : 0.29				
Probability of F statistics 0/000		F statistics 1746/06		Durbin-Watson statistic 2/43

**Table 7 - Results of Investigating the Relationship between Accrual-Based Earnings Management and Average Profitability**

(Dependent variable: EM4)				
P-value	T-statistics	SE	Estimated coefficient	Variable
0/000	0/61	0/017	0/190	Intercept
0/000	4/94	0/0001	0/0008	CFO <sub>i,t</sub> /A <sub>i,t-1</sub>
0/000	6/715	0/0012	0/902	ACC <sub>i,t</sub> /A <sub>i,t-1</sub>
0/000	-6/64	0/0015	-0/010	SIZE
0/002	0/084	0/0009	0/002	MTB
0/000	0/084	0/0009	-0/081	ROA
0/000	10/99	0/0018	0/020	JUSTMEET
R <sup>2</sup> : 0.44				
Probability of F statistics 0/000		F statistics 105/72		Durbin-Watson statistic 1/96

**Table 8- Overall Results Of the Study Hypothesis Test Models**

(A_ACC) EM4	(A_PROD) EM3	(A_DISX) EM2	(A_CFO) EM1	Variable
Significant positive relationship	Significant positive relationship	Significant negative correlation	Significant positive relationship	USTMEET

According to the results of the test it can be said that:

- There is a significant positive relationship between the behavior of real benefit management (cash flow from operations) and the average profitability.
- There is a significant negative relationship between the behavior of real benefit management (Optional fees) and the average profitability.
- There is a significant positive relationship between the behavior of real benefit management (Production costs) and the average profitability.
- There is a significant positive relationship between the behavior of accrual-based earnings management (optional) and the average profitability.

#### 4.5. Error Variance Consistency Test

In this study, to address the heterogeneity of variance the generalized least squares (GLS) is used. Table 9 shows the results of heterogeneity of variance test.

**Table 9 - the results of heterogeneity of variance test**

Possibility	Quantity	Method	Main Model
P-value	Value	Method	
0/19	4/730	Bartlett	EM1
0/08	6/609	Bartlett	EM2
0/15	5/228	Bartlett	EM3
0/98	0/148	Bartlett	EM4

## 5. Discussion and Conclusions

The results of the study showed that the hypothesis is confirmed. We conclude that managers used real earnings management and commitment profit management in achieving their average profitability. According to Tables 4,5,6,7, the P-value for earnings management indicators (EM1, EM2, EM3, and EM4) is less than 5% and the determination coefficient in all cases except EM2 is positive. Accordingly, the independent variable, JUSTMEET, has significant direct relationship with EM1, EM3, EM4, and significant indirect relationship with EM2. The determination coefficient and adjusted determination coefficient in EM2 (optional fees) is higher than the others (53%), therefore, it can be concluded that this

model is better than other models, and it is recommended that this method should be used to achieve the average profitability.

According to other control variables in the research model, such as size and growth, it can also be argued that a positive relationship between company management and profit growth can be seen. Also the company size has a positive correlation with real earnings management and significantly negative relationship with accounting earnings management. The results show that earnings management behavior is more common in companies that have lower profit, and Managers of these companies used both real earnings management strategy and accounting profit management to manage earnings in order to achieve a high level of their average profitability.

Finally, according to the research findings it can be said that the achievement of an average profitability is one of corporate manager's incentives to manipulate earnings or profit management. Since the profit is the criteria to evaluate the company managers' corporate management performance, access to average profitability gives the company a competitive advantage than other companies in the same industry. This competitive advantage can be entitled with other motives such as attracting investment in the capital market for the company and the assumption of executive compensation. If the company achieves average profitability, it has less profits volatile, and in terms of investment, it has significant importance for the managers to get their reward.

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