

## Evaluating impacts of unexpected earning on precision of profit estimation

Hossein Kazemi<sup>a</sup> and Atefeh Khoshnodi<sup>b\*</sup>

<sup>a</sup>Assist. Prof. & Faculty Member, Department of Accounting, School of Management and Accounting, Ghazvin Branch, Islamic Azad University (IAU), Ghazvin, Iran

<sup>b</sup>M.A. Student, Department of Accounting, School of Management and Accounting, Ghazvin Branch, Islamic Azad University (IAU), Ghazvin, Iran

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### ABSTRACT

Precision in earning report has always been a concern among investors, and when there are some negative adjustments on earning, investor may find it challenging to decide whether they should hold or sell their shares. This paper studies the impact of earning precision and unexpected earning adjustments on firms whose share are listed on Tehran Stock Exchange. The proposed study of this paper considers three hypotheses including whether earning precision has negative relationship with unexpected profit, whether it has a negative with unexpected decline in profit and finally, whether, in prediction on negative news compared with positive news, there is a negative relationship between stronger earnings forecast and precision of earning forecast. The study gathers the necessary data from official news released for some firms whose shares were active over the period 2003-2012. The study uses two regression models and the results of regression analysis have confirmed all hypotheses of this survey.

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## 1. Introduction

One of the primary concerns on stock market is facing various types of positive/ negative surprising news. It is always important to react on quickly as possible when there is a big change on market sentiment. These days, there has been tremendous change on information technology and stock price reacts as soon as actual earning appears (Moke, 1989; Brown et al., 2000). In such circumstances, it is important to investigate the effects of earning precision on actual earnings and stock market pricing (Gong et al., 2009). Shirai (2009) performed an empirical investigation of emotional responses to an unexpected price by observing unexpectedly high or low prices, and how such emotions were associated with purchase intentions. The experiment conducted to investigate these issues disclosed that neutral emotions, surprised and amazed, were strongly elicited in both kinds of experiences. Among the different emotions elicited, discontented, depressed, and frustrated were felt strongly in the negative experience and pleased, excited, enthusiastic, contented, and thrilled were felt strongly in

\*Corresponding author. Tel: +98-912-3443139  
E-mail addresses: s.nasiri2000@yahoo.com (A. Khoshnodi)

the positive experience. Moreover, most emotions were found to be the mediators of the effect of the price experience on purchase intentions.

According to Kim and Ritter (1999) the use of accounting information in conjunction with comparable firm multiples has been widely suggested for valuing initial public offerings (IPOs). They reported that the price–earnings (P/E), market-to-book, and price-to-sales multiples of comparable firms had only modest predictive ability without further adjustments. This was largely because of the wide variation of these ratios for young firms within an industry. They also stated that P/E multiples using forecasted earnings resulted in much more accurate valuations than multiples using trailing earnings.

Firth and Smith (1992) examined 89 New Zealand IPOs over the period 1983-1986 and found some results regarding the accuracy of the forecasts in the prospectuses. They reported that only 19% of the firms in the sample set reported earnings within 20% of their forecast. In another study of 110 Singaporean earnings forecasts in IPO prospectuses over the period 1980-1993, Firth et al. (1995) found 60% of firms reported earnings within 10% of their forecast. Firth and Smith (1992) and Firth et al (1995) also reported that larger size firms issued less accurate forecasts. The size of the firm was measured by the amount of assets owned by the company after the capital raising. They speculated that larger size firm's earnings forecasts could be more challenging to make because of the uncertainty of the new investments they are making.

Gong et al. (2011) examined whether management earnings forecast errors could exhibit serial correlation and how analysts understand the serial correlation property of management forecast errors. They reported that managers' unintentional information processing bias could contribute to this positive serial correlation. Analysts forecasted the inter-temporal persistence of management forecast errors but underestimated the persistence level when reacting to management forecasts. The findings had some implications for market participants who depend on management forecasts to form earnings expectations, and gave some insight on the efficiency of managerial decision making.

In this paper, we present an empirical study on the effect of earning precision on earning quality on Tehran Stock Exchange (TSE). TSE has recently become an interesting area for research because of its performance. Houshmand Neghabi and Morshedian Rafiee (2013), for instance, investigated different influential factors on capital structure of different sectors of industries listed in this market. Farzinfar (2013) studied the relationship between auditor's opinion and stock return in the companies listed at Tehran stock exchange market. Danaei and Moradi Haghighi (2013) measured the relative performance of stock market using TOPSIS.

## **2. The proposed study**

The proposed study of this paper considers the relationship between earning precision and unexpected profit through the following three hypotheses,

1. Earning precision has negative relationship with unexpected profit.
2. Earning precision has negative relationship with unexpected decline in profit.
3. In prediction on negative news compared with positive news, there is a negative relationship between stronger earnings forecast and precision of earning forecast.

The proposed study of this paper considers only the firms whose fiscal calendar is based on formal Iranian calendar. There were regular earning predictions, they were among holding firms, they were listed on Tehran Stock Exchange prior to 2003 and, finally, it was possible to extract the necessary information.

*Parameters*

$FS_1$ : Difference between actual profit of the current year and prior year,

$FS_2$ : Difference between actual and predicted profits of the current year,

$FE_{i,t}$ : Forecasted earning on firm  $i$  in period  $t$ ,

$AE_{i,t}$ : Actual net earning of firm  $i$  at period  $t$ ,

*Precision*: Precision is defined as the relative difference between the actual and forecasted earning,

$$\text{Precision} = \left| \frac{AE_{i,t} - F_{i,t}}{AE_{i,t}} \right|,$$

*Size*: Natural log of stock price at the beginning of a period,

*M/B*: Market value divided by book value of firm,

*AGE*: Natural log of the number of years firm has been listed on stock exchange,

$$\text{Bad} - FS_i = \begin{cases} 1 & \text{if } FS_i \leq 0 \\ 0 & \text{if } FS_i > 0 \end{cases} \quad i = 1, 2 \quad \text{Good} - FS_i = \begin{cases} 1 & \text{if } FS_i \geq 0 \\ 0 & \text{if } FS_i < 0 \end{cases} \quad i = 1, 2$$

The proposed model of this paper uses Eq. (1) to examine the first and the second hypotheses as follows,

$$\text{Precision} = \beta_0 + \sum_{i=1}^2 \beta_i |FS_i| + \sum_{i=3}^4 \beta_i |\text{Bad} - FS_{i-2}| + \sum_{i=5}^6 \beta_i |FS_{i-4}| \text{Bad} - FS_{i-4} + \beta_7 M / B + \beta_8 \text{SIZE} + \beta_9 \text{AGE} + \varepsilon . \tag{1}$$

In addition, the proposed study uses Eq. (1) and Eq. (2) to examine the second hypothesis as follows,

$$\text{Precision} = \beta_0 + \sum_{i=1}^2 \beta_i |FS_i| + \sum_{i=3}^4 \beta_i |\text{Good} - FS_{i-2}| + \sum_{i=5}^6 \beta_i |FS_{i-4}| \text{Good} - FS_{i-4} + \beta_7 M / B + \beta_8 \text{SIZE} + \beta_9 \text{AGE} + \varepsilon . \tag{2}$$

**3. The results**

The proposed model of this paper uses ordinary least square technique to examine three hypotheses of this paper and Table 1 summarizes the results of regression fit for Eq. (1).

**Table 1**

The summary of regression analysis for Eq. (1)

$\beta$	$\beta_0$	$\beta_1$	$\beta_2$	$\beta_3$	$\beta_4$	$\beta_5$	$\beta_6$	$\beta_7$	$\beta_8$	$\beta_9$
Value	2.07	-0.0004	-0.003	-.007	-0.036	0.00008	-0.004	-0.002	0.00009	-0.002
Standard deviation	15.93	-1.22	-6.79	-0.296	-2.09	0.14	-3.41	-0.188	0.018	-0.298
P-Value	0.000	0.224	0.000	0.767	0.036	0.89	0.001	0.851	0.896	0.766

$R^2=0.101$ , Adjusted  $R^2=0.086$ , F-statistics = 6.76(0.000), Durbin-Watson= 1.77

As we can observe from the results of Table 1, F-value is statistically significant and we can conclude that Eq. (1) has good quality fitted results and based on adjusted R-Square, we can conclude that Eq. (1) approximately describe 8.6% of the changes in Precision. In addition, Durbin-Watson ratio is within the acceptable value, which means there are no auto correlations between residuals. Based on the results for the unexpected profits coefficients, which are -0.0004 and -0.003, respectively we can confirm the first hypothesis of this survey. In order to examine the second hypothesis of this survey, we consider the coefficients  $\beta_5$  and  $\beta_6$  are 0.00008 (P-value=0.89) and -0.004 (P-value=0.001), respectively. The results indicate that there is a meaningful and negative relationship between precision of earning and unexpected negative earning. In order to test the third hypothesis of this

survey, in addition to results of Table 1, we provide the regression fit for the third model summarized in Table 2 as follows,

**Table 2**

The summary of regression analysis for Eq. (2)

$\beta$	$\beta_0$	$\beta_1$	$\beta_2$	$\beta_3$	$\beta_4$	$\beta_5$	$\beta_6$	$\beta_7$	$\beta_8$	$\beta_9$
Value	2.01	0.0006	0.0006	.047	0.039	-0.0015	-0.0019	0.0005	-0.00004	-0.0034
Standard deviation	15.19	1.21	-1.518	2.189	2.31	-2.47	-3.59	0.041	-0.087	-0.448
P-Value	0.000	0.225	0.029	0.029	0.021	0.014	0.000	0.967	0.93	0.654

$R^2=0.111$ , Adjusted  $R^2=0.096$ , F-statistics = 7.49(0.000), Durbin-Watson= 1.75

Again, according to the results of F-statistics, which is equal to 7.49, we can conclude that the results of regression analysis are valid. Durbin-Watson value is within an acceptable value, which means there is not any auto-correlation among residuals. Based on the results of Table 2, we can conclude that there is meaningful and negative relationship between the precision of earning and unexpected profit, negative/positive, figures and we can confirm the third hypothesis.

#### 4. Conclusion

In this paper, we have studied the effects of earning precision and unexpected earning adjustments on firms whose share were listed on Tehran Stock Exchange. The proposed study of this paper considered three hypotheses including whether earning precision had negative relationship with unexpected profit, whether it had a negative with unexpected decline in profit and finally, whether, in prediction on negative news compared with positive news, there was a negative relationship between stronger earnings forecast and precision of earning forecast. The study gathered the necessary data from official news released for some firms whose shares were active over the period 2003-2012. The study used two regression models and the results of regression analysis have confirmed all hypotheses of this survey.

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