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THE EFFECT OF CAPITAL STRUCTURE (DER AND DAR) ON ROA OF INDUSTRIAL GOODS SUB-SECTOR COMPANIES LISTED ON THE INDONESIA STOCK EXCHANGE

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ABSTRACT

This study is motivated by the importance of capital structure management in improving corporate profitability, particularly in the industrial goods subsector, which requires substantial funding. The study aims to analyze the effect of Debt to Equity Ratio (DER) and Debt to Asset Ratio (DAR) on Return on Assets (ROA). A quantitative approach with an associative design was employed, using purposive sampling to select 12 companies with 60 observations during the 2020–2024 period. Secondary data were obtained from annual financial statements and analyzed using multiple linear regression, supported by classical assumption tests, t-tests, F-tests, and the coefficient of determination. The results show that partially, DER and DAR do not significantly affect ROA, while simultaneously they have a significant effect. The Adjusted R Square value of 0.163 indicates limited explanatory power. Additionally, DER and DAR exhibit a negative relationship with ROA, implying that increased leverage does not necessarily enhance profitability.
Keywords: DER, DAR, ROA

ABSTRAK

Penelitian ini dilatarbelakangi oleh pentingnya pengelolaan struktur modal dalam meningkatkan profitabilitas perusahaan, khususnya pada subsektor barang industri yang membutuhkan pendanaan cukup besar. Penelitian ini bertujuan untuk menganalisis pengaruh Debt to Equity Ratio (DER) dan Debt to Asset Ratio (DAR) terhadap Return on Assets (ROA). Penelitian ini menggunakan pendekatan kuantitatif dengan desain asosiatif. Teknik pengambilan sampel menggunakan purposive sampling, sehingga diperoleh 12 perusahaan dengan 60 observasi selama periode 2020–2024. Data sekunder diperoleh dari laporan keuangan tahunan dan dianalisis menggunakan regresi linear berganda, didukung oleh uji asumsi klasik, uji t, uji F, dan koefisien determinasi. Hasil penelitian menunjukkan bahwa secara parsial DER dan DAR tidak berpengaruh signifikan terhadap ROA, sedangkan secara simultan keduanya berpengaruh signifikan. Nilai Adjusted R Square sebesar 0,163 menunjukkan bahwa kemampuan model dalam menjelaskan variabel dependen masih terbatas. Selain itu, DER dan DAR menunjukkan hubungan negatif dengan ROA, yang mengindikasikan bahwa peningkatan leverage tidak selalu mampu meningkatkan profitabilitas.
Kata Kunci: DER, DAR, ROA

I. INTRODUCTION

The increasingly competitive business environment requires firms to manage their financial structure strategically to maintain sustainability and improve financial performance. Capital structure, which reflects the proportion of debt and equity financing, is a crucial financial decision because it influences the cost of capital, financial risk, liquidity pressure, and profitability (Brigham & Houston, 2022; Brealey et al., 2023; Ross et al., 2022). In capital-intensive sectors, such as the industrial goods

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subsector, substantial funding is required to support production capacity, asset expansion, technological development, and working capital. Accordingly, an inappropriate debt policy may increase financial pressure, whereas an optimal financing structure may enhance operational efficiency and long-term performance (Zutter & Smart, 2021; Brigham & Houston, 2022).

In this study, capital structure is measured using the Debt to Equity Ratio (DER) and Debt to Asset Ratio (DAR), both of which represent the firm's leverage position. Theoretically, debt financing may improve profitability when the funds obtained are used productively and generate returns exceeding the cost of debt. However, excessive leverage may weaken profitability due to higher interest expenses, default risk, and financial distress (Brealey et al., 2023; Kasmir, 2019). Empirical findings also remain inconclusive. Several studies report that leverage negatively affects profitability and firm performance, while others suggest that its effect depends on firm characteristics, agency costs, governance mechanisms, sectoral conditions, and macroeconomic uncertainty (Nazir et al., 2021; Ngatno et al., 2021; Ahmed et al., 2023).

Further studies indicate that the relationship between capital structure and profitability may be nonlinear, asymmetric, and context-dependent. Debt financing does not always improve profitability and may reduce firm performance when leverage exceeds an optimal level or when firms operate under uncertain economic conditions (Arhinful & Radmehr, 2023; Nikhil et al., 2024; Jaiswal & Elmarzouky, 2025). These findings suggest that capital structure decisions should not be viewed merely as funding choices, but also as strategic decisions related to financial efficiency, risk management, and asset productivity (Wieczorek-Kosmala et al., 2021; Shahzad et al., 2022; Mensah et al., 2025).

Previous studies on listed companies have also produced mixed results regarding the effect of DER and DAR on ROA. Some studies found that DER and DAR significantly affect ROA, either partially or simultaneously, whereas others reported insignificant effects across different sectors, including food and beverage, construction, telecommunications, property, and manufacturing firms (Dewi & Herlinawati, 2025; Saprudin et al., 2025; Tripuspitorini et al., 2022; Estiasih et al., 2024). These differences indicate that profitability is not determined solely by leverage, but may also be influenced by liquidity, firm size, market value, sales growth, asset utilization, operational efficiency, and industry characteristics (Rahma & Asih, 2025; Salma & Hariyono, 2025; Sari et al., 2024).

Based on these prior findings, the research gap of this study lies in the inconsistency of empirical evidence regarding the effect of capital structure on profitability, particularly in the industrial goods subsector. Most previous studies have focused on broader manufacturing sectors or other subsectors, while studies specifically examining industrial goods companies remain relatively limited (Tripuspitorini et al., 2022; De Albergati Sero et al., 2024; Saprudin et al., 2025). Moreover, earlier research often reports different outcomes between the partial and simultaneous effects of leverage ratios on profitability, indicating the need for further empirical testing (Daryanto & Samidi, 2024; Khalifaturofi'ah & Setiawan, 2024; Dewi & Herlinawati, 2025). Therefore, this study seeks to address this gap by examining the effect of DER and DAR on ROA among industrial goods subsector companies listed on the Indonesia Stock Exchange during the 2020–2024 period, which covers both pandemic and post-pandemic conditions that may have influenced firms' financing decisions and profitability performance.

Based on the background described above, the research problems are formulated as follows:

1. Does the Debt to Equity Ratio (DER) affect Return on Assets (ROA)?
2. Does the Debt to Asset Ratio (DAR) affect Return on Assets (ROA)?
3. Do the Debt to Equity Ratio (DER) and Debt to Asset Ratio (DAR) simultaneously affect Return on Assets (ROA)?

The objectives of this study are:

1. To analyse the effect of Debt to Equity Ratio (DER) on Return on Assets (ROA).
2. To analyse the effect of Debt to Asset Ratio (DAR) on Return on Assets (ROA).
3. To analyse the simultaneous effect of Debt to Equity Ratio (DER) and Debt to Asset Ratio (DAR) on Return on Assets (ROA).

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II. THEORETICAL REVIEW

Capital Structure

Capital structure refers to the composition of financing used by a company to support its operational and investment activities, primarily through the combination of debt and equity. It represents a strategic financial decision because the proportion of debt and equity affects the cost of capital, financial risk, liquidity pressure, and the firm's ability to generate sustainable profitability (Brigham & Houston, 2022; Brealey et al., 2023; Ross et al., 2022). An optimal capital structure enables firms to obtain adequate funding while maintaining financial flexibility and minimizing the risks associated with excessive leverage (Zutter & Smart, 2021; Brigham & Houston, 2022).

Debt financing may provide benefits through tax advantages and additional capital for business expansion. However, excessive reliance on debt can increase interest expenses, default risk, and financial distress, which may weaken profitability and firm performance (Brealey et al., 2023; Kasmir, 2019). Conversely, equity financing provides greater financial flexibility and reduces repayment pressure, although it may involve higher capital costs and potential ownership dilution (Brealey et al., 2023; Ross et al., 2022).

Previous studies show that the relationship between capital structure and firm performance remains inconclusive. Some studies indicate that leverage can improve firm performance when debt is managed efficiently, while others find that excessive debt reduces profitability due to increasing financial risk and financing costs (Nazir et al., 2021; Ngatno et al., 2021; Ahmed et al., 2023). Further evidence suggests that the effect of capital structure on profitability may be nonlinear, asymmetric, and dependent on firm characteristics, governance mechanisms, sectoral conditions, and economic uncertainty (Arhinful & Radmehr, 2023; Nikhil et al., 2024; Jaiswal & Elmarzouky, 2025).

Empirical findings also show that leverage indicators such as Debt to Equity Ratio (DER) and Debt to Asset Ratio (DAR) do not always have a consistent effect on Return on Assets (ROA). Several studies report a significant relationship between DER, DAR, and ROA, whereas others find that these ratios have limited or insignificant effects on profitability (Jurlinda et al., 2022; Faujia & Nurulrahmatia, 2024; Alfiani & Hasanuh, 2024). These differences indicate that profitability is not solely determined by capital structure, but is also influenced by liquidity, firm size, asset utilization, sales growth, and operational efficiency (Linggasari & Adnantara, 2020; Pangestika et al., 2021; Dewi & Herlinawati, 2025).

Based on these arguments, capital structure in this study is measured using DER and DAR because both ratios represent the extent to which firms rely on debt financing. DER reflects the proportion of debt relative to equity, while DAR indicates the proportion of assets financed by debt. The use of these two indicators is relevant for assessing whether leverage contributes to profitability or instead creates financial pressure that reduces Return on Assets.

Debt to Equity Ratio (DER)

Debt to Equity Ratio (DER) is a leverage ratio that measures the proportion of total debt relative to shareholders' equity. This ratio reflects the extent to which a firm relies on debt financing rather than equity to support its operational and investment activities. A higher DER indicates greater dependence on creditors, which may expand financing capacity but also increase financial risk, interest obligations, and pressure on profitability (Brigham & Houston, 2022; Brealey et al., 2023; Ross et al., 2022).

From a financial management perspective, debt financing may enhance firm performance when borrowed funds are allocated productively and generate returns that exceed the cost of debt. However, excessive debt may weaken profitability due to higher interest expenses, default risk, and potential financial distress (Kasmir, 2019; Zutter & Smart, 2021; Brealey et al., 2023). Thus, DER is not merely an indicator of financing composition, but also reflects the balance between the potential benefits of leverage and the financial risks associated with debt-based funding.

Empirical findings regarding the relationship between leverage and firm performance remain inconclusive. Several studies indicate that leverage can improve performance when supported by effective governance, productive asset utilization, and efficient debt management. Conversely, other studies show that excessive debt may reduce profitability and increase financial vulnerability (Nazir et

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al., 2021; Ngatno et al., 2021; Ahmed et al., 2023; Arhinful & Radmehr, 2023). Further evidence suggests that the impact of leverage on profitability may be nonlinear, asymmetric, and contingent upon firm characteristics, sectoral conditions, governance mechanisms, and macroeconomic uncertainty (Wieczorek-Kosmala et al., 2021; Shahzad et al., 2022; Nikhil et al., 2024; Jaiswal & Elmarzouky, 2025; Khoza, 2025; Mensah et al., 2025).

Previous studies on listed companies have also reported mixed results regarding the effect of DER on Return on Assets (ROA). Some studies found that DER significantly affects profitability, whereas others reported insignificant or negative effects, indicating that the influence of DER depends on how effectively firms use debt to generate returns (Ariani & Bati, 2020; Mawarsih et al., 2020; Pangestika et al., 2021; Jurlinda et al., 2022; Sari et al., 2022; Winarti & Wardani, 2023; Estiasih et al., 2024; Dewi & Herlinawati, 2025; Rahma & Asih, 2025; Saprudin et al., 2025). These findings suggest that profitability is not determined solely by the proportion of debt to equity, but is also influenced by liquidity, firm size, asset productivity, sales growth, operational efficiency, and industry-specific characteristics.

Accordingly, DER is used in this study as one of the proxies for capital structure because it captures the degree of a firm's reliance on debt relative to equity financing. The research gap lies in the inconsistency of prior empirical findings regarding whether DER enhances or weakens profitability across different sectors and periods. Therefore, examining DER in relation to ROA provides a more specific understanding of whether debt-based financing contributes to profitability or instead creates financial pressure that reduces firm performance.

Debt to Asset Ratio (DAR)

Debt to Asset Ratio (DAR) measures the proportion of a firm's total assets financed by debt. This ratio reflects the extent to which a company depends on external financing to support its asset structure and operational activities. A higher DAR indicates greater reliance on debt financing, which may enhance expansion capacity when debt-financed assets are managed productively and generate returns exceeding financing costs. However, excessive debt reliance may increase interest obligations, default risk, and financial distress, thereby weakening profitability and overall financial performance (Brigham & Houston, 2022; Brealey et al., 2023; Kasmir, 2019).

Empirical evidence regarding the relationship between leverage and profitability remains inconclusive. Several studies suggest that leverage can negatively affect firm performance because higher debt increases financial risk and financing costs, whereas other studies indicate that debt may improve performance when firms are able to manage leverage efficiently and maintain productive asset utilization (Nazir et al., 2021; Ngatno et al., 2021; Ahmed et al., 2023; Arhinful & Radmehr, 2023). Moreover, the effect of leverage on profitability may be nonlinear, asymmetric, and contingent upon sectoral characteristics, corporate governance quality, macroeconomic conditions, and the effectiveness of debt utilization (Wieczorek-Kosmala et al., 2021; Shahzad et al., 2022; Nikhil et al., 2024; Jaiswal & Elmarzouky, 2025; Khoza, 2025; Mensah et al., 2025).

Previous studies on listed companies have also reported mixed findings regarding the effect of DAR on Return on Assets (ROA). Some studies found that DAR significantly affects ROA, either independently or in combination with other financial ratios, while others reported an insignificant effect. These differences suggest that the impact of DAR on profitability is not determined solely by the proportion of assets financed by debt, but also by asset utilization, liquidity, firm size, sales growth, operational efficiency, and industry-specific conditions (Ariani & Bati, 2020; Mawarsih et al., 2020; Pangestika et al., 2021; Jurlinda et al., 2022; De Albergati Sero et al., 2024; Maritza & Hasanuh, 2024; Dewi & Herlinawati, 2025; Rahma & Asih, 2025; Saprudin et al., 2025; Salma & Hariyono, 2025).

Accordingly, DAR is relevant for assessing whether debt-financed assets contribute to profitability or instead create financial pressure that reduces ROA. In this study, DAR is used as one of the proxies for capital structure because it captures the extent to which corporate assets are financed through debt. Its inclusion provides a clearer basis for examining how leverage influences profitability in industrial goods subsector companies.

Return on Assets (ROA)

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Return on Assets (ROA) is a profitability ratio that measures a firm's ability to generate net income from its total assets. It reflects managerial efficiency in utilizing corporate assets to produce earnings and is widely recognized as a key indicator of financial performance (Brigham & Houston, 2022; Brealey et al., 2023; Ross et al., 2022). A higher ROA indicates more effective asset utilization, whereas a lower ROA may signal operational inefficiency, weak asset productivity, or excessive cost burdens.

ROA is particularly relevant in capital structure studies because profitability is closely linked to how effectively firms utilize assets financed through both debt and equity. Debt financing may enhance ROA when borrowed funds are allocated to productive assets that generate returns exceeding financing costs. Conversely, excessive leverage may reduce ROA through higher interest expenses, default risk, and potential financial distress (Kasmir, 2019; Zutter & Smart, 2021; Brealey et al., 2023). Thus, ROA serves not only as a measure of profitability but also as an indicator of the effectiveness of financing and asset management decisions.

Previous empirical studies show that ROA is frequently used to examine the relationship between capital structure, leverage, and firm performance. Several studies suggest that leverage may weaken ROA when debt exceeds the firm's optimal financing capacity, while others indicate that debt can support profitability when accompanied by efficient asset utilization and strong governance mechanisms (Nazir et al., 2021; Ngatno et al., 2021; Ahmed et al., 2023; Arhinful & Radmehr, 2023). Further evidence also indicates that the effect of leverage on ROA may be nonlinear, asymmetric, and contingent upon sectoral characteristics, liquidity, macroeconomic conditions, and firm-specific factors (Wieczorek-Kosmala et al., 2021; Shahzad et al., 2022; Nikhil et al., 2024; Jaiswal & Elmarzouky, 2025; Khoza, 2025; Mensah et al., 2025).

Studies on listed companies also report mixed findings regarding the determinants of ROA. Some studies found that Debt to Asset Ratio, Debt to Equity Ratio, Current Ratio, and Total Asset Turnover significantly affect ROA, whereas others reported that leverage indicators have limited or insignificant effects on profitability (Ariani & Bati, 2020; Mawarsih et al., 2020; Pangestika et al., 2021; Jurlinda et al., 2022; Budhiarjo et al., 2022; De Albergati Sero et al., 2024; Maritza & Hasanuh, 2024; Dewi & Herlinawati, 2025; Rahma & Asih, 2025; Saprudin et al., 2025). These findings suggest that ROA is not determined solely by capital structure, but also by asset productivity, liquidity, firm size, sales growth, operational efficiency, and industry-specific conditions.

Accordingly, ROA is used as the dependent variable in this study because it captures the firm's overall ability to generate profit from its asset base. Its use is appropriate for examining whether capital structure, as proxied by DER and DAR, contributes to profitability or instead creates financial pressure that weakens corporate performance.

Relationship between Capital Structure and Profitability

Capital structure is closely related to profitability because financing decisions determine how firms combine debt and equity to support operations, asset expansion, and long-term growth. Debt financing may enhance profitability when the funds are used productively and generate returns exceeding the cost of debt. However, excessive leverage can reduce profitability by increasing interest expenses, default risk, and financial distress (Brigham & Houston, 2022; Brealey et al., 2023; Ross et al., 2022).

Empirical findings on the relationship between capital structure and profitability remain inconsistent. Some studies indicate that leverage can improve firm performance when supported by efficient debt management, strong governance, and productive asset utilization. Conversely, other studies show that excessive debt may weaken profitability due to higher financing costs and financial risk (Nazir et al., 2021; Ngatno et al., 2021; Ahmed et al., 2023; Arhinful & Radmehr, 2023). Further evidence suggests that the effect of capital structure on profitability may be nonlinear, asymmetric, and influenced by firm characteristics, liquidity, governance mechanisms, sectoral conditions, and macroeconomic uncertainty (Wieczorek-Kosmala et al., 2021; Shahzad et al., 2022; Nikhil et al., 2024; Jaiswal & Elmarzouky, 2025; Khoza, 2025; Mensah et al., 2025).

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Previous studies on listed companies also report mixed results regarding the effect of Debt to Equity Ratio (DER) and Debt to Asset Ratio (DAR) on Return on Assets (ROA). Some studies found that DER and DAR significantly affect ROA, either partially or simultaneously, while others reported insignificant or negative effects. These differences suggest that profitability is not determined solely by capital structure, but also by liquidity, firm size, sales growth, asset productivity, operational efficiency, and industry characteristics (Ariani & Bati, 2020; Mawarsih et al., 2020; Pangestika et al., 2021; Jurlinda et al., 2022; Budhiarjo et al., 2022; Dewi & Herlinawati, 2025; Rahma & Asih, 2025; Saprudin et al., 2025; Salma & Hariyono, 2025).

Accordingly, the relationship between capital structure and profitability remains an important empirical issue. The inconsistency of prior findings provides a research gap for further investigation, particularly in examining whether DER and DAR enhance profitability or instead create financial pressure that reduces ROA. Therefore, this study analyzes the effect of DER and DAR on ROA to provide clearer evidence on the role of capital structure in explaining corporate profitability.

III. RESEARCH METHOD

This study employs a quantitative approach with an associative research design to examine the relationship between capital structure and profitability. The method used is multiple linear regression analysis to analyse the effect of Debt to Equity Ratio (DER) and Debt to Asset Ratio (DAR) on Return on Assets (ROA). The research object consists of industrial goods subsector companies listed on the Indonesia Stock Exchange during the 2020–2024 period. The sample was determined using purposive sampling with criteria including companies that were consistently listed, had complete financial statements, and provided the required data. Based on these criteria, 12 companies were selected with a total of 60 observations.

The data used are secondary data in the form of annual financial statements obtained through documentation and literature study techniques. The research variables consist of DER and DAR as independent variables and ROA as the dependent variable.

The following is the list of companies included in the research sample.

Table 1. Research Sample of Companies

No	Code	Companies Name
1	AMFG	Asahimas Flat Glass Tbk.
2	AMIN	PT. Ateliers Mecaniques D Indonesia Tbk.
3	APII	PT. Arita Prima Indonesia Tbk.
4	ARNA	Arwana Citramulia Tbk.
5	CCSI	Communication Cable System Indonesia Tbk.
6	JECC	Jembo Cable Company Tbk.
7	KBLI	KMI Wire and Cable Tbk.
8	MARK	PT. Mark Dynamics Indonesia Tbk.
9	MLIA	Mulia Industrindo Tbk.
10	SPTO	PT. Surya Pertiwi Tbk.
11	TOTO	Surya Toto Indonesia Tbk.
12	UNTR	United Tractors Tbk.

Data analysis was conducted using descriptive statistics and multiple linear regression analysis. Hypothesis testing was carried out using the t-test to examine partial effects, the F-test to assess simultaneous effects, and the coefficient of determination (R^2) to measure the model's ability to explain the dependent variable.

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IV. RESULTS AND DISCUSSION

Overview of Data and Main Findings

This study uses 12 companies from the industrial goods subsector with a total of 60 observations during the 2020–2024 period. The data analysed include capital structure variables proxied by the Debt

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to Equity Ratio (DER) and Debt to Asset Ratio (DAR), as well as profitability measured by Return on Assets (ROA).

Table 2. Financial Data of Industrial Goods Subsector Companies for the Period 2020–2024

No	Companies Name	Year	Debt	Equity	Asset	Net Income
1	PT Asahimas Flat Glass Tbk.	2020	5.031.820.000.000	2.929.837.000.000	7.961.657.000.000	-430.987.000.000
		2021	4.110.107.000.000	3.293.369.000.000	7.403.467.000.000	318.672.000.000
		2022	3.746.345.000.000	3.720.172.000.000	7.466.520.000.000	437.370.000.000
		2023	3.259.927.000.000	4.240.737.000.000	7.500.664.000.000	583.297.000.000
		2024	2.778.081.000.000	4.493.485.000.000	7.271.566.000.000	238.610.000.000
2	PT Ateliers Mecaniques D'Indonesie Tbk	2020	210.719.277.506	209.961.645.652	420.680.923.158	10.231.229.929
		2021	209.059.609.099	141.315.873.220	350.375.482.319	-57.108.102.152
		2022	165.028.829.275	146.467.951.463	311.496.780.738	3.822.455.287
		2023	168.880.405.973	154.172.119.018	323.052.524.991	7.930.208.540
		2024	180.745.978.416	169.085.891.010	349.831.869.426	15.459.217.928
3	PT Arita Prima Indonesia Tbk	2020	178.999.604.014	333.221.035.115	512.220.639.129	30.152.459.780
		2021	180.861.359.755	361.467.725.895	542.329.085.650	20.672.232.124
		2022	186.711.833.365	377.677.206.114	564.389.039.479	14.054.281.418
		2023	190.290.049.422	410.447.289.084	600.737.338.506	30.651.441.707
		2024	211.211.663.724	417.433.943.563	628.645.607.287	5.248.828.652
4	PT Arwana Citramulia Tbk	2020	665.401.637.797	1.304.938.651.723	1.970.340.289.520	326.241.511.507
		2021	670.353.190.326	1.573.169.882.477	2.243.532.072.803	475.983.374.390
		2022	745.695.258.308	1.833.173.357.237	2.578.868.615.545	581.557.410.601
		2023	765.455.201.158	1.855.036.456.226	2.620.491.657.384	449.080.121.387
		2024	783.821.572.438	1.877.542.047.769	2.661.363.620.207	429.538.297.212
5	PT Communication Cable System Indonesia Tbk	2020	161.596.053.000	339.182.494.000	500.778.546.000	28.523.152.000
		2021	159.131.850.000	364.311.814.000	523.443.664.000	38.733.792.000
		2022	358.189.369.000	436.991.009.000	795.180.378.000	50.129.821.000
		2023	342.720.673.000	409.233.004.000	751.953.677.000	-22.376.594.000
		2024	246.712.712.000	419.260.889.000	665.973.601.000	3.902.612.000
6	PT Jembo Cable Company Tbk	2020	778.900.000.000	735.100.000.000	1.513.900.000.000	11.900.000.000
		2021	861.742.000.000	762.100.000.000	1.623.842.000.000	34.563.000.000
		2022	1.451.568.684.000	748.228.957.000	2.199.797.641.000	57.625.058.000
		2023	1.369.447.284.000	792.848.103.000	2.162.295.387.000	64.390.486.000
		2024	1.729.104.372.000	830.675.864.000	2.559.780.236.000	76.583.066.000
7	PT KMI Wire and Cable Tbk	2020	659.558.092.000	2.350.166.287.000	3.009.724.379.000	24.189.619.000
		2021	499.231.397.000	2.374.356.310.000	2.873.587.707.000	-100.259.071.000
		2022	301.997.266.597	2.495.007.759.673	2.797.005.026.270	59.961.666.687
		2023	381.355.701.983	2.595.051.438.272	2.976.407.140.255	114.573.714.867
		2024	333.194.743.386	2.786.926.309.091	3.120.121.052.477	225.877.244.415
8	PT Mark Dynamics Indonesia Tbk	2020	310.254.413.728	409.472.441.871	719.726.853.599	144.194.690.952
		2021	334.818.456.747	743.640.411.602	1.078.458.868.349	392.149.133.254
		2022	161.587.275.148	843.781.090.843	1.005.368.365.991	243.093.147.629
		2023	111.449.183.332	840.101.540.924	951.550.724.258	156.038.746.839
		2024	94.944.743.662	860.896.265.733	955.841.009.395	286.574.334.945
9	PT Mulia Industrindo Tbk	2020	3.066.953.863.000	2.678.261.633.000	5.745.215.496.000	55.089.437.000
		2021	2.711.753.688.000	3.410.916.035.000	6.122.669.723.000	238.709.954.000
		2022	2.646.174.364.000	3.890.019.605.000	6.536.193.969.000	479.103.570.000
		2023	2.059.037.171.000	4.958.184.254.000	7.017.221.425.000	562.628.681.000
		2024	1.688.821.710.000	5.358.315.724.000	7.047.137.434.000	311.074.675.000
10	PT Surya Pertiwi Tbk	2020	1.094.529.000.000	1.941.055.000.000	3.035.584.618.693	115.000.000.000
		2021	1.142.846.961.784	2.173.341.412.181	3.318.188.373.965	196.306.877.615
		2022	1.008.510.478.795	2.107.640.326.367	1.940.548.352.079	225.044.549.724
		2023	1.008.062.728.819	2.229.593.055.850	3.237.655.784.669	274.951.561.683
		2024	1.051.746.901.490	2.363.846.780.175	3.415.593.681.665	314.760.257.924
11	PT Surya Toto Indonesia Tbk	2020	1.183.847.184.535	1.923.562.928.693	3.107.410.113.178	160.987.891.641
		2021	1.228.239.284.173	2.034.436.479.888	3.262.675.759.061	-30.689.667.468

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		2022	1.002.210.741.085	2.302.761.450.906	3.304.972.191.991	313.410.762.339
		2023	982.493.481.408	2.351.397.318.568	3.333.890.799.976	242.417.759.641
		2024	989.206.172.452	2.461.847.728.548	3.451.053.901.000	314.633.432.509
12	PT United Tractors Tbk	2020	36.653.823.000	63.147.140.000	99.800.963.000	5.632.425.000
		2021	40.738.599.000	71.822.757.000	112.561.356.000	10.608.267.000
		2022	50.964.395.000	89.513.825.000	140.478.220.000	22.993.673.000
		2023	69.712.261.000	84.041.642.000	153.753.903.000	22.130.096.000
		2024	71.305.445.000	98.175.173.000	169.480.618.000	20.118.529.000

Source: Processed data, 2026

Based on the financial data presented in Table 2, the Debt to Equity Ratio (DER) was calculated to determine the proportion between total liabilities and total equity of the company. DER is used to describe the level of a company's dependence on debt financing compared to its own capital. The higher the DER value, the greater the proportion of debt used in the company's financing structure.

Tabel 3

Debt to Equity Ratio (DER) Data of Industrial Goods Subsector Companies for the Period 2020–2024

No	Companies Name	Year	Debt	Equity	DER
1	PT Asahimas Flat Glass Tbk.	2020	5.031.820.000.000	2.929.837.000.000	1,717440
		2021	4.110.107.000.000	3.293.369.000.000	1,247995
		2022	3.746.345.000.000	3.720.172.000.000	1,007035
		2023	3.259.927.000.000	4.240.737.000.000	0,768717
		2024	2.778.081.000.000	4.493.485.000.000	0,618246
2	PT Ateliers Mecaniques D'Indonesie Tbk	2020	210.719.277.506	209.961.645.652	1,003608
		2021	209.059.609.099	141.315.873.220	1,479378
		2022	165.028.829.275	146.467.951.463	1,126723
		2023	168.880.405.973	154.172.119.018	1,095402
		2024	180.745.978.416	169.085.891.010	1,068960
3	PT Arita Prima Indonesia Tbk	2020	178.999.604.014	3.332.211.035.115	0,053718
		2021	180.861.359.755	361.467.725.895	0,500353
		2022	186.711.833.365	377.677.206.144	0,494369
		2023	190.290.049.422	410.447.289.084	0,463616
		2024	211.211.663.724	417.433.943.563	0,505976
4	PT Arwana Citramulia Tbk	2020	669.401.537.797	1.304.938.651.723	0,512975
		2021	670.353.190.326	1.573.169.882.477	0,426116
		2022	745.695.258.308	1.833.173.357.237	0,406778
		2023	765.455.201.158	1.855.036.456.226	0,412636
		2024	783.821.572.438	1.877.542.047.769	0,417472
5	PT Communication Cable System Indonesia Tbk	2020	161.596.053.000	339.182.494.000	0,476428
		2021	159.131.850.000	364.311.814.000	0,436801
		2022	358.189.369.000	436.991.009.000	0,819672
		2023	342.720.673.000	409.233.004.000	0,837471
		2024	246.712.712.000	419.260.889.000	0,588447
6	PT Jembo Cable Company Tbk	2020	778.900.000.000	735.100.000.000	1,059584
		2021	861.742.000.000	762.100.000.000	1,130747
		2022	1.451.568.684.000	748.228.957.000	1,940006
		2023	1.369.447.284.000	792.848.103.000	1,727251
		2024	1.729.104.372.000	830.675.864.000	2,081563
7	PT KMI Wire and Cable Tbk	2020	659.558.092.000	2.350.166.287.000	0,280643
		2021	499.231.397.000	2.374.356.310.000	0,210260
		2022	301.997.266.597	2.495.007.759.673	0,121041
		2023	381.355.701.983	2.595.051.438.272	0,146955
		2024	333.194.743.386	2.786.926.309.091	0,119556
8	PT Mark Dynamics Indonesia Tbk	2020	310.254.413.728	409.472.441.871	0,757693

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		2021	334.818.456.747	743.640.411.602	0,450242
		2022	161.587.275.148	843.781.090.843	0,191504
		2023	111.449.183.332	840.101.540.924	0,132662
		2024	94.944.743.662	860.896.265.733	0,110286
9	PT Mulia Industrindo Tbk	2020	3.066.953.863.000	2.678.261.633.000	1,145129
		2021	2.711.753.688.000	3.410.916.035.000	0,795022
		2022	2.646.174.364.000	3.890.019.605.000	0,680247
		2023	2.059.037.171.000	4.958.184.254.000	0,415280
		2024	1.688.821.710.000	5.358.315.724.000	0,315178
10	PT Surya Pertiwi Tbk	2020	1.094.529.000.000	1.941.055.000.000	0,563884
		2021	1.142.846.961.784	2.173.341.412.181	0,525848
		2022	1.008.510.478.795	2.107.640.326.367	0,478502
		2023	1.008.062.728.819	2.229.593.055.850	0,452129
		2024	1.051.746.901.490	2.363.846.780.175	0,444930
11	PT Surya Toto Indonesia Tbk	2020	1.183.847.184.535	1.923.562.928.693	0,615445
		2021	1.228.239.284.173	2.034.436.479.888	0,603725
		2022	1.002.210.741.085	2.302.761.450.906	0,435221
		2023	982.493.481.408	2.351.397.318.568	0,417834
		2024	989.206.172.452	2.461.847.728.548	0,401815
12	PT United Tractors Tbk	2020	36.653.823.000	63.147.140.000	0,580451
		2021	40.738.599.000	71.822.757.000	0,567210
		2022	50.964.395.000	89.513.825.000	0,569347
		2023	69.712.261.000	84.041.642.000	0,829497
		2024	71.305.445.000	98.175.173.000	0,726308

Source: Processed data, 2026

In addition to the Debt to Equity Ratio (DER), capital structure in this study is also measured using the Debt to Asset Ratio (DAR). This ratio is used to indicate the proportion of total liabilities to total assets of the company. The higher the DAR value, the greater the portion of the company's assets financed by debt, indicating a higher level of dependence on external funding.

Tabel 4
Debt to Asset Ratio (DAR) Data of Industrial Goods Subsector Companies for the Period 2020 – 2024

No	Companies Name	Year	Debt	Assets	DAR
1	PT Asahimas Flat Glass Tbk.	2020	5.031.820.000.000	7.961.657.000.000	0,632007
		2021	4.110.107.000.000	7.403.467.000.000	0,555160
		2022	3.746.345.000.000	7.466.520.000.000	0,501752
		2023	3.259.927.000.000	7.500.664.000.000	0,434618
		2024	2.778.081.000.000	7.271.566.000.000	0,382047
2	PT Ateliers Mecaniques D'Indonesie Tbk	2020	210.719.277.506	420.680.923.158	0,500900
		2021	209.059.609.099	350.375.482.319	0,596673
		2022	165.028.829.275	311.496.780.738	0,529793
		2023	168.880.405.973	323.052.524.991	0,522765
		2024	180.745.978.416	349.831.869.426	0,516665
3	PT Arita Prima Indonesia Tbk	2020	178.999.604.014	512.220.639.129	0,349458
		2021	180.861.359.755	542.329.085.650	0,333490
		2022	186.711.833.365	564.389.039.479	0,330821
		2023	190.290.049.422	600.737.338.506	0,316761
		2024	211.211.663.724	628.645.607.287	0,335979
4	PT Arwana Citramulia Tbk	2020	669.401.537.797	1.970.340.289.520	0,339739
		2021	670.353.190.326	2.243.532.072.803	0,298794
		2022	745.695.258.308	2.578.868.615.545	0,289156
		2023	765.455.201.158	2.620.491.657.384	0,292104

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		2024	783.821.572.438	2.661.363.620.207	0,294519
5	PT Communication Cable System Indonesia Tbk	2020	161.596.053.000	500.778.546.000	0,322690
		2021	159.131.850.000	523.443.664.000	0,304010
		2022	358.189.369.000	795.180.378.000	0,450450
		2023	342.720.673.000	751.953.677.000	0,455774
		2024	246.712.712.000	665.973.601.000	0,370454
6	PT Jembo Cable Company Tbk	2020	778.900.000.000	1.513.900.000.000	0,514499
		2021	861.742.000.000	1.623.842.000.000	0,530681
		2022	1.451.568.684.000	2.199.797.641.000	0,659865
		2023	1.369.447.284.000	2.162.295.387.000	0,633330
		2024	1.729.104.372.000	2.559.780.236.000	0,675489
7	PT KMI Wire and Cable Tbk	2020	659.558.092.000	3.009.724.379.000	0,219142
		2021	499.231.397.000	2.873.587.707.000	0,173731
		2022	301.997.266.597	2.797.005.026.270	0,107972
		2023	381.355.701.983	2.976.407.140.255	0,128126
		2024	333.194.743.386	3.120.121.052.477	0,106789
8	PT Mark Dynamics Indonesia Tbk	2020	310.254.413.728	719.726.853.599	0,431072
		2021	334.818.456.747	1.078.458.868.349	0,310460
		2022	161.587.275.148	1.005.368.365.991	0,160724
		2023	111.449.183.332	9.515.507.724.258	0,011712
		2024	94.944.743.662	955.841.009.395	0,099331
9	PT Mulia Industrindo Tbk	2020	3.066.953.863.000	5.745.215.496.000	0,533827
		2021	2.711.753.688.000	6.122.669.723.000	0,442904
		2022	2.646.174.364.000	6.536.193.969.000	0,404849
		2023	2.059.037.171.000	7.017.221.425.000	0,293426
		2024	1.688.821.710.000	7.047.137.434.000	0,239646
10	PT Surya Pertiwi Tbk	2020	1.094.529.000.000	3.035.584.618.693	0,360566
		2021	1.142.846.961.784	3.318.188.373.965	0,344419
		2022	1.008.510.478.795	1.940.548.352.079	0,519704
		2023	1.008.062.728.819	3.237.655.784.669	0,311356
		2024	1.051.746.901.490	3.415.593.681.665	0,307925
11	PT Surya Toto Indonesia Tbk	2020	1.183.847.184.535	3.107.410.113.178	0,380976
		2021	1.228.239.284.173	3.262.675.759.061	0,376452
		2022	1.002.210.741.085	3.304.972.191.991	0,303243
		2023	982.493.481.408	3.333.890.799.976	0,294699
		2024	989.206.172.452	3.451.053.901.000	0,286639
12	PT United Tractors Tbk	2020	36.653.823.000	99.800.963.000	0,367269
		2021	40.738.599.000	112.561.356.000	0,361923
		2022	50.964.395.000	140.478.220.000	0,362792
		2023	69.712.261.000	153.753.903.000	0,453402
		2024	71.305.445.000	169.480.618.000	0,420729

Source: Processed data, 2026

To measure the level of corporate profitability, this study uses Return on Assets (ROA). This ratio indicates a company's ability to generate net income based on its total assets. The higher the ROA value, the better the company's ability to utilize its assets to generate profit. The ROA data in this study are calculated based on the ratio of net income to total assets during the 2020–2024 period.

Table 5
Return on Assets (ROA) Data of Industrial Goods Subsector Companies for the Period 2020–2024

No	Companies Name	Year	Net Provit	Assets	ROA
1	PT Asahimas Flat Glass Tbk.	2020	-430.987.000.000	7.961.657.000.000	-5%
		2021	318.672.000.000	7.403.467.000.000	4%

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		2022	437.370.000.000	7.466.520.000.000	6%
		2023	583.297.000.000	7.500.664.000.000	8%
		2024	238.610.000.000	7.271.566.000.000	3%
2	PT Ateliers Mecaniques D'Indonesie Tbk	2020	10.231.229.929	420.680.923.158	2%
		2021	-57.108.102.152	350.375.482.319	-16%
		2022	3.822.455.287	311.496.780.738	1%
		2023	7.930.208.540	323.052.524.991	2%
		2024	15.459.217.928	349.831.869.426	4%
3	PT Arita Prima Indonesia Tbk	2020	30.152.459.780	512.220.639.129	6%
		2021	20.672.232.124	542.329.085.650	4%
		2022	14.054.281.418	564.389.039.479	2%
		2023	30.651.441.707	600.737.338.506	5%
		2024	5.248.828.652	628.645.607.287	1%
4	PT Arwana Citramulia Tbk	2020	326.241.511.507	1.970.340.289.520	17%
		2021	475.983.374.390	2.243.532.072.803	21%
		2022	581.557.410.601	2.578.868.615.545	23%
		2023	449.080.121.387	2.620.491.657.384	17%
		2024	429.538.297.212	2.661.363.620.207	16%
5	PT Communication Cable System Indonesia Tbk	2020	28.523.152.000	500.778.546.000	6%
		2021	38.733.792.000	523.443.664.000	7%
		2022	50.129.821.000	795.180.378.000	6%
		2023	-22.376.594.000	751.953.677.000	-3%
		2024	3.902.612.000	665.973.601.000	1%
6	PT Jembo Cable Company Tbk	2020	11.900.000.000	1.513.900.000.000	1%
		2021	34.563.000.000	1.623.842.000.000	2%
		2022	57.625.058.000	2.199.797.641.000	3%
		2023	64.390.486.000	2.162.295.387.000	3%
		2024	76.583.066.000	2.559.780.236.000	3%
7	PT KMI Wire and Cable Tbk	2020	24.189.619.000	3.009.724.379.000	1%
		2021	-100.259.071.000	2.873.587.707.000	-3%
		2022	59.961.666.687	2.797.005.026.270	2%
		2023	114.573.714.867	2.976.407.140.255	4%
		2024	225.877.244.415	3.120.121.052.477	7%
8	PT Mark Dynamics Indonesia Tbk	2020	144.194.690.952	719.726.853.599	20%
		2021	392.149.133.254	1.078.458.868.349	36%
		2022	243.093.147.629	1.005.368.365.991	24%
		2023	156.038.746.839	9.515.507.724.258	2%
		2024	286.574.334.945	955.841.009.395	30%
9	PT Mulia Industrindo Tbk	2020	55.089.437.000	5.745.215.496.000	1%
		2021	238.709.954.000	6.122.669.723.000	4%
		2022	479.103.570.000	6.536.193.969.000	7%
		2023	562.628.681.000	7.017.221.425.000	8%
		2024	311.074.675.000	7.047.137.434.000	4%
10	PT Surya Pertiwi Tbk	2020	115.000.000.000	3.035.584.618.693	4%
		2021	196.306.877.615	3.318.188.373.965	6%
		2022	225.044.549.724	1.940.548.352.079	12%
		2023	274.951.561.683	3.237.655.784.669	8%
		2024	314.760.257.924	3.415.593.681.665	9%
11	PT Surya Toto Indonesia Tbk	2020	160.987.891.641	3.107.410.113.178	5%
		2021	-30.689.667.468	3.262.675.759.061	-1%
		2022	313.410.762.339	3.304.972.191.991	9%
		2023	242.417.759.641	3.333.890.799.976	7%
		2024	314.633.432.509	3.451.053.901.000	9%
12	PT United Tractors Tbk	2020	5.632.425.000	99.800.963.000	6%

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		2021	10.608.267.000	112.561.356.000	9%
		2022	22.993.673.000	140.478.220.000	16%
		2023	22.130.096.000	153.753.903.000	14%
		2024	20.118.529.000	169.480.618.000	12%

Source: Processed data, 2026

Based on Tables 3, 4 and 5, the data show variations in DER, DAR, and ROA values across companies and periods. These variations indicate that capital structure policies are not uniform and that companies differ in their ability to generate profits.

More importantly, beyond these variations, no consistent linear pattern is found between increases in leverage (DER and DAR) and increases in ROA. This serves as an initial indication that the relationship between capital structure and profitability in this subsector is complex and does not always follow the predictions of classical financial theory in a straightforward manner.

From a methodological perspective, this is important because it ensures that the results of hypothesis testing are not biased due to violations of statistical assumptions.

Table 6 Results of the t-test (Partial)

Coefficients(a)

`Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	.139	.040		3.512	.001
	DER	-.070	.065	-.363	-1.084	.283
	DAR	-.048	.204	-.079	-.235	.815

a. Dependent Variable: ROA
Source: Processed data, 2026

Based on Table 6, the results indicate that the Debt to Equity Ratio (DER) does not have a significant effect on Return on Assets (ROA), with a significance value of 0.283 (> 0.05), and the Debt to Asset Ratio (DAR) also does not have a significant effect on ROA, with a significance value of 0.815 (> 0.05). These findings suggest that, individually, capital structure is not a primary determinant of corporate profitability in the context of this study. Academically, these results contradict the traditional view in financial theory, which states that leverage can increase profitability through the tax shield effect. However, these findings support the perspective that the use of debt does not always result in efficiency, as interest expenses can reduce the company's net income. In addition, the effectiveness of leverage largely depends on management's ability to utilize the funds obtained from debt. Therefore, debt serves not only as a source of financing but also as a source of risk that can affect the company's financial performance.

Debt to Equity Ratio (DER) and Debt to Asset Ratio (DAR) have a negative relationship with Return on Assets (ROA). This indicates that the higher the level of debt used by the company, the lower the profitability tends to be. This negative relationship suggests that increasing leverage does not always provide benefits to financial performance, but may instead become a burden that suppresses company profits. Theoretically, this finding is consistent with the trade-off theory, particularly under conditions of over-leverage, where the costs arising from the use of debt, such as interest expenses and financial distress risk, exceed the benefits obtained. In addition, this result is also in line with agency theory, which explains that increasing debt can lead to higher agency costs, thereby negatively affecting company performance. This finding is also supported by various previous empirical studies showing that excessive leverage tends to reduce corporate profitability.

Table 7 Results of the F-test (Simultaneous)

ANOVA[b]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.083	2	.041	6.742	.002(a)
	Residual	.349	57	.006		

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	Total	.432	59			

a. Predictors: (Constant), DAR, DER
b. Dependent Variable: ROA
Source: Processed data, 2026

Based on Table 7, the Debt to Equity Ratio (DER) and Debt to Asset Ratio (DAR) simultaneously have a significant effect on Return on Assets (ROA), with a significance value of 0.002 (< 0.05). These results indicate that although both variables do not have a significant effect individually, together DER and DAR influence corporate profitability. This finding suggests that capital structure does not operate partially, but rather as an interconnected system, making the combination of leverage more relevant in explaining firm performance than relying on a single ratio. Academically, this result supports the trade-off theory, which states that capital structure decisions should be analyzed comprehensively by considering the balance between the benefits and costs of debt usage, rather than examining each component separately.

Table 8. Results of the Coefficient of Determination (R^2)

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.437(a)	.191	.163	.0782634019	.906

a. Predictors: (Constant), DAR, DER
b. Dependent Variable: ROA
Source: Processed data, 2026

Based on Table 8, the Adjusted R^2 value is 16.3%, indicating that capital structure variables proxied by the Debt to Equity Ratio (DER) and Debt to Asset Ratio (DAR) are only able to explain a small portion of the variation in corporate profitability. Meanwhile, 83.7% of the variation in profitability is influenced by other factors outside the research model. These findings indicate the limitation of the capital structure model in comprehensively explaining corporate financial performance. Academically, this result is important as it shows that profitability is not solely determined by financing decisions, but is also strongly influenced by other factors such as operational efficiency, company size, business growth, and management's ability to manage assets. Therefore, this study reinforces the argument that profitability is a multidimensional phenomenon that cannot be explained by a single financial aspect alone, but requires a broader and more integrated approach.

Discussion

The Effect of Debt to Equity Ratio (DER) on ROA

The test results indicate that the Debt to Equity Ratio (DER) has no significant effect on Return on Assets (ROA). This finding suggests that the proportion of debt relative to equity does not directly determine firms' asset-based profitability. Although DER reflects the degree of corporate leverage, debt financing in this study does not appear to contribute meaningfully to profit generation. This may occur when borrowed funds are not utilized efficiently or when the returns generated are insufficient to offset financing costs and interest expenses.

This result is consistent with previous studies showing that DER does not significantly affect ROA, indicating that higher leverage does not necessarily improve profitability when debt is not managed productively (Alfiani & Hasanuh, 2024; Ariani & Bati, 2020; Budhiarjo et al., 2022). However, the finding differs from studies reporting a significant effect of DER on ROA, either negative or nonlinear, particularly when excessive leverage increases financial risk and reduces firm performance (Dewi & Herlinawati, 2025; Jaiswal & Elmarzouky, 2025; Dsouza et al., 2025; Nguyen et al., 2025).

From a theoretical perspective, this finding reinforces the view that leverage is a double-edged financing instrument. Debt may support expansion and provide additional capital, but it can also increase interest obligations, default risk, and financial distress when not managed effectively. The effect of leverage on profitability therefore depends on firm-specific conditions, agency costs, debt efficiency,

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and the firm's ability to convert borrowed funds into productive assets (Ahmed et al., 2023; Arhinful & Radmehr, 2023).

Overall, DER is not a dominant determinant of ROA in this study. Profitability is likely influenced by broader factors, such as asset productivity, operational efficiency, liquidity, sales growth, firm size, and managerial effectiveness. Thus, the use of debt should not be assessed solely based on its proportion to equity, but also on the firm's capacity to transform leverage into sustainable earnings.

The Effect of Debt to Asset Ratio (DAR) on ROA

The results indicate that the Debt to Asset Ratio (DAR) has no significant effect on Return on Assets (ROA). This finding suggests that the proportion of assets financed by debt does not directly determine firms' asset-based profitability. Although DAR reflects the extent to which corporate assets are supported by external financing, a higher level of debt-financed assets does not necessarily lead to higher returns, particularly when those assets are not utilized productively or when the generated income is insufficient to cover financing costs.

This result is consistent with previous studies showing that DAR does not significantly affect ROA, indicating that debt-based asset financing does not automatically improve profitability without efficient asset utilization and effective cost control (Budhiarjo et al., 2022; Dewi & Herlinawati, 2025). However, it differs from studies reporting a significant negative effect of DAR on ROA, where excessive debt financing was found to increase financial obligations, interest expenses, and pressure on profitability (Mawarsih et al., 2020; Pangestika et al., 2021; Saprudin et al., 2025).

International evidence further supports the view that the relationship between leverage and profitability is context-dependent. Debt financing may weaken firm performance when it increases financial risk and debt-servicing burdens, but it may also support performance when firms maintain efficient financing structures, strong governance, and productive asset management (Nazir et al., 2021; Ngatno et al., 2021; Ahmed et al., 2023; Arhinful & Radmehr, 2023; Jaiswal & Elmarzouky, 2025).

Overall, DAR is not a dominant determinant of ROA in this study. The finding implies that profitability is not merely influenced by the proportion of assets financed through debt, but also by asset productivity, operational efficiency, liquidity, sales growth, firm size, and managerial effectiveness. Therefore, debt-financed assets should be evaluated not only based on the level of debt used, but also on their ability to generate sustainable earnings.

The Simultaneous Effect of DER and DAR on ROA

The simultaneous test results show that the Debt to Equity Ratio (DER) and Debt to Asset Ratio (DAR) jointly have a significant effect on Return on Assets (ROA). This finding indicates that capital structure has a more meaningful influence on profitability when examined as an integrated financing policy rather than as separate leverage indicators. DER reflects the proportion of debt relative to equity, while DAR captures the extent to which assets are financed by debt; together, they provide a more comprehensive representation of the firm's leverage position.

This result is consistent with previous studies showing that leverage-related financial ratios may significantly affect ROA when analyzed simultaneously, suggesting that profitability is better explained through the interaction of multiple financial indicators rather than a single ratio (Dewi & Herlinawati, 2025; Pangestika et al., 2021; Rahma & Asih, 2025). International evidence also supports the view that capital structure affects firm performance in a multidimensional and context-dependent manner, particularly when debt management, governance quality, asset productivity, and financing efficiency are considered jointly (Ahmed et al., 2023; Arhinful & Radmehr, 2023; Ngatno et al., 2021; Nazir et al., 2021; Jaiswal & Elmarzouky, 2025).

Nevertheless, this finding differs from studies reporting that leverage indicators do not always have a significant simultaneous effect on ROA. Budhiarjo et al. (2022), for example, found that DAR and DER did not significantly affect ROA simultaneously, indicating that the influence of capital structure may vary across firms, sectors, and economic conditions. This inconsistency suggests that the effect of DER and DAR on profitability depends not only on the level of debt used, but also on the firm's ability to allocate debt financing into productive assets and sustainable earnings.

Theoretically, the simultaneous effect of DER and DAR supports the trade-off theory, which argues that firms must balance the benefits and costs of debt in determining an optimal capital structure. Debt may provide additional capital and tax advantages when used proportionally, but excessive leverage can increase interest expenses, financial distress, and bankruptcy risk. Thus, the significant simultaneous effect found in this study confirms that capital structure should be evaluated comprehensively as part of the firm's broader financial strategy.

Overall, DER and DAR are more informative when analyzed together because they capture complementary dimensions of leverage. The finding implies that profitability is influenced not merely by an individual leverage ratio, but by the overall financing structure and the firm's capacity to manage debt efficiently.

V. CONCLUSION AND SUGGESTIONS

Conclusion

This study aims to examine the effect of capital structure proxied by the Debt to Equity Ratio (DER) and Debt to Asset Ratio (DAR) on Return on Assets (ROA) in industrial goods subsector companies during the 2020–2024 period. The results indicate that, partially, DER and DAR do not have a significant effect on ROA, thereby answering the research problem that each capital structure variable is not a primary determinant of profitability. However, simultaneously, DER and DAR have a significant effect on ROA, indicating that capital structure plays a role when viewed as a combination of financing policies. In addition, the negative relationship suggests that an increase in leverage tends to reduce corporate profitability. These findings provide theoretical implications that the relationship between capital structure and profitability is not always linear and support the trade-off theory perspective under conditions of over-leverage. Practically, the results emphasize the importance of careful debt management to avoid negatively affecting company performance.

Nevertheless, this study has limitations, particularly the low coefficient of determination, which indicates that most variations in profitability are influenced by factors outside the research model. Furthermore, the limitations also lie in the use of variables restricted to DER and DAR, as well as the research object, which only covers the industrial goods subsector within a specific period. Therefore, future research is recommended to include additional relevant variables and expand the research object and period in order to provide a more comprehensive understanding of the factors affecting corporate profitability.

Suggestions

Based on the research findings, it is recommended that companies exercise greater caution in determining capital structure policies, particularly in the use of debt, by ensuring that the funds obtained are managed productively so as not to reduce profitability. In addition, investors are advised not to rely solely on capital structure indicators such as DER and DAR when evaluating company performance, but also to consider broader factors. For future research, it is suggested to incorporate additional relevant variables and expand the scope and period of the study in order to obtain more comprehensive results in explaining the factors influencing corporate profitability.

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