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Does Firm Size Can Moderate the Effect of Dividend Pay-out Ratio and Leverage on Stock Volatility?

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Abstract---*This study aims to obtain empirical evidence regarding the effect of dividend pay-out ratio and leverage on stock volatility with firm size as a moderating variable. The theory used in this research is signal theory. This study takes a population of manufacturing companies listed on the IDX in 2017-2021. By using the purposive sampling method in accordance with the specified criteria, researchers obtained 27 sample companies with 135 observations. The data analysis technique used is Moderated Regression Analysis (MRA). The research results obtained are the dividend pay-out ratio has a negative effect on stock volatility, leverage has no effect on stock volatility, firm size strengthens the negative relationship between dividend pay-out ratio on stock volatility, and firm size does not moderate the positive relationship of leverage on stock volatility.*

Keywords---*dividend pay-out ratio, firm size, leverage, stock volatility.*

Introduction

Investors in investing see two factors as the background of investors in carrying out investment activities, namely the rate of return on shares (return) and risk factors. In addition to looking at the return and risk factors, investors in investing in the capital market will also collect as much information as possible, including information related to stock prices and company performance. The activity of buying and selling shares in the capital market carried out by the buyer usually requires an increase in the price of shares after purchasing shares, while the seller of shares wants a decrease in the price of shares after selling shares. This can cause stock price fluctuations (Andiani & Gayatri, 2018; Ardiansyah & Isbanah, 2017; Artikanaya & Rama, 2020).

Fluctuations or ups and downs in stock prices can be seen by volatility. Volatility is a statistical measurement for price fluctuations of a security or commodity over a certain period (BAPEPAM-LK., 2011). In general, volatility in the capital market reflects the level of risk faced by investors. The higher the volatility, the higher the uncertainty of the return to be received. High volatility is usually favored by short-term traders who want large returns. Conversely, low volatility is usually favored by long-term traders who want a stable return value.

Consideration of stock prices is the basis for investors because stock prices reflect the value of the company. Volatility as a barometer of financial risk, and uncertainty surrounding financial investments (Zaremba et al., 2020). Stocks are one of the most dominant financial instruments traded. Stock market volatility plays an important role for risk management, asset pricing, and portfolio management (Dai et al., 2020). Volatility becomes important as investors begin to observe changes in market behavior. The higher the volatility, the higher the uncertainty of stock prices, this reflects the higher the risk with the expectation that the return will also be higher.

Volatility can be predicted with information or signals on the stock market. This information can be a driving force for investors in selling or buying shares, so investors who understand information will easily predict market movements. Volatility is important not only in evaluating intangible derivative goods such as stock index options but also in prices (Kim & Won, 2018). This rise and fall in stock prices, which is called stock price volatility, is

influenced by many factors, namely sector and industry factors, economic and political factors, company performance factors, and cooperation announcement factors. It is very important for investors to follow the movement of stock prices because this can be used as a basis for investors to carry out both buying and selling transactions. The momentum of this movement is the basis for investors in making investment decisions that allow investors to benefit. Stock prices on stock exchanges can experience a decrease or increase caused by the number of shares traded (Estuti & Hendrayanti, 2020).

The signal theory reveals how companies should give signals to investors or users of financial statements. Information from the company can be responded to positively or negatively by investors, which can affect stock volatility. The stock price will rise if there is excess demand and will decrease if there is excess supply. Volatility is a statistical measurement of price fluctuations of a security or commodity over a certain period (Indonesian Capital Market Volatility Study Team and the World Economy, 2011). This volatility occurs because of new information that enters the stock market. High volatility in stock prices allows for higher and higher stock price increases and decreases (Sova, 2015). The movement of stock prices on the Indonesian stock exchange is strongly influenced by changes that occur both in macroeconomic variables and changes in global stock exchanges. Any changes that occur in macroeconomic variables will have an impact on the movement of Indonesian stock prices (Endri et al., 2020). This is because the stock price formed is a reflection of investors' expectations of profits and dividends which are heavily influenced by changes in economic conditions.

Stocks that experience volatility, experience price changes at any time and are difficult to predict. Many investors prefer stocks that are easy to predict and have little risk because the higher the volatility, the greater the level of uncertainty to get a return. Therefore, investors need information related to stock price developments in deciding to invest in the capital market. This is in accordance with signal theory which suggests how companies should provide information signals to users of financial statements (Rosyida et al., 2020). Investors need a variety of information that is used as a signal to assess the prospects of the company concerned, namely by analyzing financial reports with financial ratios. Companies with good quality will give a positive signal to the market, thus the market is expected to differentiate between companies with good quality and bad quality. Usually, management's main goal is to send positive signals to outsiders and avoid intentionally sending negative information to reduce information asymmetry, which helps companies achieve their ultimate goal of positively influencing desired outcomes.

The dividend pay-out ratio is a part of the fundamental factors. The greater the retained earnings, the less the amount of profit for dividend payments. Investors who expect dividend returns generally want a relatively stable dividend distribution, because the stability of dividend payments can increase investor confidence in the company thereby reducing investor uncertainty in investing their funds in the company. Therefore, investors will also pay attention to the dividend pay-out ratio in investing. This is because dividends are one of the advantages for shareholders besides capital gains (Sirait et al., 2021).

The existence of dividends means that the company's ability to earn profits also increases. Dividend policy can be measured through the dividend pay-out ratio. The dividend pay-out ratio reflects how much the company's net profit is used to pay dividends. This is in line with research by Rohmawati (2017); Swandari & Dewi (2017); Febriani & Muslih (2020); Yusra & Calendri (2020), which states that there is a relationship between the dividend pay-out ratio and stock volatility. However, this is different from Sutandijo's (2019) research, where the volatility of a company's shares will not be affected by how much dividends can be paid. This is in line with research by Ivana Dominika (2019); Jasselyn & Edi (2021); Oktavianti & Saryadi (2020), which states that there is no relationship between the dividend pay-out ratio and stock volatility. However, this is different from the research of Efendi & Ovami (2021), which states that investors hope that companies that distribute dividends imply that companies will continue to make profits in the future. Big profits make investors buy more and more shares so that there is stock price instability in the company so that it will have an impact on stock volatility.

Apart from the dividend pay-out ratio, there are other fundamental factors that can affect stock price volatility. The information disclosed in the annual report can be in the form of accounting and non-accounting information. The annual report should contain relevant information and disclose information that is considered important to be known by report users, both internal and external parties. Information that can be considered by investors in making investments contained in the annual financial report can be in the form of leverage ratios. Leverage creates a burden or fixed costs that must be borne by the company. Research on the effect of leverage on stock price volatility was conducted by Rosyida et al. (2020), stating that leverage influences stock volatility, the level of leverage is a signal to investors regarding the financial risks faced by companies. Companies that fund a lot with debt have a high risk because they have the potential to experience financial difficulties due to too large, fixed interest payments. This is in line with the research of Nurhayati & Dewi (2021); Oktavianti & Saryadi (2020); Marini & Sutrisna Dewi (2019); Putri (2021), which states that there is a relationship between leverage and stock volatility. However, this is not in

line with the research of [Sutandijo \(2019\)](#); [Ivana Dominika \(2019\)](#); [Rahmayani et al. \(2020\)](#); [Sandi \(2020\)](#), which states that there is no relationship between leverage and stock volatility. This is in line with research by [Dasman & Gunawan \(2022\)](#), which states that companies that finance a lot with debt have a high risk of experiencing financial difficulties due to too large, fixed interest payments. So, from the point of view of investors, large debt reduces investor interest so that it does not affect stock price volatility.

Literature Review and Hypothesis Development

The greater the dividend pay-out ratio, the greater the interest of investors to make purchases of these shares before the cum date. After the cumdate, investors are selling the shares again ([Sirait et al., 2021](#)). Dividend pay-out ratios that have a high value give a positive signal to investors so that investors' desire to invest their shares in the company is getting bigger. This is due to the company's increased capability in obtaining profits which is offset by the more profits given to investors so that the demand for shares is greater and the share price has increased ([Nurhayati & Dewi, 2021](#)). As dividend payments increase by the company, this will have an impact on the stock market price. From these arguments it is clear that shareholders desire what will come to them as a return on the amount invested in the company ([Jasselyn & Edi, 2021](#)). Dividend payments can be a benchmark for predicting company growth and investment opportunities for investors, so companies with high cash dividends will have lower volatility in stock prices. The high dividend pay-out interprets that the company is in good and stable condition, thereby reducing the volatility of stock prices. This is in accordance with the research of [Nurhayati & Dewi \(2021\)](#); [Swandari & Dewi \(2017\)](#); [Anastassia & Firnanti \(2014\)](#); [Marini & Sutrisna Dewi \(2019\)](#); [Leece & White \(2017\)](#), which states that dividends pay-out ratio has a negative effect on stock volatility.

H1: The dividend pay-out ratio has a negative effect on stock volatility.

Stock market volatility has an impact on national economic stability, so forecasting the stock market effectively is very important for policymakers ([Li et al., 2022](#)). Leverage measures a company's ability to cover part or all of its long-term and short-term debts. Therefore, the level of leverage can pose a risk to the company, especially the potential for corporate bankruptcy in the future. Leverage is closely related to the company's financing choice policy. Leverage information contained in financial reports can show certain company signals to the public, especially investors ([Rosyida et al., 2020](#)). On the other hand, company bankruptcy will occur and the risk of default often arises, because a company has a lower level of equity than debt, which indicates that the company has a high leverage value (DER) ([Jasselyn & Edi, 2021](#)). The higher the DER reflects the company's relatively high risk because the company in its operational activities tends to depend on debt and the company has an obligation to pay debt interest which results in reduced company profits, so investors tend to avoid stocks that have a high DER value ([Nurhayati & Dewi, 2021](#)).

Companies that have a high level of leverage mean that they rely heavily on outside loans to finance their assets, while companies that have a lower level of leverage finance their assets more with their own capital. So, it can be said that the company's leverage level describes the company's financial risk. A high DER indicates that the company is very dependent on loans from external sources in funding activities. Sources of third-party funds are one of the most promising sources of funds for companies to expand or explore in order to achieve profits for the company. Companies that develop using debt tend to have risks, and the company's stock prices tend to fluctuate. This shows that the higher the leverage, the higher the level of stock price volatility, and vice versa. This is in accordance with research by [Oktavianti & Saryadi \(2020\)](#); [Marini & Sutrisna Dewi \(2019\)](#); [Putri \(2021\)](#); [Efendi & Ovami \(2021\)](#), which states that there is a relationship between leverage and stock volatility.

H2: Leverage has a positive effect on stock volatility

Large firm size makes it easier for companies to access the capital market. This makes it easier for companies to obtain additional funds for their operations. In addition, large companies will distribute dividends to maintain their reputation in the eyes of investors ([Dewi, 2016](#)). Companies that are new and those that are still small will experience many difficulties in having access to the capital market, so that the larger the size of the company, the easier it is to obtain external capital in larger amounts, especially from debt. This shows the relationship, that the larger the size of the company, the greater the dividends that will be distributed ([Kuswanta, 2016](#)). The larger the size of the company, the greater the diversification of activities, so that large companies usually have more public information and distribute larger dividends and can reduce the level of stock volatility. This is in accordance with the

research of [Jao et al. \(2022\)](#); [Wahyuliza & Fahyani \(2019\)](#); [Madyoningrum \(2019\)](#), which states that there is a relationship between firm size and the dividend pay-out ratio on stock volatility.

H3: Firm size strengthens the negative relationship between dividend pay-out ratio and stock volatility

The higher leverage reflects the company's relatively high risk because the company in its operational activities tends to depend on debt and the company has an obligation to pay debt interest which results in reduced company profits, so investors tend to avoid stocks that have a high leverage value ([Nurhayati & Dewi, 2021](#)). Companies that have large assets indicate that the company has reached a maturity level where at this stage the company's cash flow is considered to have good prospects in a relatively long period of time, besides that it also reflects that the company is more stable and more able to generate profits compared to companies with total assets. small assets. This is caused by the larger the size of the company, the greater the diversification of activities and the more able it is to pay off its debts with its profits. As well as large companies usually have more public information, the more information that can be accessed by investors, it will reduce investors' doubts and can reduce the level of stock volatility ([Gospodinov & Jamali, 2015](#); [Andini & Sukartha, 2020](#); [Sugosha & Artini, 2020](#)).

The larger the size of the company, the smaller the level of leverage, the level of leverage reflects how much the company's ability to pay off its debts with the capital it has and will have the impact of increasing investor confidence so that it can reduce the level of stock volatility. The higher the leverage rate, it is assumed that the company has a higher risk of the company's liquidity. This is in accordance with the research of [Kadim & Sunardi \(2019\)](#), which states that firm size and leverage have an influence on stock volatility.

H4: Firm size weakens the positive relationship of leverage on stock volatility

Methods

This research was conducted in all manufacturing companies listed on the Indonesia Stock Exchange (IDX) during 2017-2021 which were accessed via www.idx.co.id. The population in this study are all shares of manufacturing companies listed on IDX consecutively in 2017 – 2021, namely 142 companies. The sampling technique used in this study was purposive sampling using the following criteria:

- 1) Issuers of Manufacturing Companies that were not suspended by IDX during 2017-2021
- 2) Companies that provide annual reports expressed in rupiah for 2017-2021.
- 3) Companies that present cash dividends in 2017-2021

The data collection method in this study was to use the non-participant observation method, namely the data collection method by observing and recording the required data where the researcher was not directly involved in the company's activities and only as an observer. Data was collected by accessing the sites idx.co.id, yahoo finance and ind finance. The data used and collected in this study are annual reports starting from the 2017 period to the 2021 period which were obtained from the official IDX website (ww.idx.co.id), ind finance and Yahoo finance for stock prices. Moderated Regression Analysis (MRA) is used by researchers, to carry out interaction tests to test moderating variables.

Result and Discussion

MRA analysis results

Table 1
MRA

Variable	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constanta	0,174	0,022		7,790	0,000
DPR	-0,013	0,005	-0,246	-2,570	0,011
DER	0,021	0,015	0,168	1,359	0,177
Ln	-0,001	0,001	-0,097	-0,999	0,320

DPR * Ln	-0,006	0,003	-0,203	-2,027	0,045
DER* Ln	-0.001	0,001	-0,166	-1,272	0,206

Secondary Data, 2023

Dividend pay-out ratio on stock volatility

The t value of the dividend pay-out ratio variable is -2.570 and the significance value of the t test (p-value) is 0.011 which is smaller than $\alpha = 0.05$, and the regression coefficient value is -0.013. These results mean that the dividend pay-out ratio variable has a significant negative effect on stock volatility or in other words, the lower the dividend pay-out ratio, the lower the level of stock volatility in manufacturing companies listed on the IDX for the 2017-2021 period. This indicates that the first hypothesis in this study is supported.

Leverage on stock volatility

The t value of the leverage variable is 1.359 and the significance value of the t test (p-value) is 0.177 which is greater than $\alpha = 0.05$, and the regression coefficient value is 0.021. These results mean that the leverage variable has no effect on stock volatility. This indicates that the second hypothesis in this study is not supported.

Firm size moderates the effect of dividend pay-out ratio on stock volatility

The t value of the firm size variable is -0.999 and the significance of the t test (p-value) is 0.320 which is greater than $\alpha = 0.05$. These results mean that the variable firm size has no effect on stock volatility, so that β_3 is not significant. The t value of the dividend pay-out ratio interaction variable with firm size is -2.027 and the significance value of the t test (p-value) is 0.045 which is smaller than $\alpha = 0.05$, and the regression coefficient value is -0.006. These results mean that the firm size variable strengthens the negative relationship of the dividend pay-out ratio on stock volatility or in other words the larger the firm size, the lower the dividend pay-out ratio so that the lower the stock volatility level in manufacturing companies listed on the IDX for the 2017-2021 period, so that β_4 is significant. With β_3 having insignificant value and β_4 having significant value, it can be concluded that firm size is a pure moderation between the effect of the dividend pay-out ratio on stock volatility. This indicates that the third hypothesis in this study is supported (Gugler & Yurtoglu, 2003; Tauchen et al., 1996; Duffee, 1995).

Firm size moderates the effect of leverage on stock volatility

The t value of the firm size variable is -0.999 and the significance of the t test (p-value) is 0.320 which is greater than $\alpha = 0.05$. These results mean that the variable firm size has no effect on stock volatility, so that β_3 is not significant. The t value of the leverage interaction variable with firm size is -1.272 and the significance value of the t test (p-value) is 0.206 which is greater than $\alpha = 0.05$, and the regression coefficient value is -0.001. These results mean that the interaction variable leverage with firm size has no effect on stock volatility. so that β_5 is not significant. With β_3 having insignificant value and β_5 having insignificant value, it can be concluded that firm size is a potential moderator between the effect of leverage on stock volatility. This indicates the fourth hypothesis in this study is not supported (Baskin, 1989; Li et al., 2020; Ibhagui & Olokoyo, 2018; Huynh & Petrunia, 2010).

Conclusion

Dividend pay-out ratio has a negative effect on stock volatility, leverage has no effect on stock volatility, firm size strengthens dividend pay-out ratio has a negative effect on stock volatility, leverage on stock volatility does not get an additional effect after including firm size as a moderating variable. The results of this study can have implications for investors and companies. For investors who invest in the capital market, they still pay attention to the dividend pay-out ratio of the company they are going to invest in, because it can be seen from the coefficient of determination of 6.9% that can explain the level of volatility in stock prices to minimize mistakes in investing in the capital market. Meanwhile, the company should pay attention to the achievement of optimum stock investment for the company through the distribution of dividends from the company's net profit which is able to increase share prices.

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