

Debt To Equity Ratio Moderating Dividend Payout Ratio on Stock Price Volatility

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ABSTRACT

This research aims to analyze the influence of the dividend payout ratio on stock price volatility, moderated by the debt-to-equity ratio. The research adopts a quantitative approach, with the population consisting of companies listed in the LQ45 index on the Indonesia Stock Exchange. Sample selection is carried out using purposive sampling, with the criteria that companies must consistently be listed in the LQ45 index during the study period from 2019 to 2022. The data used in this study are secondary, and data analysis is conducted through the technique of panel data regression analysis. The empirical findings of this research indicate that the most appropriate model is the fixed effect. Based on the analysis results, the first hypothesis states that the dividend payout ratio does not have a significant direct effect on stock price volatility. Conversely, the second hypothesis states that the debt-to-equity ratio has a direct positive and significant effect on stock price volatility. Furthermore, the findings suggest that the third hypothesis states that the debt-to-equity ratio can strengthen the positive and significant impact of the dividend payout ratio on stock price volatility.

Keywords:

Debt-to-equity ratio (DER), dividend payout ratio (DPR), stock price volatility (SPV).

INTRODUCTION

The development of companies listed on the Indonesia Stock Exchange (IDX) can be reflected in various phenomena, such as an increase in a company's market capitalization, indicating that the market value of the company's stocks is rising. The rise in a company's stock price in the stock market reflects investor confidence in the company's prospects. This can occur because investors believe in the growth and potential of the company. Growth in net profit is a key indicator of positive development for the company. Strong financial performance reflects operational efficiency and the company's competitiveness in the market. Market reactions to information, such as changes in management, new strategies, or other significant achievements, can provide insight into investors' perceptions of the company.

Changes in the stock prices of a company can have a significant impact on the volatility of stock prices in an index or stock market. The stock price of a company listed in a stock index directly affects the movements of that index. Stock index is a measure that encompasses a specific group of stocks, and changes in the stock prices of these companies will influence the overall value of the index. Additionally, changes in the stock price of a company also affect market capitalization and influence overall market sentiment. If the stock price of a company undergoes a drastic change, it can create a domino effect in the market, as investors may respond by buying or selling stocks on a large scale. Investors obtain real-time information about the developments of companies listed on the Indonesia Stock Exchange (IDX) by directly referring to news sources and financial information, such as financial reports containing information about financial performance, strategies, risks, and company projections. Companies included in the LQ45 index play a crucial role in the Indonesian economy. Investors can analyze the performance and development of these companies, providing insights into the overall economic conditions and the direction of the stock

market. LQ45 companies tend to have high liquidity levels and often serve as leading indicators or primary indicators of economic and business changes in Indonesia. Stock liquidity can assist investors in executing transactions more optimally.

Information that investors can obtain from the company's financial reports, namely the dividend payout ratio, can influence share price volatility. Investors often invest their capital in shares to obtain income, either in the form of capital gains (increase in share prices) or dividends. High dividend payout ratio can be attractive to investors. In addition, it can provide signals about the company's financial health. Ratio that is too high may indicate that the company cannot generate sufficient funds to support its operations and growth, while a low ratio may indicate the company's inability to provide value back to shareholders. Companies that choose to pay low dividends through a low dividend payout ratio may have more funds that can be reinvested in the company's business. This can support company growth in the long term, which affects company value. Changes in the value of share prices reflect the condition of company value.

Dewi and Paramita (2019) stated that the partial dividend payout ratio has a negative and significant influence on the stock price volatility of companies listed in the LQ45 on the Indonesia Stock Exchange during the period 2015-2017. The research findings aligned with Octavia et al. (2022), who stated that the partial dividend payout ratio has a negative and significant impact on the stock price volatility of LQ45-listed companies during the period 2018–2020. On the other hand, Nurhayati and Dewi (2019) stated that the partial dividend payout ratio has a negative but non-significant effect on the stock price volatility of manufacturing companies listed on the Indonesia Stock Exchange during the period 2017–2019. Conversely, the results of Saputra dan Ruslan (2022) differed, indicating that the partial dividend payout ratio has a positive and significant influence on the stock price volatility of manufacturing companies listed on the Indonesia Stock Exchange during the period 2018-2020. Meanwhile, in another distinct study, Wahyuni and Artati (2023) asserted that dividend policy, analyzing the partial dividend payout ratio, has a positive but non-significant impact on the stock price volatility of companies listed in the LQ45 Index on the Indonesia Stock Exchange during the period 2018-2020.

The dividend payout ratio and the debt-to-equity ratio are intricately related. Companies with a high debt-to-equity ratio carry greater interest expenses and debt payments. If a company has to allocate a significant portion of its income to cover interest and debt obligations, this may limit the funds available for dividend payments. Consequently, a high debt ratio can reduce the dividend payout ratio. Investors often scrutinize the debt-to-equity ratio as an indicator of a company's financial risk and stability. In the presence of a high debt ratio, investors may be concerned about the company's ability to sustain dividends in the future. This can impact stock price fluctuations and investor confidence.

Angelina (2019) stated that the debt-to-equity ratio, in a partial context, has a negative but not significant impact on the dividend payout ratio of food and beverage companies listed on the Indonesia Stock Exchange during the period 2018-2020. The research findings aligned with Saputra dan Ruslan (2022), who asserted that the debt-to-equity ratio, in a partial context, has a negative but not significant impact on the dividend payout ratio of companies in the consumer goods and consumption sector listed on the Indonesia Stock Exchange during the period 2017-2020. Conversely, Rahmadi (2020) declared that the debt-to-equity ratio, in a partial context, has a

negative and significant impact on the dividend payout ratio in the banking industry listed on the Indonesia Stock Exchange during the period 2013-2018. The results were consistent with Pasaribu et al. (2021), who stated that the debt-to-equity ratio, in a partial context, has a negative and significant impact on the dividend payout ratio in basic and chemical industry companies listed on the Indonesia Stock Exchange during the period 2015–2019. Tanjung et al. (2022) also indicated that the debt-to-equity ratio, in a partial context, has a negative and significant impact on the dividend payout ratio of LQ45-listed companies on the Indonesia Stock Exchange during the period 2016-2020. Given the above descriptions and some gaps in previous empirical results, this study aims to re-examine the dividend payout ratio variable that influences stock price volatility with a different analysis using the moderation variable, namely the debt-to-equity ratio, in companies listed in the LQ45 index on the Indonesia Stock Exchange during the research observation period from 2019-2022.

METHOD

The research method employed in this study is a quantitative approach with a causal research design to determine the influence of one or more independent variables on dependent variable moderated by moderating variable. The independent variable is the dividend payout ratio, the dependent variable is stock price volatility, and the moderating variable is the debt-to-equity ratio. The population in this study comprises companies included in the LQ45 index, to 45 companies. The sample determination technique involves purposive sampling with specific criteria, namely companies consistently included in the LQ45 index during the period 2019-2022. According to the established criteria, the sample to be analyzed amounts to 21 companies. The research data type utilizes secondary data in the form of panel data. The data analysis technique employed in this study is panel data regression analysis.

a. Stock Price Volatility

Neelanjana and Hassan (2019) define stock price volatility as the level of stock price fluctuations, representing the degree of change in stock prices over a specific period. The higher the volatility in stock prices, the greater the risk of achieving profit or loss. Kumaraswamy et al. (2019) refers to the risk individuals face and explain changes in stock prices over a specific period that may be influenced by dividend policies. According to Nguyen et al. (2020), stock price volatility can be measured by dividing the average high-low stock prices over a certain period by the standard deviation of these prices. Stocks are considered volatile if their prices fluctuate significantly over time, making it challenging for investors to make future predictions. The formula for calculating stock price volatility, based on the research of Selpiana and Badjra (2018), is as follows:

$$SPV = \frac{(Hit - Lit)}{(Hit + Lit)/2}$$

Explanation: SPV = Stock Price Volatility
 Hit = Highest stock price in year i
 Lit = Lowest stock price in year i

b. Dividend Payout Ratio

The dividend payout ratio is the percentage of profit distributed in the form of cash dividends (Madyoningrum, 2019). Net profit earned by the company is allocated for dividend distribution to investors (Kautsar, 2019). Most investors face transaction costs when trading stocks, so investors logically seek a steady income stream and prefer companies that pay dividends regularly (Brigham and Houston, 2019). Neelanjana and Hassan (2019) state that the dividend payout refers to the proportion of income or net income paid as dividends to shareholders, usually presented as a percentage. The formula used for the dividend payout ratio, based on the research of Garrison et al. (2018), is as follows:

$$\text{Dividend Payout Ratio} = \frac{\text{Dividends per Shares}}{\text{Earning per Shares}}$$

c. Debt to equity ratio

Hery (2018) states that the debt-to-equity ratio is a ratio used to determine the extent of the debt balance in relation to equity. The calculation of this ratio aims to determine the proportion of nominal funds provided by creditors compared to the funds obtained through the company's owners. In other words, this ratio plays a role in finding out how much nominal capital serves as collateral for debt. This ratio provides a general indication of the creditworthiness and financial risk of the debtor. It illustrates how much a company finances its activities with debt. The debt management ratio indicates how risky a company is and how much operational income must be paid to bondholders compared to shareholders (Brigham and Houston, 2019). The formula used for the debt-to-equity ratio, based on the research of Selpiana and Badjra (2018), is as follows:

$$\text{Debt to Equity Ratio} = \frac{\text{Total Liabilities}}{\text{Total Equity}}$$

RESULTS AND DISCUSSION

The panel data regression method used in this study is based on three models: pooled least squares (common effect), fixed effect, and random effect. To determine the best-fitting model for further analysis in this research, paired tests will be conducted for each model, as follows:

Result

a. Model Selection Test

The Chow test is employed to determine which model will be chosen in estimating the panel data regression model, whether it is a common effect or fixed effect model. This testing utilizing the cross-section F statistical test, as follows:

Table 1. Chow Test

Redundant Fixed Effects Tests			
Equation: Untitled			
Test cross-section fixed effects			
Effects Test	Statistic	d.f.	Prob.
Cross-section F	2.321240	(20,61)	0.0062
Cross-section Chi-square	47.537046	20	0.0005

Source: Processed data (2023).

Based on Table 1, the cross-section F probability value is 0.0062, which is smaller than $\alpha = 0.05$. Thus, H0 is rejected, and Ha is accepted. It means that the fixed effect model is better suited for estimating the panel data regression compared to the common effect model. Further, the Hausman test is conducted to determine which model will be chosen in estimating the panel data regression model, whether it is the fixed effect model or the random effect model. This test utilizes the cross-section random probability statistical test in Table 2, as follows:

Table 2. Hausman Test

Correlated Random Effects - Hausman Test			
Equation: Untitled			
Test cross-section random effects			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	6.376921	3	0.0346

Source: Processed data (2023).

Based on Table 2, the cross-section random probability value is 0.0346, which is smaller than $\alpha = 0.05$. Means, H0 is rejected and Ha is accepted, indicating that the fixed effect model is better suited for estimating the panel data regression compared to the random effect model. Next, the Lagrange multiplier test is conducted to determine which model will be chosen in estimating the panel data regression model, whether it is the random effect model or common effect. This test utilizes the cross-section Breusch-Pagan statistical test, as follows:

Table 3. Lagrange Multiplier Test

Lagrange Multiplier Tests for Random Effects			
Null hypotheses: No effects			
Alternative hypotheses: Two-sided (Breusch-Pagan) and one-sided (all others) alternatives			
	Test Hypothesis		Both
	Cross-section	Time	
Breusch-Pagan	4.725694 (0.0297)	8.151829 (0.0043)	12.87752 (0.0003)

Source: Processed data (2023).

Based on Table 3, the cross-section Breusch-Pagan probability value is 0.0297, which is smaller than $\alpha = 0.05$. Means, H0 is rejected and Ha is accepted, indicating that the random effect model is better suited for estimating the panel data regression compared to the common effect. This study has conducted several paired model selection tests, namely the Chow test, the Hausman test, and the Lagrange multiplier test, which consistently indicate that the fixed effect model is more appropriate than other models. Thus, the best-suited model for further analysis is the fixed effect model, which will be utilized for hypothesis testing in the research.

b. Analysis of the First Sub-Structural Panel Data Regression Equation

The estimated results of stock price volatility influenced by the dividend payout ratio and debt-to-equity ratio for companies included in the LQ45 index on the Indonesia Stock Exchange during the period 2019–2022, using the fixed effect model, are presented in Table 4. The first sub-structural table below outlines the panel data

regression equation as follows: Stock price volatility= 0.101630 - 0.011992 + 0.160034.

Table 4. First Sub-Structural

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.101630	0.134315	0.756651	0.4522
DPR	-0.011992	0.058953	-0.203421	0.8395
DER	0.160034	0.074840	2.138359	0.0365
Effects Specification				
Cross-section fixed (dummy variables)				
		Adjusted R-squared	0.256157	
		F-statistic	2.299214	
		Prob(F-statistic)	0.005585	

Source: Processed data (2023).

Based on Table 4, it shows the first sub-structural equation. Subsequently, tests are conducted on each panel data regression coefficient individually. The testing aims to determine whether each independent variable used in this research has a partial effect on stock price volatility at a specific alpha level of 5% ($\alpha = 0.05$). The interpretation of the panel data regression equation is as follows:

- a) The constant (C) of 0.101630 means that the regression equation signifies that if all independent variables remain at 0% or undergo no change, the stock price volatility will be 10.16%.
- b) Regression coefficient ($\beta_1.X_1$), of -0.011992 indicates that a change, whether an increase or decrease, in the dividend payout ratio by 1% will not effect on stock price volatility, as there is no significant relationship between the dividend payout ratio and stock price volatility.
- c) Regression coefficient ($\beta_2.X_2$), of 0.160034 means that if there is a 1% increase in the debt-to-equity ratio, stock price volatility will increase by 16%.

c. Hypothesis Testing for the First Sub-Structural

Based on Table 4, hypothesis testing is as follows:

a) Effect of Dividend Payout Ratio on Stock Price Volatility.

Variable dividend payout ratio with a regression coefficient of -0.011992 affects stock price volatility negatively. However, it is not statistically significant at a 95% confidence level. The probability value of 0.8395 is greater than $\alpha = 0.05$, indicating that the alternative hypothesis (H_a) is rejected and the null hypothesis (H_0) is accepted.

b) Effect of Debt-to-Equity Ratio on Stock Price Volatility.

Variable debt-to-equity ratio with a regression coefficient of 0.160034 affects stock price volatility positively and is statistically significant at a 95% confidence level. The probability value of 0.0365 is less than $\alpha = 0.05$, indicating that the alternative hypothesis (H_a) is accepted and the null hypothesis (H_0) is rejected.

Based on Table 4, the adjusted R-squared value is 0.256157, meaning that the dividend payout ratio and debt-to-equity ratio contribute to stock price volatility by 25.61%. The remaining 74.39% is influenced by other variables outside the scope of this research. Furthermore, the F-statistic test shows a probability value of 0.005585,

which is less than $\alpha = 0.05$. Therefore, the alternative hypothesis (H_a) is accepted, and the null hypothesis (H_o) is rejected. This implies the dividend payout ratio and debt-to-equity ratio jointly and simultaneously have a significant impact on stock price volatility, indicating that model is fit and appropriate. In other words, the dividend payout ratio and debt-to-equity ratio used in this study are capable of estimating stock price volatility.

d. Analysis of the Second Sub-Structural Panel Data Regression Equation

Based on Table 5, it shows the equation of the second sub-structure, which analyzes the variable debt to equity ratio moderating the dividend payout ratio on the stock price volatility of companies included in the LQ45 index on the Indonesia Stock Exchange during the period 2019–2022. The panel data regression equation is as follows: Stock price volatility = 0.220587 - 0.022420 + 0.074496 + 0.040669.

Table 5. Second Sub-Structural

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.220587	0.067772	3.254823	0.0019
DPR	-0.022420	0.063983	-0.350409	0.7273
DER	0.074496	0.033284	2.238195	0.0289
DER*DPR	0.040669	0.012840	3.167453	0.0024
Effects Specification				
Cross-section fixed (dummy variables)				
Adjusted R-squared				0.630666
F-statistic				7.162111
Prob(F-statistic)				0.000000

Source: Processed data (2023).

Based on Table 5, it shows the equation of the second sub-structure. The next step involves testing each regression coefficient of panel data to determine whether the variable debt-to-equity ratio can strengthen the variable dividend payout ratio, partially influencing stock price volatility at a specific alpha level of 5% ($\alpha = 0.05$). Interpretation of the panel data regression equation is as follows:

- a) Constant (C) of 0.220587 means that the regression equation signifies that if all independent variables remain at 0% or undergo no change, the stock price volatility will be 22.05%.
- b) Regression coefficient ($\beta_1.X_1$), of -0.022420 indicates that a change, whether an increase or decrease, in the dividend payout ratio by 1% will not effects on stock price volatility, as there is no significant relationship between the dividend payout ratio and stock price volatility.
- c) Regression coefficient ($\beta_2.X_2$), of 0.074496 means that if there is a 1% increase in the debt-to-equity ratio, stock price volatility will increase by 7.44%.
- d) Regression coefficient ($\beta_2.X_2 * \beta_1.X_1$) of 0.040669 means that if there is an increase in the debt-to-equity ratio by 1%, it will strengthen the influence of the dividend payout ratio on the increase in stock price volatility by 4.06%.

e. Hypothesis Testing for the Second Sub-Structural

Based on Table 5, hypothesis testing is as follows:

a) Effect of Dividend Payout Ratio on Stock Price Volatility.

Variable dividend payout ratio with a regression coefficient of -0.022420 affects stock price volatility negatively. However, it is not statistically significant at a 95% confidence level, where the probability value of 0.7273 is greater than $\alpha = 0.05$. This means that the alternative hypothesis (H_a) is rejected and the null hypothesis (H_o) is accepted.

b) Effect of Debt-to-Equity Ratio on Stock Price Volatility.

Variable debt-to-equity ratio with a regression coefficient of 0.074496 affects stock price volatility positively and is statistically significant at a 95% confidence level. The probability value of 0.0289 is less than $\alpha = 0.05$, indicating that the alternative hypothesis (H_a) is accepted and the null hypothesis (H_o) is rejected.

c) Debt-to-equity ratio moderating effects dividend payout ratio on stock price volatility.

Variable debt-to-equity ratio moderating dividend payout ratio, with a regression coefficient of 0.040669, that debt-to-equity ratio strengthens the positive and significant relationship between the dividend payout ratio and stock price volatility at a 95% confidence level. The probability value of 0.0024 is less than $\alpha = 0.05$, indicating that the alternative hypothesis (H_a) is accepted and the null hypothesis (H_o) is rejected.

Based on Table 5, showing an adjusted R-squared value of 0.630666, it means the dividend payout ratio, debt to equity ratio, and debt to equity ratio moderating the dividend payout ratio contribute to stock price volatility by 63.06%. The remaining 36.94% is influenced by other variables outside the scope of this research. Furthermore, the F-statistic test shows a probability value of 0.000000, which is less than $\alpha = 0.05$. Therefore, the alternative hypothesis (H_a) is accepted, and the null hypothesis (H_o) is rejected. Dividend payout ratio, debt-to-equity ratio, and debt-to-equity ratio moderating dividend payout ratio have a significant jointly have on stock price volatility, which means the model is fit and appropriate. In other words, the dividend payout ratio, debt-to-equity ratio, and debt-to-equity ratio moderating the dividend payout ratio used in this study are capable of estimating stock price volatility.

Discussion

a. Effect of Dividend Payout Ratio on Stock Price Volatility.

Based on the research results, it is indicated that the dividend payout ratio variable does not have a significant influence on stock price volatility. This reflects that any changes in the dividend payout ratio, whether increasing or decreasing, will not affect stock price volatility because there is no correlation between variables. This research finding is supported by Nurhayati and Dewi (2019), who state that the dividend payout ratio, have a negative influence but is not significant on the stock price volatility of companies. Meanwhile, the contrasting results of research by Wahyuni and Artati (2023) difference, analyzing the dividend payout ratio partially, have a positive but not significant influence on the stock price volatility of companies. In reality, it is possible that both high and low dividend payout ratios may not be attractive to investors, not impacting the stock price volatility of the company. Dividend distribution may not entirely signal the financial health of the company, as not all LQ45 companies during the research observation period

consistently distribute dividends to investors. Even if LQ45 companies do not distribute dividends, investors may still consider that the companies maintain good financial performance. Additionally, many investors believe that LQ45 companies tend to have high liquidity levels and often serve as a key indicator of economic and business changes in Indonesia, instilling confidence in investors. The impact of the dividend payout ratio on stock price volatility is contextual and may vary depending on the company's situation and policies, including the company's policy in managing the capital structure to achieve maximum profit, reflected in the debt-to-equity ratio.

b. Effect of Debt-to-Equity Ratio on Stock Price Volatility.

Based on the research results, shows that the debt-to-equity ratio variable has a positive and significant influence on stock price volatility. This indicates that any increase in the debt-to-equity ratio will lead to an increase in stock price volatility. A high debt-to-equity ratio can create uncertainty among investors. When a company has a significant amount of debt, investors may be concerned about the company's ability to repay its debts, especially in challenging economic situations. Companies with substantial debt will impact stock price volatility (Khairunisa and Nazmel, 2022). Almost all companies included in the LQ45 index have higher debt values compared to equity. Optimal management of the capital structure affects the company's profitability, influencing investor behavior in the capital market, which can increase stock price volatility. If a company has high debt, it can lead to an increase in the debt-to-equity ratio. This condition can elevate stock price volatility, as investors may respond more dramatically to an increase in the debt-to-equity ratio.

c. Debt-to-equity ratio moderating effects dividend payout ratio on stock price volatility.

Based on the research results, shows that the debt-to-equity ratio variable has moderated the dividend payout ratio, strengthening its positive and significant impact on stock price volatility. This reflects that any increase in the debt-to-equity ratio will strengthen the dividend payout ratio, influencing an increase in stock price volatility. In reality, LQ45 companies reflect high leverage, will have an impact will be lower dividend payments because the company's debt is quite large and the profits obtained are used to pay off past debts (Adnyana & Lambang, 2021). The debt-to-equity ratio can play a crucial role in reinforcing the impact of the dividend payout ratio on stock price volatility. A high debt-to-equity ratio indicates a higher level of financial risk for the company. Therefore, the dividend payment policy can be an additional factor that strengthens the impact of financial risk on stock price volatility. Investors often consider a company's capital structure and debt level when assessing investment risk. If the debt-to-equity ratio is high, investors are likely to pay attention to the dividend payment policy. Conversely, a low debt-to-equity ratio may provide protection against greater stock price fluctuations because the company likely has more financial flexibility. By understanding the interaction between the debt-to-equity ratio and the dividend payout ratio, investors can identify the level of risk and volatility that may occur in the relationship between dividend payment policies and the company's capital structure.

CONCLUSION

This research provides a deeper understanding of the complex relationship between the dividend payout ratio, debt-to-equity ratio, and stock price volatility in the context of companies included in the LQ45 index on Indonesia Stock Exchange. The research conclusions are as follows: 1). The dividend payout ratio does not directly have a significant effect on stock price volatility. 2). debt-to equity ratio directly has a positive and significant effect on stock price volatility. 3). debt-to-equity ratio can strengthen dividend payout ratio which has a positive and significant impact on stock price volatility.

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