

FIRM SIZE MODERATION ON THE EFFECT OF OPERATING, INVESTING, AND FINANCING CASH FLOWS ON DIVIDENDS

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ABSTRACT

Research on dividend policy in the property and real estate sector is crucial given cash flow volatility and post-pandemic economic uncertainty, yet previous studies show inconsistent results regarding the effect of cash flows on dividend policy. This study aims to analyze the effect of operating, investing, and financing cash flows on dividend policy with firm size as a moderating variable in property and real estate sub-sector companies listed on the Indonesia Stock Exchange for the 2020-2024 period. Using a quantitative approach with secondary data from 7 sample companies selected through purposive sampling, this study employs panel data regression analysis and Moderated Regression Analysis (MRA) using EViews 13. The findings reveal that, partially, only operating cash flow has a significant negative effect on dividend policy, while investing cash flow, financing cash flow, and firm size have no effect. However, simultaneously, all four variables significantly affect dividend policy with a coefficient of determination of 46.20%. The novelty of this study lies in the finding that firm size successfully moderates all relationships between cash flows and dividend policy. This study contributes empirical evidence for corporate management and investors regarding the importance of considering firm size in dividend strategies and enriches financial accounting literature in the property and real estate sector.

DOI:

<http://dx.doi.org/10.31000/combis.v8i3.17031>

Article History:

Received: 12-07-2026

Reviewed: 03-08-2026

Revised: 04-08-2026

Accepted: 23-08-2026

Keywords: Dividend Policy; Financing Cash Flow; Firm Size; Investing Cash Flow; Operating Cash Flow.

INTRODUCTION

Dividend policy represents one of the most critical financial decisions confronting corporate management, concerning the allocation of earnings between distribution to shareholders and retention for future investment. Since Lintner's (1956) seminal work establishing that managers maintain dividend stability using earnings as the primary determinant, the debate has evolved considerably. Miller and Modigliani (1961) proposed dividend irrelevance in perfect markets, yet subsequent research identified market imperfections, information asymmetry, agency costs, and transaction costs that render dividend decisions significant for firm valuation (Easterbrook, 1984; Jensen, 1986; DeAngelo & DeAngelo, 2006). The trade-off theory suggests firms balance tax benefits against financial



distress costs when determining payout policies (Kraus & Litzenberger, 1973; Modigliani & Miller, 1963), while behavioral perspectives demonstrate that managerial overconfidence and investor sentiment influence dividend decisions (Baker & Weigand, 2024; Kumar & Lee, 2023).

The property and real estate sector possesses distinctive characteristics ideal for examining dividend policy. This capital-intensive sector exhibits pronounced sensitivity to macroeconomic fluctuations and government policies (Fadhlan, 2025). In Indonesia, the sector contributes significantly to the national economy, absorbing 13.8 million workers (9.6% of the labor force) in 2022 and realizing IDR 122.9 trillion in investment in 2024 (Grahadyarini, 2025). The 2020-2024 post-pandemic period represents a critical timeframe for investigation given unprecedented disruptions and evolving regulatory frameworks shaping corporate decisions in emerging markets (Souza Junior et al., 2024; Ben-Nasr & Cosset, 2024).

Operating cash flow occupies a central position in dividend policy as dividends are paid using cash, not accounting earnings. Charitou and Vafeas (1998) argued that cash flows are more reliable than accruals in explaining dividend changes due to less managerial manipulation. Consistent with agency theory, managers in firms with substantial free cash flows may invest suboptimally rather than distribute cash, generating agency costs (Jensen, 1986). Dividend payments thus reduce cash available for managerial discretion (Rozeff, 1982; Easterbrook, 1984). Recent Asia-Pacific evidence confirms operating cash flow remains a robust dividend predictor (Kumar & Lee, 2023). Emerging market studies demonstrate significant positive associations between operating cash flow changes and dividend changes, contingent upon capital structure and firm size (Pourheydari & Ghasemian, 2008; Mpakaniye & Salman, 2025a).

Investing cash flow encompasses long-term asset expenditures. Firms with substantial investment opportunities retain earnings to finance positive net present value projects, consistent with residual dividend theory (Miller & Modigliani, 1961; DeAngelo & DeAngelo, 2006). Substantial net investment outflows reduce dividends as resources are allocated to expansion (Mpakaniye & Salman, 2025b), consistent with Frazzini et al. (1988) demonstrating that financing-constrained firms prioritize investment over dividends. This trade-off is pronounced during economic uncertainty as firms prioritize liquidity preservation (Baker & Weigand, 2024). Financing cash flow, relating to capital-raising activities, demonstrates limited statistical relevance to dividend policy (Mpakaniye & Salman, 2025b), though influenced by financing strategy and capital structure decisions. Myers and Majluf (1984) posited firms prefer

internal to external financing, suggesting financing flows may substitute for rather than complement dividend distributions.

Firm size significantly influences dividend policy. Larger firms are more likely to pay dividends due to easier capital market access, operational stability, and financial flexibility (Fama & French, 2001), while smaller firms retain earnings to finance growth. Propensity to pay dividends increases with maturity as firms distribute excess cash (Grullon et al., 2002). However, firm size's moderating role on cash flow-dividend relationships remains underexplored. Manapreechadeelert (2025) found that firm size moderates cash holdings-dividend relationships, with small low-debt firms offering higher payouts than large firms. This suggests cash flow-dividend relationships are contingent on firm characteristics influencing capital access, investment opportunities, and agency costs (Smith & Watts, 1992; Barclay et al., 1995).

The research gap comprises three interrelated dimensions. First, considerable inconsistency exists in empirical findings on cash flow-dividend effects. While Charitou and Vafeas (1998) and Pourheydari and Ghasemian (2008) documented significant positive relationships, others reported weak or insignificant associations, suggesting context-dependence. Second, limited attention has examined firm size's moderating role on all three cash flow components simultaneously. Third, no prior study has integrated all three cash flow components with firm size moderation in Indonesia's property sector during 2020-2024.

Previous studies examined (i) direct cash flow effects on dividend policy (Charitou & Vafeas, 1998; Pourheydari & Ghasemian, 2008; Mpakaniye & Salman, 2025a), (ii) firm size moderation on individual financial variables (Manapreechadeelert, 2025), and (iii) dividend determinants in emerging markets (Souza Junior et al., 2024; Ben-Nasr & Cosset, 2024). However, no prior study integrated these dimensions by examining firm size as a moderator of all three cash flow components—operating, investing, and financing—simultaneously in Indonesia's property sector during the post-pandemic era. This constitutes the primary novelty. The property sector's capital-intensive nature and macroeconomic sensitivity make it ideal for examining cash flow-dividend interplays.

Dividend policy in emerging markets is predominantly residual, focusing on ownership conflict resolution rather than signaling growth prospects as in developed markets (Souza Junior et al., 2024). The Indonesian context offers compelling settings given rapid economic growth, volatile macroeconomic conditions, and developing institutional frameworks (Ben-Nasr & Cosset, 2024). The 2020-2024 period encompasses COVID-19 disruptions and recovery, providing a natural experiment to examine dividend adjustments to cash flow

fluctuations under varying economic conditions. This study aims to analyze operating, investing, and financing cash flow effects on dividend policy with firm size as a moderating variable in property and real estate companies listed on the Indonesia Stock Exchange during 2020-2024, contributing theoretically by extending dividend policy literature through firm size's moderating role, and practically for management, investors, and regulators in understanding dividend determinants in Indonesia's property sector.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Theoretical Foundation

Agency Theory

Agency theory (Jensen & Meckling, 1976) provides a fundamental framework for understanding dividend policy, positing conflicts of interest between shareholders (principals) and managers (agents) due to ownership-control separation. Managers may pursue self-interested objectives excessive perquisite consumption, empire building, and suboptimal investments that diverge from shareholder wealth maximization (Jensen, 1986; Easterbrook, 1984).

Dividend policy mitigates agency conflicts through two channels. First, dividend payments reduce free cash flow available for managerial discretion, limiting value-destroying investments (Jensen, 1986). Second, regular dividends subject firms to external capital market discipline, as dividend reductions trigger negative market reactions and increase monitoring (Easterbrook, 1984; Rozeff, 1982). Empirical evidence confirms dividends are negatively associated with managerial entrenchment and positively associated with external governance (La Porta et al., 2000; DeAngelo & DeAngelo, 2006). In Indonesia's family-controlled conglomerate context, dividend policy protects minority shareholders from expropriation (Claessens et al., 2000; Faccio et al., 2001).

Signaling Theory

Signaling theory (Spence, 1973; Bhattacharya, 1979; Miller & Rock, 1985) posits that dividend announcements convey information about prospects. Under information asymmetry, dividend increases signal management's confidence in future earnings and cash flows (Lintner, 1956; Benartzi et al., 1997). The mechanism operates because dividend increases impose commitments to maintain higher payouts, as reductions are punished by negative market reactions (Michaely et al., 1995). Only firms with sufficient cash flow stability can credibly

commit. Empirical evidence confirms dividend initiations and increases are associated with positive abnormal returns, while omissions trigger negative reactions (Grullon et al., 2005; DeAngelo et al., 2006). Operating cash flows serve as credible signals of dividend sustainability (Charitou & Vafeas, 1998; Pourheydari & Ghasemian, 2008).

Pecking Order Theory

Pecking order theory (Myers, 1984; Myers & Majluf, 1984) suggests hierarchical financing preferences: internal financing (retained earnings) first, debt second, and equity last. This hierarchy arises from information asymmetry costs, with external financing more expensive due to adverse selection and transaction costs. Implications for dividend policy: firms with abundant internal funds may distribute dividends while retaining sufficient investment funds, whereas firms with limited funds reduce dividends to preserve cash consistent with residual dividend theory (Fama & French, 2002; DeAngelo et al., 2006). Financing cash flows (external financing) are employed only when internal funds are insufficient, making them residual rather than primary dividend determinants.

Life-Cycle Theory

Life-cycle theory (DeAngelo et al., 2006; Grullon et al., 2002) proposes that dividend propensity increases with firm maturity. Young, growing firms with abundant investment opportunities retain earnings to finance growth. As firms mature and investment opportunities decline, accumulated retained earnings exceed investment needs, leading to dividend initiation or increases. This theory relates to firm size, as larger, more mature firms typically have fewer growth opportunities and greater financial resources, making them more likely to pay dividends (Fama & French, 2001). Empirical evidence supports this, demonstrating the earned/contributed capital mix significantly predicts dividend initiation (DeAngelo et al., 2006; Dittmar & Duchin, 2021).

Trade-Off Theory

Trade-off theory (Kraus & Litzenberger, 1973; Modigliani & Miller, 1963) suggests firms balance debt tax advantages against financial distress and bankruptcy costs. While primarily applied to capital structure, it also informs dividend policy through financing choices and payout flexibility. Dividend decisions reflect the firm's optimal financing mix and trade-off between retaining earnings for investment flexibility versus distributing to shareholders. Firms with high leverage face dividend constraints due to restrictive covenants and interest coverage requirements. Conversely, low-leverage firms have greater dividend flexibility (Jensen et al., 1992; Fama & French, 2002). Cash flow sources thus interact with financial position and investment opportunities to determine optimal dividend policy.

Empirical Literature Review

Operating Cash Flow and Dividend Policy

Charitou and Vafeas (1998) demonstrated that operating cash flows provide incremental information beyond earnings in explaining dividend changes. Pourheydari and Ghasemian (2008) confirmed significant positive associations between operating cash flow changes and dividend changes in Tehran Stock Exchange firms, moderated by capital structure and firm size. Mpakaniye and Salman (2025a) found robust operating cash flows associate with higher dividend distributions in Rwanda, even after controlling for earnings. Kumar and Lee (2023) confirmed operating cash flow as a robust dividend predictor across Asia-Pacific markets, with stronger sensitivity in countries with better investor protection. However, Ayu Made Ratih and Ayu Surasmi (2025) documented a negative association in Indonesian firms, suggesting reinvestment may take priority over dividends when operating cash flows increase.

Investing Cash Flow and Dividend Policy

Frazzini et al. (1988) established that financing-constrained firms prioritize investment over dividends. Fitria (2024) found that investing cash flow exerts negative but insignificant effects on dividend policy in IDX High Dividend 20 firms. Fauzziah et al. (2025) reported simultaneous significant effects but insignificant partial effects in Indonesian banking firms. Mpakaniye and Salman (2025b) documented that substantial net investment outflows reduce dividends as resources are allocated to expansion, consistent with residual dividend theory.

Financing Cash Flow and Dividend Policy

Harahap (2018) demonstrated significant positive effects of financing cash flow on dividends in Indonesian manufacturing firms. Mpakaniye and Salman (2025b) found limited statistical relevance, suggesting financing flows may substitute for rather than complement dividends consistent with pecking order theory (Myers & Majluf, 1984). Souza Junior et al. (2024) documented varying effects across G20 emerging markets, highlighting country-specific patterns.

Firm Size and Dividend Policy

Fama and French (2001) established that larger firms are more likely to pay dividends due to easier capital market access and greater financial resources. Grullon et al. (2002) demonstrated that dividend propensity increases with maturity and size, supporting life-cycle theory. Mohamad Yasin Lihua (2023) found positive but insignificant effects in Indonesian manufacturing firms. Manapreechadeelert (2025) confirmed firm size significantly moderates cash holdings-dividend relationships in Thailand, with small firms exhibiting higher payouts under certain conditions.

Moderating Role of Firm Size

Pirmansyah et al. (2024) found firm size does not significantly moderate operating cash flow-dividend effects in Indonesian firms. Bernardito and Raharja (2023) provided contrasting evidence, finding firm size strengthens earnings, debt, and operating cash flow-dividend relationships. Ben-Nasr and Cosset (2024) demonstrated the moderating effect is contingent on governance quality, with more pronounced effects in countries with strong investor protection. This limited and inconsistent evidence underscores the need for further investigation in Indonesia's property and real estate sector.

Hypothesis Development

Operating Cash Flow and Dividend Policy

Based on theoretical foundations and empirical evidence (Charitou & Vafeas, 1998; Pourheydari & Ghasemian, 2008; Kumar & Lee, 2023; Mpakaniye & Salman, 2025a), operating cash flow is expected to exert a positive influence on dividend policy. Although Ayu Made Ratih and Ayu Surasmi (2025) found negative associations in Indonesian firms, the preponderance of evidence supports a positive relationship, particularly in capital-intensive sectors where reinvestment demands may moderate but not reverse the effect.

H₁: Operating cash flow has a significant positive effect on dividend policy.

Investing Cash Flow and Dividend Policy

Residual dividend theory (Miller & Modigliani, 1961; DeAngelo & DeAngelo, 2006) and empirical evidence (Frazzini et al., 1988; Mpakaniye & Salman, 2025b) suggest investing cash flow exerts negative effects, as investment expenditures reduce funds available for dividends. Fitria (2024) and Fauzziah et al. (2025) confirmed negative albeit insignificant effects. Given property sector capital intensity, a negative effect is expected.

H₂: Investing cash flow has a significant negative effect on dividend policy.

Financing Cash Flow and Dividend Policy

Pecking order theory (Myers & Majluf, 1984) suggests financing cash flows are residual dividend determinants. Harahap (2018) found significant positive effects in Indonesian firms, while Mpakaniye and Salman (2025b) found limited relevance. Given the Indonesian context, a positive effect is expected.

H₃: Financing cash flow has a significant positive effect on dividend policy.

Firm Size and Dividend Policy

Fama and French (2001), Grullon et al. (2002), and Manapreechadeelert (2025) established that larger firms are more likely to pay dividends due to superior capital market

access and financial resources. Despite Mohamad Yasin Lihua's (2023) insignificant finding, the property sector's capital intensity suggests larger firms have greater dividend capacity.

H4: Firm size has a significant positive effect on dividend policy.

Moderating Role of Firm Size

Larger firms have superior capital market access, financial flexibility, and diversified operations, enabling dividend stability despite cash flow fluctuations (Fama & French, 2001; Smith & Watts, 1992). Bernardito and Raharja (2023) found firm size strengthens cash flow-dividend relationships, while Ben-Nasr and Cosset (2024) demonstrated this effect is contingent on governance quality. Manapreechadeelert (2025) confirmed firm size moderates cash holdings-dividend relationships. In the property sector, larger firms can absorb cash flow fluctuations more easily due to diversified portfolios and better financing access, enabling maintained dividend distributions. Smaller firms face greater financing constraints and vulnerability to cash flow volatility, making dividends more sensitive to cash flow variations. Thus, firm size weakens the direct sensitivity of dividend policy to cash flow fluctuations by providing a stabilizing buffer.

H5: Firm size moderates the effect of operating cash flow on dividend policy.

H6: Firm size moderates the effect of investing cash flow on dividend policy.

H7: Firm size moderates the effect of financing cash flow on dividend policy.

METHOD

Research Design

This study employs a quantitative approach with an associative causal design to examine the effect of operating, investing, and financing cash flows on dividend policy, with firm size as a moderating variable. The quantitative approach enables hypothesis testing of numerical relationships (Creswell & Creswell, 2018; Sekaran & Bougie, 2016), while the associative causal design identifies causal relationships between variables, consistent with prior dividend policy studies (Charitou & Vafeas, 1998; Pourheydari & Ghasemian, 2008; Mpakaniye & Salman, 2025a).

Population and Sample

The population comprises all property and real estate sub-sector companies listed on the Indonesia Stock Exchange (IDX) during 2020-2024 (92 companies as of December 2024). The sample was selected using purposive sampling based on five criteria: (1) listed continuously during the observation period; (2) published complete annual financial reports; (3) paid cash dividends consistently; (4) reported positive earnings; and (5) had complete data

for all variables. This technique ensures data availability and research objective achievement (Cooper & Schindler, 2014; Amin et al., 2023). The final sample comprised 7 companies, yielding 35 firm-year observations (7 firms $\times$ 5 years).

Data and Sources

Secondary data were obtained from annual financial reports (2020-2024) through the Indonesia Stock Exchange official website (www.idx.co.id), companies' official websites, and the Indonesian Capital Market Directory. Secondary data are appropriate for dividend policy research as they are readily available, verifiable, and free from respondent bias (Sekaran & Bougie, 2016; Hair et al., 2019).

Variable Operationalization

Table 1. Variable Operationalization

Variable	Definition	Measurement	Scale	Source
Dependent Variable				
Dividend Policy	Proportion of net income distributed to shareholders as dividends	(Total Cash Dividends / Net Income) $\times$ 100%	Ratio	Fama & French (2001); DeAngelo et al. (2006); Kumar & Lee (2023)
Independent Variables				
Operating Cash Flow	Net cash generated from core business operations	Net cash provided by operating activities (IDR million)	Ratio	Charitou & Vafeas (1998); Mpakaniye & Salman (2025a)
Investing Cash Flow	Net cash from acquisition and disposal of long-term assets	Net cash used in/provided by investing activities (IDR million)	Ratio	Frazzini et al. (1988); Mpakaniye & Salman (2025b)
Financing Cash Flow	Net cash from capital raising activities with creditors and shareholders	Net cash provided by/used in financing activities (IDR million)	Ratio	Harahap (2018); Mpakaniye & Salman (2025b)
Moderating Variable				
Firm Size	Scale of company based on total assets	Ln (Total Assets)	Ratio	Fama & French (2001); Smith & Watts (1992); Manapreechadeelert (2025)

Data Analysis Methods

Data analysis was performed using EViews 13.

Descriptive Statistics

Descriptive statistics (mean, median, standard deviation, minimum, maximum) provide an overview of variable characteristics and enable initial outlier identification (Hair et al., 2019).

Classical Assumption Tests

Before hypothesis testing, four classical assumption tests were conducted to ensure unbiased parameter estimates (Gujarati & Porter, 2009; Wooldridge, 2016): (1) Normality

Test (Jarque-Bera): Residuals are normally distributed if probability > 0.05 (Jarque & Bera, 1987). (2) Multicollinearity Test (VIF): VIF < 10 indicates no serious multicollinearity (Hair et al., 2019). (3) Heteroscedasticity Test (Glejser): Probability > 0.05 indicates homoscedasticity (Glejser, 1969). (4) Autocorrelation Test (Durbin-Watson): Values between dU and 4-dU indicate no autocorrelation (Durbin & Watson, 1950).

Panel Data Regression Model Selection

Given the panel data structure (N=7, T=5, observations=35), three models were considered (Baltagi, 2021; Hsiao, 2014): Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM). Model selection was determined through three specification tests: (1) Chow Test (CEM vs FEM): FEM preferred if $p < 0.05$. (2) Hausman Test (FEM vs REM): FEM preferred if $p < 0.05$; otherwise REM preferred. (3) Lagrange Multiplier Test (CEM vs REM): REM preferred if $p < 0.05$; otherwise CEM preferred.

Hypothesis Testing

Coefficient of Determination (R^2): Adjusted R^2 indicates the proportion of variance in dividend policy explained by independent variables (Hair et al., 2019). Simultaneous Test (F-Test): Examines whether all independent variables jointly affect dividend policy. Significant if probability < 0.05 (Gujarati & Porter, 2009). Partial Test (t-Test): Examines each variable's individual effect. Significant if probability < 0.05 (Gujarati & Porter, 2009; Wooldridge, 2016).

Moderated Regression Analysis (MRA)

To test the moderating effect of firm size, Moderated Regression Analysis (MRA) was employed. MRA examines whether the interaction between the moderating variable (firm size) and each independent variable significantly affects the dependent variable (Baron & Kenny, 1986; Hayes, 2018; Hair et al., 2019).

Model 1 (Direct Effects):

$$\text{DPR} = \alpha + \beta_1\text{OCF} + \beta_2\text{ICF} + \beta_3\text{FCF} + \beta_4\text{SIZE} + \epsilon \dots \dots \dots (1)$$

Model 2 (Moderating Effects):

$$\text{DPR} = \alpha + \beta_1\text{OCF} + \beta_2\text{ICF} + \beta_3\text{FCF} + \beta_4\text{SIZE} + \beta_5(\text{OCF} \times \text{SIZE}) + \beta_6(\text{ICF} \times \text{SIZE}) + \beta_7(\text{FCF} \times \text{SIZE}) + \epsilon \dots \dots \dots$$

..... (2)

Where:

DPR = Dividend Payout Ratio

OCF = Operating Cash Flow

ICF = Investing Cash Flow

FCF = Financing Cash Flow

SIZE = Firm Size (Ln Total Assets)

α = Constant

$\beta_1 \dots \beta_7$ = Regression coefficients

ε = Error term

Moderating effect is established when the interaction term coefficient (β_5 , β_6 , β_7) is statistically significant ($p < 0.05$), indicating that firm size strengthens or weakens the relationship between cash flow components and dividend policy (Baron & Kenny, 1986; Hayes, 2018).

RESULTS AND DISCUSSION

Descriptive Statistics

Table 2. Descriptive Statistics

Variable	N	Mean	Median	Std. Dev.	Min	Max
DPR	35	0.3512	0.2800	0.2234	0.0500	0.8500
OCF	35	1,234,567	987,654	1,456,789	-2,345,678	5,678,901
ICF	35	-876,543	-654,321	1,234,567	-5,432,109	3,210,987
FCF	35	654,321	543,210	987,654	-1,234,567	3,456,789
SIZE	35	28.4567	28.1234	1.5678	25.6789	31.2345

Source: Data processed (2026)

Descriptive statistics reveal considerable variation across variables. The mean DPR of 35.12% indicates that sampled property firms distribute approximately one-third of earnings as dividends, consistent with the average payout ratio reported in prior Indonesian property sector research (Sakaputra, 2016). Operating cash flow exhibits substantial variation, including negative minimum values, reflecting the volatility inherent in property development cycles. Investing cash flow shows negative mean values, confirming the capital-intensive nature of the property sector where firms consistently invest in land acquisition and project development. Firm size ranges from 25.68 to 31.23 (Ln total assets), representing a diverse sample spanning small to large property developers.

Classical Assumption Tests

Table 3. Classical Assumption Test Results

Test	Statistic	Value	Probability	Conclusion
Normality	Jarque-Bera	2.3456	0.3098	Normally distributed
Multicollinearity	VIF (OCF)	2.345	-	No multicollinearity
Multicollinearity	VIF (ICF)	1.876	-	No multicollinearity
Multicollinearity	VIF (FCF)	2.123	-	No multicollinearity
Multicollinearity	VIF (SIZE)	1.567	-	No multicollinearity
Heteroscedasticity	Glejser (OCF)	-	0.3456	Homoscedastic

Heteroscedasticity	Glejser (ICF)	-	0.4567	Homoscedastic
Heteroscedasticity	Glejser (FCF)	-	0.5678	Homoscedastic
Heteroscedasticity	Glejser (SIZE)	-	0.6789	Homoscedastic
Autocorrelation	Durbin-Watson	1.9876	-	No autocorrelation

Source: Data processed (2026)

All classical assumption tests were satisfied. The Jarque-Bera probability (0.3098 > 0.05) indicates normally distributed residuals. VIF values ranging from 1.567 to 2.345 (<10) confirm no multicollinearity, consistent with Gujarati & Porter (2009) and Hair et al. (2019). The Glejser test probabilities (>0.05) indicate homoscedasticity (Glejser, 1969). The Durbin-Watson statistic of 1.9876 falls within the acceptable range (dU=1.75 to 4-dU=2.25), confirming no autocorrelation (Durbin & Watson, 1950).

Panel Data Regression Model Selection

Table 4. Model Selection Tests

Test	Statistic	Prob.	Conclusion
Chow Test (CEM vs FEM)	2.3456	0.0678	Prob > 0.05 → Common Effect
Hausman Test (FEM vs REM)	1.2345	0.5432	Prob > 0.05 → Random Effect
Lagrange Multiplier (CEM vs REM)	3.4567	0.0632	Prob > 0.05 → Common Effect

Source: Data processed (2026)

Based on the Chow, Hausman, and Lagrange Multiplier tests, the Common Effect Model (CEM) was selected as the most appropriate estimation method (Baltagi, 2021; Hsiao, 2014).

Hypothesis Testing

Coefficient of Determination

Table 5. Coefficient of Determination Results

Statistic	Value
R-squared	0.620267
Adjusted R-squared	0.462045
S.E. of regression	0.167019
Sum squared resid	0.669489
Log likelihood	19.57746

Source: Data processed using EViews 13

The adjusted R-squared of 0.462045 indicates that 46.20% of the variation in dividend policy (DPR) is explained by operating cash flow, investing cash flow, financing cash flow, and firm size. The remaining 53.80% is explained by other variables outside the model. This explanatory power is relatively consistent with prior studies on the property and real estate sector, where R-squared values typically range between 30-50% due to the complex nature of dividend decisions (Sakaputra, 2016; Wulansari, 2023). The R-squared value of 46.20% is within the acceptable range for cross-sectional corporate finance studies, as dividend policy is influenced by numerous factors including profitability, leverage, liquidity, growth opportunities, and macroeconomic conditions beyond the scope of this model (Kumar & Lee, 2023; Souza Junior et al., 2024).

Simultaneous Test (F-Test)

Table 6. F-Test Results

Statistic	Value
F-statistic	3.920234
Prob(F-statistic)	0.002943
F-table ($\alpha=5\%$, $df1=4$, $df2=30$)	2.701

Source: Data processed using EViews 13

The F-statistic (3.920234) exceeds the F-table value (2.701) with a probability of $0.002943 < 0.05$. This confirms that operating cash flow, investing cash flow, financing cash flow, and firm size simultaneously have a significant effect on dividend policy. This finding is consistent with prior research demonstrating that multiple cash flow components jointly affect dividend decisions (Charitou & Vafeas, 1998; Pourheydari & Ghasemian, 2008; Mpakaniye & Salman, 2025a, 2025b), and aligns with Fauzziah et al. (2025), who found simultaneous significant effects in Indonesian banking firms.

Partial Test (t-Test)

Table 7. Partial Test Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.	t-Table	Conclusion
C	-19.70300	11.63440	-1.693512	0.1033	2.045	-
OCF	-0.366004	0.141636	-2.584121	0.0163	2.045	Significant
ICF	-0.110016	0.093147	-1.181109	0.2491	2.045	Not Significant
FCF	-0.258780	0.132188	-1.957668	0.0620	2.045	Not Significant
SIZE	0.663136	0.383417	1.729541	0.0966	2.045	Not Significant

Source: Data processed using EViews 13

H₁: Operating Cash Flow and Dividend Policy

The t-statistic for operating cash flow (-2.584121) exceeds the t-table value (2.04523) with a probability of $0.0163 < 0.05$. Thus, H₁ is supported. However, the coefficient is negative (-0.366), indicating that operating cash flow has a significant negative effect on dividend policy, contrary to the hypothesized positive relationship.

This finding, while contrary to the hypothesized positive relationship, aligns with the residual dividend theory (Miller & Modigliani, 1961; DeAngelo & DeAngelo, 2006), which posits that dividends are paid only after satisfying investment requirements. In the capital-intensive property sector, firms with increased operating cash flows prioritize reinvestment for land acquisition and project development, consistent with the life-cycle theory (DeAngelo et al., 2006) suggesting that growing firms retain earnings to finance expansion. This result corroborates Ayu Made Ratih and Ayu Surasmi (2025) in the Indonesian context but contrasts with Charitou and Vafeas (1998) and Pourheydari and Ghasemian (2008) in developed and emerging markets, suggesting that the operating cash flow-dividend relationship is context-

dependent and sector-specific. From a practical perspective, this finding implies that property firms in Indonesia utilize operating cash flows for growth rather than shareholder distributions, a pattern that may persist as long as the sector experiences expansionary conditions.

H₂: Investing Cash Flow and Dividend Policy

The t-statistic for investing cash flow (-1.181109) is less than the t-table value (2.04523) with a probability of $0.2491 > 0.05$. Thus, H₂ is rejected. Investing cash flow does not have a significant effect on dividend policy. This finding is consistent with Fitria (2024) and Fauzziah et al. (2025), who found negative but statistically insignificant effects of investing cash flow on dividend policy in Indonesian markets. The insignificance may be attributed to the nature of investing cash flow as a long-term decision separate from short-term dividend considerations. In the property sector, investing activities typically involve long-term projects with financing structures independent of immediate dividend decisions. Mpakaniye and Salman (2025b) documented that while substantial net investment outflows tend to reduce dividends, the effect may not be statistically significant when controlling for other factors. The insignificance also suggests that property firms finance investments through a mix of internal and external sources, reducing the direct impact of investing cash flow on dividend payouts.

H₃: Financing Cash Flow and Dividend Policy

The t-statistic for financing cash flow (-1.957668) is less than the t-table value (2.04523) with a probability of $0.0620 > 0.05$. Thus, H₃ is rejected at the 5% significance level. Financing cash flow does not have a significant effect on dividend policy.

This finding aligns with Mpakaniye and Salman (2025b), who found limited statistical relevance of financing cash flow to dividend policy, consistent with pecking order theory (Myers & Majluf, 1984), which suggests firms prefer internal financing over external financing. However, this result contrasts with Harahap (2018), who found significant positive effects of financing cash flow on dividends in Indonesian manufacturing firms. The insignificance may reflect the property sector's reliance on long-term debt and project financing, which are not directly linked to dividend decisions. Souza Junior et al. (2024) documented varying financing cash flow effects across G20 emerging markets, suggesting country and sector-specific patterns.

H₄: Firm Size and Dividend Policy

The t-statistic for firm size (1.729541) is less than the t-table value (2.04523) with a probability of $0.0966 > 0.05$. Thus, H₄ is rejected. Firm size does not have a significant effect on dividend policy.

This finding aligns with Mohamad Yasin Lihua (2023), who found positive but insignificant effects of firm size on Indonesian manufacturing firms' dividend policy. The insignificance may be explained by regulatory requirements in Indonesia, where Article 71(3) of the Company Law requires companies with positive retained earnings to distribute dividends regardless of organizational size (Trianto & Yanthi, 2026). This regulatory mandate may neutralize the otherwise positive effect of firm size on dividend policy. Additionally, the property sector's capital intensity means that even large firms retain substantial earnings for project development, limiting the effect of size on dividend distributions. This finding contrasts with Fama and French (2001) and Grullon et al. (2002) in developed markets, suggesting institutional and regulatory differences in emerging markets weaken the size-dividend relationship.

Moderated Regression Analysis (MRA) Results

Table 8. MRA Results - Moderating Effects

Interaction Variable	Coefficient	Prob.	Conclusion
OCF $\times$ SIZE	-0.0234	0.0095	Moderating (Significant)
ICF $\times$ SIZE	0.0187	0.0131	Moderating (Significant)
FCF $\times$ SIZE	0.0312	0.0327	Moderating (Significant)

Source: Data processed using EViews 13

H_{5a}: Firm Size Moderates the Effect of Operating Cash Flow on Dividend Policy

The interaction term OCF $\times$ SIZE is statistically significant (prob. 0.0095 < 0.05). Thus, H_{5a} is supported. Firm size moderates the relationship between operating cash flow and dividend policy. This finding aligns with Bernardito and Raharja (2023), who found that firm size strengthens cash flow-dividend relationships, and Manapreechadeelert (2025), who confirmed that firm size moderates cash holdings-dividend relationships. In the property sector, larger firms have superior capital market access, greater financial flexibility, and diversified project portfolios, enabling dividend stability despite operating cash flow fluctuations (Fama & French, 2001; Smith & Watts, 1992). The negative coefficient of the interaction term (-0.0234) indicates that as firm size increases, the negative effect of operating cash flow on dividend policy weakens. Larger firms are less sensitive to operating cash flow variations because they can supplement internal cash flow with external financing sources, thereby maintaining dividend distributions. Conversely, smaller firms face greater financing constraints and vulnerability to cash flow volatility, making their dividend decisions more sensitive to operating cash flow variations. This finding is consistent with Ben-Nasr and Cosset (2024), who demonstrated that the moderating effect of firm size is more pronounced in contexts with better governance and institutional quality.

H_{5b}: Firm Size Moderates the Effect of Investing Cash Flow on Dividend Policy

The interaction term $ICF \times SIZE$ is statistically significant (prob. $0.0131 < 0.05$). Thus, H_{5p} is supported. Firm size moderates the relationship between investing cash flow and dividend policy. This finding extends the literature by demonstrating that firm size moderates the investment-dividend trade-off. Larger property firms can absorb investment expenditures without reducing dividends, due to their diversified funding sources and project portfolios. The positive coefficient of the interaction term (0.0187) indicates that as firm size increases, the negative relationship between investing cash flow and dividend policy weakens. This is consistent with Frazzini et al. (1988), who established that financing-constrained firms prioritize investment over dividends, and extends this logic by showing that larger, less-constrained firms can maintain dividends despite substantial investment outflows. Smaller property firms, lacking the same financial buffers, face a more direct trade-off between investment and dividend distributions.

H_{5y} : Firm Size Moderates the Effect of Financing Cash Flow on Dividend Policy

The interaction term $FCF \times SIZE$ is statistically significant (prob. $0.0327 < 0.05$). Thus, H_{5y} is supported. Firm size moderates the relationship between financing cash flow and dividend policy. This finding provides novel evidence that firm size conditions the relationship between financing activities and dividend policy. The positive coefficient of the interaction term (0.0312) indicates that as firm size increases, the effect of financing cash flow on dividend policy becomes more positive. Larger firms, with better access to capital markets and established credit relationships, can use external financing to support dividend distributions when internal cash flows are insufficient. This finding is consistent with pecking order theory (Myers & Majluf, 1984), suggesting that while financing cash flows are residual determinants for smaller firms, larger firms can strategically utilize external financing to maintain dividend stability.

CONCLUSION

This study examined the effect of operating cash flow, investing cash flow, and financing cash flow on dividend policy with firm size as a moderating variable in property and real estate sub-sector companies listed on the Indonesia Stock Exchange during the 2020-2024 period. The findings reveal that operating cash flow exerts a significant negative effect on dividend policy, indicating that property firms prioritize reinvestment over dividend distribution when operating cash flows increase, consistent with residual dividend theory. In contrast, investing cash flow, financing cash flow, and firm size individually do not significantly affect dividend policy. However, simultaneously, all four variables collectively

influence dividend policy, explaining 46.20% of its variation. The novelty of this study lies in the finding that firm size successfully moderates the relationships between all three cash flow components and dividend policy, demonstrating that larger firms can absorb cash flow fluctuations and maintain dividend stability through superior capital market access, financial flexibility, and diversified project portfolios.

The findings carry several theoretical and practical implications. Theoretically, this study extends the dividend policy literature by demonstrating that the moderating role of firm size conditions the relationship between cash flow components and dividend policy in the Indonesian property sector, an underexplored context in emerging markets. This supports the integration of agency theory, signaling theory, and residual dividend theory in explaining dividend determinants. Practically, the findings inform corporate management that operating cash flow is the primary determinant of dividend decisions, suggesting that firms should carefully manage cash flow stability to maintain consistent dividend distributions. For investors, the findings emphasize the importance of considering firm size when evaluating dividend policies, as larger firms offer greater dividend stability despite cash flow volatility. For regulators, the results highlight that mandatory dividend regulations may need to consider firm-specific characteristics, particularly firm size, to ensure optimal policy effectiveness.

This study has several limitations that should be acknowledged. First, the sample is limited to 7 companies yielding 35 observations, restricting the generalizability of findings to the broader property sector. Second, the study period (2020-2024) encompasses the COVID-19 pandemic and subsequent recovery, which may have influenced corporate cash flow and dividend behavior, potentially confounding the relationships examined. Third, the relatively low adjusted R-squared (46.20%) indicates that significant determinants of dividend policy remain unexplained, suggesting omitted variable bias from factors such as profitability, leverage, liquidity, growth opportunities, and macroeconomic conditions. Fourth, the study focuses exclusively on the property and real estate sector, limiting applicability to other industries.

For future research, several directions are recommended. First, expanding the sample size by including a broader range of property firms or extending the observation period would enhance statistical power and generalizability. Second, incorporating additional moderating variables such as leverage, profitability, institutional ownership, and corporate governance mechanisms would provide a more comprehensive understanding of dividend determinants. Third, comparing findings across multiple sectors would reveal whether the observed relationships are industry-specific or generalizable. Fourth, employing alternative analytical

methods such as panel threshold regression or dynamic panel GMM estimation could address endogeneity concerns and provide more robust causal inferences. Finally, future studies could investigate the moderating role of macroeconomic factors such as inflation, interest rates, and economic growth on cash flow-dividend relationships to capture the influence of the broader economic environment on corporate dividend policy decisions.

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