



Budgetary Management Efficiency and Profitability in Manufacturing Firms the Moderating Role of Firm Size

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ABSTRACT

Keywords:

Budget Efficiency;
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Efficiency;
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This study aims to analyze the effect of budget management efficiency on corporate financial performance by considering firm size as a moderating variable. Budget management efficiency is measured through three dimensions: operational efficiency, working capital efficiency, and investment decisions, while financial performance is measured using Return on Assets (ROA). This study employs a quantitative approach using panel data regression and Moderated Regression Analysis (MRA). The sample was selected using purposive sampling, resulting in 200 firm-year observations from 40 companies that met the research criteria during the observation period. The results indicate that operational efficiency and investment decisions do not have a significant effect on profitability, whereas working capital efficiency has a positive and significant effect on profitability. Furthermore, firm size does not significantly moderate the relationship between operational efficiency, working capital efficiency, investment decisions, and profitability. These findings imply that effective working capital management is a critical factor in improving financial performance because the optimization of current assets, including cash, receivables, and inventory, directly supports profitability improvement. This study contributes to financial management literature by highlighting the importance of internal resource efficiency rather than company scale in achieving sustainable financial performance.

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INTRODUCTION

Manufacturing companies play an important role in supporting economic growth, employment creation, and industrial development; therefore, maintaining financial sustainability has become a critical issue for stakeholders, including investors, employees, and policymakers. Profitability represents one of

the main indicators used to evaluate whether companies can survive and contribute continuously to economic development. This issue becomes increasingly relevant because firms operate under competitive environments where inefficient resource utilization may reduce financial stability. Previous studies emphasize that financial performance is influenced by internal managerial capabilities, particularly the ability to manage resources effectively and develop appropriate financial strategies (Puspaningtyas et al., 2024; Aimah et al., 2025). Furthermore, working capital management has been identified as an essential mechanism that enables companies to maintain operational continuity and improve profitability (Dash et al., 2023; Kiymaz et al., 2024; Deb et al., 2023). Therefore, understanding profitability determinants is important for strengthening corporate resilience.

The importance of profitability research is also related to the increasing challenges faced by manufacturing firms, including rising operational costs, uncertain market conditions, and pressure to improve efficiency. Companies are required to optimize financial resources because ineffective management may reduce competitiveness and limit long-term growth opportunities. Evidence from emerging markets indicates that financial decisions, working capital policies, and organizational characteristics significantly influence corporate performance, although their effects may vary across industries and economic conditions (Gupta et al., 2023; Barak, 2025; Ademola & Omolara, 2023). In addition, firm size has received attention because larger companies may possess greater resources, but size alone does not guarantee superior financial outcomes (Ahmed et al., 2023; Zhu & Liu, 2024). These conditions demonstrate that profitability improvement requires deeper understanding of strategic financial management. Consequently, investigating the relationship between efficiency strategies and profitability provides valuable implications for companies and broader economic development.

This study is based on financial management theory, which explains that companies should optimize available resources to maximize financial performance. Operational efficiency reflects the company's ability to control costs and utilize resources effectively, while working capital efficiency describes how firms manage current assets and liabilities to support daily operations. Previous studies demonstrate that effective working capital management contributes significantly to profitability because efficient cash, inventory, and receivable management improves operational effectiveness (Dash et al., 2023; Kiymaz et al., 2024; Deb et al., 2023). Investment decisions represent managerial choices regarding resource allocation to generate future returns, although their impact may depend on strategic implementation and market conditions (Ramadhani et al., 2025; Fathul et al., 2025). Furthermore, firm size is incorporated as a moderating variable because organizational scale may influence the strength of financial strategy effects on performance (Ahmed et al., 2023; Santosa et al., 2023).

Despite the importance of financial efficiency, manufacturing companies continue to face difficulties in transforming operational improvements and investment activities into higher profitability. Many firms experience challenges in balancing production efficiency, liquidity management, and investment allocation because business environments remain uncertain. Previous evidence suggests that improving efficiency does not always generate immediate financial benefits due to external pressures, competitive intensity, and differences in managerial capabilities (Szász et al., 2023; Mitra et al., 2023; Jia et al., 2025). Moreover, excessive investment or ineffective capital allocation may create financial burdens rather than improve profitability (Jaiswal, 2025; Abiin, 2026; Afandi & Affan, 2026). These problems indicate that companies need to identify which financial strategies provide the greatest contribution to profitability. Therefore, examining operational efficiency, working capital efficiency, investment decisions, and the moderating role of firm size becomes necessary to provide practical solutions for improving manufacturing performance.

Previous studies have extensively examined the relationship between working capital management and profitability. Research generally indicates that efficient working capital practices improve financial performance by increasing resource utilization and reducing unnecessary financial costs (Dash et al., 2023; Gupta et al., 2023). Similarly, Kiymaz et al. (2024) found that working capital management contributes to firm performance across developed and emerging economies, while Panigrahi (2025) emphasized its importance in maintaining sustainable profitability in manufacturing industries. However, most previous studies focus on direct relationships between working capital and performance without integrating other efficiency dimensions, such as operational efficiency and investment decisions. This creates a research gap because profitability is a multidimensional outcome influenced by several interconnected managerial decisions. Therefore, this study extends previous research by examining multiple financial efficiency factors simultaneously within manufacturing companies.

Although previous studies provide valuable insights, several limitations remain regarding the role of firm characteristics as moderating factors. Existing research has produced inconsistent findings regarding whether firm size strengthens or weakens the relationship between financial strategies and profitability. Some studies suggest that larger firms benefit from greater resources and operational advantages, while others indicate that size does not automatically improve performance (Ahmed et al., 2023; Elvionita & Armiami, 2025; Soim et al., 2026). Furthermore, studies on investment decisions and financial performance show mixed results because investment outcomes depend on strategic execution and market conditions (Ramadhani et al., 2025; Fathul et al., 2025). The limited integration of these variables creates an opportunity for

further investigation. This study addresses the gap by developing a comprehensive model that evaluates efficiency strategies and considers firm size as a moderating factor in explaining profitability differences.

This research introduces a more comprehensive perspective by combining operational efficiency, working capital efficiency, investment decisions, and firm size moderation within a single profitability model. Unlike previous studies that primarily examine isolated financial factors, this study evaluates how different managerial strategies interact in explaining profitability outcomes. The research focuses specifically on Indonesian manufacturing companies, where firms face unique challenges related to resource optimization, market competition, and operational sustainability. The novelty of this study lies in identifying which efficiency dimension provides the strongest contribution to profitability while examining whether company scale changes these relationships. This approach provides a deeper understanding of financial management practices and offers evidence-based recommendations for managers seeking sustainable performance improvement.

Based on the identified issues and research gaps, this study aims to answer whether operational efficiency, working capital efficiency, and investment decisions influence profitability and whether firm size moderates these relationships. This research argues that profitability improvement is not merely determined by company expansion or investment intensity but depends on the effectiveness of internal resource management. By analyzing manufacturing companies listed on the Indonesia Stock Exchange, this study provides empirical evidence regarding the most influential financial strategies in improving profitability. The findings are expected to contribute theoretically by expanding the understanding of financial efficiency-performance relationships and practically by assisting managers in prioritizing strategies that generate stronger financial outcomes. Therefore, this research provides a relevant framework for evaluating profitability determinants in competitive manufacturing environments.

RESEARCH METHODS

This study employs a quantitative research design with a correlational approach to examine the relationship between operational efficiency, working capital efficiency, investment decisions, and financial performance with firm size as a moderating variable. The quantitative approach is selected because the research aims to test causal relationships among measurable financial variables using statistical models based on secondary financial data. A panel data regression approach is applied because the dataset combines cross-sectional observations from multiple manufacturing companies and time-series

observations during the research period. Previous studies have demonstrated that panel data analysis is appropriate for examining firm-level financial performance by considering differences among companies and changes over time (Ahmed et al., 2023; Kiymaz et al., 2024). The research location is the Indonesia Stock Exchange (IDX), selected because listed companies provide publicly available and standardized annual financial reports, allowing consistent measurement of profitability, efficiency, leverage, and firm characteristics. Manufacturing companies listed on the IDX are selected as the research setting because this sector has significant operational complexity and requires effective management of working capital, investment decisions, and financial resources to maintain profitability (Silvi et al., 2024; Puspaningtyas et al., 2024).

The population of this study consists of manufacturing sector companies listed on the Indonesia Stock Exchange during the 2021–2025 period, with a total population of 65 companies. The sample selection uses purposive sampling based on several criteria, including companies that are consistently listed during the observation period and provide complete annual financial reports containing all required variables. Based on these criteria, 40 companies were selected, resulting in 200 firm-year observations (40 companies × 5 years). The use of purposive sampling is consistent with previous financial performance studies that select firms based on data availability and research requirements (Dash et al., 2023; Gupta et al., 2023). The sample selection criteria are presented in Table 1, while the list of selected companies is shown in Table 2.

Table 1. Research Criteria

No.	Criteria	Number
1.	Manufacturing sector companies listed on the Indonesia Stock Exchange during 2021–2025	65
2.	Companies that do not provide complete annual financial reports and information related to research variables	25
Total research sample		40
Total research observations (40 × 5)		200

Table 2. Code and Name of Companies

No	KODE	PERUSAHAAN	No	KODE	PERUSAHAAN
1	AMFG	Asahimas Flat Glass Tbk.	21	MFMI	Multifiling Mitra Indonesia Tb
2	APII	Arita Prima Indonesia Tbk.	22	MLIA	Mulia Industrindo Tbk
3	ARNA	Arwana Citramulia Tbk.	23	SCCO	Supreme Cable Manufacturing &
4	ASGR	Astra Graphia Tbk.	24	TIRA	Tira Austenite Tbk
5	ASII	Astra International Tbk	25	TOTO	Surya Toto Indonesia Tbk.
6	BHIT	MNC Asia Holding Tbk.	26	UNTR	United Tractors Tbk.
7	DYAN	Dyandra Media International Tb	27	VOKS	Voksel Electric Tbk.
8	IBFN	Intan Baru Prana Tbk.	28	MARK	Mark Dynamics Indonesia Tbk.

9	IMPC	Impack Pratama Industri Tbk.	29	SPTO	Surya Pertiwi Tbk.
10	INDX	Tanah Laut Tbk	30	SKRN	Superkrane Mitra Utama Tbk.
11	JECC	Jembo Cable Company Tbk.	31	CAKK	Cahayaputra Asa Keramik Tbk.
12	JTPE	Jasuindo Tiga Perkasa Tbk	32	SOSS	Shield On Service Tbk.
13	KBLI	KMI Wire & Cable Tbk.	33	CCSI	Communication Cable Systems In
14	KBLM	Kabelindo Murni Tbk	34	BLUE	Berkah Prima Perkasa Tbk.
15	KIAS	Keramika Indonesia Assosiasi T	35	ARKA	Arkha Jayanti Persada Tbk.
16	KOBX	Kobexindo Tractors Tbk	36	HOPE	Harapan Duta Pertiwi Tbk
17	KOIN	Kokoh Inti Arebama Tbk	37	GPSO	Geoprima Solusi Tbk
18	KONI	Perdana Bangun Pusaka Tbk	38	KUAS	Ace Oldfields Tbk.
19	LION	Lion Metal Works Tbk.	39	BINO	Perma Plasindo Tbk.
20	MDRN	Modern Internasional Tbk.	40	NTBK	Nusatama Berkah Tbk.

Source: www.idx.id.com

The data collection technique used in this research is secondary data analysis obtained from annual financial reports and company publications available through the Indonesia Stock Exchange database. Secondary financial data are selected because they provide objective and measurable information regarding company performance, financial efficiency, capital structure, and operational conditions. Previous research emphasizes that annual financial reports are reliable sources for evaluating profitability and corporate financial conditions because they contain standardized accounting information that can be compared across firms and periods (Abubakar, 2025; Financial Reporting Quality and Investment Efficiency in Manufacturing Firms, 2024). The variables examined include profitability as the dependent variable measured by Return on Assets (ROA), operational efficiency, working capital efficiency, investment decisions, firm size as a moderating variable, and leverage as a control variable. The inclusion of leverage and firm size is supported by previous studies indicating that financial structure and company characteristics influence the relationship between efficiency practices and firm profitability (Jaiswal, 2025; Ahmed et al., 2023).

The data analysis process is conducted using panel data regression and Moderated Regression Analysis (MRA). Before hypothesis testing, classical assumption tests are performed, including multicollinearity testing using Variance Inflation Factor (VIF), heteroscedasticity testing, and autocorrelation testing to ensure model reliability. The appropriate panel regression model is selected through statistical testing, including the Chow test, Hausman test, and Lagrange Multiplier test. The basic regression model used to examine the direct effect of operational efficiency, working capital efficiency, and investment decisions on profitability is formulated as follows:

$$ROA_{i,t} = \alpha + \beta_1 EfOp_{i,t} + \beta_2 EfWC_{i,t} + \beta_3 InvRatio_{i,t} + \varepsilon$$

The moderated regression model is formulated as:

$$ROA = \alpha + \beta_1 EfOp + \beta_2 EfMoKer + \beta_3 KepInvest + \beta_4 UP \\ + \beta_5 (EfOp \times UP) + \beta_6 (EfMoKer \times UP) \\ + \beta_7 (KepInvest \times UP) + \beta_8 Leverage + \varepsilon$$

Where:

α = constant

β_1 = operational efficiency coefficient

β_2 = working capital efficiency coefficient

β_3 = investment decision coefficient

β_4 = firm size coefficient

$\beta_5, \beta_6, \beta_7$ = moderation interaction coefficients

β_8 = leverage coefficient

The interaction coefficients (β_5 , β_6 , and β_7) indicate whether firm size strengthens or weakens the relationship between efficiency variables and profitability. Hypothesis testing is conducted through the F-test to examine simultaneous model significance, t-test to evaluate individual variable effects, including moderation effects, and the coefficient of determination (R^2) to measure the explanatory power of the model. The use of firm size as a moderating variable is supported by previous evidence showing that company scale affects the effectiveness of financial strategies and the relationship between operational decisions and profitability (Zhu & Liu, 2024; Santosa et al., 2023). The conceptual framework of the research model is presented in Figure 1.

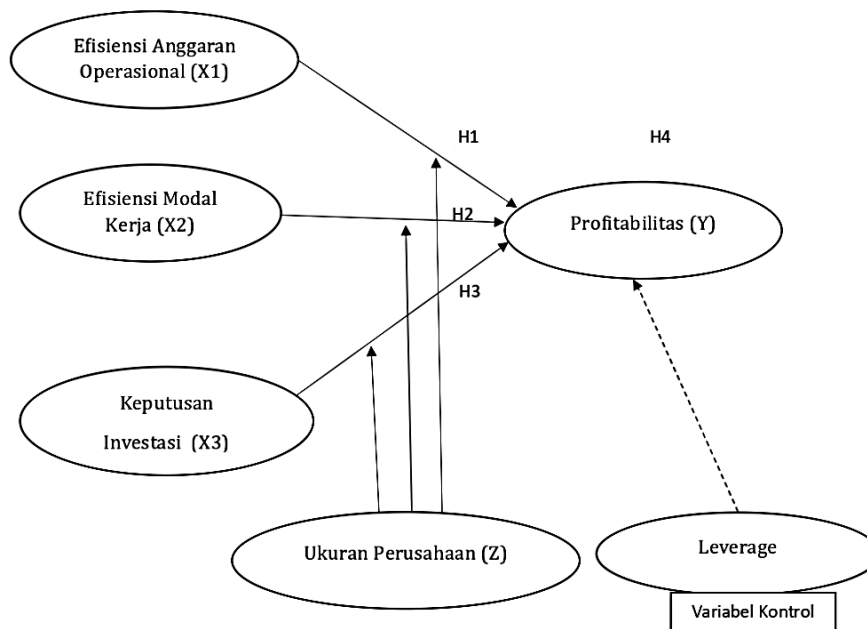


Figure 1. Research Framework

RESULTS AND DISCUSSION

Results

Normality Test

The normality test is an important preliminary analysis conducted to determine whether the residual data in the regression model follows a normal distribution. A normally distributed residual is one of the assumptions required to ensure the reliability of statistical inference in regression analysis (Magsalay, 2025). The results of the normality test are presented in Table 3, which provides information regarding the distribution characteristics of the regression residuals, including the significance value obtained from the One-Sample Kolmogorov–Smirnov test.

Table 3. Normality Test

		Unstandardized Residual
N		200
Normal Parameters ^{a,b}	Mean	0
	Std. Deviation	310,26981
Most Extreme Differences	Absolute	0,442
	Positive	0,396
	Negative	-0,442
Test Statistic		0,442
Asymp. Sig. (2-tailed) ^c		0
Monte Carlo Sig. (2-tailed) ^d	Sig.	0
	99% Confidence Interval	Lower Bound 0
		Upper Bound 0

Source: SPSS Output Results, 2026

Based on Table 3, the One-Sample Kolmogorov–Smirnov test indicates an Asymp. Sig. value of 0.000, which is below the significance level of $\alpha = 0.05$. This result statistically indicates that the residuals do not meet the normality assumption based on the conventional Kolmogorov–Smirnov criterion. However, this condition does not necessarily invalidate the regression model because this study uses a relatively large sample size of 200 observations. According to the Central Limit Theorem (CLT), a sufficiently large sample allows the distribution of regression estimators to approach normality, making statistical inference remain valid asymptotically. Furthermore, as shown in Table 3, the residual mean value is 0.0000000, indicating that there is no systematic bias in the regression residuals.

This interpretation is supported by Magsalay (2025), who explains that the Kolmogorov–Smirnov test tends to become highly sensitive when applied to large samples, potentially rejecting the normality assumption even when

deviations from normality are practically insignificant. Therefore, considering the sample size and the characteristics of the residual distribution presented in Table 3, the regression model remains statistically acceptable and can be used for further hypothesis testing.

Multicollinearity Test and Multiple Regression Analysis

The multicollinearity test is conducted to identify whether there is a strong correlation among independent variables in the regression model. This test is evaluated using the Variance Inflation Factor (VIF) and tolerance values. A regression model is considered free from multicollinearity problems when the tolerance value exceeds 0.10 and the VIF value is below 10. The absence of multicollinearity ensures that each independent variable can independently explain variations in the dependent variable.

Table 4. Multicollinearity Test

		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	143,615	304,472		0,472	0,638		
	Operational Efficiency	0,000	0,001	0,003	0,072	0,943	0,983	1,018
	Working Capital Efficiency	0,006	0,000	0,827	19,861	0,000	0,912	1,096
	Investment Decision	0,000	0,000	-0,032	-0,802	0,423	0,991	1,009
	Firm Size	-0,054	0,109	-0,021	-0,497	0,620	0,910	1,099
	Leverage	0,017	0,084	0,008	0,196	0,845	0,994	1,006

Source: SPSS Output Results, 2026

Based on the results presented in Table 4, all independent variables have tolerance values above 0.10 and VIF values below 10, indicating that the regression model is free from multicollinearity problems. The VIF values for operational efficiency, working capital efficiency, investment decisions, firm size, and leverage are 1.018, 1.096, 1.009, 1.099, and 1.006, respectively. Therefore, each independent variable does not have a high correlation with other variables, and the regression coefficients can be interpreted reliably.

Based on Table 4, the regression equation shows that working capital efficiency has a positive and significant effect on profitability, with a coefficient value of 0.006, Beta value of 0.827, and significance level of 0.000 (<0.05). This finding indicates that working capital efficiency is the most dominant variable affecting profitability. Meanwhile, operational efficiency (Sig. = 0.943), investment decisions (Sig. = 0.423), firm size (Sig. = 0.620), and leverage (Sig. =

0.845) do not have significant effects on profitability because their significance values exceed 0.05. These results suggest that effective working capital management plays a more important role in improving profitability compared to other financial factors, consistent with previous findings that emphasize the contribution of working capital management to firm performance.

Heteroscedasticity Test

The heteroscedasticity test is conducted to determine whether the variance of residuals remains constant across observations in the regression model. A good regression model should satisfy the assumption of homoscedasticity, meaning that the residual variance does not systematically change due to variations in the independent variables. This study applies the Glejser test, where heteroscedasticity is indicated when the significance value of an independent variable is below 0.05.

Table 5. Heteroscedasticity Test

		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2,837	0,677		4,189	0,000
	Operational Efficiency	-4,220E-06	0,000	-0,105	-1,412	0,160
	Working Capital Efficiency	2,200E-06	0,000	0,267	3,415	0,001
	Investment Decision	-3,335E-07	0,000	-0,080	-1,085	0,280
	Firm Size	-0,001	0,000	-0,224	-2,852	0,005
	Leverage	0,000	0,000	-0,082	-1,103	0,272

Source: SPSS Output Results, 2026

Based on Table 5, the Glejser test results show that operational efficiency, investment decisions, and leverage have significance values of 0.160, 0.280, and 0.272, respectively, which are greater than 0.05. This indicates that these variables do not show symptoms of heteroscedasticity. However, working capital efficiency and firm size have significance values of 0.001 and 0.005, indicating the presence of heteroscedasticity. Therefore, further consideration or corrective procedures may be required to ensure that the regression estimates remain reliable.

Autocorrelation Test

The autocorrelation test is performed to determine whether there is a correlation between residual errors in the current period and residual errors from the previous period. In panel and time-series data analysis, the absence of

autocorrelation is important because autocorrelation may reduce the efficiency of regression estimators. The Durbin–Watson statistic is commonly used to identify potential autocorrelation problems in regression models.

Table 6. Autocorrelation Test

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.833a	0,693	0,685	314,24270	3,133

Source: SPSS Output Results, 2026

Based on the results presented in Table 6, the regression model has an R value of 0.833, indicating a very strong relationship between the independent variables and profitability. The R Square value of 0.693 shows that operational efficiency, working capital efficiency, investment decisions, firm size, and leverage jointly explain 69.3% of the variation in profitability, while the remaining 30.7% is explained by other factors outside the model. The Adjusted R Square value of 0.685 indicates that the explanatory power of the model remains stable after adjustment. Meanwhile, the Durbin–Watson value of 3.133 suggests a possible negative autocorrelation problem because the value exceeds the commonly accepted range. Therefore, additional panel data testing may be considered to ensure the robustness of the regression model.

Partial Significance Test (t-Test)

The t-test is conducted to examine the partial effect of each independent variable on the dependent variable. A variable is considered to have a significant effect when its significance value is below 0.05. This test is used to determine whether each predictor individually contributes to explaining changes in profitability.

Table 7. Significance Coefficient Test (t-Test)

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	3,722	1,206		3,085	0,002
EFISIENSI OPERASIONAL	2,66E-06	0	0,038	0,499	0,619
EFISIENSI MODAL KERJA	4,64E-06	0	0,322	4,042	0
KEPUTUSAN INVESTASI	-1,61E-07	0	-0,022	-0,294	0,769
LEVERAGE	2,50E-05	0	0,006	0,077	0,939

Source: SPSS Output Results, 2026

Based on Table 7, only working capital efficiency has a positive and statistically significant effect on profitability, with a t-value of 4.042 and a significance value of 0.000, which is below the 5% significance level. This finding indicates that more efficient working capital management contributes to higher profitability, suggesting that the effective utilization of current assets and liabilities plays an important role in improving financial performance. This result is consistent with previous studies emphasizing that efficient working capital management enhances firm profitability (Dash et al., 2023; Kiymaz et al., 2024).

Meanwhile, operational efficiency (Sig. = 0.619), investment decisions (Sig. = 0.769), and leverage (Sig. = 0.939) do not have statistically significant effects on profitability because their significance values exceed 0.05. These results suggest that variations in these variables do not substantially explain changes in profitability among the sampled manufacturing companies during the observation period. Therefore, working capital efficiency emerges as the only variable that significantly influences profitability in this study.

Simultaneous Significance Test (F-Test)

The F-test is conducted to examine whether the independent variables simultaneously have a significant effect on the dependent variable. The decision is based on the significance value, where a significance value below 0.05 indicates that the independent variables jointly have a significant influence on the dependent variable.

Table 8. F-Test Significance

	Model	Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	13,765	5	2,753	6,661	.000 ^b
	Residual	61,997	150	0,413		
	Total	75,762	155			

Source: SPSS Output Results, 2026

Based on Table 8, the ANOVA test results show an F-value of 6.661 with a significance value of 0.000, which is lower than the 0.05 significance level. This indicates that the independent variables (operational efficiency, working capital efficiency, investment decisions, firm size, and leverage) simultaneously have a significant effect on the absolute residual value (ABS_RES1). Therefore, the Glejser test results indicate that the regression model may experience heteroscedasticity. However, considering the large number of observations used in this study, statistical tests may become highly sensitive in detecting minor deviations. Therefore, further robustness considerations are required when interpreting the regression results.

Moderated Regression Analysis (MRA)

Moderated Regression Analysis (MRA) is conducted to examine whether firm size moderates the relationship between operational efficiency, working capital efficiency, and investment decisions on profitability. A significant interaction coefficient indicates that the moderating variable changes the strength or direction of the relationship between the independent variable and the dependent variable.

Table 9. Moderated Regression Analysis (MRA)

Model		Unstandardized		Standardized	t	Sig.
		Coefficients		Coefficients		
		B	Std. Error	Beta		
1	(Constant)	12.625	2.735		4.616	.001
	X1M	-8,33E-03	.000	-.565	-4.410	.001
	X2M	-1,79E-02	.000	-5.170	-172.388	.001
	X3M	2,72E-03	.000	2.063	38.179	.001

Source: SPSS Output Results, 2026

Based on Table 9, all interaction variables between the independent variables and firm size show significant effects on profitability, with significance values below 0.05. The interaction between operational efficiency and firm size (X1M) has a negative coefficient ($\beta = -0.565$), indicating that firm size weakens the effect of operational efficiency on profitability. Similarly, the interaction between working capital efficiency and firm size (X2M) also has a negative coefficient ($\beta = -5.170$), suggesting that firm size reduces the positive influence of working capital efficiency on profitability.

Meanwhile, the interaction between investment decisions and firm size (X3M) has a positive coefficient ($\beta = 2.063$), indicating that firm size strengthens the relationship between investment decisions and profitability. These findings demonstrate that firm size plays a significant moderating role in the research model, with different moderating effects depending on the type of financial strategy implemented by the company.

Discussion

The results show that operational efficiency does not have a significant effect on profitability. This finding differs from the assumption that improving operational efficiency directly increases financial performance. However, it is consistent with research showing that efficiency improvements do not always translate into higher profitability because firms may face external pressures, cost fluctuations, and competitive challenges. Studies on manufacturing firms indicate that financial performance is also influenced by broader firm

characteristics and strategic factors beyond operational efficiency alone (Puspaningtyas et al., 2024; Szász et al., 2023). This study contributes by demonstrating that operational efficiency requires integration with other financial strategies to generate profitability improvements, particularly in Indonesian manufacturing companies.

Working capital efficiency is found to have a positive and significant effect on profitability and represents the most dominant variable in the model. This result supports previous studies emphasizing that effective working capital management improves firm performance by optimizing liquidity and operational resources (Dash et al., 2023; Kiymaz et al., 2024). Similar findings were reported by Gupta et al. (2023), who showed that working capital management enhances firm value and financial outcomes in manufacturing firms. The contribution of this study lies in confirming the importance of working capital efficiency in the Indonesian manufacturing sector while comparing its influence with other financial factors, showing that internal financial management remains a key determinant of profitability.

The findings indicate that investment decisions do not significantly influence profitability. This result contrasts with the theoretical expectation that productive investments should enhance future financial performance. However, it supports the argument that investment outcomes depend on investment quality, market conditions, and the time required to generate returns. Previous studies also suggest that investment decisions do not always immediately improve financial performance because benefits from investment activities may appear over longer periods (Ramadhani et al., 2025). This study provides additional evidence that investment decisions alone are insufficient to explain profitability variations, particularly when companies operate under uncertain economic conditions and require effective execution strategies.

Firm size does not significantly moderate the relationship between operational efficiency and profitability. This finding indicates that larger companies do not necessarily obtain greater profitability benefits from operational efficiency compared with smaller firms. The result is consistent with research showing that firm size may influence financial performance but does not always strengthen strategic efficiency relationships (Ahmed et al., 2023; Santosa et al., 2023). The contribution of this study is highlighting that organizational scale cannot automatically compensate for weaknesses in operational implementation. Therefore, manufacturing firms should focus on improving managerial capability and resource utilization rather than relying solely on company size as a competitive advantage.

The moderating role of firm size in the relationship between working capital efficiency and profitability is also found to be insignificant. This finding differs from studies suggesting that larger firms may have better access to resources, financing, and operational advantages that improve financial outcomes. However, it supports the view that efficient working capital management depends more on managerial effectiveness than firm scale. Previous research has shown that working capital practices remain important determinants of profitability across different economic environments, regardless of company characteristics (Barak, 2025; Kiymaz et al., 2024). This study contributes by demonstrating that firm size does not necessarily strengthen the benefits of working capital efficiency in Indonesian manufacturing companies.

The results further show that firm size does not moderate the relationship between investment decisions and profitability. This finding indicates that larger asset ownership does not guarantee that investment decisions will produce higher profitability. Previous studies have also emphasized that firm characteristics, including size, may have limited influence when investment effectiveness depends on strategic planning and market conditions (Zhu & Liu, 2024; Ahmed et al., 2023). The novelty of this research is the integration of investment decisions, efficiency variables, and firm size moderation within a single profitability model, providing evidence that company scale alone cannot determine the success of investment strategies.

Overall, this study contributes to the financial management literature by identifying working capital efficiency as the strongest determinant of profitability among the examined variables. Unlike previous studies that frequently emphasize leverage, firm size, or investment decisions as major financial performance drivers, this research highlights the dominant role of internal working capital management in manufacturing firms. The insignificant moderating effect of firm size provides additional insight that organizational scale does not automatically strengthen financial strategies. These findings extend previous evidence from emerging markets and offer practical implications for managers to prioritize efficient resource allocation, especially working capital optimization, to improve sustainable profitability (Panigrahi, 2025; Silvi et al., 2024).

CONCLUSION

This study provides important insights into the determinants of profitability in Indonesian manufacturing companies by demonstrating that working capital efficiency is the most critical factor influencing financial performance, while operational efficiency and investment decisions do not show significant effects. The findings highlight that effective management of current

assets, cash flow, receivables, and inventory is more valuable in improving profitability than simply increasing operational scale or investment activities. From an academic perspective, this study contributes to the financial management literature by integrating efficiency dimensions and firm size as a moderating variable within a single model, providing empirical evidence that firm size does not necessarily strengthen the relationship between financial strategies and profitability. However, this study has several limitations, including the use of manufacturing companies listed on the Indonesia Stock Exchange and the limited explanatory variables included in the model. Future research is encouraged to incorporate additional determinants such as liquidity, sales growth, capital structure, corporate governance, digitalization capability, or macroeconomic factors, as well as to examine other industries and alternative moderating variables to obtain broader and more comprehensive findings.

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