International Business Management 10 (12): 2355-2363, 2016
ISSN: 1993-5250

The Relation Between Asset Growth and the Cross-Section of Stock Return in Tehran Stock Exchange

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Abstract: Stock return is one of the effective factors in stock selection among those who are active in capital market. In any type of investment, the investor tries to get more return. Many factors affect stock return. Also assets growth rate has been used as a variable to predict stock return. The goal of the present research is to investigate about the relationship between asset growth and cross-sectional return of stocks in firms enlisted in Tehran Stock Exchange. Assets' return rate was calculated by the ratio of total assets at the end of the period minus total assets at the start of the period divided by assets at the start of the period. The research period was between 2009 and 2014. To test the hypotheses we have used annual cross-sectional regression. By using systematic deletion method 162 firms were chosen as the sample n this research.

Key words: Cross-sectional stock return, assets' growth, firm size, leverage, Tehran Stock Exchange, cross-sectional regression

INTRODUCTION

The investors demand earning or return appropriate for their investment and it is called risk and return compromise in financial literature. Thus, proposing a correct and generalizeable strategy in different conditions to achieve desirable and expected return can improve the incentives of investors to participate in the development and enhancement of economy in every society. One of the main criteria to make decisions in bourse is stock return. Stock return entails information content in itself and most potential and current investors use it in financial analyses and predictions.

Fama and French gained valuable results regarding pricing capital assets. The goal of their study was to assess common factors with market sensitivity coefficient such as: firm size, leverage and the book to market value ratio to express the standard errors of stock returns. They concluded that within the time period between 1963 and 1990, size and book value of market were the main factors identifying standard errors of stock returns were the variables such as size, book to market value ratio and leverage. Remarked that portfolios formed based on firm size and the ratio of book to market value of stocks is related with future economic growth. Subjects such as investment decisions, financing methods, dividend policy, financial structure, capital and ... have been noticed by the scholars for many decades. Thus, Stock Exchanges have always been investigated in different countries. Capital market efficiency has been one of the most important issued discussed because inefficiency in the market results in lack of satisfaction of the expectations of investors. Inefficiency will cause investors to exit from the market and it is known that capital is considered as a determinative factor in production and development of any economy. Therefore, efficient market theory can justify the behavior of the investors.

Capital assets' pricing model has been investigated by many researchers in different markets as portfolio theory or other models developed by this model such as conditional pricing of capital assets model and regressive pricing of capital assets model and even three factor Fama and French Model and Arbitrage's pricing model.

The researches carried out by Fama and Macbeth, showed that capital assets' pricing model could not identify stock return and the inclusion of market factor in the model only results in analyzing different dimensions of risk and this model can not distribute risks that the economic unit encounters. Studied about other factors such as the ratio of price to income, book to market value ratio and firm size and their relationships with stock return in their researches. Regarding the researches mentioned above, it has been tried to use Fama and French Model to investigate about the relationship between firm size and book to market value ratio regarding their relationship with stock return by forming stock basket (Ahmadivar and Amirhosein, 2012).

After doing such investigations, some researchers studied about the relationship between asset growth and stock return. Cooper *et al*. (2009) stated that in financial

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markets in the United States there has been a positive relationship between asset growth and stock return. Based on their findings assts' growth can result in incorrect pricing or increases in systematic risk. Wang *et al.* (2015) showed in their researches that in stocks with more growth in assets, annual cross-sectional return increases. Wang *et al.* (2015) claimed that one of the principal variables affecting the future status of firms' performance and stock return following that is the amount of investments by the firms in assets that can set the ground to achieve optimal return in the future or due to the incurring of more risks in financial status of the firm as a result of more investment the ability of the firm to maintain the current return and growing it during future periods will be reduced and in long-term it will result in the decline of return and firm's performance.

Therefore, the main questions of the present study are that whether asset growth has a relationship with stock return in annual intervals or not. And if there is such a relationship what is the direction and amount of it? Do firms that have had a high rate of growth in assets have a different stock return from those firms that have had less asset growth rates?

Research literature: Murat and Ben investigated about the relationship between asset growth and cross-sectional return of stocks in firms enlisted in the United States' Stock Exchange. The time period for this research was between 1999 and 2009. Based on analyses carried out, the research results showed that there has been a meaningful relationship between asset growth and cross-sectional return of stocks in a way that asset growth has a strong capability of predicting cross-sectional return of stocks.

Cochrane (1991) studied the relationship between asses' growth and cross-sectional return of stocks. In this research, they used Fama and French Model to measure the variables. The researches by Fama and French showed that the achievement of unusual return was affected by variables such as price to earning ratio, book to market value ratio, cash flow to stock price ratio and the growth rate of past assets. Based on their studies, evidences showed that annual rate of asset growth could predict cross-sectional return of stocks both statistically and economically.

Watanabe *et al.* (2013) carried out a research about the role of asset growth in international markets of owners' equity. The goal of this research was to investigate how assets; growth affect cross-sectional return of stocks. The investors in bourse try to select from among the vast spectrum of bonds those that have had higher expected returns. Regarding the investigations carried out, the research results showed that there has been a negative relationship between assts' growth and future return on stocks.

Ang *et al.* (2009) investigated about the relationship between asset growth rate and stock return. Based on analyses carried out, the results of testing research hypotheses showed that massive growth of assets has been one of the negative predictors for future stock return. Return predictability is short-term but it is long-term regarding economics. Also results showed that asset growth has meaningfully had capability of predicting cross-sectional return of stocks.

Wang *et al.* (2015) studied the relationship between asset growth and cross-sectional return of stocks in firms enlisted in stock exchange in China. Based on studies carried out, their research results showed that the stocks of firms that have had higher asset growth could experience less future return. On the other hand, before portfolio is formed, firms that have had higher asset growth could gain more stock return but after portfolio is formed, firms that have had higher asset growth could gain less stock return compared to other firms.

Darabi and Karimi (2010) investigated about the effect of fixed asset growth rate on stock return. Studying the status of investment in fixed assets regarding the amount of its effect on financial resources accessible to distribute among owners and creditors of the firm and also its effect on the reduction of total risk of the firm would be considered highly important due to increases in benefits' growth expected by the assets and return decrease following that in a way that the research results showed the presence of a negative relationship between increases in fixed asset growth rate and stock return. In this research, the relationship between fixed asset growth rate and stock return has been investigated during the time period between 2004 and 2008 in firms enlisted in Tehran Stock Exchange. Results showed that there has been a negative meaningful relationship between increases in fixed asset growth rate and short-term and long-term stock return.

Mashayekhi *et al.* (2013) investigated about the relationship between asset growth rate and future stock return during the years between 2007 and 2011. Due to the existence of several criteria to measure asset growth rate, in this paper and in addition to the most important criteria in assets' growth, a new criterion by using the factor analysis approach has been calculated and utilized. Also, in this research Fama and Macbeth's model has been utilized to study the relationship between asset growth and future stock return. The method used in this research was correlation type and multiple variable regressions

using panel data method has been used to analyze the data. Based on the results of the regression analysis there has been a negative relationship observed between asset growth and future stock return.

MATERIALS AND METHODS

Research hypothesis: Regarding the theoretical foundations and the research goals, the research hypothesis was tested as follows.

Main research hypothesis: There has been a meaningful relationship between asset growth and stock return in annual intervals in firms enlisted in Tehran Stock Exchange.

Statistical population and the selection of sample volume: The statistical population in this research includes all firms enlisted in Tehran Stock Exchange. Sampling was done by using a deletion method. From among all statistical population and after sampling process carried out, 162 firms were selected as the sample and they are going to be represented in the following table in isolated industries (Table 1).

The regression model of the research and defining variables: Like the research carried out by Wang *et al.* (2015), we have used the following cross-sectional regression model to investigate about the relationship between asset growth and stock return:

$$Return_{i,t} = \beta_0 + \beta_1 Asset\ Growth_{i,t} + \beta_2 Size_{i,t} + \beta_3 Leverage_{i,t} + \beta_4 Age_{i,t} + \varepsilon_{i,t}$$

Where:

$Return_{i,t}$ = Return on stocks of firm i in times t (including the years between 2009 and 2014)
$Asset\ growth_{i,t}$ = The variable of asset growth in firm i in times t
$Size_{i,t}$ = The size of firm i in times t
$Leverage_{i,t}$ = Leverage of firm i in times t
$Age_{i,t}$ = The age of firm i in times t
$\varepsilon_{i,t}$ = Residuals of the regression model

In this research, we have used across-sectional regression to test the hypothesis. Stock returns have been calculated at the end of years and then a regression model has been adjusted for each year. Then, based on the results of tests, 6 regression models of the hypothesis were tested and then conclusions were extracted.

Dependent variable of stock return: Return is a stimulating force in investment process that creates incentives and is considered as a reward for the investors. By total return we mean those appropriated to the share during the year. Such benefits include following items:

- Increases in stock price at the end of fiscal year compared to the start of the fiscal year (the difference in rates between start and end of the fiscal year of the firm)
- Net gross earning per share based on the approval of general assembly of stock owners that is paid after taxation
- Merits resulting from priority in share purchase that can be changed into value
- Benefits resulted from dividend or special reward

In this research we have used real return method to calculate stock return as follows:

$$Return_t = \frac{(P_{t+1} - P_t) + d + M + T}{P_t}$$

Where:

P_{t+1} = Stock price at the end of the period
P_t = Stock price at the start of the period
D = Cash dividend
M = Priority merits
T = Benefits from earnings per share

Independent variable: By independent variable we mean variables that affect other variables. The independent variable has a feature of the physical or social environment that it accepts amounts after the selection and interference of the researcher to observe its effects on other variables (Khaki, 1999).

Table 1: Sampling method from among the statistical population in isolated industries (source: research findings)

Sampling conditions	Automobile parts	Cement and pastor	Chemicals	Foods and sugar	Metals and minerals	Drug products	Other industries	Total industries
The number of firms at the end of 2014	38	54	78	66	94	48	166	544
Lack of presence during research period	4	8	20	12	17	11	34	106
End of fiscal year not compatible with 20th of March and changing fiscal year	9	12	11	21	15	5	8	8
Banks, financial intermediaries, service and investment firms							102	102
Stop of exchanges for >3 months	3	14	26	11	20	7	12	93
The number of firms selected	22	20	21	22	42	25	10	162
Total firms selected	162 firms							

Table 2: Testing each of research hypotheses

Variables	N	Mean	Median	SD	Skewness	Kurtosis	Min.	Max.
Return	972	0.19	0.16	0.50	-0.23	1.12	-2.06	2.17
Asset growth	972	0.17	0.13	0.25	1.21	3.10	-0.55	1.33
Size	967	11.82	11.79	0.69	0.58	0.57	10.27	14.19
Leverage	972	0.62	0.63	0.22	0.10	0.38	0.04	1.39
Age	972	12.78	13.00	3.07	-0.46	-0.61	6.00	17.00

Table 3: The results related to normality of the distribution of the dependent variable

		Normal parameters[a]		Most extreme differences				
Financial year	N	Mean	SD	Absolute	Positive	Negative	Kolmogorov-Smirnov Z	Asymp. Sig. (2-tailed)
1388	162	-0.04	0.53	0.14	0.12	-0.14	0.88	0.427
1389	162	0.25	0.50	0.11	0.08	-0.11	0.84	0.479
1390	162	0.21	0.38	0.10	0.09	-0.10	0.87	0.429
1391	162	0.06	0.35	0.12	0.10	-0.12	1.33	0.057
1392	162	0.05	0.55	0.14	0.11	-0.14	1.04	0.232
1393	162	0.58	0.39	0.12	0.12	-0.05	0.68	0.749

Asset growth: This rate shows the amount of change in asset at the end of the year compared to the asset at the start of the year. It can be calculated by using the following equation:

$$GROW = \frac{ASSET_t - ASSET_{t-1}}{ASSET_{t-1}}$$

Where:

T = Total assets of firm

t-1 = Total assets of firm in year t-1

Control variables: In a research, the researcher can not study the effect of all variables on each other. Thus, some variables should be controlled to neutralize them.

Firm size (size): This variable is equal to the logarithm of market value of firm owners' equity and it can be calculated by the multiplication of the number of stocks in stock price.

Leverage: This variable is calculated by dividing long-term debts into total assets and represents the amount of capital financed through long-term debts of the firm.

Firm age: The number of years of the acceptance of the firms in Tehran Stock Exchange up to the end of the research period.

RESULTS AND DISCUSSION

Results of testing research hypotheses: First we have provided the descriptive statistics of each of research variables in the following table and then testing each of research hypotheses will be presented (Table 2).

The amount of skewness and pulling for the dependent variable of return are equal to -0.23 and 1.12, respectively and they are close to 0 and this shows the normality of this variable.

Mean and median of the variable asset growth are equal to 0.17 and 0.13 and this shows that an average amount of firm assets during the years between 2009 and 2014 have had 17% annual growth and the skewness amount of 1.21 shows that this variable has had a rightward skewness. The comparison of minimum and maximum amount of the variavle of size shows that firms have had almost the same sizes. Mean and median of the variable of leverage were 0.62 and 0.63 and they were close to each other and this shows that an average amount of 62% of assets of the firms in the sample was formed by their debts.

To investigate about the normality of the distribution of the dependent variable we have used Kolmogorev-Smirnov test. The results related to this test have been represented in the (Table 3).

The amount of meaningfulness probability for all variables during the years between 2009 and 2014 has been >0.05. Thus, the null hypothesis was not rejected for these variables. This means that the distribution of all dependent research variables has been normal (Fig. 1).

Testing the fixed feature of the variance of error sentences (residuals): Another presupposition of the linear regression is that all residual sentences have the same variance. Practically, it is probable that this presupposition is not correct due to some reasons such as: incorrect form of the model function, the existence of unusual points, structural fracture in the statistical population and ... then we will encounter variance incongruence. To investigate about this problem several tests were introduced by the economists. In this study, the presupposition of variance congruence of the residuals was tested by using Breusch-Pagan-Godfrey

test. The results represented in Table 4 show that the null hypothesis claiming the lack of variance congruence in the research model was not rejected because the amount of probability was equal to 0.469 and it was >0.05 (Table 4).

The adjustment of cross-sectional regression model of the year 2009: The amount of meaningfulness probability of F is equal to 0.000. It is <0.05. Thus, the null hypothesis is rejected in an assurance level of 95%. This means that in an assurance level of 95%, there is a meaningful model. The amount of identification coefficient is equal to 0.19. That is about 19% of the changes in the dependent variable could be explained by the independent variable. The amount of Durbin-Watson statistic is equal to 1.87. The amounts of close to 2 shows that there is a lack of self-correlation that is another presupposition in the regression. Thus, there is not self-correlation among the residuals (Table 5).

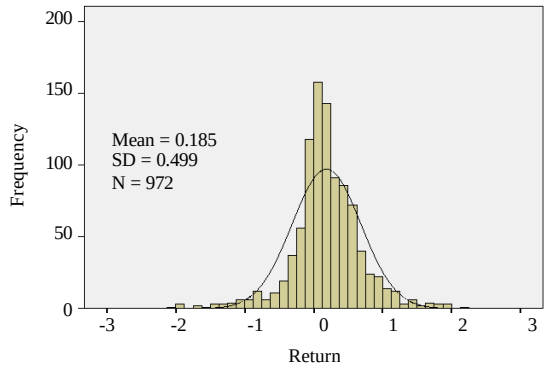

Fig. 1: Histogram figure of stock return

Table 4: The table of fixed amount test of the variance of error sentence by using Breusch-Pagan-Godfrey test

Test result	Statistic probability of the test
There is variance congruence between residual sentences in the regression	0.469003

The amount of t-statistic for asset growth is equal to 5.76 (meaningful and positive), for size it is equal to -0.14 (meaningless), for leverage it is equal to -0.70 (meaningless) and for age it is equal to -0.75 (meaningless). The amount of t-statistic for latitude from the base is equal to 0.20 and in an assurance level of 95%, it would fall within lack of the rejection of null hypothesis area. This means that latitude from the base is not meaningful (Table 6).

The adjustment of cross-sectional regression model of the year 2010: The amount of meaningfulness probability of F is equal to 0.017. It is <0.05. Thus, the null hypothesis is rejected in an assurance level of 95%. This means that in an assurance level of 95%, there is a meaningful model. The amount of identification coefficient is equal to 0.07. That is about 7% of the changes in the dependent variable could be explained by the independent variable. The amount of Durbin-Watson statistic is equal to 1.90 (Table 7).

The amount of t-statistic for asset growth is equal to 2.75 (meaningful and positive), for size it is equal to 1.03 (meaningless), for leverage it is equal to 1.82 (meaningless) and for age it is equal to 0.05 (meaningless). The amount of t-statistic for latitude from the base is equal to -0.99 and in an assurance level of 95%, it would fall within lack of the rejection of null hypothesis area. This means that latitude from the base is not meaningful (Table 8).

The adjustment of cross-sectional regression model of the year 2011: The amount of meaningfulness probability of F is equal to 0.000. It is <0.05. Thus, the null hypothesis is rejected in an assurance level of 95%. This means that in an assurance level of 95%, there is a meaningful model. The amount of identification coefficient is equal to 0.23. That is about 23% of the changes in the dependent

Table 5: The table of meaningfulness test of the correlation coefficient model and identification coefficient and Durbin-Watson for the model in year 2009

Financial year	Multiple correlation	R^2	Adjusted R^2	Durbin-Watson statistics	F-value	Prob.	Result
1388	0.43	0.19	0.17	1.87	9.08	0.000	Meaningful

Table 6: The adjustment table and estimation of model parameters for the year 2009

Financial year	Parameters	Coefficient	t-statistic	Prob.	Results	VIF
1388	Constant	0.1560	0.20	0.842	Meaningless	-
	Asset growth	0.9910	5.76	0.000	A significant and positive	1.02
	Size	-0.0090	-0.14	0.888	Meaningless	1.08
	Leverage	-0.1500	-0.70	0.488	Meaningless	1.09
	Age	-0.0094	-0.75	0.456	Meaningless	1.01

Table 7: The table of meaningfulness test of the correlation coefficient model and identification coefficient and Durbin-Watson for the model in year 2010

Financial year	Multiple correlation	R^2	Adjusted R^2	Durbin-Watson statistics	F-value	Prob.	Result
1389	0.27	0.07	0.05	1.90	3.11	0.017	Meaningful

Table 8: The adjustment table and estimation of model parameters for the year 2010

Financial year	Parameters	Coefficient	t-statistic	Prob.	Results	VIF
1389	Constant	-0.762	-0.99	0.326	Meaningless	-
	Asset growth	0.650	2.75	0.007	A significant and positive	1.13
	Size	0.063	1.03	0.306	Meaningless	1.20
	Leverage	0.374	1.82	0.071	Meaningless	1.14
	Age	0.0006	0.05	0.963	Meaningless	1.04

Table 9: The table of meaningfulness test of the correlation coefficient model and identification coefficient and Durbin-Watson for the model in year 2011

Financial year	Multiple correlation	R^2	Adjusted R^2	Durbin-Watson statistics	F-value	Prob.	Result
1390	0.48	0.23	0.21	1.80	11.72	0.000	Meaningful

Table 10: The adjustment table and estimation of model parameters for the year 2011

Financial year	Parameters	Coefficient	t-statistic	Prob.	Results	VIF
1390	Constant	0.470	0.85	0.394	Meaningless	-
	Asset growth	0.882	6.45	0.000	A significant and positive	1.06
	Size	-0.019	-0.44	0.663	Meaningless	1.22
	Leverage	-0.165	-1.18	0.238	Meaningless	1.21
	Age	-0.0040	-0.46	0.648	Meaningless	1.05

Table 11: The table of meaningfulness test of the correlation coefficient model and identification coefficient and Durbin-Watson for the model in year 2012

Financial year	Multiple correlation	R^2	Adjusted R^2	Durbin-Watson statistics	F-value	Prob.	Result
1391	0.33	0.11	0.09	2.15	4.77	0.001	Meaningful

Table 12: The adjustment table and estimation of model parameters for the year 2012

Financial year	Parameters	Coefficient	t-statistic	Prob.	Results	VIF
1391	Constant	0.653	1.23	0.222	Meaningless	-
	Asset growth	0.424	3.26	0.001	A significant and positive	1.10
	Size	-0.046	-1.10	0.272	Meaningless	1.22
	Leverage	-0.328	-2.53	0.012	A significant and normative	1.18
	Age	0.00778	0.91	0.365	Meaningless	1.05

variable could be explained by the independent variable. The amount of Durbin-Watson statistic is equal to 1.80 (Table 9). The amounts of model coefficients have been calculated in the (Table 10).

The amount of t-statistic for asset growth is equal to 6.45 (meaningful and positive), for size it is equal to -0.44 (meaningless), for leverage it is equal to -1.18 (meaningless) and for age it is equal to -0.46 (meaningless). The amount of t-statistic for latitude from the base is equal to 0.85 and in an assurance level of 95% it would fall within lack of the rejection of null hypothesis area. This means that latitude from the base is not meaningful.

The adjustment of cross-sectional regression model of the year 2012: The amount of meaningfulness probability of F is equal to 0.001. It is <0.05. Thus, the null hypothesis is rejected in an assurance level of 95%. This means that in an assurance level of 95%, there is a meaningful model. The amount of identification coefficient is equal to 0.11. That is about 11% of the changes in the dependent variable could be explained by the independent variable. The amount of Durbin-Watson statistic is equal to 2.15. The amounts of model coefficients have been calculated in Table 11 and 12.

The amount of t-statistic for asset growth is equal to 3.26 (meaningful and positive), for size it is equal to -1.10 (meaningless), for leverage it is equal to -2.53 (meaningless) and for age it is equal to -0.91 (meaningless). The amount of t-statistic for latitude from the base is equal to 1.23 and in an assurance level of 95%, it would fall within lack of the rejection of null hypothesis area. This means that latitude from the base is not meaningful.

The adjustment of cross-sectional regression model of the year 2013: The amount of meaningfulness probability of F is equal to 0.777. It is >0.05. Thus, the null hypothesis is not rejected in an assurance level of 95%. This means that in an assurance level of 95%, there is not a meaningful model. The amount of identification coefficient is equal to 0.01. That is about 1% of the changes in the dependent variable could be explained by the independent variable. The amount of Durbin-Watson statistic is equal to 1.77. The amounts of model coefficients have been calculated in Table 13.

The amount of t-statistic for asset growth is equal to 1.09 (meaningless), for size it is equal to 1.09 (meaningless), for leverage it is equal to 0.29 (meaningless) and for age it is equal to 0.80 (meaningless). The amount of t-statistic for latitude from the base is

Table 13: The table of meaningfulness test of the correlation coefficient model and identification coefficient and Durbin-Watson for the model in year 2013

Financial year	Multiple correlation	R^2	Adjusted R^2	Durbin-Watson statistics	F-value	Prob.	Result
1392	0.11	0.01	-0.01	1.77	0.44	0.777	Meaningless

Table 14: The adjustment table and estimation of model parameters for the year 2013

Financial year	Parameters	Coefficient	t-statistic	Prob.	Results	VIF
1392	Constant	-0.3490	-0.36	0.716	Meaningless	-
	Asset growth	0.1770	1.09	0.278	Meaningless	1.06
	Size	0.0220	0.29	0.770	Meaningless	1.15
	Leverage	0.1600	0.80	0.422	Meaningless	1.13
	Age	-0.0001	-0.01	0.994	Meaningless	1.01

Table 15: The table of meaningfulness test of the correlation coefficient model and identification coefficient and Durbin-Watson for the model in year 2014

Financial year	Parameters	Coefficient	t-statistic	Prob.	Result	VIF
1393	0.07	0.05	1.94	2.93	Meaningful	0.023

Table 16: The adjustment table and estimation of model parameters for the year 2014

Financial year	Parameters	Coefficient	t-statistic	Prob.	Results	VIF
1393	Constant	2.0190	3.05	0.003	A significant and positive	-
	Asset growth	0.2600	2.81	0.006	A significant and positive	1.06
	Size	-0.1150	-2.21	0.029	Significant negative	1.09
	Leverage	0.0090	0.07	0.943	Meaningless	1.10
	Age	-0.0109	-1.08	0.281	Meaningless	1.05

Table 17: The table of meaningfulness test of the correlation coefficient model and identification coefficient and Durbin-Watson for the model in years between 2009 and 2014

Financial year	Parameters	Coefficient	t-statistic	Prob.	Result	VIF
1385-1393	0.139	0.125	1.826	4.727	Meaningful	0.001

equal to -0.36 and in an assurance level of 95%, it would fall within lack of the rejection of null hypothesis area. This means that latitude from the base is not meaningful (Table 14).

The adjustment of cross-sectional regression model of the year 2014: The amount of meaningfulness probability of F is equal to 0.023. It is <0.05. Thus, the null hypothesis is rejected in an assurance level of 95%. This means that in an assurance level of 95%, there is a meaningful model. The amount of identification coefficient is equal to 0.07. That is about 7% of the changes in the dependent variable could be explained by the independent variable. The amount of Durbin-Watson statistic is equal to 1.94. The amounts of model coefficients have been calculated in Table 16 and 17.

The amount of t-statistic for asset growth is equal to 2.81 (meaningful and positive), for size it is equal to -2.21 (meaningful and negative), for leverage it is equal to 0.07 (meaningless) and for age it is equal to -1.08 (meaningless). The amount of t-statistic for latitude from the base is equal to 3.05 and in an assurance level of 95%, it would fall within lack of the rejection of null hypothesis area. This means that latitude from the base is not meaningful.

The adjustment of total research regression model: The model presupposed is as follows:

$$Return_{it} = \beta_0+\beta_1 AssetGrowth_{it}+\beta_2 Size_{it}+\beta_3 Leverage_{it}+\beta_4 Age_{it}+\varepsilon_{it}$$

The null hypothesis and countering hypothesis in this model are as follows:

$$\begin{cases} H_0: \beta_1=\beta_2=\beta_3=\beta_4=0 \\ H_1: \beta_i \neq 0 \; i=1,2,3,4 \end{cases}$$

$$\begin{cases} H_0: \text{there exist a meaningful model} \\ H_1: \text{there is not a meaningful model} \end{cases}$$

In Table 17, the results of regression analysis have been represented. The amount of meaningfulness probability of F is equal to 0.001. It is <0.05. Thus, the null hypothesis is rejected in an assurance level of 95%. This means that in an assurance level of 95%, there is a meaningful model. The amount of identification coefficient is equal to 0.139. That is about 14% of the changes in the dependent variable could be explained by the independent variable. The amount of Durbin-Watson statistic is equal to 1.826. The amounts of model coefficients have been calculated in Table 18.

The amount of t-statistic for asset growth is equal to 3.556 (meaningful and positive), for size it is equal to 0.793 (meaningless), for leverage it is equal to -1.003

Table 18: The adjustment table and estimation of model parameters for the years between 2009 and 2014

Financial year	Parameters	Coefficient	t-statistic	Prob.	Results	VIF
1385-1393	Constant	-0.201	-0.462	0.644	Meaningless	-
	Asset growth	0.284	3.556	0.000	A significant and positive	1.56
	Size	0.028	0.793	0.428	Meaningless	1.49
	Leverage	-0.089	-1.003	0.316	Meaningless	1.30
	Age	0.006	0.781	0.435	Meaningless	1.95

Table 19: Pearson's correlation matrix table for research variables

Variables	Return	Asset growth	Size	Leverage	Age
Return	1.000	0.280**	0.090**	-0.053	-0.004
Asset growth	0.280**	1.000	0.258**	-0.126**	0.049
Size	0.090**	0.258**	1.000	0.297**	-0.028
Leverage	-0.053	-0.126**	0.297**	1.000	0.120**
Age	-0.004	0.049	-0.028	0.120**	1.000

Table 20: Summary of research results (research findings)

Dependent	Independent	Financial year	Regression	t-statistic	Probability	Results hypothesis and relationship
Stock returns	Asset growth	1388	0.991	5.760	0.000	Direct confirmation
Stock returns	Asset growth	1389	0.650	2.750	0.007	Direct confirmation
Stock returns	Asset growth	1390	0.882	6.450	0.000	Direct confirmation
Stock returns	Asset growth	1391	0.424	3.260	0.001	Direct confirmation
Stock returns	Asset growth	1392	0.177	1.090	0.278	Direct confirmation
Stock returns	Asset growth	1393	0.260	2.810	0.006	Direct confirmation
Stock returns	Asset growth	88-93	0.284	3.556	0.000	Direct confirmation

(meaningless) and for age it is equal to 0.781 (meaningless). The amount of t-statistic for latitude from the base is equal to 0.45 and in an assurance level of 95%, it would fall within lack of the rejection of null hypothesis area. This means that latitude from the base is not meaningful.

Studying correlation coefficient between variables: To prove the linearity of the relationship we used correlation test (Pearson's correlation coefficient) because this criterion can measure the linear correlation amount between two variables. In the correlation matrix below, the amount of Pearson's correlation between dependent and independent variables has been calculated. The amount of correlation between variables in null hypothesis and countering hypothesis could be written as follows:

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

Pearson's correlation matrix has been calculated in Table 19 and the most important results were as follows:

- The amount of correlation of the dependent variable with asset growth variables is equal to 0.28 and it is meaningful and positive
- The amount of correlation of the dependent variable with size variables is equal to 0.09 and it is meaningful and positive
- The amount of correlation of the dependent variable with leverage variables is equal to -0.05 and it is meaningless
- The amount of correlation of the dependent variable with age variables is equal to -0.004 and it is meaningless
- The amounts of correlation between independent variables have been calculated and presented in Table 20

To study research hypotheses tests we have used cross-sectional regressions. The result of cross-sectional regressions test between the years 2009 and 2014 showed that there has been a positive and meaningful relationship between asset growth and stock return.

This result is the same as and compatible with results found by Wang *et al.* (2015). They studied about the relationship between asset growth and stock return in their research. They selected their sample from among valid bourses in the world such as Nazdak, New York and the United States during a 6 years time period. Finally, their results showed that asset growth increases stock return in such markets. They showed that the effect of asset growth on stock return in firms with smaller sizes would be more than firms with bigger sizes.

This result is also compatible with results in a research by Cooper *et al.* (2009). They also showed in their study on American firms that asset growth is

considered as an effective factor in predicting cross-sectional returns of stocks. They concluded that there has been a strong and positive relationship between asset growth and cross-sectional returns of stocks.

On the whole, the results of this research showed that shareholders pay lots of attention to asst growth in firms and increases in assets is considered as the reception of future earnings based on investments and this expectation increase results in increasing the stock price up to the current value of future expected earnings. This causes an increase in stock price in the market and following that the annual stock return will increase either. Thus, the stocks would be more attractive regarding other shareholders' and investors viewpoints (Wang *et al*., 2015).

CONCLUSION

Results of the present research showed that asset growth has had a direct and meaningful relationship with stock return in annual intervals. This result shows that increases in total assets by the managers results in positive reaction on the part of shareholders and it increases stock price as equal to the current value of total future earnings of the firm. This increase in future estimates of shareholders results in increasing the attractiveness of shareholders and leads to more demands of investors for the stocks.

SUGGESTIONS

Regarding the results of the present research, the following suggestions could be presented here: due to the results of research hypothesis claiming that there is a direct and meaningful relationship between asset growth and stock return, it can be suggested to investors and shareholders to purchase those stocks in the market that are expected to experience asset growth in short-term to prepare the required conditions to increase the return of their investments.

Regarding the results of research hypothesis, it can be suggested to the users of financial statements to pay more attention to the growth of total items in right part of the balance sheet in assessing investment portfolios and to pay attention to the capability of creating asset return and the capability of efficient use of business unit in assessing asset growth.

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