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Examining earnings forecast error with an emphasis on the role of instability of earnings and management inefficiency

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Abstract: The aim of management is to show the company as stable and dynamic to investors and the capital market. Gaining a proper place among the competitors and capital market makes investors and creditors have a favorable opinion of the company and the company needless of spending more cost in competition with other similar companies and receive loans and credits with less cost. The purpose of this paper is to examine the impact of the instability of earnings on the earnings forecast error with an emphasis on managerial inefficiency based on a sample of 130 year-company among the companies listed in Tehran Stock Exchange during the period from 2009 to 2013. Results showed that instability of earnings has a significant positive impact on earnings forecast error in companies with management inefficiencies. Moreover, the results showed that earnings forecast error has a significant difference in companies with efficient and inefficient management.
Key words: instability of earnings, earnings forecast error, inefficiency of management

Introduction

Generally, investors pay special attention to earnings. They consider stable earnings or earning with little instability as the one with higher quality, in other words, they are ready to invest in companies whose earnings process is more stable, so the reported earnings, as a measure of financial decision-making, has a special credit and financial analysts with consensus consider earnings as a key factor in their investigation and judgments. Managers have strong incentives to manage earnings and business managers try to interfere in the process of determining earnings, so that the earnings figure is reported in line with their desired objectives.

In smoothing earnings, due to moving in revenues and expenses, the earnings of one or more financial periods change and adjust. As a result, it can be said that the purpose of smoothing earnings is to create stable growth flow in the earnings; moreover, management incentives for earnings smoothing can be examined in terms of agency theory (Sarebanha, Ashtab, 2008).

In cases where job security of managers is achieved with favorable picture of the company's performance in the current or future periods, in the event of failure to in the current period or expected performance in future periods, many of managers face dismissal from their jobs and therefore start to smooth income.

Information predicted in reports of new entrant companies at the time of admission to exchange is more important compared to other companies as their financial information is not available like other companies and such information can be used as the responding tool of managers against investors in the event of non-fulfillment of the relevant provisions. The information disclosed to market participants affects the accuracy of analyst earnings forecast (Badri, Ghahremaani, 2012).

Problem Statement

The aim of management is to show the company as stable and dynamic to investors and the capital market. Gaining a proper place among the competitors and capital market makes investors and creditors have a favorable opinion of the company and the company needless of spending more cost in competition with other similar companies and receive loans and credits with less cost. For this reason, managers try to show a stable growth pattern of earnings over the life of the company (Hesio et al., 2008). Forecasting earnings per share by managers is a mandatory disclosure of information about the company's expected profit in future periods based on the future performance of the company's directors, which is considered as the financial aspect of the disclosure. Moreover, it provides areas for the development of theories and empirical research related to information symmetry, evaluation of real and forecast data, reasons, and motivations of managers in forecasting data and other research. Publishing earnings per share reduces forecasting information symmetry between investors and managers and leads to higher proposed prices for the company's stock and reduction of disagreement in the analysts' forecast, and in this way compliance can be established between what managers believe to gain with the expected profit by investors (Khalifeh Soltani, Mollanazari, and Delpaak, 2010, p. 12).

Fama (2003) believes that the external market of management work imposes a lot of pressure to the company to classify managers based on performance and determine their rewards. Additionally, in competitive market of management workforce, when the reward system is not sensitive to the performance, the company loses its managers. Applying these pressures is due to the undeniable fact that the operating company is always looking for new managers in competitive labor market.

Rafig (2003) argues that managers recognize the fact in market of management to determine opportunities of wage outside company, the performance of company, and the extent to which managers have been able to increase the wealth of shareholders is used (Bohrani, Soukhkian , 2012 , p. 135).

In this regard, the purpose of this paper is to examine the impact of the instability of earnings on the earnings forecast error with an emphasis on managerial inefficiency. Of the primary goals of earnings management is to maintain the company's reputation because credits makes company seem efficient and dynamic. Gaining a proper place among the competitors and capital market makes investors and creditors have a favorable opinion of the company and the company needless of spending more cost in competition with other similar companies and receive loans and credits with less cost. The motivation for income smoothing is the belief that the companies that have good earnings trend, and their earnings are not subject to major changes, are more value compared to similar companies. Smoothing increases company stock value in exchange and attracts potential investors for it. So the main question in this study is to determine the extent of predicted earnings deviation due to the instability of earnings and management inefficiency. In fact, we want to know whether instability of earnings and management inefficiency have an impact on error of earnings forecast or not.

Literature review

Domestic investigations

Mahdavi and Zare Hoessinabadi (2011) in a study examined the relationship between earnings forecast errors by management and total accruals, and tried to find the effect of uncertainty in the business environment on the relationship between earnings forecast errors by management and accruals. The results of statistical analysis showed that there is a significant relationship between the total accruals and earnings forecast errors by management. Based on the results of the second hypothesis, the relationship between earnings forecast errors by management and total accruals in commercial environments with high uncertainty was not accepted

Mashayekh (2007) studied the accuracy of managers in predicting future earnings per share based on the random walk model information. The results show that there is a significant difference between managers' forecast error and forecast earnings error based on the random walk. By increase in the size of the company, manager forecasting becomes more accurate and forecasting accuracy of managers in profitable corporates is more than in unprofitable companies.

Aboulghasemi (2005) by examining 12 cement companies in 1994-2004 compared earnings forecast by management with time series. Based on the results, the mean of absolute deviation in various levels of models shows that even growth model is more efficient than managers' earnings forecasting. Thus, research hypothesis is accepted, and it can be said that managers' earnings forecast compared with forecasts based on time series model is less efficient (Aboulghasemi, 2005).

Foreign research

Kouch and Park (2011) examined the impact of sustained growth of earnings on the characteristics of anticipated earnings by management. They showed that in the time of disclosure of earnings by predicted by management, if the earnings declared are in continuation of a chain of growing earnings of

the company, it will be of more importance and weight for investors and analysts. These researchers argued that if the company has a history of steady growth in earnings, predicted earnings are more reliable and have greater credibility. They show that the prediction accuracy of earnings in companies with stable earnings growth rate is higher than other companies. The results of this study also suggest that the existence of signs of management and income smoothing in the company's reports has reduced the impact of sustainable growth on earnings forecast.

Magnumi (2009) evaluated the bias and precision of profit forecasts by management in accordance with the provisions of dealing with management forecasts in the Canadian companies. The results show that the forecasts dealt with significantly have less positive bias (optimistic) compared to other projections examined, but about the accuracy of prediction, there were no significant relations.

Fang (2009) examined the role of prediction accuracy of management in estimating earnings forecast errors. In his study, he concluded that there is a significant negative correlation between accuracy of prediction and prediction error of management. These findings are consistent with the hypothesis that the predictions are optimistic that are associated with lower levels of forecasting accuracy. This relationship is stronger to predict for a longer time horizon.

Research Hypotheses

As noted, the purpose of this study is to investigate the impact instability of earnings on earnings forecast with an emphasis on management inefficiency, so the hypotheses of this study are as follows:

First hypothesis: instability of earnings has an impact on predicting earnings per share in the companies with management inefficiency.

The second hypothesis: there is a significant difference between earnings per share forecast error in companies with efficient management compared to companies with inefficient management.

Methodology

This study is an analytical study of experimental type, and regarding the method, it is correlational and applied regarding the goal. In addition, given that historical information will be used to test hypotheses, the study is a quasi-experimental research. Moreover, research in terms of epistemology is empiricist, its reasoning system is inductive and regarding the type, it is a field- library study using historical information in post hoc method (i.e. using past data) and in terms of statistical analysis, the research will use multivariate regression technique.

Statistical population

Statistical population is the companies listed in Tehran Stock Exchange listed during 2009-2013, sampling method is systematic deletion. Thus, the sample includes firms listed in the Tehran Stock Exchange having the following conditions:

Companies that are listed on the exchange after March 20, 2010

The companies whose fiscal year does not end in March 2013 or have changed fiscal year

Financial intermediaries (investment, holding, leasing, banking, and insurance)

Companies that were suspended during the period of investigation or have been out of stock

Companies that have not presented their financial statements during the study

Companies whose data was not enough to obtain some variables

Companies that do not have more than six months of trading interruptions

Method of measuring variables

Independent variable

Instability

$$\sigma_E = \sqrt{\frac{\sum_{t-4}^{t} EAR^2 - \frac{(\sum_{t-4}^{t} EAR)^2}{4}}{4}}$$

Dependent variable

Earnings forecast error

FE_{it}= ABS ($AEPS_{it}$ – $FEPS_{it}$)/ $AEPS_{it}$)

FE: earnings forecast error of company i at date t

AEPSit: actual earnings per share of firm i at date t

FEPSit: earnings per share forecast of firm i at date t

ABS: is the economic absolute sign that in case of being before any relationship, it means that the absolute value of that relationship is concerned.

Table 1

Inefficiency	Without operational efficiency	With operational efficiency	Total number
	Lower than mean	Higher than mean	---

$$operational\ efficiency = (\frac{net\ profit}{total\ asset})$$

Results

Statistical results of checking the status of normal distribution of errors using Jarque Bera test show that:
H0: Data for the variables of the study follow a normal distribution
H1: Data for the variables of the study do follow a normal distribution

Table 2. Jarque Bera test table

Description	Jarque Bera	PROBABILITY
Earnings prediction	16.78	0/00
Instability of interest	75454	0/00
Efficiency of management	341322	0/00
Size of the company	113.8	0/00

The results of table above show that the error obtained was for Jarque Bera test (PROBABILITY) is less than 5%, this means according to this test H0 is rejected and H1 hypothesis is confirmed and this means that the distribution of variables is not normal. To normalize the data mathematical function (asinh) can be used. This function is one of the mathematical functions designed in Excel spreadsheet that can get the root of all the negative, decimal and so on data.

Table 3.Tables and graphs of descriptive statistics of research variables after normalization

Variable / Index	Earnings forecast error	Instability of earnings	Efficiency	Size
Mean	0.144	12.75	0.138	3.31
Median	0.153	12.88	0.107	3.3
Maximum	0.678	17.09	0.631	3.62
Minimum	0	3.91	0.0032	3.04
SD	0.119	1.29	0.116	0.098
Skewness	0.296	-0.620	1.41	0.0436
Elongation	2.76	8.75	5.14	3.67

Jarque Bera test results showed that the distribution of variables does not follow a normal distribution (i.e., they have a high dispersion). Therefore, researchers tried to use the mathematical function asinh existing in Excel spreadsheet to root data at to solve dispersion problem and the data after normalization is given in the table below.

The results of the testing hypotheses

The first hypothesis
[H0]: Earnings instability does not affect earnings forecast error in companies with inefficient management
[H1]: Earnings instability affects earnings forecast error in companies with inefficient management
$H_0: \beta_1 = 0$

$H_1: \beta_1 \neq 0$

Table 4. The coefficients of the regression equation for the first hypothesis

$FE = \alpha+\beta_1 QE + \beta_2 SIZE + \varepsilon$					
Prob.	t-Statistic	Std. Error	Coefficient	Independent variable	Dependent variable
0/003	-2.95	0.354	-1.05	Earnings instability	Earnings forecast error
0/00	5.46	0.434	2.37	Firm size	
0.00	3.64	1.44	5.24	(Constant)	
F(prob)	Durbin–Watson	The adjusted coefficient of determination		The coefficient of determination	
(0/00)19/6	1/96	./103		0/108	

In this hypothesis, like the previous two hypotheses to test due to non-significance of Limer test, to test hypotheses, least squares and combined methods are used. The results of the above table show that the extent of explanation of this hypothesis is 0.108 meaning that is explained the model of the hypothesis is explained as 10.8 percent by the independent variables and the independent variables can predict dependent variable. Moreover, significance level of Fisher test shows that the model of this hypothesis is significant and a linear relationship between is created between variables. Because the value of the Durbin-Watson (1.96) is between 1.5 to 2.5 the independence of errors is accepted. On the other hand, the extent of error (Prob.), t-test for instability of earnings is less than 5 percent, so this variable could have an impact on the dependent variable that is earnings forecast error. As a result, it can be said that the instability of earnings has an impact on earnings forecast error in companies with management inefficiency. Therefore, this hypothesis is confirmed.

The second hypothesis

[H0]: Earnings forecast error is not different in companies with efficient and inefficient management
[H1]: Earnings forecast error is different in companies with efficient and inefficient management

Table 5. Table of t test for second hypothesis

	Frequency	Average	t	Sig. (2-tailed)
Efficient	325	12/96	4.12	0.00
Inefficient	325	12/55		

The above table results show that average error of earnings forecast in companies with efficient management is 12.6 and in companies with inefficient management is 12.55 and we see that error of earnings forecast in companies with efficient management is higher and this difference in variance equality test is significant in error level of less than 5%. Therefore, it can be said that in companies where management is more efficient, earnings forecast error is more. So this hypothesis is confirmed, and it can be said that earnings forecast error difference in companies with efficient and non-efficient management is significant.

Discussion and conclusion

To test the hypothesis that earnings instability has an impact on earnings forecast error in companies with management inefficiencies, multiple regression is used with the help of Eviews software. In this hypothesis due to non-significance of Limer test, to test hypotheses, least squares and combined methods are used. In Table 4-7, it is seen that Durbin-Watson value is 1.96, so we can be sure that the error of variables is not related and are independent of each other. In this study, the extent of explanation of the model (accuracy) is 10.8 percent, and though this amount is low, it is reliable, and it can be said that the model is explained by the independent variables. On the other hand, Fisher test is significant at the level of error of less than 5% that shows the linear relationship between two variables of this hypothesis, in other words, the model of the hypothesis is significant. In this hypothesis, we see that significance level (error rate) of t-test for instability variable is less than 5% profit (0.003), so it can be said

that independent variables could affect the dependent variable. As a result, it should be said that earnings instability has an impact on earnings forecast error in companies with management inefficiency.

To test this hypothesis, which says there is a significant difference in earnings forecast error in companies with efficient and inefficient management the independent t-test is used. The result of this hypothesis suggests that companies with higher efficient management have higher earnings forecast error.

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