



Key Factors Associated to Earnings Management of the Listed Companies on Tehran Stock Exchange (TSE)

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Abstract. Due to the inherent flexibility in some of the accounting standards, interpretation and application of these practices is, in many cases, a function of managerial discretion and imposed views. Managers are provided with the opportunity which allows them through the use of diverse techniques, including accounting accruals, to manage the reported earnings. Earnings management is the manipulation of earnings aimed to secure achievement of management objectives through the use of safe methods and practices. A large body of the literature on earnings management consists of the studies primarily concerned with identification of certain relevant factors which are likely to have significant impact on earnings management. Present research highlights the key factors that contribute to earnings management in the listed companies on Tehran Stock Exchange. The research statistical population includes all listed companies on TSE with active trading record during 2007 through to 2012. Of this population, using systematic filtering procedure, 155 companies were selected as the research sample. The research hypotheses were tested at the hand of a particularly designed multivariate regression model aided by the fixed effects model and the ordinary least squares (OLS) technique. In this study, the effect of the independent variables difference between forecast and actual earnings per share on earnings management and prediction of the company's future earnings growth on earnings management was examined. Earnings management was measured using modified-Jones model. The obtained results from test of the hypotheses did not indicate any significant association between difference between forecast and actual earnings per share and earnings management, while prediction of the company's future earnings growth was found to be significantly associated with earnings management.

Keywords: earnings management, accruals, earnings per share (EPS), modified-Jones model

1. INTRODUCTION

Managers of enterprises may for own gains attempt to manipulate accounting earnings. Their principal incentive hereon is to increase their current compensation through representation of higher accounting earnings. Managers' opportunistic behavior entails interference with profit reporting, and when this tampering is discovered, the company's earnings quality will come under question and financial analysts will have to reassess the financial information. One major purpose of the earnings manipulation is smoothing the reported income (or profit). Earnings smoothing (management) is a kind of deliberate action taken by management making use of particular devices in accounting in order to reduce earnings fluctuations. Premature recognition of income, capitalization of current expenses, allocation of expenses to longer periods and finally, scheduling financial activities are some examples of potential earnings management and smoothing techniques by which it is made sure of a steady earnings growth. Due to such flexibility, managers are enabled to exercise a systematic influence in the reported earnings from one year to another and manage them. Hence, the phenomenon earnings management is likely to affect investor's decision, given its graver consequences for inefficient capital markets.

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Reported earnings are among the key features of financial information which is reckoned with during decision making by people. Financial analysts normally view the reported earnings as an eminent factor in their studies and judgments. Besides, investors for their investment decisions rely on the financial information, especially the reported earnings, brought in financial statements of an enterprise. They believe stable earnings rather than volatile earnings guarantee higher dividend payment. Given the importance attached to earnings fluctuations as a crucial measure of the enterprise overall risk, the companies with more even earnings (over years) are considered to involve lower risk. Therefore, the companies with smoother earnings are more favored by investors as a better place for their investment. On the other hand, there is a possibility of earnings manipulation by managers seeking to maximize their gains. That is to say, management may take advantage of the considerable power it has in making a choice from among different methods available for taking financial events to accounts within the accepted accounting framework. For instance, there is a variety of accepted methods for depreciation from among of which managers can choose one. In addition, financial activities and events can be scheduled by management. Putting off a sale or making optional expenditures are examples hereof. As a result of such flexibility, managers can systematically influence the reported earnings from year to year and smooth it. Hence, the phenomenon earnings management can affect the investor's decisions and entail issues which are of graver consequences for inefficient capital markets.

Undoubtedly, in years that the company financially is not doing well, management has a stronger incentive for earnings management in order to hide company's poor performance. Considering the pivotal importance of earnings as the ultimate purpose of financial reporting whose credibility and accuracy has been doubted and questioned as a result of earnings management practices, in present research, the key factors that contribute the most to earnings management are explored and highlighted.

2. PROBLEM STATEMENT

The phenomenon earnings management is a common issue on the border of accounting knowledge and finance. The relatively long record of studies on this issue indicates its high significance and keen interest of scientific and professional circles in it. The importance of this issue springs from the special and quite unique place of profit (earnings) in accounting and financial topics, as well as among the users of financial statements. Calculation of earnings for a particular enterprise depends on the type of accounting methods and estimations in use, and this gives managers the opportunity through use of various techniques, including accruals accounting, to manage the reported earnings. By earnings manipulation, management seeks to accomplish its objectives, which is not necessarily in line with those of shareholders, but most of the time is in contrast to them. Given the fact that company managers are responsible for preparation of financial statements, they might for different reason engage in earnings management. In view of the foregoing, present research is conducted for further enrichment and advancement of the existing knowledge in the research literature on this topic, and for providing the investors as the owners of earnings with better understanding and insight into the real managerial incentives for earnings management in the listed companies on TSE.

3. RESEARCH JUSTIFICATION

Despite presence of the accepted accounting standards, due to lack of a comprehensive theory, there is an ongoing dispute among theoreticians and professionals on (the right method of) income reporting and in practice too, it confronts income reporting with challenges. In addition, given the separation of ownership from management, presence of conflict of interest, and exclusive access of managers to certain financial information, as well as the quality of accrual accounting that justifies managerial choice from among different accounting practices, there is possibility of earnings manipulation and misleading of people in their decision makings. On the other hand, considering the issuance of the equity shares by the listed companies among all segments of the Iranian society in recent years, and given the degree of knowledge and familiarity of different social groups with financial issues, providing correct information and clarification to support taking of right decisions which in aggregate have macroeconomic consequences is imperative. At the same time, the reported earnings, as a long recognized decision making criterion and an eminent factor in evaluation and judgment of financial analysts, inevitably involves acceptance of economic consequences of earnings report and announcement. Theoretically, earnings management not only exists in the inefficient markets, but also in the efficient markets.

Further, the provided profit and loss statement of companies are prepared based on the accepted accounting principles. According to the Iranian accounting standards, reliable information is the information that is free from material errors or biases, and in good faith represents what it claims it describes. More accurately prepared and composed accounting standards would curtail earnings management, resulting in supply of better and more reliable information to the market.

Some investors only rely on the reported earnings and ignore other performance indicators. Earnings are the final result of the accounting process under the accounting practices selected by management. The choice of accounting practices by management allows it to decide about the recognition time and measurement of income and expenses, and this may lead to earnings management.

Identifying contributing factors to unrealistic representation of earnings can be helpful in discovery of distorted and imaginary profits to investors and users.

One method which is sometimes employed to arrange information supplied in favor of corporations is earnings management. Earnings management is referred to as overall management intervention in the process of configuring the profit in accordance with its desired objectives. Earnings management is a method which is employed by managers for data manipulation. For example, profit smoothing for more assurance of investors about earnings stability is one instance of data manipulation. Corporate management, when implementing earnings management, clearly knows that the purpose of this action is protection of company interests against owners of the earnings. Even in other instances, the earnings management motivated by coming at the promised bonus to managers is justified by keeping as much of the company against the profit owners.

In view of the above considerations, there are different reasons for earnings management in companies. In the present research, the associated factors to earnings management are explored in light of these reasons and motivations.

4. TERMS AND DEFINITIONS

Earnings management: earnings management occurs when manager makes use of his own personal judgment for financial reporting with the intention to mislead some of shareholders regarding true economic performance of the enterprise or to influence the outcome of the contracts which depends on the reported accounting figures.

Earnings management further refers to the ability of the company to make a choice from among the accounting methods and practices in order to achieve some of the manager's specific objectives. Yet in another definition, earnings management is defined as the action which causes the reported earnings to reflect management desires rather than the company's fundamental financial performance.

Accruals: are the difference between operating income and cash generated from operation and are divided into optional and non-optional accrual components.

Optional accrual items: are the items over which the management has control and can defer or remove them, or expedite their entry and acknowledgement. Since optional accrual items are at disposal and applicable by management, these items are used as the indicator in detection of earnings management.

Non-optional accrual items: refer to the expected (normal) level of accruals which in normal condition is estimated based on the information available to investors.

Forecast: is one of the key factors in economic decision makings and is referred to as the estimation process of unknown situations. A forecast provides a prediction regarding future events and may transform the past experiences into forecast of future events.

Earnings per share (EPS): is one of the crucial financial statistics of interest to investors and financial analysts. EPS is calculated from the earnings after deduction of corporate taxes divided by total number of outstanding shares and shows the profit obtained by a company over a specific period per each ordinary share.

5. RESEARCH BACKGROUND

Earnings management in the accounting literature is one of the topics treated within the branch of accounting profit. This topic in the accounting literature from about the beginning of the 20th century onward took shape with different researches conducted by scholars and experts of accounting. Each of these researches addressed certain aspects of the issue in terms of earnings manipulation, profit smoothing, and finally, earnings management.

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In accounting literature, there is no clear and commonly shared definition of earnings management, since the boundary between earnings management and financial frauds is not clearly defined. Recently, Lo (2008) has approached the issue from a criminological angle, providing thereby a promising prospect for the empirical research. The underlying philosophy of earnings management is profiting from the flexibility provided by the accounting standard methods and generally accepted accounting principles. Earnings management also arises from the possibility of varying interpretations of execution methods of one and the same accounting standard. This flexibility is the main reason for the existing diversity in accounting methods. Under highly flexible interpretability of standards, less uniformity is seen in the produced and provided data in financial statements. Moreover, the principles of conformity and conservatism in accounting may also lead to earnings management.

The subject earnings management in countries whose capital markets have a longer history enjoys a rich and ever growing, advanced literature. Most of the researches conducted in the field of earnings management reckoned with the possible involvement of managerial specific incentives in cases of earnings management.

Fang Yu (2008) investigated the role of analysts as information brokers in corporate affairs. His article particularly concerned the influence of stock analysts in management decisions in earnings management. Using multiple measures of earning management, he found that broker analysts and experiences analysts exercise stronger and greater influence in dealing with earnings management.

Utama and Siregar (2008) made an inquiry into the research question as whether the listed companies on Jakarta Stock Exchange in Indonesia engage in opportunistic earnings management or not? To assess the issue, they made use of such measures as ownership structure, firm size, and corporate governance procedures as the independent variables, and applying multivariate regression analysis concluded that firm size had no effect on earnings management. These results differ from the obtained results for companies in advanced countries.

Huang et al (2009) investigated potential effect of artificial smoothing versus real smoothing on firm's value. They found that an increase in artificial smoothing (real smoothing) results in a decrease (increase) in firm's value. They demonstrated that companies by real informative smoothing can increase their profit and reduce company agency costs.

Albert and Richardson (1990; quoted from Seraj, 2009) in a paper titled "Income Smoothing by Economic Sector" based their study of income smoothing on a dual economic view. They considered business system of capital countries to be composed of two main economic sectors, namely core or central industries and peripheral or satellite industries, and examined firm size and smoothing practices in relation to economic sector and found that larger firms relative to smaller ones are of more interest to analysts and thus, are more widely known and have less need for income smoothing.

Moradi (2008) showed a significantly negative association between financial leverage and income smoothing, and this negative and significant relationship was greater in companies with higher free cash flows.

Yaghoub Nejad et al (2011) provide a model for assessment of earnings management in the listed companies on Tehran Stock Exchange, whereby the effect of such variables as debt ratio, firm size, management change, and taxes as the chief factors associated to earnings management, as well as the effect of some other variables such as profitability indicator, type of auditor, type of ownership, and the last year earnings management indicator as the control variables were examined. According to their results, debt ratio had a direct effect on earnings management indicator. That is to say, with increase of debt ratio, managers tend to engage more in earnings management. In addition, earnings management had a direct relationship with firm size and company's management change. Further, a higher profitability index was associated with a greater degree of earnings management, and the last year earnings management index had a direct effect on the current year earnings management index. The results also indicated that in Iran variables such as taxes, type of ownership, type of auditor, and change of auditor had no effect on earnings management indicator.

Taleb Beidokhti and Mousavi (2012) investigated the effective factors on earnings management in the listed companies on Tehran Stock Exchange at the hand of variables firms size, firm age, debt-to-equity ratio, and the amount compensation. The results indicated firm size and debt ratio to be directly associated with earnings management. However, firm age had no significant effect on earnings management.

5.1. Research questions

Considering the research main objective that is identification of the key contributing factors to earnings management in the understudy firms, we want to find out:

1. Is there any significant association between difference between forecast and actual earnings per share (in previous year) and earnings management (in current year)?
2. Is there any significant association between forecast of the company's future earnings growth and earnings management?

5.2. Research objectives

Research objectives are twofold:

1. Examining the relationship between difference between forecast and actual earnings per share (in previous year) and earnings management (in current year);
2. Examining the relationship between forecast of the company's future earnings growth and earnings management.

5.3. Research hypotheses

1. There is a significant association between real and estimated EPS (in previous year) and earnings management (in current year).
2. There is a significant association between forecast of the company's future earnings growth and earnings management.

5.4. Research scope

The research scope involves three dimensions, namely thematic, spatial, and temporal scopes.

Thematic scope: in this research, factors contributing to earnings management are investigated.

Spatial scope: Tehran Stock Exchange as the place in which the research target population finds itself

Temporal scope: the target companies were subject to study within the time interval 2007-2012.

5.5. Research model and variables

$$EM_{i,t} = \beta_0 + \beta_1 X1_{i,t-1} + \beta_2 X2_{i,t} + \varepsilon_{i,t}$$

In which,

EM denotes earnings management (dependent variable); X1 represents difference between forecast and actual earnings per share (first independent variable); X2 forecast of future earnings growth (second independent variable)

5.6. Specifications regarding execution of research project

5.6.1. Research type and methodology

This is an applied research, as its findings are aimed to be utilized in the financial information handling process, and of experimental type in the area of positive accounting researches based on the actual data provided in the financial statement of companies. The research methodology, as regards its design, is to characterize as deductive – inductive of post-event type; deductive in that the research hypotheses are composed by relying on the existing theoretical concepts and inductive in that the hypotheses are tested in light of the empirical data and historical facts.

The required data for theoretical foundation and formulation of the research hypotheses was collected through library research and the research actual data (for test of hypotheses) was partly derived from the financial statements of the sample companies and the notes to these statements for the understudy period available in the respective data bank and partly from the official website of the stock exchange.

5.6.2. Research findings

Research findings are presented in two sections of (1) descriptive statistics and (2) inferential statistics as follows.

5.6.2.1. descriptive statistics

In general, descriptive statistics involve methods by which the collected information are sorted and summarized. This type of statistics, as its name suggests, merely describes general characteristics and attributes of the target population or sample and its purpose is calculation and specification of the target population or sample parameters. The understudy sample consists of 155 companies for the period 2007 through to 2012. At this stage, mean and median (central tendency measures), standard deviation, maximum and minimum (measures of variability) of the involved variables are calculated and presented in table 1. It should be noted that after removal of outliers and sorting out the data, the number of firm-years for the research variables slightly fell short.

Table 1. Summary statistics on research variables.

Variables	Nr.	Mean	Median	St. Dev.	Min.	Max.
EM	921	0.1	0.7	0.1	0.637	0.0002
X1	893	34.768	183	397.258	1975	1
X2	824	1.782	1.475	1.096	5.752	0.416

Mean is the most fundamental and the most important measure of central tendency which indicates the balance point and the epicenter of distribution. As is shown in table 1, mean value for earnings management is 0.1.

Median is the point at which a sample is divided into two equal parts. That is to say, 50 percent of observations are placed before it and another 50 percent of observations are placed after it. As is shown in table 1, median of earnings management is 0.07 which belongs to Iran Kaolin Company in year 2011.

Measures of variability, in general, indicate dispersion of observations round mean. One of the most important dispersion (variability) measures is standard deviation whose amount in table 1 for earnings management is 0.1.

Greatest amount of earnings management (0.637) was observed in Nasir Machine Company in year 2011 and smallest amount thereof (0.0002) belonged to Iran Tractor Foundry in year 2008.

According to the summarized statistics in table 1, mean and median values for the variable difference between forecast and actual earnings per share (X1) are 34.768 and 183, respectively. And the maximum and minimum amount of this variable are 1975 and 1, respectively. The median of this variable belonged to Shahid Ghandi Company and Darou Pakhsh Factories in year 2007. And maximum amount of this variable was seen in Sadid Pipe & Equipment Co.

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(2008) and minimum amount thereof in Mehr Kam Pars Co. (2011) and in Noosh Mazandaran Co. (2007).

The last understudy variable, i.e. forecast of future earnings growth (X2), has a mean value equal to its median belonging to Plasco Kar Saipa Co. (2010) and Aluminum Rolling Co. (2010). Saipa Pharmaceuticals (2007) and Automobile Parts Co. (2012) accounted for the maximum and minimum amounts of this variable, respectively.

5.6.2.2. Inferential statistics

The applied inferential statistics in this research include Pearson and Spearman correlation tests and multivariate regression analysis for the purpose of detecting relationships of independent and dependent variables by isolating or controlling for the influence of other variables. In the meantime, to ensure reliability of results, the applicability of the regression model was made subjected to testing of the regression assumptions.

In the testing procedure, before giving reporting the results of the multivariate regression test, the results on correlation tests of the research variables will be presented. In the following, after restatement of the research hypotheses, correlation and regression analyses are treated respectively.

The research hypotheses are as follows:

- There is a significant association between real and estimated EPS (in previous year) and earnings management (in current year).
- There is a significant association between forecast of the company's future earnings growth and earnings management.

5.6.2.3. Correlation tests

First, Pearson correlation of the variables is discussed. The results of Pearson correlation test of the independent and dependent variables are summarized in table 2.

As is indicated in table 2, there is a significant and direct relationship between earnings management and difference between forecast and actual earnings per share (X1) and forecast of future earnings growth (X2). This result is in accordance with the stated hypotheses. Yet, for test of the hypotheses linear regression will be used.

Considering the significance level of the Pearson correlation which is smaller than 0.05, there will be no problem for regression generation.

Table 2. Pearson correlation test.

Variable	EM	X1	X2
EM	1	0.097** 0.009	0.278** 0.000
X1		1	0.115** 0.001
X2			1

5.6.2.4. Regression test

In each regression model, certain assumptions apply the non-satisfaction of any of which will damage the desirable properties of regression estimates or test of hypothesis, rendering them less reliable. Some of the fundamental regression assumptions are:

- Mean error term (residuals), i.e. e_t , is equal to zero. Due to random nature of e_t , this assumption term can be expressed as $E(e_t) = 0$. This assumption implies that constituents of the error term leave their positive and negative effects in a way that mean amounts of error come down to zero. In fact, presence of a constant in regression would not violate this assumption.
- Error term (e_t) has a normal distribution. If this assumption is violated, test of hypothesis and establishment of confidence interval (CI) in the customary manner for regression factors will be of no effect (according to the central limit theorem, high number of data will resolve this problem, if present).
- Error terms in different observations are uncorrelated or independent from each other; i.e. $t \neq \text{Scov}(e_t, e_s)$. In case the latter assumption is violated, a so called autocorrelation or serial correlation issue will occur, meaning that error terms are correlated. In general, whenever e_t s follow a specific order, the assumption on correlation of e_t s is violated and positive or negative correlation will be created. To verify this issue, Durbin-Watson test is applied.

In addition to the above instances, the issue of reliability (internal consistency) of variables is an important subject which will be discussed in the following.

5.6.2.5. Examining reliability of variables

Prior to analysis of the research data, reliability (consistency) of variables has to be examined. Reliability of variables means that mean and variance of variables over time and covariance of variables between years have remained constant. Therefore, using these variables in the model will not create false regression. To perform such analysis, unit root test of Im, Pesaran and Shin (2003) (IPS) is applied. The result of this test is summarized in table 3.

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Table 3. The Im, Pesaran and Shin test

Research variables	t-statistic	Sig.
EM	-22.073	0.000
X1	-14.686	0.000
X2	-14.59	0.000

Considering that significance values of the research variables in table 3 are smaller than 0.05, all of these variables satisfy the consistency requirement. In the next step, the suitable method of data analysis is identified.

5.6.3. Test of the research hypotheses

For specification of the panel data application method and verification of their homogeneity or heterogeneity first, the Chow test (Chow, 1960) and F-Limer statistic is applied. The statistical hypotheses of this test are as follows:

H_0 =Pooled Data

H_1 =Panel Data

The null hypothesis (H_0) is based on lack of any individual, invisible effects and the alternative hypothesis (H_1) is based on presence of individual, invisible effects. If H_0 is accepted, it means that the model lacks individual, invisible effects. Hence, it can be estimated through panel regression model. However, if H_1 is confirmed, it means that in the model there exist individual, invisible effects.

Now, if the results of this test suggest the data to be used as the panel data, for estimate of the research model, either of the fixed effects model (FEM) or random effects model (REM) has to be used. To choose one of the two models, Hausman test (Hausman, 1978) is performed.

H_0 = Random Effect

H_1 = Fixed Effect

The zero hypothesis of Hausman is based on suitability of the random effects model for estimate of panel data regression models.

5.6.4. Calculation of the accrual-based earnings management values

Before testing the research hypotheses, accrual based earnings management should be calculated. To this effect, the model coefficients for calculation of accrual based earnings management are estimated. According to this method, first, Chow test is performed (table 4).

Table 4. The results of Chow test.

Zero hypothesis	F-statistic	Sig.	Test result
Cross-sectional and longitudinal effects are not significant	2.137	0.000	Null hypothesis is rejected

According to table 4, for test of this model, the data are used as panel data. In table 5, the results of Hausman testing are summarized.

Table 5. The results of Hausman test.

Null hypothesis	χ^2	Sig.	Test result
Using REM	20.94	0.000	Null hypothesis is rejected

Based on the results of Hausman test (table 5), for estimate of the model coefficients, the fixed effects model (FEM) is to be applied. The model testing results, using fixed effects model and the ordinary least squares (OLS) are provided in table 6.

Table 6. The estimation results for coefficients of the earnings management model

Variable	Coefficients	St. error	t-statistic	Sig.	
Constant	0.024	0.019	1.267	0.205	
	$1/A_{i,t-1}$	-1313.903	3802.882	-0.345	0.729
	$\Delta REV_{i,t}/A_{i,t-1}$	0.115	0.017	6.448	0.000
	$PPE_{i,t}/A_{i,t-1}$	-0.021	0.047	-0.445	0.649
F-statistic	3.262	Coefficient of determination (R)		0.41	
		Adjusted coefficient of coordination (R²)		0.282	
F-statistic probability	0.000	Durbin-Watson (D-W) statistic		1.88	

Now, using the calculated coefficients, the value of the accrual based earnings management is calculable. It should be noted that characteristics of the data pertaining to accrual-based earnings management in table 1 and the statistics regarding earnings management in tables 2 and 3 have been provided using the coefficients of the above table.

6. TEST OF THE RESEARCH MODEL

As was explained in section 3, for test of the research hypothesis, the below model is used:

$$EM_{i,t} = \beta_0 + \beta_1 X1_{i,t-1} + \beta_2 X2_{i,t} + \varepsilon_{i,t}$$

Where, EM denotes earnings management (dependent variable); X1 indicates difference between forecast and actual earnings per share; X2 forecast of future earnings growth

According to the mentioned test procedure first, Chow test is performed (table 7)

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Table 7. The results of Chow Test.

Zero hypothesis	F-statistic	Sig.	Test result
Cross-sectional and longitudinal effects are not significant	2.137	0.000	Null hypothesis is rejected

According to table 7, for test of this model, the data is used as the panel data. In table 8, the results of Hausman testing are summarized.

Table 8. The results of Hausman test.

Null hypothesis	χ^2	Sig.	Test result
Using REM	20.94	0.000	Null hypothesis is rejected

Based on the results of Hausman test (table 8), for estimate of the model coefficients, the fixed effects model (FEM) is to be applied. The model testing results, using fixed effects model and the ordinary least squares (OLS) are provided in table 9.

Table 9. The estimation results for the model coefficients.

Variable	Coefficients	St. error	t-statistic	Sig.
Constant	0.071	0.007	9.118	0.000
Difference between forecast and actual EPS	1.35×10^{-5}	9.55×10^{-6}	1.412	0.158
Forecast of the future earnings growth	0.009	0.003	2.564	0.01
F-statistic	5.25	R		0.015
		R ²		0.012
Probability of F-statistic	0.005	D-W statistic		1.512

Considering the results in table 9, since t-statistic of the variable forecast of the future earnings growth (+2.564) is greater than +1.96 and its significance level is smaller than 0.05, there is a direct and significant association between forecast of the future earnings growth and earnings management.

The Durbin-Watson statistic (1.512) lying between 1.5 and 2.5, and the F significance level of 0.005 (< 0.05) clearly indicate the model significance.

Another noteworthy point in table 9 is the model coefficient of determination. Although this seems to be a low amount (about 2 percent), we should note that this amount, due to non-use of control variables, specifically belongs to the research independent variables. This coefficient of determination indicates that about 2 percent of the changes in the earnings management can be explained by the independent variables. Thus, the second hypothesis is confirmed and the first hypothesis is rejected (as the significance level of the difference between forecast and actual earnings per share is higher than 0.05).

7. OVERALL RESULT

The research hypotheses testing results, based on the applied model for their assessment, are all at once together with their possible causes are treated in the following.

In order to test the research hypotheses, it is made use of a model incorporating the independent variables *difference between forecast and actual earnings per share* (X1) and *forecast of the future earnings growth* (X2), the fixed effects model (FEM), and the ordinary least squares (OLS).

According to testing results, there was no significant association between difference between forecast and actual earnings per share and earnings management, whereas forecast of the future earnings growth was significantly associated with earnings management. Difference between forecast and actual earnings per share

Table 10. Research summary result.

Variable	Earnings management (EM)	
	Effect	Effect direction
Difference of forecast and real EPS	×	×
Forecast of the future earnings growth	Significant	Direct

The direct effect of the forecast of the company's future earnings growth on the use of earnings management can be attributed to the fact that in the companies that expect an earnings growth in the future the managers by earnings management try to give the market the necessary signals.

8. COMPARISON OF THE RESULTS WITH THE EARLIER FINDINGS

As was show mentioned, the results did not indicate presence of any significant association between difference of forecast EPS (in previous year) and actual EPS (in the current year) and earnings management, but confirmed presence of a significantly positive association between forecast of the future earnings growth and earnings growth. Few studies so far have addressed this topic, yet from these researches some similarities can be inferred.

The lack of a significant relationship between the variable *difference of the forecast and actual EPS* and earnings management found in this study contradicts the findings of Soltani et al (2010) and Zhu (2009) which to the best of our knowledge were the similar works in the existing literature.

9. SUGGESTIONS

Having accomplished a scientific research following the right systematic procedures, the researcher would be able to give comments on the research findings and provide some solutions or suggestions for improvement of the matters in question or research further advancement in the future. Hence, in the following, some suggestions are presented according to the research findings and for future research.

9.1. Suggestions based on the research findings

Our results suggested that difference of forecast and actual EPS cannot be a reason for management engagement in earnings management. This finding is against the prediction of the existing theories that suggest managers in such condition tend to engage in earnings management, which given our result, does not apply to the listed companies on Tehran Stock Exchange (TSE). This could be ascribed to the market's inattention to the mentioned difference and the subsequent indifference of the investors to it. Given the informational significance of this difference, the investors are recommended to pay more attention to this matter in order to make better investments in the future.

Further, it was found that forecast of future earnings growth contributed to manager's practice of earnings management. This finding implies that the signaling theory is somewhat applicable to the listed companies on TSE, since investors, given the state of earnings management in the company, would be able to predict its future profitability.

Given the finding that confirms signaling actions of managers through earnings management and given the high degree of inefficiency of the Iranian market, the stock market officials are recommended by increase of market awareness to furnish the necessary response.

9.2. Suggestions for future research

- In future research, researchers may investigate the market reaction to the examined relationships in this research, and relate the obtained results on managers' signaling actions through earnings management to market response and derive broader conclusions thereby.
- In addition, the use of other measures for calculation of earnings management (such as McNicols and Sttuben Model and the Neural Network method) for study of this issue is recommendable.
- The regression equation of this research was estimated at once for all members of statistical sample. Therefore, it is suggested, in future research, this relation to be investigated separately for different members.
- In this study, the listed companies on TSE have been investigated. In future works this study can be conducted for the over-the-counter stocks as well.

10. RESEARCH LIMITATIONS

- In a longer research period, the result could be more generalizable, but for a longer research period, with increase of years, the number of companies in the sample decreases which could reduce the research validity, limiting possibility of study of the mentioned relationship.
- The limitation inherent to this research is that the findings are exclusively applicable to the understudy sample.
- The external limitation of this study springs from the fact that information on some of the companies was either not available or incomplete, so they have to be excluded from the sample.
- The political condition of a country and the psychological atmosphere that prevails over the Tehran Stock exchange, are among the environmental factors which were not controlled in this research and are likely to affect the research variables.
- The extracted data from the financial statements were not adjusted for inflation. Considering the difference of the inflation rate in the understudy years, if the used data were adjusted in this regard, the results could differ from the present ones.
- The use of different accounting practices for measurement and report of financial event might affect the obtained results.

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