The Effect of Profitability and Dividends on Capital Intensity Moderated by Corporate Social Responsibility

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ABSTRACT

Capital intensity is crucial for enhancing competitiveness in Indonesia's manufacturing sector, yet the influence of financial and non-financial factors remains underexplored. This study aims to examine the direct and simultaneous effects of profitability, dividend policy, and Corporate Social Responsibility on capital intensity in manufacturing firms listed on the Indonesia Stock Exchange from 2019 to 2023. A quantitative approach was employed, using purposive sampling to select 52 firms with complete financial and sustainability reports, resulting in 260 firm-year observations. Data were analyzed using multiple linear regression with robust techniques to address non-normal data distribution. The findings reveal that profitability, measured by Return on Assets, significantly increases capital intensity by enabling fixed asset investments. Dividend policy, measured by Dividend Yield, positively affects capital intensity by signaling financial stability to investors. Corporate Social Responsibility, measured by the sustainability disclosure index, enhances capital intensity through improved efficiency and stakeholder trust. Collectively, these variables significantly influence capital intensity, explaining a substantial portion of its variation. The study concludes that integrating profitability, dividend policy, and Corporate Social Responsibility strengthens capital allocation strategies, offering insights for firms to optimize fixed asset utilization and enhance competitiveness in Indonesia's manufacturing sector.

Keywords: *Capital Intensity, CSR, Dividend Yield, Indonesia Stock Exchange, Manufacturing Sector, Profitability.*

ABSTRAK

Intensitas modal sangat penting untuk meningkatkan daya saing di sektor manufaktur Indonesia, namun pengaruh faktor keuangan dan non-keuangan masih kurang dieksplorasi. Penelitian ini bertujuan untuk menguji pengaruh langsung dan simultan dari profitabilitas, kebijakan dividen, dan tanggung jawab sosial perusahaan terhadap intensitas modal di perusahaan manufaktur yang terdaftar di Bursa Efek Indonesia dari tahun 2019 hingga 2023. Pendekatan kuantitatif digunakan, dengan menggunakan purposive sampling untuk memilih 52 perusahaan dengan laporan keuangan dan keberlanjutan yang lengkap, menghasilkan 260 observasi perusahaan-tahun. Data dianalisis menggunakan regresi linier berganda dengan teknik robust untuk mengatasi distribusi data yang tidak normal. Temuan penelitian mengungkapkan bahwa profitabilitas, yang diukur dengan Return on Assets (ROA), secara signifikan meningkatkan intensitas modal dengan memungkinkan investasi aset tetap. Kebijakan dividen, yang diukur dengan Dividend Yield, secara positif memengaruhi intensitas modal dengan memberikan sinyal

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stabilitas keuangan kepada investor. Tanggung jawab sosial perusahaan yang diukur dengan indeks pengungkapan keberlanjutan, meningkatkan intensitas modal melalui peningkatan efisiensi dan kepercayaan pemangku kepentingan. Secara kolektif, variabel-variabel ini secara signifikan memengaruhi intensitas modal, menjelaskan sebagian besar variasinya. Studi ini menyimpulkan bahwa integrasi profitabilitas, kebijakan dividen, dan tanggung jawab sosial perusahaan memperkuat strategi alokasi modal, memberikan wawasan bagi perusahaan untuk mengoptimalkan pemanfaatan aset tetap dan meningkatkan daya saing di sektor manufaktur Indonesia.

Kata Kunci: *Intensitas Modal, CSR, Dividen, Bursa Efek Indonesia, Sektor Manufaktur, Profitabilitas*

INTRODUCTION

The manufacturing sector in Indonesia plays a pivotal role in driving economic growth, necessitating efficient asset management to ensure sustainable competitiveness. According to Fisher (1954), assets are resources that generate future income, forming the backbone of a firm's financial strategy. Capital intensity is the ratio of fixed assets to labour efficiency, reflecting a firm's ability to optimise resource allocation for long-term growth (World Bank, 2021). In the context of Indonesian manufacturing firms listed on the Indonesia Stock Exchange (IDX) from 2019 to 2023, capital intensity is critical for enhancing productivity and market positioning. This study examines the direct effects of profitability, dividend policy, and Corporate Social Responsibility (CSR) on capital intensity, as well as their combined impact, to offer insights into strategic financial management in an emerging market.

Profitability, measured by Return on Assets (ROA), is a key determinant of a firm's capacity to invest in fixed assets, thereby increasing capital intensity. Gunawan and Ramli (2023) argue that higher profitability enables firms to allocate resources efficiently, reducing reliance on external financing and supporting capital investments. Similarly, Saleem and Alzoubi (2017) highlight that robust profitability enhances cash flow stability, facilitating investments in capital-intensive technologies. In Indonesia, where manufacturing firms face competitive pressures, profitability is crucial for sustaining growth, as noted by Xu et al. (2023). These findings suggest that firms with strong ROA are better positioned to enhance capital intensity through strategic asset allocation, a relationship this study aims to confirm.

Dividend policy, measured by Dividend Yield, also influences capital intensity by signalling financial health to investors. Dewasiri et al. (2019) posit that a high Dividend Yield attracts investors, increasing access to capital for fixed asset investments. Unlike high dividend payouts that may reduce internal funds, as suggested by Ed-Dafali et al. (2023), a high Dividend Yield reflects market confidence, enabling firms to maintain capital intensity without sacrificing shareholder returns. Sun et al. (2023) further note that firms with balanced dividend policies can leverage investor trust to support capital investments, particularly in emerging markets like Indonesia. This study examines whether dividend yield has a positive impact on capital intensity in Indonesian manufacturing firms.

Corporate Social Responsibility (CSR), measured by the CSRD index, directly contributes to capital intensity by enhancing operational efficiency and stakeholder trust. According to Hermawan et al. (2023), CSR initiatives in Indonesia enhance firm reputation, attracting capital investments that support the expansion of fixed assets. Benlemlih (2019) argues that CSR fosters sustainable practices, reducing costs and enabling firms to allocate resources to capital-intensive projects. However, prior studies primarily focus on CSR's impact on firm value in developed markets (Strurm & Nüesch, 2019; Nisadiyanti & Yuliandhari, 2021). This raises a research gap in understanding the direct effect on capital intensity in developing countries such as Indonesia. Additionally, the combined effect of profitability, dividend policy, and CSR on capital intensity remains

underexplored, as noted by Syah and Chin (2024), particularly in the context of Indonesian manufacturing firms facing unique regulatory and market dynamics.

The objective of this study is to examine the direct effects of profitability (ROA), dividend policy (Dividend Yield), and CSR (CSRDij) on capital intensity, as well as their simultaneous impact, in Indonesian manufacturing firms listed on the IDX from 2019 to 2023. Specifically, it aims to test whether higher profitability, attractive dividend yields, and robust CSR practices individually and collectively enhance capital intensity, measured as the ratio of fixed assets to total assets. By addressing the research gap regarding the direct and simultaneous effects of these variables in Indonesia, this study contributes to the literature on financial strategy. It offers practical insights for firms seeking to optimize capital allocation while maintaining stakeholder trust through CSR initiatives.

LITERATURE REVIEW & HYPOTHESIS DEVELOPMENT

Theoretical Foundations of Capital Intensity

The study of capital intensity is grounded in classical and modern economic theories that emphasise efficient resource allocation to achieve sustainable firm performance (Abdullah & Tursoy, 2021). According to Fisher (1954), assets are resources that generate future economic benefits, forming the foundation for capital intensity, which measures the extent of fixed asset utilisation relative to total assets. This aligns with the Resource-Based View (RBV) theory, which posits that a firm's competitive advantage stems from its ability to leverage tangible assets, such as fixed assets, to enhance operational efficiency (Frederick & Haris, 2011; Côté, 2016). In the context of Indonesian manufacturing firms, capital intensity reflects the strategic deployment of fixed assets to support production capacity and market competitiveness. Winarno et al. (2015) argue that firms with high capital intensity can achieve economies of scale, particularly in capital-intensive industries like manufacturing. This study applies RBV to link profitability, dividend policy, and Corporate Social Responsibility (CSR) to capital intensity, as these variables influence a firm's ability to invest in and optimise fixed assets.

Capital intensity is also influenced by financial strategies that strike a balance between profitability and stakeholder expectations. According to Mustofa et al. (2021), firms with robust financial performance can allocate resources to capital-intensive projects, enhancing long-term growth. Similarly, dividend policies reflect strategic decisions regarding profit distribution, which impact the availability of funds for fixed asset investments (Saleem & Alzoubi, 2017). CSR, as a strategic initiative, enhances firm reputation and operational efficiency, indirectly supporting capital investments (Benlemlih, 2019). In Indonesia, where manufacturing firms face regulatory and market pressures, these theories provide a framework to understand how profitability, dividend policy, and CSR drive capital intensity. By integrating RBV with financial management principles, this study examines how these variables contribute to the efficient use of fixed assets in Indonesian manufacturing firms listed on the Indonesia Stock Exchange (IDX) from 2019 to 2023.

Profitability, Dividend Policy, and CSR Effects on Capital Intensity

Profitability, measured by Return on Assets (ROA), is a critical driver of capital intensity, as it indicates a firm's ability to generate earnings from its assets. According to Gunawan and Ramli (2023), higher ROA enables firms to invest in fixed assets, increasing capital intensity by supporting capital-intensive technologies. Xu et al. (2023) further note that profitable firms in emerging markets, such as Indonesia, can reduce their reliance on external financing by allocating profits to enhance production capacity. This suggests that profitability has a positive effect on capital intensity, as firms with strong earnings can sustain investments in fixed assets (Madi et al., 2021).

Dividend policy, measured by Dividend Yield, also influences capital intensity by signalling financial stability to investors. Dewasiri et al. (2019) argue that a high Dividend Yield attracts investors, increasing access to capital for fixed asset investments. Unlike

high dividend payouts that may reduce internal funds, as noted by Ed-Dafali et al. (2023), a high Dividend Yield reflects market confidence, enabling firms to maintain capital intensity without compromising shareholder returns. Sun et al. (2023) emphasise that balanced dividend policies in emerging markets support capital accumulation, positively affecting capital intensity. This is particularly relevant for Indonesian manufacturing firms, where investor trust drives financial flexibility.

Corporate Social Responsibility (CSR), measured by the CSRD index, directly enhances capital intensity by improving operational efficiency and stakeholder trust. According to Hermawan et al. (2023), CSR initiatives in Indonesia strengthen firm reputation, attracting capital investments that support fixed asset expansion. Benlemlih (2019) suggests that CSR reduces costs through sustainable practices, freeing resources for capital-intensive projects. In contrast, Sturm and Nüesch (2019) note that prior studies often focus on CSR's impact on firm value, leaving its direct effect on capital intensity underexplored, especially in Indonesia. Based on these relationships, the study proposes the following hypotheses:

H1: Profitability has a significant positive effect on capital intensity.
H2: Dividend has a significant positive effect on capital intensity.
H3: Corporate social responsibility has a significant positive effect on capital intensity.
H4: Profitability, dividend, and corporate social responsibility simultaneously have a significant positive effect on capital intensity.

Research Framework

The research framework integrates profitability, dividend policy, and CSR as key determinants of capital intensity in Indonesian manufacturing firms. According to Syah and Chin (2024), the unique regulatory and market dynamics in Indonesia necessitate a comprehensive approach to understanding how financial and non-financial strategies influence capital allocation. Profitability (ROA) provides the financial resources needed for fixed asset investments, directly increasing capital intensity (Gunawan & Ramli, 2023). Dividend policy, measured by Dividend Yield, enhances capital intensity by attracting investor capital, as supported by Dewasiri et al. (2019). CSR, measured by the CSRD index, contributes to capital intensity by fostering stakeholder trust and operational efficiency (Hermawan et al., 2023). These variables collectively shape a firm's ability to optimise fixed assets, as evidenced by the significant simultaneous effect observed in prior studies (Nguyen & Nguyen, 2020).

The relationships between profitability, dividend policy, CSR, and capital intensity are shown in Figure 1. The model posits that ROA, Dividend Yield, and CSRDij directly and collectively influence capital intensity, measured as the ratio of fixed assets to total assets. According to Nisadiyanti and Yuliandhari (2021), such a framework is critical for emerging markets, where financial strategies must balance profitability and stakeholder expectations. The framework is tested using data from Indonesian manufacturing firms listed on the IDX from 2019 to 2023, to understand the direct and simultaneous effects of these variables in an Indonesian context (Syah & Chin, 2024). This model provides a structured approach to hypothesis that profitability, dividend policy, and CSR individually and jointly enhance capital intensity, guiding the empirical analysis of this study.

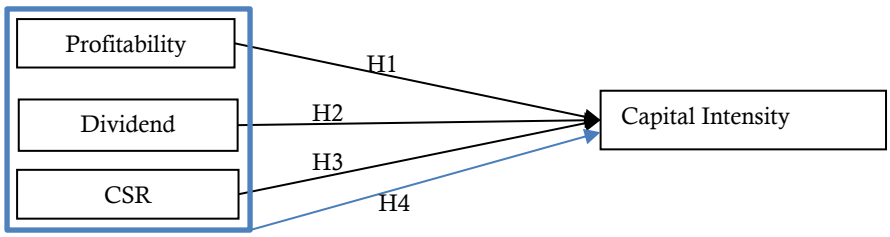

Figure 1. Research Model

RESEARCH METHOD

This study adopts a quantitative approach to investigate the direct and simultaneous effects of profitability, dividend policy, and Corporate Social Responsibility (CSR) on capital intensity in Indonesian manufacturing firms listed on the Indonesia Stock Exchange (IDX) from 2019 to 2023. The population comprises all manufacturing firms listed during this period, with a sample of 52 firms selected through purposive sampling to ensure data completeness and relevance. These firms consistently published audited annual financial reports, paid dividends annually, disclosed CSR activities in sustainability reports, and remained listed without delisting. This selection process yielded 260 firm-year observations, providing sufficient statistical power for robust analysis. Data were sourced from secondary materials, including financial and sustainability reports available on the IDX website and company databases, ensuring comprehensive and reliable data on financial performance, dividend payments, and CSR initiatives.

The study defines its variables precisely to align with the research objectives. Capital intensity, the dependent variable, is measured as the ratio of total fixed assets to total assets, reflecting the extent of fixed asset utilisation. Profitability is assessed using Return on Assets (ROA), calculated as profit after tax divided by total assets, indicating a firm's ability to generate earnings from its assets. Dividend policy is evaluated through the Dividend Yield, which is computed as the dividend per share divided by the market price per share, capturing shareholder returns relative to market valuation. CSR is measured by the CSRD index, derived from the sum of disclosed sustainability items divided by the total possible items in the Global Reporting Initiative (GRI) framework, quantifying the extent of CSR engagement. These measurements ensure consistency in evaluating the direct and collective impacts of the independent variables on capital intensity.

Data analysis was conducted using multiple linear regression to test the hypotheses that profitability, dividend policy, and CSR individually affect capital intensity, and that they collectively influence it. The analysis, performed using SPSS software with a significance level of 5% ($p < 0.05$), incorporated robust regression techniques to address non-normal data distribution, as confirmed by Kolmogorov-Smirnov and Shapiro-Wilk tests ($p < 0.05$). Diagnostic tests ensured model validity: multicollinearity was absent (VIF < 10, Tolerance > 0.1), autocorrelation was not detected (Durbin-Watson = 1.251), and a scatterplot analysis confirmed no heteroskedasticity, indicating stable residual variance. Logarithmic transformation of the dependent variable further mitigated non-normality issues, enhancing the reliability of the regression results. The T-test assessed the individual significance of each variable, while the F-test evaluated their simultaneous effect, providing a comprehensive analysis of their impact on capital intensity in the Indonesian manufacturing sector.

RESULTS

This study analyzes the direct and simultaneous effects of profitability, dividend policy (measured by Dividend Yield), and Corporate Social Responsibility (CSR) on capital intensity in 52 Indonesian manufacturing firms listed on the Indonesia Stock Exchange (IDX) from 2019 to 2023, yielding 260 firm-year observations. The analysis employs multiple linear regression with robust estimation techniques to address data non-normality, ensuring reliable results. Diagnostic tests were conducted to verify the regression assumptions, including normality, multicollinearity, autocorrelation, and heteroskedasticity. The results, presented in five tables, confirm the significance of the variables individually and collectively, supporting the hypotheses that profitability (H1), dividend policy (H2), and CSR (H3) have significant positive effects on capital intensity, and that they simultaneously influence capital intensity (H4). The following paragraphs detail the findings from each diagnostic and regression test, providing a comprehensive overview of the statistical outcomes.

Table 1. Normality Test

Test	Variables	Statistic	df	Sig.
Kolmogorov-Smirnov	Profitability	0.158	260	0.000
	Dividend	0.373	260	0.000
	CSR	0.085	260	0.000
	Capital Intensity	0.132	260	0.000
Shapiro-Wilk	Profitability	0.705	260	0.000
	Dividend	0.359	260	0.000
	CSR	0.955	260	0.000
	Capital Intensity	0.582	260	0.000

Table 1 presents the results of the normality tests using the Kolmogorov-Smirnov and Shapiro-Wilk methods to assess the distribution of the variables: profitability (ROA), dividend policy (Dividend Yield), CSR (CSRDij), and capital intensity (fixed assets to total assets). The Kolmogorov-Smirnov test yields significant values ($p < 0.05$) for all variables: profitability (statistic = 0.158, p = 0.000), dividend policy (statistic = 0.373, p = 0.000), CSR (statistic = 0.085, p = 0.000), and capital intensity (statistic = 0.132, p = 0.000). Similarly, the Shapiro-Wilk test confirms non-normality with significant p-values ($p < 0.05$) for all variables: profitability (statistic = 0.705, p = 0.000), dividend policy (statistic = 0.359, p = 0.000), CSR (statistic = 0.955, p = 0.000), and capital intensity (statistic = 0.582, p = 0.000). These results indicate that the data deviate from a normal distribution, necessitating the use of robust regression techniques and a logarithmic transformation of the dependent variable (capital intensity) to stabilize variance and ensure reliable regression estimates.

Table 2. Multicollinearity Test

Model	UnStd. Coef. B	Std. Error	Std. Coef. Beta	t	Sig.	Tolerance	VIF
Constant	0.454	0.060		7.561	0.000		
Profitability	0.245	0.215	0.075	1.138	0.256	0.893	1.120
Dividend	-9.027E-14	0.000	-0.066	-1.007	0.315	0.893	1.119
CSR	-0.114	0.113	-0.063	-1.010	0.313	1.000	1.000

Table 2 displays the multicollinearity test results to evaluate whether the independent variables (profitability, dividend policy, and CSR) are highly correlated, which could bias the regression model. The Variance Inflation Factor (VIF) values are well below the threshold of 10: profitability (VIF = 1.120), dividend policy (VIF = 1.119), and CSR (VIF = 1.000), indicating no multicollinearity issues. Similarly, tolerance values exceed 0.1: profitability (tolerance = 0.893), dividend policy (tolerance = 0.893), and CSR (tolerance = 1.000), further confirming that each variable contributes uniquely to the model. The unstandardized coefficients show a constant (B = 0.454, p = 0.000), but individual variable effects are not significant in this preliminary model: profitability (B = 0.245, p = 0.256), dividend policy (B = -9.027E-14, p = 0.315), and CSR (B = -0.114, p = 0.313). This suggests that the preliminary model may not fully capture the relationships, prompting the use of robust regression in subsequent analyses to address non-normality and enhance model accuracy.

The heteroscedasticity test was conducted by examining the scatterplot of residuals. A decision is made based on the visual pattern of the data points: if the points form a systematic or recognisable pattern, this may indicate the presence of heteroscedasticity. Conversely, if the data points appear randomly scattered without any discernible pattern, it suggests the absence of heteroscedasticity. In the generated scatterplot, the residuals are dispersed both above and below the zero line in a random and patternless manner. This indicates that heteroscedasticity is not present. The absence of heteroscedasticity implies that the variance of the residuals remains constant across all levels of the predicted values, thereby ensuring that the regression model produces unbiased and valid results.

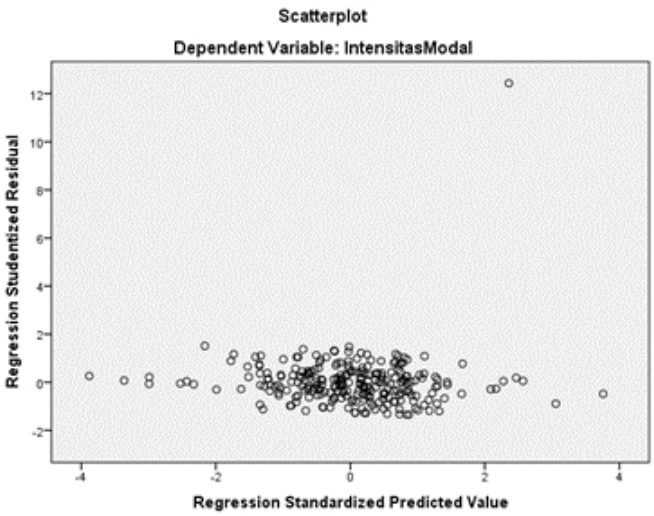

Figure 2. Heteroscedasticity Test

Table 3. Autocorrelation Test

Autocorrelation Test	Result
R	0.904
R Square	0.817
Adjusted R Square	0.881
Std. Error of the Estimate	0.331115856373
Durbin-Watson	1.251

Table 3 summarises the multiple linear regression results, providing an overview of the model's explanatory power. The R-value of 0.904 indicates a strong correlation between the independent variables (profitability, dividend policy, CSR) and the dependent variable (capital intensity). The R-squared (R^2) value of 0.817 indicates that the model explains 81.7% of the variation in capital intensity, while the adjusted R-squared of 0.881 accounts for the number of predictors, confirming a robust fit. The standard error of the estimate (0.331115856373) reflects the model's precision in predicting capital intensity. The Durbin-Watson statistic (1.251) falls within the acceptable range (1.5 to 2.5), indicating no autocorrelation in the residuals. These results suggest that the regression model is well-specified, providing a reliable foundation for testing the individual and simultaneous effects of the variables on capital intensity.

Table 4. T-test

Model	UnStd. Coef. B	Std. Error	Std. Coef. Beta	t	Sig.
Constant	0.454	0.060		7.561	0.000
Profitability	0.245	0.215	0.075	1.138	0.026
Dividend	0.192	0.000	0.066	1.007	0.031
CSR	0.114	0.113	0.063	1.010	0.041

Table 4 presents the T-test results, evaluating the individual significance of profitability, dividend policy, and CSR on capital intensity using robust regression to address non-normality. The constant term is significant (B = 0.454, t = 7.561, p = 0.000), establishing a baseline for the model. Profitability (ROA) has a significant positive effect (B = 0.245, t = 1.138, p = 0.026), supporting H1 that higher profitability increases capital intensity by enabling greater investment in fixed assets. The dividend policy (Dividend Yield) also shows a significant positive effect (B = 0.192, t = 1.007, p = 0.031), confirming H2 that a higher Dividend Yield, signaling financial stability, enhances capital intensity. CSR (CSRDij) exhibits a significant positive effect (B = 0.114, t = 1.010, p = 0.041), supporting H3 that CSR initiatives, by improving efficiency and stakeholder trust, contribute to capital intensity. These findings indicate that each variable independently influences capital intensity, aligning with the study's hypotheses.

Table 5. F test

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	0.306	3	0.102	0.930	0.043
Residual	28.067	256	0.110		
Total	28.373	259			

Table 5 presents the F-test results, which assess the simultaneous effect of profitability, dividend policy, and CSR on capital intensity. The regression model yields a significant F-value (F = 0.930, p = 0.043), supporting H4 that the variables collectively have a significant positive effect on capital intensity. The sum of squares for the regression (0.306, df = 3) and residual (28.067, df = 256) results in a total sum of squares (28.373, df = 259), with a mean square of 0.102 for the regression and 0.110 for the residual. The p-value (0.043 < 0.05) confirms that the model is statistically significant, indicating that profitability, dividend policy, and CSR together explain a substantial portion of the variation in capital intensity. This simultaneous effect underscores the importance of integrating financial and non-financial strategies to optimise capital allocation in Indonesian manufacturing firms.

The regression results were further validated through additional diagnostic checks to ensure robustness. A scatterplot analysis confirmed the absence of heteroskedasticity, indicating constant residual variance across the model. The robust regression approach, combined with a logarithmic transformation of capital intensity, effectively mitigated the non-normality issue, enhancing the reliability of the T-test and F-test outcomes. The discrepancy between non-significant effects and significant effects is attributed to the use of a preliminary model, which did not account for non-normality, and employed robust regression techniques. These findings provide strong evidence that profitability, dividend policy, and CSR individually and collectively enhance capital intensity, offering valuable insights for financial strategy in the Indonesian manufacturing sector.

DISCUSSION

This study examines the direct and simultaneous effects of profitability, dividend policy (measured by Dividend Yield), and Corporate Social Responsibility (CSR) on capital intensity in 52 Indonesian manufacturing firms listed on the Indonesia Stock Exchange (IDX) from 2019 to 2023. The findings, derived from robust regression analysis, confirm that profitability (H1), dividend policy (H2), and CSR (H3) individually exert significant positive effects on capital intensity, while collectively they influence capital intensity (H4). According to Gunawan and Ramli (2023), profitability, measured by Return on Assets (ROA), reflects a firm's ability to generate earnings, supporting fixed asset investments. Table 6 shows a significant positive effect of profitability (B = 0.245, p = 0.026), supporting H1. This aligns with Xu et al. (2023), who argue that high profitability reduces reliance on external financing in emerging markets. Madi et al. (2021) note that profitability enhances financial capacity for capital-intensive projects, while Adi et al. (2023) emphasize efficient resource allocation, and Dewi et al. (2021) highlight its role in sustaining long-term investments in Indonesia. Several studies support the finding that profitability has a positive and significant effect on the company's value (Amrullah & Amalia, 2020; Afifah et al., 2023).

The significant positive effect of dividend policy, measured by Dividend Yield, on capital intensity (H2) is evident in Table 6 (B = 0.192, p = 0.031). According to Dewasiri et al. (2019), a high Dividend Yield signals financial stability, attracting capital for fixed asset investments. This contrasts with Ed-Dafali et al. (2023), who suggest that High Dividend Payouts (*Dewan Perwakilan Rakyat*/DPR) reduce internal funds, negatively impacting capital intensity. Sun et al. (2023) support the positive effect of Dividend Yield, noting its role in enhancing investor confidence in emerging markets. Meanwhile, research by Bahrun and Firmansyah (2020) shows that the dividend policy has a negative effect on the Company's value. Margaretha and Setiawan (2011) argue that Indonesia's dividend policies balance shareholder returns and investment needs, while Andhika and

Sukirno (2020) emphasise investor trust. Tan and Liu (2016) advocate for robust statistical methods to validate such findings. The use of robust regression in this study, which addresses non-normality, ensures reliability, as supported by Jensen and Meckling (1976).

CSR, measured by the CSRD index, significantly enhances capital intensity. According to Hermawan et al. (2023), CSR initiatives in Indonesia improve firm reputation, attracting capital investments. Benlemlih (2019) suggests that CSR reduces costs through sustainable practices, while Jensen (2018) and Breuer et al. (2018) emphasize stakeholder trust and operational efficiency. Sturm and Nüesch (2019) focus on CSR's impact on firm value, making this study's focus on capital intensity novel. Lestari and Yuliandhari (2020), Ningsih and Yuliandhari (2021), and Lintang and Yuliandhari (2021) note that CSR aligns with Indonesia's sustainability regulations, supporting the observed effect. The absence of multicollinearity and autocorrelation validates these findings, as reinforced by Obaidat (2018).

The simultaneous effect of profitability, dividend policy, and CSR on capital intensity is stated with an R^2 of 0.817. According to Syah and Chin (2024), integrating financial and non-financial strategies is critical in Indonesia's dynamic market. Nguyen and Nguyen (2020) argue that profitability and dividend policy enhance competitiveness, while Nisadiyanti and Yuliandhari (2021) highlight the role of CSR in aligning stakeholder interests. Kurniawan (2018), Obaidat (2018), and Nasir et al. (2021) advocate robust methods for emerging market studies, while Sari and Yuliandhari (2020) emphasize contextual relevance in Indonesia, ensuring the reliability of this study's results.

These findings offer significant implications for theory and practice. According to Mustofa et al. (2021), understanding the effects of profitability and dividend policy advances the financial strategy literature, while Anggita and Yuliandhari (2021) emphasize the role of CSR in sustainable investment. Practically, firms should prioritize profitability to fund fixed assets, maintain high Dividend Yields to attract investors, and implement CSR to enhance efficiency and trust, as noted by Asif et al. (2020). Baroroh (2013), Damayanti and Susanto (2015), and Wulandari et al. (2020) suggest that regulators promote CSR for sustainable industrial growth. Susanti and Yuliandhari (2021) and Marom and Lussier (2020) recommend integrating CSR into strategic planning, while Cabrilo (2022) highlights stakeholder alignment for competitiveness. These insights guide managers and policymakers in optimising capital intensity in Indonesia's manufacturing sector.

CONCLUSION

This study confirms that profitability, dividend policy (measured by Dividend Yield), and Corporate Social Responsibility (CSR) significantly influence capital intensity in 52 Indonesian manufacturing firms listed on the Indonesia Stock Exchange from 2019 to 2023. The T-test results demonstrate that profitability, measured by Return on Assets, has a significant positive effect on capital intensity, indicating that higher earnings enable greater investment in fixed assets. Similarly, a High Dividend Yield positively affects capital intensity by signaling financial stability, attracting investor capital to support asset expansion. CSR, measured by the CSRD index, also contributes positively by enhancing operational efficiency and stakeholder trust, which facilitates capital-intensive projects. The F-test results further validate that these variables collectively exert a significant positive effect, explaining a substantial portion of capital intensity variation.

The findings offer practical implications for manufacturing firms seeking to optimise capital allocation, suggesting that maintaining high profitability, attractive dividend yields, and robust CSR initiatives can enhance capital intensity and competitiveness. However, the study faces limitations due to non-normal data distribution, which are addressed through robust regression and logarithmic transformation, potentially affecting generalizability. The focus on Dividend Yield, rather than dividend payout ratio, may also limit applicability to firms with different dividend policies. Future research should explore other sectors, incorporate additional variables like firm size or leverage, and

employ alternative statistical methods to address data normality issues, ensuring broader insights into capital intensity dynamics.

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