Mantik Journal, 8 (2) (2024), ISSN 2685-4236 (Online)

Published by:Institute of Computer Science (IOCS)

Jurnal Mantik

Journal homepage: www.iocscience.org/ejournal/index.php/mantik

The effect of return on assets (ROA), return on equity (ROE), debt to equity ratio (DER) on stock prices in property companies listed on the indonesia stock exchange

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A R T I C L E I N F O

Article history:

ived Jun 21 2024
Revised Jul 19, 2024
Accepted Jul 30, 2024

Keywords:

Stock Price;
Return on Assets;
Return on Equity;
Debt to Equity Ratio.

ABSTRACT

This study aims to determine the effect of return on assets (ROA), return on equity (ROE) and Debt to equity (DER) on stock prices of property stocks in Indonesia for a period of 4 years (2019-2022). This research is quantitative research. The data used in this research is secondary data. Sampling in this study used a purposive sampling technique in order to obtain 32 companies as research samples. Data taken from financial reports listed on the Indonesia Stock Exchange (IDX). Data analysis using panel data analysis with the selected regression model is the fixed effect model. The results showed that partially the ROA variable had a positive and insignificant effect on stock prices, ROE had a negative and insignificant effect on stock prices, DER had and a negative and significant effect on stock prices.

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1. INTRODUCTION

The large population and high economic growth in Indonesia create a need for better housing as well as business and recreation areas in big cities in Indonesia. As a result of this demand, there has been a significant growth in the construction of public and private residences in urbanized regions of major cities in Indonesia (Prasetya et al., 2023). The growth of the property sector in urban Indonesia has significant implications for the local economy and community welfare. Research has shown that investment in the property sector can have direct and indirect effects on community welfare through economic growth (B. Siregar, 2019). The property sector is sensitive to crises as previous crises have almost always caused declines in property values, declines in rental income, limited financing, increases in capital costs, regulatory changes, market instability and project disruptions, all of which cause stress and financial growth for property companies (Gaio et al., 2021).

Property companies in Indonesia face various risks that can impact their operations and financial performance. These risks include business risk, interest rate risk due to high leverage ratios, enterprise risk, political instability, supplier portfolio

management risks, and risks related to brand performance and financial value. To manage these risks effectively, Companies also focus on enterprise risk management practices to identify, assess, and address various risks that may arise during their operations.

During the crisis period, it caused high volatility in financial markets, significantly reduced profitability and the value of company shares and caused a loss in the value of economic assets (Vanza et al., 2011). Companies that are impaired due to declining profitability pose financial challenges such as reduced liquidity levels that require external funding to maintain operations (R. R. Utami et al., 2022). A decrease in profit will be related to changes in stock value, because the size of the profit determines the size of the value of a company (Hastuti et al., 2023). Stock prices are one of the focuses of an investor's consideration when making an investment. Stable stocks that have movements that tend to increase in each period are stock prices that almost all investors are interested in.

According to data from the Indonesia Stock Exchange (IDX) IDXPROPERTI which is an index of the Indonesian property sector, the JCI (Composite Stock Price Index) and LQ45 experienced a very drastic decline in 2020. The main factor for the decline in 2020 was the Covid-19 pandemic that hit and had a significant impact but recovery was seen in the following years (Pahmi et al., 2021). Returns that had improved fell back when the Fed raised interest rates in 2022 to 2023, so that the impact on the entire sector fluctuated.

According to the State Asset Management Institute (2023) through the Property Market Report, the condition of the property market in Indonesia during 2022 entered a recovery phase and even some subsectors were predicted to reach a progressive increase phase. The condition of the property sector, which has experienced a decline and is predicted to improve, has prompted property companies to take policies to improve performance through profit. Increased profits and efficiency can be seen from financial ratios such as return on assets (ROA) and return on equity (ROE). Return On Asset (ROA) according to Sudana (2015) return on assets shows the company's ability to use all assets owned to generate profit after tax while Return On Equity (ROE) shows the company's ability to generate profit after tax using the company's own capital.

This research is based on signal theory as a bridge connecting problems and results. Signal theory according to Brigham & Houston (2013) is a signal (sign) given by company management to investors as a clue about the company's prospects. Signaling theory provides an important overview for companies to send valuable information as signals to external parties such as investors, lenders, and consumers (Spence, 2002) .

According to Kasmir (2014) return on assets (ROA) is a ratio that shows the return on the number of assets used in the company. Return on Assets (ROA) is a fundamental financial metric used to assess a company's profitability in relation to its total assets. ROA is considered a fairly stable ratio when compared to other ratios (Li & Wang, 2014). According to Fahmi (2014) says that this return on assets (ROA) looks at the extent to which the investment that has been invested is able to provide a return on profits as expected. Return on assets (ROA) is used to evaluate whether management has received an adequate reward (Reasonable return) from assets (Salsabila & Hasrina, 2023). The higher the ROA ratio indicates a high rate of return. A small ROA indicates that the company is less efficient in managing assets and is a bad signal for investors. Several research have looked into the relationship between ROA and stock prices, giving insight on the impacts. Research by Fatmawati & Widyawati (2017); Febriani & Afrida (2021); Hawa & Prijati (2017); Khairani et al (2021); Nanda (2022) show that return on assets (ROA) has a significant effect on stock prices.

This study also analyzes the effect of return on equity (ROE) on stock prices. According to Kasmir (2016) Return on equity (ROE) or own capital profitability ratio is a ratio to measure net profit after tax with own capital. This ratio shows the efficiency of

own capital users, the higher the ratio the better. This means that the position of the company's owners is getting stronger, and vice versa. According to Hanafi & Halim (2016) Return on equity (ROE) this ratio measures the company's ability to generate profits based on certain share capital. This ratio is a measure of profitability from the point of view of certain shareholders. Research conducted by Furniawan & Rosdianti (2020); Ramadhan & Khuzaini (2020); R. D. Utami & Ikrima (2017; Wuryaningrum & Budiarti (2015) shows that return on equity (ROE) has a significant effect on stock prices.

Based on the condition of the property sector, property issuers need funds from external sources. The amount of the company's external funds can be assessed from the amount of the Debt To Equity Ratio (DER). Debt to equity ratio (DER) is also one of the important financial ratios for investors in assessing companies (Abdel-Basset et al., 2020). Debt to equity ratio (DER) is the balance between the debt owned by the company and its own capital. The higher this ratio means that there is less equity capital compared to the debt (Sutrisno, 2017). This ratio is sought by comparing all debt, including current debt with all equity. This ratio is used to determine the amount of funds provided by borrowers (creditors) with company owners (Melisa et al., 2024). In other words, this ratio serves to know every rupiah of own capital used as debt collateral. Higher debt to equity ratio (DER) can lead to a more negative influence on decreasing stock prices (Mulyono, 2015). This suggests that firms with greater debt-to-equity ratios would see a decline in their stock price, which would be indicative of the market's assessment of the risk involved in using more leverage. Akib et al (2023) and Mariyani (2024) both found that the debt to equity ratio (DER) has a negative effect on stock prices, indicating an inverse relationship.

Several studies show differences in results on stock prices, Research conducted by Fatmawati & Widyawati (2017); Febriani & Afrida (2021); Hawa & Prijati (2017); Khairani et al (2021); Nanda (2022) show that Return On Asset (ROA) has a significant effect on stock prices. In contrast to Permatasari & Mukaram (2018) and Ramadhan & Khuzaini (2020) shows that Return On Asset (ROA) has a negative and insignificant effect on stock prices. Research conducted by Furniawan & Rosdianti (2020); Ramadhan & Khuzaini (2020); R. D. Utami & Ikrima (2017); Wuryaningrum & Budiarti (2015) shows that Return On Equity (ROE) has a significant effect on stock prices, in contrast to Partomuan (2021), it has no partial effect on stock prices. Research conducted by Fatmawati & Widyawati (2017); Febriani & Afrida (2021); Furniawan & Rosdianti (2020); Hawa & Prijati (2017); Permatasari & Mukaram (2018) shows that Debt To Equity Ratio (DER) has no significant effect on stock prices, in contrast to Nanda (2022); Partomuan (2021) Debt To Equity Ratio (DER) has a significant effect on stock prices.

This study aims to identify how the effect of return on assets (ROA), return on equity (ROE) and debt to equity ratio (DER) on stock prices in the property sector listed on the Indonesia Stock Exchange in 2019-2022. This research identifies how these ratios illustrate the phenomena that occur and the company's efforts to influence the stock price of the property sector.

2. RESEARCH METHOD

This research uses quantitative analysis methods. The pupulation of this research is property sector companies listed on the Indonesia Stock Exchange for the 2019-2022 period. The sampling technique used is purposive sampling or sampling by criteria. The consideration referred to by researchers in this study is the financial statements of property companies listed on the Indonesia Stock Exchange for the 2019-2022 period. The sample criteria determined can be seen in the table below:

Table 1. Sample Criteria

No	Criteria	Total
1	Property companies listed on the Indonesia Stock Exchange for the period 2019 to 2022	35
2	Companies that do not have complete financial statements during the period 2019 to 2022	(3)
	Companies selected as sample	32

Based on the criteria set, the sample of this study was 35 companies in the property sector listed on the Indonesia Stock Exchange from 2019 to 2022. Data in the form of ratios are collected from calculations based on financial reports issued by the company. some are taken from the financial overview report issued by the company. The author tabulates the data and then calculates it through statistical applications.

The research method used in this study is panel data regression because it uses panel-type data. According to Gujarati & Porter (2009) pooled data or panel data has several terms such as pooling of time series and cross sectional observations, but the meaning of both is the same, namely a combination of data from time series and cross sectional. The data modeled in the form of panels are financial ratios and stock prices of each selected company.

The hypothesis tests used in this study are the coefficient of determination, model feasibility test (F test) and individual parameter significance test (t test). The coefficient of determination used to explaining the variability of the dependent variable based on the independent variables. A higher R-squared value signifies a better fit of the model to the data, indicating that the independent variables elucidate a larger portion of the variability in the dependent variable.

The variables used in this study are return on assets (ROA), return on equity (ROE) and debt to equity ratio (DER) as independent variables. Stock price is used as the dependent variable. The table below shows the operational definition of each variable.

Table 2. Operationalization

Variables	Ratios	Measurement
X1	Return on Assets (ROA)	ROA = Net Income/Total Assets
X2	Return on Equity (ROE)	ROE = Net Income/Equity
X3	Debt to Equity Ratio (DER)	DER = Total Debt/Equity
Y	Stock Price	Closing Price

The ROA variable is measured by dividing the net income in the income statement against the total assets shown in the balance sheet. While the ROE variable is measured by dividing net income to total equity listed on the balance sheet. The DER variable is measured by comparing the debt shown on the balance sheet to total equity.

3. RESULTS AND DISCUSSIONS

3.1 Panel Data Regression

a. Common Effect Model

The common effect model or also known as the common correlated effect is the simplest model in panel regression, in which the study-specific effect sizes are assumed to be all the same (Yang et al., 2020).

Table 3. Common Effect Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.808395	0.153857	-5.254201	0.0000
X1	0.135189	0.066855	2.022118	0.0453
X2	-0.151622	0.086398	-1.754925	0.0817

X3	0.338712	0.103117	3.284725	0.0013
R-squared	0.112019	Mean dependent var		-0.389303
Adjusted R-squared	0.090535	S.D. dependent var		0.521761
S.E. of regression	0.497581	Akaike info criterion		1.472636
Sum squared resid	30.70082	Schwarz criterion		1.561762
Log likelihood	-90.24872	Hannan-Quinn Criter.		1.508849
F-statistic	5.214201	Durbin-Watson stat		0.326652
Prob (F-statistic)	0.002005			

Source: Data Processed, 2023

Based on the output of the table above, you can see the slope coefficient of each variable. The ROA and DER variables show a positive direction while ROE shows a negative direction. The determination value shown is 0.112019 or 11.2% while the adjusted determination value is 0.090535 or 9.05%.

b. Fixed Effect Model

Fixed Effect Model (FEM) assumes that there are differences between individuals. However, the coefficient (slope) of the independent variable remains the same across individuals or across time (Gujarati & Porter, 2012). Fixed Effect Model, commonly used in regression analysis, assumes that the slope coefficient remains constant while allowing the intercept to vary (Allison, 2009). The results of regression analysis with the fixed effect method are as follows:

Table 4. Fixed Effect Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.920840	0.152230	12.61805	0.0000
X1	0.018571	0.114645	0.161987	0.8717
X2	-0.137852	0.147904	-0.932034	0.3537
X3	-0.712067	0.294824	-2.415225	0.0177

Effect Specification

Cross-section fixed (dummy variables)

R-squared	0.498973	Mean dependent var	2.131653
Adjusted R-squared	0.315801	S.D. dependent var	0.661533
S.E. of regression	0.547196	Akaike info criterion	1.859424
Sum squared resid	27.84636	Schwarz criterion	2.639276
Log likelihood	-84.00313	Hannan-Quinn Criter.	2.176282
F-statistic	2.724076	Durbin-Watson stat	2.439476
Prob (F-statistic)	0.000077		

Source: Data Processed, 2023

The results of the fixed effect model show that only the ROA variable has a positive direction where the coefficient value is positive. while the ROE and DER variables have a negative coefficient value which indicates a negative direction. The determination value shown is greater than the CEM model which is 0.498973 or 49.89%.

c. Random Effect Model

Random Effect Model (REM) is used to overcome the weaknesses of the fixed effect model which uses dummy variables (Gujarati & Porter, 2012). Random-effects models presume that a portion of the changes in effects between samples is essentially random and refers to sources that cannot be identified (Lipsey & Wilson, 2001; Raudenbush, 1994).

Table 5. Random Effect Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.920840	0.152230	12.61805	0.0000
X1	0.018571	0.114645	0.161987	0.8717
X2	-0.137852	0.147904	-0.932034	0.3537
X3	-0.712067	0.294824	-2.415225	0.0177
Weighted Statistics				
R-squared	0.100738	Mean dependent var		-0.079052
Adjusted R-squared	0.078981	S.D. dependent var		0.198821
S.E. of regression	0.190808	Sum squared re		4.514566
F-statistic	4.630259	Durbin-Watson stat		1.324538
Prob (F-statistic)	0.004187			

Source: Data Processed, 2023

The results of the random effect model (REM) output show that only the ROA variable has a positive coefficient. The results show a coefficient of determination of 0.100738 or 10.07% while the adjusted determination is 0.078981 or 7.89%.

3.2. Panel Data Regression Model Estimation Test

a. Chow Test

The Chow test is a useful technique for determining if various models are adequate for panel data estimates since it is applied to regression analysis to evaluate differences in regression responses across groups (Binkley & Young, 2022). This test is a fundamental statistical tool used in econometrics and panel data analysis to choose between the Common Effect and Fixed Effect models. Chow test results using e-views can be seen below:

Table 6. Chow Test

Effects Test	Prob.
Cross-section F	0.0001
Cross-section Chi-Square	0.0000

Source: Data Processed, 2023

The results of the Chow test show a probability value of 0.0000 <0.05, so it can be concluded that the best model chosen is the fixed effect model. With this, the model chosen in this Chow test is the fixed effect model which is more appropriate than the common effect model. Because the fixed effect model was chosen, the Hausman test was continued.

b. Hausman Test

The Hausman test is applied in panel regression equations to determine the appropriateness of fixed-effects or random-effects models (Baltagi, 2005). Hausman test results using e-views can be seen below:

Table 7. Hausman Test

Effects Test	Prob.
Cross-section Random	0.0043

Source: Data Processed, 2023

The results of the Hausman test show a probability value of 0.0043 < 0.05 in the panel data regression model. The fixed effect model selected in the Hausman test is more appropriate, so the results selected in the panel data regression model are the results of the Chow test and the Hausman test which are more appropriate in the fixed effect model. Based on the tests that have been carried out, the best model obtained is Fixed Effect Model (FEM). The slope and intercept coefficients are assumed to remain

constant across time when estimating panel data using the fixed effect model technique (Allison, 2009).

3.3. Hypothesis Test

a. Coefficient of Determination

Based on the test results, the best model used is the fixed effect model (FEM). Based on table 3, the coefficient of determination is 0.498973 or 49.89% while the adjusted coefficient of determination is 0.315801 or 31.58%. This value shows the contribution of the independent variable to the dependent variable.

b. F Test

The F test aims to see the influence of all independent variables together on the dependent variable. The regression model aims to establish a linear relationship between these variables, and the F-test helps in evaluating the overall significance of this relationship (Ng et al., 2018). Based on table 3, the f test results are obtained with a probability value of 0.000077, which means that the independent variables Return On Asset (ROA), Return On Equity (ROE), Debt to Equity Ratio (DER) have an effect on stock prices because the probability value of 0.000077 <0.05.

c. Individual Parameter Significance Test (t-test)

Based on table 3, the t test results of the effect of return on assets (ROA) on stock prices are known to have a probability value of 0.8717> 0.05. based on table 3 return on assets (ROA) has a positive direction but has no significant effect on stock prices. These results are the same as research conducted by Siregar & Farisi (2018) which states that there is no influence on stock prices. These differences could be attributed to various factors such as industry-specific dynamics, market conditions, or the presence of intervening variables. These conflicting findings underscore the complexity of factors influencing stock prices.

Based on table 3, the t test results of the effect of return on equity (ROE) on stock prices are known to have a probability value of 0.3537> 0.05. Based on table 3 return on equity (ROE) has a negative direction but does not have a significant effect on stock prices. This result is the same as the research of Muhidin & Situngkir (2022) and Aprillita et al (2024) which states that there is a negative and insignificant effect on stock price. The negative association between ROE and stock prices suggests that when ROE rises, stock prices may fall. This unfavorable effect may be influenced by factors such as market perceptions. These results indicate that earnings returns do not necessarily affect stock prices due to investor perceptions. Investors may think that with the recovery of the property sector, companies will focus on distributing their profits to operations or retained rather than distributing to investors.

The DER variable shows a negative effect on stock prices. Based on table 3, the probability value is 0.0177 <0.05 and the negative coefficient value is -0.712067. These results are in line with the research of Nadhifah Salsabilla & Hasanuh (2023) which states that there is a negative and significant effect on stock prices, so the higher the DER the higher the risk of a company. This will affect investor interest in transacting with the company, resulting in a decrease in stock prices because the company will use the profit earned to pay debt rather than divide dividends.

4. CONCLUSION

Based on the results and discussion, it can be concluded that return on assets (ROA) and return on equity (ROE) have no influence on stock prices. The debt to equity ratio (DER) variable has a significant negative effect on stock prices. High ROA and ROE reflect a company's efficiency and profitability in managing assets and equity, which increases

investment attractiveness and investor confidence in management capabilities. Meanwhile, DER provides insight into the use of debt in a company's capital structure, a high but well-managed DER can indicate an effective leverage strategy for growth, although it also adds financial risk. Overall, this analysis shows how these financial indicators can be used to assess growth prospects, risks, and stock valuations, thus helping investors make more informed investment decisions in the property sector.

This study has several limitations, namely a less long research period where the authors suggest future research using a longer period. The conflicting results in this study show the complexity of factors influencing stock prices. Future researchers can use variables that are more specific to investor considerations such as earnings per share (EPS) or others. Future researchers may also identify investor perception variables such as how investors value financial ratios and whether market perceptions influence investors despite high corporate earnings ratios.

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