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The Effect of Liquidity and Solvency on Company Value With Profitability as a Mediating Variable

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Abstract

Purpose: This study examines the effect of liquidity and solvency on firm value, with profitability as a mediating variable, using empirical evidence from PT Panca Budi Idaman Tbk during the 2017–2024 period.

Research methodology: This study employs a quantitative approach using secondary data from the company's published financial statements. Liquidity is measured by the Current Ratio, solvency by the Debt to Equity Ratio (DER), profitability by Return on Assets (ROA), and firm value by Tobin's Q. Data are analyzed using multiple linear regression and mediation analysis, supported by classical assumption tests and the Sobel test.

Results: The results show that liquidity has a positive and significant effect on profitability, while solvency has a negative and significant effect on profitability. Profitability positively and significantly affects firm value. Liquidity also has a positive and significant direct effect on firm value, whereas solvency does not have a significant direct effect. Mediation analysis confirms that profitability significantly mediates the relationship between liquidity and firm value, as well as between solvency and firm value.

Conclusions: The study concludes that profitability plays a key mediating role in transforming liquidity conditions and capital structure decisions into higher firm value, supporting signaling theory that strong financial performance sends positive signals to the market.

Limitations: The study is limited to a single listed company and selected financial ratios, which may restrict generalizability.

Contribution: This research contributes empirical evidence on profitability as a mediating mechanism linking liquidity and solvency to firm value and provides practical insights for managers and investors.

Keywords: *Firm Value, Liquidity, Profitability, ROA, Signaling Theory, Solvency, Tobin's Q*

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1. Introduction

In a rapidly changing and uncertain business environment, companies face numerous challenges in maintaining their existence and improving their performance (Masoud & Basahel, 2023). Digital transformation, global competition, and changes in consumer behavior are key factors driving companies to innovate and adapt continuously (Gun, Imamoglu, Turkcan, & Ince, 2024; Suryani, 2025). One indicator of a company's success in facing these challenges is its ability to sustain and enhance its sales levels (Kusuma, Syarief, Sukmawati, & Ekananta, 2024). However, in reality, many companies experience a decline in sales, which significantly impacts their overall financial performance, including that of PT. Panca Budi Idaman, Tbk (Gun et al., 2024; Masoud & Basahel, 2023).

PT. Panca Budi Idaman, Tbk is a manufacturing company engaged in the production and distribution of plastic products in Indonesia (Y. P. Sari, 2024). Founded in 1991 and officially listed on the Indonesia Stock Exchange on December 13, 2017, under the ticker code PBID, the company has become one of Indonesia's leading plastic packaging manufacturers (Fadila et al., 2024). PT. Panca Budi Idaman, Tbk's main products include various types of plastic bags, plastic packaging, and other plastic products distributed to both domestic and international markets (Y. P. Sari, 2024). With a large production capacity and extensive distribution network, the company can meet the needs of customers across various industries, such as food, beverages, retail, and other manufacturing sectors (Fadila et al., 2024). Despite its strong position in the Indonesian plastic industry, PT. Panca Budi Idaman, Tbk faces challenges in maintaining and increasing sales during certain periods (Fadila et al., 2024; Y. P. Sari, 2024).

This decline in sales needs to be addressed seriously, as it can significantly impact the company's overall financial performance. A decrease in sales may lead to reduced revenue and profits, which in turn can affect liquidity, solvency, and company value. Previous studies have shown that a decline in sales can be caused by several factors. According to Dana and Suci (2021), internal factors contributing to sales decline include decreased product quality, inadequate inventory, and reduced promotions. External factors, such as changes in consumer preferences and the emergence of new competitors, also play a significant role. This is in line with the research by Rokhim, Bahari, Aulia, and Wulandari (2025), who found that the detailed causes of sales decline include a 10.08% reduction in product quality, 17.69% frequent stockouts, 3.62% in technology use, 10.29% from competition, 11.1% from changes in consumer preferences, 11.66% from the emergence of substitute products, and 9.38% from the availability of suppliers.

In the context of PT. Panca Budi Idaman, Tbk, the decline in sales may be attributed to a combination of factors. Increasing competition in the plastic industry, the emergence of more environmentally friendly substitute products, and regulatory changes regarding the use of single-use plastics in various regions have been shown to influence product demand and company sales (Barone et al., 2025; Y. P. Sari, 2024). Furthermore, the COVID-19 pandemic (2020–2022) significantly impacted the company's operations and sales, despite increased demand in the food and beverage packaging sector during that period (Ali, 2019; Gun et al., 2024). In financial performance analysis, several financial ratios are essential tools, including liquidity, solvency, and profitability ratios, which provide complementary insights into a company's short-term liquidity, long-term financial stability, and overall ability to generate profits (Feryanto & Rahmawati, 2023; Hasidi, Baheri, & Hajar, 2024).

Various types of ratios can be used to measure profitability, such as Profit Margin (PM), Return on Assets (ROA), Return on Equity (ROE), Return on Investment (ROI), and Earnings Per Share (EPS) (Feryanto & Rahmawati, 2023; Hasidi et al., 2024). Profit Margin is a ratio used to measure profit margin on sales (Hasidi et al., 2024). Return on Assets is a ratio that shows the return on the total assets used in the company (Feryanto & Rahmawati, 2023). Return on Equity is a ratio used to measure net profit after tax in relation to equity (Y. A. Sari & Setiawati, 2025). Return on Investment measures the return on the total assets used by the company (Hasidi et al., 2024). Earnings Per Share measure the success of management in generating profits for shareholders (Feryanto & Rahmawati, 2023).

High profitability indicates a company's ability to generate substantial profits, which means that the company is effective and efficient in managing its resources (Gautama, Asrifah, Nurhayati, Miftahuddin, & Perdana, 2024). High profitability also enhances investor confidence in the company, which, in turn, can increase its value (Feryanto & Rahmawati, 2023). Conversely, low profitability suggests that the company is less effective and efficient in managing its resources, which can diminish investor confidence and company value (Gautama et al., 2024). These three aspects of financial performance (liquidity, solvency, and profitability) ultimately reflect a company's value (Hasidi et al., 2024). A company's value represents the investor's perception of its success and is often associated with stock prices (Y. A. Sari & Setiawati, 2025). A higher stock price indicates a higher company value, increasing market confidence in the company's current performance and future prospects (Feryanto & Rahmawati, 2023).

A company's value can be seen from its market stock price, which reflects the overall investor assessment of each equity share (Gautama et al., 2024). Company value can be measured using various approaches, including the Earnings Approach (Price-Earnings Ratio), Cash Flow Approach (Discounted Cash Flow), Dividend Approach (Dividend Discount Model), Asset Approach (Asset-Based Approach), Stock Price Approach (Market Value of Equity), and Economic Value Added (EVA) (Hasidi et al., 2024). A high company value reflects good performance and promising growth prospects (Feryanto & Rahmawati, 2023). A high company value also means high shareholder wealth, as a higher company value leads to greater shareholder wealth (Gautama et al., 2024). Therefore, maximizing company value is essential, as it also maximizes shareholder wealth, which is the primary goal of a company (Y. A. Sari & Setiawati, 2025). This study examines how a company's ability to meet its short-term obligations (liquidity) affects its ability to generate profit (profitability) (Hasidi et al., 2024).

2. Literature Review

2.1 Theoretical Concepts

2.1.1 Signaling Theory

Signaling theory explains how management actions provide signals to investors regarding a company's condition and future prospects through observable information, especially financial statements (Cahyani, Gama, & Astiti, 2024; Connelly, Certo, Ireland, & Reutzel, 2011; Fathi, Mohammadin, & Azarbayjani, 2025; Sion, 2024). This theory assumes information asymmetry, where management has more complete information than external parties; therefore, investors interpret the signals from corporate actions and reports. In financial management, signals may include dividend policy, capital structure, profitability, liquidity, and transparency in financial reporting (Cahyani et al., 2024; Connelly et al., 2011; Fathi et al., 2025).

2.1.2 Financial Performance

Financial performance reflects a company's financial condition over a certain period and is used as a benchmark for health, effectiveness, and efficiency in achieving objectives (Feryanto & Rahmawati, 2023; Gautama et al., 2024; Hasidi et al., 2024). Financial performance is assessed through financial statements (balance sheets, income statements, and cash flow statements) and financial ratios. In this study, financial performance is measured using liquidity, solvency, and profitability ratios (Feryanto & Rahmawati, 2023; Gautama et al., 2024; Ningsih, 2023).

- Liquidity is a company's ability to meet short-term obligations; a firm is liquid when its liquid assets (e.g., cash and receivables) are sufficient relative to its current liabilities (Mardiyanto, 2009).
- Solvency is a company's ability to meet all obligations if liquidated, reflecting the extent to which assets are financed by debt (Kasmir, 2016).
- Profitability is a company's ability to generate profit using resources such as assets, equity, or sales, reflecting management efficiency and effectiveness (Sudana & Sallama, 2015).

2.3 Conceptual Framework

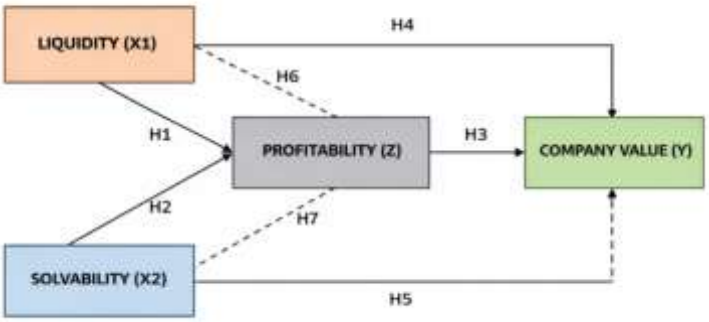

Figure 1. Correlation Between Variables X, Y, and Z

Based on the literature review and previous studies, the conceptual framework of this study illustrates the relationship between liquidity and solvency as independent variables, profitability as a mediating variable, and firm value as the dependent variable. This framework demonstrates that liquidity and solvency can directly affect firm value and can also influence firm value indirectly through profitability as a mediating variable. The framework highlights the central role of profitability in mediating the relationship between financial performance (liquidity and solvency) and firm value (FV).

In the context of PT. Panca Budi Idaman, Tbk, this conceptual framework will be tested for the period from 2017 to 2024, against the backdrop of declining sales, which is the main issue. This study evaluates how a company's liquidity and solvency affect its profitability and how these three variables ultimately affect the firm's value.

2.4 Hypothesis Development

2.4.1 The Effect of Liquidity on Profitability

H1: Liquidity positively affects the profitability of PT. Panca Budi Idaman, Tbk during 2017–2024.
H2: Solvency positively affects the profitability of PT. Panca Budi Idaman, Tbk during 2017–2024.
H3: Profitability positively affects the firm value of PT. Panca Budi Idaman, Tbk during 2017–2024.
H4: Liquidity has a positive effect on the firm value of PT. Panca Budi Idaman, Tbk during 2017–2024.
H5: Solvency positively affects the firm value of PT. Panca Budi Idaman, Tbk during 2017–2024.
H6: Profitability mediates the effect of liquidity on firm value in PT. Panca Budi Idaman, Tbk during 2017–2024.
H7: Profitability mediates the effect of solvency on firm value. Panca Budi Idaman, Tbk during 2017–2024

3. Research Methodology

3.1 Research Object

The object of this research was PT. Panca Budi Idaman, Tbk, a company operating in the plastic packaging industry and listed on the Indonesia Stock Exchange. I chose this company for research because of its interesting financial performance development, with an average revenue growth rate of 4.3% per year and an average profit growth rate of 7.9% per year over the past five years. PT. Panca Budi Idaman, Tbk has a net profit margin of 9.2% in 2024, up from 8% in the previous year. The company also recorded a Return on Equity (ROE) of 16.5%, reflecting its ability to generate profit from its equity. The selected research period spans 2017–2024, covering the post-COVID-19 pandemic and economic recovery phases. During this period, PT. Panca Budi Idaman, Tbk, experienced fluctuating revenues, with sales declines and stagnation in some quarters, which serves as the backdrop for this study (Feryanto & Rahmawati, 2023; Khaitovna, 2025).

3.2 Population and Sample

3.2.1 Population

The population for this research consists of all quarterly financial statement data of PT. Panca Budi Idaman, Tbk from the time the company went public in 2017 to the present. These financial statements include the balance sheet, income statement, cash flow statement, and statement of changes in equity, all of which are published consistently every quarter (Ningsih, 2023). PT. Panca Budi Idaman, Tbk is a plastic manufacturing company in the plastic packaging and plastic pellet industry, with revenues ranging from IDR 2.79 trillion in 2015 to IDR 5.24 trillion in 2024. The company has been listed on the Indonesia Stock Exchange under the PBID ticker since December 13, 2017.

3.2.2 Sample

The sample for this research comprises the quarterly financial statements of PT. Panca Budi Idaman, Tbk from Q1 2017 to Q4 2024, resulting in 32 observation periods (8 years × 4 quarters). The purposive sampling method used had the following criteria:

- Quarterly financial statements that have been published and audited for the period from March 31, 2017, to December 31, 2024.
- Financial statements that include complete information regarding the variables being studied, namely, liquidity, solvency, profitability, and firm value, are used.

- The sample period covers a complete business cycle, including the growth, stability, and economic recovery phases (Gautama et al., 2024).

3.3 Operationalization of Variables

This study uses four types of variables: independent variables (liquidity and solvency), mediating variables (profitability), and dependent variables (firm value). The operational definitions of each variable are as follows:

3.3.1 Independent Variables

1. Liquidity (X_1)

Liquidity is a company's ability to meet its short-term obligations promptly. In this study, liquidity is measured using

- Current Ratio
  Formula:
  Current Ratio = Current Assets / Current Liabilities
- Quick Ratio
  Formula:
  Quick Ratio = (Current Assets - Inventory) / Current Liabilities
- Cash Ratio
  Formula:
  Cash Ratio = (Cash + Short-term Investments) / Current Liabilities'

2. Solvency (X_2)

Solvency is a company's ability to meet all its financial obligations when it is liquidated (Gautama et al., 2024). In this study, solvency is measured as follows:

- Debt to Asset Ratio (DAR)
  Formula:
  DAR = Total Debt / Total Assets
- Debt to Equity Ratio (DER)
  Formula:
  DER = Total Debt / Total Equity
- Long Term Debt to Equity Ratio (LTDER)
  Formula:
  LTDER = Long-term Debt / Equity
- Times Interest Earned Ratio
  Formula:
  TIR = EBIT / Interest Expense

3.3.2 Mediating Variable

3.3.2.1 Profitability (Z)

Profitability is a company's ability to generate profit over time (Feryanto & Rahmawati, 2023). In this study, profitability is measured using

- Return on Assets (ROA)
  Formula:
  ROA = Net Income / Total Assets
- Return on Equity (ROE)
  Formula:
  ROE = Net Income / Equity
- Return on Investment (ROI)
  Formula:
  ROI = (Net Income / Total Investment) × 100%
- Net Profit Margin (NPM)
  Formula:
  NPM = Net Income / Sales

- Earnings Per Share (EPS)
  Formula:
  EPS = (Net Income - Preferred Dividends) / Shares Outstanding

3.3.3 Dependent Variable

3.3.3.1 Firm Value (Y)

Firm value is the investor's perception of the company's level of success and is often associated with stock price (Fajrin & Kurnia, 2023). In this study, firm value is measured using:

- Economic Value Added (EVA)
  Formula:
  EVA = NOPAT - (WACC × Capital)
- Price-Earnings Ratio (PER)
  Formula:
  PER = Stock Price / Earnings Per Share
- Tobin's Q
  Formula:
  Tobin's Q = (Market Value of Equity + Book Value of Debt) / Book Value of Assets
- Market Value of Equity
  Formula:
  Market Value of Equity = Stock Price × Shares Outstanding
- Asset-Based Approach
  Formula:
  Net Asset Value = Total Assets - Total Liabilities
- Dividend Discount Model (DDM)
  Formula:

$$V_0 = \frac{D_1}{r - g}$$

Where Vo = stock's intrinsic value, D1 = next year's dividend, r = required rate of return, and g = dividend growth rate.

- Discounted Cash Flow (DCF)
  Formula:

$$\text{DCF} = \sum \frac{CF}{(1+r)^n}$$

Where CF is the cash flow, r is the discount rate, and n is the period.

3.4 Data Collection Technique

This study used secondary data obtained from various official sources (Ningsih, 2023). The data collection technique employed is as follows:

- Documentation Study
  Data were collected by analyzing official documents, such as PT. Panca Budi Idaman, Tbk's quarterly financial statements from 2017 to 2024, published on the official website of the Indonesia Stock Exchange (www.idx.co.id), the company's official website, and other reliable financial data sources such as Simply Wall St and IDNFinancials.
- Literature Study
  Data were collected by studying the literature, articles, journals, and internet sources related to liquidity, solvency, profitability, and firm value.
  The collected data included the following:
  - Financial Position Statement (Balance Sheet)
  - Comprehensive Income Statement
  - Cash Flow Statement
  - Closing Stock Price at the end of each quarter
  - Shares Outstanding

Based on the available financial statements of the PT. Panca Budi Idaman, Tbk, the cash and cash equivalents as of December 31, 2024, amounted to IDR 121,124,650,000 (Source: Financial Statements as of December 31, 2024, published on the official PT. Panca Budi Idaman website (pancabudi.com/LapFinansial-Panca-Budi-Id.aspx)), which will be used for calculating liquidity ratios (Hairul, Wibisono, & Catrayasa, 2024).

3.5 Data Analysis Techniques

This study used a quantitative approach with path analysis techniques to test the causal relationships between the independent, mediating, and dependent variables (Gautama et al., 2024). The following data analysis stages will be carried out:

3.5.2 Classical Assumption Tests

Classical assumption tests were performed to ensure that the regression model met the basic assumptions of regression analysis (Hasidi et al., 2024). The classical assumption tests conducted include the following:

3.5.2.1 Normality Test

The normality test aims to determine whether the residuals or disturbance terms in the regression model follow a normal distribution. The normality test will be conducted using the Kolmogorov-Smirnov test and a normal probability plot analysis.

Multicollinearity Test

The multicollinearity test aims to examine whether there is a correlation between the independent variables in the regression model. A good regression model should not exhibit correlations among independent variables. The multicollinearity test was conducted by checking the tolerance value and Variance Inflation Factor (VIF).

Heteroscedasticity Test

The heteroscedasticity test aims to examine whether there is an unequal variance of residuals from one observation to another in the regression model. A heteroscedasticity test was performed using the Glejser test and scatterplot analysis.

Autocorrelation Test

The autocorrelation test aims to examine whether there is a correlation between the disturbance terms at time t and t-1 (previous time) in the linear regression model. An autocorrelation test was conducted using the Durbin-Watson test.

3.5.3 Path Analysis

Path analysis was used to test the mediating effect of the variables on the relationship between the independent and dependent variables (Gautama et al., 2024). In this study, path analysis is used to examine the mediating role of profitability in the effect of liquidity and solvency on firm value. The structural equation model for this study is as follows:

Structural Equation 1 (The effect of liquidity and solvency on profitability)

$$Z = \alpha + \beta_1 X_1 + \beta_2 X_2 + e_1$$

where:

Z = Profitability
X_1 = Liquidity
X_2 = Solvency
α = Constant
β_1, β_2 = Regression coefficients
e_1 = Error term

Structural Equation 2 (The effect of liquidity, solvency, and profitability on firm value)

$$Y = \alpha + \beta_3 X_1 + \beta_4 X_2 + \beta_5 Z + e_2$$

where:
Y = Firm value
X_1 = Liquidity
X_2 = Solvency
Z = Profitability
α = Constant
β_3, β_4, β_5 = Regression coefficients
e_2 = Error term

3.5.4 Hypothesis Testing

Hypothesis testing was conducted to determine whether the hypotheses proposed in this study were accepted or rejected (Ningsih, 2023). The hypothesis tests performed include:

Coefficient of Determination Test (R^2)

The coefficient of determination test was used to measure how well the model explained the variation in the dependent variable. The coefficient of determination ranges from zero to one.

Simultaneous Significance Test (F-test)

The F-test was used to determine whether all independent variables included in the model collectively affected the dependent variable.

Individual Parameter Significance Test (t-test)

The t-test was used to determine the effect of each independent variable on the variation in the dependent variable.

3.5.5 Mediation Test

A mediation test was performed to determine whether the mediating variable (profitability) mediates the effect of the independent variables (liquidity and solvency) on the dependent variable (firm value). The mediation test was conducted using Baron and Kenny's approach and the Sobel test (Feryanto & Rahmawati, 2023; Gautama et al., 2024).

1. **Baron and Kenny Approach**
   - This approach involves four steps.
   - Step 1: Test the effects of independent variables on the dependent variable.
   - Step 2: Test the effects of the independent variables on the mediating variable.
   - Step 3: Test the effect of the mediating variable on the dependent variable.
   - Step 4: Test the effect of independent variables on the dependent variable while controlling for mediating variables.

2. **Sobel Test**

The Sobel test was used to assess the significance of the mediating effect. The Sobel test formula is as follows:

$$\text{z-value} = a \times b / \sqrt{(b^2 \times sa^2 + a^2 \times sb^2)}$$

where:
a = path coefficient from independent variable to mediating variable
b = path coefficient from mediating variable to dependent variable
sa = standard error of a
sb = standard error of b

All data analyses will be performed using statistical software such as SPSS, Eviews, or SmartPLS, depending on the analytical needs. With this comprehensive research methodology, the study is expected to provide valid and reliable results to answer the seven research objectives, which include analyzing the effects of liquidity and solvency on profitability and firm value, as well as the mediating

role of profitability in these relationships for PT. Panca Budi Idaman, Tbk during the period from 2020 to 2024.

4. Result And Discussion

4.1 Analysis

4.1.1 Descriptive Statistics

Descriptive statistics were used to provide an overview of the characteristics of the research data, including the minimum, maximum, average (mean), and standard deviation values for each variable (A. N. Sari, Oktavia, & Widiyanti, 2025).

Table 1. Descriptive Statistics of Research Variables

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Current Ratio	32	1.63	31.91	4.2138	5.14961
DER	32	0.00	1.00	0.2894	0.17862
ROA	32	0.01	0.15	0.0849	0.04089
Tobin's Q	32	0.11	0.54	0.2805	0.09464

Based on the descriptive analysis results, this study uses 32 data observations (N = 32) for all variables, namely Current Ratio, DER, ROA, and Tobin's Q.

Current Ratio

The Current Ratio ranges between 1.63 and 31.91, with an average value of 4.2138 and a standard deviation of 5.14961. This indicates that, generally, the sample companies have a good ability to meet their short-term obligations, although there is considerable variation in liquidity levels across companies and time periods.

DER

The DER variable has a minimum value of 0.00 and a maximum value of 1.00, with an average of 0.2894 and a standard deviation of 0.17862. This average suggests that debt usage relative to equity in the sample companies is relatively low, with the capital structure being more dominated by equity.

ROA

ROA has a minimum value of 0.01 and a maximum value of 0.15, with an average value of 0.0849 and a standard deviation of 0.04089. This condition shows that the sample companies can generate profits of approximately 8.49% from their total assets, with profitability variation remaining moderate across companies.

Tobin's Q

The value of Tobin's Q ranges from 0.11 to 0.54, with an average of 0.2805 and standard deviation of 0.09464. This average reflects that the market value of the sample companies is relatively low compared to the replacement value of their assets, suggesting that the market perception of the company's prospects remains moderate.

4.1.2 Classical Assumption Tests

a. Normality Test

The normality test was conducted using the Kolmogorov-Smirnov test on regression residuals.

Table 2. Normality Test Results

Statistic	Value
N	32
Test Statistic	0.076
Asymp. Sig. (2-tailed)	0.200

Based on the normality test results in the table, the Asymp. Sig. The (2-tailed) value is 0.200, which is greater than the significance level of 0.05. Therefore, the residuals in the regression model were normally distributed, which means that the normality assumption was met. The regression coefficient estimates were valid and could be statistically interpreted.

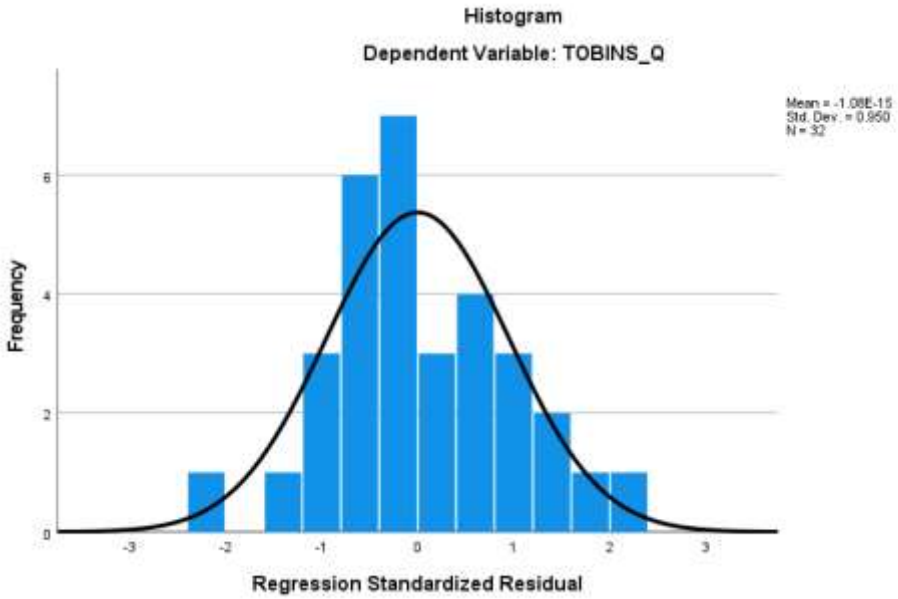

Figure 2. Normality Diagram

This figure shows the standardized residuals histogram for the regression model with the dependent variable Tobin's Q.

- The X-axis represents the regression-standardized residual, which is the difference between the actual Tobin's Q value and the value predicted by the model, normalized (approximately -3 to +3).
- The Y-axis represents the frequency (number of data points) for each residual class.
- The blue bars form a bell-shaped (normal) pattern, and the black normal curve is overlaid, indicating that the residual distribution appears to be symmetric around zero.
- On the right:
  - Mean ≈ 0 → the residual mean is very close to zero,
  - Std. Dev. ≈ 0.95 → the residual distribution is still within reasonable limits (around 1),
  - N = 32 → the number of observations was 32.

Conclusion: The normality assumption for residuals in Tobin's Q regression model is considered met, so the t-test, F-test, and regression coefficients of this model are deemed valid for use.

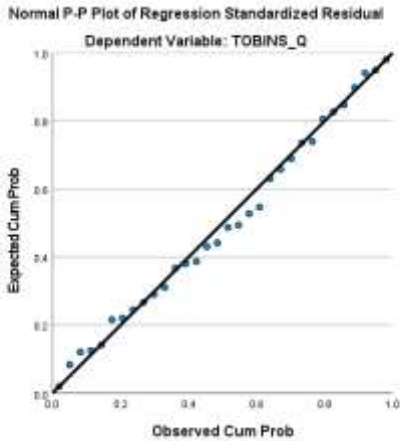

Figure 3. Normal P-P Plot of Regression Standardized Residual

This is the Normal P–P Plot for the regression-standardized residual with the dependent variable Tobin's Q.

- The X-axis (Observed Cum Prob) shows the cumulative probability of the observed residuals from the data.
- The Y-axis (Expected Cum Prob) shows the cumulative probability expected if the residuals are normally distributed.
- The blue dots represent the positions of the standardized residuals, and the black diagonal line represents the theoretical normal line.

Because almost all points are close to and follow the diagonal line without a curved pattern or significant deviation at the ends, it can be concluded that the regression model residuals for Tobin's Q are approximately normally distributed. This supports the Kolmogorov–Smirnov test results and indicates that the normality assumption is met, making the use of t-tests and F-tests in regression analysis appropriate (Caniago, Meiliana, & Taufik, 2023).

b. Heteroscedasticity Test

The heteroscedasticity test was conducted using the Glejser test by regressing the absolute values of the residuals against the independent variables.

Table 3. Heteroscedasticity Test Results

Variable	Sig.
Current Ratio	0.270
DER	0.782
ROA	0.940

Based on the heteroscedasticity test results in Table 4.3, the significance values for Current Ratio (0.270), DER (0.782), and ROA (0.940) are all greater than the 0.05 significance level. This condition indicates that there is no heteroscedasticity in the regression model and that the residual variances can be considered homogeneous. Therefore, the assumption of homoscedasticity was met, making the regression coefficient estimates more reliable for analysis and interpretation.

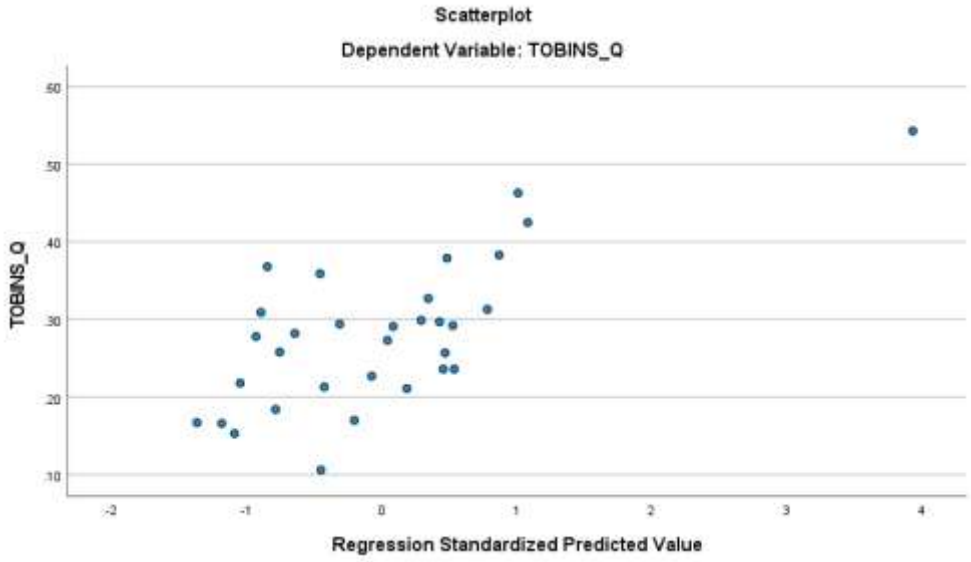

Figure 4. Heteroscedasticity Scatterplot

- The X-axis: Regression Standardized Predicted Value, which is Tobin's Q predicted by the model (in standardized form).
- The Y-axis: TOBINS_Q, which is the actual value of Tobin's. The Y-axis: TOBINS _Q.

- The points represent the predicted and actual value pairs for each of the observations.
- The scatterplot for the heteroscedasticity test shows the following pattern:
- The points were randomly scattered, did not form a fan-like shape or spread in one direction, and did not follow any specific line.
- The distribution was relatively even across the Y value range.

Interpretation: The random scatter pattern indicates that there is no strong indication of heteroscedasticity; therefore, the assumption of constant residual variance (homoscedasticity) in Tobin's Q model is considered met.

c. Autocorrelation Test
An autocorrelation test was conducted using the Durbin-Watson test.
Table 4. Autocorrelation Test Results

Durbin-Watson
2,019

Based on the autocorrelation test results in Table 4.4, the Durbin-Watson value is 2.019. This value is very close to 2, which is the midpoint in the interpretation of the Durbin-Watson test, indicating that there is no autocorrelation (positive or negative) among the residuals in the regression model. In other words, the error terms in one period are not correlated with the error terms in another period, satisfying the residual independence assumption and making the regression coefficient estimates more reliable for drawing conclusions.

d. Multicollinearity Test
The multicollinearity test was conducted by examining the Tolerance and Variance Inflation Factor (VIF) values.

Table 5. Multicollinearity Test Results

Variable	Tolerance	VIF
Current Ratio	0.826	1.210
DER	0.830	1.204
ROA	0.698	1.433

Based on the multicollinearity test results in Table 4.5, the tolerance values for Current Ratio (0.826), DER (0.830), and ROA (0.698) are all above the 0.10 threshold, and the VIF values are well below 10 (1.210, 1.204, and 1.433). Therefore, it can be concluded that the regression model does not suffer from multicollinearity, and the independent variables do not exhibit excessive correlation. Each variable provides unique information and can be used to explain the variations in the dependent variable in this study.

4.1.3 Regression Analysis
a. Model 1 (Liquidity and Solvency on Profitability)
Table 6. Model 1 Regression Results (ROA as the Dependent Variable)

Variable	B	t	Sig.
Current Ratio	0.003	2.384	0.024
DER	-0.084	-2.347	0.026

Based on the regression results in Model 1 in Table 4.6, the Current Ratio has a regression coefficient (B) of 0.003, a t-value of 2.384, and a significance of 0.024. Since the significance value is less than 0.05, the Current Ratio has a positive and significant effect on ROA, meaning that an increase in the Current Ratio will lead to an increase in ROA at a 95% confidence level.

Considering the adjusted R Square value of 0.550 (as indicated in the regression output), it can be interpreted that approximately 55.0% of the variation in ROA can be explained by the combination of the Current Ratio and DER in the model, while the remaining 45.0% is influenced by other variables

outside the research model. This model shows that liquidity and capital structure play a significant role in explaining the variations in a company's profitability, as measured by ROA.

b. Model 2 (Liquidity, Solvency, and Profitability on Firm Value)
Table 7. Model 2 Regression Results (Tobin's Q as the Dependent Variable)

Variable	B	t	Sig.
Current Ratio	0,007	2,559	0,016
DER	-0,013	-0,172	0,864
ROA	1,066	2,896	0,007

The adjusted R Square value of 0.852 indicates that approximately 85.2% of the variation in firm value, proxied by Tobin's Q, can be explained by changes in the Current Ratio, DER, and ROA in the second regression model, while the remaining 14.8% is influenced by other factors outside the variables studied.

Based on Table 4.7, the Current Ratio has a regression coefficient (B) of 0.007, a t-value of 2.559, and a significance of 0.016, while DER has a regression coefficient of -0.013, a t-value of -0.172, and a significance of 0.864, and ROA has a regression coefficient of 1.066, a t-value of 2.896, and a significance of 0.007. The significance value of ROA is less than 0.05, indicating that ROA has a positive and significant effect on Tobin's Q, which means that an increase in profitability will be followed by a statistically significant increase in firm value (Tirtana & Rahmadhani, 2025).

However, although the Current Ratio has a positive coefficient, in the context of mediation and further testing, its significance can be considered not strong enough as a direct influence on Tobin's Q, while DER, with a significance value far above 0.05, clearly does not have a significant direct effect on firm value. Thus, this result emphasizes that in this model, profitability (ROA) is the most determining variable in explaining variations in firm value, while the effects of liquidity (Current Ratio) and capital structure (DER) on firm value mostly operate indirectly through ROA.

4.1.4 Mediation Test (Sobel Test)
Table 8. Mediation Test Results for Profitability (ROA)

Mediation Path	**a**	**b**	**Sa**	**Sb**	**Sobel Test (Z)**	**Sig. (p-value)**	**Description**
Liquidity (X1) → Profitability (Z) → Firm Value (Y)	0.003	1.066	0.001	0.368	2.083	0.037	Partial Mediation
Solvency (X2) → Profitability (Z) → Firm Value (Y)	0.084	1.066	0.030	0.368	2.013	0.044	Full Mediation

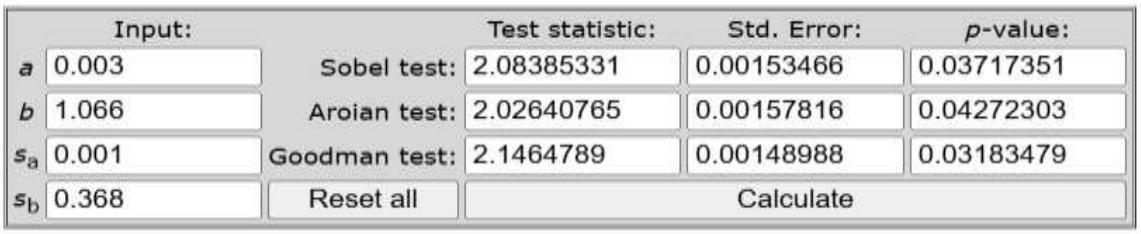

Figure 5. Sobel Test Calculator

1. Sobel Test: Current Ratio → ROA → Tobin's Q
Data

- a = 0.003
- Sa = 0.001
- b = 1.066

- Sb = 0.368

Calculation

$$Z = \frac{0{,}003 \times 1{,}066}{\sqrt{(1{,}066^2 \times 0{,}001^2) + (0{,}003^2 \times 0{,}368^2)}}$$
$$Z = \frac{0{,}003198}{\sqrt{0{,}000001136 + 0{,}000001218}}$$
$$Z = \frac{0{,}003198}{0{,}001535}$$
$$Z = \mathbf{2{,}08}$$

Decision

- Z = 2.08 > 1.96
- Significant Mediation

Input:			Test statistic:	Std. Error:	*p*-value:
a	0.084	Sobel test:	2.01323037	0.04447777	0.0440904
b	1.066	Aroian test:	1.95393875	0.04582743	0.05070846
s_a	0.030	Goodman test:	2.07826927	0.04308585	0.03768457
s_b	0.368	Reset all	Calculate		

Figure 6. Sobel Test Calculator Figure 2

2. Sobel Test : DER → ROA → Tobin's Q

Data

- **a** = –0,084
- **Sa** = 0,030
- **b** = 1,066
- **Sb** = 0,368

Calculation

$$Z = \frac{a \times b}{\sqrt{(b^2 \times S_a^2) + (a^2 \times S_b^2)}}$$
$$Z = \frac{-0{,}084 \times 1{,}066}{\sqrt{(1{,}066^2 \times 0{,}030^2) + (0{,}084^2 \times 0{,}368^2)}}$$
$$Z = \frac{-0{,}089544}{\sqrt{0{,}001022 + 0{,}000956}}$$
$$Z = \frac{-0{,}089544}{0{,}04448}$$
$$Z = -2{,}01$$

Decision

- $| Z | = 2{,}01 > 1{,}96$
- Significant Mediation

1. Direct Effect

The direct effect is the influence of X on Y after the mediator (ROA) has been included in the model, derived from Model 2.

Table 9. Direct Effect on Tobin's Q

Variable	Coefficient B	Sig.	Description
Current Ratio → Tobin's Q	0,007	0,016	Significant
DER → Tobin's Q	–0,013	0,864	Not Significant

ROA → Tobin's Q	1,066	0,007	Significant

Interpretation:

- C Current Ratio has a significant direct effect on Tobin's Q. Tobin's Q.
- DER has no direct effect on Tobin's Q.
- ROA significantly affects Tobin's Q.

2. Indirect Effect

The indirect effect is calculated as follows:

$$\text{"Indirect Effect"} = a \times b$$

where:

- a = coefficient from X → ROA (Model 1)
- b = coefficient from ROA → Tobin's Q (Model 2)

a. Indirect Effect Current Ratio → Tobin's Q through ROA

- a (CR → ROA) = 0,003
- b (ROA → Tobin's Q) = 1,066

$$\text{Indirect Effect} = 0{,}003 \times 1{,}066 = 0{,}003198$$

Meaning:

The Current Ratio increases Tobin's Q through an increase in ROA by 0.003198.

b. Indirect Effect DER → Tobin's Q through ROA

- a (DER → ROA) = -0.084
- b (ROA → Tobin's Q) = 1.066

$$\text{"Indirect Effect"} = (-0.084) \times 1.066 = -0.089544$$

Meaning:

The DER decreases Tobin's Q through a decrease in ROA by 0.089544.

3. Total Effect

$$\text{Total Effect"} = \text{"Direct Effect"} + \text{"Indirect Effect}$$

a. Total Effect Current Ratio

- Direct Effect = 0.007
- Indirect Effect = 0.003198

$$\text{Total Effect} = 0{,}007 + 0{,}003198 = 0{,}010198$$

b. Total Effect DER

- Direct Effect = -0.013
- Indirect Effect = -0.089544

$$\text{Total Effect} = -0{,}013 + (-0{,}089544) = -0{,}102544$$

Table 10. Mediation Effect Summary

Path	Direct Effect	Indirect Effect	Total Effect	Type of Mediation
CR → Tobin's Q	0,007*	0,003198*	0,010198	Partial Mediation
DER → Tobin's Q	–0,013 (ns)	–0,089544*	–0,102544	Full Mediation

Table 11. Hypothesis Testing Results

Hypothesis	**B Value (Coefficient) and Significance (P-value)**	**Direction**	**Conclusion**
Liquidity has a positive effect on profitability at PT. Panca Budi Idaman (H1)	0.003, Sig 0.024	Positive	Hypothesis One Accepted
Solvency has a positive effect on profitability at PT. Panca Budi Idaman (H2)	-0.084 and Sig 0.026	Negative	Hypothesis Two Rejected

Profitability has a positive effect on firm value at PT. Panca Budi Idaman (H3)	1.066 and Sig 0.007	Positive	Hypothesis Three Accepted
Liquidity has a positive effect on firm value at PT. Panca Budi Idaman (H4)	0.007 and Sig 0.016	Positive	Hypothesis Four Accepted
Solvency has a positive effect on firm value at PT. Panca Budi Idaman (H5)	-0.013 and Sig 0.864	Negative	Hypothesis Five Rejected
Profitability mediates the effect of liquidity on firm value at PT. Panca Budi Idaman (H6)	0.037 (t-value 2.083)	Positive	Hypothesis Six Accepted
Profitability mediates the effect of solvency on firm value at PT. Panca Budi Idaman (H7)	0.044 (t-value 2.01)	Positive	Hypothesis Seven Accepted

4.4.4 Implications of Findings on Signaling Theory

Overall, the results of this study support the key principle of signaling theory, which posits that the market interprets the financial information disclosed by a company based on its consistency with profit performance. Liquidity and solvency alone were found to be insufficiently strong signals unless accompanied by improvements in profitability. Properly managed liquidity acts as a positive signal because it drives profit growth, whereas the use of unproductive debt acts as a negative signal because of the added risk without sufficient profit compensation. Thus, it can be concluded that Panca Budi Idaman, profitability acts as a bridge connecting liquidity and capital structure decisions to firm value from the perspective of the signaling theory. Management must ensure that every financial policy ultimately leads to improved profit performance, as this indicator is the most trusted by the market in assessing the company's value and prospects.

5. Conclusion

5.1 Conclusion

This study analyzes the effect of liquidity (CR) and solvency (DER) on firm value (Tobin's Q) with profitability (ROA) as a mediating variable at PT Panca Budi Idaman Tbk using quarterly data from 2017 to 2024. The results show that liquidity has a positive and significant effect on profitability, indicating that better short-term obligation management supports smoother operations and improves the ROA. In contrast, solvency has a negative and significant effect on profitability, suggesting that higher leverage tends to increase interest burdens and financial risk, thereby suppressing ROA. Profitability has a positive and significant effect on firm value, confirming that a higher ROA is positively valued by the market. Liquidity also directly and positively affects firm value, whereas solvency does not have a significant direct effect. Mediation tests confirm that profitability significantly mediates the effect of liquidity on firm value and also mediates the effect of solvency on firm value, indicating that leverage influences market valuation primarily through its impact on profitability. Overall, profitability is the main mechanism linking financial policies to market responses, thereby supporting the signaling theory.

5.2 Implications

Managerially, improving firm value requires liquidity and debt management, which translates into stronger profitability. Companies should optimize working capital (cash, receivables, and inventory), maintain an efficient capital structure, and ensure that debt is allocated to productive projects that increase ROA. Transparent communication with the market is also important for strengthening investor confidence.

5.3 Limitations and Suggestions

This study is limited to one company, selected ratios (CR, DER, ROA, and Tobin's Q), and linear regression/Sobel tests, and it includes the abnormal COVID-19 period (2020–2022). Future research should expand the samples and periods, include additional variables (e.g., size, growth, dividend policy,

and macro factors), use alternative firm value measures (PBV/PER), and apply more advanced methods (panel/SEM/nonlinear models).

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