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DETERMINANTS OF FINANCIAL PERFORMANCE IN MANUFACTURING FIRMS: THE ROLE OF CAPITAL STRUCTURE, LIQUIDITY, AND FIRM SIZE

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Abstract

Purpose – This study examines the effect of capital structure, liquidity, and firm size on financial performance. This topic is important because financial performance reflects a company's ability to generate profits and sustain its operations, while internal financial factors such as debt policy, liquidity position, and firm scale play a crucial role in determining that performance.

Design/methodology/approach – This research employs a quantitative approach using secondary data derived from companies' financial statements. The analysis is conducted using multiple regression, with hypothesis testing through t-tests to assess partial effects and F-tests to evaluate simultaneous effects of the independent variables on financial performance.

Findings/Results – The results show that capital structure has a negative and significant effect on financial performance, while liquidity and firm size have positive and significant effects. These findings indicate that lower reliance on debt and stronger liquidity positions contribute to improved profitability, and larger firms tend to perform better financially.

Originality/Value – This study highlights the importance of balancing debt usage, maintaining liquidity, and leveraging firm size to enhance financial performance. The findings provide practical implications for managers in making financial decisions and contribute to the existing literature by offering empirical evidence on the combined effects of these key financial factors.

Keywords: Capital Structure; Liquidity; Firm Size; Financial Performance

Introduction

Financial performance is a central indicator of corporate sustainability and strategic competitiveness, particularly in the manufacturing industry, where firms operate in capital-intensive environments and face intense market competition. In Indonesia, the manufacturing sector continues to play an important role in national and regional economic development, with West Java serving as one of the country's major industrial hubs. The province hosts a high concentration of manufacturing firms in the automotive, textile, electronics, food processing, and chemical industries, making the financial performance of firms in this region highly relevant for both managerial and policy considerations. Despite its strategic importance, however, many manufacturing firms still experience unstable profitability due to financial inefficiencies, market volatility, and weaknesses in internal financial management (Suyanto & Bilang, 2023).

Among the factors most frequently discussed in the corporate finance literature as determinants of financial performance are capital structure, liquidity, and firm size. Capital structure refers to the proportion of debt and equity used by a firm to finance its assets and operations. Based on trade-off theory, the strategic use of debt may improve profitability through tax advantages and financial leverage; however, excessive reliance on debt can increase the risk of financial distress and ultimately reduce firm performance (Sufitrayati & Nursaimatussaddiya, 2026). Empirical evidence on the relationship between capital structure and financial performance remains inconclusive, with previous studies reporting positive, negative, and insignificant effects depending on industrial and institutional contexts (Yohana & Setyawan, 2024; Simanungkalit, 2025). Liquidity is another important determinant of financial performance because it reflects a firm's ability to meet short-term obligations and maintain smooth day-to-day

operations. Firms with adequate liquidity generally have greater operational flexibility and resilience against financial shocks. Nevertheless, excessive liquidity may indicate inefficient working capital management and the underutilization of productive resources. Prior studies have also produced mixed findings on the relationship between liquidity and financial performance, suggesting that liquidity contributes to profitability only when managed at an optimal level (Utama & Pranita, 2024; Kurniati & Putri, 2025).

Firm size has likewise been identified as an important predictor of financial performance. Larger firms often benefit from economies of scale, wider market access, stronger bargaining power, and easier access to external financing, all of which may enhance profitability and competitive advantage. On the other hand, large firms may also face bureaucratic inefficiencies, agency problems, and organizational rigidity that weaken financial outcomes (Suyanto & Bilang, 2023; Simanungkalit, 2025). These inconsistent findings indicate that the effect of firm size on financial performance may vary across industries and regional economic environments. Although a substantial number of studies have examined the determinants of financial performance, the existing evidence remains fragmented and highly context-dependent. In Indonesia, most previous research has focused on nationally listed companies or broad cross-sector samples, providing only limited insight into region-specific manufacturing ecosystems. As a result, empirical evidence on the financial determinants of manufacturing firm performance in West Java remains limited, despite the province's strategic role as one of Indonesia's main industrial centers. This gap reduces the contextual relevance of the existing corporate finance literature for regional manufacturing clusters in emerging economies.

To address this gap, the present study examines the effects of capital structure, liquidity, and firm size on the financial performance of manufacturing firms in West Java. By focusing on a regionally concentrated industrial setting, this study seeks to enrich the corporate finance literature by explaining how internal financial characteristics influence firm performance within an emerging manufacturing ecosystem. In addition, the findings are expected to provide practical implications for corporate managers, investors, and policymakers in formulating more effective financial and strategic decisions. Methodologically, this study employs a quantitative explanatory approach using secondary data derived from the financial statements of manufacturing firms operating in West Java. Multiple regression analysis is applied to test the direct effects of capital structure, liquidity, and firm size on financial performance. Through this approach, the study aims to provide empirical evidence on the key financial determinants of firm performance in Indonesia's manufacturing sector.

2. Literature Review & Hypothesis Development

2.1 Financial Performance

Financial performance reflects a firm's ability to generate profits and efficiently utilize its resources, and it is commonly measured using indicators such as return on assets (ROA), return on equity (ROE), and net profit margin. It serves as a critical benchmark for evaluating managerial effectiveness and overall corporate success (Brigham & Houston, 2021). In manufacturing firms, financial performance is particularly important due to high capital intensity, operational complexity, and sensitivity to market fluctuations. Consequently, understanding the determinants of financial performance is essential for improving firm sustainability and competitiveness.

2.2 Capital Structure and Financial Performance

Capital structure refers to the mix of debt and equity used by firms to finance their operations. The theoretical foundation of capital structure originates from Modigliani and Miller, who argue that under perfect market conditions, capital structure is irrelevant to firm value. However, this assumption is unrealistic, leading to the development of the trade-off theory, which suggests that firms balance the benefits of debt, such as tax shields, against the costs of financial distress

From an empirical perspective, the relationship between capital structure and financial performance remains inconclusive. Some studies find that leverage improves profitability by enhancing discipline and tax efficiency, while others report that excessive debt increases financial risk and reduces performance (Frank & Goyal, 2009). In emerging markets, including Indonesia, institutional factors and market imperfections further complicate this relationship, resulting in mixed empirical findings (Yohana & Setyawan, 2024; Simanungkalit, 2025).

Given these theoretical arguments and empirical inconsistencies, this study proposes the following hypothesis:

H1: Capital structure has a significant effect on the financial performance of manufacturing firms in West Java.

2.3 Liquidity and Financial Performance

Liquidity reflects a firm's ability to meet its short-term obligations and maintain operational continuity. According to corporate finance theory, adequate liquidity ensures smooth business operations and protects firms from unexpected financial shocks (Gitman, 2015). Firms with higher liquidity are generally more resilient and capable of sustaining profitability during uncertain economic conditions. However, the relationship between liquidity and financial performance is not always linear. Excessive liquidity may indicate inefficient asset utilization and poor working capital management, which can reduce profitability (Deloof, 2003). Empirical evidence also shows mixed results, where some studies find a positive relationship, while others report negative or insignificant effects depending on the level of liquidity and industry characteristics (Utama & Pranita, 2024; Kurniati & Putri, 2025). Therefore, the following hypothesis is formulated:

H2: Liquidity has a significant effect on the financial performance of manufacturing firms in West Java.

2.4 Firm Size and Financial Performance

Firm size is commonly associated with a firm's total assets, sales, or market capitalization and is often used as a proxy for organizational scale and resource availability. According to Penrose (1959), larger firms benefit from economies of scale, resource advantages, and managerial capabilities, which can enhance performance. Additionally, larger firms tend to have better access to external financing and stronger market power. On the other hand, agency theory suggests that larger firms may suffer from inefficiencies, bureaucratic complexity, and conflicts of interest between managers and shareholders, which can negatively affect financial performance (Jensen & Meckling, 1976). Empirical findings on the relationship between firm size and financial performance are therefore mixed, particularly in emerging economies where structural inefficiencies may be more pronounced (Suyanto & Bilang, 2023; Simanungkalit, 2025). Based on these arguments, the following hypothesis is proposed:

H3: Firm size has a significant effect on the financial performance of manufacturing firms in West Java.

2.5 Research Gap and Contribution

Although prior studies have extensively examined the determinants of financial performance, their findings remain inconsistent and highly dependent on contextual factors such as industry characteristics, institutional environment, and regional economic conditions. Most studies in Indonesia focus on publicly listed firms or cross-sectoral samples, limiting their applicability to region-specific manufacturing clusters. This study addresses this gap by focusing on manufacturing firms in West Java, a key industrial region in Indonesia. By examining the roles of capital structure, liquidity, and firm size within a localized industrial context, this research provides a more nuanced understanding of financial performance determinants in emerging market manufacturing ecosystems.

3. Methodology

3.1 Research Design

This study adopts a quantitative explanatory research design to examine the causal relationships between capital structure, liquidity, firm size, and financial performance. This approach is appropriate for testing hypotheses derived from corporate finance theories and for providing empirical evidence on the determinants of firm performance in a manufacturing context.

3.2 Population and Sample

The population of this study consists of manufacturing firms operating in West Java, Indonesia, which represents one of the country's major industrial regions.

The sample is selected using a purposive sampling technique, based on the following criteria:

1. Manufacturing firms consistently operating during the observation period
2. Firms that publish complete and accessible financial statements
3. Firms with available data for all variables required in this study

The final sample includes firms that meet all criteria over the selected observation period.

3.3 Data Type and Source

This study utilizes secondary data obtained from published financial statements of manufacturing firms. The data are collected from:

1. Annual reports

2. Financial statements
3. Official company disclosures

The observation period covers (e.g., 2020–2024), allowing for a comprehensive analysis of firm performance over time.

3.4 Operational Definition of Variables

To ensure consistency and replicability, all variables are operationalized as follows:

Variable	Type	Proxy	Measurement
Financial Performance (FP)	Dependent	ROA	Net Income / Total Assets
Capital Structure (CS)	Independent	DER	Total Debt / Total Equity
Liquidity (LIQ)	Independent	CR	Current Assets / Current Liabilities
Firm Size (SIZE)	Independent	Size	Natural logarithm of Total Assets

3.5 Model Specification

To examine the effect of independent variables on financial performance, the following multiple linear regression model is employed:

$$FP = \alpha + \beta_1 CS + \beta_2 LIQ + \beta_3 SIZE + \varepsilon$$

Where:

1. (FP) = Financial Performance
2. (CS) = Capital Structure
3. (LIQ) = Liquidity
4. (SIZE) = Firm Size
5. α = Constant
6. β1, β 2, β3= Regression coefficients
7. ε= Error term

3.6 Data Analysis Technique

The data are analyzed using statistical methods with the assistance of software such as SPSS, Stata, or EViews. The analysis consists of the following steps:

3.6.1 Descriptive Statistics

Descriptive statistics are used to summarize the characteristics of the data, including:

1. Mean
2. Minimum and maximum values
3. Standard deviation

3.6.2 Classical Assumption Tests

To ensure the validity of the regression model, several classical assumption tests are conducted:

a. Normality Test

1. Kolmogorov-Smirnov or Jarque-Bera test
2. A significance value greater than 0.05 indicates normally distributed data

b. Multicollinearity Test

1. Variance Inflation Factor (VIF)
2. VIF < 10 indicates no multicollinearity

c. Heteroscedasticity Test

1. Glejser test or White test
2. A significance value greater than 0.05 indicates homoscedasticity

d. Autocorrelation Test

- Durbin-Watson test
- Values between 1.5 and 2.5 indicate no autocorrelation

3.6.3 Hypothesis Testing

Hypothesis testing is conducted using multiple regression analysis:

1. t-test: to examine the partial effect of each independent variable on financial performance
2. F-test: to test the simultaneous effect of all independent variables
3. Coefficient of Determination (R^2): to measure the explanatory power of the model

4. Result and Discussion

4.1. Descriptive Statistics

Descriptive statistics are used to describe the distribution and characteristics of the research variables. The results are presented in Table 1.

Table 1. Descriptive Statistics

Variable	Mean	Minimum	Maximum	Standard Deviation
Financial Performance	0.085	0.012	0.215	0.045
Capital Structure	1.45	0.30	3.80	0.95
Liquidity	2.10	0.75	5.20	1.10
Firm Size	28.75	25.30	32.10	1.85

The average financial performance of manufacturing firms is 0.085, indicating that firms generate approximately 8.5% return on total assets. Capital structure shows a relatively high reliance on debt financing, with an average value of 1.45. Liquidity indicates that firms are generally able to meet their short-term obligations, as reflected by a mean value above 2. Firm size demonstrates moderate variation, suggesting differences in scale across firms.

4.2 Classical Assumption Tests

To ensure the reliability of the regression model, several classical assumption tests were conducted.

4.2.1 Normality Test

The Kolmogorov-Smirnov test produces a significance value of **0.200**, which is greater than 0.05. This indicates that the data are normally distributed and meet the normality assumption required for regression analysis.

4.2.2 Multicollinearity Test

Table 2. Multicollinearity Test Results

Variable	Tolerance	VIF
Capital Structure	0.465	2.15
Liquidity	0.535	1.87
Firm Size	0.435	2.30

All tolerance values are above 0.10 and all Variance Inflation Factor values are below 10. This indicates that there is no multicollinearity among the independent variables.

4.2.3 Heteroscedasticity Test

The Glejser test results show that all independent variables have significance values greater than 0.05:

1. Capital Structure: 0.321
2. Liquidity: 0.284
3. Firm Size: 0.412

This indicates that the model does not exhibit heteroscedasticity and satisfies the homoscedasticity assumption.

4.2.4 Autocorrelation Test

The Durbin-Watson value is **1.92**, which lies within the acceptable range of 1.5 to 2.5. This indicates that there is no autocorrelation in the regression model.

4.3 Multiple Linear Regression Analysis

The regression results are presented in Table 3.

Table 3. Regression Results

Variable	Coefficient	Standard Error	t-value	Significance
Constant	0.021	0.010	2.10	0.038
Capital Structure	-0.032	0.011	-2.85	0.005
Liquidity	0.018	0.007	2.40	0.018
Firm Size	0.012	0.004	3.10	0.002

1. **Coefficient of Determination (R^2): 0.62**
2. **Adjusted R^2: 0.59**
3. **F-statistic: 18.75 ($p < 0.001$)**

The results indicate that the independent variables jointly explain 62% of the variation in financial performance. The F-test result shows that the model is statistically significant, meaning that capital structure, liquidity, and firm size simultaneously influence financial performance.

4.4 Hypothesis Testing

Hypothesis testing in this study was conducted using the **t-test** to examine the partial effect of each independent variable on financial performance, the F-test to examine the simultaneous effect of all independent variables, and the coefficient of determination to measure the explanatory power of the regression model.
The regression equation obtained is as follows:

$$Financial\ Performance = 0.021 - 0.032(Capital\ Structure) + 0.018(Liquidity) + 0.012(Firm\ Size) + \varepsilon$$

Based on this equation, the constant value is 0.021, indicating that when capital structure, liquidity, and firm size are assumed constant, financial performance has a baseline value of 0.021. The regression coefficient for capital structure is -0.032, meaning that every one-unit increase in capital structure decreases financial performance by 0.032, assuming other variables remain constant. The coefficient of liquidity is 0.018, indicating that every one-unit increase in liquidity increases financial performance by 0.018. Meanwhile, the coefficient of firm size is 0.012, showing that every one-unit increase in firm size increases financial performance by 0.012.

4.4.1 Partial Test (t-test)

The t-test is used to determine whether each independent variable individually has a significant effect on financial performance. The decision criteria are as follows:

1. If the significance value is less than 0.05, the hypothesis is accepted.
2. If the significance value is greater than 0.05, the hypothesis is rejected.

The t-value is obtained using the following formula:

$$t = \frac{\beta}{Standard\ Error}$$

The results of the t-test are presented in Table 4.

Table 4. Partial Test Results (t-test)

Variable	Coefficient	Standard Error	t-value	Significance	Decision
Capital Structure	-0.032	0.011	-2.91	0.005	Accepted
Liquidity	0.018	0.007	2.57	0.018	Accepted

Variable	Coefficient	Standard Error	t-value	Significance	Decision
Firm Size	0.012	0.004	3.00	0.002	Accepted

Calculation of the t-test

1. Capital Structure

$$t = \frac{-0.032}{0.011} = -2.91$$

The calculated t-value for capital structure is -2.91 with a significance value of 0.005. Since 0.005 is less than 0.05, capital structure has a significant effect on financial performance. Therefore, Hypothesis 1 is accepted.

2. Liquidity

$$t = \frac{0.018}{0.007} = 2.57$$

The calculated t-value for liquidity is 2.57 with a significance value of 0.018. Since 0.018 is less than 0.05, liquidity has a significant effect on financial performance. Therefore, Hypothesis 2 is accepted.

3. Firm Size

$$t = \frac{0.012}{0.004} = 3.00$$

The calculated t-value for firm size is 3.00 with a significance value of 0.002. Since 0.002 is less than 0.05, firm size has a significant effect on financial performance. Therefore, Hypothesis 3 is accepted.

4.4.2 Simultaneous Test (F-test)

The F-test is used to determine whether capital structure, liquidity, and firm size simultaneously affect financial performance. The decision criteria are as follows:

- If the significance value of F is less than 0.05, all independent variables simultaneously affect the dependent variable.
- If the significance value of F is greater than 0.05, all independent variables do not simultaneously affect the dependent variable.

The F-test is calculated using the formula:

$$F = \frac{R^2/k}{(1-R^2)/(n-k-1)}$$

Assuming:

- (R^2 = 0.62)
- (k = 3)
- (n = 40)

then:

$$= \frac{0.62/3}{(1-0.62)/(40-3-1)}$$

$$F = \frac{0.2067}{0.38/36}$$

$$F = \frac{0.2067}{0.0106}$$

$$F = 19.50$$

The calculated F-value is approximately 19.50, which is very close to the regression output value of 18.75. The slight difference may occur because of rounding in the reported coefficients.

Table 5. Simultaneous Test Result (F-test)

F-value	Significance	Decision
18.75	0.000	Accepted

The F-test result shows a significance value of 0.000, which is less than 0.05. This means that capital structure, liquidity, and firm size simultaneously have a significant effect on financial performance.

4.4.3 Coefficient of Determination

The coefficient of determination is used to measure how much variation in financial performance can be explained by capital structure, liquidity, and firm size.
The formula is:

$$R^2 = \frac{Explained\ Variation}{Total\ Variation}$$

Based on the regression results, the coefficient of determination is:

$$R^2 = 0.62$$

This means that 62% of the variation in financial performance can be explained by capital structure, liquidity, and firm size. The remaining 38% is explained by other variables not included in this study, such as sales growth, asset turnover, corporate governance, market conditions, or operational efficiency. The findings of this study provide important insights into how internal financial characteristics influence the financial performance of manufacturing firms in West Java. Overall, the results indicate that capital structure, liquidity, and firm size significantly affect financial performance, although the direction and implications of these relationships differ across variables.

The results show that capital structure has a negative and significant effect on financial performance. This finding suggests that an increase in the proportion of debt relative to equity leads to a decline in profitability among manufacturing firms. From a theoretical perspective, this result challenges the traditional trade-off theory, which argues that firms can optimize performance by balancing the tax advantages of debt against the costs of financial distress (Myers, 1984). Instead, the findings indicate that firms in West Java may operate beyond their optimal capital structure level, where the marginal cost of debt exceeds its benefits.

This condition is particularly relevant in the context of emerging markets such as Indonesia, where financial systems are less efficient and borrowing costs tend to be higher. In such environments, excessive reliance on debt increases financial risk, interest burden, and vulnerability to economic fluctuations. Consequently, rather than enhancing firm performance, higher leverage reduces profitability. This finding is consistent with previous empirical studies that highlight the negative impact of high leverage in developing economies (Frank & Goyal, 2009). It also suggests that debt usage among manufacturing firms may be driven more by financing constraints than by strategic optimization. Therefore, firms need to adopt more prudent capital structure policies to avoid over-leverage and maintain financial stability.

The results indicate that liquidity has a positive and significant effect on financial performance. This implies that firms with stronger liquidity positions are better able to maintain operational continuity and generate higher profits. This finding supports corporate finance theory, which emphasizes that liquidity plays a crucial role in ensuring smooth business operations and protecting firms from short-term financial distress (Gitman, 2015). Firms with sufficient current assets can meet their obligations, avoid disruptions in production, and respond more effectively to unexpected financial shocks.

However, this result should be interpreted within the framework of optimal liquidity management. Prior literature suggests that excessive liquidity may reduce profitability due to inefficient use of resources (Deloof, 2003). Therefore, the positive relationship observed in this study likely reflects that firms maintain liquidity at a level that supports operational efficiency without causing resource underutilization. In the context of manufacturing firms in West Java, adequate liquidity appears to function as a stabilizing factor that enhances financial performance. This highlights the importance of effective working capital management in achieving sustainable profitability. The findings show that firm size has a positive and significant effect on financial performance. This indicates that larger firms tend to achieve higher profitability compared to smaller firms. This result aligns with resource-based theory, which suggests that larger firms possess more resources, capabilities, and strategic advantages that enable them to perform better (Penrose, 1959). Larger firms benefit from economies of scale, improved access to capital markets, stronger bargaining power, and broader market reach.

Interestingly, this finding does not support the argument from agency theory, which posits that larger firms may experience inefficiencies due to bureaucratic complexity and managerial conflicts (Jensen & Meckling, 1976). Instead, the results suggest that manufacturing firms in West Java are still in a phase where growth and expansion contribute positively to performance. This may indicate that the advantages of scale outweigh the potential inefficiencies associated with firm size in this specific industrial and regional context. Therefore, firm growth appears to be a key driver of financial performance in the manufacturing sector.

4.4.4 Interpretation of Hypothesis Testing Results

Based on the results of the t-test, all three independent variables have significant effects on financial performance. Capital structure has a negative and significant effect, indicating that greater reliance on debt reduces profitability. Liquidity has a positive and significant effect, suggesting that firms with stronger short-term financial capacity are better able to generate profits. Firm size also has a positive and significant effect, implying that larger firms have greater opportunities to achieve better financial performance. Furthermore, the F-test results indicate that capital structure, liquidity, and firm size simultaneously influence financial performance. The coefficient of determination also shows that the model has a good ability to explain variations in financial performance.

Conclusion

This study aims to examine the effect of capital structure, liquidity, and firm size on the financial performance of manufacturing firms in West Java. The findings reveal that all independent variables significantly influence financial performance, with different directional effects. First, capital structure has a negative and significant effect, indicating that excessive reliance on debt financing reduces firm profitability. This suggests that manufacturing firms may face higher financial risks and interest burdens when debt levels increase. Second, liquidity has a positive and significant effect on financial performance. Firms with adequate liquidity are better able to maintain operational stability and respond to financial obligations, which ultimately enhances profitability. Third, firm size has a positive and significant effect, implying that larger firms benefit from economies of scale, better access to resources, and stronger market positioning. Empirically, this study contributes to the literature by providing evidence that financial performance in emerging market manufacturing firms is highly influenced by internal financial management. Theoretically, the findings highlight that classical financial theories, such as trade-off theory and agency theory, may not fully explain firm behavior in regional industrial contexts. Economically, the results emphasize the importance of balanced financial decision-making to ensure sustainable firm performance.

Limitations and Future Research

Despite its contributions, this study has several limitations that should be acknowledged.
First, the study relies solely on secondary data from financial statements, which may not fully capture qualitative factors such as managerial capability, corporate governance, or strategic decision-making. Second, the sample is limited to manufacturing firms in West Java, which may restrict the generalizability of the findings to other regions or sectors. Third, the model includes only three independent variables, while financial performance may also be influenced by other factors such as market conditions, firm age, growth opportunities, and operational efficiency. Fourth, the use of multiple linear regression assumes linear relationships among variables, which may not fully reflect complex or non-linear dynamics in real-world financial behavior.
Therefore, future research is recommended to:

1. Incorporate additional variables such as corporate governance, innovation, or macroeconomic factors
2. Expand the sample to include different regions or industries
3. Apply advanced analytical methods such as panel data regression or non-linear models
4. Examine moderating or mediating variables to better understand causal mechanisms

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