



The Effect of Liquidity, Profitability, Capital Structure, and Working Capital Management on Operational Performance Through Operational Efficiency as an Intervening Variable in Construction Companies Listed on the Indonesia Stock Exchange

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ABSTRACT

This study examines the effects of liquidity, profitability, capital structure, and working capital management on operational performance through operational efficiency in construction companies listed on the Indonesia Stock Exchange (IDX). Using a quantitative approach, the study analyzed secondary data from 20 construction companies selected through purposive sampling. Data were processed using SEM-PLS with SmartPLS 4.0. The findings reveal that liquidity, profitability, capital structure, and working capital management positively and significantly influence operational efficiency. In addition, profitability, capital structure, working capital management, and operational efficiency have a positive and significant effect on operational performance, while liquidity does not directly affect operational performance. Operational efficiency mediates the effects of liquidity, profitability, and working capital management on operational performance, but does not mediate the relationship between capital structure and operational performance. These results highlight the importance of effective financial resource management and operational efficiency in improving operational performance and sustaining business competitiveness.

INTRODUCTION

The construction industry is a strategic sector that plays an important role in supporting infrastructure development and national economic growth. As a capital-intensive industry, this sector is highly dependent on the ability of companies to effectively manage financial and operational resources in order to achieve optimal performance (Wulandari, 2022). Operational performance is an important indicator because it reflects a company's ability to generate profits from its core business activities while also demonstrating management effectiveness in utilizing available resources (Sumarni, 2023). In the Indonesian capital market, construction companies are also a major focus for investors due to their characteristics of requiring substantial funding, having long project cycles, and being highly sensitive to changes in economic conditions (Chen, 2023).

During the 2021–2025 period, the construction industry faced various challenges, including post-pandemic economic recovery, rising material costs, high debt burdens, and cash flow issues that affected fluctuations in companies' operational performance. Based on these conditions, the researcher identified a phenomenon of fluctuating operational performance among construction companies listed on the Indonesia Stock Exchange (IDX) during 2021–2025, as presented in Figure 1.

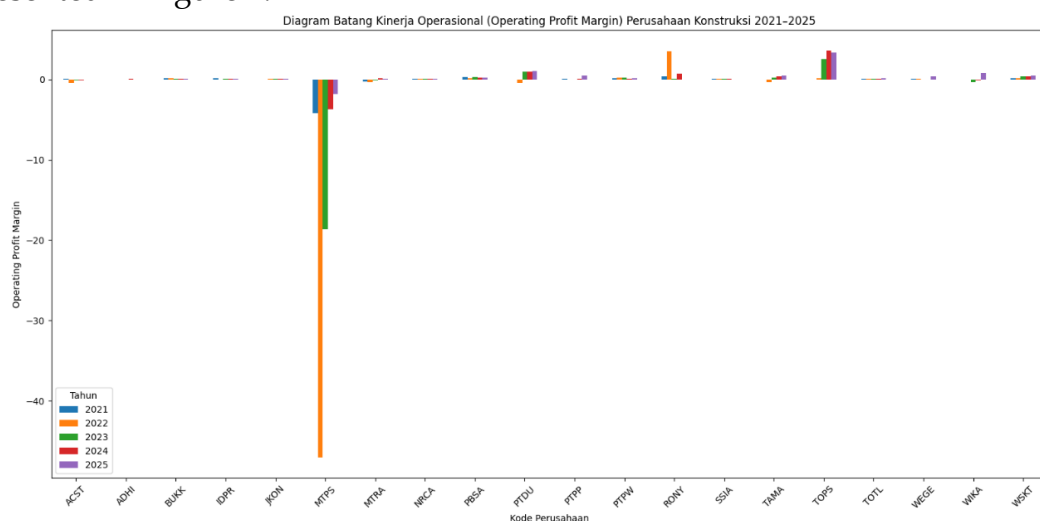


Figure 1. Operational Performance (OPM) of Construction Companies, 2021–2025

Source: Processed data (www.idx.co.id)

Based on observational data of the operational performance of construction companies listed on the Indonesia Stock Exchange during 2021–2025, considerable fluctuations can be observed across companies and periods. The highest operational performance was recorded by TOPS, which experienced a significant increase in 2024, reaching 3.575, and remained high in 2025 at 3.358. In addition, RONY showed a remarkable surge in performance in 2022, reaching 3.496 after previously recording only 0.355 in 2021. Conversely, the lowest performance was observed in MTPS, which experienced a drastic decline to -47.073 in 2022 and remained negative in subsequent years, although gradual

improvements were evident. These conditions indicate that the ability of construction companies to generate operating profits is strongly influenced by the effectiveness of project cost management, cash flow management, and prevailing economic conditions.

Another notable phenomenon can be seen in several companies that experienced extreme changes in operational performance. MTPS underwent a severe contraction in 2022 and 2023, indicating significant operational and financial pressures. Meanwhile, PTDU demonstrated substantial improvement from 2023 to 2025, achieving an operational performance value of 1.000 in both 2023 and 2024, which increased further to 1.024 in 2025. Other companies such as TAMA, WEGE, and WIKA also exhibited improving operational performance trends toward the end of the observation period. In particular, WIKA, after recording negative performance in 2023 and 2024, managed to achieve a notable recovery in 2025 with a value of 0.761. These findings indicate that construction companies differ in their ability to adapt operational strategies to changing business and economic conditions.

On the other hand, companies such as ADHI, IDPR, JKON, NRCA, PBSA, SSIA, and TOTL exhibited relatively stable operational performance throughout the study period. Their operational performance values remained positive with only minor fluctuations, reflecting management's ability to maintain operational efficiency and business stability. WSKT also demonstrated relatively consistent performance with an upward trend over the years, although it did not reach the exceptionally high levels achieved by companies such as TOPS and RONY. Overall, these data illustrate that the construction sector continues to face significant operational dynamics, making liquidity management, profitability, capital structure, and working capital management critical factors in enhancing both operational efficiency and operational performance.

The fluctuation in operational performance among construction companies listed on the Indonesia Stock Exchange during 2021–2025 indicates differences in companies' abilities to generate operating profits. Some companies achieved significant performance improvements, while others experienced sharp declines due to operational and financial pressures. This condition suggests that the success of construction companies is determined not only by the amount of revenue generated but also by their ability to effectively manage project costs, cash flows, and funding sources.

In addition to the practical phenomenon described above, there is also a research gap arising from inconsistent findings in previous studies regarding the determinants of operational performance and operational efficiency. Research conducted by Rinofah et al. (2022) found that liquidity has a positive and significant effect on operational performance, whereas Anggryani and Husnan (2021) found that liquidity has no significant effect. Theoretically, sufficient cash availability ensures project continuity and operational smoothness (significant effect). However, when excessive cash remains idle, it creates high opportunity costs and reduces efficiency, thereby weakening the impact of liquidity on operational performance.

Regarding profitability, Falim et al. (2023) found a significant effect, whereas Anggriyanti (2025) reported the opposite result. Past profitability can serve as a source of capital for future performance (significant effect). However, in the construction industry, which is highly sensitive to interest rates and tax burdens, net profits are often eroded by non-operating expenses, meaning accounting profitability does not always reflect operational effectiveness in practice. Furthermore, Artanti (2022) found that capital structure negatively affects operational performance, while Sumarni (2023) found no significant effect. Similarly, Junaidi (2022) reported a strong influence of working capital management on operating profit achievement, whereas Chen (2023) found otherwise.

These inconsistencies can be explained through the Pecking Order Theory. Debt utilization (capital structure) may enhance performance due to creditor monitoring and discipline (significant effect), but excessive interest burdens resulting from high leverage can reduce operational flexibility, making the relationship unstable or insignificant depending on the company's debt ratio. Similar inconsistencies are observed in the mediating role of operational efficiency, as reflected in the differing findings of Hasmiana et al. (2022) and Reschiwati et al. (2020). When independent variables, such as working capital, are managed effectively, operational efficiency improves and subsequently enhances performance, indicating successful mediation.

These phenomena can also be explained through Agency Theory, Signaling Theory, and Pecking Order Theory, which emphasize the importance of managing liquidity, profitability, capital structure, and working capital in supporting corporate performance. Adequate liquidity ensures smooth project operations, profitability provides internal financing sources, capital structure determines funding balance, and working capital management maintains the company's cash cycle. However, the effects of these financial factors on operational performance often occur indirectly through operational efficiency, which serves as a mechanism that transforms financial resources into optimal operational outcomes.

Therefore, this study aims to analyze the effects of liquidity, profitability, capital structure, and working capital management on operational performance through operational efficiency. The novelty of this research lies in the use of operational efficiency as an intervening variable to explain the mechanism linking financial factors and operational performance in construction companies amid the economic dynamics of the post-pandemic period.

LITERATURE REVIEW

1. Agency Theory

Agency Theory, according to Bendickson et al. (2016:76), is a theory closely related to formal agreements among parties within an organization, explaining monitoring mechanisms for various types of operational costs in order to maintain alignment among those parties. An agency relationship is a contract in which one or more individuals (principals) appoint another party (agent) to perform services on their behalf and delegate decision-making authority to the

agent to act in the best interests of the principal (Hendrastuti & Harahap, 2023:23).

2. Signaling Theory

Signaling Theory was first introduced by Spence in his study entitled *Job Market Signaling*. Spence (1973:21), as cited in Ni'mah & Kusumaningtias (2025), argues that a signal provides information in which the sender (information owner) attempts to convey relevant information that can be utilized by the receiver. The receiving party then adjusts its behavior according to its understanding and interpretation of the signal.

3. Pecking Order Theory

Myers and Majluf (1984), the primary proponents of this theory, argue that financing decisions are essentially a consequence of information asymmetry between management and investors. Managers, who naturally possess more comprehensive information regarding the actual condition of the company, tend to avoid issuing new shares, particularly when they perceive that the market undervalues the company's stock.

4. Liquidity

According to Brigham and Houston (2018:67), liquidity is a ratio that shows the relationship between cash and other current assets with current liabilities, fundamentally measuring a company's ability to meet its short-term financial obligations when they become due. Kasmir (2019:76) further emphasizes that liquidity serves as a vital indicator for assessing the extent to which a company can settle its short-term financial obligations on time, thereby maintaining operational continuity and avoiding the risk of default. Liquidity is commonly measured using the following ratios (Brigham & Houston, 2018:69):

1. Current Ratio = Current Assets / Current Liabilities $\times$ 100%
2. Quick Ratio = (Current Assets – Inventory) / Current Liabilities $\times$ 100%
3. Cash Ratio = Cash and Cash Equivalents / Current Liabilities $\times$ 100%

5. Profitability

According to Hery (2017:68), profitability ratios measure management's overall effectiveness as reflected by the level of profit generated in relation to sales and investment. Brigham and Houston (2019:139) state that companies with high profitability generally use relatively less debt because retained earnings can be utilized as an internal source of financing. According to Kasmir (2019:199), profitability can be measured using the following ratios:

1. Net Profit Margin (NPM) = Net Income / Net Sales $\times$ 100%
2. Return on Equity (ROE) = Net Income / Total Equity $\times$ 100%
3. Return on Assets (ROA) = Net Income / Total Assets $\times$ 100%

6. Capital Structure

Capital structure refers to the proportion or comparison between debt and equity used by a company to finance its assets (Kasmir, 2019:199). Debt includes both short-term and long-term liabilities, while equity consists of retained

earnings and shareholders' capital contributions. Companies are obligated to make periodic payments of interest and principal on long-term debt. Creditors' claims take precedence over those of shareholders. The most commonly used indicators for measuring capital structure are (Kasmir, 2019:199):

1. Debt-to-Equity Ratio (DER) = $\text{Total Debt} / \text{Total Equity} \times 100\%$
2. Debt-to-Assets Ratio (DAR) = $\text{Total Debt} / \text{Total Assets} \times 100\%$

7. Working Capital Management

Working capital management occupies a fundamental position in corporate financial management because it directly affects the continuity and smooth functioning of daily business operations. According to Brigham and Houston (2019:234), working capital management refers to a series of administrative and control processes related to current assets and current liabilities owned by a company. According to Gitman and Zutter (2015), working capital management efficiency can be measured using several key indicators, with Inventory Turnover and Working Capital Turnover being among the most fundamental and frequently utilized in empirical research.

1. Working Capital Turnover = $\text{Net Sales} / \text{Working Capital}$
2. Inventory Turnover = $\text{Cost of Goods Sold} / \text{Average Inventory}$

8. Operational Efficiency

According to Kasmir (2019:135), operational efficiency measures the extent to which a company can minimize operational expenses to prevent deficits or erosion of gross profits. Efficiency ratios are generally proxied by the comparison between Operating Expenses and Operating Revenue (BOPO) as well as asset turnover ratios. Similarly, Fahmi (2017:87) states that an efficient business entity is one that can eliminate inefficiencies and budget waste throughout its production processes, thereby preventing operating expenses from reducing core profitability.

The indicators commonly used to measure operational efficiency include:

1. Operational Efficiency Ratio = $\text{Operating Expenses} / \text{Operating Revenue}$
2. Operating Expense Ratio (OER) = $\text{Operating Expenses} / \text{Net Sales}$
3. Total Asset Turnover (TATO) = $\text{Net Sales} / \text{Total Assets}$
4. Cost Efficiency Ratio = $\text{Output Generated} / \text{Operating Costs}$

9. Operational Performance

According to Heizer and Render (2015:76), operational performance is defined as the capability of an organization to transform inputs such as capital, materials, and labor into outputs in the form of finished products or completed projects through value-added operational processes. This achievement is measured not only by output quantity but also by productivity, quality standards, and timeliness of completion. From a financial and managerial evaluation perspective, Fahmi (2017:342) explains that performance is essentially a comprehensive analysis used to assess the extent to which an entity has implemented operational rules and strategies effectively and systematically. The indicators used to measure operational performance include:

1. Operating Profit Margin (OPM) = $\text{Operating Profit} / \text{Net Sales} \times 100\%$

2. Operating Income Growth (OIG) = $(\text{Current Period Operating Income} - \text{Previous Period Operating Income}) / \text{Previous Period Operating Income} \times 100\%$
3. Operating Expense Ratio (OER) = $\text{Operating Expenses} / \text{Net Sales} \times 100\%$

METHODOLOGY

This study employs a quantitative approach with a descriptive-causality research design. In line with its objectives, the study is designed to analyze and empirically examine the effects of Liquidity, Profitability, Capital Structure, and Working Capital Management on Operational Performance, both directly and indirectly through Operational Efficiency as a mediating (intervening) variable. The object of observation is focused on construction sector companies listed on the Indonesia Stock Exchange (IDX) during the period 2021–2025.

The population of this study consists of all construction sector companies actively listed on the IDX during the 2021–2025 period, totaling 22 companies. The sample was determined using a purposive sampling technique based on the following criteria:

1. Construction sector companies consistently listed on the IDX throughout the observation period.
2. Companies that published complete audited annual reports consecutively during the study period.
3. Companies that provided complete financial data related to the variables examined in this study.
4. Companies that were not delisted or suspended during the observation period.

Based on these criteria, a final sample of 20 companies was obtained, resulting in a total of 100 observations (20 companies $\times$ 5 years).

The study utilizes secondary quantitative data obtained from audited annual financial reports downloaded from the official Indonesia Stock Exchange website (www.idx.co.id) and Yahoo Finance. Data were collected using a documentation technique by extracting relevant financial accounts, including total assets, liabilities, equity, revenue, and operating expenses. Data analysis was conducted using the Structural Equation Modeling–Partial Least Squares (SEM-PLS) approach with the assistance of SmartPLS version 4.0 software.

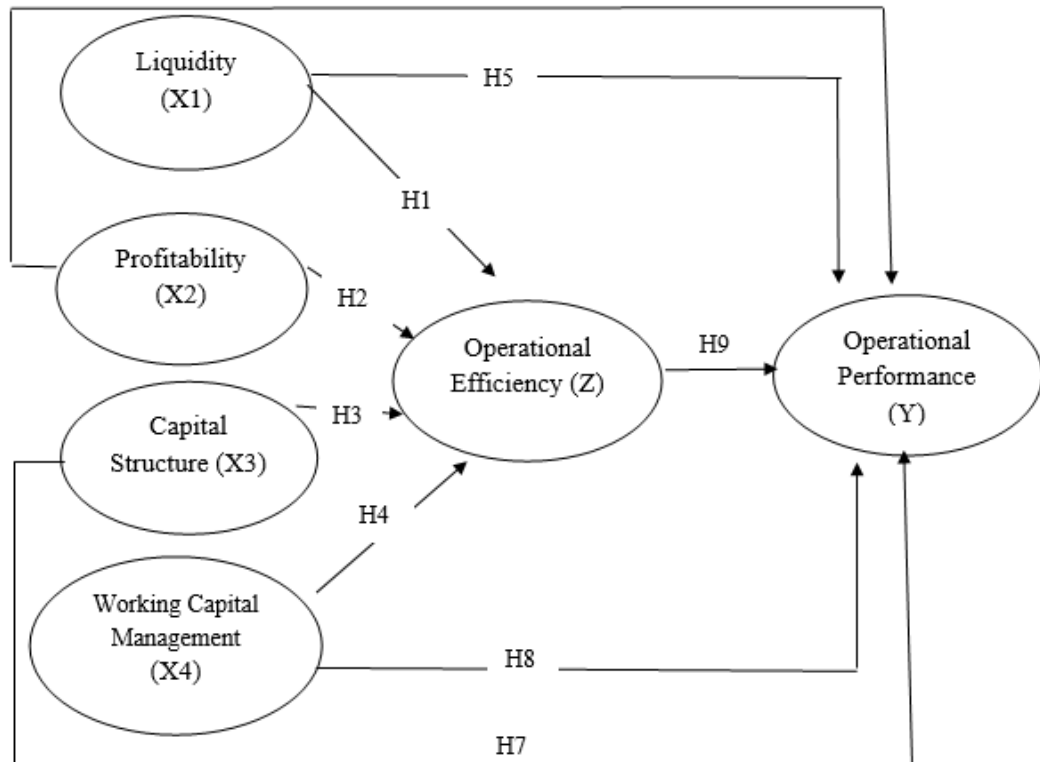


Figure 2. Conceptual Framework

RESEARCH RESULT AND DISCUSSION

Validity Test

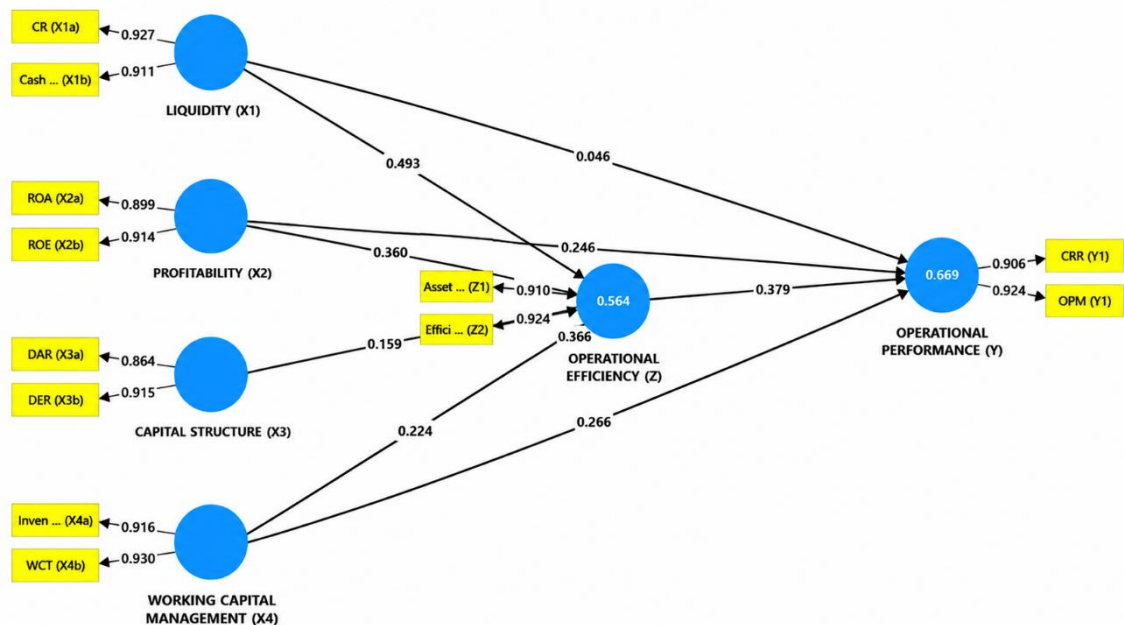


Figure 3. Outer Loading Results (Convergent Validity)

Table 1. Convergent Validity Test Results

Indicator s	Operatio nal Efficienc y (Z)	Liquidi ty (X1)	Capital Structu re (X3)	Working Capital Managem ent (X4)	Operation al Performa nce (Y)	Profitabil ity (X2)
Asset Turnover (Z1)	0.936					
Operatio nal Efficienc y (Z2)	0.924					
CR (X1a)		0.927				
Cash Ratio (X1b)		0.911				
DAR (X3b)			0.864			
DER (X3a)			0.915			
Inventor y Turnover (X4b)				0.916		
WCT (X4a)				0.930		
OER (Y2)					0.906	
OPM (Y1)					0.924	
ROA (X2b)						0.899
ROE (X2a)						0.914

Source: SmartPLS 4.0 Output Processing Results

Based on the results presented in the table above, all indicators used to measure the research variables are considered valid and meet the requirements of convergent validity. This conclusion is supported by the Outer Loading values of each indicator, which are all greater than the recommended threshold of 0.70. In this study, the Outer Loading values range from 0.864 to 0.936, demonstrating that all indicators possess a high level of reliability and adequately represent their respective latent variables.

Discriminant Validity

Table 2. Fornell-Larcker Criterion Results

Variables	Operatio nal Efficienc y (Z)	Operation al Performa nce (Y)	Liquidi ty (X1)	Working Capital Managem ent (X4)	Profitabil ity (X2)	Capital Structu re (X3)
Operation al Efficiency (Z)	0.930					
Operation al Performa nce (Y)	0.673	0.915				
Liquidity (X1)	0.581	0.324	0.919			
Working Capital Managem ent (X4)	0.327	0.416	0.129	0.923		
Profitabili ty (X2)	0.497	0.512	0.191	0.117	0.906	
Capital Structure (X3)	0.159	0.442	-0.065	-0.022	0.103	0.890

Source: SmartPLS 4.0 Output Processing Results

Based on Table 2., it can be concluded that the square root of the Average Variance Extracted (AVE) for each construct is greater than the correlations between that construct and other constructs in the model. Therefore, the constructs included in the estimated model satisfy the discriminant validity criteria. The Cross Loading results are presented below.

Table 3. Cross Loading Results

Indicator s	Operatio nal Efficienc y (Z)	Liquidi ty (X1)	Capital Structu re (X3)	Working Capital Managem ent (X4)	Operation al Performa nce (Y)	Profitabil ity (X2)
Asset Turnover (Z1)	0.936	0.511	0.139	0.332	0.673	0.508
CR (X1a)	0.545	0.927	-0.061	0.147	0.335	0.225
Cash Ratio (X1b)	0.522	0.911	-0.058	0.088	0.256	0.120
DAR (X3b)	0.094	-0.087	0.864	-0.099	0.358	0.077
DER (X3a)	0.180	-0.035	0.915	0.044	0.424	0.104
Operatio nal Efficienc y (Z2)	0.924	0.572	0.158	0.274	0.575	0.413
Inventor y Turnover (X4b)	0.269	0.076	-0.040	0.916	0.382	0.090
OER (Y2)	0.602	0.299	0.336	0.360	0.906	0.482
OPM (Y1)	0.630	0.294	0.468	0.400	0.924	0.458
ROA (X2b)	0.462	0.191	0.035	0.137	0.419	0.899
ROE (X2a)	0.440	0.156	0.148	0.078	0.507	0.914
WCT (X4a)	0.332	0.159	-0.002	0.930	0.387	0.125

Source: SmartPLS 4.0 Output Processing Results

Table 4. HTMT Results

Variable Relationship	HTMT Value
Operational Performance (Y) ↔ Operational Efficiency (Z)	0.812
Liquidity (X1) ↔ Operational Efficiency (Z)	0.701
Liquidity (X1) ↔ Operational Performance (Y)	0.396
Working Capital Management (X4) ↔ Operational Efficiency (Z)	0.388

Working Capital Management (X4) ↔ Operational Performance (Y)	0.508
Working Capital Management (X4) ↔ Liquidity (X1)	0.153
Profitability (X2) ↔ Operational Efficiency (Z)	0.609
Profitability (X2) ↔ Operational Performance (Y)	0.643
Profitability (X2) ↔ Liquidity (X1)	0.236
Profitability (X2) ↔ Working Capital Management (X4)	0.146
Capital Structure (X3) ↔ Operational Efficiency (Z)	0.196
Capital Structure (X3) ↔ Operational Performance (Y)	0.563
Capital Structure (X3) ↔ Liquidity (X1)	0.088
Capital Structure (X3) ↔ Working Capital Management (X4)	0.103
Capital Structure (X3) ↔ Profitability (X2)	0.153

Source: SmartPLS 4.0 Output Processing Results

Meanwhile, the acceptable threshold for discriminant validity can also be assessed using the Heterotrait-Monotrait Ratio (HTMT) criterion, where values should be below 0.90, as recommended by Hair et al. (2017). The results indicate that all HTMT values are below 0.90, confirming that the model meets the discriminant validity requirements.

Average Variance Extracted (AVE)

Table 5. Average Variance Extracted (AVE) Test Results

Construct	Average Variance Extracted (AVE)
Operational Efficiency (Z)	0.865
Operational Performance (Y)	0.838
Liquidity (X1)	0.845
Working Capital Management (X4)	0.852
Profitability (X2)	0.822
Capital Structure (X3)	0.792

Source: SmartPLS 4.0 Output Processing Results

Based on Table 5. above, it can be observed that all AVE values exceed the minimum threshold of 0.50. This indicates that each construct is able to explain more than 50% of the variance of its indicators. Therefore, all constructs have met the convergent validity requirements and demonstrate adequate explanatory power. These results confirm that the indicators used in this study are capable of representing their respective latent constructs and are suitable for further analysis.

Composite Reliability and Cronbach's Alpha

Table 6. Composite Reliability and Cronbach's Alpha Test Results

Construct	Cronbach's Alpha	Composite Reliability (rho_a)	Composite Reliability (rho_c)
Operational Efficiency (Z)	0.844	0.848	0.928

Operational Performance (Y)	0.807	0.813	0.912
Liquidity (X1)	0.817	0.822	0.916
Working Capital Management (X4)	0.827	0.832	0.920
Profitability (X2)	0.783	0.786	0.902
Capital Structure (X3)	0.740	0.765	0.884

Source: SmartPLS 4.0 Output Processing Results

Based on Table 6. above, the results of the Composite Reliability and Cronbach's Alpha tests indicate satisfactory reliability levels. All latent variables have Composite Reliability and Cronbach's Alpha values greater than the recommended threshold of 0.70. According to Hair et al. (2019), values above 0.70 indicate good internal consistency and reliability of the measurement model. Therefore, it can be concluded that all constructs in this study are reliable, and the measurement instrument used is consistent and dependable for assessing the latent variables.

Coefficient of Determination (R-Square)

Table 7. R-Square (R^2) Test Results

Construct	R-Square	R-Square Adjusted
Operational Efficiency (Z)	0.564	0.546
Operational Performance (Y)	0.669	0.651

Source: SmartPLS 4.0 Output Processing Results

1. The Operational Efficiency (Z) variable has an R-Square value of 0.564 (Adjusted R-Square = 0.546), indicating that 56.4% of the variance in Operational Efficiency can be explained jointly by Liquidity (X1), Profitability (X2), Capital Structure (X3), and Working Capital Management (X4). The remaining 43.6% is explained by other variables not included in this research model.
2. The Operational Performance (Y) variable has an R-Square value of 0.669 (Adjusted R-Square = 0.651), indicating that 66.9% of the variance in Operational Performance can be explained jointly by Liquidity (X1), Profitability (X2), Capital Structure (X3), Working Capital Management (X4), and Operational Efficiency (Z). The remaining 33.1% is influenced by other factors outside the scope of this study.

Q-Square (Goodness of Fit Model)

Table 8. Q-Square Test Results

Construct	SSO	SSE	$Q^2 (=1-SSE/SSO)$
Operational Efficiency (Z)	200.000	107.609	0.462
Operational Performance (Y)	200.000	93.467	0.533

Source: SmartPLS 4.0 Output Processing Results

1. The Operational Efficiency (Z) variable has a Q-Square (Q^2) value of 0.462, which is greater than zero. This indicates that the structural model for Operational Efficiency possesses good predictive relevance and predictive capability.
2. The Operational Performance (Y) variable has a Q-Square (Q^2) value of 0.533, which is also greater than zero. This demonstrates that the structural model for Operational Performance has strong predictive relevance and can effectively predict the endogenous construct.

Hypothesis Testing Results (Path Coefficient Estimation)

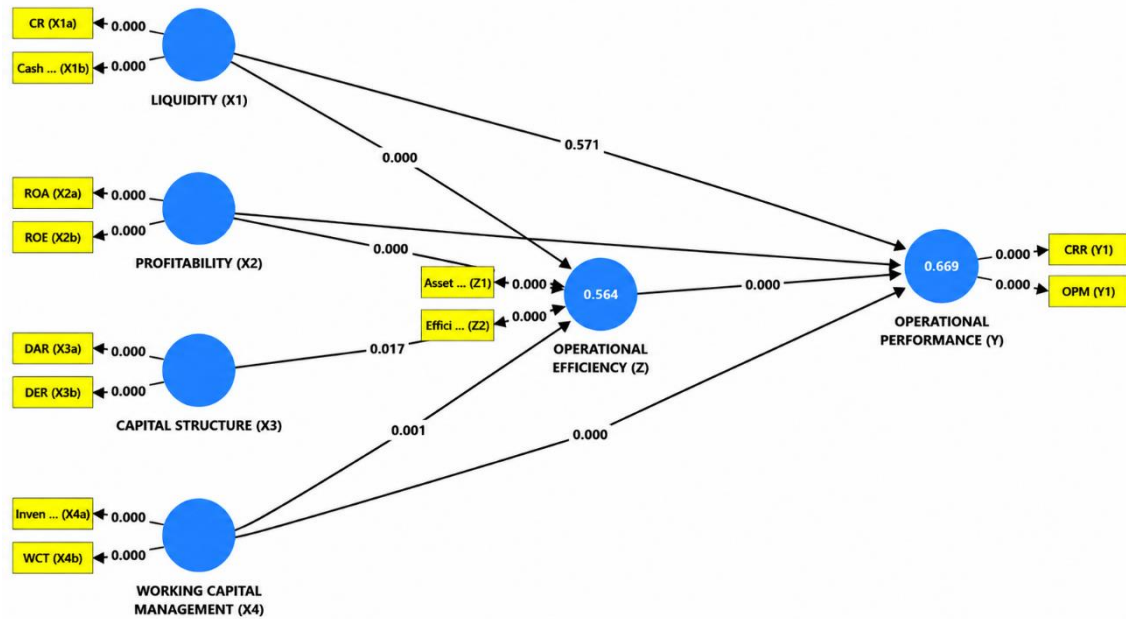


Figure 4. Hypothesis Testing (Path Coefficient Estimation)

Source: SmartPLS 4.0 Output Processing Results

Table 9. Hypothesis Testing Results

Hypothesis	Relationship Between Variables	Path Coefficient (O)	T-Statistic	P-Value	Conclusion
H1	Liquidity → Operational Efficiency	0.493	6.630	0.000	Significant
H2	Profitability → Operational Efficiency	0.360	4.958	0.000	Significant
H3	Capital Structure → Operational Efficiency	0.159	2.389	0.017	Significant
H4	Working Capital Management → Operational Efficiency	0.224	3.416	0.001	Significant

H5	Liquidity Operational Performance	→	0.046	0.566	0.571	Not Significant
H6	Profitability Operational Performance	→	0.246	3.926	0.000	Significant
H7	Capital Structure → Operational Performance		0.366	5.617	0.000	Significant
H8	Working Capital Management → Operational Performance		0.266	3.742	0.000	Significant
H9	Operational Efficiency → Operational Performance		0.379	4.671	0.000	Significant
H10	Liquidity Operational Efficiency → Operational Performance		0.187	4.014	0.000	Significant
H11	Profitability Operational Efficiency → Operational Performance		0.137	3.310	0.001	Significant
H12	Capital Structure → Operational Efficiency → Operational Performance		0.060	1.955	0.051	Not Significant
H13	Working Capital Management → Operational Efficiency → Operational Performance		0.085	2.556	0.011	Significant

Source: SmartPLS 4.0 Output Processing Results

1. Effect of Liquidity on Operational Efficiency

The results show that liquidity has a positive and significant effect on the operational efficiency of construction companies listed on the Indonesia Stock Exchange. This finding indicates that the higher a company's ability to meet its short-term obligations, the more efficient its operational activities become. This is consistent with Signaling Theory by Spence (1973), which explains that high

liquidity provides a signal of strong financial condition, thereby supporting smoother operations and optimal resource utilization.

Adequate liquidity enables companies to fulfill operational needs such as material procurement, labor payments, and project completion without funding constraints. This finding is supported by Rahmawati and Hidayat (2021), Nugroho and Prasetyo (2021), Sari and Putri (2021), Kurniawan and Lestari (2022), and Dewi and Mahardika (2023), who found that good liquidity contributes to higher operational efficiency. However, companies must maintain liquidity at an optimal level to avoid idle current assets.

2. Effect of Profitability on Operational Efficiency

The results indicate that profitability has a positive and significant effect on operational efficiency in construction companies. The higher the company's ability to generate profits, the more efficiently it manages its operational activities. This finding aligns with the Pecking Order Theory by Myers and Majluf (1984), which states that firms prioritize internal financing; thus, higher profits can support operations and investments that improve efficiency.

High profitability provides financial flexibility for companies to improve equipment quality, technology, and project management, leading to more optimal resource utilization. This result is supported by Muhlisi, Toni, and Ningrum (2021), Fitriani and Lestari (2022), Swartana (2021), Sahabuddin et al. (2021), and Pratiwi et al. (2024), who found that profitability enhances operational efficiency through more productive resource utilization.

3. Effect of Capital Structure on Operational Efficiency

The results show that capital structure has a positive and significant effect on operational efficiency. An optimal capital structure allows companies to obtain sufficient funding to support more effective operations. This finding is consistent with Agency Theory by Jensen and Meckling (1976), which suggests that debt usage can increase managerial discipline in managing company resources efficiently.

In the capital-intensive construction industry, an appropriate capital structure helps finance projects, heavy equipment procurement, and working capital needs. This finding is supported by Fernissa and Gustyana (2021), Garnadi et al. (2022), Rahmahwati et al. (2022), Bambu et al. (2022), and Ulum et al. (2025), who found that proper capital structure improves operational efficiency. However, firms must still balance debt and equity to control financial risk.

4. Effect of Working Capital Management on Operational Efficiency

The results indicate that working capital management has a positive and significant effect on operational efficiency. Effective working capital management allows firms to maintain a balance between current assets and current liabilities, enabling smoother operations. This finding is consistent with Agency Theory (Jensen & Meckling, 1976), which emphasizes efficient resource management by management.

Well-managed working capital improves cash, receivables, and inventory turnover, reduces operational costs, and increases productivity. This result is

supported by Sahabuddin et al. (2021), Basyith et al. (2021), Yousaf et al. (2021), Mardones (2021), and Chooi (2021).

5. Effect of Liquidity on Operational Performance

The results show that liquidity has no significant effect on operational performance. This indicates that a company's ability to meet short-term obligations does not necessarily improve operational performance. According to Signaling Theory (Spence, 1973), liquidity only reflects short-term payment ability and does not directly measure operational effectiveness.

In construction firms, high liquidity may represent idle funds that are not productively utilized, thus not directly improving performance. This finding is supported by several prior studies indicating that operational performance is more influenced by asset efficiency, cost control, and project management than liquidity.

6. Effect of Profitability on Operational Performance

The results show that profitability has a positive and significant effect on operational performance. Higher profits lead to better operational outcomes. This supports Pecking Order Theory (Myers & Majluf, 1984), which explains that profits provide internal funding for operational activities.

High profitability enables investment in productive assets, technology, and human resource improvements, thereby increasing productivity and effectiveness. This is supported by Muhlis et al. (2021), Swartana (2021), Basyith et al. (2021), Meah et al. (2021), and Yousaf et al. (2021).

7. Effect of Capital Structure on Operational Performance

The results indicate that capital structure has a positive and significant effect on operational performance. An optimal capital structure provides sufficient funding for operations and project execution. This aligns with Agency Theory (Jensen & Meckling, 1976), which states that debt can improve managerial discipline and productivity.

Proper financing combinations enhance operational capacity and business expansion. This finding is supported by Fernissa and Gustyana (2021), Muhlis et al. (2021), Basyith et al. (2021), Meah et al. (2021), and Yousaf et al. (2021).

8. Effect of Working Capital Management on Operational Performance

The results show that working capital management has a positive and significant effect on operational performance. Efficient management supports smooth operations and improves productivity. This is consistent with Agency Theory (Jensen & Meckling, 1976).

Efficient management of cash, receivables, and inventory accelerates asset turnover and reduces operational costs. This is supported by Afrifa and Tingbani (2021), Singhania and Mehta (2021), Fauzi (2021), Ningrum (2021), and Haider (2021).

9. Effect of Operational Efficiency on Operational Performance

The results show that operational efficiency has a positive and significant effect on operational performance. Higher efficiency in managing resources, costs, and operations leads to better performance. This aligns with Agency Theory (Jensen & Meckling, 1976), which emphasizes optimal resource utilization.

In construction firms, operational efficiency reduces waste, improves productivity, and accelerates project completion. This finding is supported by Toni (2021), Fauzi (2021), Sahabuddin (2021), Haider (2023), and Fernissa and Gustyana (2021).

10. Liquidity on Operational Performance through Operational Efficiency

The results show that liquidity positively and significantly affects operational performance through operational efficiency, indicating a mediating effect. According to Signaling Theory (Spence, 1973), good liquidity signals financial strength that supports continuous operations. Adequate liquidity ensures timely project execution, improving efficiency and ultimately performance. This is supported by several prior studies.

11. Profitability on Operational Performance through Operational Efficiency

The results show that profitability significantly affects operational performance through operational efficiency. This indicates that operational efficiency mediates the relationship. According to Pecking Order Theory, higher profits provide internal funding for operational improvement. High profitability improves asset quality, technology, and systems, leading to higher efficiency and performance.

12. Capital Structure on Operational Performance through Operational Efficiency

The results show that capital structure does not significantly affect operational performance through operational efficiency. This indicates no mediating effect.

In the construction industry, the impact of capital structure is more direct rather than through efficiency. Therefore, efficiency does not act as a mediating mechanism in this relationship.

13. Working Capital Management on Operational Performance through Operational Efficiency

The results show that working capital management has a positive and significant effect on operational performance through operational efficiency. This confirms a mediating effect. Efficient management of cash, receivables, and inventory improves asset utilization, operational flow, and reduces unnecessary costs, ultimately improving performance.

CONCLUSION

The results show that liquidity, profitability, capital structure, and working capital management have a positive and significant effect on operational

efficiency. In addition, profitability, capital structure, working capital management, and operational efficiency also have a positive and significant effect on operational performance. However, liquidity does not have a significant direct effect on operational performance, indicating that short-term financial capability alone is not sufficient to improve performance without efficient resource management.

This study also confirms that operational efficiency plays an important mediating role in the relationship between liquidity, profitability, and working capital management and operational performance. This indicates that operational performance in construction companies is influenced not only by financial conditions but also by how efficiently resources are managed. However, operational efficiency does not mediate the effect of capital structure on operational performance, meaning that this relationship is more direct. Overall, operational efficiency is a strategic factor that construction companies must prioritize to improve performance and achieve sustainability in an increasingly competitive industry.

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