

THE RELATIONSHIP BETWEEN FUNDAMENTAL FACTORS AND STOCK RETURN: A CASE BASED APPROACH ON BANKING COMPANIES LISTED IN INDONESIA STOCK EXCHANGE

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Abstract: This study investigates the relationship of various fundamental factors in determining the stock price in Indonesia Stock Exchange (IDX). It consists of 22 listed banking companies under banking sub-sector in Indonesia Stock Exchange (IDX). This aim of this study is to figure out the relationship between stock price and companies performance, which include earning per shares (EPS), dividend per shares (DPS), fixed assets to total assets (FA/TA), return on assets (ROA), and return on equity (ROE) towards long term stock price changes. This paper is using annual data that gathered from company's financial annual report from 2005 to 2013. This study focused on the banking sub-sectors listed in Indonesia Stock Exchange. This study uses multiple regression analysis as a method for deeper understanding and analysis. This research found that there are not statistically significant relationship between chosen fundamental factors toward stock return. This study also expected to contributes for helping the investor in investing their valuable assets to stock market especially in banking sector. This research is quite interesting due to the topic research in Indonesia's context.

Keywords: Indonesia Stock Exchange, Stock Return, Fundamental Factors, Multiple Regression

Introduction

Nowadays, investment was became the part of our live. Unable to make money for their entire life force people to think about how they fulfill the needs in the future since every people have to retire and that is their ability would be limited. Saving might became an option for some of people to guarantee their future. But higher number of inflation especially in emerging market like Indonesia makes saving not really worth, since it decrease the value of the money. Furthermore, for concerned people, they will consider an investment as an alternative way to save their future. Commonly there are two options for investing the money: in real assets or in financial assets. Real asset are some kind which can be touch, smell, and hold. Which determine the productive capacity of an economy, that is, the goods and services its members can create. These include land, buildings, machines, and knowledge that can be used to produce goods and services (Taborek & Cohen, 2012). Investment in financial asset is more commonly known as securities, such as bond, stock, unit trust and others mutual fund. In investing on financial assets, the owner only have no more than a sheet of paper that state the ownership of the investors. The investors with limited funds can invest in the mutual funds and can have the benefits of the stock market and money market investments as specified by the particular fund "Introduction to Capital Market" (Bhat, 2011, p.44).

Indonesia as one of a developing country is being targeted as destination for investors to invest their money in its stock market. In relation on *Indeks Harga Saham Gabungan* (IHSG) or Jakarta Composite Index (JCI), Indonesian market has showed a positive performance which grew from about 1000 point in the beginning of 2005 to 4274 point at the end of 2013 (idx.co.id, 2015). The number of company listed in Indonesia Stock Exchange are also raising year by year. In 2005 there were 340 companies listed and in 2013 there were 487 companies listing their stock on Indonesia Stock Exchange. As the result, stock price in Indonesia fluctuates along the years, causing difficulties

to determine the movement of the stock. Furthermore it also caused difficulties to determine the right time to buy the stock and which company will give desirable return.

In investing on stock market, there are two ways of method that help investor to evaluate the stock's performance namely technical analysis and fundamental analysis. These methods are useful to help make a decision either to buy the stock or to sell the stock. Technical analysis is directed towards predicting the price of a security and basically it is the study of the markets. Technical analysis is used to study the technical characteristics which may be expected at market turning points and objective assessment. Technical analysts have developed tools and techniques to study past patterns and predict future price (Suresh, 2013). While, fundamental analysis is a method of evaluating a security performance by trying to measure its intrinsic value by examining financial, qualitative and quantitative factors, and other related economic. Fundamental analysis is a study to learn any related factors that can affect the security's value, including individual specific factors and macroeconomic factors. This method is usually preferably chosen by investor because this method could predict long-run stock's performance. Fundamental analysis has several advantages which are able to predict long term trend, value spotting, and business acumen (Suresh, 2013). In this research, there are namely twenty two public listed banks that were listed in Indonesia Stocks Exchange market from nine years period (2005 to 2013). This study tries to evaluate the significant level of fundamental factors and its relationship toward stock return. Moreover each fundamental factor will be compare with stock return to know the significant level of the fundamental factors toward the stock return.

Literature Review

Investment is the current commitment of money or other resources in the expectation of gaining benefit in the future "The Investmnet Environtment" (Bodie, Kane, & Marcus, 2013, p.1). A return is the income of an investment. Investment is a change in value over each period divided by the amount of the initial investment at the beginning of the period (Fabozzi & Drake, 2009). A key of investor's success is about the amount their funds have grown during their investment period (Bodie, Kane, & Marcus, 2013).

The rise and fall of trader and investor's confidence in stock market is the basic factor of stock price movement which cause the return of each stock. If they become optimistic about the fundamental of market condition or fundamental of the company they tend to purchase the stock. On the other hand, when they judge the market will fall or become pessimistic, they tend to sell the stock. Overall, in the long-run, growing earning and growing economy will be reflected in share price growth (Teweless and Bradley, 1998).

In investing on stock market, there are namely two ways of method that helps investor to evaluate the performance, there are technical analysis and fundamental analysis. These methods are useful in order to make a decision either to buy the stock or to sell the stock. Fundamental analysis requires the investors to analyze the characteristic of the company in order to estimates the value and its performance. Fundamental analysis is a study of past earning, evaluation of firm's quality management, examine the company's financial statement, analysis of the economic, and also the prospect of the industry to "The Efficient Market Hyphothesis" (Bodie, Kane, & Marcus, 2013, p.350-351). Technical analysis is a study of past information on price and trading volume, and it gives picture to the investors what lies in the future "What is technical analysis?" (Bhat, 2011, p.166).

Previous researcher have been conducted various study to investigate capital market from different perspective. Based on study conducted by Haque & Faruquee their research is conducted in Dhaka Stock Exchange (DSE) which is to identify the influence of various fundamental factors such as Return on Equity (ROE), Return on Assets (ROA), Fixed Assets to total Assets (FA/TA), Earning per

Share (EPS), and Dividend per Share (DPS) in determining the market. The study conclude that current market price is highly overvalued compared to the ideal value of stocks, which reinforces that fact that the impact of unauthorized information has a greater influence in determining the price of stocks in pharmaceuticals and chemical industry and the market price is very insensitive toward chosen fundamentals variables. (Haque & Faruquee, 2013).

Based on Allahawiah & Al-Amro research in Amman Stock Exchange, they try to identify the influence of basic factors in the market share price of listed companies from the respondent's opinions' perspective. The result showed that the most influence factor was the inflation rate, while the least one was the nature of firm business (Allahawiah & Al-Amro, 2012).

Barbić & Jurkić had their research aimed to analyze the relationship between stock market indices and macroeconomic variables. This study conclude that in general advocated there are long-run relationship between stock market indices and macroeconomic variables (Barbić & Jurkić, 2010).

Another research was conducted by Soomro et al., which analyzed the influence of several fundamentals factor such as individual retained earnings, debt ratio, net cash flow, sales, and number of shares on stock price. It showed that individual retained earnings, net cash flow, sales, and number of shares has positive correlated with stock price (Soomro et al. 2010).

Chowdhury & Chowdhury (2010) conducted their research in Bangladesh on Dhaka Stock Exchange (DSE) and Chittagong Stock Exchange (CSE). Their research is to analyze the relationship between capital structure and firm value in Bangladesh. The research found a strong co-relation among current ratio, operating leverage, EPS, dividend payout ratio or share capital and stock price (Chowdhury & Chowdhury, 2010).

In a study conducted by Billmeier & Massa aimed to analyze the Egyptian stock market has two objective; first is to explore the relationship between the Egyptian and other stock markets and the second is to compare the performance of the major stock price index with its underlying fundamentals. This study conclude that there is some evidence against a stable relationship between the Egyptian index and its fundamental value; and in short-term correlations and long-term co integrating relations provide conflicting signals on the value of Egyptian stocks as a means of diversification (Billmeier & Massa, 2009).

Al-Zubi & Salameh tried to find out the relationship between variables of Industrial production, expected inflation, unanticipated inflation and term structure and stock returns in the industrial sector in Jordan Stock Exchange. The researcher conclude that there only two variables which have long-run relationship but there is no short-run relationship among them (Al-Zubi & Salameh, 2007). A study conducted by Irfan & Nishat to explain the price changes due to six fundamental factors such as dividend yield, payout ratio, size of the firm, leverage, earning volatility and asset growth. Their research conducted during 1981 to 2000 in Karachi Stock Exchange using annual balance sheet data. Researchers found that there are variables other than dividend yield, payout ratio, size of the firm, leverage, earning volatility and asset growth which may be more important and relevant to explain the share price variation in Pakistan (Irfan & Nishat, 2002).

Methodology

Population and sample

The Population of banking sector is consists of 44 companies. The companies that are included in population are the companies which have been listed in Indonesia Stock Exchange in period of 2005-2013. Sample that used in this research are 22 members of the population and in the process of choosing this sample, it requires to taking sampling method. Judgment sampling method applied because it allows the author to ascertain the factors and certain categories for sampling. The criteria

for determining the sample are; public listed firms in banking sector of Indonesia Stock Exchange (IDX) in period of 2005 – 2013 and have not been delisted since that period.

Measurement

The aims of the objective of this research is to examine the significant level of relationship between earning per share (EPS), dividend per share (DPS), the ratio of fixed asset to total asset (FA/TA) return on equity (ROE), and return on assets (ROA) towards stock return in Banking sector. Furthermore, this research expected that the result of the analysis will present the significant level of chosen fundamentals towards stock return and how the relationship of chosen fundamentals toward stock return. Based on general statistical standard regression analysis significance value has been accepted up to 0.05.

Data processing

This model is applied and modified based on previous research conducted by Haque & Faruquee in 2013. They use this model in order to determining the relationship of various fundamental such as earning per share (EPS), dividend per share (DPS), the ratio of fixed asset to total asset (FA/TA) return on equity (ROE), and return on assets (ROA) between stock price. But for this research, those variables will explain the relationship towards stock return. This model has been chosen since this model has been previously tested in Dhaka Stock Exchange and sufficient in explaining price changes with several common fundamental factors included.

$$Y \text{ Stock Return} = \beta_1 + \beta_2 * EPS + \beta_3 * DPS + \beta_4 * FAtaTA + \beta_5 * ROE + \beta_6 * (ROA)$$

Regression model

1. Dependent Variable: Stock Return (Y)
2. Independent Variable: Earning per Share (x₁), Dividend per Share (x₂), Fixed Asset to Total asset (x₃), Return on Equity(x₄), Return on Asset (x₅).

Earning per Share

EPS measure the net income per share of common stock outstanding during a period "Corporate Earnings, International Transactions, and Investment in Stocks" (Warren, Fess, & Reeve, 1996, p.543). Which indicate the profits available to the ordinary shareholders on a per shares basis (Periasami, 2009). In addition every public corporation must report earning per shares on their income statement. Moreover, higher value in EPS will gain more attraction to the investors to purchase the stock.

Dividend per Share

Dividend per share (DPS) shows how much a company pays out in dividends each year compare to each of its share. In the absence of any capital gains, dividend is the return on investment for a stock (Haque & Faruquee, 2013).

Fixed Assets to Total Assets

Fixed asset to total assets (FA/TA) indicates the stability of the company (Haque & Faruquee, 2013). While fixed asset has larger portion of the total asset it ensure that the risk of losing investment is very low at the point of bankruptcy.

Return on Equity

Return on Equity (ROE) focused only on profitability on equity investment. It equals net income realized by shareholders per dollar they have invested in the firm "Financial Statement Analysis" (Bodie, Kane, & Marcus, 2013, p.636). ROE also measure of how the stockholder fared during the year. Because the maximizing shareholder benefit is the goal, ROE become the measure of performance "Working with Financial Statement" (Rose, Wasterfield, & Jaffe, 2010, p. 62).

Return on Assets

Return on Assets (ROA) is a measure of profit per dollar of assets "Working with Financial Statement" (Rose, Wasterfield, & Jaffe, 2010, p. 62). Moreover, ROA tells the income earn per dollar deployed in the firm "Financial Statement Analysis" (Bodie, Kane, & Marcus, 2013, p.636). Firms with higher assets should be able to raise money in security markets because they offer prospects for better returns on the firm's investments.

Hypothesis

Hypothesis of Earning per Share

Ho: there is no statistically significant relationship between earning per shares toward stock return.

H₁: there is statistically significant relationship between earning per shares toward stock return.

Hypothesis of Dividend per Share

Ho: there is no statistically significant relationship between dividend per shares toward stock return.

H₁: there is statistically significant relationship between dividend per shares toward stock return.

Hypothesis of Fixed Asset to Total Asset

Ho: there is no statistically significant relationship between fixed assets to total assets toward stock return.

H₁: there is statistically significant relationship between fixed assets to total assets toward stock return.

Hypothesis of Return on Assets

Ho: there is no statistically significant relationship between return of assets toward stock return.

H₁: there is statistically significant relationship between return of assets toward stock return.

Hypothesis of Return on Equity

Ho: there is no statistically significant relationship between return on equity toward stock return.

H₁: there is statistically significant relationship between return on equity toward stock return.

Data Analysis

Descriptive Statistic

Variable	Obs	Mean	Std. Dev.	Min	Max
emiten	0				
tahun	188	2009.165	2.541514	2005	2013
er	188	.1468777	1.94174	-1.404736	20.53174
roa	188	1.303213	4.415093	-52.09	5.15
roe	188	8.140538	81.21683	-981.63	402.86
fata	188	.0301229	.0195034	.0089733	.1110454
eps	188	130.4096	189.4994	-157	956
dps	188	31.14055	56.11015	0	225.232
code	188	11.68085	6.307135	1	22

Descriptive Statistic

Descriptive statistic showed the number of data (N) that used in this research, minimum value, maximum value, average value (mean), and standard deviation of each variable (James, 2007). Standard deviation is a measure of how spread out the numbers are. A low standard deviation indicates that the spread out of the data tend to be very close to the mean (also called expected value); a high standard deviation indicates that the data point are spread out over a large range of values. When expected value of each variable is smaller than the standard deviation, usually outlier data is exist.

Hausman test

Hausman test is the standard procedure used in empirical panel data analysis in order to identify which model is better between fixed effect model or random effect to be used in the research (Hausman, 1978). This test uses the statistic distribution *Chi-Squares* with degree of freedom as much as independent variables. Ho or null hypothesis of this test stated that this model is better using random effect model while the alternative hypothesis (H₁) stated is better using fixed effect model. If the statistic value of Hausman test is lower than the Chi-Squares value so the Ho is rejected or choose fixed effect model. But, while the value of Hausman test is greater than Chi-Square so the Ho is accepted or choose random effect model.

	Coefficients			
	(b) fixed	(B) random	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
roa	-.0534722	-.0066638	-.0468084	.0736227
roe	.0028786	.0009932	.0018855	.0029549
fata	12.28253	.1963433	12.08619	15.76286
eps	-.0007374	-.0003691	-.0003683	.0009434
Test: Ho: difference in coefficients not systematic				
chi2(3) = (b-B)'[(V_b-V_B) ⁻¹](b-B)				
= 2.51				
Prob>chi2 = 0.4739				

According to the table above, the value of **Prob>chi2 = 0.4739** or less than 0.05 it means that the decision is to accept the Ho. So it can be concluded that Random Effect Model is more suitable rather than Fixed Effect Model.

Random effect model

Random effects model aim is not to estimate one true effect, but to estimate the mean of a distribution of effects. This model is useful if entity that is sampled is chosen randomly and become the sample from population. This model is considering the error that may arise and correlated in cross section and time series. OLS techniques can't be used to obtain an efficient estimator, so it is more appropriate to use the method of Generalized Least Square (GLS) (Borenstein, 2009).

Random-effects GLS regression		Number of obs = 188	
Group variable: code		Number of groups = 22	
R-sq: within	= 0.0017	Obs per group: min	= 5
between	= 0.0014	avg	= 8.5
overall	= 0.0017	max	= 9
Random effects u_i ~ Gaussian		Wald chi2(5)	= 0.32
corr(u_i, X) = 0 (assumed)		Prob > chi2	= 0.9973

er	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
roa	-.0066638	.092987	-0.07	0.943	-.188915	.1755873
roe	.0009932	.0048313	0.21	0.837	-.008476	.0104624
fata	.1963433	7.878682	0.02	0.980	-15.24559	15.63828
eps	-.0003691	.001319	-0.28	0.780	-.0029542	.002216
dps	.0001809	.0042914	0.04	0.966	-.0082302	.0085919
_cons	.1840676	.3258668	0.56	0.572	-.4546195	.8227548
sigma_u	0					
sigma_e	1.9724739					
rho	0					
					(fraction of variance due to u_i)	

According to the table above, this mathematical model describe 0.17 % variation that affect through dependent variable which is stock return. Furthermore, significant variable diagnosed by p>|t| that has value less than 0.05 since the confidence level is 95%. From the result, all chosen variables such as earning per shares (EPS), return on assets (ROA), return on equity (ROE), dividend per shares (DPS) and fixed assets to total assets (FA/TA) has no statistically significant toward stock return. R-sq overall value shows the model has 0.0017. It means that this model has explains about 0.17 % through dependent variable. Remaining 99.83% might be describe by the others variable exclude current independent variable such as earning per shares (EPS), dividend per shares (DPS), fixed assets to total assets (FA/TA), return on equity (ROE), and Return on Assets (ROA).

According to fixed effect model result table above, the multiple regression equation is obtained follow:

$$\text{Stock Return} = 0.1840676 - 0.0003691 * EPS + 0.0001809 * DPS + 0.1963433 * FA/TA + 0.0009932 * ROE - 0.0066638 * ROA$$

Regression model

Value of regression coefficient on the independent variable shows if the independent variable is increasing as much as 1 unit and the other independent variable assumed to be constant depends on the plus or minus sign on the coefficient regression of the independent variable. From the regression model above, its knows that constant value is 0.1840676 which means that if independent variable value is equal with zero, then stock return (Y) will have the value of 0.1840676. The positive (+) and Negative (-) sign in front of independent variables explains the relationship of variables with stock return.

The value of coefficient regression for X₁ is negative, it means that there is a negative relationship between EPS (X₁) and stock return (Y). Coefficient regression value of X₁ is -0.0003691 shows that every increasing in EPS (X₁) as much as 1 unit will decrease the stock return by 0.0003691.

The value of coefficient regression for X₂ is positive, it means that there is a positive relationship between DPS (X₂) and stock return (Y). Coefficient regression value of X₂ 0.0001809 is shows that every increasing in DPS (X₂) as much as 1 unit will increase the stock return by 0.0001809.

The value of coefficient regression for X₃ is positive, it means that there is a positive relationship between FA/TA (X₃) and stock return (Y). Coefficient regression value of X₃ 0.1963433 is shows that every increasing in FA/TA (X₃) as much as 1 unit will increase the stock return by 0.1963433.

The value of coefficient regression for X₄ is positive, it means that there is a positive relationship between ROE (X₄) and stock return (Y). Coefficient regression value of X₄ is 0.0009932 shows that every increasing in ROE (X₄) as much as 1 unit will increase the stock return by 0.0009932.

The value of coefficient regression for X₅ is negative, it means that there is a negative relationship between ROA (X₅) and stock return (Y). Coefficient regression value of X₅ - 0.0066638 is shows that every increasing in ROA (X₅) as much as 1 unit will decrease the stock return by 0.0066638.

Research Findings

Chosen variable such as earning per share (EPS), dividend per share (DPS), fixed asset to total asset (FA/TA) as return on assets (ROA), and return on equity (ROE) do not have statistically significant relationship toward the stock return. Dividend per share (DPS), fixed asset to total asset (FA/TA), return on equity (ROE) are positively relationship with stock return. Meanwhile earning per share (EPS) and return on assets (ROA) are negatively relationship with stock return. This research was done only in banking industries subsector which consist of 22 public listed Bank in IDX. Further, this research only examine the years from 2005 to 2013 and only considering five fundamental factor such as ROA, ROE, FA/TA, EPS, and DPS. Therefore, the result cannot be generalized. For better result, further research could add more industries, sample, years, and fundamental factors in order to achieve better result in explaining the relationship between fundamentals factor toward stock return in IDX. Further research could observe whether there are differences between normal and crisis condition. It might be helpful to study the effect of fundamental factors in both conditions for deeper understanding.

References

- Allahawiah, S. & Al-Amro, S. (2012), *Factors affecting Stock Market Prices in Amman Stock Exchange: A Survey Study*, European Journal of Business and Management, Vol 4, No.8.
- Al-Zubi, K. & Salameh, H. (2007), *Explaining the Stock Return Via a Macroeconomic Multifactor Model*, Jordan Journal of Business Administration, Volume 3, No. 1.

- Barbić, T. and Jurkić, I.C. (2010), *RELATIONSHIP BETWEEN MACROECONOMIC*.
- Bhat, S. (2011), *Security Analysis and Portfolio Management*, Excel Book Private Limited, New Delhi.
- Billmeier, A. & Massa, I. (2009), 'Go Long or Short in Pyramids? News from the Egyptian Stock Market', IMF, Middle East and Central Asia Department, room HQ1-6-507, 700, 19th Street NW, Washington DC 20431, United States.
- Bodie, Z.; Kane, A.; & Marcus, A. (2013), *Essential of Investment*, McGraw-Hill, United States of America.
- Chowdhury, A. & Chowdhury, S. P. (2010), *Impact of Capital Structure on Firm's Value: Evidence from Bangladesh*, Business and Economic Horizon, 3 (3), 111-122.
- Colander, D. C. (2013), *Economics*, McGraw-Hill, New York.
- Fabozzi, F. J. & Drake, P. P. (2009), *Finance: Capital Markets, Financial Management and Investment Management*, John Wiley & Sons, Ltd.
- Ghozali, I. (2006), *Aplikasi Analisa Multivariate dengan Program SPSS*. Semarang: Badan Penerbit Universitas Diponegoro.
- Haque, S. & Faruquee, M. (2013), *Impact of Fundamental Factors on Stock Price: A Case Based Approach on Pharmaceutical Companies Listed with Dhaka Stock Exchange* International Journal of Business and Management Invention ISSN (Online): 2319 – 8028, ISSN (Print): 2319 – 801X www.ijbmi.org Volume 2 Issue 9.
- Hausman, J.A. (1978), *Specification Tests in Econometrics*, Econometrica, 46, 1251-1271.
- Indonesia Stock Exchange 2015, Informasi Pasar, Available from: <<http://www.idx.co.id/id-id/beranda/informasipasar/daftarefek/saham.aspx>>. [2 September 2015]
- Irfan, C. M. & Nishat, M. (2002), *Key Fundamental Factors and Long-run Price Changes in An Emerging Market ---A Case Study of Karachi Stock Exchange*, Applied Economics Research Centre University of Karachi.
- Meggison, W. L. (1997). *Corporate Finance Theory*. Boston: Addison Wesley.
- Borenstein, M.L.V.; Hedges, J.P.T.; Higgins; & Rohstein, H.R. (2009), *Introduction to Meta-Analysis*.
- Nachrowi, & Hardius, U. (2002), *Penggunaan Teknik Ekonometri*, Rajawali Pres, Jakarta.
- Periasami (2009), *Financial Management*, Tata McGraw-Hill Education, New Delhi.
- Ross, S.A.; Westerfield, R.W.; & Jordan, B.D. (2010), *Corporate Finance*, McGraw-Hill, New York.
- Soomro, S.; Bhutto, N.A.; & Abbas, G. (2010), *Stock Market Cycles Generation of Non-Financial Companies in Pakistan*, Asian Journal of Business and Management Sciences ISSN: 2047-2528, Vol. 1, No. 57 [57- 64].
- Stock, J.H. & Watson, M.W. (2007), *Introduction to econometrics 2nd ed.*, Boston: Pearson Addison Wesley.
- Suresh, A.S. (2013), *A Study on Fundamental and Technical Analysis*, International Journal of Marketing, Financial Services & Management Research ISSN 2277- 3622, Vol.2, No. 5, May (2013). www.indianresearchjournals.com
- Taborek, M. & Cohen, J. (2012), *Real Assets for the Defined Contribution Menu*, Russel Investment.
- Teweless, R. J. & Edward, S. B. (1998), *The Stock Market*, John Wiley & Sons, New York.
- Warren, E.; Fess, P.; Reeve, J. M. (1996), *Accounting*, International Thompson Publishing, Ohio.