

THE EFFECT OF *LEVERAGE* AND COMPANY SIZE ON THE PROFITABILITY OF THE PAPER INDUSTRY SUB-SECTOR ON THE INDONESIAN STOCK EXCHANGE

Rastimah ¹, Rusma Rizal ², Robi Arif Ajis ³

^{1,2,3} Faculty of Economics, University of Palembang

Corresponding Author Rastinah2508@gmail.com

Abstract: This study aims to empirically examine the effect of leverage and company size on the profitability of paper industry subsector companies listed on the Indonesia Stock Exchange (IDX) during the 2020–2023 period. Profitability is measured by Return on Assets (ROA) and Return on Equity (ROE). A quantitative method with a causal associative approach was used in the analysis of four companies selected using purposive sampling. Testing was conducted using multiple linear regression analysis, t-test, F-test, and coefficient of determination test. The results showed that neither leverage nor company size had a significant effect on ROA or ROE partially, although they simultaneously showed an effect on ROA. This finding indicates that capital structure and scale of operations are not dominant factors in improving financial performance in the paper industry subsector.

Keywords : *Leverage* , Company Size, Profitability, ROA, ROE.

INTRODUCTION

The paper industry is a strategic sector in the Indonesian economy, contributing significantly to exports, employment, and meeting domestic demand. However, despite promising production growth, companies in this subsector face serious challenges: fluctuating raw material prices , global competitive pressures, and the need for increasing operational efficiency. Amid this complexity, profitability is a vital indicator of a company's financial resilience and performance.

Corporate profitability, generally measured by *Return on Assets* (ROA) and *Return on Equity* (ROE), does not stand alone. Internal factors such as capital structure and company size are predicted to play a role in determining financial efficiency. *Leverage* describes the extent to which a company uses debt as a source of financing, while company size reflects the scale of operations and asset capacity.

Although financial theories such as *Pecking Order Theory* and *Trade-Off Theory* map the relationship between capital structure and financial performance, empirical studies in the paper industry subsector are limited and yield mixed results. Therefore, this study was conducted to empirically examine whether leverage and firm size influence the profitability of paper industry subsector companies listed on the Indonesia Stock Exchange (IDX) during the 2020–2023 period.



Table 1 Net Profit Report of Paper Industry Companies 2020-2023

CODE	Year	Income	Operating costs	Net profit
INRU	2023	160,600,000	1,420,000,000	25,760,000,000
	2022	175,300,000	1,530,000,000	20,490,000,000
	2021	146,900.00	1,380,000,000	62,000,000,000
	2020	123,600.00	1,200,000,000	3,750,000,000
INTD	2023	56,500,000,000	54,200,000,000	5,58,000,000
	2022	59,100,000,000	56,000,000,000	3,00,000,000
	2021	59,000,000,000	55,800,000,000	1,000,000,000
	2020	57,300,000,000	54,000,000,000	586,000,000
SWAT	2023	200,850,000,000	198,100,000,000	2,140,000,000
	2022	246,570,000,000	240,300,000,000	70,27,000,000
	2021	283,460,000,000	275,000,000,000	47,96,000,000
	2020	195,250,000,000	190,000,000,000	7,070,000,000
TKIM	2023	16,532,700,000.	13,200,000,000	148,33,000
	2022	17,749,700,000	13,800,000,000	248,36,000
	2021	14,617,000,000	11,900,000,000	463,35,000
	2020	12,242,100,000	10,000,000,000	297,14,000

Data source processed by annual report 2020-2023

Based on Table 1 of the Net Profit Report of Paper Industry Companies for the 2020–2023 period, significant variations in revenue, operating costs, and net profit of each company are evident. In general, the company with the highest net profit was INRU in 2021, reaching approximately 62,000,000,000, indicating excellent profitability performance during that period. Conversely, the lowest net profit was recorded by TKIM in 2023, only around 148,330,000, indicating a decline in profit performance compared to previous years. In terms of revenue, SWAT tended to have the highest revenue value among other companies, especially in 2021, while INRU showed relatively lower revenue. Furthermore, although some companies, such as SWAT and INTD, had substantial revenue, their net profit generated was not always comparable due to high operating costs. This indicates that cost efficiency significantly affects the level of net profit earned by a company.

Table 2 Paper Company Balance Sheet 2020-2023

PP	YEAR	TOTAL ASSETS	LIABILITIES	EQUITY
PT Toba Pulp Lestari Tbk (INRU)	2023	6,378,000,000	1,405,000,000	4,973,000,000
	2022	6,482,000,000	1,333,000,000	5,149,000,000



	2021	6,580,000,000	1,241,000,000	5,530,000,000
	2020	6,736,000,000	1,206,000,000	5,530,000,000
PT Inter Delta Tbk (INTD)	2023	33,800,000,000	0,200,000,000	33,60,000,000
	2022	34,500,000,000	0,200,000,000	35,90,000,000
	2021	35,200,000,000	0,200,000,000	35,000,000,000
	2020	35,900,000,000	0,200,000,000	35,90,000,000
PT Sriwahana Aditiyakata Tbk (SWAT)	2023	749,500,000	510,90,000,000	238,600,000
	2022	694,300,000	472,400,000	221.9 million
	2021	677,600,000	459,600,000	218,000,000
	2020	645,600,000	433,000,000	212,600,000
PT Tijwi Chemical Paper Factory (TKIM)	2023	3,609,900,000	1,224,300,000	2,385,600,000
	2022	3,545,200,000	1,326,500,000	1,560,700,000
	2021	3,161,800,000	1,403,500,000	1,758,500,000
	2020	3,073,200,000	1,560,700,000	1,512,500,000

Data source processed by annual report 2020-2023

From Table 2, the balance sheet above is the original data from the paper company's financial report on the IDX, the figure is calculated according to the ROA formula, namely profit before tax divided by total assets then multiplied by 100%, in this study the ROA used for the period 2020-2023. The phenomenon in the paper industry subsector companies listed on the IDX experiences fluctuations every year and the challenges of this paper industry are environmental issues, changes in regulations related to deforestation and carbon emissions, fluctuations in raw material prices, the availability of wood and pulp as the main ingredients, and changes in digital consumption patterns that reduce the demand for printing and writing paper. Overall, the paper industry on the Indonesia Stock Exchange remains a strategic sector with growth potential, despite facing various challenges that require innovation and sustainability in its operations.

Overall, the profitability of paper companies on the IDX is influenced by various factors, including operational efficiency, capital structure, sales growth, and liquidity. Companies in this sector need to focus on controlling production costs, managing debt wisely, and improving operational efficiency to increase profitability and competitiveness in the market. Profitability is used to measure the amount of profit that a company can earn and to compare and assess the company's profit position from year to year so that it becomes a reference for investors in assessing the company by evaluating the company's performance.

And investors can observe the development of company profits from year to year. There are several factors that influence changes in the level of profitability of a company, namely *leverage*, liquidity, and company size. Company size is a measure of a company's size. Higher total assets, which represents the company's assets, indicate greater wealth. Company size, measured by assets, indicates the extent of the company's assets.

According to Nuraini & Suwaidi (2022), they studied the effect of *leverage*, liquidity, and company size on profitability. The variables used in the study were *leverage*, liquidity,

company size, and profitability. The results of this study indicate that *leverage* and liquidity influence company profitability, while company size does not.

According to Ginting and Simanjuntak (2022), they studied the effect of *leverage*, liquidity, and company size on profitability. They used the variables *leverage*, liquidity, company size, and profitability. The results showed that *leverage* and liquidity influenced company profitability, while company size did not.

This study uses *Return on Assets* (ROA) as a profitability variable, based on a company's ability to generate net income from sales. ROA is a financial ratio useful in assessing the profitability of a policy in generating profits.

Based on the background described above, the author is interested in conducting research related to the influence of *leverage* and the size of companies engaged in the paper sector in Indonesia. Where the researcher studied four companies, namely INRU (PT Toba Pulp Lestari Tbk), INTD (PT Inter Delta Tbk), SWAT (PT Sriwahana Adiyahkarta Tbk) and TKIM (PT Pabrik Kertas Tjiwi Kimia Tbk).

So the theme and title of this research is "The Effect of *Leverage* and Company Size on the Profitability of the Paper Industry Sub-Sector on the Indonesia Stock Exchange"

METHODOLOGY STUDY

In this study, the scope of the research object applied by the author in accordance with the title being studied is "The Effect of *Leverage* and Company Size on the Profitability of the Paper Industry Sub-Sector on the Indonesia Stock Exchange"

The financial reports observed in this study are the annual financial reports of companies in the paper industry sub-sector starting from 2020 to 2023. with financial ratios limited to the *Leverage ratio*, Company Size, Profitability, ROA, ROE.

This study uses a quantitative approach to examine the effect of *leverage* and company size on profitability, as measured by ROA (*Return on Assets*) and ROE (*Return on Equity*) in paper industry subsector companies listed on the Indonesia Stock Exchange (IDX) during the 2020–2023 period. The analytical technique used is quantitative analysis. Quantitative analysis is a research method that uses numerical data as a tool for analyzing and conducting research studies.

Data in the form of calculated figures are analyzed using time series analysis, which is an analysis carried out by comparing a company's financial ratios from one period to another. The comparison between the current ratio and the ratio in the past will show whether the company is progressing or declining. To determine the company's financial condition, an analytical tool in the form of financial ratios is used. Financial ratios consist of Profitability Ratios Where the ratio uses the variables ROA and ROE.

In this study, the data analysis technique begins with a classical assumption test which includes a normality test to ensure data distribution, a multicollinearity test to avoid correlation between independent variables, and a heteroscedasticity test to ensure the consistency of residual variance. Next, multiple linear regression analysis was conducted to test the effect of leverage and company size on profitability as proxied by ROA and ROE. Hypothesis testing is carried out partially through the t-test and simultaneously through the F-test, and is strengthened by the coefficient of determination (R^2) to measure how much the independent variables explain the variation in company profitability.



RESULTS AND DISCUSSION

This study aims to determine the effect of *leverage* and company size on profitability in paper industry subsector companies listed on the Indonesia Stock Exchange for the 2020–2023 period. Profitability is measured using *Return on Assets* (ROA) and *Return on Equity* (ROE), while *leverage* uses the *Debt to Equity* (DER) ratio, and company size is determined by the natural log of total assets.

Table 3. Discussion of Research Results

Variables Independent	Variables Dependent	Coefficient Regression	Mark t	Significant (p-value)	Influence Significant	Interpretation
<i>Leverage</i> (DER)	ROA	-1,162	-0.307	0.764	X does not Significant	<i>Leverage</i> does not affect the efficiency of assets in generating profits.
Company Size (size)	ROA	1,285,650,070	0.292	0.775	X No Significant	Company scale does not affect operational efficiency
<i>Leverage</i> (DER)	ROE	-0.007	-0.235	0.818	X Is Not Significant	Debt structure does not have a significant impact on equity depiction
Size Company (size)	ROE	4,939,102	0.144	0.884	X No Significant	Large assets do not guarantee high returns on equity

Data sources processed by researchers

The results of the study indicate that *leverage* has no significant effect on profitability, measured by either *Return on Assets* (ROA) or *Return on Equity* (ROE). This is reflected in the significance value greater than 0.05 and the weakly negative regression coefficient. This phenomenon indicates that the use of debt does not directly impact a company's effectiveness in generating profits from its assets or equity.

leverage ratios are often associated with increased financial risk. However, in the context of the paper industry company analyzed, *leverage* may already be within optimal limits and thus not significantly impact profitability.

These results support the findings of Rafasadawa (2018) and Nuraini & Suwaidi (2022), which indicate that *leverage* has a negative but insignificant effect on ROA and ROE. They also strengthen the argument of Pecking Order Theory that companies tend to avoid external financing if internal financing is still able to support operations. Furthermore, the research also found that *firm size* has no significant effect on profitability. A high average total assets does not guarantee a high ROA or ROE. This indicates that a company's scale does not always reflect its efficiency in generating profits.

The use of the natural logarithm as a transformation for firm size does not show a statistically strong relationship with profitability. Signaling Theory and *the Efficiency Hypothesis* state that large firms should provide positive signals through operational efficiency. However, the results of this study show that large firms can experience inefficiencies, for example due to management complexity or high fixed costs. Previous research by Ginting and Simanjuntak (2022) also showed similar results, indicating that *firm size* is not always a consistent determinant of ROA/ROE.

CONCLUSION

This study shows that neither *leverage* nor company size significantly impacts profitability, as measured by ROA and ROE, in paper industry subsector companies listed on the Indonesia Stock Exchange (2020–2023). This suggests that: Debt-based capital structure does not directly impact asset efficiency or return on equity. Asset size or company scale are also not strong indicators of a company's earnings performance.

Thus, it can be concluded that internal factors such as operational efficiency, asset management, and company business strategy have a more dominant influence in increasing company profitability compared to leverage and company size.

LIST LIBRARY

- Adria, C., & Susanto, L. (2020). The effect of leverage, liquidity, company size, and total asset turnover on profitability. *Journal of Accounting Paradigms*, 2(1), 393–400.
- Adria, R., & Susanto, H. (2020). The influence of capital structure on the profitability of mining sector companies. *Journal of Economics and Business*, 17(2), 123–134.
- Afrianti, D., & Purwaningsih, E. (2022). The effect of leverage, liquidity, and asset growth on profitability. *Scientific Journal of Management, Economics, & Accounting (MEA)*, 6(2), 1781–1796.
- Afrianti, D., & Purwaningsih, E. (2022). The Effect of Leverage, Liquidity, and Asset Growth on Profitability. *Scientific Journal of Management, Economics, & Accounting (MEA)*, 6(2), 1781–1796
- Arnold, Putri Wahyuni, Pinondang Nainggolan, and Darwin Damanik. "Analysis of business feasibility and development strategies for small-scale tempeh industries in Setia Negara Village, Siantar Sitalasari District." *Jurnal Ekuilnomi* 2.1 (2020): 29–39.
- Ellysa, F., & Indra, W. (2019). The effect of leverage and liquidity on the profitability of manufacturing companies. *Journal of Accounting and Finance*, 10(2), 55–64.



- Fransisca, E., & Widjaja, I. (2019). The Effect of Leverage, Liquidity, Sales Growth, and Company Size on Manufacturing Company Profitability. *Journal of Managerial and Entrepreneurship*, 1(2), 199–206.
- Frisca, MP, & Triyonowati. (2018). The effect of leverage, liquidity, and company size on the profitability of manufacturing companies on the IDX. *Journal of Management Science and Research (JIRM)*, 7(8).
- Ginting, IRF, & Simanjuntak, D. (2022). The Effect of Leverage, Liquidity, and Company Size on Profitability in Mining Companies Listed on the IDX for the 2015-2020 Period. *Journal of Accounting, Finance, and Taxation*, 5(2), 63-70.
- Ginting, IRF, & Simanjuntak, D. (2022). The Effect of Leverage, Liquidity, and Company Size on Profitability in Mining Companies Listed on the IDX for the 2015–2020 Period. *Journal of Accounting, Finance, and Taxation (JAKP)*, 5(2).
- Ilahude, Putri Aprilia, Joubert Barens Maramis, and Victoria Neisye Untu. "Analysis of Financial Performance Before and During the Covid-19 Pandemic in Telecommunication Companies Listed on the IDX." *EMBA Journal: Journal of Economics, Management, Business and Accounting Research* 9.4 (2021): 1144-1152.
- Ningsih, RAM, Adel, JF, & Ratih, AE (2021). Factors Affecting Fishermen's Income in Dompak Village, Tanjungpinang. *Student Online Journal (SOJ) UMRAH-Economics*, 2 (2), 725-740.
- Nuraini, FD, & Suwaidi, RA (2022). The Effect of Leverage, Liquidity, and Company Size on Profitability in Textile and Garment Companies Listed on the Indonesia Stock Exchange. *Journal of Management Science*, 11(2), 157-166.
- The Indonesian Effect. *Journal of Management Science*, 11(2), 157–166.
- Nuraini, N., & Suwaidi, M. (2022). Analysis of the influence of learning motivation on students' academic achievement. *Journal of Education and Learning*, 12(1), 45–55.
- Nurdiana, D. (2018). The influence of leadership style on employee performance in service companies. *Indonesian Journal of Management*, 8(1), 15–25.
- Ravasadewa, Raka Pratama, and Siti Rokhmi Fuadati. "The influence of financial ratios on profit growth in coal companies on the Indonesia Stock Exchange." *Journal of Management Science and Research (JIRM)* 7.5 (2018).

