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## **EXAMINING THE EFFECT OF FINANCIAL AND NON-FINANCIAL FACTORS ON RETURN ON INVESTMENT IN LISTED COMPANIES OF TEHRAN STOCK EXCHANGE**

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### **ABSTRACT**

This present study aimed to evaluate the impact of financial and non-financial factors on Return on Investment in listed companies on Tehran Stock Exchange. The method used in this study is a secondary analysis. The study employed the data published in Tehran Stock Exchange for the time period from 2009 to 2014 (6 years). 71 companies were selected and divided into two groups, 32 companies from the consumer products groups and 39 companies from non-consumer products groups. Using the Internet, the required data were collected from the databases of Tehran Stock Exchange. The time-series linear regression analysis as a combined regression was used as the data analysis method to investigate and test the research hypotheses in the present study. The results revealed that in the estimated model, the impact of relative variations of return on assets (ROA) on the stock return of companies was significant at the level of 0.05. Meanwhile, the results showed that the relative variations of return on equity (ROE) on the companies' stock return were also significant. In the estimated model, the impact of relative variations of net margin (RNM) on the stock return of companies was significant at the level of 0.01. Finally, the effect of changes in the type of the company on the stock return of companies was significant at the level of 0.01 in the estimated model.

**Keywords:** *Return on Investment, Financial and Non-Financial Factors, Relative Variations of Net Margin, Equity, Relative Variations of Return on Assets*

### **INTRODUCTION**

Profits are considered as vital information in economic decisions. Efforts to conduct studies and research on profits are one of the most voluminous in the history of accounting. Profit has been almost always used as a guideline for dividend payments, a measurement instrument for management effectiveness, and a forecasting and evaluation tool for decisions adopted by investors, managers and financial analysts (Saghafi, 1993). Accordingly, many researchers have tried to identify the factors affecting the company's profitability. Investment as a financial decision has two financial and contextual components which offer the investment as there are exchanges between these various combinations.

The first studies conducted in the field of financial affairs analyzed the relationship between stock prices and ratios of financial statements particularly through the calculation of return rate indicating the performance of companies and revealed that the presented results in accounting documents are surrounded by the stock prices (Rebowa *et al.*, 2014, quoted by Ball and Brown, 1968; Beaver, 1968). The examinations of the effect of the field of activity on financial performance were conducted via the specific financial ratios from a company or dummy variables which indicated the membership of a company in a special sector (Lee and Jin, 2006) or through using variables such as geographical area of the field of activity by panel data analysis (Cavalli and Moroz, 2002).

The review of the related literature indicates that little research has been done on the subject of the present study. Rebowa *et al.*, (2014) in a study estimated the impact of the financial and non-financial factors on the Return on Investment in the stock market of Romania. According to the researchers, investors consider the main factors that can affect the performance of the stock in the stock selection including the high return rate in acceptable risk situations. The purpose of the study was to investigate the impact of

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financial factors and contextual ones (non-financial factors) on the stock return. The population of the study included companies that offered their shares on the stock exchange in Bucharest in 2009-2011 and were involved in various activities. The results entailed an analysis of the covariance model in which the fields of activity and the financial factors have a significant impact on the return on dividends. Akah and Chee (2007) in their study concluded that the type of industry and the internal factors of the company such as the ability of management and human resources had an effect on the company's profitability; however, the impact of domestic factors was more significant.

Olwerita and Friedman (2007) investigated the impact of three factors including the type of industry, internal factors (inventions and patents, brand names, and history of companies), and market conditions (boom, recession), on the profitability of the companies. Their results showed that innovations and patents have a substantial impact on profitability, market conditions also influence profitability. However, the industry type will have little impact.

Basel and Gully (1987) believed that the growth of an industry affects the performance of individual companies of the industry. Also, Scherer and Ross (1990) believed that industry associations affect the profitability of companies because they determine the release-to-market rates and product pricing policies.

Shomalinsi (1985), and McGahan and Porter (1997); by selecting companies with more than \$ 500 million in assets, and companies with more than \$10 million in sales, respectively; concluded in their investigations that industry plays an important role in the profitability of companies.

However; Hansen and Vernfilit (1989), Romelit (1991), and Maori and Michaels (1998) concluded that the impact of the company's resources and variables have more significant roles in its profitability than the industry factor.

Kluser *et al.*, (2002) in their study about Spanish companies concluded that the impact of the company's resources for every company size (small, medium and large), is more than the effect of the type of industry.

Romelit (1991) tried to extend the data used in the study by Shomalinsi (1985) and conducted a more accurate research. But, more importantly, he investigated the information during a 4-year period to test the effectiveness of the company's resources and to divide the effect of the type of industry into permanent and transitory components. His research results showed that the effectiveness of the company's resources is much more important than the effect of the industry type which has no noticeable effect on profitability.

Using the coefficient of Tobin  $q$ , Vernfilit and Montomiri (1988) found evidence showing that the impact of factors such as the type of industry and the resources and variables of the company on profitability is significant.

Cobain and Gorowski (1987) concluded that the variations in profits in about half of the companies are not in line with the variations in the average profit of industry. Therefore, the industry type has an impact on the profitability of the company.

Roqubert *et al.*, (1996) looked at manufacturing companies. Their results showed a three-fold effect of the impact of the company's resources than the type of industry.

McGahan and Porter (1997) examined the Romelit's model (1991) for the 14 financial periods (1981-1994). The results of their study showed that similar to the study by Roqubert *et al.*, (1996), the impact of the internal resources and variables of the company are three times more than the effect of the industry type. They concluded that the increased diversity of industries in the economy has increased the importance of the impact of the industry type.

Maori and Michaels (1998) studied the influence of industry type and domestic resources on profitability for 5 financial periods from the years 1988 to 1992. Based on the results of the mentioned research, the company's internal resources affect the profitability; but the type of industry does not have an impact on its profitability.

Chang and Singh (2000) selected the share of sales in the market as profitability and analyzed the variance of the effect of independent variables. Their research data were for the years 1981-1989 and the

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sample companies were classified into three groups of large, medium, and small based on the sale. The impact of the company's internal resources for large companies and the effect of the industry type were 47.6% and 19.3%, respectively. In the medium-sized companies, the effect of the company resources and the industry type were respectively 8.8% and 40.6%. The influence of internal resources and variables of the company and the industry type in the small companies were 8.9% and 59.2%.

Kluver *et al.*, (2002) in their study of small, medium-sized and large manufacturing companies in Spain (classification based on sales rate), for the 5-year financial period between the years 1994-1998 concluded that the impact of the company's resources on profitability was 46% for large enterprises, 32% for medium-sized companies and 44% for small ones. Furthermore, the effect of the industry type on the profitability of large companies was 8%; and 11% and less than 2% for medium and small companies, respectively. Irox and Nidson (2003), in their study, investigated the data from the years 1994-1998 in small, medium and large Danish companies (categorized by the number of employees). Their results showed that the effectiveness of the company's resources is more than the effect of the industry type, and it has no impact on profitability.

Kalvqhiro *et al.*, (2004) examined small, medium and large Greek companies (categorized by the number of employees) for three financial periods between the years 1994 to 1996. Their results showed that both the industry type and the internal resources of the company have an impact on the profitability of the company, but the effect of the internal resources factor is higher. In addition, for small and medium-sized companies, the influence of the industry type was less than large companies.

Ghaemi (1998) explored the factors affecting stock returns of companies listed on Tehran Stock Exchange. The systemic risks, firm size, the ratio of the book value to the market value, the ratio of E/P and the volume of stock exchanges were the five factors which were checked and tested in terms of their impact on return on equity. The period considered in the study was the five-year period of the years 1993-1997. The results indicated that the index of the systematic risk (beta) is finally effective on the shareholders' expected returns. It was concluded that the company size, the ratio of the book value to the market value, trading turnover, and the ratio of profits to the expenses do not have an effect on shareholders' expected returns.

Bagherzadeh (2003) examined the factors affecting the expected returns of the companies listed on Tehran Stock Exchange in the period from 1996 to 2000. His study showed that there is a significant linear relationship between the market risks (measured by beta), firm size, volume of exchanges, and the ratio of the book value to the market value and returns. In addition, the results found no significant relationship between the cost-benefit ratio and the average return.

The purpose of the present study is to investigate the factors affecting the Return on Investment in the listed companies on Tehran Stock Exchange in terms of two general factors: 1) financial and 2) non-financial (in this research, the field of company's activity). Therefore, the research is as follows:

What are the effects of financial and non-financial factors on Return on Investment in listed companies on Tehran Stock Exchange?

In order to address the research questions, four hypotheses have been proposed as follows:

Hypothesis 1: The relative variations of return on assets (ROA) have an effect on the Return on Investment of companies.

Hypothesis 2: The relative changes of return on equity (ROE) have an effect on the stock return of companies.

Hypothesis 3: The relative changes of return on net margin (RNM) have an effect on the stock return of companies.

Hypothesis 4: The changes in company type have an effect on the stock return of companies.

## **MATERIALS AND METHODS**

### **Methodology & Approach**

The method used in this study is a secondary analysis. In this method, data and statistics published by Tehran Stock Exchange are used based on the type of research. This study considers the published data by

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Tehran Stock Exchange for the time period i.e. a 6-year period from 2009 to 2014. 71 companies were selected for analysis and they were divided into consumer products companies and non-consumer products ones. 32 companies from the consumer products companies and 39 non-consumer products companies were selected. Therefore, the dummy variable of the field of activity was determined as a dual variable (0 and 1), 0 for non-consumer and 1 for consumer companies. The data collection method was through the financial data collection of companies listed on the Tehran Stock Exchange. Moreover, the review of the literature and theses as well as abstracts and tests was another method of data collection.

The variables of the present study are shown with the following symbols:

Return on assets, return on equity, and relative variations of net margin are respectively marked with ROA, ROE, and RON. As well, the symbols TYPE and SR represent the type of company and company's stock return, respectively. According to the subject under study, the financial variables are return on assets (ROA), return on equity (ROE) and relative variations in net margin (RNM); and the non-financial variable are considered as a dummy variable.

The required data were collected in the present study via the Internet and from the databases of Tehran Stock Exchange. After identifying the indices, the validity of the indicators to measure the variables were ensured by the researcher through reference to the comments of experts and professors.

The time-series linear regression analysis as a combined regression type was used as the data analysis method in the present study in order to check and test the hypotheses of the research. The Durbin-Watson test and the F-Chow tests were administered to do the initial examinations and to determine the pool or panel regression. If the data are of the panel type, the Hausman test will be used to specify the estimate of the model with random and fixed effects.

**Descriptive Statistics of the Research Variables**

The descriptive statistics of the research variables are shown in Table 1; as it is illustrated, these statistics include frequencies and percentages.

**Table 1: The descriptive statistics of the research variables**

	<b>ROA</b>	<b>ROE</b>	<b>RON</b>	<b>SR</b>
Mean	0.47	0.09	0.78	0.20
Median	0.52	0.18	0.68	0.03
Maximum	3.24	1.97	3.24	11.99
Minimum	-3.22	-2.39	0.01	-1.69
Std. Dev.	0.86	0.69	0.60	0.89
Skewedness	-0.40	-0.61	1.35	9.24
Kurtosis	4.95	3.99	5.63	107.27
Observations	426	426	426	426
Cross sections	71	71	71	71

To identify an appropriate model to estimate the regression model, it should be examined whether there is heterogeneity or individual differences? If there is a sign of heterogeneity, the pool data methods are used, otherwise the panel method is employed.

The results of testing the hypotheses were discussed using regression models. The Chow test is also used to determine whether the data should be tested in a panel or combined method. If the results of the Chow test represent the use of data in a panel way; in the next step, the Hausman test is utilized to determine the model in order to specify whether the model with the fixed effects or the random-effects model should be used.

The panel method is used to estimate the model if the Chow test is significant (at the Alpha level of 0.05); and if the model is not significant, the combined method is used to estimate the regression. In the research model, due to the significant amount of  $F=10.12$ ; and  $\chi^2=50.025$  is calculated at the probability level of 0.05 and the null hypothesis is rejected based on the equality of the intercept; therefore, the model must be estimated in the form of panel regression.

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**Table 2: The results of the F-Chow test**

Effects Test	Statistic	d.f.	Prob.
Period F	0.395596	(5,416)	0.8519
Period Chi-square	2.020725	5	0.8463

In the next step, the Hausman test is used to determine the type of model in order to specify to use whether the model with the fixed effects or the random-effects model. As it is observed, the Chi-Square statistic is equal to 0.87 which is not significant at the level of 0.05 and a degree of freedom of 4. Thus, the null hypothesis is not rejected based on the relationship between the random effects and explanatory variables; i.e. the null hypothesis is accepted and the suitability of the model with random effects is approved. Consequently, models with random effects may be estimated.

**Table 2: The results of the Hausman test**

Test Summary	Chi-Sq. Statistic	d.f.	Prob.
Period random	0.87	4	0.866

In the random effects model, the relative variations of return on assets (ROA) and the relative changes of return on equity (ROE) are effective on the companies' stock return at the probability level of 0. Moreover, the relative variations of net margin (RNM) and the company type are significant at 0.01 probability level. The value of  $R^2$  of the model is equal to 0.35 in which almost 35% of the variance in companies' return on stock (RS) is explained with the help of independent variables of the model.

The Durbin-Watson statistic is a test which is used to check for autocorrelation between the residuals in the regression analysis. The value of this statistic is almost always between 0 and 4 and its acceptable thresholds are as follows; the value of 2 shows lack of autocorrelation which is the desirable situation in the main hypotheses associated with the residuals in the regression analysis. It shows the value less than 2 for the consecutive positive correlation and the amount more than 2 for the consecutive negative correlation between the residuals.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.459208	0.084101	5.460202	0.0000
ROA	0.242702	0.071517	1.997090	0.0408
ROE	0.356781	0.089950	2.231250	0.0282
RNM	0.305672	0.071549	4.272227	0.0000
TYPE	0.322216	0.086528	3.025610	0.0096
Effects Specification				
Period fixed (dummy variables)				
R-squared	0.350212	Mean dependent var		0.203521
Adjusted R-squared	0.329664	S.D. dependent var		0.892230
S.E. of regression	0.878897	Akaike info criterion		2.602896
Sum squared resid	321.3431	Schwarz criterion		2.698070
Log likelihood	-544.4168	Hannan-Quinn criter.		2.640491
F-statistic	2.443619	Durbin-Watson stat		2.310179
Prob(F-statistic)	0.010200			

*Period random effects test equation:*

*Dependent Variable: SR*

*Method: Panel Least Squares*

*Sample: 1388 1393*

*Included observations: 6*

*Cross-sections included: 71*

*Total pool (balanced) observations: 426*

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It should be noted that if the value of the test statistic is less than 1 or more than 3, it is an alarm for their positive or negative correlation between the residuals. The value of Durbin-Watson statistic in the present model is 2.31, which indicates the absence of autocorrelation in the variables.

#### **Testing the Research Hypotheses**

The first hypothesis: The relative variations of return on assets (ROA) have an impact on the stock return of companies.

In the estimated model, the impact of the relative changes of return on assets (ROA) on the stock return of companies is significant at the level 0.05. Since the t-value is equal to 1.997 and indicates the significant effect of the relative variations of return on assets (ROA) on the stock return of companies, the first hypothesis of this study is approved.

The second hypothesis: The relative changes of return on equity (ROE) have an effect on the stock return of companies.

The impact of the relative changes of return on equity (ROE) on the stock return of companies is significant at the level 0.05 in the estimated model. Since the t-value is equal to 2.23 and indicates the significant effect of the relative variations of return on equity (ROA) on the stock return of companies, the second hypothesis of this study is also confirmed.

The third hypothesis: The relative changes of return on net margin (RNM) have an effect on the stock return of companies.

In the estimated model, the impact of the relative changes of return on net margin (RNM) on the stock return of companies is significant at the level 0.01. Since the t-value is equal to 3.27 and indicates the significant effect of the relative variations of return on net margin (ROA) on the stock return of companies, the third hypothesis of this study is also approved.

The fourth hypothesis: The changes in company type have an effect on the stock return of companies.

The impact of variations in the type of company on the stock return of companies is significant at the level 0.01 in the estimated model. Since the t-value is equal to 3.02 and indicates the significant effect of the changes in the company type on the stock return of companies, the fourth hypothesis of this study is confirmed.

#### **Conclusion**

Based on the conducted analyses, the following results were obtained:

In the estimated model, the impact of the relative variations of return on assets (ROA) on the stock return of companies is significant at the level of 0.05; so the first hypothesis of this study is approved. The results obtained are consistent with the results of Rebowa *et al.*, (2014). In fact, the company's stock return is subject to the company's return on assets; the more the return on assets increases, the more the stock return. Meanwhile, the results showed that the relative variations of return on equity (ROE) have an effect on the stock return of companies. Therefore, the second hypothesis of the present study is approved. The results obtained are in line with the results of Rebowa *et al.*, (2014). Thus, the company's stock return is subject to the return on equity in a company; i.e. the further increase in the return on equity in the company will increase the stock return. In addition, in the estimated model, the impact of the relative changes in net margin (RNM) on the stock return of companies is significant at the level of 0.01; so the third hypothesis of this study is confirmed. There is an agreement between the results obtained and the results by Rebowa *et al.*, (2014). Finally, the impact of the variations of the type of the company on the stock return of companies is significant at the level of 0.01; therefore, the fourth research hypothesis is approved and the results obtained are in consonance with the results provided by Rebowa *et al.*, (2014).

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