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# Dividend policy and residual dividend theory: evidence from Indonesia

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## Abstract

**Purpose** – Using the residual dividend theory, this study examines the impact of capital expenditures and working capital on the dividend policies of publicly listed companies in Indonesia.

**Design/methodology/approach** – Using data on public companies (other than those in the financial sector) listed on the Indonesia Stock Exchange from 2011 to 2020, this study collected 870 observations (firm-years). This study employs a regression analysis technique using the STATA application program. The main variables in this study are capital expenditure and working capital, and the control variables are sales growth, firm size, leverage, profitability, liquidity and dummy variables for state-owned enterprises. The dependent variable of dividend policy is proxied by the dividend payout ratio.

**Findings** – This study's results support the residual dividend theory's hypothesis, in which capital expenditure negatively affects a company's dividend policy. This study also analyzes this effect on companies that pay cash dividends at quantile positions of 25, 30, 50 and 60. The results show that the effect of capital expenditure on cash dividend payments is more pronounced in the case of companies whose cash dividends are in the 50th quantile. This result holds across different specification and endogeneity tests.

**Originality/value** – This study analyzes the residual dividend theory in Indonesian companies, focusing on localized factors and investment priorities. It challenges traditional Western dividend policies and provides empirical data that enhances the theory's robustness. The findings have practical implications for investors, policymakers and corporate decision-makers in the Indonesian market.

**Keywords** Capital expenditure, Working capital, Dividend policy, Residual dividend theory, Indonesia

**Paper type** Research paper

## 1. Introduction

Dividend policy is a positive signal regarding a company's performance in the future (Abdullah *et al.*, 2023; Chang *et al.*, 2024; Lin and Lee, 2021; Satt and Iatridis, 2023; Seth and Mahenthiran, 2022). Managers can utilize dividend policy to control liquidity risk and



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alleviate the negative consequences of economic downturns on their firms' value (Mazouz *et al.*, 2023). Managers may implement a dividend policy to signal stakeholders due to its perceived favorable effect on the organization's overall value (Satt and Iatridis, 2023).

Even though research has demonstrated that dividends are a positive signal of company performance, several studies have found that companies deliberately reduce or do not pay dividends for several reasons. For example, when a company is in a growth stage, managers tend to use profits owned for making investments, thereby delaying dividend payments (Amini *et al.*, 2022; Bhat, 2022; Hussain *et al.*, 2022; Meza *et al.*, 2020; Yousef *et al.*, 2021). The results of these investments will, in time, be paid to shareholders through dividends, increasing the company's value in the future (Sierpińska-Sawicz and Sierpińska, 2022). This result is consistent with the theory which states that the dividend policy can be explained using the life-cycle theory (Bhattacharya *et al.*, 2020; Dixit *et al.*, 2020) and residual dividend theory (Anjana and Balasubramanian, 2017; Budagaga, 2020; Puspitaningtyas, 2019).

While the existing literature on the residual dividend theory has provided valuable insights into dividend policies in Western markets, there remains a significant research gap in terms of understanding the application of this theory within emerging markets. Budagaga (2020) demonstrates that dividend policy in emerging capital markets uses a residual dividend policy. Emerging markets have unique characteristics, including family ownership, lack of transparency, and dominant agency conflicts (Bekaerta and Harvey, 1997; Dewri *et al.*, 2021; Franc-Dąbrowska *et al.*, 2020; Nadia and Hanafi, 2023).

Indonesia's capital market is in its early stages of growth, with a lower GDP per capita and Human Development Index (HDI) compared to the US and a different governance structure. Unlike other emerging markets, like China and India, Indonesia's financial strategy has unique characteristics (Prakash *et al.*, 2023; Sharma *et al.*, 2019). Research shows that Indonesia's corporate financial strategy relies more on external funding than internal funding, and capital expenditure is the strongest predictor of stock returns (Alghifari *et al.*, 2022; Sharma *et al.*, 2019). Understanding these differences is crucial for investors to understand the impact of capital expenditure on dividend policy. Therefore, the problem statement of this research is to investigate and elucidate the specific factors that shape dividend policies in Indonesian companies, with a particular focus on the residual dividend theory.

This study uses financial data from public companies listed on the Indonesia Stock Exchange from 2011 to 2020. As many as 14.37% of the total observations during this period recorded implementation of cash dividend payment policies, namely 870 firm-year observations out of the total number of observations available, which was 6,056 firm-years. Using the database from ESGI Intelligence, the researchers use the dividend payout ratio (DPR) as a measure of dividend policy and capital expenditure (CAPEX) and working capital (WC) as the main variables. The researchers include control variables such as company size, sales growth, leverage, profitability, liquidity, and control SOE. The data analysis technique used is multiple regression analysis with the STATA application as the data processing tool.

Under the researchers' hypothesis, this study finds that capital expenditure and working capital have a negative effect on dividend policy. This study's results follow the residual dividend theory, which states that companies will distribute dividends after making long-term and short-term investment expenditures. This study uses capital expenditure and working capital as proxies for investment spending. The researchers also performed additional analysis to see how dividend policy is affected by CAPEX and WC. The results of the quintile regression analysis indicate that the effects of CAPEX and WC occur only in companies with DPR in Q25, Q30, Q50, and Q60.

To ascertain the research results on the effect of CAPEX and WC on dividend policy, the researchers use dividend yield as a proxy for dividend policy in the robustness test. The

results show that only CAPEX has a negative effect on dividend yield. The researchers also conducted an endogeneity test using the matched-sample principle for firm size and the CEM method for sales growth. The results consistently demonstrate that CAPEX and WC have a negative effect on dividend policy.

Upon analyzing the results, several specific new points and the uniqueness of the research have emerged. Firstly, the study reveals that Indonesian companies tend to prioritize investment opportunities over dividend payments, aligning with the principles of the residual dividend theory. This finding challenges the traditional dividend policies observed in Western markets and underscores the importance of considering cultural and economic factors when applying financial theories in different contexts (Booth and Zhou, 2017). In summary, the study's emphasis on localized analysis, coupled with its original empirical evidence, has not only enriched the understanding of the residual dividend theory but has also offered valuable insights into the unique dynamics shaping dividend policies in Indonesian companies.

This research has theoretical and practical implications. The research provides valuable insights into dividend policy in Indonesian companies, offering guidance for investors, policymakers, and corporate decision-makers. From a theoretical point of view, the results of this research enrich the literature on dividend policy, especially from the perspective of residual dividend theory. This study offers a nuanced perspective on how companies prioritize investment opportunities over dividend payments, allowing investors to evaluate the potential long-term growth and sustainability of their investments. Policymakers can use the findings to inform regulatory frameworks and policies related to dividend distributions, promoting market stability and growth while safeguarding shareholder interests. Corporate decision-makers can benefit from the study by understanding key variables affecting dividend payout decisions, optimizing capital expenditure, working capital management, and overall financial decision-making. This insight supports more effective strategic planning and financial management, ultimately contributing to improved shareholder value and financial performance.

This paper is continued with the following structure. Section 2 contains Indonesia's institutional setting. Section 3 contains literature review and hypothesis development and Section 4 contains methodology and data. Section 5 contains the result. Finally, Section 6 remarks on the conclusion, including suggestions for further research.

## 2. Indonesia's institutional setting

The capital market in Indonesia is in the early stages of growth. Therefore, the characteristics of Indonesia's capital market differ from the US capital market. Regarding GDP per capita and HDI, Indonesia has a much lower score than the US. When compared to other emerging markets, such as China and India, the company's financial strategy in Indonesia also has unique characteristics. In terms of institutional structures and market structures, capital markets in China and India are more developed than in Indonesia (Prakash *et al.*, 2023; Sharma *et al.*, 2019). Previous research shows that Indonesia's corporate financial strategy relies more on external than internal funding (Alghifari *et al.*, 2022). Studies also show that capital expenditure is the strongest predictor of stock returns in the Indonesian capital market (Sharma *et al.*, 2019). These differences make it necessary to research the Indonesian capital market to help investors understand the effect of capital expenditure on dividend policy.

Indonesia's capital market is in its early stages of growth, with a lower GDP per capita and HDI compared to the US. Unlike other emerging markets like China and India, Indonesia's financial strategy has unique characteristics. Research shows that Indonesia's corporate financial strategy relies more on external funding than internal funding and capital

expenditure is the strongest predictor of stock returns. Understanding these differences is crucial for investors to understand the impact of capital expenditure on dividend policy.

The dividend policy for public companies in Indonesia is regulated by Law No.40 of 2007 concerning Limited Liability Companies. In addition, the dividend policy is also regulated by the company's articles of association. Based on the Limited Liability Company Law, all net profit, minus the provision for reserves, is distributed to shareholders as dividends unless otherwise determined at the General Meeting of Shareholders (GMS). Dividends can only be given if the company has a positive profit balance. This is supported by research related to dividend policy in Indonesia conducted by Baker and Powell (2012). Their survey found that the most critical determinants of dividends were earnings stability and the level of current and expected future profits. Managers of companies in Indonesia perceive the dividend policy as affecting the value of the company. Therefore, giving dividends can be a positive signal for investors. Based on the results of these studies, it can be concluded that profitability is an essential basis for dividend policy.

From the investors' perspective, investing in the capital market is carried out because there are two benefits to be gained, namely capital gains and dividends. Even though regulations in Indonesia stipulate that the distribution of dividends is based on the profits earned by the company, not all public companies that earn positive profits pay dividends to shareholders. To prevent misunderstanding regarding the relationship between performance and dividends, investors need to know the factors that might influence dividend policy decisions other than the profit level. Currently, the number of young investors in the Indonesian capital market, the Indonesia Stock Exchange, is experiencing significant growth. Investors from the millennial generation (under the age of 30) are increasingly dominating the Indonesian capital market [1]. The results of this study can be used as a basis for consideration by novice investors when assessing company performance, especially regarding dividend policy. Novice investors need to understand and learn about the company's financial patterns that provide opportunities to pay dividends. They need to realize that the absence of dividends does not necessarily indicate that the company's financial performance, mainly profits, is terrible.

## 3. Literature review and hypothesis development

This study uses the residual dividend theory as its basic framework for thinking. This theory asserts that the complete allocation of cash flow generated by a firm's operations should be designated to the financing any planned long-term and short-term expansion. Capital expenditure and dividend payments require substantial funding (Magerakis, 2020). Therefore, there is a correlation between the two (Cheema *et al.*, 2023). Previous research shows that firms with excess cash have more significant capital expenditures but do not pay higher dividends (Briano-Turrent *et al.*, 2023; Jebran *et al.*, 2022; Sun *et al.*, 2023). When a firm has limited investment opportunities, dividend payments will be even greater (Chou and Feng, 2019). Therefore, the firm pays dividends out of residual income after meeting all operating and capital expenditure needs (Aivazian *et al.*, 2003; Budagaga, 2020; Puspitaningtyas, 2019). The results of their research demonstrate that the availability of profitable investment opportunities determines dividend policy. According to Miller and Modigliani (1961), who adhere to the residual dividends method, dividend payments are contingent on the firm's remaining funds after all of its obligations have been satisfied.

Residual theory is in line with the use of other theories, such as the pecking order theory. Research on firm growth uses the pecking order theory to underlie its influence on dividend policy (Yakubu, 2019). Even though they are different, conceptually these two theories both show that dividend payments are made after investments are made, including investments funded with debt. The firm's high growth indicates that the need for funding is also high.

Therefore, firms with fast growth rates require more investment. Research related to debt policy states that the firm's funding needs external funding. Anjana and Balasubramanian (2017) state that companies tend to maintain a balance between debt and equity in their capital structure. Capital expenditure is one of the most essential variables in influencing dividend payments (Nusrathunnisa and Duraipandian, 2019). The available cash will be more limited because the firm has to pay its debts. The impact is that the amount of cash available to pay dividends will be limited.

A survey conducted by Baker and Weigand (2015) shows that the trend of the importance of cash dividends for investors indicates a decrease over time. The results of their study show that firms tend to follow a managed dividend policy rather than a residual dividend policy. Even so, from the investor's perspective, this dividend policy is the most preferred by investors. Investors consider this policy logical because it cannot earn a profit if the firm does not invest in positive cash flow projects. Thus, reinvesting profits takes priority over paying dividends to shareholders. Risk-tolerant investors prefer a residual dividend policy. They seek capital gains and enjoy the paid dividends when available. Thus, even if the firm does not pay dividends, it does not affect investors' investment choices. Therefore, the current research aims to determine the effect of capital expenditure and working capital on the firm's dividend policy.

*H1*. Capital expenditure has a negative effect on dividend policy

*H2*. Working capital has a negative effect on dividend policy

## 4. Methodology and data

This study uses financial data from public companies listed on the Indonesia Stock Exchange, excluding the financial industry, from 2011 to 2020. The number of firm-year observations is 870. This observation is dividend-paid firms. The dependent variable in this study is dividend policy, which is measured by using the dividend payout ratio (DPR) as its proxy. The main variables are capital expenditure (CAPEX) and working capital (WC). The control variables in this study are firm size (SIZE), sales growth (SGR), debt-to-equity ratio for leverage (DER), return on assets for profitability (ROA), cash ratio for liquidity (CR), and a dummy for state-owned enterprises (SOEs). Table 1 shows the operational definitions of all variables. All data in this study are from the ESG Intelligence database [2].

| Variable | Symbol | Measurement |
|---|---|---|
| *Dependent* | | |
| Dividend payout ratio | DPR | Dividend per share/earning per share (Shafai *et al.*, 2019) |
| *Main variable* | | |
| Capital expenditure | CAPEX | (Fixed Asset – Lag Fixed Asset) + Depreciation/Total Asset (Jiraporn *et al.*, 2016) |
| Working capital | WC | Current assets - Current liabilities (Setianto *et al.*, 2022) |
| *Control variable* | | |
| Sales growth | SGR | (Net Sales - Lag Sales)/Lag Sales |
| Firm size | SIZE | Natural Logarithm of Total Asset (Nor *et al.*, 2020; Tinungki *et al.*, 2022) |
| Debt to equity ratio | DER | Debt/Equity (Tinungki *et al.*, 2022) |
| Return on asset | ROA | Earning After Tax/Total Asset (Setianto *et al.*, 2022) |
| Cash ratio | CR | Cash and Cash Equivalent/Current Liabilities (Nor *et al.*, 2020; Zelalem and Abebe, 2022) |
| State owned enterprise | SOE | Dummy = 1 for SOE, 0 for Non-SOE (Zhang and Liu, 2020) |

**Source(s):** Authors' own work

**Table 1.** Variable definition

The data analysis technique used is multiple regression analysis. This study uses the STATA application as a data processing tool. Before the analysis, observations that fell in the top and bottom 1% are winsorized to mitigate the influence of outliers. The research model used in this study is as follows.

$$DPR_{i,t} = \beta_0 + \beta_1 CAPEX_{i,t} + \beta_2 WC_{i,t} + \beta_3 SGR_{i,t} + \beta_4 SIZE_{i,t} + \beta_5 DER_{i,t} + \beta_6 ROA_{i,t} + \beta_7 CR_{i,t} + \beta_8 SOE_{i,t} + Year\ Effect + Industry\ Effect$$

## 5. Discussion

### 5.1 Descriptive statistics

Table 2 reports the descriptive statistics for all variables. The mean value for DPR is 0.447. CAPEX and WC have mean values of 0.075 and 0.226, respectively. The values of the other control variables, SGR, SIZE, DER, ROA, and CR, are 0.130, 29.159, 1.096, 0.08, and 0.742, respectively. The mean value of SOE is 0.071, indicating that 7.1% of the sample are state-owned companies that pay dividends. The transportation and logistics sector has the highest average DPR and CAPEX. By contrast, the property and real estate sector has the lowest DPR and CAPEX. In terms of WC, the healthcare sector has the highest average working capital, while the transportation and logistics sectors have the lowest average. The results show that the significant difference only occurs in the sales growth variable (SGR).

The authors also performed correlation tests on the variables tabulated in Table 3. The correlations between the independent variables are relatively weak, indicating that multicollinearity is unlikely to be a problem in multivariate regression studies.

| | N | Mean | Std. Dev | p25 | Median | p75 | Max | Min |
|---|---|---|---|---|---|---|---|---|
| DPR | 870 | 0.447 | 0.690 | 0.180 | 0.301 | 0.488 | 6.141 | 0.013 |
| CAPEX | 870 | 0.075 | 0.072 | 0.025 | 0.054 | 0.104 | 0.374 | 0.002 |
| WC | 870 | 0.226 | 0.203 | 0.077 | 0.196 | 0.370 | 0.720 | −0.151 |
| SGR | 870 | 0.130 | 0.209 | 0.016 | 0.097 | 0.204 | 1.021 | −0.322 |
| SIZE | 870 | 29.159 | 1.541 | 28.091 | 29.149 | 30.323 | 32.837 | 25.716 |
| DER | 870 | 1.096 | 0.956 | 0.444 | 0.818 | 1.396 | 5.374 | 0.101 |
| ROA | 870 | 0.080 | 0.071 | 0.033 | 0.062 | 0.101 | 0.416 | 0.002 |
| CR | 870 | 0.742 | 1.006 | 0.168 | 0.400 | 0.808 | 5.573 | 0.020 |
| SOE | 870 | 0.071 | 0.257 | 0 | 0 | 0 | 1 | 0 |

**Source(s):** Authors' own work

**Table 2.** Panel A summary of descriptive

| Variables | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| (1) DPR | 1.000 | | | | | | | |
| (2) CAPEX | 0.038 | 1.000 | | | | | | |
| (3) WC | −0.032 | −0.349* | 1.000 | | | | | |
| (4) SGR | 0.000 | 0.133* | −0.066 | 1.000 | | | | |
| (5) SIZE | 0.051 | −0.019 | −0.198* | 0.018 | 1.000 | | | |
| (6) DER | 0.022 | 0.070 | −0.452* | 0.202* | 0.126* | 1.000 | | |
| (7) ROA | −0.036 | −0.012 | 0.231* | 0.073 | −0.013 | −0.250* | 1.000 | |
| (8) CR | 0.037 | −0.113* | 0.489* | −0.060 | −0.112* | −0.381* | 0.242* | 1.000 |

**Note(s):** ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$
**Source(s):** Authors' own work

**Table 3.** Pairwise correlations

*5.2 Regression test*

Table 4 presents the regression estimates for the dividend payout ratio (DPR). In Model 1, the authors use robust regression with firm fixed effect and control for year and industry sector. Model 2 uses median regression (Q50). The model shows negative and significant coefficients for capital expenditure (CAPEX) and working capital (WC), suggesting that the higher the CAPEX and WC, the lower the DPR. These results accord with research conducted by Jiraporn *et al.* (2016), who found a negative relationship between CAPEX and dividend payout.

These results follow the hypothesis in this study, which states that CAPEX and WC negatively affect dividend policy. The results are also under the residual dividend theory, which states that a company will distribute dividends after long-term and short-term investment expenditures. This study explicitly uses the size of capital expenditure and working capital as the proxies for investment expenditure. This result differs from previous research that used a similar theory but used leverage (Anjana and Balasubramanian, 2017; Puspitaningtyas, 2019) and capital adequacy (Budagaga, 2020) as proxies.

For the control variables, the authors find that dividend policy is positively associated with SIZE, ROA, and CR but negatively associated with SGR and DER. These results accord with previous dividend policy studies which showed a positive effect on firm size (Dewasiri *et al.*, 2019; Liao *et al.*, 2022; Nor *et al.*, 2020; Pathak and Gupta, 2022; Tinungki *et al.*, 2022), profitability (Dewasiri *et al.*, 2019; Tinungki *et al.*, 2022), and liquidity (Dewasiri *et al.*, 2019; Nor *et al.*, 2020; Zelalem and Abebe, 2022). On the other hand, the results of this study also accord with studies of dividend policy, which showed it is negatively affected by leverage

| Variable | Expected Sign | Model 1 Mean regression | Model 2 Median regression |
|---|---|---|---|
| CAPEX | − | −0.256** | −0.231** |
| | | (−2.38) | (−2.09) |
| WC | − | −0.106** | −0.114** |
| | | (−2.36) | (−2.57) |
| SGR | − | −0.115*** | −0.084*** |
| | | (−3.31) | (−2.92) |
| SIZE | + | 0.015*** | 0.023*** |
| | | (3.13) | (5.73) |
| DER | − | −0.017** | −0.017** |
| | | (−1.97) | (−2.45) |
| ROA | + | 0.770*** | 0.848*** |
| | | (7.51) | (5.96) |
| CR | + | 0.014* | 0.020* |
| | | (1.75) | (1.83) |
| SOE | | −0.016 | −0.046* |
| | | (−0.54) | (−1.79) |
| Intercept | | −0.047 | −0.300** |
| | | (−0.32) | (−2.45) |
| Year FE | | Yes | Yes |
| Industry FE | | Yes | Yes |
| $R^2$ | | 0.177 | |
| F-statistic | | 6,95*** | |
| *N* | | 870 | 870 |

**Note(s):** *t* statistics in parentheses
*$p < 0.1$, **$p < 0.05$, ***$p < 0.01$
**Source(s):** Authors' own work

**Table 4.** Regression tests for dividend payout ratio (DPR)

(Liao *et al.*, 2022; Nor *et al.*, 2020; Shafai *et al.*, 2019; Tinungki *et al.*, 2022; Zelalem and Abebe, 2022).

Overall, the results of our study show that the residual dividend theory still applies to public companies in Indonesia. This result is contrary to studies in the US, which show that the tendency of investors to prioritize cash dividend payments has decreased over time (Baker and Weigand, 2015). They stated that, as of 2015, share repurchase had played an increasingly important role for investors. Even so, Baker and Weigand (2015) still stated that a dividend policy was still necessary. However, companies tend to follow a managed dividend rather than a residual dividend policy. Baker and Weigand (2015) have stated that no universal measure is suitable for all companies because dividend policy is closely related to firm characteristics, market characteristics, and substitute forms of dividends.

To look deeper at the effect of capital expenditure and working capital on dividend policy, the authors conducted additional analysis by performing quintile regression in Q25, Q50, and Q75, as well as multiples of 10 (Q10-90). Table 5 shows the results of the quantile regression analysis. These results indicate that the effects of CAPEX and WC occur only in companies with DPR in Q25 and Q50, which have an average of 0.180 and 0.301, respectively. On the other hand, companies that have DPR in Q75 (with an average score of 0.488) are unaffected by CAPEX or WC. The most consistent influence of the control variable on DPR, in all quantiles, is firm size. As with CAPEX and WC, SGR, DER, and CR control variables significantly affect Q25 and Q50.

Furthermore, Table 6 shows the regression analysis results with multiples of 10. These results show that the negative effect of CAPEX and WC only occurs in companies with DPR values in Q30, Q50, and Q60. Similar to CAPEX and WC, the influence of the control variable SGR is also felt in companies with DPR in Q30, Q50, Q60, and Q70. The DER variable is

| | Expected Sign | Model 1 Q25 | Model 2 Q50 | Model 3 Q75 |
|---|---|---|---|---|
| CAPEX | − | −0.191** | −0.231** | 0.035 |
| | | (−2.07) | (−2.09) | (.) |
| WC | − | −0.066* | −0.114** | −0.049 |
| | | (−1.94) | (−2.57) | (.) |
| SIZE | + | 0.014*** | 0.023*** | 0.006*** |
| | | (3.15) | (5.73) | (7.0e+13) |
| SGR | − | −0.067*** | −0.084*** | −0.104 |
| | | (−2.76) | (−2.92) | (.) |
| DER | − | −0.020*** | −0.017** | −0.024 |
| | | (−3.44) | (−2.45) | (.) |
| ROA | + | 0.020 | 0.848*** | 0.954 |
| | | (0.10) | (5.96) | (.) |
| CR | + | 0.016** | 0.020* | 0.038 |
| | | (2.14) | (1.83) | (.) |
| SOE | | −0.005 | −0.046* | −0.155*** |
| | | (−0.23) | (−1.79) | (−3.69) |
| Intercept | | −0.047 | −0.300** | 0.396 |
| | | (−0.39) | (−2.45) | (.) |
| Year FE | | Yes | Yes | Yes |
| Industry FE | | Yes | Yes | Yes |
| *N* | | 870 | 870 | 870 |

**Note(s):** *t* statistics in parentheses
*$p < 0.1$, **$p < 0.05$, ***$p < 0.01$
**Source(s):** Authors' own work

**Table 5.**
Quantile regression tests (Q25, Q50, and Q75) for dividend payout ratio (DPR)

| | (1) Q10 | (2) Q20 | (3) Q30 | (4) Q40 | (5) Q50 | (6) Q60 | (7) Q70 | (8) Q80 | (9) Q90 |
|---|---|---|---|---|---|---|---|---|---|
| CAPEX | −0.169 | −0.203 | −0.247*** | −0.300 | −0.231** | −0.212** | −0.164 | 0.234 | 0.577 |
| | (.) | (.) | (−3.75) | (.) | (−2.09) | (−2.09) | (−0.88) | (.) | (.) |
| WC | −0.048 | −0.054 | −0.111*** | −0.162 | −0.114** | −0.092** | −0.056 | −0.056 | 0.038 |
| | (.) | (.) | (−3.59) | (.) | (−2.57) | (−2.00) | (−1.10) | (.) | (.) |
| SIZE | 0.003*** | 0.007*** | 0.019*** | 0.021*** | 0.023*** | 0.020*** | 0.015*** | 0.013*** | 0.024*** |
| | (2.0e+13) | (1.8e+14) | (4.47) | (4.4e+14) | (5.73) | (4.56) | (2.92) | (6.8e+13) | (1.6e+14) |
| SGR | 0.005 | −0.026 | −0.099*** | −0.099 | −0.084*** | −0.099*** | −0.130*** | −0.174 | −0.068 |
| | (.) | (.) | (−3.55) | (.) | (−2.92) | (−3.46) | (−3.27) | (.) | (.) |
| DER | −0.012*** | −0.020 | −0.023*** | −0.021 | −0.017** | −0.016** | −0.008 | 0.009 | 0.037 |
| | (−8.5e+12) | (.) | (−4.82) | (.) | (−2.45) | (−2.04) | (−0.99) | (.) | (.) |
| ROA | −0.140 | −0.209 | 0.353* | 0.662 | 0.848*** | 0.886*** | 0.922*** | 0.973 | 0.667 |
| | (.) | (.) | (1.72) | (.) | (5.96) | (7.16) | (8.63) | (.) | (.) |
| CR | 0.012 | 0.012 | 0.014* | 0.018 | 0.020* | 0.027** | 0.038** | 0.062 | 0.106 |
| | (.) | (.) | (1.76) | (.) | (1.83) | (2.18) | (2.44) | (.) | (.) |
| SOE | 0.042*** | 0.017 | −0.023 | −0.027 | −0.046* | −0.073* | −0.114** | −0.179*** | −0.262*** |
| | (5.10) | (0.72) | (−0.92) | (−1.56) | (−1.79) | (−1.80) | (−2.17) | (−3.07) | (−4.08) |
| _cons | 0.161 | 0.108 | −0.182 | −0.254 | −0.300** | −0.165 | 0.052 | 0.326 | 0.077 |
| | (.) | (.) | (−1.53) | (.) | (−2.45) | (−1.13) | (0.28) | (.) | (.) |
| Year FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Industry FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| *N* | 870 | 870 | 870 | 870 | 870 | 870 | 870 | 870 | 870 |

**Note(s):** *t* statistics in parentheses
*$p < 0.1$, **$p < 0.05$, ***$p < 0.01$
**Source(s):** Authors' own work

**Table 6.**
Quantile regression tests (Q10-90) for dividend payout ratio (DPR)

similar to CAPEX and WC, but companies with DPR in Q10 are also affected by DER. ROA and CR control variables positively affect the Q50, 60, and 70 DPR values. The DPR values affected by SOE are in the Q10 (+), Q50, 60, 70, 80, and 90 (−) positions. As with quantile regressions, in this analysis of quantile multiples of 10, the control firm size variable is proven to affect DPR in all quintiles.

The results of the quintile test show that the effect of CAPEX and WC on dividend policy only occurs in dividend-paying companies in the middle group (Q25, 30, 50, and 60). In contrast, dividend-paying companies in the lowest and highest groups were not affected by CAPEX and WC. Companies in the lowest quintile appear to have limited financial conditions. This causes the company to lack the liquidity to pay dividends after funding CAPEX and WC. In addition, the company prioritizes its funds to cover debt rather than distribute dividends (Li and Roberts, 2023). Companies in the highest quintile seem to have more stable financial conditions. These companies have excess cash flow after investing in CAPEX and WC and can pay dividends conveniently. Factors other than CAPEX and WC may influence their dividend policies, such as growth strategies (Boumlik *et al.*, 2023; Sikalidis *et al.*, 2023).

Companies situated in the middle quintile might employ a comprehensive strategy. Even after CAPEX and WC, they are profitable enough to pay dividends and have enough cash. These businesses may decide to invest more sensibly and distribute their money more carefully, affecting their dividend policy. Companies in the middle quintile may have particular strategic objectives concerning debt reduction, market share gain, or expansion (Alghifari *et al.*, 2022; Cohen *et al.*, 2019; Nguyen, 2019). Aside from this, variations in the influence there is on different quintiles can also be caused by the impact of capital expenditure on the future cash flows and

| | Expected Sign | (1) Div_Yield Mean regression | (2) Div_Yield Median regression |
|---|---|---|---|
| CAPEX | − | −0.019** | −0.026*** |
| | | (−2.16) | (−3.02) |
| WC | − | −0.001 | 0.001 |
| | | (−0.35) | (0.31) |
| SGR | − | −0.006** | −0.003* |
| | | (−2.19) | (−1.82) |
| SIZE | + | −0.000 | −0.001 |
| | | (−1.23) | (−1.08) |
| DER | − | 0.000 | 0.001 |
| | | (0.09) | (0.89) |
| ROA | + | 0.046*** | 0.051*** |
| | | (5.49) | (4.03) |
| CR | + | 0.000 | 0.001 |
| | | (0.70) | (0.70) |
| SOE | | 0.002 | −0.000 |
| | | (0.68) | (−0.02) |
| _cons | | 0.042*** | 0.045*** |
| | | (3.56) | (3.09) |
| Year FE | | Yes | Yes |
| Industry FE | | Yes | Yes |
| $R^2$ | | 0.119 | |
| $N$ | | 864 | 864 |

**Note(s):** $t$ statistics in parentheses
$^{*}p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$
**Source(s):** Authors' own work

**Table 7.** Summary of regression tests for dividend yield

| | Expected Sign | (1) DPR | (2) DPR | (3) DPR | (4) DPR | (5) DPR | (6) DPR | (7) DPR | (8) DPR |
|---|---|---|---|---|---|---|---|---|---|
| | | Median_CAPEX | | Mean- CAPEX | | Median_WC | | Mean_WC | |
| | | Mean reg | Median reg | Mean reg | Median reg | Mean reg | Median reg | Mean reg | Median reg |
| CAPEX | – | −0.345** | −0.239* | −0.365** | −0.287** | −0.542*** | −0.473** | −0.249 | −0.306** |
| | | (−2.34) | (−1.76) | (−2.46) | (−2.24) | (−2.77) | (−2.46) | (−1.49) | (−2.03) |
| WC | – | −0.176*** | −0.188*** | −0.213*** | −0.228*** | −0.345*** | −0.278*** | −0.143** | −0.181*** |
| | | (−2.99) | (−3.40) | (−3.33) | (−3.94) | (−2.66) | (−2.65) | (−2.33) | (−3.28) |
| SGR | – | −0.143** | −0.203*** | −0.112 | −0.136* | −0.122 | −0.177 | −0.132* | −0.222*** |
| | | (−2.01) | (−3.06) | (−1.44) | (−1.78) | (−0.70) | (−1.22) | (−1.85) | (−2.98) |
| SIZE | + | 0.010 | 0.020*** | 0.004 | 0.012 | −0.014 | −0.014 | 0.010 | 0.012** |
| | | (1.37) | (2.95) | (0.54) | (1.56) | (−0.79) | (−1.07) | (1.22) | (2.05) |
| DER | – | −0.028** | −0.027*** | −0.034*** | −0.038*** | −0.012 | 0.036* | −0.027** | −0.027*** |
| | | (−2.50) | (−2.99) | (−2.90) | (−4.20) | (−0.55) | (1.69) | (−2.19) | (−3.58) |
| ROA | + | 0.876*** | 1.042*** | 0.679*** | 0.756*** | −0.015 | −0.122 | 0.661*** | 0.810*** |
| | | (7.21) | (5.76) | (5.53) | (4.17) | (−0.06) | (−0.79) | (5.35) | (3.96) |
| CR | + | 0.017 | 0.022** | 0.019 | 0.031** | 0.045* | 0.054** | 0.026** | 0.029*** |
| | | (1.65) | (2.03) | (1.61) | (2.02) | (1.82) | (2.31) | (2.14) | (3.94) |
| SOE | | −0.011 | −0.002 | −0.033 | −0.033 | 0.120 | 0.259*** | −0.020 | −0.008 |
| | | (−0.25) | (−0.07) | (−0.71) | (−0.74) | (1.39) | (3.50) | (−0.38) | (−0.11) |
| _cons | | 0.069 | −0.244 | 0.271 | 0.041 | 0.839 | 0.766** | 0.124 | 0.055 |
| | | (0.30) | (−1.23) | (1.11) | (0.18) | (1.53) | (2.02) | (0.54) | (0.30) |
| Year FE | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Industry FE | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Pseudo $R^2$ | | | 0.0941 | | 0.0705 | | 0.1189 | | 0.0895 |
| $N$ | | 471 | 471 | 438 | 438 | 123 | 123 | 473 | 473 |

**Note(s):** Coarsened Exact Matching (CEM) model of CAPEX, WC, and the firm control variables (SGR and SIZE)
The dependent variable is DPR. $t$ statistics in parentheses
*$p < 0.1$, **$p < 0.05$, ***$p < 0.01$
**Source(s):** Authors' own work

**Table 8.**
Regression tests for dividend payout ratio with matched sample (CEM)

operational efficiency of these companies (Diaw, 2021; Nguyen and Nguyen, 2020). Understanding the specific projects and investments funded by CAPEX and their subsequent impacts on revenue generation and cost management can shed light on the rationale behind the link between capital expenditure and dividend decisions in this subset of companies (Saxena and Sahoo, 2021). The efficiency of working capital utilization, cash conversion cycles, and liquidity management practices can affect how working capital dynamics contribute to the dividend allocation strategies of companies in the middle group (Azmi and Bertuah, 2020). Furthermore, industry-specific factors may underpin the observed relationship between CAPEX, WC, and dividend policy, for instance, capital intensity, working capital requirements and competitive dynamics (Chen *et al.*, 2022).

### *5.3 Endogeneity test*

This study also examines the effect of CAPEX and WC on dividend policy using the dividend yield (DY) as the proxy. Table 7 shows the results of the analysis. Consistent results are shown by the CAPEX variable, the SGR control variable, and ROA when dividend policy is measured by dividend yield. By contrast, no significant effect on DY was found for the WC variable. To overcome the endogeneity problem in this study—related to the possibility of a relationship between CAPEX, WC, and the other variables being investigated—the researchers conducted an endogeneity test. DeFond *et al.* (2016) and Harymawan (2020) demonstrate that the coarsened exact model (CEM) is a method that is superior to propensity score matching (PSM) for analyzing the effect of observable variables on regression results. The researchers used the CEM as an additional sensitivity test to ensure no endogeneity problem in the main variables CAPEX and WC. This study used the matched-sample principle for firm size and sales growth. Using this matched-sample method, the number of firm-years based on the median CAPEX (WC) value is 471 (123) firm-years, while the number of firm-years for the average CAPEX (WC) value is 438 (471). The regression results using CEM yield consistent results, as shown in Table 8. The results indicate that CAPEX and WC have a negative impact on the DPR. Therefore, the results of this study are robust and free from endogeneity problems, especially related to the self-selection bias problem.

## 6. Conclusions

The results of this study aim to demonstrate the validity of the residual dividend theory, which is proxied by capital expenditure and working capital. Based on the analysis results, this study concludes that capital expenditure and working capital have a negative effect on dividend policy. Additional analysis shows that the effect of these two measures on dividend policy only occurs in companies with dividend payout ratio values in Q25, Q30, Q50, and Q60. This shows that companies that pay cash dividends in small amounts (Q10, 20) or substantial amounts (Q70, 80, 90) are unaffected by capital expenditure and working capital.

The study suggests several recommendations to improve Indonesian policy pertaining to corporate dividends. It suggests prioritizing sustainable economic growth and stability, encouraging prudent capital expenditure and working capital management, and establishing robust governance frameworks for transparency and accountability. It also recommends clear criteria for dividend allocation, regular communication of financial performance and investment priorities, and independent oversight of ethical practices. The study also suggests tailoring regulatory guidance to reflect the Indonesian market's dynamics, allowing companies to align their strategies with local realities while upholding governance standards.

This study examines the determinants of dividend policy in Indonesian companies, focusing on profitable investments. However, it acknowledges that not all investments are profitable. Future research could include profitability for the t+1 period as a mediating

variable in the relationship between capital expenditure and dividend policy. Additionally, exploring institutional and management ownership as moderating variables could help uncover the nuanced interplay between ownership structures and financial management practices. This study primarily relies on financial data, overlooking the potential influence of inexperienced investors. Future research could conduct surveys to understand how inexperienced investors perceive dividend policy when making their investment decisions. In-depth analyses of financial structures, operational dynamics, industry contexts, and managerial influences are needed to understand the nuanced mechanisms and conditions driving the effect of CAPEX and WC on dividend policy within dividend-paying companies in the middle group. This research can contribute to scholarly knowledge and practical implications for corporate decision-making and investor strategy. Additionally, this study focused on the Indonesian market, and future research could compare and contrast dividend policies across different emerging markets or analyze the impact of global economic trends on dividend decisions. This comparative approach would offer valuable insights into how dividend policies are shaped by external macroeconomic factors and regulatory environments, enhancing the applicability of dividend policy analysis in diverse economic landscapes.

## Notes

1. https://www.cnbcindonesia.com/market/20211012151533-17-283326/jumlah-investor-ri-capai-643-juta-didominasi-kaum-milenial
2. ESGI Intelligence is a database provided by Universitas Airlangga. Their data collection methodology is built conservatively with AI and machine learning technology assistance. They employ professional data scientists to ensure and enhance their data confidence level. Please refer to https://www.esgi.ai/

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