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## **INVESTIGATING RELATIONSHIP BETWEEN EARNING FORECAST ERROR AND FINANCIAL PERFORMANCE OF COMPANIES ACTIVE IN TEHRAN STOCK EXCHANGE**

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### **ABSTRACT**

This study aimed at investigating the relationship between profit forecast error and financial performance of the company's active in Tehran Stock Exchange. To do so, two subordinate hypotheses were presented. The hypotheses tested the significant relationships between profit forecast error and financial performance based on the two indexes of Q-Tubin and Q-Chang. The testing took the effect of controlled variables like the size of company, its communications, management, and other related factors as neutral. To test the hypotheses, as many as 115 companies present in Tehran Stock Exchange from 2007 to 2012 were chosen for the purpose of the study. The variables in this study underwent analysis using panel data with random effects. The software Eviews was utilized for data analysis and the statistical operations applied to analyze the data included Spearman and Pearson correlations, and t.test, statistic F. The findings of the study showed the significant relationship between profit forecast error and financial performance.

**Keywords:** Profit Forecast Error, Financial Performance, Q-Tubin Index and Q-Chang Index

### **INTRODUCTION**

Security exchange is the most important economic pillar of very country. Exchanges transfer the investors' capital to firms. Firm's performance has a significant impact on profitability for investors. Therefore, it is very important to pay attention to measures that are related to the assessment of firm's performance. Accounting earning is widely used to assess stock, management performance and debt contracts. So we can use it to assess firm performance. Therefore, accounting earning forecast is very important and investors make decision regarding purchase, sale or holding stock according to it (Berger and Ofek, 1995).

Firms try to predict dividend correctly in order to attract potential investors and maintain current investors because the less the error of earning forecast, the less the fluctuations of stock price, otherwise investors face great fluctuations of stock price (Choi and Myers, 1995).

It is a long time performance assessment problem has challenged researchers and users. One of the new measures in the evaluation of financial performance is Q Tobin ratio.

According to conducted researches by Namazi *et al.*, (2011) this ratio has not any position in companies in Tehran stock exchange. Excessive reliance on traditional ratios and the lack of acquaintance with Q Tobin ratio have caused Q Tobin lack any position in companies in Tehran stock exchange.

This research intends to study the relationship between earning forecast error and financial performance.

### **Problem Statement**

One of the accepted principles in financial management is that the fundamental goal of firm's management is to maximize shareholders wealth via optimal allocation of firm resources (Worthington and West, 2001).

Today investment in stock exchange plays an important role in capital allocation, and exchange in turn has a significant impact on economy development. In the field of accounting and financial science one of the necessary characteristics for relatedness of accounting information is profitability in prediction. Accounting earning is essential as it has a potential role in predicting many financial events including stock return and future earning, and it is considered as the most important accounting variable in financial

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decisions and investment by decision makers. Therefore, accounting earning forecast has a great part in investors' making decision regarding purchase, sale and holding stock (Berger and Ofek, 1995). Investors' decision making regarding purchase, sale or holding stock according to the predicted earnings increases the importance of earning forecast error. Earning forecast error is of crucial role in the performance of secondary market (Choi and Myers, 2009). Financial reports and earning declaration have information vital for market and if estimated earning of every share bears useful information, it can influence users' potential behavior and actual shareholders and cause the increase and decrease of stock price and transactions volume (Gookler, 2003). Therefore, it is valuable to identify and study variables and indices that have a meaningful relationship with earning because we can use these variables for predicting earning so that predicted earnings would have least deviation from actual extent, and it can be useful for investors' decision making (Jahankhani, 2001).

Consequently, it is important for managers to make sure that there is no significant difference between predicted earning and its actual amount. Thus, they are required to minimize the error of earning forecast. Having considered the above mentioned issues, this study aims at exploring the relationship between earning forecast error and financial performance of managers of companies in Tehran stock exchange and whether there is a meaningful relationship between earning forecast error and the performance of managers of companies in Tehran stock exchange. In this research Q Tobin and Q Chang indices for evaluating financial performance of managers were applied because these are among indices that have little been used in Iran, most probably due to the lack of acquaintance of managers with these indices.

### **Significance of Research**

In present era significant changes of management knowledge have made the existence of evaluation system inevitable so that the lack of evaluation system in different dimensions of organization including the evaluation of using resources and facilities, employees, goals and strategies is considered as one of the symptoms of organizational diseases. Every organization requires evaluation system in order to be aware of desirability extent of its activities particularly in dynamic and complex environments. On the other hand, the absence of control and evaluation system in an organization implies the lack of communication with internal and external environment of organization that leads to the senescence and finally the death of organization. There is this possible that the incidence of organizational death phenomenon does not sense by senior managers due to its gradual incidence. Survey show that the lack of feedback system makes necessary reforms for growth, development and improvement of organization activities impossible, finally, this phenomenon leads to organizational death (Adeli, 2005). According to the special position of listed firm's financial performance regarding capital attraction and its impact on economy, present research tries to study the relationship between earning forecast error by managers and financial performance of Tehran stock exchange. In addition, the feedback of financial reports and earning forecast that has information content is important not only in economic term regarding the performance of security exchange, but also in terms of impact that it has on public thoughts regarding economy and exchange.

### **Literature Review**

#### **Internal Research**

Kordestani and Baqeri (2009) studied the relationship between value added and cash with earning forecast error by cross sectional and consolidation methods. The results of cross sectional method show that there is a negative relationship between earning forecast error and the percentage of change in economic value added. In addition, the results show that there is a negative relationship between earning forecast error and operational earning. Malekian *et al.*, (2010) studied the factors that influence the veracity of predicted earning by corporate.

The results show that there is a negative relationship between forecast period, financial lever, and firm life span with forecast veracity. In addition the results confirm the relationship between auditor report and forecast veracity.

Kaussi (2003) studied the relationship between Q Tobin and economic value added of companies in Tehran stock exchange during 1998-2001. The results show that there is a meaningful relationship between Q Tobin ratio and economic value. Kordestani and Baqeri (2009) studied the relationship

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between value added and cash with earning forecast error. Namazi *et al.*, (2009) studied Q Tobin application and its comparison with other measures of performance evaluation in Tehran stock exchange. They found that Q Tobin ratio has not any position in Tehran stock exchange. Excessive reliance on traditional accounting ratios and the lack of acquaintance with Q Tobin ratio have caused that Q Tobin ratio doesn't have any position in companies of Tehran stock exchange.

**Foreign Research**

The results of important researches in the field of Q Tobin are presented in Table (1).

**Table 1: The summary of important foreign researches in the field of Q Tobin**

Researcher name	Year	Title	Results
Gookler and Yourteglow	2003	The study of margin Q Tobin average and its impact on performance	Q Tobin average is more precise for measuring performance
Harni and Tower	2003	The comparison of Q Tobin ratio with the ratio of stock forecast	Q Tobin ratio has a higher predictability
Walf	2003	The study of various indices of performance evaluation	Introduce Q Tobin as an index of performance evaluation
Hyong	2006	The relationship between Q Tobin and owned stock board of directors	Te presence of direct relationship by the
Saibal	2007	Study the relationship between banking and ownership related to firm valuation	Firm measurement by Q Tobin

**Research Purposes**

**Ideal Purpose**

Ideal purpose of this research is to develop economy via spreading correct decisions in capital market.

**Main Purpose**

The main purpose of this research is to study the relationship between earning forecast error and financial performance of companies in Tehran stock exchange.

**Subordinate Purposes**

To determine the relationship between earning forecast error and Q Tobin ratio in Tehran stock exchange and to determine the relationship between earning forecast error and chang and Peroit's Q ratio in companies in Tehran stock exchange.

**Research Hypotheses**

**Main Hypothesis**

There is a meaningful relationship between earning forecast error and financial performance of companies in Tehran stock exchange.

**Subordinate Hypotheses**

There is a meaningful relationship between earning forecast error and Q Tobin ratio.

There is a meaningful relationship between earning forecast error and Chang and Peroit's Q ratio.

**MATERIALS AND METHODS**

**Research Method**

This research is causal in terms of relationship between variables. It is applied in terms of purpose, and is descriptive- surveying in terms of method in which statistical methods and historical information of firm are used for confirming or rejecting hypotheses. Library information and exchange software's are used regarding theoretical concepts. The most important tools of this research are financial statements of companies in Tehran stock exchange including balance sheet and statement of income.

**Statistical Population**

The sample of this research includes companies in Tehran stock exchange. In order to keep the statistical population and financial period homogeneous, we have considered limitations for them:

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- 1-complete information of the studied firms should be available.
- 2- Firms shouldn't change their fiscal year during research period.
- 3- Firms shouldn't be financial mediator firm including banks, insurance firms, investments, etc.
- 4- Each one of the studied firms should have the precedent of membership in exchange for 5 years before the beginning of research period.
- 5- Firm shouldn't stop its operational activity for more that 6months during research period.
- 6- The equity of sample firms shouldn't be negative during research periods.
- 7- The end of fiscal year of the studied firms should be 29 Esfand.

### Research Variables

#### Independent Variable

Earning forecast error that the formula of this model is as follows:

$$EFE_{i,t} = \frac{|AE_{it} - FE_{it}|}{FE_{it}} \quad (1)$$

#### Where:

EFE: earning forecast error,  
 AE: actual earning of every share  
 FE: forecasted earning of every share

#### Dependent variables

Q Tobin ratio that the formula of this model is as follows:

$$Q_s = \frac{VOCSILOY + EMVOPSILOY + BVLTILLOY + BVCLILOT}{BVTAILOY} \quad (2)$$

#### Where:

VOCSILOY is the value of customary share in the end of year.  
 EMVOPSILOY is estimation of market value of prime share in the end of year.  
 BVLTILLOY is the book value of ongoing liabilities in the end of year  
 BVCLILLOY is the book value of current liabilities in the end of year.  
 BVTAILOY is the book value of total assets in the end of year.

Chang and Peroit's Q ratio that the formula of this model is as follows:

$$Q_{CP} = \frac{MV (CS) + BV (PS) + BV (LTD) + BV (CL) + BV (INV) - BV (CA)}{BV (TA)} \quad (3)$$

#### Where:

CL is current liabilities,  
 CA is current Assets.

- 1-There is not any need for calculating market value of liabilities.
- 2- There is not any need for market value of prime share to calculate Q.
- 3- Book value of total assets has been used in the denominator. Therefore, there is not any need for estimating alternative value for firm assets.

It should be noted that in every research beside independent and dependent variables, there are other variables that influence research. For example, firm size, firm communications and firm management are control variables that we can consider them as neutral.

### Method of Analyzing Data

After collecting related information, we used excel wide web software to classify information and calculate variables- finally, the obtained information were analyzed by Eviews 6. In correlation research method the relationship between variables determines based on research purpose. We used F test show the meaningfulness of pattern, and used T statistics to show the meaningfulness of regression coefficient. We used Durbin- Watson test to determine self regression.

### The Estimation of Research Model

#### The Estimation of Research First Hypothesis Model

First subordinate hypothesis states that there is a meaningful relationship between earning forecast error and Q Tobin ratio. In order to test this subordinate hypothesis, we use the model that is presented in the following equation.

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$$Q- \text{Tubin}_{i,t} = \alpha_0 + \beta_1 \text{EFE}_{i,t} + \varphi_{i,t} \tag{4}$$

When we use combined data to estimate, before doing anything we need for conducting Limmer’s F test to detect the kind of method and the manner of estimation. If the result of test is based on consolidation data method, model estimation will conduct via consolidation data method. If the result of test is based on panel data method, Hasman test will be used to determine the fixed/random impacts of pattern.

**The Results Obtained from First Hypothesis Model Estimation**

The results obtained from first subordinate hypothesis test by equation (4)  
 Via random impacts of panel data method are presented in table (2).

**Table 2: The results of equation (4) model estimation**

<b>Q- <math>\text{Tubin}_{i,t} = \alpha_0 + \beta_1 \text{EFE}_{i,t} + \varphi_{i,t}</math></b>				
<b>Variable</b>	<b>Coefficient</b>	<b>Standard deviation</b>	<b>T-statistics</b>	<b>Meaningfulness level</b>
EFE <sub>i,t</sub>	0.913331	0.043512	20.84640	0.0000
$\alpha_0$	1.062218	0.088233	12.03877	0.0000
1.623310	Durbin-Watson statistics	0.387122	Determination coefficient (R2)	
434.5724	F- statistics	0.386231	Adjusted R2	
0.000000	Meaningfulness of F-statistics			

We use F-statistics to study the meaningfulness of the total model. According to the calculated probability of F statistics in table (2), hypothesis H0 is not accepted because (p=0) and error level  $\alpha = 0.05$ . This means that the model is meaningful and at least one of the coefficients of regression model is opposite zero.

According to table (2), the value of estimated determination coefficient for regression model of equation (4) is 0.387122. The value of estimated determination coefficient (R2) shows that about 39% of the behavior of dependent variable is explained by independent variable. This shows the medium relationship between independent and dependent variables.

According to the presented value of Durbin- Watson statistics in table (2) that is 1.622310 we conclude that in the presented model there is not first type self regression. Therefore, model is suitable in terms of meaningfulness. In addition, there is not self regression in the model.

**Table 3: The results of equation (5) model estimation**

<b>Q- <math>\text{chang}_{i,t} = \alpha_0 + \beta_1 \text{EFE}_{i,t} + \varphi_{i,t}</math></b>				
<b>Variable</b>	<b>Coefficient</b>	<b>Standard deviation</b>	<b>T-statistics</b>	<b>Meaningfulness level</b>
EFE <sub>i,t</sub>	-0.041085	0.017075	-2.406112	0.164
$\alpha_0$	0.067185	0.034387	31.03438	0.0000
1.897800	Durbin-Watson statistics	0.084345	Determination coefficient (R2)	
5.789377	F- statistics	0.066903	Adjusted R2	
0.016386	Meaningfulness of F-statistics			

**The Obtained Results from Second Hypothesis Model Estimation**

Second subordinate hypothesis of research states that there is a meaningful relationship between earning forecast error and Peroit and Q Chang ratio. In order to test this subordinate hypothesis, we use the model that is presented in the following equation:

$$Q- \text{chang}_{i,t} = \alpha_0 + \beta_1 \text{EFE}_{i,t} + \varphi_{i,t} \tag{5}$$

When we use combined data to estimate, before doing anything we need for conducting Limmer’s F test to detect the kind of method and the manner of estimation.

If the result of test is based on consolidation data method, model estimation will conduct via consolidation data method. If the result of test is based on panel data method, Hasman test will be used to determine the foxed/random impacts of pattern.

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**The Results Obtained from Second Hypothesis Model Estimation**

The results obtained from second subordinate hypothesis test by equation (5) via random impacts of panel data method are presented in table (3).

We use F-statistics to study the meaningfulness of the total model. According to the calculated probability of F statistics in table (3), hypothesis H0 is not accepted because (p= 0.16386) and error level  $\alpha= 0.05$ . This means that the model is meaningful and at least one of the coefficients of regression model is opposite zero.

According to table (3), the value of estimated determination coefficient for regression model of equation (5) is 0.0842450. The value of estimated determination coefficient (R2) shows that about 8% of the behavior of dependent variable is explained by independent variable. This shows the weak relationship between independent and dependent variables. According to the presented value of Durbin- Watson statistics in table (3) that is 1.897800 we conclude that in the presented model there is not first type self regression. Therefore, model is suitable in terms of meaningfulness. In addition, there is not self regression in the model.

**RESULTS AND DISCUSSION**

**Results**

**The Results of Research First Hypothesis Test**

The obtained results from first subordinate hypothesis test by using equation (4) are presented in table (2). These results show that there is a meaningful relationship between earning forecast error and Q Tobin ratio in Tehran stock exchange at error level of 5 percent. The value of calculated probability of t-statistics for EFEi, t variable is 0.0000 that relationship is meaningful at confidence level of 95 percent. Therefore, H0 related to the meaningfulness test of interested variable coefficient is rejected and the opposite hypothesis of this test based on coefficient meaningfulness is accepted.

**The Results of Research Second Hypothesis Test**

The obtained result from second subordinate hypothesis test by equation (5) is presented in table (3). These results show that there is a meaningful relationship between earning forecast error and Peroit and Q Chang ratio in Tehran stock exchange at error level of 5 percent.

**Table 4: The results of hypotheses test**

Subordinate hypothesis	Table of hypothesis	Result
First	There is a meaningful relationship between earning forecast error and Q Tobin ratio	Is accepted
Second	There is a meaningful relationship between earning forecast error and Peroit Q Chang ratio	Is accepted

The value of calculated probability of t- statistics for EFEi,t variable is 0.0164 that relationship is meaningful at confidence level of 95 percent.

Therefore, H0 related to the meaningfulness test of interested variable coefficient is rejected and the opposite hypothesis of this test based on coefficient meaningfulness is accepted. According to the presented results, research second subordinate hypothesis is accepted. This implies that there is a meaningful relationship between earning forecast error and Peroit and Q Chang ratio.

**Conclusion**

In this research we studied the relationship between earning forecast error and financial performance in Tehran stock exchange. According to the statistical findings there is a meaningful relationship between earning forecast error and financial performance. In this research, first we presented the descriptive statistics of calculated variables to estimate research models. Second, we used inferential statistics to

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study the hypotheses of research. Then we used t-statistics and the value of estimated coefficients for every variable to test research hypotheses so that we determined the meaningfulness of total model using F statistics, and studied the lack of self regression in model variables to test hypotheses. Finally, we tested the meaningfulness of independent variables using t statistics. The result of hypotheses test show that at error level of 5 percent both subordinate hypotheses of research and consequently the main hypothesis of research are accepted. This means that there is meaningful relationship between earning forecast error and financial performance in Tehran stock exchange.

The findings of the present study go in tune with a number of research attempts previously done around the same subject. Kordestani and Baqeri (2009) studied the relationship between economic value added and cash (alternative measure of financial performance) with earning forecast error using two consolidation and cross sectional methods. The results of cross sectional method show the negative relationship between earning forecast error and change percentage in economic value added. In addition, they show a negative relationship between earning forecast error and operational earning. These results show that there is not any relationship between cash value added and earning forecast error. In addition, they show that there is not any relationship between operational cash flow and earnings forecast error. Obtained results from consolidation data method show that there is not any relationship between operational cash flow and earnings forecast error. In addition, the obtained results from consolidation data method show that there is a positive relationship between earning forecast error and Change percent in economic value added. Yet there is a meaningful relationship between earning forecast error and cash value added, but there is not a meaningful relationship between earning forecast error variable and operational earning and operational cash flow.

In this research a different measure of performance assessment was used. However, performance assessment measure of this research is different from our measure, but the results of our research are associated with the results of this research. This means that there is a meaningful relationship between earning forecast error and financial performance.

### **Research Recommendations**

According to the relationship between earning forecast error and financial performance using Q Tobin index, it is suggested that managers use this index to assess financial performance. This index has been used less in Iran. According to the results, this index has the power of financial performance description. In addition, this index is able to assess the power of management. Therefore, it is suggested to use this index together with other reliable indices for evaluating financial performance

### **Recommendation for Future Researches**

-Despite the usefulness of equity return and assets return measures but due to not integrating the cost using Q Tobin and Peroit and Q Chang measured is effective. But according to rapid Chang's in capital market there is this possible that this relationship would Chang. Therefore, we should consider this relationship together with other factors like market conditions.

-Due to the limitation of resources and time we couldn't consider quality variable in present research. Therefore, it is suggested that future researches consider this variable.

- According to this fact that present research includes all Tehran stock exchange as statistical population, it is suggested that future researches select special industries like petro chemistry industries or steel industries as this statistical population.

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