

**Investigate the relationship between stock returns and measures Fama - French and Anderson at al**Naser Yazdani Far<sup>1</sup>, Hamed Paydar<sup>2</sup>, Hamid Reza Ranjbar jamal abadi<sup>3</sup><sup>1</sup>Master of Accounting, Finance officer, *mashhad*, Iran<sup>2</sup>Master of Accounting, Finance officer, *Yazd*, Iran<sup>3</sup>(Corresponding Author) Master of Accounting, Accountant University medical, *Yazd*, Iran

**Abstract:** Stock return is one of the topics found to influence on the investors' decisions. Assets growth rate is one of the modern variables in predicting the stock returns. In doing so, this study examines the relationship between stock returns and growth rate assets. This is a correlation-descriptive study and the required data is collected from the verified reports of the firms listed on the Tehran Stock Exchange. The multivariate regression tests are used in terms of panel data. The statistical population is composed of 91 firms listed on the Tehran Stock Exchange during a period covering the years from 2006 to 2011. The findings represent that there is a positive direct association between Fama-French variable and stock returns. Additionally, a no significant relationship between Anderson at al and stock returns has been documented.

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**Keywords:** Assets Growth, Size, Stock Return, Fama-French Measure, Anderson Measure

**Induction**

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.

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)

**The history of research**

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.

Lu (2002) investigated the relationship between abnormal operating cash flows and the operating cash flows and future stock returns. The findings showed that the abnormal operating cash flows have informational content in predicting the future operating cash flows and stock returns.

Cooper et al (2008) examined the way the growth rate of assets explains the returns by changing other growth measures. They explored the effectiveness of each related measure including accruals, investment volume, inventory level, the growth rate of capital and growth rate of sales and found that in comparison with the other measures, the growth rate of total assets has a strong power in explaining the returns.

EUGENE et al. (2008) investigated the economic determinants of the cross-sectional stock returns in Australian Stock Exchange during a period from 1993 to 2007. They found that the structure of the product market impacts the average stock returns. Their findings also confirmed the positive significant relationship between stock returns and firm size and between the average stock returns and the ratio of book to the market value.

Lipson et al (2011) tested the association between the growth rate of assets and stock returns. Their findings showed that there is a significant inverse relationship between growth rate and stock return. However, this relationship holds in small firms. Using six measures of growth rate of assets, the relationship between these measures and stock returns has been examined.

Gary and Johnson (2011) found that the growth rate of assets might be one of the most important measures for predicting the stock returns of the Australian capital market. The relationship between this measure and stock return is found to be significant. Their study covered a period from 1983 to 2007. The stock returns and asset growth are found to be significantly associated with the affective variables

such as size, the ratio of book value to the market value, P/E ratio, leverage and return on assets.

**Hypotheses Development**

Tow hypotheses are developed to achieve the objectives of the study:

1. Examining the relationship between Fama-French measure and stock return by controlling the effective variables.
2. Examining the relationship between Anderson and al measure and stock return by controlling the effective variables.

**Population**

The population of this study is composed of the firms listed on the Tehran Stock Exchange during six years from the beginning of 2006 to the end of 2011.

Table 1. Operating definition of the variables

No.	Abbreviation	Type of variable	Definition	Resource
1	R <sub>it</sub>	Dependent	Total revenues held by the investments achieved by a percentage of the purchase price at the beginning of the period (stock return)	Einollah Aala (2000)
2	FF	Independent	The ratio of current assets to the assets of the prior years	Fama and French (2008)
3	AGF	Independent	capital cost of this year divided by the cost of capital last year	Anderson at al (2006)
6	MVA	Control variable	Difference between market value and book value of the owner's equity	Kang et al (2002)
7	$\frac{B}{M}$	Control variable	The book value divided by the market value of the owner's equity	Gary and Johnson (2011)
8	R <sub>6it-1</sub>	Control variable	The return of the six prior months of the sample firms	Ghalibaf et al (2011)

**Research Models**

The models of this study include three regression models as follows:

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

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

**Testing the hypotheses**

*The first hypothesis:* There is a significant relationship between FF measure and stock returns of

the Tehran Stock Exchange. To test this hypothesis, the following regression model has been used. The statistical form of this hypothesis is shown below:

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

$$\left\{ \begin{array}{l} H_0: \beta_3 = 0 \\ H_1: \beta_3 \neq 0 \end{array} \right.$$

According to H0, there is no significant relationship between stock return and FF measure with the control variables of  $\frac{B}{M}$ , SIZE, R<sub>6it-1</sub> and MVA.

According to H1, there is a significant relationship between stock return and FF measure with the control variables of  $\frac{B}{M}$ , SIZE, R<sub>6it-1</sub> and MVA.

Table 2. Testing the regression model of panel data

	Fixed assets	
	$\beta$	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
<b>Model F</b>	6.05*	0.00
$R^2$	0.70	
Durbin-Watson	2.6	
F Limer	(0.000)	

- Significance at 95 percent
- Significance at 99 percent

The results of estimating the model by this method shows that the regression model is significant at the 95 percent level of significance. This is because F statistic of the model is lower than five percent. The probability of FF in the regression model is lower than 10 percent and it shows that H0 is rejected at 90 percent of significance and H1 is confirmed. The positive coefficient of this variable suggests the direct relationship between CGS and stock returns. It was further found that size and momentum are significant at 95 percent of significance and market value added is also found to be significant at 90 percent of significance. These three variables are found to be directly associated with the stock returns.

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<sub>0</sub> hypothesis is rejected and H<sub>1</sub> 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.

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

The second hypothesis: There is a significant relationship between Anderson at al and stock returns of the Tehran Stock Exchange. The following regression model is used to test this hypothesis. The statistical form of this hypothesis is shown as below:

$$\log(1 + R_{it}) = \alpha + \beta_1 \log\left(\frac{B}{M}\right) + \beta_2 \log(\text{SIZE}) + \beta_3 \log(1 + \text{LSZ}) + \beta_4 \log(1 + R_{6it-1}) + \beta_5 \log \text{MVA} + \varepsilon \quad \text{model 2}$$

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

According to H<sub>0</sub>, stock return and Anderson at al are not significantly associated with the control variables of  $\frac{B}{M}$ , SIZE,  $R_{6it-1}$  and MVA.

According to H<sub>1</sub>, stock return and Anderson at al are significantly associated with the control variables of  $\frac{B}{M}$ , SIZE,  $R_{6it-1}$  and MVA.

The results of the model estimation show that the regression model is significant at 95 percent of

significance and this is because the F statistic is lower than five percent. In addition, Anderson at al of the regression model is more than 10 percent and it is concluded that H0 is confirmed at 90 percent of significance. Therefore, the significant relationship between this variable and stock return is not

confirmed. It is also found that size and momentum are significant at 95 percent of significance and market value added is also found to be significant at 90 percent of significance. These three variables are found to be directly associated with the stock returns.

Table 3. Testing a regression model of panel data

Variables	Fixed effect	
	$\beta$	P-VALUE
C	-2.21*	0.00
$\frac{B}{M}$	-0.035	0.53
SIZE	0.1824*	0.00
LSZ	0.009	0.82
$R_{6it-1}$	0.831*	0.00
MVA	0.052**	0.06
Model F	6.05*	0.00
$R^2$	0.70	
Durbin-Watson	2.64	
F Limer	(0.000)	

- Significance at 95 percent
- Significance at 99 percent

### Conclusions

Three main hypotheses have been developed to analyze the related data and the findings are summarized below:

- *Results of the first hypothesis*

Considering the relationship between FF measure and stock return, the first assumption has been examined. The findings confirm the significant direct relationship between these two variables. In other words, the stock returns of the sample firms might increase by raising the ratio of current assets to the prior year assets. Based on the findings of the study, this variable has not been examined in the previous studies and there is no chance to match the results.

- *Results of the second hypothesis*

The second hypothesis is about the relationship between Anderson at al and stock returns. The findings of the study confirm that there is no significant direct relationship between these two variables. According to the prior findings, this variable has not been previously investigated and the findings might not be matched with the prior results.

### Suggestions for the future studies

1. The findings of this study might be examined in terms of different industries and the industry factor might be controlled.
2. This study might be investigated in the capital markets of the developing countries such as

Persian Gulf countries and the findings might be compared.

3. The characteristics of the Iranian capital market might be considered in future studies and some variables such as political risks need specific methodologies.

4. 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.

5. 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).

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

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