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The Effect of Management Earning Forecasts Accuracy on Cost of Equity Capital

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ABSTRACT

One of the information which affects investors' decisions is forecasting accounting earning. Managers imperfect estimations can affect earnings forecast process. Imprecision in earning forecast by managers can create information risk and resulted risk leads to demanding a higher rate by investors and ultimately increases cost of firm's common stock capital. Precision of managers earnings forecast can create safe conditions which improve investors trust. Improvement in investors trust and decrease of risk premium reduces expected return and enhances firm value.
The aim of this study is examining relationship between managers earnings forecast errors and cost of common stock capital. To do so a sample consisted of 850 year-firm were selected among listed companies in Tehran stock during time period of 2006-2010. Hypotheses were tested in presence of control variables and using multivariate regression analysis. The findings indicate a positive relationship between earnings forecast errors and cost of Equity capital which is significant statistically.
KEYWORDS: earnings forecast errors, cost of Equity capital,and earnings per share.

INTRODUCTION

Investors and creditors are two main outer organizations (outside) group using financial information. One of the primary responsibilities of management and accounting systems is to provide information to these two groups.

Managers' role is to disclosure information in the format of financial reporting. Financial statement formed the important part of financial reporting. Not only financial reporting includes merely financial statement but also management transfers the information to individuals outside the business unit through some ways except formal financial statement. So some government departments may announce disclosure of some information out of financial statements necessary. Such kind of information may have variant forms which disclosure in relation to different issues. Management earning forecast is recognized as one of this type of information which include management's expectation and evaluation of business unit future performance. Management partial calculation of earnings would result in forecast errors. Forecast accuracy is correlated negatively to management forecast error; the firms with more management forecast errors have less management earnings accuracy, therefore the accuracy of information provided to investors will be lower. (Muramiya, 2005). In addition, corporations with less accuracy information about future revenue have higher cost of equity capital. (Easley and O'Hara, 2004). This study has attempted to provide some evidences about relation of earning forecast accuracy and common cost of equity capital.

LITERATURE AND STUDY HISTORY

Earning forecast in respect to short term divisional earning is more important to forecast stock future market price in some firms. It is also assumed that payable accounts of future divisional earnings are related to accumulated profit (earning) and firm's growth factors. Therefore, it is supposed that most of potential investors regard future earnings expectations as a key (primary) factor to forecast future divisional earnings; as well as considering future expected divisional earnings as key element in determining stock current value or firm's total value.

Bond owners and short term creditors may specially regard firm's future earnings. Higher expectations in firm's earning, creditors' expectation of gaining annual revenue may become higher as well repayment the principle liability in deadline. (Hendriksen and Breda, 1992).Previous studies show that management forecasts may influence stock price, stock market liquidity and analysts forecast (Brockman and Cicone, 2008; Hirst et al, 2008). The results indicate the efficiency and informatics contents of firms' forecasted (predicted) earnings; so the importance of accounting earning forecast would be intensified due to its role and effect in users' decision making process

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especially investors.Experimental evidences demonstrate that investors have relied upon information such as earnings per share forecast in stock pricing. This forecast indicates management expectations of future events that may occur, so as investors decide based on this information about stock's buy, sale and maintaining therefore forecasts' accuracies are important to investors. (Jog and McConomy ,2003). Reported earnings forecasting by the mangers who are most familiar with corporation's future perspectives may significantly influence on market expectations; however even sometimes management earning forecasts is different from the next year reported real earning. This difference stems from management errors in future forecasts, quick changes in business environment and so on. Even if management who are most familiar to corporation's future perspective could not present more accuracy for management earning forecast, expectations' ambiguities based upon management earning forecast are high. Therefore, the accuracy of provided information to the investors depends on management forecast accuracy. Altogether, the findings indicate that firms which distribute much information for outside users have higher earnings forecast accuracy.Since most investors and analysts make decisions based on current information and in one hand the value of management earnings forecast to current earnings and capital bookkeeping value cost more (Ota, 2005); and management earnings forecast are considered important criteria in firms' evaluation and influencing on stock price (Koch,2001); it is anticipated that exchange companies managements observe the maximum accuracy in forecast. In the other hand, the accuracy and authenticity of information may decrease information risk. For example, (Graham et al,2005) show that more than 90% of executive managers believed that earning future information can help to decrease information risk and cost of equity capital. Indeed, incomplete information lead to doubt among investors, as a result cause risk and the created risk may enhance rate demand by investors and finally increase the firm's common stock cost of equity capital.(Francis et al, 2004). There have been many studies which considered the effectiveness of information quality on expected output. Namely, Botosan and plumlee demonstrate corporations with higher information accuracy have less cost of equity capital. They have measured the accuracy by means of analyst forecast dispersion and analyst forecast error median. Francis et al(2005) surveyed relations of disclosures' level, information accuracy and cost of equity capital through commitments' quality as a substitute to information accuracy. They found that corporations with adequate commitment quality (i,e information with high accuracy) have more disclosures. The quality of information may effect on cost of equity capital besides quantity. Muramiya(2005) examined the accuracy of announced earnings forecasts by managements and common stock cost of equity. His goal was to affirm that (acknowledge that) whether management earning forecast has been valued adequately in Japan stock market. The results showed that corporations with lower management earning forecast accuracy in respect to corporations with higher management earning forecast accuracy have higher cost of equity capital. This issue indicates that management earning forecast accuracy has a close relation to cost of equity capital and an essential role in pricing. Therefore, results demonstrate that not only information quantity, but also information quality influence on cost of equity capital like management earning forecast accuracy. Francis et al(2008) studied the relations among arbitrary disclosures, earning quality and cost of equity capital and found that those firms with good earning quality have more extensive disclosures than the firms with weak earning quality. In addition, those kinds of companies with higher voluntary disclosures may result in lower cost of equity capital. So, as the complementary relation between earning quality and disclosure we can conclude that disclosure's effect, significantly decrease or completely annihilate cost of equity capital. Feng et al (2009) showed that the cost of equity capital has a strong relation to management forecasts quality (accuracy and authenticity) but it is not strongly related to forecast quantity after controlling the quality of earning and other factors. Rakow in his study showed that lower forecasts or pessimistic forecasts in the presence of control variables is related to higher cost of equity capital and timely forecasts and forecasts with more information content are related to lower cost of equity capital. Baginski and Rakow (2011) studied the relation between the policies of earning forecast disclosure and cost of equity capital of 1355 firms during four years. The results indicated the negative relation between the quality of management earning forecast policy and common stock of the cost of equity capital. The relation is more for those firms with higher disclosures costs and management quarterly earnings forecast, too. Joung& Shi (2011) study the effects of managements earnings forecast on the cost of equity capital. In particular they assumed that good and bad news of earnings forecasts have different information content, therefore cause asymmetric influences on the cost of equity capital of common stock. They found that bad news of earning forecast would significantly increase common stock cost of equity capital, yet forecast's good news relatively , but not significantly, decrease the cost of equity capital; in addition they showed that the extent of changes in cost of equity capital for forecast good news was significantly less than forecast bad news.

HYPOTHESIS AND RESEARCH METHOD

Management forecasted earning is one of the disclosure information outside financial statements which reflect management forecast about firm's future perspective. Operational circumstances of a company are profuse of uncertainty as the change in commercial environment (like unpredictable change in the market demands and competitors' strategy). It means that management knowledge is not perfect (complete) in respect to company's

commercial environment. Management incomplete knowledge creates inevitably errors in commercial perspectives evaluation. Moreover, uncertainty in operational condition can intensify management conscious partiality in processing information which also leads to some errors in commercial future evaluations. It is said that market expectancies of earnings are closely related to reported earnings forecasts by management, so if the accuracy of one management forecast is low, the investors may demand high rewards for these kinds of information risks related to low earning forecast accuracy. As a result, increasing investors' expected revenue rate would lead to increasing cost of equity capital.(Muramiya, 2005).

Hence, companies must decrease investment risks to enhance investors' wealth and to reduce their own cost of equity capital; information risk is considered as an investment risk component. Management private information and inaccuracy in reporting information may heighten information risk. (Francis et al, 2002). Therefore, identifying how the cost of equity capital behaves through the information of management forecast earning is the aim of this study.

The expected results have been assembled based upon theoretic relations between variables in the following hypothesis:

H_1: There is a significant relation between management earning forecast errors and common stock cost of equity capital.

The present study is regarded as the correlative one which has tested the hypothesis by multivariable regression. The required information for earning forecast error and stock cost of equity capital have been inferred of the financial statement of accepted corporations in Iran stock market by means of information bank software and relevant sites.

Statistical samples and groups

Accepted corporations in Iran Stock Market compose the statistical groups of this study during the years of 2006 to 2010. Statistical sample has been chosen by omission method based on following conditions:

1. The corporations must be accepted before 2006 in order to equalize statistical sample in the regarded year
2. Financial year must be in 29thmarch
3. The studied firms must exclude investment companies, insurance, financial brokers, banks and financial institutes.
4. Their stock must have been traded at least one during the years 2006 to 2010.
5. The required data must be obtainable (accessible).

850 year- firm have been chosen as the statistic sample according to mentioned conditions.

Study variables and the process of hypothesis test

1. Independent variable

Earning forecast error is the independent variable of this study which is computed by the difference of real earning with the expected earnings. Earning forecast erroris calculated by the error percentage modulus of the following equation:

$$MAPE = \frac{1}{n}\sum_{t=1}^{n}\left|\frac{a_t - f_t}{f_t}\right| \times (100\%)$$

f_t is the forecast earning and a_t indicates the real earning.

2. Dependent variable

Dependent variable is the cost of equity capital which is computed by Gordon model (1997)

$$K_{i,t} = \frac{D1}{p_0} + g$$

D1: cash earning pay per share

p_0: the price of each share at the beginning of year

g: firm's growth rate

Growth rate is regarded as the determinant element of stock owners' cost of salary in Gordon model. In this model it is given that the stock profit grows with a constant rate; hence growth rate is usually calculated by stock profit's growth rate, but since Iranian firms do not follow specific and permanent earning division policy, therefore divisional earnings growth rate is not reliable in Gordon Model. In conclusion, sale growth rate in proportion to earnings growth rate and stock profit growth rate is more stable and predictable; since sale is a bit influenced by accounting procedure against earnings. Evidences show that sale historical growth is more efficient (useful) than earnings historical growth in forecasting. Growth rate, therefore, is measured by sale growth rate.(Saghafi& Bolo, 1388/2009). For this purpose we have used sale growth rate in this study which is calculated as the numeral mean of sales during 85 to 89 in the following

$$g: (\frac{Sn}{S1})^{\frac{1}{5}} - 1$$

3. Control variables

Control variables in this study include different symbols of effective risk on the cost of stock owners' salary which according to previous results (Fama and French, 1993, Francis et al, 2004) composed of market β, company's size and the ratio of bookkeeping value to market value.

A. Market β

B. The length of Beta approximation period and temporal distance has special importance in evaluating Beta and revenue, respectively. The results (Fama and French; Francis et al) demonstrate that the optimum period to evaluate β equals 60 months if monthly revenue (output/ yield). Temporal distance to estimate yield is also daily, weekly, monthly and yearly. This study considered 5 years the length of Beta estimation; and the studied firms' Beta have been calculated applying 60 observations to the end of each year which follows

$$\beta = \text{cov}\frac{(r_m, rf)}{\delta^2 r_m}.$$

B: Firm's size

The firm's size equals the log of company's sale value at the end of period.

SIZE i،t=log(s)

C. Bookkeeping value to Market value ratio:

It equals to the ratio(proportion) of bookkeeping value of the company's stock to the market value.

$$\text{BM} = \frac{stockBV}{stockMV}$$

We expect that company's size and the ratio of bookkeeping value to market value have negative and positive influence on cost of equity capital, respectively.

Explaining test of study hypothesis model

Research method is deductive. The type of hypothesis test of this study is that type of sectional correlation. We tested the hypothesis by multi regression model. Level of confidence is about 95% and the required statistical tests have been applied by SPSS software. The following model is determined to test the hypothesis.

1)$coc = \beta_0 + \beta_1 \text{FEt} + + \beta_2 \text{beta} + \beta_3 \text{SIZE}_i + \beta_4 \text{BM}_{i,t} + \varepsilon_{i.t}$

Where

COC: stock cost of equity capital

FE_{it} :ith company's earnings forecast error in the year t

$Beta_{it}$:: ith company's risk in year t

Size_{it}: ith company's size in year t

BM_{it}: ith company's bookkeeping value to market value in year t

ε_{it}ith company's remainder in year t

The summary of regression model is presented in table1 which indicates that 20.7% of changes are reaction variables i.e, stock cost of equity capital may derive from independent variable changes namely stock forecast error that declare by aforementioned format(pattern).

Table1. Summary of regression model

Correlation coefficient	Determination coefficient	Adjusted determination coefficient	Estimation standard error	Watson- Durbin statics
0.455	0.207	0.203	187.262	1889

Since in variance analysis (table 2) it is significant level p-value=0.000 so the pattern is efficient

Table2. ANOVA

	Total squares	Freedom degree	Mean squares	F	Probability value
Regression	7691898	4	1922975	54.837	0.000
Remainder	29421482	839	35067		
Total	37113381	843			

Probability value related to statistical zero assumption based on no relation between independent variable (earnings forecast error) and dependent variable (cost of equity capital) equal 0.011 which is less than 0.05; hence zero assumption will be rejected by 0.95 % confidence and we will observe significant (meaningful) relation between these two variables. The ultimate mode number 1 is:

$$coc = -534 + 0.028\,\mathrm{FE}_{it} + 10.73\,Beta_{it} + 65.68\mathrm{Size}_{it} + 5.88\mathrm{BM}_{it} + \varepsilon_{it}$$

Table 3. Coefficients

	Estimation	Standard deviation	T statistic	Probability value
(Constant)	-534	61.405	-8.707	0.000
$\mathrm{FE}_{i,t}$	0.028	0.011	-2.560	0.011
Beta	10.467	5.802	1.835	0.067
Size	65.755	4.758	13.818	0.000
BM	5.844	3.907	1.496	0.135

Add up one unit to earnings forecast error according to the model may increase the cost of equity capital 0.028, in other word, it can be told that much unreal forecast, more cost of equity capital may produce.

It can be seen from regression equation that size significantly has direct effect on the cost of equity capital($p<0.001$) and there would be more cost of equity capital in larger corporations. But however firm risk effect on cost of equity capital is positively and since this effect is merely significant in 10% level(0.067). Finally direct effect of market value to bookkeeping value is not significant on cost of equity capital. ($p=0.135$)

DISCUSSION AND CONCLUSION

The primary purpose of this study was the effect of earnings forecast accuracy on cost of equity capital with regard to three control factors: market Beta, firm's size and the ratio of bookkeeping value to the market value. Considering the result indicating direct, significant relation between earnings forecast error and common stock cost of equity capital it can be said that the cost of equity capital of common stock in companies with higher accuracy in earning forecast may decrease. That relation stem from the importance of earnings forecast accuracy to investors as earnings forecast counted one of the information that help the investors to make decision in buy, sale and maintain the stock; decrease or increase the ratio of investors who owns bonds and investors expected yield rate , subsequently stock cost of equity capital. Therefore, the investors may request high rewards to accept information risks related to firm in low forecast accuracy; hence their expected yield (revenue) rate and the cost of equity capital enhance. The result of this hypothesis is relevant to Muramiya(2005).

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