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The Effect of Beta, and Residual Income on Stock Return in The Manufacturing Industry in The Indonesia Stock Exchange

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ABSTRACT

This study intends to re-examine the factors that affect the level of stock returns. In this study, the factors studied are beta and residual income, and the level of stock return is indicated by the closing price. This study is a replication of Pradhono's research which examines the effect of Economic Value Added, Residual Income, Earnings, and Operating Cash Flows on the return received by shareholders. In this study, there are several differences from previous research.This study uses another variable, namely beta which is measured by point estimation using historical data and subjective estimates. The results of this study are partially beta variable has a significant influence on stock returns. Based on the partial test results, the residual income variable does not have a significant effect on stock returns. Simultaneous test results show that residual income and beta have a significant effect on stock returns in manufacturing companies listed on the Indonesia Stock Exchange (IDX). Thus the results of this calculation can be taken as a decision that accepts the hypothesis, meaning that Beta and residual income simultaneously have a significant effect on stock returns in manufacturing companies listed on the Indonesia Stock Exchange (IDX)

1. Introduction

One of the considerations for someone to invest is to get certain benefits from the investment he makes. Every investor will have the same motive, that is, every invested fund can contribute in the form of financial benefits[1]. Investors for their investment expect to obtain the maximum return (rate of return) with a certain risk. Return is one of the factors that motivate investors to invest and is also a reward for the courage of investors to take risks on their investments. Returns can be in the form of capital gains or dividends for investments in stocks and interest income for investments in debt securities. This return is an indicator to increase the wealth of investors, including shareholders.

Private companies including State-Owned Enterprises (BUMN) must-have products with better quality and better services compared to them[2].Investors will be very happy if they get a higher return on investment from time to time. Thus, investors and potential investors have an interest in being able to predict how much their investment will be. Investors always look for investment alternatives that provide the highest return with a certain level of risk. An investor will be faced with two kinds of risks, namely fundamental risk and market risk[3]. Fundamental risk can be identified by looking at the issuer's financial policy, namely financial leverage. Investors should pay attention to stock market risks. Market risk is also called systematic risk, "a systematic risk is any risk that effects a large number of assets, each to a greater or lesser degree"[4]. Market risk is closely related to changes in the price of certain types of shares or certain groups caused by investors' anticipation of changes in the expected rate of return. Many ways are used to measure security risk. One way is to use the beta coefficient. The beta of security indicates its systematic risk which cannot be eliminated by diversification. Knowing the beta of a security or portfolio beta is important for analyzing the security or portfolio. The beta of security shows the sensitivity of the return of a security to market changes[5]. Beta also describes the expected stock return. Beta is an appropriate measure of the market index because the risk of well-diversified security depends on the sensitivity of each stock to market changes, namely on the beta of these shares.

In getting dividends or high returns, investors must also pay attention to the company's performance in the form of the funds invested, through the Residual income method, it can be seen that performance measurements reflect the company's success in adding investment value to shareholders. Residual income is an operating income that is obtained when the investment yields a return above the minimum rate of return on its assets. A positive residual income indicates an excess of profit from what is needed by creditors and capital owners, which means it is wealth for residual claimants, namely shareholders, on the other hand, negative residual income means a decrease in shareholder wealth[6].

Based on the description above, this study intends to re-examine the factors that affect the level of stock returns. In this study, the factors studied are beta and residual income, and the level of stock return is indicated by the closing price. This research is a replication of research Pradhono which examines the effect of Economic Value Added, Residual Income, Earning, and Operating Cash Flow on the Return received by shareholders[6]. In this study, there are several differences from previous research. This study uses another variable, namely beta which is measured by point estimation using historical data and subjective estimates, while previous research Residual income is measured by units of rupiah per share. This study only chooses one type of company, namely manufacturing companies listed on the Indonesia Stock Exchange.

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This is intended to avoid industrial effects and since the manufacturing industry is the largest industrial group in the Indonesia Stock Exchange (IDX). The selection of the manufacturing industry is based on the consideration that public companies included in the manufacturing sector seem to dominate all companies listed on the Indonesian stock exchange. Then, The population used in this study is a manufacturing company. Based on the description above, the authors are interested in researching the Effect of Beta and Residual Income on Stock Returns in the Manufacturing Industry on the Indonesia Stock Exchange.

2. Research Method

In this study, the population is all manufacturing companies listed on the Indonesia Stock Exchange in 2017-2020 and published financial reports as of December 31 for the 2017-2020 financial year totaling 94 companies. To select the target or target population, the purposive sampling method is used, namely, the sampling method is not random and the sample is selected based on certain considerations or criteria. The data used in this study is secondary data and all types of data are quantitative. Daily stock price data and daily composite stock price index (JCI) from 2017-2020 to calculate stock returns and market returns obtained from the capital market reference center (PRPM). The share price used is the closing price. In the calculation of beta used monthly stock prices and the composite stock price index. Residual income is measured in rupiah per share. Data collection techniques are carried out using documentation, namely data collection based on records that are already available on the IDX by classifying financial statement data based on predetermined criteria. Following the framework of thought and hypotheses, these variables can be identified as dependent and independent variables. The independent variable is the type of variable that explains or influences other variables, the dependent variables in this study are beta and residual income. Data collection techniques are carried out using documentation, namely data collection based on records that are already available on the IDX by classifying financial statement data based on predetermined criteria. Following the framework of thought and hypotheses, these variables can be identified as dependent and independent variables. The independent variable is the type of variable that explains or influences other variables, the dependent variables in this study are beta and residual income. Data collection techniques are carried out using documentation, namely data collection based on records that are already available on the IDX by classifying financial statement data based on predetermined criteria. Following the framework of thought and hypotheses, these variables can be identified as dependent and independent variables. The independent variable is the type of variable that explains or influences other variables, the dependent variables in this study are beta and residual income. Following the framework of thought and hypotheses, these variables can be identified as dependent and independent variables. The independent variable is the type of variable that explains or influences other variables, the dependent variables in this study are beta and residual income. Following the framework of thought and hypotheses, these variables can be identified as dependent and independent variables. The independent variable is the type of variable that explains or influences other variables, the dependent variables in this study are beta and residual income.

2.1 Beta

Beta is the risk that cannot be diversified (avoided), also known as market risk, expressed by the formula[7] :

$$\beta_i = \frac{\sum_{t=1}^{n} (R_{it} - \overline{R_{it}}) \cdot (R_{mt} - \overline{R_{mt}})}{\sum_{t=1}^{n} (R_{mt} - \overline{R_{mt}})^2}$$

Information:

= Monthly return of individual shares
= Average return of individual shares in one year
= Index monthly return (market return)
= Average market return in one year

In this study, to calculate beta market returns are also used using the Composite Stock Price Index, which is calculated by the formula[7]**:**

$$\text{Rmt} = \frac{\text{IHSG}_t - \text{IHSG}_{t-1}}{\text{IHSG}_{t-1}}$$

Information:

R_{mt} = Market Return
JCI_t = Composite stock price index in period t
JCI_{t-1} = Composite stock price index in period t-1

2.2 Residual Income

Residual Income = NOPAT – (k * Capital)

Information:

NOPAT = Net operating profit after tax
K* = Weighted average cost of capital
Capital = Capital consists of equity and debt

The net operating profit after tax (NOPAT) data used in this study is data from 2002 to 2006. The dependent variable is the type of variable that is explained or influenced by the independent variable. The dependent variable in this study is stock return, namely the results obtained from an investment in the form of capital gains.

$$Rt = \frac{P_t - P_{t-1}}{P_{t-1}}$$

Information:

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R_t = Stock return
P_t = stock price in period t
P_{t-1} = stock price in period t-1

3. Results and Discussion

3.1 Descriptive statistics

The analysis was carried out following the formulated hypothesis. The data tested include stock returns, beta, and residual income during the period 2017 to 2020. The sample in this study is manufacturing companies listed on the Indonesia Stock Exchange, totaling 45 companies selected based on the purposive sampling method. The data in this study is pooling data so that from 45 samples of companies, 180 observations were obtained with a period of 2017 to 2020. In Table 1 below, descriptive statistics from the research data can be seen:

Table 1 .
Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Return	180	-8.52	2.00	-1.5628	1.57693
Beta	180	-4.52	2.12	-0.4903	1.18759
Residual Income	180	-7.34	6.86	-0.7884	2.77245
Valid N (listwise)	180				

Based on Table 1 above, it can be seen the lowest, highest, and average values of the variables studied with 180 observations. The average value of the descriptive test results for the Beta variable (X1) is -1.5628 standard deviation of 1.57693 with the lowest value of -4.52 owned by the Indofood Sukses Makmur, Tbk (INDF) company in 2017, and the highest value of2.12 was owned by the company Citra Tubindo, Tbk (CTBN) in 2005. The average value for the residual income variable (X2) is - 0.7884, the standard deviation is 2.77245 with the lowest value is -7, 34 owned by the Darya Varia Laboratoria, Tbk (DVLA) company in 2018, and the highest score of 5.86 owned by the Jaya Pari Steel, Tbk (JPRS) company in 2019..

3.2 Hypothesis test

To determine the effect of the independent variables, namely beta (X_1) and residual income (X_2) on stock re- turns (Y), multiple regression analysis was used. The influence of each independent variable on the dependent variable in detail can be seen in the following table:

Table 2.
Effect of Independent Variables on Dependent Variables

Multiple Linear Regression Equation Y = -1.387+ 0.236X1 + 0.076X2 +					
Variable Name	B	Standard Error	tcount	table	Sig
Constant (a)	-1,387	0.132	-10,505	1.9759	0.000
Beta (X1)	0.236	0.099	2,382	1.9759	0.018
Residual income (X2)	0.076	0.042	1,789	1.9759	0.075
Correlation Coefficient (R) = 0.203[a]	a. Predictor: (Constant): Beta and Residual Income				
Coefficient of Determination (R^2) = 0.041	b. Dependent Variable : Stock Return				
Adjusted (R^2) = 0.031					
F_{count} = 3.821, F_{table} = 3.0564, F sig = 0.024[a]					

Based on the results of statistical calculations using the SPSS program as shown in the table above, the following multiple regression equation is obtained:

$Y = -1.387 + 0.236\ X_1 + 0.076\ X_2 + \varepsilon$

Based on table 2, it can be seen that the correlation coefficient (R) = 0.203 which indicates that the degree of relationship (correlation) between the independent variable and the dependent variable is 20%. This means that stock returns have a weak relationship with beta (X_1) and residual income (X_2), because the correlation coefficient value is greater than 0.5. Coefficient of Determination (R^2) = 0.041 This means that 4% of changes in the dependent variable of stock returns can be explained by changes in beta (X_1) and residual income (X_2), while the remaining 96% is explained by variable factors others that were not included in this research model. While the Regression Coefficient is known to be a constant of -1.387. This means that if the beta factors (X_1) and residual income (X_2) are considered constant, then the amount of stock return is -1.387. The beta regression coefficient (X_1) is 0.236. This means that every 100% change in the beta will relatively increase stock returns, by 23%, assuming the beta variable is considered constant and does not change. An increase in the beta will increase stock returns. The regression coefficient of residual income (X_2) is 0.076. This means that every 100% change in residual income will relatively increase stock returns, by 7%, assuming the residual income variable is considered constant and does not change. An increase in residual income will increase stock returns. An increase in the beta will increase stock returns. The regression coefficient of residual income (X_2) is 0.076. This means that every 100% change in residual income will relatively increase stock returns, by 7%, assuming the residual income variable is considered constant and does not change. An increase in residual income will increase stock returns. An increase in the beta will increase stock returns. The regression coefficient of residual income (X_2) is0.076. This means that every 100% change in residual income will relatively increase stock returns, by 7%, assuming the residual income variable is considered constant and does not change. An increase in residual income will increase stock return.

a. Partial Hypothesis Testing (Statistical t-test)

To test the factors that have an influence on stock returns partially, it can be seen from the results of the t-test. The calculation results are shown in Table 4.4, it can be seen the value of t count for each variable with a confidence level or significance of = 5%. The results of the research on the beta variable (X_1) obtained a t count of 2.382 while t_{table} of 1.9759, the results of this calculation indicate that $t_{count} > t_{table}$ with a significance level of 0.018 or a probability above = 5%. Thus the results of statistical calculations show that partially the beta variable has a significant influence on stock returns, which means the higher the beta or the risk contained in a market, the higher the stock returns that will

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be received by investors. So in calculating an activity to be carried out, companies tend to be very concerned about the risks that will be faced. This study accepts the hypothesis that expects the effect that occurs in beta on stock returns. The results of this study are consistent with the research conducted by Zulbahdiar and Jonius who found evidence that beta had a significant effect on stock returns[8]. The results of the study on the residual income variable (X_2) obtained t count of 1.789 while t table of 1.9759, the results of this calculation indicate that $t_{count} < t_{table}$ with a significance level of 0.075 or probability below = 5%. Thus the results of statistical calculations show that partially the residual income variable does not have a significant effect on stock returns. This means that the measurement of company performance using the residual income method does not affect the return received by shareholders. This study rejects the hypothesis that expects a significant effect on residual income on stock returns. The results of this study are consistent with research conducted by Pradhono and Yulius Jogi Christiawan and Bidle, Bowen, and Wallace who found evidence that residual income does not have a significant effect on stock returns[6][9].

b. Simultaneous Hypothesis Testing (Statistical F test)

o test whether beta and residual income have a significant effect on stock returns in manufacturing companies listed on the Indonesia Stock Exchange (IDX), the F statistic test is used. Based on the results of simultaneous testing, the F_{count} value is 3.821, while the F_{table} is at a 95% confidence level. From table F for = 5% is 3.0564. This shows that $F_{count} > F_{table}$, with a probability level of 0.024. Thus the results of this calculation can be taken a decision that accepts the hypothesis, meaning that beta (X_1) and residual income (X_2) simultaneously have a significant effect on stock returns in manufacturing companies listed on the Indonesia Stock Exchange (IDX). This is because the two independent variables simultaneously affect the return.

4. Conclusion

Based on the results of the tests that have been carried out on the problems formulated in the research hypotheses using multiple linear regression tests, conclusions can be drawn (1) Based on the results of partial tests, the beta variable has a significant influence on stock returns. This shows that based on statistical test calculations obtained t count of 2.382 while t table of 1.9759, the results of this calculation indicate that $t_{count} > t_{table}$ with a significance level of 0.018 or a probability above = 5%, which means that the higher the beta or the risk contained in a market, the higher the stock return that will be received by investors, (2) Based on the results of partial testing of residual variables income does not have a significant effect on stock returns. This shows that based on statistical test calculations obtained t count of 1.789 while t table of 1.9759, the results of this calculation indicate that t count < t table with a significance level of 0.075 or a probability below = 5%, which means that the measurement of company performance using the residual income method does not affect the level of return received by shareholders, (3) The results of the simultaneous test show that residual income and beta has a significant effect on stock returns in manufacturing companies listed on the Indonesia Stock Exchange (IDX). This is explained by the F count value of 3.821, while F table is at the 95% confidence level. From table F for = 5% is 3.0564. This shows that $F_{count} > F_{table}$, with a probability level of 0.024.

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