# THE RELATIONSHIP BETWEEN RATION OF EARNINGS PER SHARE TO THE PRICE AND FUTURE PROFITS IN FIRMS

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**Abstract:** Investors, creditors, managers, employees, analysts, governments and other users of financial statements, apply the profit as a basis for taking investment decisions, loans, interest payments policy, evaluating companies, taxes and other decisions related to the companies. Too much emphasis of capital market on profits and related information has caused this figure to become one of the most important factors of stock price changes and the by creation of a abnormal return, depends the growth rate of the company to itself, as this abnormal returns, is corresponded with the related risk. Therefore, in this study we examined the relationship between the ratio of earning to price per future share and income risk. The sample consisted of 144 firms listed in the Tehran Stock Exchange in the period from 2009 to 2013 and a linear regression model was used to test the hypothesis. The findings indicate that there is a negative correlation between earnings-price ratio and future growth. Also, results showed that there is aninverse relationship between the ratio of earning between the ratio of earnings per share of the price and Beta risk.

*Keywords:* Earning per share price, profit growth, risk or beta coefficient.

#### **INTRODUCTION**

The growing development and complexity of social activities and emergence of various commercial units, formation of independent legal entities, requirement to present accurate data, the concept of looking at the information presented in such units and legal entities for making the internal and external decisions in the company, lead to creation of methods and techniques for evaluation of companies in various aspects (Deldar, 2013). Prediction is a key factor in economic decision-making. Since investors and financial analysts use the profit as one of the main criteria for evaluation of companies, they tend to measure future profitability to decide to keep or sell their shares (Wan Ting, 2014). Using profit forecast, the Investors judge the status of the company, because the main difference is caused by these predictonstaht determine the allocation of capital resources to different

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segments and business units (Ahmadpur *et al.*, 2014). Profit is one of the major benefits of financial statement items that attracted the attention of the users of financial statements. Too much emphasis of capital markets on profits and related information has caused this figure to become one of the most important factors of stock price changes and by creation of a abnormal return, depends the company growth to itself, as this abnormal returns isaccompanied by the risk (Rogers, 2009). Some of the important issues of the stock exchange are included of the price of the stock exchanged by the companies listed in the stock exchange and estimation of their intrinsic value (Behnampour and Safari, 2011). Different models and methods are applied for determining the prices fair and consistent with the intrinsic value of stock, among themuse of the ratio of profit per share price has an extensive applicatondespite the theoretical weakness (Behnampour and Safari, 2011).

The ratio of profit per share to future price and growth model of the company is stated by Oj model both in terms of theory and practical (OhlsonandJuettner, 2005). In previous researches conducted in the field of ratio of price to earnings per share, usually the relationship between this variable with the value is considered (For example researches of (Gode and Mohanram, 2005), (Liu et al., 2002) and (Schreiner and Spremann, 2007). But in this study, we examine the revealmuch about the future value of this ratio with the company's future growth. Results of this study can be useful for investors and stakeholders in order to understand the importance of earnings per share for prediction of future growth of company's revenue and earnings risks of these companies. Such research are the main motivation for this study in which instead of using the predictor variables, the financial statements have been used for prediction of future growth. Regarding the importance of this matter and different results of conducting research on the Stock Exchange in different countries, it seems to be necessary to evaluate the content of effectiveness of revenue growth and earnings risk of the company from profit per share in the Tehran Stock Exchange.

#### THEORETICAL

In general, economy of any country is composed of two parts: the real sector, which includes the flow of goods and services from producers to consumers, as well as human resources from consumers to producers. Another one is included of the financial sector, including funds flow, funds and investment on the part of savers, credit and financial institutions and owners of capital to investors and producers of goods and services or government (HabibiSamar *et al.*, 2015). Since the Stock Exchange owns the features of concentration of scattered capitals at its core, it is the most fundamental pillars of capitalization market. By definition, the Stock

Exchange means an official market where buy and sell of companies stocks, government bonds or private accredited institutions is implemented under the terms of certain rules (Davani, 2000). One of the numbers reported in the financial press is the ratio of profits to stock prices. The low ratio of profit per share price represents a good investment but the high ratio represents a view of poor or inappropriate investment prospects. It's also one of the most important tools for valuing stock company (Bhnampur and Safari, 2010). This ratio is obtained asas the ratio of annual earnings per share to the market price per share. Today, companies are try to maximize the company's value to attract investors. Investors in the capital market are trying to direct their resources toward the most profitable direction (Delavar, 2008). One of the frequently numbers reported in the financial press is the ratio of profits to stock prices.

The ratio between earnings and price per share of the company is called the earnings proceratio (or ratio of profit per share to price). If the ratio of profit per share to price of a company is higher than other companies, it indicates that the market is optimistic about the income of campany'sshares in the future (Piri et al., 2013). But higher ratio represents a weakor in appropriate investment perspective. Often the profit is calculated on dates where companies declare the information about profit per share (usually quarterly). Usually there is a third method to calculate the ratio of profit to price based on the average of the past two seasons and estimate the remaining two seasons of the year. You should know to use the real historical data calculations compared to estimations of financial analysts (Stiart, 1991). At a time when the country economy is experiencing high inflation, due to the cost of replacement of goods and equipment, goods and depreciation costs appear to have lower prices compared with the general level of prices (Pilipon, 2010). In a general sense, riskmeans the variation of price includes exchange rates, interest rates, commodity rates and rates of return on the stock. In order to study the risks in an organization it is required to take all these risks as a whole (raei and Saeidi, 2005, 93).

Since the investors and financial analysts use the profit as one of the main criteria for evaluation of companies, they tend to measure future profitability to decide to keep or sell its shares (Wan Ting, 2014). Financial analysts and economists also apply the profit as an alternative to cash flow in the pricing model. The most common alternative is the accounting profit forecast. For this reason, many studies with different methods are and have been applied to predict the profit in the best way (Fama and Finch, 2000). The ratio of profit per share to future price and company growth model both in terms of theory and practical are expressed by OjModel (Olson and Jatnr, 2005).

### **RESEARCH HISTORY**

Presenting theoretical models and hypothesis determines the context of the problem as well as the need for scientific research on the topic and shows the ability and knowledge of the researcher in that field. Raku et al., (2009), considered the number of prediction cases during the sample period and the average accuracy of forecasts during the period as the profit forecast disclosure policy. Dichu Tang (2008), showestaht management of income fluctuationbeliefs have a wide negative relationship with prediction of related earnings. The results of Madras (2008), suggests that by using past profits it is possible topredict future profits with the least possible error. Profits operation has a positive relationship with capability ofprediction of profit components and their continuation. Ghaemi et al (2010) studied the effect of conservatism accounting on profit persistence and the ratio of price to profit. Using conservative approaches by any company caused false matching of revenues and costs. Blu and Davis (2015) in a study examined the relationship between the measure of return restatements of profit per share and price to profit ratio, and difference of ratio of price to profit ratio in two groups of the renewal and non-renewal companies. The results show that there is a significant difference between the ratio of price to profit in the two groups of renewal and non-renewal companies.

#### Assumptions, Parameters and Scope of Research

Two hypotheses are presented here in order to achieve the objectives defined in this study:

#### **First Hypothesis:**

Despite keeping the constant risk, there is a negative relationship between the ratio of profit per share and price and the affected future growth of the profit.

#### The Second Hypothesis:

In the case of constant company growth, profit per share to price is positively related to income risk.

In this research, the multiple regression analysis is used in order to investigate the correlation between "Effect of the ratio of future profit per share of the company on the future growth and revenue risk" and specify the type of relationship and it is meaure. In order to analyze the data to answer the research questions, we designed designed two regression models, define three sets of variables including dependent, independent and control variables together with measurement methods. In order to test the first hypothesis, we use the model mentioned below:

$$GR\_M_{it+k} = \beta_0 + \beta_1 FEP_{it} + \beta_2 FEP_{it} + \beta_3 BM_{it} + \beta_4 SIZE_{it} + \beta_5 LEV_{it} + \beta_6 BETA_{it}$$

+ 
$$\beta_7 SD_R_{it} + \beta_7 LTG_{it} + \beta_7 R$$
 and  $D_{it} + \beta_7 CEXP_{it} + \beta_7 FIN_{it} + \beta_7 PAYOUT_{it} + \varepsilon_{it}$ 

In the above model, *GR\_M* is the dependent variable including sales growth during 2 to 6 future years. The ratio of future profits *FEP* is the independent variable, while the variables of *BM*, *SIZE*, *LEV*, *BETA*, *SD\_R* are the variables controlling the growth of the company. As stated in the first hypothesis, amount of risk must be kept constant. Implementation of this point is done through *R* and *D*, *CEXP*, *FIN*, *PAYOUT*.

To test the second hypothesis we use the following model

$$beta_{it+k} = \beta_0 + \beta_1 FEP_{it} + \beta_2 (FEP_{it})^2 + \beta_3 LTG_{it} + \beta_4 GR\_M_{it+k} + \beta_5 LEV_{it+k} + \varepsilon_{it+k}$$

Prediction of a positive relationship between profit per share to price and riskwere done through the analysis of test and checked, despite kepping the growth study in the second hypothesis. To test this hypothesis, two types of risk are examined: (1) income risk, measured by the sequence of losses and income volatility of the company sales growth and (2) conventional risk measures: beta, leverage and a standard deviation of stock. Filed territory of this study is included of investigation of the relationship between ratio of profit per share to price and growth of future profit of firms. Temporal scope: 5-year study period is conducted from 2009 to 2013. Spatial scope is also composed of compnieslisted on the Tehran Stock Exchange.

#### **Research Method**

This study was a type of quasi-experimental research in the field of proving accounting research and in the terms of the purpose, it is a type of applied research. The procedure of present study is an inductive and post-event (using data from the past) and also uses cross-sectional statistical methods.

The real-time information of companiswas examined in an integrated form and by means of multiple regression model. The mentioned information were extracted by RaharavrdNovin software and adjusted with preserving financial statements. The Excel extensive page was used for preparation of data and SPSS version 21 was used for data analysis.

#### **Population and Sample**

The study population consisted of all companies listed on the Tehran Stock Exchange during 2009 to 2013. The sampling method used in this study is the method of exclusion. The companies were selected who have the following characteristics:

- 1. Date of acceptance in the exchange was before the year 2009 to the end of 2013, and also are existed in stock companies list.
- 2. Ehe information they require is available and continually traded their stock shares.
- 3. To enhance the comparability, the end of their fiscal year is March, and it has not been changed during the period of the fiscal year.
- 4. Does not be a member of financial companies, banks, and mediation companies.

According to the conditions stated above, 144 companies in the period 2009 to 2013were selected as the sample.

#### **Descriptive Statistics**

Information on descriptive statistics of the dependent variables or major, independent and control variables were collected from data-in 5-year of companies (2009-2013). The results show descriptive parameters for each variable, individually. These parameters generally include data on central indexes, such as minimum, maximum, mean, median, as well as information on indicators of dispersion, such as standard deviation.

The mean is the most critical central index that indicates the balance and center of gravity point of distribution as an appropriate indicator showing the data center. The mean of net sales of sample companies is approximately 2161420 million Rials. This figure shows that sample companies had the average sales of 2161420 million Rials. Mean of assets was approximately 3158462, median of 862215, minimum and maximum amount of 21705 114000000 and the standard deviation of about 8, 645, 921.

This indicates that the sample companies own relatively high value assets at their disposal. The average ratio of profit per share to the price was approximately 0. 119 and medianof about 0. 175. Standard deviation values were 0. 295, with the minimum and maximum values of 0. 032 and 0. 889, respectively. This confirms the fact that on average, companies in return for a 1 rial value of the company, gained a profit equivalent to 0. 12 rial. Also, the mean (SD) of financial leverage index was approximately 62% (18%). This shows that about 63% of theassets of the studied companies have been formed by debt.

#### **Inferential Statistics**

Normality of data distribution was tested by Kolmogorov-Smirnov test. The results indicate that the Z-statistic significant level for all variables is more than 5% and show that all the variables are normally distributed. To assess the independence of errors, the Durbin-Watson test was also used. In general, the Durbin-Watson tests the serial correlation between the residuals (errors) of regression.

The value of this statistic varies between zero and 4. According to the results, value of the Durbin-Watson statistic lays in the range of 1. 5 to 2. 5. It shows that the hypothesis of lack of correlation between errors can be accepted as one of the main assumptions of the regression model. The tolerance and variance inflationindex factors were used to search for collinearity between independent variables. The lowerdispersion, leads to low data of variables and causes problems in regression.

As is clear from the results, tolerance and index of variance inflation factor of all variables are closed to one and show that there is no correlation problem. Testing the results of research hypotheses by using the above-mentioned models are presented in Tables 3 and 4. For selection of data analysis model and use of panel data (compilation) or sign (pooled) it is necessary to take F-test Limer (Chow) and Hausman tests before fitting the model in order to select between the panel data (compilation) or sign (pooled) data patterns.

 $H_0$  hypothesis of mentuoned test was related to the use of panel data and the opposite hypothesis of ( $H_1$ ) was based on combining (consolidated or panel) method. Results of these tests are presented in Table 1. Obviously, regarding the obtained level of significance and the accepted level of significance (5%), results show the rejection of  $H_0$  hypothesis, which means that the pattern of panel data is rejected and it is required to useHausman test to select the model of compilation data with the fixed or random effects.

 $H_0$  hypothesis of the above test is related to the use of fixed effects and opposite hypothesis ( $H_1$ ) based on the use of temporary effects. Hausman test results confirm the  $H_0$  hypothesis and thus the model of compilation data is selected with fixed effects. Therefore, the combination data pattern (combination or panel data) with the fixed effects was used to investigate the research patterns.

F-Limmer test results			Hausman test results		
Level of significance	Statistics		Level of significance	Statistics	
0.004	9. 119	Random period	0. 042	8.109	F-period
0.031	13.504	Random period	0. 012	11. 853	F-period

Table 1Results of F-Limmer and Hausman tests

*Ref:* Research findings

One point that must be considered in the case of Panel (panel data) is the heteroscedastic test. For this purpose, the White test was used. Results of White test as shown in Table 2, indicate that there is no problem of heteroscedasticity in the model and thus the ordinary least squares method is used for fitting the model.

2150	•	Sadegh Rashidzadeh	Yazdi, Dr. I	Mohammadreza Shoorvarzy	

Results of White test at the 95% level of significace				
Test results	Level of significance	F-statistic	Model	
The null hypothesis of homogeneity of variance cannot be rejected. So there is notheteroscedastic and theordinar least squares method is used.	0. 68 y	0. 55	1 <sup>st</sup> model of research	
There is not heteroscedastic and the ordinary least square method is used.	es 0. 42	0. 78	2 <sup>nd</sup> model of research	

Table 2
Results of White test at the 95% level of significa

*Ref:* Research findings

If the first hypothesis was proposed that "Despite keeping the risk constant, the there is a negative relationship between ratio of profit per share at the price and future growth of profit'. H<sub>0</sub> and H<sub>1</sub> hypothesis of this test are as follows:

As shown in Table 3, the coefficient of ratio of next year profits to next year price was -0. 242 and the t-statistic was -7. 368, which is signifcant at the level of (0.000). Since it is less than forecasting error (1%), significant of independent variables at a confidence level of 99% is confirmed. This shows that there is a negative relationship between profit-price ratio and future growth. So, the first hypothesis (H<sub>0</sub> hypothesis) regarding the inverse relationship between ratio of profit per share to price and growth of profit per share in future were verified and is negative.

Today, companies try to maximize the company's value to attract investors. Increase of revenue and profit growth is one of the solutions that have been conceived for this purpose. Results of the first hypothesis indicate that companies are trying that by increasing their annual profits, encourage investors to invest in the common stock, in the Tehran Stock Exchange. On the other hands, the other investors in the capital market are trying to direct their resources toward the most profitable side. Results of this study are also compatible with Van- Ting Wu (2014).

Also, results of the control variables of this study indicate that there is a significant positive relationship between future growth in profit per share, volatility of stock returns and dividend policy of the company. In fact, companies with a higher proportion of profit per share as well as higher dividend profit, also have more growth. Also, there is ansignificant inverse relationship between future growth and Tobin's Q ratio at confidence level of 99%.

The second hypothesis of research suggests that in the same rate of company growth, the ratio of profit per share to price is positively related to income risk.  $H_0$ and  $H_1$  hypothesis of this test are as follows:

Table 3   Results of statistical analysis tests of the first research hypothesis					
$CR \_ M_{ii+k} = \beta_0 + \beta_1 FEP_{ii} + \beta_2 EPS_{ii} + \beta_3 BM_{ii} + \beta_4 SIZE_{ii} + \beta_5 LEV_{ii} + \beta_6 BETA_{ii}$					
+ $\beta_7 SD R_{it}$ + $\beta_8 LTG_{it}$ + $\beta_9 R \& D_{it}$ + $\beta_{10} CEXP_{it}$ + $\beta_{11} FIN_{it}$ + $\beta_{12} PAYOUT_{it}$ + $\varepsilon_{it}$					
Variance inflation factor	Level of significance	t-statistic	Coefficient	Variable	
-	0.000	2.254	0.123	Constant value	
3.118	0.000	-7.368	0242	$FEP_{it}$	
2.918	0.012	6.041	0.147	$EPS_{it}$	
1.296	0.000	-3.229	-0.071	$BM_{_{it}}$	
1.128	0.415	-0.919	-0.012	$SIZE_{it}$	
1.325	0.362	1.015	0.027	$LEV_{it}$	
1.112	0.871	0.342	0.008	$BETA_{it}$	
1.041	0.041	3.021	0.063	$SD_R_{it}$	
1.485	0.119	1.862	0.036	$LTG_{it}$	
1.815	0.893	0.309	0.004	$R\&D_{it}$	
1.127	0.262	1.271	0.028	$CEXP_{it}$	
1.071	0.364	1.040	0.018	$FIN_{it}$	
2.021	0.000	5.405	0.096	$PAYOUT_{it}$	
37.015	F-statistic	2	020	Adjusted coefficient of determination	
0.000	Level of signi ficance	2.080		Durbin-Watson statistic	

The Relationship between Ration of Earnings per Share to the Price and Future... • 2151

In Table 4, the coefficient of price-earnings ratio of next year, which is equivalent to 0.116 and the t-statistic of 4.298 are significant at the level of (0.000). Since it is less than prediction error (1%), the significance of independent variable at the confidence level of 99% is approved. It shows that there is an inverse relationship between ratio of profit per share to proce and risk of Beta. Therefore, the second hypothesis of this study is also confirmed.

## CONCLUSION

Profit is one of the major items of financial statement that attracted the attention of financial statements users. Investors, creditors, managers, employees, analysts, governments and other users of financial statements, use the profit as a basis for taking investment decisions, loans, interest payments policy, evaluating companies, taxes and other decisions related to the cpmoanies. The extra emphasize of market on the profit and its related data turns this factor as one of the most important

Results of statistical analysis tests of the second research hypothesis					
$beta_{it+k} = \beta_0 + \beta_1 FEP_{it} + \beta_2 (FEP_{it})^2 + \beta_3 LTG_i + \beta_4 GR \_M_{it+k} + \beta_5 LEV_{it} + \varepsilon_{it+k}$					
Variance inflation factor	Level of significance	t-statistic	Coefficie nt	Variable	
-	0.000	-3.083	-0.215	Constant value	
1.524	0.000	4.298	0.116	$FEP_{it}$	
1.315	0.000	12.118	0.219	$(FEP_{it})^2$	
1.826	0.217	1.118	0.021	$LTG_{it}$	
1.483	0.047	6.255	0.086	$GR_M_{it+2}$	
1.023	0.142	1.083	0.015	$GR_M_{it+3}$	
1.114	0.087	2.015	0.036	$GR_M_{it+4}$	
1.237	0.041	5.083	0.092	$GR_M_{it+5}$	
1.427	0.027	6.934	0.113	$GR_M_{it+6}$	
1.142	0.834	0.773	.004	$LEV_{ii}$	
42.224	F-statistic	0.2	34	Adjusted coefficient of determination	
0.000	Level of significance	1.915		Durbin-Watson statistic	

Table 4

2152 • Sadegh Rashidzadeh Yazdi, Dr. Mohammadreza Shoorvarzy

factors of change of stock price and by creation of an abnormal return, depends the company growth to itself, as this abnormal return is accompanied by a corresponded risk (Rogers, 2009). Hence, it seems that by increase of investment in the Tehran Stock Exchangerisk (beta) also decreases. The results of this study are compatible with Van-Ting Wu (2014). Also, results of the control variables of this study indicate that there is a positive and significant relationship at the 95% level of significance betweenprofit growth of next year in years of 2009, 2012 and 2013and risk (beta). Also there is a positive and significant relationship at the 90% level of significance between profit growth of the next yearand risk (beta). In fact, the results of this study demonstrated that companies with higher growth (during the years 2009-2012), tolerated less risk.

According to the results of this study, no significant relationship wasobservedbetween the proportion of long-term growth and leverage with beta risk. In this study, using the ststistical methods, we selected some appropriate samples of Stock Exchange companies and extracted the required variables, then investigatet the main goal of this study by multiple linar regression and statistical analysis software. The first hypothesis was proposed as "Despite the constant risk, there is a negative relationship between profit per share and its affected future growth". The results of statistical tests indicate that there is a negative relationship between profit per share to price ratio and affected future growth is confirmed. The results of the study are compatible withVan- Ting Wu (2014). The results of the control variables of this study indicate that there is a significant positive relationship between future growth and earnings per share, volatility of stock returns and dividend policy of the company. In fact, companies with a higher proportion of earnings per share as well as higher dividend, also have more growth. Also there is a significant relationship betweenfuture growth and inverse Tobin's Q ratio at a confidence level of 99%.

The second hypothesis and research suggests that in the fixed company growth, profit per share ratio to price is positively related to income risk. The results of the statistical analysis of the second hypothesis indicate that there is an inverse relationship between profit per share ratio and priceand risk of Beta. Tus, the third hypothesis of this study is confirmed. The results of the study are compatible with Van- Ting Wu (2014). Also the results of the control variables of this study indicate that there is a positive and significant relationship at the 95% level of significance between the profit growth of the next year in years of 2009, 2012 and 2013 and risk (beta). Also, there is a positive and significant relationship at the 90% level of significance between the profit growth of next year and risk (beta). In fact, the results of this study demonstrated that companies with higher growth (during the years 2009 to 2013), tolerated less risk. According to the results of this study, no significant relationship was observed between the proportion of long-term growth and leverage ratio with beta risk.

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