

The Effect of Profitability, Liquidity, Leverage, Investment Opportunity Set, and Free Cash Flow on Dividend Policy with Firm Size as a Moderation Variable

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ABSTRACT

This study aims to determine the effect of profitability, liquidity, leverage, investment opportunity set, and free cash flow on dividend policies with firm size as moderation variables in manufacturing sector companies listed on the Indonesia Stock Exchange 2018-2022. The population used in this study was a manufacturing company listed on the Indonesia Stock Exchange in the 2018-2022 period. The sampling technique used was the purposive sampling method, where the final sample was obtained from as many as 37 companies with observations for five years, resulting in a total of 185 observations. Data Analysis Techniques Using Panel Data Regression with the Moderated Regression Analysis (MRA) Approach to use the E-Views Ver Statistics Application. 9.

The results of this study indicate that Return on Assets, Current Ratio, Investment Opportunity Set, and Free Cash Flow have a positive and significant effect on partial dividend policies. At the same time, the debt-to-equity ratio does not partially affect the dividend policy. Firm size can moderate the impact of the current ratio and investment opportunity set on partial dividend policy. However, the company's size cannot moderate the effect of return on assets, debt-

to-equity ratio, and free cash flow on partial dividend policies.

Keywords: *dividend policy, return on assets, current ratio, investment opportunity set, debt to equity ratio, free cash flow*

INTRODUCTION

A dividend policy is a financial decision regarding profits obtained by the company that will be distributed to shareholders as dividends or detained as retained earnings to increase the capital of internal funds applicable to finance company activities (Ni et al., 2020). If the company distributes profits as dividends to investors, it will reduce retained earnings and internal financing sources.

Companies can establish a dividend payment ratio policy (Basri, 2019). A dividend policy is a strategy the company uses to determine the amount and time of dividend distribution. The company's ability to pay dividends can increase investor confidence (Kannadhasan et al., 2017). Investors also expect a stable dividend distribution yearly (Takmaz et al., 2020). The stability of dividends distributed to investors will increase investor confidence in investing their capital in the company. Investors also want a high dividend for the capital invested in a company.

However, not all companies always provide high dividends or do not even provide

dividends. Increasing dividend distribution every year will be complex for the company to achieve because the company's profits fluctuate. This indicates that investors' expectations to get high dividends sometimes must align with reality.

It is aligned with Medyawati & Yunanto (2022), which shows that PT. Indo Tambangraya Megah moves into the field of manufacturing. PT. Indo Tambangraya Megah is incorporated into the LQ45 index on the Indonesia Stock Exchange. The company incorporated in the LQ45 index has financial conditions, growth prospects, and transaction value, so in theory, it should also be able to support high dividend payments.

In this study, the researcher will discuss several factors that allegedly affect dividend policies: return on Assets, Current Ratio, Debt to Equity Ratio, Investment Opportunity Set, and Free Cash Flow. Researchers will also add firm size as a moderating variable.

Labhane (2019), Franc-Dbrowska & Madra-Sawicka (2020), and Pattiruhu & Paais (2020) explained that Return on Assets had a positive effect on dividend policy. Research by Rochmah and Ardianto (2020) said that Return on Assets had a negative impact on dividend policy. However, Wahjudi's research (2020) and Sari et al. (2023) did not find the influence of return on assets on dividend policy.

Fadah et al. (2020), Lotto (2020), and Franc-Dbrowska & Madra-Sawicka (2020) explained that the current ratio had a positive effect on dividend policy. Researchers Wahjudi (2020) and Sembiring et al. (2022) explained that the current ratio negatively affected dividend policy. However, this research is not in line with research by Pattiruhu and Paais (2020), Budagaga (2020), and Arrahma & Nugroho (2023).

Budagaga (2020) and Pattiruhu and Paais (2020) explained that the debt-to-equity ratio positively and significantly affects dividend policy. Lotto researchers (2020) and Indarwati & Nur (2023) explained that the debt-to-equity ratio negatively and significantly affected dividend policy.

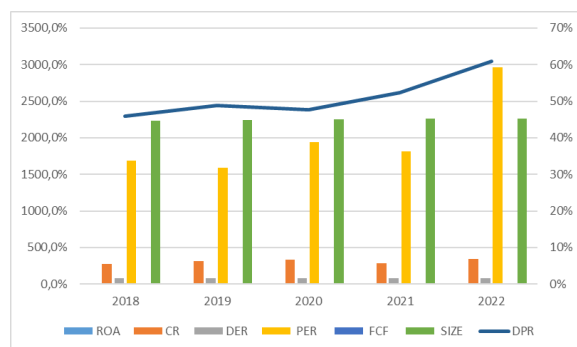
However, Sari et al. (2023) and Prabowo and Alverina (2020) do not align with other studies.

Gennusi & Maharani (2021), Al-Kayed (2017), and Devi & Muliati (2019) explained that the Investment Opportunity Set had a positive effect on dividend policy. Yunita and Subardjo's (2023) research showed that IOS negatively affects dividend policy. However, the research on Manuari & Devi (2023) did not find the influence of the Investment Opportunity Set on dividend policy.

Franc-Dąbrowska et al. (2020) and Sidharta & Nariman (2021) explained positive and significant relationships between free cash flow and dividend policy. Meanwhile, Labhane (2019), Singla and Samanta (2018), and Yunita and Subardjo (2023) explained the existence of negative and significant relationships between free cash flow and dividend policy. However, Ulfa et al. (2020) research states that there is no FCF relationship with dividend policy.

Budagaga (2020), Franc-Dbrowska and Madra-Sawicka (2020), and Lotto (2020) have a positive effect on the company's size on dividend policies. Chaudhary and Sohail (2023) state a negative relationship and significant firm size to dividend policies. However, Fadah et al. (2020) and Saputri and Susanti (2022) said the company's size did not affect dividend policies.

The relationship between the Ratio of Return on Asset, Current Ratio, Debt to Equity Ratio, Investment Opportunity Set, and Free Cash Flow to the Dividend Policy of Manufacturing Company 2018-2022 with firm size as moderation can be considered in the following graph:



Source: Researcher Processed Data (2024)

Figure 1. Manufacturing Companies of Ratio Return on Assets, Current Ratio, Debt to Equity Ratio, Investment Opportunity Set and Free Cash Flow, Dividend Policy, and Firm Size 2018-2022 Period

The graph above shows the fluctuating movements in the sector during 2018-2022. However, in terms of manufacturing firm size throughout 2018-2022, it moves stable, so it is suspected that it is suitable to be used as a reinforcement of independent variables in this study whose movements fluctuate. It is indicated by the dividend payout ratio (DPR) movement as an indicator of moving dividend policies tending to increase during 2018-2022.

Nevertheless, the number of ratios yearly is always unstable, with an increase and a decrease, resulting in phenomena requiring further research.

Large industries, such as the manufacturing sector, want to make it easier to get capital market funding from small industries. Industries with a large dimension wish to explore the capital market more efficiently. As a result of this opportunity, the industry pays off significant dividends to shareholders (Simanjuntak et al., 2019). In the life cycle theory, it is explained that shareholders at significant levels of firm size prefer to see the dollar paid as dividends. Therefore, if all management maximizes shareholders' welfare, shareholders prefer internal investment to obtain growth that automatically indicates good financial performance. That way, shareholders will get more high dividends from the company.

Researchers choose manufacturing companies because they are a type of business engaged in the real sector and

comprise the most significant number of companies on the Indonesia Stock Exchange. The manufacturing sector also experienced rapid growth and development. Thus, sampling can be more expansive and varied, covering only one sector.

This research empirically tests the influence of return on assets, current ratio, debt to equity ratio, investment opportunity set, and free cash flow on the 2018-2022 dividend policy of a manufacturing company. Adding firm size to moderating variables strengthens or weakens the influence of all independent variables on dividend policy.

LITERATURE REVIEW

Dividend Policy

A dividend policy is a strategy the company uses to determine the amount and time of dividend payments. The dividend policy in the Company will share some net benefits to shareholders in the form of dividends (Widiyanti et al., 2021), and the amount of profit is detained for the interests of the company's development and operations (Bahri, 2017). The DPR's formula is as follows:

$$DPR = \frac{\text{Dividend per share}}{\text{Profit per share}}$$

The dividend policy is proxied by the dividend payout ratio. The DPR results from the ratio between profit per share and dividends distributed to shareholders. If the company distributes profits as dividends, it will reduce retained earnings and total internal funds. If the company chooses to withstand the profits obtained, the formation of the company's internal funds is even greater.

Dividend policy provides helpful information in company funding decisions. With this decision, it can affect the company's external financing needs. Dividend policy information is used in various situations. First, it is used in assessment to estimate future dividends. Second, it is used to estimate future income growth. Finally, the DPR tends to

follow the company's life cycle and show the level of maturity of a company (Vivian et al., 2022).

Return on Assets (ROA)

This profitability ratio assesses whether the company can profit from its assets. Suppose the company has a high level of profitability. In that case, it will also make a high profit, and in the end, the available profits to be distributed to shareholders will be even greater (Basri, 2019).

The signalling theory states that high-profitability companies and paying high dividends are positive signals for investors. These signals inform investors about a company's condition and prospects, and investors need them to make decisions when investing in a company.

Research Labhane (2019), Arrahma & Nugroho (2023), Indarwati & Nur (2023), Franc-Dbrowska & Madra-Sawicka (2020) and Pattiruhu & Paais (2020) explained that returns on assets have a positive and significant effect on dividend policy. The greater the company's profit, the greater its ability to pay its dividend.

$$ROA = \frac{\text{Net Profit}}{\text{Total Assets}}$$

Current Ratio

The current ratio (CR) evaluates whether the industry can fulfil its short-term obligations (Sharma & Bakshi, 2019). A company's decline in its current ratio shows that it faces challenges in meeting its short-term debt (Hongli et al., 2019).

Companies with high liquidity will also pay significant dividends, as they can pay off obligations that will mature, including dividend obligations, and vice versa. If the company can pay off its short-term obligations at maturity, it is said to be liquid.

The agency theory states that the bond between the agent and the principal is a contract, such as a loan contract between the company and the collector (Manuari &

Devi, 2023). Because of this, management seeks to pay attention to the company's ability to fulfil the company's obligations that will mature, and shareholders have a role in controlling the company's obligations so that the percentage of the current ratio does not lead to negative and so as not to make dividend payments decrease due to excessive obligations.

$$CR = \frac{\text{Current Assets}}{\text{Current Debt}}$$

Debt to Equity Ratio

Debt to Equity Ratio (DER) compares debt and equity. Leverage is the company's ability to pay all long-term and short-term obligations using capital. High company debt will reduce the level of dividend payment. In other words, when the company has a high level of company debt usage, it will reduce its net profit and tend to pay low dividends (Zainudin & Khaw, 2021).

The net profit obtained will be prioritized to repay company obligations that will impact the distribution of low dividends. So, the greater the obligation the company must meet, the lower the ability to pay dividends to shareholders.

Based on the philosophy of the signalling theory, the company's condition with high leverage and profits obtained by the company will be used to pay off long-term debt, and short-term debt is a negative signal to investors who get a small dividend (Sari et al., 2023).

$$DER = \frac{\text{Total Debt}}{\text{Total Equity}}$$

Investment Opportunity Set (IOS)

IOS is an opportunity for investment activities carried out by the company in the hope of getting a high return (Baker et al., 2019). It can increase company growth in the future. IOS is a decision regarding investment activities and the source and form of funds to finance company investment activities. Companies with high IOS are said to have high future

growth, attracting people to invest in their companies. Investors who invest in the company obtain additional capital to generate profits, so the higher the company's profit, the higher the company's value, and the higher the dividend distributed to shareholders.

$$PER = \frac{\text{Closing stock price}}{\text{Profit per share}}$$

Free Cash Flow (FCF)

Free Cash Flow (FCF) refers to the money a company generates after spending all operational and investment costs. FCF is the remaining cash flow from the company's operational activities that can be used to pay debts, increase investment, and pay dividends to shareholders. In addition, it is hoped that companies that make high profits will generate higher free cash flows so that dividend payments will also be greater (Prša et al., 2022).

According to the theory of agency, free cash flow in an industry can bring up conflict between managers and shareholders. Conflict occurs due to differences in interests between management and shareholders when determining dividend policies. Shareholders need FCF to be used for dividend payments. On the contrary, management requires FCF to finance company activities that can benefit managers (Martono et al., 2020).

$$FCF = \frac{FCF}{\text{Total Assets}}$$

Firm Size

Firm size states that a company's size will originate from its total assets. With the large number of assets owned by the company, the company is classified as a large company, so the opportunity to pay dividends is getting bigger and vice versa (Manyari & Devi, 2023).

Firm size is one method of measuring an industry's size. It reflects industrial conditions, whether normal or not, and

influences an industry's financial capabilities. Industries with significant industrial dimensions lead to a significant total asset (Vivian et al., 2022).

$$\text{Size} = \text{LN}(\text{Total Assets})$$

Large firms will pay high dividends to investors because they can generate high profitability, maintain their reputation, and maintain high payments for each period.

Framework

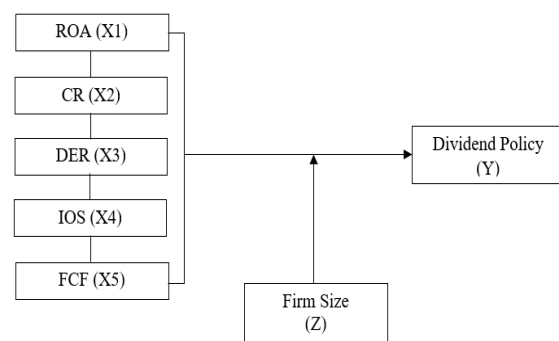


Figure 1. Conceptual Framework

- H1: Return on assets has a positive effect on dividend policy.
- H2: Current Ratio has a positive effect on dividend policy.
- H3: Debt-to-equity ratio has a negative effect on dividend policy.
- H4: Investment Opportunity Set has a positive effect on dividend policy.
- H5: Free cash flow has a positive effect on dividend policy.
- H6: Firm size moderates the effect of return on assets on dividend policy.
- H7: Firm size moderates the effect of the current ratio on dividend policy.
- H8: Firm size moderates the effect of debt-to-equity ratio on dividend policy.
- H9: Firm size moderates the effect of investment opportunity sets on dividend policy.
- H10: Firm size moderates the effect of free cash flow on dividend policy.

MATERIALS & METHODS

This research is causal associative, seeking the impact of the cause, which helps recognise the consequences of the independent variables on the dependent variable. The independent variables of this research are Return on Assets, Current Ratio, Debt to Equity Ratio, Investment Opportunity Set, and Free Cash Flow. The dependent variable in this research is dividend policy, and the moderation variable is firm size.

The method used in this study is the quantitative method, which uses numbers to test the hypothesis and is the result of calculating the value of each variable.

The population used in this research is a manufacturing industry listed on the Indonesia Stock Exchange in 2018 to 2022 of 225 issuers. Sample collection using the purposive sampling method, which is the method of determining the sample with special criteria as follows:

1. Manufacturing companies listed on the IDX during the study period.
2. Manufacturing companies that issue financial statements that have been audited during the study period.
3. Manufacturing companies that make a profit during the study period.
4. Companies that distribute dividends during the study period.

Based on the criteria above, the sample obtained was 185 observations (37 companies x 5 years of study). Data Analysis Techniques Using Panel Data Regression with the Moderated Regression Analysis (MRA) approach uses the E-Views statistical application version 9.

RESULT

A. Selection of Estimation Models

In the use of panel data regression analysis, three methods can be used for panel data in the study, namely the Common Effect (CE) regression model, Fixed Effect (FE), and Random Effect (RE). A Chow test, Hausman test, and multiplier lagrange test were carried out to determine the best estimation model for this study.

1) Chow test

The fixed effect or common effect model is the most appropriate for estimating panel data; the Chow Test (Chow Test) is carried out. This test aims to determine the best model: Fixed Effect (FE) or Common Effect (CE). The hypothesis used in the Chow test is as follows:

1. H0: Then the best estimation model used is Fixed Effect.
2. H1: Then the best estimation model used is the Common Effect.

The following are the results of testing to determine whether the best estimation is Fixed Effect (FE) or Common Effect (CE) with the Chow Test.

Table 1. Chow Test Results

No	Effect Test	Statistic	d.f.	Prob.
1	Cross-section F	2.947240	(36,143)	0.0000
2	Cross-section Chi Square	102.677288	36	0.0000

Source: Data Processing Results (2024)

If the probability value is smaller than 0.05 (<0.05), then the best model to use is Fixed Effect (Fe). However, if the probability value is greater than 0.05 (>0.05), then the model used is the Common Effect (CE). The probability value of the Chow Test is seen based on the cross-section chi-square probability in the table above, which has a value of 0.0000. Based on the table, the Chow Test states that the better estimation model is the Fixed Effect (FE) than the Common Effect (CE).

2) Hausman Test

After conducting the Chow test and determining the best estimation of the Fixed Effect, the next step is to do a thug test to determine a better model between Fixed Effect (FE) and Random Effect (RE). The following are the results of testing to choose whether the best estimation is the Random Effect (RE) or Fixed Effect (FE) with the Hausman test.

Table 2. Hausman test results

No	Effect Test	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
1	Cross-section Random	9.664058	5	0.0853

Source: Data Processing Results (2024)

The hypothesis used in the thirist test is as follows:

1. H0: Then the best estimation model used is the Random Effect.
2. H1: Then the best estimation model used is Fixed Effect.

It can be seen that the value of P cross-section random is greater than 0.05, which is 0.0853 ($0.0853 > 0.05$). Based on this, H0 is accepted, meaning the best method to use is a random effect rather than a fixed effect. Based on the Chow test results, a better model is the Fixed Effect (FE) than the Common Effect (CE), and the Hausman test results show that the random effect is better than the fixed effect. Therefore, the best method for this research is the Random Effect (RE).

3) Multiplier Lagrange Test

The multiplied lagrange test is carried out to ascertain whether the best estimation method is a random or common effect. A multiplier lagrange test is performed. The test is carried out with the following hypothesis:

1. H0 = Common Effect
2. H1 = Random Effect

Table 3. Multiplier Lagrange Test Results

No	Effect Test	Test Hypothesis		
		Cross-section	Time	Both
1	Breusch-Pagan	22.54197 (0.0000)	0.923474 (0.3366)	23.46545 (0.0000)

Source: Data Processing Results (2024)

The results of the multiplier lagrange testing in this study showed that the value of P cross-section Breusch-Pagan is 0.000 smaller than 0.05 ($0,000 < 0.05$). So, H1 is accepted, which means the best method to use in this study is the random effect.

Based on the selection of the estimation method, it is known that the results of the selection of estimation methods that are appropriate for the panel data regression

equation in this study are random effects. There is no need for a classic assumption test on the data used (Gujarati and Porter, 2009).

B. Hypothesis Testing

1) Regression Analysis With Panel Data

With the selection of the estimated research model, it can be seen that the best model used in this study is the Random Effect. Following are the results of data panel regression analysis using the Random Effect model:

Table 4. Data Regression Analysis Result

Variable	Coefficient	Std. Error
C	0.010	0.111
X1	0.920	0.456
X2	0.046	0.019
X3	0.040	0.065
X4	0.008	0.001
X5	0.686	0.334

Source: Data Processing Results (2024)

Table 4 above shows the panel data regression equation in this study as follows:

$$Y = 0.010 + 0.920X1 + 0.046X2 + 0.040X3 + 0.008X4 + 0.686X5$$

The equation above shows that all independent variables in this study (ROA, CR, DER, iOS, and FCF) positively correlate with dividend policies.

2) F (Simultaneous) Statistical Test

The F statistical test is used to see the effect of returns on assets, current ratio, debt-to-equity ratio, investment opportunity sets, and free cash flow on dividend policies simultaneously or together. The results of the F statistical testing are as follows:

Table 5. F (Simultaneous) Test Results

Weighted Statistics	
F-statistic	31.08829
Prob. (F-statistic)	0.000000

Source: Data Processing Results (2024)

Based on the above, the simultaneous test results (F statistics) show a significant value of 0.000 smaller than 0.05. The results of this F test indicate that all independent variables in this study, Return on Asset, Current Ratio, Debt to Equity Ratio, Investment Opportunity Set, and Free Cash Flow together (simultaneously) have a significant influence on the dependent variable, namely dividend policy on Manufacturing companies listed on the IDX. The test will be followed by a T statistical (partial) test to see any independent variables affecting partial dividend policy.

3) T (Partial) Statistical Test

The T statistical test shows how much influence one independent variable has in explaining the dependent variable. The hypothesis is formulated as follows:

1. H0: $\beta_i = 0$, meaning that the independent variable has no significant effect on the dependent variable.
2. H1: $\beta_i \neq 0$, meaning that the independent variable significantly affects the dependent variable.

This partial testing is carried out to determine how the influence of return on assets, current ratio, debt to equity ratio, investment opportunities sets, and free cash flow on dividend policies at manufacturing companies listed on the IDX partially.

Table 6. T (Partial) Test Results

Variable	t-Statistic	Prob.
C	0.092	0.926
X1	2.015	0.045
X2	2.443	0.015
X3	0.609	0.543
X4	11.494	0.000
X5	2.054	0.041

Source: Data Processing Results (2024)

Reception or rejection of hypotheses in a study can be done with the following

criteria:

1. If the significance value of the statistic $T > 0.05$, then H0 is received. It means an independent variable has no significant influence on the dependent variable.
2. If the statistical t's significance value < 0.05 , then H0 is rejected. It means that an independent variable partially affects the dependent variable significantly.

Table 6 shows that Return on Asset (X1), Current Ratio (X2), Investment Opportunity Set (X4), and Free Cash Flow (X5) partially proved to have a significant influence on the dividend policy of Manufacturing companies listed on the IDX. At the same time, the debt-equity ratio (X3) is proven to have no significant influence on dividend policy.

4) Determination Coefficient Test (R2)

The coefficient of determination (R2) measures how far the model's ability explains the dependent variable. The determination date gets an efficient value of 0 to 1 if a small R2 value means the ability of independent variables to explain the variable variables of the dependent variable is very limited. Conversely, if R2 is large (close to the value 1), independent variables can explain the variety of large dependent variables.

Table 7. R-Square Test Result

Weighted Statistics	
R-squared	0.465
Adjusted R-squared	0.450
S. E. of regression	0.347

Source: Data Processing Results (2024)

Table 7 shows the amount R Square (R2) value is 0.465. In contrast, the adjusted R square value is 0.450, which means the independent variable, namely return on assets, current ratio, debt to equity ratio, investment opportunities sets, and free cash flow, can explain variations of dividend

policy at Manufacturing companies listed on the IDX are 0.450 (45%). Based on this, the remaining 55% is influenced or explained by other variables not included in this research model.

5) Moderating Test

Firm size is the moderating variable used in this study and can be used as a moderating variable in this research model.

Table 8. Moderating Test Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Z	0.068	0.090	0.760	0.448
X1*Z	0.399	0.372	1.074	0.284
X2*Z	-0.043	0.021	-2.068	0.040
X3*Z	-0.048	0.059	-0.808	0.420
X4*Z	0.004	0.001	2.893	0.004
X5*Z	-0.059	0.273	-0.216	0.829

Source: Data Processing Results (2024)

The results above show the interaction between moderating variables, namely firm size, and each independent variable, namely Return on Asset, Current Ratio, Debt to Equity Ratio, Investment Opportunity Set, and Free Cash Flow. Table 8 above shows that the interaction of moderating variables has a significant influence on dividend policy, which is the interaction of X2*Z and X4*Z, with the interaction of X1*Z, X3*Z, and X5*Z is not significant at a level of 5%.

CONCLUSION

Based on the results of research and discussion, it can be concluded that:

1. Return on assets positively influences dividend policies in manufacturing companies listed on the IDX.
2. Current Ratio positively influences dividend policies on manufacturing companies listed on the IDX.
3. Debt to Equity Ratio does not affect dividend policies in manufacturing companies listed on the IDX.
4. Investment Opportunity Set positively influences dividend policies on

manufacturing companies listed on the IDX.

5. Free Cash Flow positively influences dividend policies in manufacturing companies listed on the IDX.
6. Firm size cannot moderate the effect of return on assets on dividend policies on manufacturing companies listed on the IDX.
7. Firm size can moderate the current ratio's effect on dividend policies on manufacturing companies listed on the IDX.
8. Firm size cannot moderate the effect of the debt-to-equity ratio on dividend policies for manufacturing companies listed on the IDX.
9. Firm size can moderate the effect of the investment opportunity set on dividend policies in manufacturing companies listed on the IDX.
10. Firm size cannot moderate the effect of free cash flow on dividend policies on manufacturing companies listed on the IDX.

SUGGESTIONS

Based on the conclusions of this study, several suggestions can be made as follows:

1. The findings in this study show that Return on Assets, Current Ratio, Investment Opportunity Set, and Free Cash Flow are proven to influence dividend policy positively. It means that the higher the return on assets, the current ratio, the investment opportunity set, and the company's free cash flow, the greater the dividend the company can share. So, investors can see positive signals provided by companies with good financial performance, such as high return on assets and liquidity, sizeable free cash flow, and broad investment opportunities. It can be considered a signal that the company has financial stability, can provide financial benefits to shareholders, and has a better future growth potential.

2. Further research is expected to re-test the effect of other variables that can affect dividend policies on manufacturing companies listed on the IDX. Some variables that can be studied include financial distress, managerial ownership, institutional ownership, and asset growth.

Declaration by Authors

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