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What determines banking company stock returns? Empirical evidence from Indonesia stock exchange

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Abstract. The purpose of this study was to investigate the determinants of stock returns of banking companies listed on the Indonesia Stock Exchange (IDX). The panel econometric approach was used to analyze panel data obtained from 31 banking companies listed in the 2018-2019 period. The research findings show that profitability has a significant effect on stock returns. Net Profit Margin has a positive effect on stock returns, while Return on Equity has a negative effect. Meanwhile, the size and leverage of the company have no significant effect on stock returns.

Keywords. Stock return, listed banking companies, panel data regression, profitability, firm size, leverage

Introduction

The issue of how companies should select and adjust the strategic mix of securities to maximize stock returns has received much attention and has become a topic of debate in various corporate finance literatures (Dimitrov and Jain 2008; Korteweg, 2009). It is believed that research aimed at determining the factors that influence the company's stock returns will provide the necessary conceptual background to guide not only investors but also financial managers in planning financial structures and making decisions in order to increase shareholder wealth. Stock return is estimated to affect the market value of the company. Stock return is identified, has become an important reason in the growth or failure of the company's business. It is imperative for companies to be able to finance their operations and grow over time if they are to stay in business and have an increasing and dominant role in creating added value. The growth and development of enterprises will automatically provide employment, increase income through increased profits, distribute dividends and wages to households, expand the size of the direct productive sector in the economy, and generate tax revenue for the government while facilitating poverty alleviation through fiscal transfers and revenues from employment and firm ownership (Hovakimian, et al. 2001).

Welch (2004), in particular, states that stock returns will be negatively correlated with market-based debt ratios if firms are inactive and do not rebalance their debt ratios after a period of raising or lowering stock prices. This study aims to find the determinants of stock returns in

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banking companies listed on the Indonesia Stock Exchange. The banking sector is the dominant sector in the financial services sector in Indonesia. The recorded asset value in 2019 was 8.03 trillion or covering 72.16% of the assets of the financial services sector. So that the purpose of this study is to investigate the factors that determine stock returns of banking companies listed on the Indonesia Stock Exchange.

Literature Review

Return is the result obtained from investment activities. Returns are divided into two, namely realized returns (returns that occur or can also be called real returns) and expected returns (returns expected by investors). Stock return is the rate the benefits enjoyed by investors on an investment that they do (Ang, 1997). Return can be divided into two, namely dividends and capital gains, dividends which are the distribution of profits generated by the company and capital gains which are the difference between the purchase price and the selling price of shares (Sembel and Sugiharto, 2009:129).

In the context of returns as dividends, companies are generally free to choose the level of dividend inventory they want to pay to common stockholders. However, the company must comply with various aspects, including legal requirements, debt covenants and the availability of cash resources that put limits on this decision. Various empirical studies have noted systematic variations in stock return behavior across companies, countries, times, and types of stock returns (dividends) resulting from both freedom and limitations. One variation among companies, for example, is presented by Fama and French (2001). Their findings point to the fact that in the US that stock return paying companies tend to be large and profitable, while non-payers are usually small, less profitable but with high investment opportunities.

Several previous studies have been conducted to determine the factors that determine stock returns. Olowoniyi and Ojenike (2012) using panel data regression analysis of 70 companies listed on the Nigerian stock exchange during 2000-2009, investigated the determinants of company stock returns. Their findings suggest that expected growth and size to positively affect stock returns have a negative impact on stock returns of listed companies. Mughni (2021) in his research with multiple regression analysis used 34 companies including LQ45 which were listed on the Indonesia Stock Exchange for the 2016-2018 period. The results showed that solvency and profitability had no effect on stock returns. Meanwhile, stock liquidity has a positive effect on stock returns.

Izza & Wulandari (2019) conducted a study using 33 mining companies listed on the IDX for the 2013-2015 period. This study aims to examine the effect of world oil prices referring to OPEC oil prices and financial ratios as reflected by profitability, liquidity, financial leverage, efficiency, market ratios, operating cash flow and company size ratios on stock returns. The findings of the study using multiple regression analysis, showed that world oil prices, profitability, efficiency, and market ratios proved to have a significant effect on stock returns. Meanwhile, liquidity, financial leverage, operating cash flow, and firm size have no effect on stock returns.

Ajizah & Biduri (2021) used 11 food and beverage companies listed on the Indonesia Stock Exchange for the 2015-2019 period to research the determinants of stock returns. The results of their research indicate that there is an effect of firm size, sales growth, profitability, and leverage on stock returns in the company. Research conducted by Harjito & Aryayoga (2009) found that NPM has a significant effect on stock returns, while the ROE variable shows no significant effect. Ratnasari (2003) in his research obtained the results that NPM and DER are significant on stock returns. Research Legiman et al. (2015) shows that ROE and DER have

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no significant effect on stock returns. The findings of SD, Nathaniel's research (2008) show that NPM and DER do not significantly affect stock returns. Sudarsono & Sudiyatno (2016) in their research found that firm size significantly affects stock returns, while DER is not significant. The results of research conducted by Mahardika & Artini (2017) show that ROE significantly affects stock returns, while NPM does not significantly affect stock returns.

Hypothesis

The hypotheses proposed in this study are:
H_1 : Net Profit Margin (NPM) has a significant effect on stock returns
H_2: Return on Equity (ROE) has a significant effect on stock returns
H_3 : The size of the company (size) has a significant effect on stock returns
H_4: Leverage (Debt to Equity Ratio/DER) has a significant effect on stock returns

Research methods

This study uses data from the annual Indonesia Stock Exchange (IDX Annually) from 31 public banks in Indonesia for 2018-2019. This data is sourced from the annual report of the Indonesia Stock Exchange. The analysis was carried out using descriptive statistics presented in tabular form and using inferential statistics through a panel data econometric model approach. The Common Effect, Fixed Effect, and Random Effect Model will then be selected by performing the Chow test and Hausman test. The Chow test was conducted to see if there was an individual effect in the panel data. While the Hausman test was conducted to test the correlation between individual effects and errors or to see whether there was a fixed or random effect in the panel data regression model. Fixed effects are appropriate if we focus on a particular set of companies and our conclusions are limited to the behavior of that set of companies. Although FE is more precise, it is often observed that there are too many parameters in the model and thus a possible loss of degrees of freedom which can be avoided by assuming that the individual effects are random. The random effects model (RE) is an appropriate specification when sampling from a large population.

Model Specifications and Variable Measurement

The variables chosen in this research are Stock Return which is measured by the difference between this year's stock price and the previous one divided by this year's stock price. Size uses the logarithm of the company's total assets, profitability uses a company's profit level from sales or income obtained or known as Net Profit Margin (NPM) and ROE (Return on Equity), namely the effectiveness of management in utilizing capital and Leverage which uses the ratio of the book value of the total debt to total assets.

- Dependent Variable:
  - Y = Stock Return
- Independent Variable:
  - X_1 : NPM
  - X_2 : ROE
  - X_3 : Size
  - X_4 : Leverage

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Empirical Model

The response variable (dependent variable) is Stock Return, while the predictor variable is profitability using the NPM and ROE, Size and Leverage measurement approaches. The specified empirical model is as follows:

$$Stock\ Return = f(NPM, ROE, Size, Leverage) \quad (1)$$

$$Stock\ Return_{it} = \alpha_0 + \beta_1 NPM_{1it} + \beta_2 ROE_{2it} + \beta_3 Size_{3it} + \beta_4 Leverage_{4it} + e_{it} \quad (2)$$

Where:

i = Cross section
t = Time series
α= Intercept
β = parameters to be estimated
e = error terms

Results and Discussion

Descriptive Analysis

Descriptive statistical analysis aims to provide an overview of the object of research. Descriptive analysis in this study is by looking at the mean, standard deviation, minimum value and maximum value of each variable. The dependent variable in this study is stock return, while the independent variables used include NPM, ROE, company size (size), and Leverage. The statistical distribution for each variable in this study is shown in table 1.

Table 1. Descriptive statistics for dependent and explanatory variables of the study

Variable	Observation	Mean	Standard deviation	Minimum	Maximum
STOCK RETURN	62	0.0071	0.3172	-0.5390	1.5669
SIZE	62	4.6379	0.8784	3.3282	6.1607
NPM	62	11.5721	19.9783	-86.4	54.07
ROE	62	5.9743	8.0114	-25.8	17.9
LEVERAGE	62	5.5482	3.0814	0.08	1.5669

Source: Processed Data, 2021.

In this study, the amount of data used was 62 observations consisting of 31 banking companies in Indonesia in the 2018-2019 periode. The average calculated stock return is 0.0071 with a maximum of 1.5669 and a minimum of -0.5390. Company size experienced a maximum growth of 6.1607 and the lowest growth of 3.3282.

The standard deviation is usually used to measure the level of variation or the degree of spread of the data from the calculated average or can describe which variable is the most unstable. In Table 1, it can be seen that the largest standard deviation value is in the NPM variable of 19.9783.

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Inferential Analysis

In panel data regression, the best model is selected between the common effect, fixed effect and random effect model. The statistical results obtained in the estimation of the CEM, FEM, and REM models are shown in Table 2.

Table 2. Panel Regression Estimates

Variable	*Common Effect*		*Fixed Effect*		*Random Effect*	
	t-statistic	Prob.	t-statistic	Prob.	t-statistic	Prob.
C	1.1816	0.2422	0.9899	0.3310	1.1061	0.2733
NPM	4.4218***	0.0000	2.6303**	0.0139	4.3344***	0.0001
ROE	-2.7239***	0.0085	-2.6349**	0.0138	-2.8495***	0.0061
SIZE	-1.5723	0.1214	-1.0286	0.3128	-1.4441	0.1542
LEVERAGE	1.5085	0.1369	1.0229	0.3154	1.4764	0.1453

*** Significant at 0.01 Level, ** Significant at 0.05 Level
Source: Processed Data, 2021.

Table 2 above shows the estimation results of each model are generally significant on the NPM and ROE variables. To further confirm which model to choose, a Chow test will be carried out to choose between CEM or FEM, and a Hausman test will also be carried out to choose between FEM or REM models. The results of these two tests are shown in Table 3.

Table 3. Results of Chow Test and Hausman's Test

Effect Test	Uji Chow			Test Summary	Uji Hausman		
	Statistic	d.f.	Prob.		Statistic	d.f.	Prob.
Cross-section F	1.297876	(30,27)	0.2483	Cross-section random	3.113975	4	0.5389
Cross-section Chi-Square	55.35681	30	0.0032				

Source: Processed Data, 2021.

In the Chow test, if the p-value is greater than 5%, the model chosen is the common effect model. The table shows that the p-value obtained (F test) is 0.2483, which is greater than 5%, which means that the common effect model is better. If the results of the Chow test are significant, then proceed to the Hausman test to choose the FEM or REM model. In this case, the Chow test is sufficient to see that the best selected model is the CEM model. The estimated parameter values generated by the CEM model are in Table 4.

Table 4. Results of Panel Data Regression Estimation (CEM)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.263392	0.222899	1.181668	0.2422
NPM	0.011094***	0.002509	4.421855	0.0000
ROE	-0.019790***	0.007265	-2.723920	0.0085
SIZE	-0.080498	0.051196	-1.572361	0.1214
LEVERAGE	0.019267	0.012772	1.508588	0.1369

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R^2 =	0.289751
F-statistic	5.813375
Prob. (F-statistic)	0.000539

*** Significant at 0.01 Level, ** Significant at 0.05 Level
Source: Processed Data, 2021.

Based on the model estimation results in Table 4, it can be seen that the variables together have a significant effect on the Common Effect model, this is seen from the F-statistical probability which is less than 5%. In the partial test, the variables that have a significant effect on the model are the NPM and ROE variables. NPM has a positive and significant effect on stock returns, while ROE has a negative and significant effect on stock returns. The common Effect Model panel data regression equation is as follows:

$$STOCK\_RETURN_{it} = 0.2634 + 0.0111\ NPM_{it} - 0.0198\ ROE_{it} - 0.0805\ SIZE_{it} + 0.0193\ LEVERAGE_{it} + u_{it}$$

Based on the above equation, the constant is 0.2634 which means that if it is assumed that the independent variable is 0 (none), then the stock return has a constant value of 0.2634. The NPM coefficient is 0.0111, which means that every increase in the NPM variable by one point will increase stock returns by 0.0111 point assuming other variables are constant. This is in line with the research conducted by Putra and Kindangen (2016) where NPM has a positive and significant effect on stock returns.

The ROE coefficient is -0.0198, which means that each increase in the ROE variable by one point will decrease the stock return by 0.0198 point assuming other variables are considered constant. ROE is used to determine the company's ability to generate net income based on a certain share capital. ROE has a negative and significant effect, which means that the company's ability is less than optimal in using its own capital to generate company profits. The results of this study are also in line with research conducted by Fidhayatin and Dewi (2012).

Classic assumption test

Several classical assumption tests such as the Normality Test, Non-Multicollinearity Test, and Homoscedasticity Test were carried out to see the suitability of the Common Effect Model for use in modeling research variables. The normality test was carried out using the Jarque-Berra test, the results can be seen in Figure 1. In Figure 1, it can be seen that the probability is 0.15, which is greater than 5%, which means that the residuals of the CE model are normally distributed.

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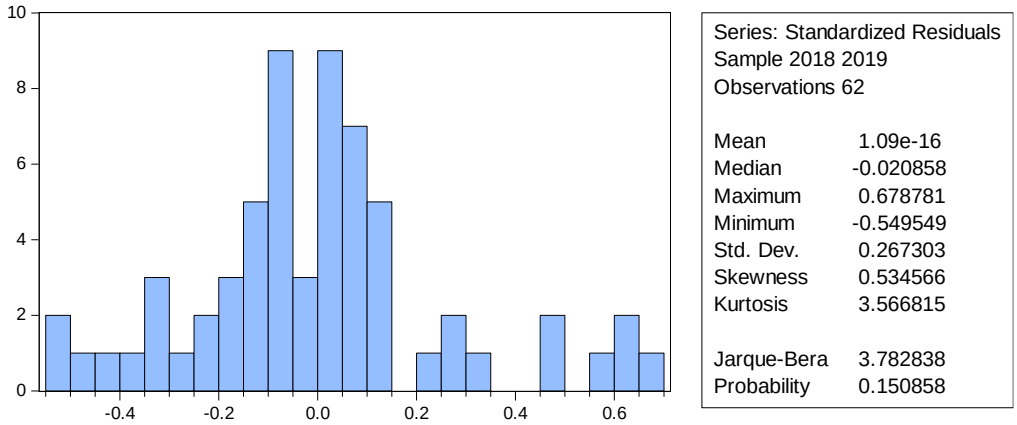

Figure 1. Residual Normality Test of Common Effect Model
Source: Eviews, Processed Data, 2021.

Furthermore, the Non-multicollinearity test was conducted to see that the independent variables used were not highly correlated with one another. We can determine this test by looking at the value of Centered VIF. If the value of Centered VIF is less than 10 then we can say that there is no multicollinearity. The results of this test are shown in Table 5.

Table 5. Non-multicollinearity test results

Variable	*Coefficient Variance*	*Uncentered* VIF	*Centered* VIF
C	0.049684	40.28518	NA
NPM	6.29E-06	2.687715	2.004246
ROE	5.28E-05	4.230436	2.702755
SIZE	0.002621	47.32663	1.613243
LEVERAGE	0.000163	5.306957	1.235594

Source: Processed Data, 2021.

From the test results in Table 5, it can be seen that the entire value of the Centered VIF of the independent variables is less than 10, which means that there is no high correlation between the independent variables used in the study.

Homoscedasticity test using the Breush-Pagan test, the probability value for the F-Statistic is 0.0922, or more than 5%, which means it meets the assumption of homoscedasticity. In the non-autocorrelation test, the Durbin-Watson value is 2.5543 with the number of observations 62, k=4 and alpha of 5%, the value of dL = 1.4554 and dU = 1.7288. There is no autocorrelation if the Durbin-Watson value is between dU and 4-dU. The test results can be seen in Table 6. The Durbin-Watson CEM values are found to be between dU and 4-dU, which means that there is no autocorrelation. Thus, no classical assumptions were violated, so the selected model, namely the Common Effect Model (CEM) can be used for modeling in this study.

Table 6. Non-autocorrelation test results

Number of Observation	k	dU	Durbin-Watson	4-dU
62	4	1.7288	2.5543	2.712

Source: Processed Data, 2021.

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Conclusion

The purpose of this study is to investigate the determinants of stock returns of public banking companies listed on the Indonesia Stock Exchange. The results of the model's representativeness test show that the Common Effect model is the best choice. The results of further statistical tests to confirm the variables that affect stock returns show: a) stock returns are simultaneously influenced by NPM, ROE, firm size, and leverage value; b) partially ROE has a negative and significant effect while NPM has a positive and significant effect on stock returns. The result of the R^2 value of the Common Effect Model of 0.2898 means that the formed model can be explained by variations of the independent variable by 28.98%, while the remaining 71.02% is explained by other variables outside this study.

The research findings which show that ROE has a negative and significant effect can be interpreted as the company's ability is not optimal in using its own capital to generate company profits. Meanwhile, the NPM which shows the rate of return on net profits to net sales in a positive direction indicates that the higher the NPM, the better the company's performance and the higher the rate of return on shares.

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