Investigate the relationship between stock returns and measures Fama -French and Anderson at al

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Abstract: One of the important issues that affects on the decisions of investors is stock return; because it has significant effect on increase shareholders wealth. For this reason financial researchers and scientist are looking for the variables that can predict the stock return in the future periods. One of the newest considered variables for prediction of stock return is asset growth ratio. In the past, researchers have introduced numerous criteria for asset growth and they tried to examine the relation between these criteria and asset growth. This research is descriptive-correlation type and its collecting style of Theoretical aspects is library and data has been obtained from stock exchange and company reports. In this research, we had used multivariate REGRESION tests in PANEL data form for determine the significant relation between stock exchange and measures of asset growth. Statistical sample in this research, concluded 91 accepted companies in TEHRAN stock exchange, is between 2006-2011.

Key words: asset growth, measure, stock return, ratio of book value to market value

Introduction

The main objective of financial reporting is preparing data for investors, government managers and employees, and credit providers for assumption logical decisions about the company operation. Considering to importance that investors have about the returns situation, Survey of financial statements and appendix reports have high importance value such an influence factors on future returns.

Because these data is used to predict amount, time, and certainty or uncertainty of future finance situation. (DARABI and karimi, 2010)

Therefore, economic growth and increasing the general welfare is not possible without attention to investing and important factors in the investment environment, that affect on it. (DARABI and karimi, 2010)

Expression of the problem

Nowadays hypothesis of the stock return predictability is accepted such a fact in financial management. One of the purposes in accounting data is helping to users that predict the cash flows of future input in business unit and predict the investment returns.

Part of effecting variables on stock return in companies in stock market is because of financial data that it is provided by accounting system.

Amount of these effects are very complex and partly unknown. In these efforts Cooper, Gulen and Schill (2008) in their research that it has been accomplished, they introduce the variable rate of assets growth and they concluded there is significant and strong relation between this variable and stock return.

Although in researches earlier than in this study (Broussard and al, 2005; Carlson and al, 2004; and hirshleifer, 2004;) were attempted to examine the relation between stock returns and growth of asset component but this research was the first one that had used the criterion of total asset growth.

According to the Cooper and colleagues' opinion criterion of total asset growth is more valid than items of asset; because the company's synergistically using from all the items of asset to gain the returns. Therefore other scholars in this field introduce other criterions.

Fama and French (2008) had introduced the ratio of current year asset divide by previous year asset, Lyandres and colleagues (2008) had studied on criterion of ratio of investment on total assets and introduce this criterion and other researcher had introduced their own criterion such as Polk and Sapienza (2009) ratio of investment cost to steady asset, xing (2008) rate of investment cost growth, Anderson and Garcia-Feij´oo (2006) ratio of current year capital divide by two years ago capital cost, Titman and colleagues (2008) capital cost divide by the average of capital cost in three years ago.

The history of research

Lam (2002) in his own research with this title "the relation between amounts, rate of the return of stockholder benefit, ratio of earnings to price ($\frac{E}{P}$)and returns in HONG KONG stock exchange" had

attempted to examine the relation between these variables in HONG KONG exchange between 1984-1997s. The result of his study had showed that there is significant relation between amount, rate of the return of stockholder benefit and stock returns.

Xing (2006) in his research had examined the relation between investment in company and rate of stock return in both cross-sectional and time series data. The Capital Asset Pricing Model, this research showed that there is negative relation between investment and rate of future stock returns but the relation between rate of future stock returns and future investment is affirmative.

Lionel (2008) in his research had examined the ability of financial ratios for predicting the stock returns, this research has been done between the 1995-2000s. This research is analyzed with using the capital asset pricing model, predicting ratio income to cost, ratio of book value to market value and divisional benefit returns. The results showed that divisional benefit returns significantly can predict the rate of stock returns, but ratio of income to cost and book value to market value have less ability to predict the rate of stock return. Cooper and colleagues (2008) has being examined this issue that how rate of asset growth is affective in explanation of returns with changing in other criteria of company growth.

They had examined the amount of impressment's criteria that is concerned to accruals, amounts of investment, amounts of stock, rate of investment growth and sales growth and concluded that the growth rate of total assets can strongly describe the returns in between the other criterions.

Igna Tayua and colleagues (2010) had examined the economic factors of determining cross-sectional stock return on the Australian Stock Exchange between: 1993-2007s. They concluded that not only size and ratio of book value to value, also production market structure are affecting on the average of stock return. The result of this research had showed that there is significant and affirmative relation between the average of stock return and company size and also between the average of stock return and ratio of book value to market value. Lipson and colleagues (2011), in research, had examined the relation between the variables of rate of assets growth and stock return.

The results of this study had showed that although there is significant and reverse relation between the variables of rate of growth and stock

return but this relation is mostly matched in small companies.

In this research used from six criteria of rate of assets growth and examined the relation between these criteria and stock return.

Gary and Janson (2011) in one research in Australia Capital Market had concluded that the rate of assets growth can be the one of most important prediction criteria of stock return, and the relation between this criteria and stock return is very significant. The relation between stock return and assets growth was significant with controlling the other effective variable such as amount, ratio of book value to market value, ratio of benefit to cost, leverage and assets returns.

The purposes of research

According to the title of this research and the relation between new criteria of growth and stock return in TEHRAN Stock Exchange the main objectives that are followed in this research are:

1. Scrutiny the relation between Cooper and colleagues' criteria and stock return with controlling the effective variables.

2. Scrutiny the relation between Fama and Frech's criteria and stock return with controlling the effective variables.

Method of Research

The purpose of this research is applied and descriptive and it is in field of correlation and regression, that it is based on the real data of financial statement of the accepted companies in TEHRAN Stock Exchange and can achieved with deductive method to total population. In this study will be used the quantitative methods and statistical analysis, including Multiple regression analysis in panel data form.

For scrutiny of hypotheses in this research are used T-test, F-statistic and coefficient of determination (R^2), F-Limer, Manay tests and etc.

Hypotheses of research

To achieve to the research objectives, seven hypotheses were cited in follows:

1. There is significant relation between Cooper and colleagues' criteria and stock return in TEHRAN Stock Exchange.

2. There is significant relation between Fama and French's criteria and stock return in TEHRAN Stock Exchange.

Research's models

$$\log(1 + R_{it}) = \alpha + \beta_1 \log\left(\frac{B}{M}\right) + \beta_2 \log(\text{SIZE}) + \beta_3 \log(1 + \text{CGS}) +$$
$$\beta_4 \log(1 + R_{6it-1}) + \beta_5 \log\text{MVA} + \varepsilon$$

$$\log(1 + R_{it}) = \alpha + \beta_1 \log\left(\frac{B}{M}\right) + \beta_2 \log(\text{SIZE}) + \beta_3 \log(1 + \text{FF}) +$$
$$\beta_4 \log(1 + R_{6it-1}) + \beta_5 \log\text{MVA} + \varepsilon$$

Testing the research's hypotheses
Testing first hypothesis
    The firs hypothesis in this research is: there is significant relation between CGS criteria and stock return in TEHRAN Stock Exchange. The following regression model was used to test this hypothesis. The statistical form of this cited hypothesis is showed as following:
    MODEL NO.1

$$\log(1 + R_{it}) = \alpha + \beta_1 \log\left(\frac{B}{M}\right) + \beta_2 \log(\text{SIZE}) + \beta_3 \log(1 + \text{CGS}) +$$
$$\beta_4 \log(1 + R_{6it-1}) + \beta_5 \log\text{MVA} + \varepsilon$$

    Parameters in this model:

β: Sensitivity of dependent variable dividend to independent variable
log**:** Logarithm to the base 10

α**:** Transverse distance from the origin

ε: Error
Statistical form of this research:

H_0: $\beta_3 = 0$

H_1: $\beta_3 \neq 0$

    The H_0 hypothesis is expressing that there is no significant relation between stock return and CGS criteria with controlling these variables $\frac{B}{M}$, SIZE, R_{6it-1} and MVA.
    The H_1 hypothesis is expressing that there is significant relation between stock return and CGS criteria with controlling these variables $\frac{B}{M}$, SIZE, R_{6it-1} and MVA.
    The results of data panel testing with fixed effects method are showed in this table:

Estimation of variables	method	Fixed effects	
		β	P-VALUE
C		-2.22*	0.00
$\frac{B}{M}$		-0.036	0.51
SIZE		0.181*	0.00
CGS		0.133*	0.01
R_{6it-1}		0.807*	0.00
MVA		0.060**	0.03

F model	5.95*	0.00
R^2	0.71	
WATSON- DORBIN	2.6	
F - LIMER	(0.000)	

* Significant with 90% confidence
** Significant with 95% confidence

    The results of estimation model with fixed effects method are expressing that regression model with possibility of 95% is significant; and this is because of that the amount of statistic of possibility F-model is less than 5 %. Also according to the statistic of CGS possibility in this regression model is less than 5%.
    Therefore with 95% possibility the H_0 hypothesis is rejected and H_1 hypothesis based on significant relation between ratio of stock return and CGS criteria is accepted. We can realize to the direct relation between CGS criteria and stock return because of the factors of these variables is positive.
    Also these variables: size, returns of six months ago (momentum) with 95% possibility and addend value of market also with 90% possibility (because the amount of the statistic of possibility is less than 10%)

are significant. Also the relation between these three variables and stock return is direct (because of the factors of these variables are positive). The factor of determination that indicates the intense of relation is 70 percent. Other statistic information is presented in the table.

WATSON- DORBIN statistic (criterion for measuring the self-correlation) also expresses the absence of self-correlation of disturbing elements.

$$\log(1 + R_{it}) = \alpha + \beta_1 \log\left(\frac{B}{M}\right) + \beta_2 \log(SIZE) + \beta_3 \log(1 + FF) + \beta_4 \log(1 + R_{6it-1}) + \beta_5 \log MVA + \varepsilon$$

$$\begin{cases} H_0: \beta_3 = 0 \\ \\ H_1: \beta_3 \neq 0 \end{cases}$$

The H_0 hypothesis expresses that there is no significant relation between stock return and FF criteria with controlling these variables: $\frac{B}{M}$, SIZE, R_{6it-1}, MVA.

The H_1 hypothesis expresses that there is significant relation between stock return and FF criteria with controlling these variables: $\frac{B}{M}$, SIZE, R_{6it-1}, MVA.

The results of data panel testing with fixed effects method are showed in this table:

Estimation method variables	Fixed effects	
	β	P-VALUE
C	-2.18*	0.00
$\frac{B}{M}$	-0.035	0.5339
SIZE	0.17*	0.00
FF	0.30**	0.09
R_{6it-1}	0.832*	0.00
MVA	0.052**	0.07
F مدل	6.05*	0.00
R^2	0.70	
WATSON- DORBIN	2.6	
F -LIMER	(0.000)	

* Significant with 95% confidence
** Significant with 90% confidence

In this regression model can express that 71% of the variation in the dependent variable due to the fitted regression model can be determined.

Testing second hypothesis

The second hypothesis in this research: there is significant relation between FF criteria and stock return in TEHRAN Stock Exchange. For testing this hypothesis is used from regression model. Statistic form of the cited hypothesis is showed as following:

MODEL NO.2

Statistical form of this research:

The results of estimation model with fixed effects method are expressing that regression model with possibility of 95% is significant; and this is because of that the amount of statistic of possibility F-model is less than 5 %. Also according to the statistic of FF possibility in this regression model is less than 10%.

Therefore with 90% possibility the H_0 hypothesis is rejected and H_1 hypothesis based on significant relation between ratio of stock return and FF criteria is accepted. We can realize to the direct relation between CGS criteria and stock return because of the factors of these variables is positive.

Also these variables: size, returns of six months ago (momentum) with 95% possibility and added value of market also with 90% possibility (because the amount of the statistic of possibility is less than 10%) are significant. Also the relation between these three variables and stock return is direct (because of the factors of these variables are positive). The factor of determination that indicates the intense of relation is 70 percent. Other statistic information is presented in the table.

WATSON- DORBIN statistic (criterion for measuring the self-correlation) also expresses the absence of self-correlation of disturbing elements.

In this regression model can express that 70% of the variation in the dependent variable due to the fitted regression model can be determined.

Research limitations

There are some limitations in this research that those limitations may be effective on the results of the research. These limitations could be solved in future

researching with necessity changes. The most important of these limitations are as follows:

1. The market capital in IRAN is new and the stocks that has been buying and selling in Tehran Stock Exchange in compared of advanced capital markets in the USA and Europe is very low and this issue can influence on the result of the research.

2. The effects of some issues are uncontrolled such as conditions and the political climate in the market and inflation (especially on balance sheet items such as fixed assets).

3. Since the cost of capital was calculated based on the CAPM model. The criticism of this model can be effective.

Suggestions for future research

1. It is suggested that results of this research have been doing in various industries separately.

2. It is suggested that this research will be examined in capital market of developing countries such as the Persian Gulf countries and the results of both will be compared.

3. It is suggested that in the future researches pay attention to the characteristics of the capital market in IRAN and the variables that effective on cost of capital will be considered such as political risk.

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