

## The Role of Company Size, Leverage Ratio, Activity Ratio and Liquidity Ratio To The Profitability of Manufacturing Companies on The Indonesia Stock Exchange in 2020 – 2024

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### Abstract

Profitability increased to some extent as the economy strove to sustain the industrial sector, and stakeholders were alleviated of fears surrounding the inability to further leverage their assets. Furthermore, the profitability of companies listed on the Indonesia Stock Exchange (IDX) was estimated for the 2020–2024 timeframe, taking internal factors into account. The study investigated the impact of management, leverage, activity, and profitability parameters on the industry over this period. The approach was built based on confirmed facts. A sample of 58 entities was picked via purposive sampling, resulting in a total of 290 observations. Data analysis was conducted using IBM SPSS Statistics 31, applying linear regression techniques. The data reveal that profit margins, leverage (DER), asset turnover (TATO), and the current ratio (CR) significantly influenced profitability (ROA). Specifically, whereas TATO and CR had favorable and substantial effects on ROA, other covariates showed negative and significant affects. The results reveal an R-squared value of 27.4%, indicating that 72.6% of the variance in profitability is attributed to factors other than the independent variables included in the model. Consequently, the study implies that organizations might boost their profitability by optimizing their capital structure and operational efficiency.

Keywords: Company Size, Leverage, Activity, Liquidity, Profitability.

### Introduction

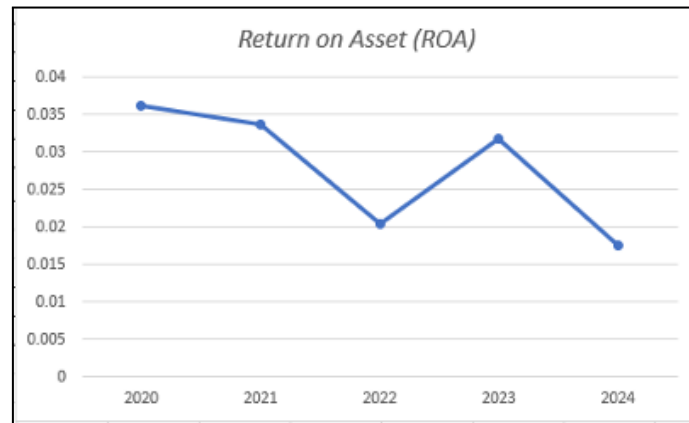
The position of the manufacturing industry holds high urgency in the dynamics of the world and domestic economy. Referring to the World Bank (2021), this sector contributes around 16% to global GDP while playing a vital role as the largest labor absorber. Domestically, the manufacturing industry contributes a portion of 20% to national GDP (Central Statistics Agency, 2022). Nevertheless, global economic pressures due to soaring inflation, supply chain disruptions, and geopolitical tensions pose a severe challenge to the sector's performance. Given the increasingly competitive competitive landscape, manufacturing entities must optimize resource management to maintain profitability (Pratama et al., 2023).

The IDX functions as a central channel for corporations in Indonesia in an effort to raise capital. From 2020 to 2024, there were 272 manufacturing entities actively traded on the IDX, which illustrates how varied and dynamic this sector is. Although they are able to show their existence, industry players are not spared from obstacles such as uncertainty in raw material prices, regulatory transformation, and fierce market competition. These various problems directly suppress the rate of profit acquisition which is the essence of this research discussion (Kasmir, 2020).

Often, manufacturing units in Indonesia encounter obstacles in realizing ideal profitability performance. These constraints are often rooted in several variables such as operational scale, capital composition, effectiveness of asset utilization, and liquidity ability (Fahmi, 2021). Some previous studies have given the impression that entities of a more massive scale typically have a wider range of access to markets and funding sources. However, the accumulation of company size is not absolutely directly proportional to the increase in profit (Azlina, 2022). On the other hand, a high proportion of DER has the potential to trigger financial risk exposure, while a minimal liquidity position can hinder the fulfillment of the company's current obligations (Panjaitan, 2024).

A recapitulation of financial statements from 272 manufacturing issuers on the IDX reveals a real imbalance in profitability achievements. Throughout the period 2020 to 2024, the company's average ROA moved in the range of 5% to 15% (OJK, 2023). Based on the investigation of Pratama et al (2023), it is known that the projected liquidity level through CR has a significant relationship with profit. Meanwhile, DER shows contributions that tend to vary between industrial sectors. This phenomenon

indicates the need for a more comprehensive study to dissect the main determinants that affect profitability more precisely.



**Figure 1.** Growth of ROA of Manufacturing Companies on the IDX

Based on Figure 1, the value of Return on Asset (ROA), which measures the efficiency of a company in managing assets to generate profits (Y axis), fluctuates from 2020 to 2024 (X axis). The highest ROA value was recorded in 2020 at 0.036 (or 3.6%). After that, the company's profitability declined consecutively until it reached its lowest point in 2022 at around 0.0205 (2.05%). Although there was a significant recovery or increase in 2023 to 0.032 (3.2%), this positive trend did not last long. In 2024, the ROA value will decline sharply again to 0.0175 (1.75%). The overall decline from 2020 to 2024 indicates a decrease in asset utilization efficiency or a decrease in operating net profit margin during the period (Melani & Laksmiwati, 2025).

Conceptually, a company's capacity to convert assets into profits is represented by ROA (Kasmir, 2020). The size of a corporation that is assessed through total assets or sales volume is often associated with the capability to achieve a more optimal economic scale (Azlina, 2022). Regarding the funding structure, the proportion of debt to equity projected through DER is the focus, where optimizing the use of debt is believed to be able to boost profitability (Fahmi, 2021). Meanwhile, TATO is used as a proxy to assess the company's level of efficiency in optimizing assets to drive sales (Panjaitan, 2024), while the entity's ability to pay off short-term liabilities is evaluated through CR (Kasmir, 2020).

Although studies on the relationship between financial ratios and profitability have been conducted quite massively, the findings still show a marked disparity. There are studies that report a positive correlation, but not a few other studies have revealed the lack of significance of the relationship between these variables (Widarti et al., 2021; Pratama et al., 2023). Furthermore, empirical evidence examining the simultaneous influence of the scale of companies, DER, TATO, and CR on manufacturing profitability in Indonesia in the latest time frame (2020-2024) is still very limited, so this study is presented to fill the blank space in the literature.

Given the vital role of profitability in maintaining the survival of companies, the urgency of this research lies in its ability to provide in-depth insights related to the determinants that affect profits in the national manufacturing sector. The output of this research is anticipated to be a practical foothold for management in designing more precise financial policies, as well as helping investors to take investment steps based on accurate information (Panjaitan, 2024).

The primary purpose of this study is to empirically analyze the impact of company size on the profitability of manufacturing companies listed on the Indonesia Stock Exchange (IDX) during the 2020–2024 period. Furthermore, the study investigates the influence of the debt-to-equity ratio (DER), total asset turnover (TATO), and the current ratio (CR) on profitability within the same industry and timeframe. The findings are likely to provide substantial insights into the elements driving profitability in the Indonesian manufacturing sector.

Against this context, the study intends to address fundamental questions regarding the links between firm size, DER, TATO, and CR and the profitability of IDX-listed manufacturing companies from 2020 to 2024. The research questions are as follows: (1) How substantial is the impact of business size on profitability? (2) To what extent does the DER effect the profitability of industrial companies? (3) What influence does TATO have on profitability? (4) What function does the CR play in determining corporate profitability? And (5) Is there a simultaneous influence of all these independent variables on profitability inside the IDX manufacturing sector? Ultimately, this study attempts to give an in-depth investigation of the elements driving profitability in the Indonesian manufacturing industry.

Moreover, the findings are intended to serve as a basis for management recommendations about the design of more successful financial strategies and to assist investors in their decision-making processes. In doing so, the study intends to supplement current literature while helping stakeholders comprehend the complex dynamics of financial performance in this industry.

## Literature Review

The resource-based view (RBV) created by Barney (1991) asserts that a company's competitive advantage originates from its capacity to manage resources in a way that creates value and achieves superior performance relative to competitors. These resources cover both actual and intangible assets, such as total assets, technology, human capital, management skills, and operational systems.

From a financial management viewpoint, the RBV notes that organizations with more broad resources are better positioned to optimize asset usage, get simpler access to finance, boost operational efficiency, and achieve higher profitability. Consequently, criteria such as company size, asset utilization efficiency (activity ratios), the ability to manage capital structure (leverage), and the capacity to satisfy short-term obligations (liquidity) indicate characteristics of resource usage that impact profitability levels.

In manufacturing companies, fixed assets, production machinery, working capital, and production technology are the main resources that must be managed efficiently. The more effectively the company utilizes these resources, the higher the Return on Assets (ROA) that can be generated. Thus, RBV is the main theory that explains the relationship between company size, activity ratio, leverage, liquidity, and profitability (Aeraafi & Hartono, 2024).

The relationship between the Resource-Based View (RBV) theory and the variable "firm size" illustrates the scope of resources a corporation holds. Firms with considerable total assets have a better capacity to access funding, undertake investments, develop technologies, expand production capabilities, and achieve cost efficiencies (economies of scale). These conditions enable such corporations to make higher profits compared to smaller enterprises. However, extremely large organizations may also encounter inefficiencies and growing operating expenses; hence, the influence of firm size on profitability is not necessarily beneficial. Thus, the relationship between business size and profitability remains a subject of empirical inquiry (Effendi & Surjadi, 2024).

Regarding the variable "leverage" (degree of indebtedness), the trade off theory serves as the theoretical basis. It claims that enterprises must choose an appropriate capital structure by evaluating the benefits of debt financing specifically the tax shield against the dangers of increased bankruptcy expenses (financial hardship). A moderate level of debt can enhance earnings through tax savings. Conversely, if the amount of debt is extremely large, interest expenses grow, consequently diminishing the firm's profit. In this study, leverage is represented by the debt-to-equity ratio (DER). A larger DER suggests a greater reliance on debt, which can possibly affect profitability unless matched by comparable earning power (Aeraafi & Hartono, 2024).

Teori Resource Based View (RBV) menyatakan bahwa keunggulan kompetitif perusahaan tidak hanya ditentukan oleh besarnya aset yang dimiliki, tetapi juga oleh kemampuannya dalam memanfaatkan aset-aset tersebut secara efisien. Metrik aktivitas, yang diukur melalui Total Asset Turnover (TATO), menunjukkan seberapa efektif perusahaan memanfaatkan total asetnya untuk menghasilkan pendapatan. A higher TATO value reflects higher asset productivity, which tends to lead to increased revenue and profit. For manufacturing companies, the efficient use of machinery, production facilities, inventories, and other assets is a crucial factor in increasing profitability.

Consequently, companies with a high asset turnover rate are expected to achieve a higher return on assets (ROA) (Aeraafi & Hartono, 2024).

The liquidity variable is explained by the theory of working capital management. This theory posits that companies must optimally manage their current assets and short-term liabilities to ensure smooth business operations. Adequate liquidity demonstrates a company's ability to meet short-term obligations without disrupting its operations. However, excessive liquidity can indicate unused cash that is not being utilized productively, thus reducing profitability. Therefore, companies must maintain liquidity at an optimal level to maximize profit (Aeraafi & Hartono, 2024).

### Hypothesis Development

Firm size shows the extent of resources available to a corporation, often defined by total assets. Based on the Resource-Based View (RBV), organizations with higher resources hold a stronger potential to enhance operational efficiency, secure access to funding, and capitalize on investment opportunities to boost profitability. Consequently, the larger the firm, the greater its capacity to earn profits. Research by (Jannah, 2025) reveals that firm size has a positive and considerable impact on the profitability of manufacturing enterprises. Similar findings are corroborated by (Dewi & Abundanti, 2023) as well as (Noviana & Nursiam, 2025), who also notice that business size positively increases profitability.

H1: Firm size has a favorable and considerable impact on the profitability of manufacturing companies listed on the Indonesian Stock Exchange throughout the 2020–2024 period.

Financial leverage reflects the amount to which debt is used to finance a company's assets. According to trade-off theory, the appropriate use of debt can bring benefits such as tax savings; however, excessive leverage raises interest expenses and the danger of insolvency, hence diminishing profitability. Research by Tomewi and Zulvia (2023) reveals that leverage has a negative influence on profitability. This result is verified by Jannah (2025), who discovered that a higher debt-to-equity ratio (DER) in manufacturing enterprises associated with lower profitability.

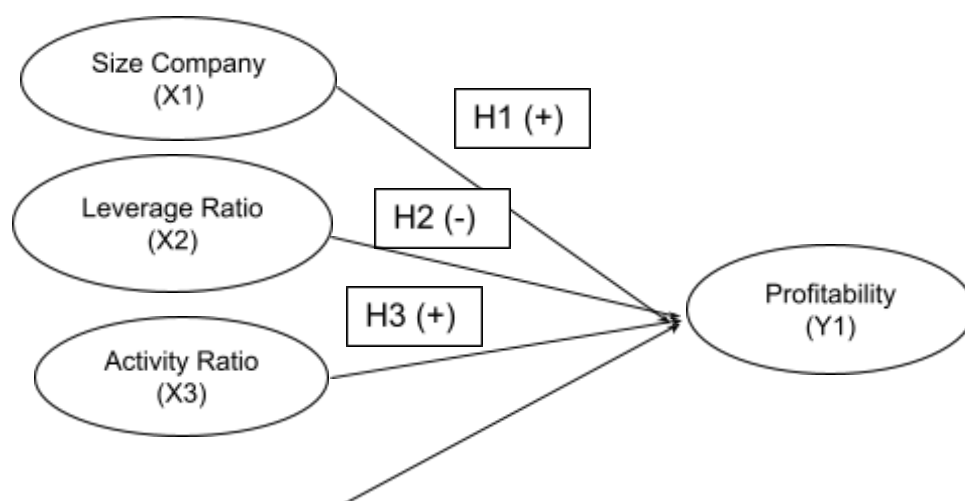
H2: The degree of indebtedness has a detrimental influence on the profitability of manufacturing companies listed on the Indonesian stock exchange over the 2020–2024 period.

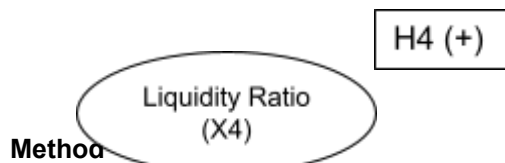
The activity ratio, defined as entire Asset Turnover (TATO), illustrates how successfully a corporation utilizes its entire assets to create revenue. Based on the Resource-Based View (RBV), the more efficiently a corporation exploits its assets as a resource, the greater its capacity to generate profit. Research (Octaviana et al., 2025) reveals that the activity ratio has a beneficial impact on profitability. This finding aligns with studies (Aeraafi and Hartono, 2024) demonstrating that the effective utilization of assets can boost the profitability of industrial enterprises.

H3: The activity ratio has a beneficial effect on the profitability of industrial enterprises listed on the Indonesian Stock Exchange throughout the 2020–2024 period.

Liquidity represents a company's capacity to settle short-term liabilities using current assets. According to working capital management theory, the appropriate administration of current assets (working capital) supports seamless corporate operations and consequently generates increased profitability. Research (Jannah, 2025) demonstrates that liquidity has a beneficial impact on profitability, albeit this effect is not statistically significant. Studies (Dewi and Abundanti, 2023) have likewise indicated that liquidity positively influences corporate profitability.

H4: The liquidity ratio has a beneficial effect on the profitability of industrial enterprises listed on the Indonesian Stock Exchange over the 2020–2024 period.





**Figure 2.** Conceptual Framerowk

## Method

Operationalization of Research Variables are:

The corporate scale is quantified through total assets which are then converted into Ln units so that data distribution becomes more normal and the massive nominal disparity of assets between companies can be minimized.

$$\text{Company Size} = \ln \text{Total Assets}$$

This metric is projected using DER, which is a comparative calculation between total liabilities to owner equity, which represents an entity's dependence on external funds in its capital composition.

$$\text{DER} = \frac{\text{Total Debt}}{\text{Total Equity}}$$

TATO is used as an indicator for this ratio, which is derived from the division between total revenue and overall asset value, to evaluate how effective a company is in leveraging assets to stimulate sales.

$$\text{TATO} = \frac{\text{Net Sales}}{\text{Total Assets}} \times 100\%$$

This parameter is measured through CR, which is the ratio between current assets compared to short-term liabilities, which serves as a benchmark for the company's readiness to pay off financial commitments that will be due soon.

$$\text{CR} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

This variable is proxied using ROA, which is the ratio of net profit after deducting tax expense to total assets, which describes how much of the rate of return on profit is generated from each unit of assets managed by the company.

$$\text{ROA} = \frac{\text{Net Income}}{\text{Total Assets}} \times 100\%$$

The research population contains all manufacturing companies legally registered on the Indonesian Stock Exchange (IDX) between 2020 and 2024, totaling 272 companies. Purposive sampling is employed—a selection strategy based on specified criteria linked with the study's aims and requirements. The selection criteria employed in this study are as follows:

1. Companies constantly listed on the IDX from 2020 to 2024.
2. Companies that published financial reports for the 2020–2024 timeframe.
3. Companies that recorded losses (both pre-tax and post-tax) during the 2020–2024 period.
4. Companies whose datasets do not contain extreme values (outliers).

Through the application of the sample selection criteria, it was determined that as many as 58 manufacturing entities successfully qualified as research samples. The number of samples has met the recommendation of Hair et al. (2022) who state that the sample size for multiple regression analysis is at least 5-10 the number of variables analyzed. This study uses 5 variables, namely company size, leverage ratio, activity ratio, liquidity ratio and profitability, so that the minimum sample number recommended is:

$$N = 58 \times \text{the sum of variables}$$

$$N = 58 \times 5$$

$$N = 290 \text{ samples}$$

Thus, the number of samples of 58 companies has exceeded the minimum number recommended by Hair et al. (2022), so it is considered adequate to perform multiple regression analysis using IBM SPSS Statistics 31.

This study employs a quantitative method and relies on secondary data from the financial reports of industrial enterprises listed on the Indonesia Stock Exchange (IDX), spanning the period from 2020 to 2024. Data processing begins with a descriptive statistical analysis to establish a data profile, followed by a series of tests incorporating classical assumptions—including tests for normality, multicollinearity, heteroskedasticity, and autocorrelation—to confirm the validity of the regression model. The central

analysis technique applied is multiple linear regression or OLS-based panel data model, with the following formulation:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + e$$

Y = Profitabilitas (ROA),  
 X<sub>1</sub> = Company Size (Ln Total Assets),  
 X<sub>2</sub> = Rasio Leverage (DER),  
 X<sub>3</sub> = Activity Ratio (TATO),  
 X<sub>4</sub> = Liquidity Ratio (CR),  
 α = Constant,  
 β<sub>1</sub>, β<sub>2</sub>, β<sub>3</sub>, β<sub>4</sub> = The regression coefficient for each independent variable,  
 e = Error term.

This testing strategy initially entails running a t-test to assess the significance of the influence of each independent variable on profitability, followed by an F-test to simultaneously analyze the total impact of all independent factors. In addition, the coefficient of determination based on the R<sup>2</sup> or adjusted R<sup>2</sup> value is determined to measure the amount to which the variation in profitability can be explained by the explanatory variables of the developed model.

## Results and Discussion

Based on a descriptive statistical analysis of 290 data points from the research sample (N = 290), the variable "firm size" measured using the natural logarithm (X1\_Ln) showed a minimum value of 25.08, a maximum value of 32.94, and a mean of 290.668, with a standard deviation of 169.260. For the variable "debt-to-equity ratio" (X2\_DER), the recorded values ranged from 0.03 to 5.65, with a mean of 0.7747 and a standard deviation of 0.78516. The variable "total asset turnover" (X3\_TATO) revealed a very wide range of values; the lowest turnover value was 0.03, the highest was 576.39, and the mean was 989.617, followed by a very large standard deviation of 7,366.441. The variable "current ratio" (X4\_CR) shows liquidity levels ranging from a minimum of 0.29 to a maximum of 15.69, with an overall average of 29.754 and a standard deviation of 281.601. Finally, the variable "profitability" measured as return on assets (Y\_ROA) revealed the presence of loss-making firms (lowest value of -5.41), while the highest profitability (maximum value) reached 14.89. The average profitability of the overall sample was 52.722 with a standard deviation of 379.438, suggesting considerable dispersion in return on assets among the firms analyzed throughout the observation period.

**Table 1.** Descriptive Statistical Test

|                    | N   | Minimum | Maximum | Mean    | Std. Deviation | Variance  |
|--------------------|-----|---------|---------|---------|----------------|-----------|
| X1_Ln              | 290 | 25.08   | 32.94   | 290.668 | 169.260        | 2.865     |
| X2_DER             | 290 | .03     | 5.65    | .7747   | .78516         | .616      |
| X3_TATO            | 290 | .03     | 576.39  | 989.617 | 7.366.441      | 5.426.446 |
| X4_CR              | 290 | .29     | 15.69   | 29.754  | 281.601        | 7.930     |
| Y_ROA              | 290 | -5.41   | 14.89   | 52.722  | 379.438        | 14.397    |
| Valid N (listwise) | 290 |         |         |         |                |           |

Source: SPSS Output 31

Based on the findings of the Kolmogorov-Smirnov test for normality (one-sample test) performed on the unstandardized residuals of a sample of 290 (N = 290), the test statistic value was 0.048. The reported asymptotic significance value (two-tailed) was 0.200. Since this significance value above the stated significance level of 0.05 (0.200 > 0.05), it may be assumed that the residuals in this regression model are regularly distributed. Thus, the assumption of normality is met, making the regression model acceptable for the subsequent stage of hypothesis testing.

**Table 2.** Normality Test

|                                  | Unstandardized Residual |
|----------------------------------|-------------------------|
| N                                | 290                     |
| Normal Parameters <sup>a,b</sup> | Mean .0000000           |

|                          |                |                     |
|--------------------------|----------------|---------------------|
|                          | Std. Deviation | 3.21165494          |
| Most Extreme Differences | Absolute       | .048                |
|                          | Positive       | .048                |
|                          | Negative       | -.026               |
| Test Statistic           |                | .048                |
| Asymp. Sig. (2-tailed)   |                | .200 <sup>c,d</sup> |

Source: SPSS Output 31

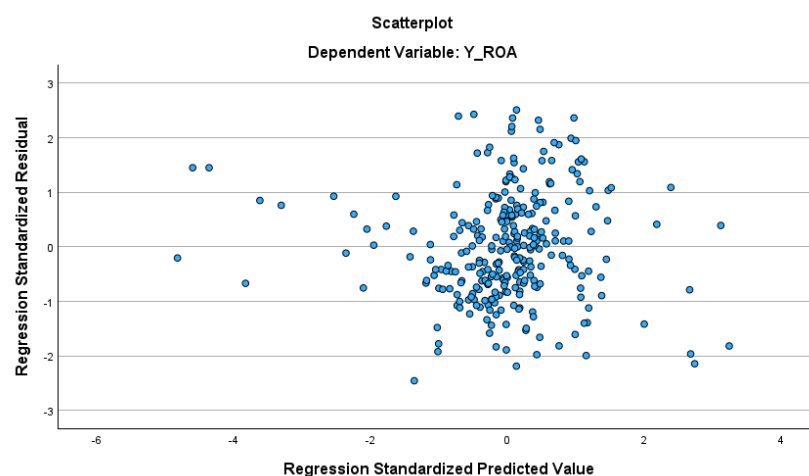
Based on the outcomes of the multicollinearity test utilizing collinearity statistics, none of the independent variables in the regression model exhibit multicollinearity. The variable Firm Size (X1\_Ln) exhibits a tolerance value of 0.854 and a VIF value of 1.171. The variable Debt-to-Equity Ratio (X2\_DER) has a tolerance value of 0.826 and a VIF value of 1.210. Furthermore, the variable Total Asset Turnover (X3\_TATO) reveals the highest tolerance value (0.960) and the lowest VIF value (1.041). Finally, the variable Current Ratio (X4\_CR) reveals a tolerance value of 0.787 and a VIF value of 1.270. Since the tolerance values for all independent variables exceed 0.10 and the VIF values remain much below 10, it may be claimed that there is no strong linear relationship or correlation between these independent variables. Thus, the traditional assumptions of multicollinearity are met, and the regression model is free from bias.

**Table 3.** Multicollinearity Test

| Model                       | Collinearity Statistics |       |
|-----------------------------|-------------------------|-------|
|                             | Tolerance               | VIF   |
| 1 (Constant)                |                         |       |
| X1_Ln                       | .854                    | 1.171 |
| X2_DER                      | .826                    | 1.210 |
| X3_TATO                     | .960                    | 1.041 |
| X4_CR                       | .787                    | 1.270 |
| a Dependent Variable: Y_ROA |                         |       |

Source: SPSS Output 31

Based on the scatter plot, the regression model is regarded free from heteroscedasticity (and hence satisfies the assumption of homoscedasticity), as the data points are randomly distributed and show no evident, regular pattern. Furthermore, the data points appear to be evenly distributed above and below the zero line on the standardized residuals axis. This illustrates that the residual variance is consistent across observations, rendering the regression model credible and ideal for predictive analysis.

**Figure 3.** Heteroscedasticity Test

Source: SPSS Output 31

Based on the findings of the Durbin-Watson (DW) test for autocorrelation, the regression model appears to defy traditional assumptions. The "Model Summary" table reports a Durbin-Watson value of 1.035. Comparing this result with the essential values from the Durbin-Watson table—assuming a significance level of 5%, a sample size (N) of 290, and four independent variables ( $k = 4$ )—yields a lower limit (dL) of 1.4325 and an upper bound (dU) of 1.7259. This comparison reveals that the projected Durbin-Watson value falls below the lower bound (dL); precisely,  $1.035 < 1.4325$  ( $d < dL$ ). Based on the decision criteria, this result implies the presence of positive autocorrelation in the regression model, signifying serial correlation among chronologically or geographically ordered sample observations.

**Table 5. Autocorrelation Test**

| Model | Durbin-Watson | dL value | Value dU | Grade (4-dU) | Conclusion                      |
|-------|---------------|----------|----------|--------------|---------------------------------|
| 1     | 1.035         | 1.4325   | 1.7259   | 2.2741       | Positive Autocorrelation Occurs |

Source: SPSS Output 31

Based on the results of the statistical output that has been carried out, the regression equations obtained are:

**Table 6. Multiple Linear Regression Test**

| Model |            | Unstandardized Coefficients |            | Standardized Coefficients | t      | Sig.  |
|-------|------------|-----------------------------|------------|---------------------------|--------|-------|
|       |            | B                           | Std. Error | Beta                      |        |       |
| 1     | (Constant) | -9.223                      | 3.649      |                           | -2.528 | .012  |
|       | X1_Ln      | .476                        | .122       | .212                      | 3.910  | <.001 |
|       | X2_DER     | -1.908                      | .267       | -.395                     | -7.158 | <.001 |
|       | X3_TATO    | .016                        | .003       | .309                      | 6.033  | <.001 |
|       | X4_CR      | .194                        | .076       | .144                      | 2.552  | .011  |

Source: SPSS Output 31

$$Y = -9,223 + 0,476X_1 - 1,908X_2 + 0,016X_3 + 0,194X_4 + e$$

The constant value (a) of -9.223 indicates that if all independent variables comprising company size (X1\_Ln), debt ratio (X2\_DER), total asset turnover (X3\_TATO), and the current ratio (X4\_CR)—are maintained constant or set to zero, the anticipated value of the dependent variable (Y\_ROA) is -9.223 units.

The regression coefficient for the variable X1\_Ln is 0.476, demonstrating a positive value. This suggests a direct connection between company size and the dependent variable. It means that for every one-unit rise in the natural logarithm of firm size, the projected value of the dependent variable (Y\_ROA) increases by 0.476 units, provided the other independent variables remain constant. The regression coefficient for the variable X2\_DER is -1.908, representing a negative value. This points to an inverse link between the debt ratio and the dependent variable. It indicates that every one-unit rise in the debt ratio leads to a decline of 1.908 units in the value of the dependent variable (Y\_ROA), providing the other independent variables remain constant.

The regression coefficient for the variable X3\_TATO is 0.016 and is positive. This shows a positive relationship between the total asset turnover ratio and the dependent variable. It is estimated that a one-unit rise in the total asset turnover ratio will increase the value of the dependent variable (Y\_ROA) by 0.016 units, if the other independent variables remain constant.

The regression coefficient for the variable X4\_CR is 0.194 and is positive. This research reveals a favorable correlation between the current ratio and the dependent variable. Thus, it is projected that the value of the dependent variable (Y\_ROA) increases by 0.194 units when the current ratio increases by one unit.

The test outcomes demonstrate that all independent factors exhibit a substantial influence on the dependent variable Y. The variable firm size (X1\_Ln) has a calculated t-value of 3.910 at a

significance level of <0.001 (<0.05), suggesting that X1\_Ln has a positive and significant influence on Y\_ROA. The variable debt-to-equity ratio (X2\_DER) exhibits a calculated t-value of -7.158 at a significance level of <0.001 (<0.05); this leads to the conclusion that X2\_DER exerts a negative and significant influence on Y\_ROA. The variable total asset turnover (X3\_TATO) provides a computed t-value of 6.033 at a significance level of <0.001 (<0.05), thereby demonstrating a positive and significant influence on Y\_ROA. Finally, the variable fast ratio (X4\_CR) displays a computed t-value of 2.552 at a significance level of 0.011 (<0.05), demonstrating that X4\_CR also exerts a positive and significant partial influence on the dependent variable Y\_ROA.

**Table 7.** Persial Test (t-test)

| Model        | Unstandardized Coefficients |            | Standardized Coefficients | t      | Sig.  |
|--------------|-----------------------------|------------|---------------------------|--------|-------|
|              | B                           | Std. Error | Beta                      |        |       |
| 1 (Constant) | -9.223                      | 3.649      |                           | -2.528 | .012  |
| X1_Ln        | .476                        | .122       | .212                      | 3.910  | <.001 |
| X2_DER       | -1.908                      | .267       | -.395                     | -7.158 | <.001 |
| X3_TATO      | .016                        | .003       | .309                      | 6.033  | <.001 |
| X4_CR        | .194                        | .076       | .144                      | 2.552  | .011  |

Source: SPSS Output 31

Based on the results of the simultaneous test (F-test) in the ANOVA table above, the calculated F-value is 28.201 with a significance level of 0.000. This significance value is well below the stated threshold of 0.05 ( $0.000 < 0.05$ ). This indicates that the independent variables—comprising company size (X1\_Ln), debt-to-equity ratio (X2\_DER), total asset turnover (X3\_TATO), and current ratio (X4\_CR) collectively (simultaneously) exert a large influence on the dependent variable, namely return on assets (Y\_ROA). Consequently, this multiple linear regression model is rated acceptable and suitable for projecting firm profitability within the scope of this study.

**Table 8.** Simultaneous Test (F Test)

| Model        | Sum of Squares | df  | Mean Square | F      | Sig.  |
|--------------|----------------|-----|-------------|--------|-------|
| 1 Regression | 1.179.861      | 4   | 294.965     | 28.201 | .000b |
| Residual     | 2.980.956      | 285 | 10.459      |        |       |
| Total        | 4.160.817      | 289 |             |        |       |

Source: SPSS Output 31

Based on the data regarding the coefficient of determination in the "Model Summary" table above, an adjusted R-squared value of 0.274 was derived. This demonstrates that the aggregate contribution—or influence—of all independent variables (comprising company size [X1\_Ln], debt-to-equity ratio [X2\_DER], total asset turnover [X3\_TATO], and current ratio [X4\_CR]) on the dependent variable return on assets (Y\_ROA) amounts to 27.4%. Conversely, the remaining 72.6% ( $100\% - 27.4\%$ ) is explained or influenced by other variables that were not addressed or explored in this research paradigm.

**Table 9.** Determination Test

| Model                                                   | R     | R Square | Adjusted R Square | Std. Error of the Estimate |
|---------------------------------------------------------|-------|----------|-------------------|----------------------------|
| 1                                                       | .533a | .284     | .274              | 323.411                    |
| a Predictors: (Constant), X4_CR, X3_TATO, X1_Ln, X2_DER |       |          |                   |                            |
| b Dependent Variable: Y_ROA                             |       |          |                   |                            |

Source 2: Output SPSS 31

## Discussion

This quantitative research demonstrates that the variable "firm size" (X1\_Ln) exerts a positive and significant partial effect on the return on assets (Y\_ROA). This is substantiated by a calculated t-value of 3.910, a significance level of <0.001 (<0.05), and a direct regression coefficient of 0.476. These results correspond with the idea of economies of scale. Large firms possess benefits regarding operational productivity and cost efficiency, enabling them to optimally utilize investments in fixed

assets into profit. These findings are verified by research undertaken by Sari (2021) and a panel data analysis by Suteja et al. (2023); both studies demonstrate that firm size is a strong predictor with a positive and significant influence on profitability. Furthermore, big firm size gives a positive signal to the market regarding the company's internal stability (signaling theory). Additionally, these results complement the findings of Putri and Wardani (2025), which imply that asset management in large organizations was more resilient to macroeconomic turbulence than in smaller enterprises.

The size of the company has a favorable and significant effect on profitability. This quantitative research demonstrates that the Statistical test findings reveal that the debt-to-equity ratio (X2\_DER) exerts a significant negative partial influence on the return on assets (Y\_ROA). This is shown by a negative t-statistic of -7.158 and a significance level of  $<0.001$  ( $<0.05$ ), and is further strengthened by a regression coefficient of -1.908. Theoretically, these findings fit with the "pecking-order idea." A large increase in the debt ratio raises fixed interest expenditures and agency charges, hence immediately lowering the net revenue earned by asset usage. These findings are similar with studies by Putra et al. (2021) and empirical study by Febbilia et al. (2024), which reveal a substantial negative association between the debt-to-equity ratio (DER) and profitability (ROA). A high debt ratio exerts tremendous financial pressure, particularly during periods of economic recovery. This pattern is further verified by financial data from the industrial sector reviewed by Nadia Ulfah et al. (2024); the data suggest that a strong reliance on debt hinders profitability, as enterprises must carry substantial financial risk premiums.

The research findings reveal that the "Total Asset Turnover" variable (X\_3\_TATO) exerts a partial, positive, and significant influence on the Return on Assets (Y\_ROA). This conclusion is based on a calculated t-value of 6.033 and a significance level of  $<0.001$  ( $<0.05$ ), with a regression coefficient of 0.016. These results underline the importance of the overall asset turnover ratio. The higher the asset turnover within a certain period, the more productive the company is in creating net income. These findings correspond with studies by Lestari (2022) and study published in *Aktual Jurnal* (2024) about the banking and manufacturing sectors, which revealed that the TATO variable helps considerably and favorably to raising the Return on Assets (ROA). Agile control of asset use proves beneficial for balancing fixed operational costs. This is further confirmed by predictive analyses in *Cakrawala Jurnal* (2025), which imply that a high total asset turnover ratio serves as a significant indicator of internal fundamental stability while simultaneously shielding the organization against the possibility of financial crisis.

The final partial analysis reveals that the "Current Ratio" variable (X\_4\_CR) exerts a positive and significant influence on the return on assets (Y\_ROA). This result is based on a calculated t-value of 2.552, a significance level of 0.011 ( $<0.05$ ), and a regression coefficient of 0.194. This favorable association implies a sound alignment of present assets. The availability of sufficient liquid money ensures that the daily operational cycle is not compromised by the risk of short-term payment defaults. These results correspond with the study of Nugroho (2021) and are confirmed by recent empirical findings from the *\*Amanah Journal\** (2025), which likewise confirm a positive and significant impact of the current ratio (CR) on ROA. Maintaining a solid liquidity buffer has been demonstrated to create confidence among upstream suppliers, hence facilitating uninterrupted production processes. Furthermore, capital market research by the *\*Riggs Journal\** (2026) found that enterprises that optimally maintained their current ratio between 2017 and 2024 tended to exhibit a much more stable profits position from the perspective of investors.

## Conclusion

At the same time, all independent variables show a considerable influence and prove well-suited for predicting profitability (Return on Assets). Specifically, firm size, the activity ratio (total asset turnover), and the liquidity ratio (current ratio) play a positive and significant role in boosting the profitability of manufacturing firms by fostering economies of scale and efficient asset utilization, as well as by ensuring smooth operational processes. In contrast, the degree of leverage (debt-to-equity ratio) has a considerable negative influence on profitability; this implies that a strong reliance on debt raises fixed interest expenses, hence diminishing the company's net profit. Although the combination of these four financial components constitutes a valid explanatory factor, the coefficient of determination reveals that their joint influence accounts for only 27.4% of the variance, while the remaining 72.6% is

attributable to macroeconomic factors or other internal fundamentals not covered by this study's regression model.

Based on the research findings, management is urged to limit debt financing in order to reduce interest payments while maximizing asset turnover, and to retain sufficient working capital to ensure smooth business operations and profitability. Investors should consider firm size, asset productivity, and liquidity as crucial indications when assessing the fundamental health of a publicly traded company prior to investing. Future researchers are invited to extend the research model by integrating macroeconomic variables—such as inflation or interest rates—and to apply the weighted least squares (WLS) method to address the difficulties of.

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