Examining The Relationship Between Company Size and Stock return in Accepted Companies in Tehran Stock Exchange Market

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Abstract

The current research seeks to examine the relationship between company size and stock return in accepted companies in Tehran stock exchange market. It is a descriptive research from methodology view, and a correlational research from studying view, an applied research in terms of goal. Time span of the research starts from 2001 to 2011. To analyze data, econometric methods and Regression Test and Advanced Regression Test,Augmented Dickey Fuller (ADF),Philips Peron, and D.W statistic, and axis Regression Test have been used. The research findings reveal that there is a relationship between the variables of company size, and stock exchange return. And the research hypotheses have been proved.

Key words: company size, stock return, companies growth rate.

1.Introduction

One of the basic criteria to make decision in stock exchange is stock return. Stock return per se contains informational content, and most of the implicit and explicit investors use it for financial analyses and predictions. If a relationship is found between the independent variables of the study: company size and stock return, above mentioned factors, to the extent they relate, can be deemed as a criterion for evaluation and estimating company stock return (Rahmani, 2008). A great deal of evidence dealing with profitability informational content for explaining return indicate that profitability is an appropriate justification for stock return, especially when mean is obtained from data in long run. However, some studies show that, in examining temporary relationships, the relationship between loss and interest is not stable, that is, accounting interest is not able to help stock future returns prediction. To cope with the problem, many researches tested the ability of some other variables except profitability to improve profitability model and initial return. One of these variables which appealed to the academic circles was company size which is usually defined as market value of the firm. It is usually thought that small companies have a high profitability average, therefore, it is expected to take into account stock price in changes of small companies interest. On the other hand, big companies have a low profitability average. No important change in their profitability is usually expected, and not publishing of information can affect a little on stock price changes. Of course different information channels can seem a justification for it (Ghaémi, 1998).

Investing on such a market is one of the basic and essential factors in economic growth and development process of a country. On the other hand, economic policies of Islamic Republic of Iran to attract private sector investment and directing these investments into construction and economic flourishing of the country causes a good proportion of people tend to go to Tehran stock exchange. Through presenting capital as much as possible, investors in a capital market orient their own financial resources to the direction with the least amount of risk and the most amount of return. Therefore, normal stock return is one of the very important factors in choosing the best investment opportunity for investors (Mahmudikhoshrou, 2004).

Therefore, normal stock exchange isone of the very important factors in choosing the best investment opportunity for investors. Nowadays, in capital market, accounting evolution process plays a key role in system and serving the mentioned goals, and one of the accounting evolution process consequences is that investors and capital owners use previous researches dealing with relationships between accounting information and stock market so that they can predict their stock return through this information. In many empirical researches (Brad, 1989., Asheghali, 1994., Boen et al, 1987, StonVahriz 1991, Wilson, 1986, Woody et al, 2001., Riborn, 1986., Barlo and Lionat, 1990., Yebour and Lenzman, 1982) which have been conducted, the relationship between cash and commitment accounting and companies stock return has been studied.

Therefore, the main question of the research is to determine the relationship between company size and normal stock return of the companies accepted in Tehran stock exchange. It also seeks to answer the question how well investors can trust accounting information as an informational resource in predicting the companies normal stocks return.

2. Theoretical tenets

2.1. Stock return

Stock return is one of the vital factors to choose the best investment opportunity for investors. Now in capital market, economic system evolution process plays role and one of the consequences of accounting evolution process is that investors use previous researches dealing with the relationships between accounting information and stock return so that they can predict their stock return (MahmudiKhoshrou, 2004).

Return is obtained as follows:

Return: return is a gift investors gains in investment (Tehrani, 2008). Return rate is obtained as follows:

$$R_t = \frac{(P_{t-1} - P_t) + D}{P_t}$$

in which:

R1= return rate in period t,

D= recieved interest of other recievings

Pt-1= assets value at the end of financial period

Pt= assets value at the beginning of financial period

Stock value return: systematic risk (B) and interest growth are both interrelated concepts. Despite disabilities of accounting variables in describing risk, it seems that investors pay attention to accounting variables, maybe the main reason is the theoretic relationship between these variables. Systematic growth and risk is one of these factors. To understand it better, we will explain theoretic relationship between systematic growth and risk. First let's imagine investors are avoiding risk at a certain time period, and expect their profitability gets to the maximum level. Also, we consider another hypothesis called developing stock exchange market line, in a way that expected return of securities

E(Rit)1, in period (t-1) to the period (t) is as follows:

E(Rit)=Rft+[E(Rmt)-Rft]βit

In this relation we have:

Rit: expected return rate of assets (i) in time period (t), Rft: non-risk return rate in time period (t) and Bit: systematic risk in time period (t). Systematic risk (Bit) or sensitivity coefficient (B) is calculated by the following relation or formula (Fakhari, Yosofnezhad, 2006, p:89-109).

Relation or equation (B) is obtained by (CAPM) capital assets pricing model. Therefore, to obtain (B)=systematic risk measurement index (market risk) securities (stock or assets), the following relation or equation is used, in which:

$$(CAPM) = K_i = \beta \times (K_m - K_f) + K_f$$

$$(CAPM) = R_i = \beta \times (R_m - R_f) + R_f$$

$$\beta = \frac{(R_i - R_f)}{(R_m - R_f)}$$

CAPM= model of pricing capital assets, Ki = Ri= K = expected return rate of stockholders or investors, KF = Rf = non-risk return rate of stock or assets, Km = Rm= assets or capital stock return rate, (B) = beta coefficient = systematic risk measurement index (market risk) securities (stocks or assets).

Stock exchange market line determines a positive relationship Rm,t and Bi,t. If Di,t is paying stock interest (i) during time period (t), the following formula is obtained:

$$R_{it} = \frac{P_{it} + D_{it}}{P_{it-1}}$$

In which:

Pi,tand Pi, t-1 are unknown incidental price in time period (t) and determined price in time (t-1).

Calculation of daily return rate based on time series and the following formula:

To obtain daily portfolio return rate, first daily return for existing stock in given portfolio is found as follows:

$$r_{jt} = \log_e^{\left(\frac{p_{jt}}{p_{jt}-1}\right)} = \ln(\frac{p_{jt}}{p_{jt}-1})$$

In which: (Pjt) is stock price (j) in time (t) and (Pjt – 1) is stock price (j) in time (t-1). Then with gining the same load to each of the existig stocks in the given portfolio, the portfolio return is obtained through the following formula:

$$r_p = \frac{\sum_{j=1}^{n} r_{jt}}{n} = (\frac{1}{n}) \times (\sum_{j=1}^{n} r_{jt})$$

Through giving the same load to shape time series of research returns based on time series, it is obtained by the following relation:

(company stocks number) * (market value of each company stock i) = market value of each company i

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(total market value of portfolio)÷ (market value of each company i) = each company stock load

(total market value of portfolio)÷ ((company stocks number) * (market value of each company stock i)) =   each company stock load

2.2. Company size

In the majority of the previous researches, the significant relationship between stock return and company size has been proved. Most of these researchers believe that the companies with big sizes perform their auditing operations sooner than smaller companies. Because first, intentional or unintentional errors are less likely to happen because of installing strong internal controlling systems in big companies, consequently audits can rely more on the company internal controlling systems and decrease increasingly the amount of content test. Second, big companies can recruit more accountants with more expertise and higher education, and more advanced informational systems (Fadaeinezhad, 2004).

3. Research literature

Banze (1981) showed that increasing market value of company owners' rights (market equity) to systematic risk index in regression between return and given factor causes the difference between companies stock returns stocks to be described more and more.

Banze (1981) and Reinganum (1981) found out that size (market value) has a significant effect on stock return. Smaller companies have more return than bigger companies.

In addition, Rosenberg and Stain (1985) added the factor writing-off/market value ratio to the above-mentioned factors, and could describe better return.

Fama and French (1992, 1995, 1996) presented a firm background for the relationship between size and writing-off/market value ratio and stock return. Running single and multiple tests, they found a positive relationship between writing-off/market value ratio and stock return, and a negative relationship between size and stock return. In fact, they doubt on beta sensitivity in capital assets pricing model, and generally stock return differences are described by two factors: company size and market value ratio.

Puntif and Scall (1988) tested effect of writing-off/market value ratio on return. They used it to predict return, because market value is the representative of expected cash flow. Therefore, writing-off/market value ratio is the representative of cash flow for the time being. When discount rate changes, price level changes, and consequently this ratio changes. The results reveal that there is a positive between writing-off/stock exchange value and return. When other variables are considered to be independent variables, the power of predictability of this ratio is of higher statistical importance for explaining return.

Dater et al (1998) studied cash impact on stock return rate. In this research, inventories circulation rate was used as a criterion of cash. The time of research started from 1963 to 1991. Temporary regression line between stock return rate (dependent variable) and inventories circulation rate change (independent variable) indicated that inventories circulation is correlated with stock return rate negatively.

Cosinidis (2005) sought to examine the relationship between stock return and accounting productivity in a sample of Greek companies. This research, also, tests some researches dealing with adding variables of size and company age circulation to improve stock return explanation power. The results show that productivity explanation for simultaneous returns is so weak. However, Chaw test showed a significant instability during the time of research for the relationship between productivity and return. When regression was mediated for measuring size, results improve and the theory that company size is an important factor in explanation of the relationship between productivity and

return, is reinforced. However, obtained results did not support the hypothesis that there is a significant difference between productivity informational content for explaining stock return regarding age circulation stages.

Amido (2007) studied to explain determining factors of banks capital structures in Ghana. The results of this study show that productivity, company tax, growth, capital structure, and bank size influence on banks financing and capital structure selection.

Guni, Livanerchild (2010) examined Chinese companies' data in 12 different industries from 1994 to 2006. The results show that there is a significant difference between companies liabilities in various industries. In addition, their results show that the relationship between liabilities and goods competitive market is a non-linear relationship depending on the type of industry, size, and company's growth opportunities, and Chinese companies try to decrease their liabilities.

4. Research method

The current research is applied in terms of goal, and expo-facto in terms of method. Essence of research is series from time view and is obtained from time series data, on the other hand, because minimum of usual squares has been used to estimate in the hypothesis of research, and necessary condition for using regression model to test hypotheses is stability of sample variables, stability and non-stability tests must be run for the research variables. To do so, Augmented Dickey Fuller (ADF) is used (Saeidi, Kuhsarian, 2010, p: 109-128).

4.1. Research hypotheses

There is a significant relationship between company size and stock return changes, in other words, in this research, company size is independent variable, and stock return is dependent variable.

4.2. Statistical population, sample, and sampling method

Statistical population encompasses all non-financial companies in Tehran stock exchange which were active from 2001 to 2011, and their fiscal year ends in April 19. In addition, these companies should contain comprehensive data during the studied time period. Selecting industries in this research is based on the following criteria:

From 2001 to 2011, they are in stock exchange, and their fiscal year ends in April 19.

The companies should contain comprehensive data in time period.

The companies shouldn't have losses based on law of Iran stock exchange dealing with being accepted in Tehran stock exchange.

They should be active as companies and industries in Tehran stock exchange at least during the last three consecutive years.

In this research, we use daily data pertaining to the company and their industries indexes which starts from April 20, 2001 to April 19, 2011. In fact, to meet the research goals, offered models for stocks of companies accepted in Tehran stock exchange, are tested. The data is accessible in the website of Tehran stock exchange and in some other sources.

Therefore, selected industries based on the given above-mentioned criteria are as follows:

Table (1): selected industries in Tehran stock exchange from 2001 to 2011.

No	year	name of industry
1	1380-1389	publications and priniting
2	1380-1389	automobile
3	1380-1389	cement
4	1380-1389	chemical industry
5	1380-1389	ustry except sugarfood ind
6	1380-1389	oil products
7	1380-1389	basic metals
8	1380-1389	metal products
9	1380-1389	metal products-non
10	1380-1389	machinary
11	1380-1389	metal products
12	1380-1389	medicine

4.2.Data analysis

To analyze data and test hypotheses, multiple-variable linear regression models with software Eviews.

Hypotheses testing

The research hypothesis: there is a significant relationship between company size and stock return.

H_0: there is no significant relationship between company size and stock return.

H_1: there is a significant relationship between company size and stock return.

Table (2): testing variables dealing with research hypothesis in Tehran stock exchange during the time period from 2001 to 2011.

Dependent Variable: SER01				
Method: Least Squares				
Date: 09/21/12 Time: 11:38				
Sample (adjusted): 1/08/1380 8/31/1382				
Included observations: 139 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
SER02	0.027005	0.00161	16.77041	0
C	-4.77051	0.437006	-10.9164	0
R-squared	0.672442	Mean dependent var		2.539568
Adjusted R-squared	0.670051	S.D. dependent var		0.640043
S.E. of regression	0.367648	Akaike info criterion		0.850903
Sum squared resid	18.51763	Schwarz criterion		0.893126
Log likelihood	-57.1378	F-statistic		281.2465
Durbin-Watson stat	1.934397	Prob(F-statistic)		0

Table (3): structural equation (ARMA) to test stationarity of pertinent variables to the model in the first research hypothesis in Tehran stock exchange from 2001 to 2011.

Estimation Command:

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LS SER01 SER02 C

Estimation Equation:

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SER01 = C(1)*SER02 + C(2)

Substituted Coefficients:

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SER01 = 0.02700539024*SER02 - 4.770509082

$Y_t + \varphi_1 y_{t-1} + \varepsilon_t$ (1)

$\Delta y_t = y Y_{t-1} + \varepsilon_t$ $(y + \varphi_1 - 1)$ (2)

$\Delta Y_t = y Y_{t-1} + \sum_{i=1}^{p} \varphi_i \Delta y_{t-i} + \varepsilon_t$ $(y = \varphi_1 - 1)$ (3)

$\Delta Y_{i.t} = y Y_{i,t-1} + \sum_{i=1}^{p} \varphi_i \Delta y_{i,t-i} + \varepsilon_i, t$ $(y = \varphi_1 - 1)$ (4)

Source: research findings

Table(4):covariance matrix test of pertinent variables to the model in the first research hypothesis from 2001 to 2011.

	SER02	C
SER02	5.364249	-1.44364
C	-1.44364	0.518343

Table (5): correlation matrix test of pertinent variables to the model in the first hypothesis from 2001 to 2011.

	SER01	SER02
SER01	1	-0.7939
SER02	-0.7939	1

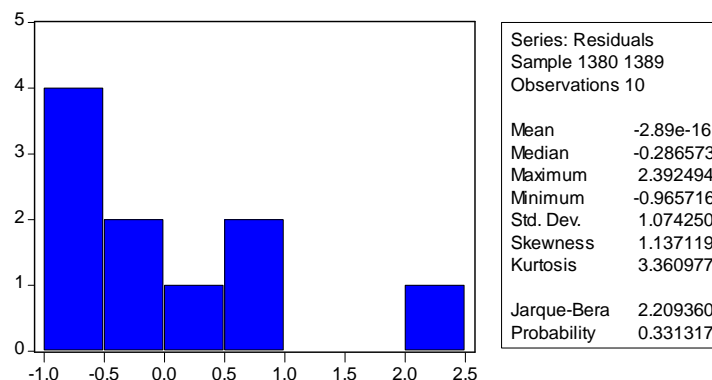| Series: Residuals	
Sample 1380 1389	
Observations 10	
Mean	-2.89e-16
Median	-0.286573
Maximum	2.392494
Minimum	-0.965716
Std. Dev.	1.074250
Skewness	1.137119
Kurtosis	3.360977
Jarque-Bera	2.209360
Probability	0.331317

Diagram (1): estimation of dependent and independent linear equation of the first hypothesis of the research.

Diagram (2): histogram of dependent and independent variables of the first research hypothesis.
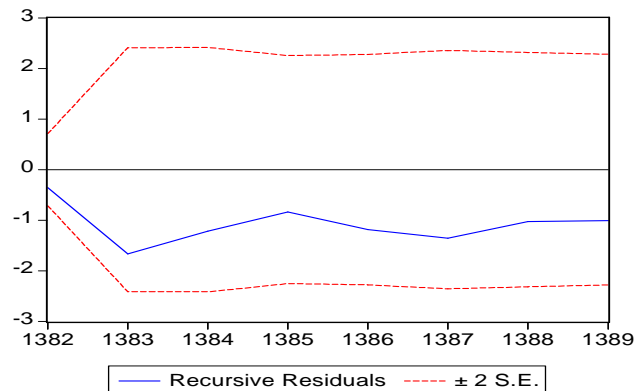

Diagram (3): OLS the first research hypothesis dependent and independent variable.

Regarding the obtained findings in table (2) which shows testing the variables pertinent to the first hypothesis research, it can be said that there is a significant relationship between company size and stock return. This relationship is significant at the confidence level of 99%. In other words, with confidence level of 99%, H1 is accepted and H0 is rejected. In addition, the above-mentioned hypothesis statistical results show that there is a positive relationship between these two variables. In other words, if company size increases, dependent variable, that is, companies stock return increases in high return rate of companies, and vice versa.in addition, determination coefficient (R-Squared) which is (0.672442), determines the first hypothesis. Besides, regarding probability rate of variables pertinent to general validity, regression (F-Static) is significant at 99% confidence level.

5.Conclusion:

Stock return per se contains informational content, and most potential and real   investors use it in financial analysis and predictions. If there is a significant relationship between independent variables of this research like size and stock return, above-mentioned factors can be considered as a criterion to estimate company stock return to the extent they relate. The current research findings showed that there is a significant relationship between company size and stock return which is in line with Fama and French (1992, 1995, 1996) who found out that there is a negative relationship between company size and stock return.

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