

The Effect of Fundamental Analysis on Stock *Returns* using Data Panels; Evidence Pharmaceutical Companies listed on IDX

Trisa Anjani,
Master of Management
Mercu Buana University
Jakarta, Indonesia

Andam Dewi Syarif
Lecturer at the Faculty of Business and Economics
Mercu Buana University
Jakarta, Indonesia

Abstract:- This research aims to figure out the effect of current ratio (CR), return on equity (ROE), net profit margin (NPM), debt to equity ratio (DER) and earning per share (EPS) to stock returns. The object of this study is the pharmaceutical industry listed on the Indonesia Stock Exchange in the period 2013 - 2017. Data were using panel data regression analysis with three approaches - Common Effect model, Fixed Effect model, and Random Effect Model. In selecting the model using Chow test, Haussman test, and Lagrange Multiplier test, the result is Fixed Effect Model that is suitable in this research. The F test results indicate that stock returns is influenced by CR, ROE, NPM, DER, and EPS. The results of the t-test show that CR, ROE, NPM, DER, and EPS have a partial influence on the stock returns of pharmaceutical companies.

Keywords:- CR, ROE, NPM, DER, EPS, Stock Returns.

I. INTRODUCTION

Market Index is a reflection of investors' expectations to invest in the stock market. The use of market returns as a proxy for expected returns is not only based on general market index returns, but also sectors indices where the shares are classified. Therefore, if measurements are based on certain sectors, then the right size of the market index is the sectors index.

Based on the calculation of stock returns per sector index for the period 2013-2017, the pharmaceutical sub-sector experienced the *capital gains* highest among the other sub-sectors. Of course, this will attract investors to invest in this sector. However, based on data from the Ministry of Industry, sales growth in the pharmaceutical sector declined in the 2013-2017 period. In 2013, the growth of the pharmaceutical sector was 5.10%, in 2014 it decreased by 1.06% to 4.04%. In 2015, it increased by 3.32% to 7.36%, then declined again in 2016 and 2017 by 5.48% and 5.26% respectively. This is certainly an investors question why the level of stock returns in the pharmaceutical subsector tends to be higher than other subsectors, but the sales growth of pharmaceutical companies has decreased. Will this

phenomenon affect stock returns that investors will receive in the future? Then what factors influence *returns* stock in the pharmaceutical subsector to help investors if they want to invest their shares?

In general, there are two analyzes that can be used, fundamental analysis and technical analysis. Fundamental analysis is an analysis that is often used by investors to dig deeper information. Fundamental analysis is based on the analysis of financial ratios. Financial ratio analysis is based on historical information and data presented in financial statements that can describe the company's performance that measures related to *returns* stock.

This research aims to figure out the effect of fundamental factors on stock returns. The object of this research is the pharmaceutical sub-sector companies listed on the Indonesia Stock Exchange between the period 2013-2017. This study is focused on; *Current Ratio* (CR), *Return on Equity* (ROE), *Net Profit Margin* (NPM), *Debt to Equity Ratio* (DER), and *Earning per Share* (EPS).

II. THEORY

Financial ratio analysis is the most common method used to analyze a company's financial performance. Because this analysis comes from the company's historical data, it can describe the condition of the company's performance at that time, in this case to assist investors in estimating the performance of the company.

Liquidity ratio is an indicator of the competence of the company to pay all short-term financial obligations at maturity by using the current available assets. Liquidity is not only concerned with the overall state of the company's finances, but also relates to its competence to convert certain current assets into cash. *Current Ratio* quantify the competence of current assets to pay current debt. This ratio is calculated by dividing current assets with current liabilities. Current assets include cash, tradable securities, receivables and inventories.

$$\text{Current ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

Profitability ratio is used to quantify the effectiveness of a company in generating profits. *Return on Equity* (ROE) is to compare net income after tax (minus preferred stock dividends, if any) with the equity that shareholders have invested in the company. (Van Horne and Wachowicz, 2008). ROE can be calculated using the following formula:

$$\text{Return on Equity} = \frac{\text{Net Profit After Taxes}}{\text{Shareholder's Equity}}$$

Net Profit Margin (NPM) a quantify of a company's profitability after calculating all costs and income taxes (Van Horne and Wachowicz, 2008). NPM is one of the most important indicators of the financial health of a business. By tracking the increase and decrease in net profit margins, a business can assess whether its current operations function financially well and estimate profit based on sales.

$$\text{Net profit margin} = \frac{\text{Net Profit After Taxes}}{\text{Net Sales}}$$

Leverage ratio is a quantify of a company's competence to produce assets financed by debt. *Debt to Equity Ratio* (DER) is a financial ratio indicating the relative proportion of shareholders' equity and debt used to finance a company's assets. DER can be calculated using the following formula:

$$\text{DER} = \frac{\text{Total Debt}}{\text{Shareholders Equity}}$$

Earnings per share (EPS) of companies are generally attractive to be presented to prospective shareholders and management. As we mentioned earlier, EPS represents the amount of dollars earned during that period in the name of each outstanding common stock (Gitman, 2002: 65), EPS can be calculated using the following formula:

$$\text{Earning per Share} = \frac{\text{Earning availabel for common stockholders}}{\text{Number of shares of common stock outstanding}}$$

➤ *Previous Studies*

1. Results of research by Parvati & Sudiartha (2016) CR has positive influence on stock returns. Oztürk & Karabulut Research (2016) CR has no effect on stock returns. Gharaibeh (2014), Sugiarti & Surachman (2016) in the results of his research stated that CR has a significant negative effect on stock returns. Whereas the Öztürk and Karabulut (2016) study shows that CR does not have an influence on stock returns.
2. The ROE study results have a positive and significant effect on stock returns supported by Ghi (2015), but the results of Zaheri and Barkhordary (2015) state the opposite that ROE has an influence negative and significant to stock returns. While the results of the study

of Anwwar (2016), and Latifah and Laila (2017) state that ROE has no effect on stock returns.

3. The results of the study by Anwar (2016), Oztürk and Karabulut (2016) show that NPM has a positive and significant influence, while the results of research by Susilowati and Turyanto (2011), Zaheri and Barkhordary (2015) show that NPM has no influence on stock returns.
4. Purwitajati and Putra (2016), Latifah and Laila (2017) show that DER has a positive and significant influence on DER on stock returns, while studies of Basarda, Moeljadi and Indrawati (2018), Pratiwi and Putra (2015) show that DER has a negative influence and significant DER. Gharaibeh (2014) further shows that there is no influence between DER and stock returns.
5. The results of the study that show EPS have a positive stock returns conducted by Ghi (2015), Atidhira and Yustina (2017), Muhammad and Ali (2018), Latifah and Laila (2017), while the study by Anwar (2016) shows a negative and significant. Then, Emamgholipour and Shirsavar (2013) showed no influence between EPS and stock returns.

➤ *Study Frameworks*

The theoretical framework in this study can be described as follows:

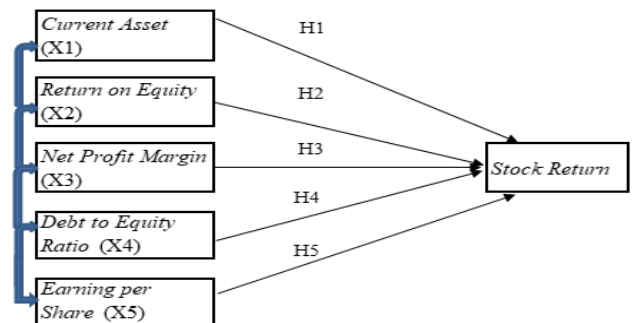


Fig 1

III. METHOD

The independent variables are CR (X1), ROE (X2), NPM (X3), DER (X4), and EPS (X5). While the dependent variable is Stock Return (Y). Causal research requires hypothesis testing with panel data regression analysis. The population is pharmaceutical companies listed on the Indonesia Stock Exchange. Sampling are 7 (seven) pharmaceutical companies listed on the Indonesia Stock Exchange in the period 2013 to 2017. Data is obtained from the Indonesia Stock Exchange (www.idx.co.id). Descriptive statistics provide an overview of data with averages, maximums, and minimums.

➤ *Stationary Test Stationer*

Test shows that panel data regression is a regression technique that combines data *time series* with *cross section*, because it has a element *time series*, it is necessary to do a

stationary test to test whether the research data meets stationary requirements. Stationary is a data condition *time series* which if the average, variant and covariance of the changes are not entirely influenced by time.

➤ *The Data Panel Regression Analysis*

Method of data analysis in this study uses the Panel Data Regression Analysis approach. Panel data is data that is the result of observations on several individuals or units (cross-sectional), each of which is observed in several time periods. With this approach, it will be known how much influence the variables CR, ROE, NPM, DER, and EPS on stock returns in the pharmaceutical subsector listed on the Indonesia Stock Exchange (IDX). Panel data is a combination of cross section and time series. In the estimation method of regression models using panel data can be done through three approaches namely Common Effect Model or Pooled Least Square (PLS), Fixed Effect Model (FE), Random Effect Model (RE). The selection of the right model can be described as follows:

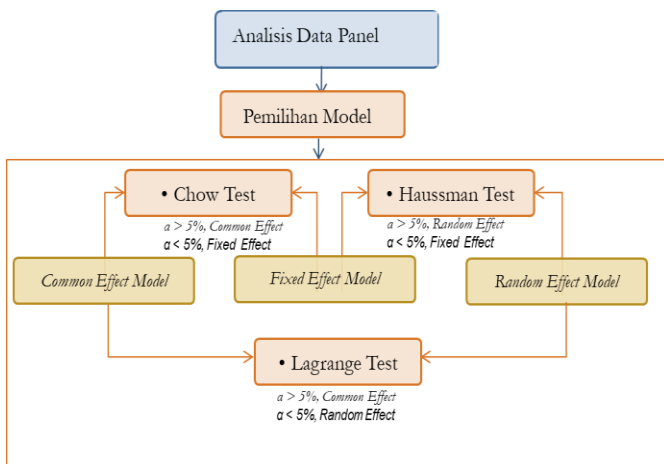


Fig 2

➤ *Coefficient of Determination (R²)*

The R² aims to quantify the competence of independent variables (CR, ROE, NPM, DER, EPS) in explaining the dependent variable (Stock Return).

➤ *F test*

The F test is used to find out whether the independent variable influences together the dependent variable. This test is conducted whether the independent variables (CR, ROE, NPM, DER and EPS) simultaneously influence the dependent variable (*Return Stock*).

➤ *t test*

The t-test is to test the relationship between the dependent variable and each independent variable in this study, CR, ROE, NPM, DER, and EPS at a significance level of 5% (0.05).

H₁: *Current Ratio (CR)* is suspected to have a significant effect on stock returns on pharmaceutical companies listed on the stock Exchange the period 2013- 2017.

H₂: *Return on Equity (ROE)* is suspected to have a significant effect on stock returns on pharmaceutical companies listed on the stock Exchange the period 2013-2017.

H₃: *Net Profit Margin (NPM)* is suspected to have a significant effect on stock returns on pharmaceutical companies listed on the stock Exchange the period 2013-2017.

H₄: *Debt to Equity Ratio (DER)* is suspected to have a significant effect on stock returns on pharmaceutical companies listed on the stock Exchange the period 2013-2017.

H₅ ; *Earning per share (EPS)* is suspected to have a significant effect on stock returns on pharmaceutical companies listed on the stock Exchange the period 2013-2017.

IV. RESULTS AND DISCUSSION

➤ *Stationary Tests*

In this study, testing stationary data using the Augmented Dickey-Fuller (ADF) test. Stationary test results at the level of the level produce a probability value of all variables smaller than α (0.05). This states that the data meets stationary or mean variance requirements, and the data covariance is constant or unchanging. Stationary test results can be seen in Table 1:

	T-Statistic	Probability
Stock Return	-5.9871	0.0000
Current Ratio	-7.2508	0.0000
Return on Equity	-4.5422	0.0009
Net Profit Margin	-7.1409	0.0000
Debt to Equity Ratio	-6.1452	0.0000
Earning per Share	-6.4480	0.0000

Table 1:- Stationary Test

➤ *Panel Data Regression Analysis*

The Panel data regression have three types of models, namely: *Common Effect* models, *Fixed Effect* models and *Random Effect* models. The following is a table of panel data modeling results before the best model selection is done:

Variable	Common Effect		Fixed Effect		Random Effect	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
CR	0.025180	0.9113	-0.497013	0.0086	0.006688	0.9637
ROE	2.018980	0.2963	2.968852	0.0449	1.972268	0.1205
NPM	0.194703	0.1022	0.806352	0.0000	0.210963	0.0108
DER	1.956469	0.0143	2.461325	0.0011	1.992874	0.0004
EPS	0.000356	0.0082	0.000248	0.0104	0.000354	0.0002

Table 2:- Data Panel Modeling Test Results

Test Chow: Chow test results indicate a probability smaller value of α (5%), $0.0000 < 0.05$. Therefore the CEM is not the right model and the FEM is the right model. The Chow Test Results can be seen in Table 3:

Effects Test	Statistic	df	Prob.
Cross-section F	7.833433	(6.23)	0.0001
Cross-section Chi-square	38.955334	6	0.0000

Table 3:- Chow Test

Hausman test: Hausman test results showed a smaller probability value of α (5%), $0.0000 < 0.05$. Therefore the *Random model effect* is not the right model and the *fixed effect model* is the right model. Hausman Test Results can be seen in Table 4:

Test Summary	Chi-Sq. Statistic	Chi-Sq. df	Prob.
Cross-section random	43.776022	5	0.0000

Table 4:- Hausman Test

From the results of the Chow Test and Hausman Test which show that Fixed Effect Model is the right model in this study. Therefore researchers did not conduct the Lagrange Multiplier test which tested between Common Effect Models with Random Effect Models.

➤ *Panel Data Regression Analysis with Fixed Effect Model*

Based on the above test, the *fixed effect model* is chosen to be the right model. Panel data regression results with *fixed effect models* using E-views. Panel data equation with *fixed effect model* in Table 5:

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.787855	0.551338	-1.428986	0.1665
CR	-0.497013	0.173130	-2.870752	0.0086
ROE	2.968852	1.399924	2.120724	0.0449
NPM	0.806352	0.149592	5.390326	0.0000
DER	2.461325	0.658824	3.735934	0.0011
EPS	0.000248	8.87E-05	2.790179	0.0104

Table 5:- Data Panel Regression Fixed Effect Model

Based on Table 5, the influence of CR (X1), ROE (X2), NPM (X3), DER (X4) and EPS (X5) on stock returns (Y) have a regression equation as follows:

$$Y = -0.7878 - 0.4970X1 + 2.9688X2 + 0.8063X3 + 2.4613X4 + 0.0002X5$$

1. The constant value (α) is -0.7878 shows that if the variables X1, X2, X3, X4 and X5 are zero, then the value of Y is equal to -2.9594.
2. Coefficient value (β) for variable X1 is 0.4970 and is negative. This means that every X1 increases, then Y will decrease by 0.4970 assuming variables X2, X3, X4, and X5 are fixed.
3. Coefficient value (β) for variable X2 is 2,9688 and is positive. This means that every X2 increases, then Y will also increase by 2.9688 assuming the variables X1, X3, X4, and X5 are fixed.

4. Coefficient value (β) for X3 variable is 0.8063 and is positive. This means that every X3 increases, then Y will also increase by 0.8063 assuming variables X1, X2, X4, and X5 are fixed.
5. Coefficient value (β) for variable X4 is 2.4613 and is positive. This means that every X4 increases, then Y will also increase by 2.4613 assuming variables X1, X2, X3, and X5 are fixed.
6. Coefficient value (β) for variable X5 is 0.0002 and is positive. This means that every X5 increases, then Y will also increase by 0.0002 assuming variables X1, X2, X3, and X4 are fixed.

➤ *Determination Coefficient (R²)*

Based on Table 6 it can be seen that the variable has a very strong correlation coefficient (R-squared) which is equal to 0.867. The coefficient of determination (R-squared) is 0.867 which means that 86.7% variable stock returns (Y) are influenced by CR (X1), ROE (X2), NPM (X3), DER (X4)

and EPS (X5) while the remaining 13.3% is influenced by other factors outside of research.

Effects Specification	
Cross-section fixed (dummy variables)	
R-squared	0.867290
Adjusted R-squared	0.803820

Table 6:- Coefficient of Determination (R²)

➤ *F Test*

Refer to the test results using the *fixed effect model*, the independent variable has a simultaneous influence on the dependent variable. The F-statistic probability value is 0.00000 <0.05. The results of the F test can be seen in Table 7.

Effects Specification	
cross-section	
F-statistic	13.66460
Prob (F-statistic)	0.000000

Table 6:- F Test

➤ *Test t*

The t test (partial test) is done to show how far each influence independent variables independent variables CR (X1), ROE (X2), NPM (X3), DER (X4) and EPS (X5) individually or partially influence or explain the dependent variable stock return (Y).

Impact of variable CR on stock returns: CR probability value is smaller than $\alpha: 0.05$ ($0.008 < 0.05$). Therefore, H_{0is} rejected and H_1 accepted. This shows that CR (X1) has a negative and significant effect on stock returns (Y). The results of this study support the study of Gharaibeh (2014), Zartab and Radmanesh (2013), Sugiarti, Surachman, Siti Aisjah (2016), Sutrani (2014) which in the results of his research say that the current ratio has a significant negative effect on stock returns. This is in accordance with what was stated by Ehrhardt and Brigham (91; 2011). Investors and shareholders do not like the high current ratio, because a high current ratio indicates that the company has many unproductive assets such as excess cash and inventory so that stock returns decline.

Effect of ROE variable on stock returns: ROE probability value is smaller than $\alpha: 0.05$ ($0.0449 < 0.05$). Therefore H_{0is} rejected and H_{2is} accepted. This shows that ROE (X2) has a positive and significant effect on stock returns (Y). In accordance with the results of this study that ROE has a positive and significant influence where if ROE increases, stock returns will increase. Where if ROE increases, the rate of return to investors also increases. The results of this study support previous studies from Trần Nha Ghi (2015), Zaheri and Barkhordary (2015), Allozi and Obeidat (2016), Muhammad and Ali (2018) .

Effect of NPM variables on stock returns: NPM probability value is smaller than $\alpha: 0.05$ ($0.0000 < 0.05$). Therefore, H_{0is} rejected and H_3 is accepted. This shows that NPM (X3) has a positive and significant effect on stock returns (Y). The results of this study support previous research by Anwaar (2016), Karabulut (2018), Saleh (2015), Idowu, Olokoyo, Akinrin, Osifo (2018), which states that there is a significant positive effect on stock returns.

Effect of DER variables on stock returns: DER probability value is smaller than $\alpha: 0.05$ ($0.0011 < 0.05$). Therefore, H_{0is} rejected and H_4 received This shows that the DER (X4) positive and significant impact on stock returns (Y). This is in accordance with the theory of Modigliani and Miller (MM theory) that companies will be better when using larger debt. Because to a certain extent the amount of debt can result in tax savings (*tax shield*) that can be used to increase cash flow for companies that have an impact on improving company performance. If the company's performance increases, investor interest in the company will be high and the impact on stock returns will increase. Therefore this study supports the theory of Modigliani and Miller, Susilowati and Turyanto's (2011) research, and Sutrani's (2014) study that with increasing DER a certain level of stock returns also increases.

Effect of variable EPS on *returns* stock: EPS probability value is smaller than $\alpha: 0.05$ ($0.0104 < 0.05$). Therefore, H_{0is} rejected and H_5 accepted. This shows that EPS (X5) has a positive and significant effect on stock returns (Y). EPS shows how well the company manages its capital resulting in high profitability. This is because that the increase in earnings per share will attract investors to invest. The results of this study support previous research from Ghi (2015), Muhammad and Ali (2018) Oztürk and Karabulut (2018) which states that EPS has a significant positive effect on stock returns.

V. CONCLUSIONS

Based on the results of the analysis, it can be concluded that the independent variable has a significant impact on stock returns of pharmaceutical companies listed on the Indonesia Stock Exchange for the period 2013-2017. CR variable has a negative and significant effect on stock returns with a probability value of $0.0086 < 0.05$ (α). ROE variable has a positive and significant effect on stock returns with a probability value of $0.0449 < 0.05$ (α). The NPM variable has a positive and significant influence on stock returns with a probability value of $0.0000 < 0.05$ (α). The DER variable has a positive and significant effect on stock returns with a probability value of $0.0011 < 0.05$ (α). EPS variables have a positive and significant influence on stock returns with a probability value of $0.0104 < 0.05$ (α). The coefficient of determination (R-squared) is 0.867 which means that 86.7% variable stock return (Y) is influenced by CR (X1), ROE

(X2), NPM (X3), DER (X4), EPS (X5). While the remaining 13.3% is explained by other variables explained by other factors outside of this study.

Companies must pay attention to the right funding sources to run their business. Both in terms of capital and risk costs so as to minimize the possibility of risks that can hinder the process of investment growth and optimize corporate profits. Companies must be careful in increasing funding sources from debt, although this can be profitable, but on the other hand it can be a big risk if the company fails to pay its obligations, which can cause losses to the company.

REFERENCES

- [1]. Abdullah, M N, Parvez K, Karim T. dan Tooheen R B. (2015). "The Impact of Financial Leverage and Market Size on Stock Returns on the Dhaka Stock Exchange: Evidence from Selected Stocks in the Manufacturing Sector". *International Journal of Economics, Finance, and Management Sciences*, Vol 3 No 1: pp 10-15. Bangladesh.
- [2]. Anwaar, Maryyam, "Impact of Firm's Performance on Stock Return (Evidence from Listed Companies of FTSE-100 Index London UK)". *Global Journal of Management and Business Research Accounting and Auditing*, Vol 16 Issue 1. Pakistan. 2016
- [3]. Asadi, Abdorreza, dan Ahmad Zendeheel. (2014). "Signalling Effect of Dividend Announcements in Tehran Stock Exchange". *Indian Journal of Commerce & Management Studies*. Iran.
- [4]. Ehrhardt, Michael C, and Eugene F Brigham, *Financial Management: Theory and Practice*, 13th Edition, South-Western Cengage Learning. USA, 2011.
- [5]. Gharaibeh, Adnan. (2014). "Capital Structure, Liquidity, and Stock Return". *European Scientific Journal*, Vol 10 No 25. Jordan.
- [6]. Ghi, Trần Nha. (2015). "The Impact of Capital Structure and Financial Performance on Stock Returns of The Firm in Hose". *International Journal of Information Research and Review*, Vol. 2, Issue, 06, pp. 734-737. Vietnam.
- [7]. Gitman, Lawrence J. (2002). *Principles of Managerial Finance*. Prentice Hall. 10th Edition. Boston.
- [8]. Jensen, Michael C. dan William H Meckling. (1976). *Theory of the Firm: Managerial Behavior, Agency Cost and Ownership Structure*. *Journal of Financial Economics*, Vol 3 No 4 pp 305-360. Harvard University
- [9]. Mantari, Jonnardi Sutan, dan Nuryasman. (2017). "Moderation Effect of Exchange Rate to Signaling Theory Validity in Indonesia Stock Exchange". *Business and Management Studies*, Vol. 3, No. 1 March. Jakarta
- [10]. Markowitz, Harry. (1952). *Portfolio Selection*. *The Journal of Finance*, Vol. 7 No. 1 pp. 77-91. America.
- [11]. Muhammad, Shakeel, dan Gohar Ali. (2018). "Relationship Between Fundamental Analysis and Stock Return Based on the Panel Data Analysis; Evidence from Karachi Stock Exchange". *Research Journal of Finance and Accounting*, Vol 9 No 3. Saudi Arabia
- [12]. Muthuswamy, Dr.P.R, dan R Rathi Devi. (2015). "Investors Risk Perception and Investors Information Seeking Behaviour on Investment Decision". *IJMRR*, Feb 2015 Volume 5 Issue 2 Article No 4 pp 91-100. India.
- [13]. Öztürk, Hakkı. dan Tolun A. Karabulut. (2018). "The Relationship between Earnings-to-Price, Current Ratio, Profit Margin and Return: An Empirical Analysis on Istanbul Stock Exchange". *Accounting and Finance Research* Vol. 7, No. 1; 2018. Turkey.
- [14]. Reilly. Frank K, dan Keith C Brown. (2012). *Investment Analysis and Portfolio Management*. Cengage Learning. 10th Edition. United States of America.
- [15]. Ross, Stephen. (1973). *The Economic Theory of Agency: The Principal's Problem*. *American Economic Review* Vol. 63 No. 2. America
- [16]. Van Horne, James C, and John M Wachowicz, *Fundamentals of Financial Management*, 13th Edition, Pearson Education, England, 2008.
- [17]. Zaheri, Fahimeh, dan Shokat Barkhordary. (2015). "Relationship between Financial Characteristics of Companies in Cement Industry and Their Stock Returns in Tehran Stock Exchange". *Research Journal of Recent Sciences*, Vol. 4(8), 77-83. Iran.