



The Effect of Capital Structure and Liquidity on Profitability in Food and Beverage Sub-Sector Manufacturing Companies Listed on the Indonesia Stock Exchange

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Abstract. This study aims to examine the effect of capital structure and liquidity on the profitability of food and beverage sub-sector manufacturing companies listed on the Indonesia Stock Exchange from 2020 to 2023. A quantitative approach was employed, using secondary data from the financial reports of 10 purposively selected companies. Data were analyzed through descriptive analysis, data testing, classical assumption tests, and hypothesis testing. Debt to Equity Ratio (DER) was used to measure capital structure, Current Ratio (CR) was employed to measure liquidity, and Return on Assets (ROA) served as the profitability indicator. The results reveal that DER has a negative yet insignificant effect on ROA. Similarly, CR shows a positive but insignificant influence on ROA. Simultaneously, neither capital structure nor liquidity was found to have a significant effect on profitability.

Introduction

The manufacturing sector is the most dominant industry listed on the Indonesia Stock Exchange (IDX), where increasingly intense competition requires companies to continuously improve performance in order to achieve their established profit targets. The food and beverage industry serves as a strategic pillar that makes a substantial contribution, accounting for 34.44% of the gross domestic product (GDP) of the processing industry sector in the second quarter of 2022 (Kusnandar, 2022).

Table 1. Return on Assets (ROA) Statistics of Food and Beverage Companies (2020–2023)

No	Company Code	2020	2021	2022	2023	Average
1	CPRO	6%	34%	5%	6%	13%
2	GOOD	4%	7%	7%	8%	7%
3	MYOR	11%	6%	9%	14%	10%
4	TAPG	8%	10%	21%	12%	13%
5	PSGO	1%	6%	6%	13%	6%
6	PANI	0%	0%	2%	2%	1%
7	CPIN	12%	10%	7%	6%	9%
8	SIMP	1%	4%	4%	3%	3%
9	CLEO	10%	13%	12%	13%	12%
10	ICBP	7%	7%	5%	7%	6%

No	Company Code	2020	2021	2022	2023	Average
	Average	6%	10%	8%	8%	

Although the food and beverage sector demonstrates consistent macroeconomic growth, at the microeconomic level companies within it face significant challenges in managing asset efficiency. This is evident in the phenomenon of Return on Assets (ROA) fluctuations during the 2020–2023 period, where companies such as CPRO recorded a high ROA of 34% in 2021, while PANI consistently registered 0% in 2020 and 2021. The ROA performance of food and beverage sub-sector companies in Indonesia during this period shows considerable fluctuation. In 2022, TAPG recorded the best performance with an ROA of 21%, while in 2023, the highest position was held by MYOR at 14%. The overall average ROA across all companies over four years stood at 8%, indicating that asset management efficiency still needs to be improved.

The primary problem addressed in this study relates to the instability of profitability triggered by companies' difficulties in balancing financing and the availability of liquid funds. This condition creates risks whereby the inability to manage capital structure and liquidity can impede long-term profit growth. To analyze this issue, the study employs several financial ratio indicators, namely Return on Assets (ROA) as a measure of profitability, Debt to Equity Ratio (DER) for capital structure, and Current Ratio (CR) to measure the level of corporate liquidity.

Theoretically, profitability reflects a company's capacity to generate profit from its sales, assets, and equity. The capital structure variable explains the proportion of debt relative to equity used to finance assets, while the liquidity variable describes the company's ability to meet its short-term obligations. Based on these interrelationships, the objective of this study is to analyze the effect of capital structure and liquidity, both partially and simultaneously, on the profitability of food and beverage sub-sector companies.

The urgency of this study is further reinforced by inconsistencies in prior research findings. Pangesti et al. (2022) found that capital structure has an effect on profitability, whereas Made et al. (2021) concluded otherwise. Similarly, regarding the liquidity variable, Syahryoga and Wijayanti (2024) found a significant effect, while Rahmawati et al. (2023) found insignificant results. These conflicting findings highlight the need for further investigation.

This study specifically focuses on the manufacturing sector's food and beverage sub-sector due to its role as a provider of basic community needs that remains resilient amid economic fluctuations. This sector's stability makes it an appropriate object for examining the relationship between capital structure, liquidity, and profitability.

According to Signalling Theory, decisions related to capital structure and liquidity management send signals to investors and the market about a company's financial health and future prospects (Bahri, 2022; Sarma & Handayani, 2025). Furthermore, Agency Theory suggests that information asymmetry between management and shareholders influences financing decisions that ultimately affect profitability (Mahulae, 2020).

Referring to the background described above, this study is motivated to conduct a more in-depth investigation through the research titled “The Effect of Capital Structure and Liquidity on Profitability in Food and Beverage Sub-Sector Manufacturing Companies Listed on the Indonesia Stock Exchange.” The hypotheses proposed are: (H1) Capital structure (DER) has a significant effect on profitability (ROA); (H2) Liquidity (CR) has a significant effect on profitability (ROA); and (H3) Capital structure (DER) and liquidity (CR) simultaneously have a significant effect on profitability (ROA).

Method

This study employs a quantitative associative research approach aimed at determining the effect of capital structure and liquidity on the profitability of food and beverage sub-sector manufacturing companies listed on the Indonesia Stock Exchange. A quantitative approach enables the systematic and objective collection and analysis of data, facilitating the identification and measurement of relevant factors in a structured manner (Imaduddin et al., 2023). This approach is appropriate for analyzing numerical data and testing hypotheses in a measurable and objective manner (Rashid, 2022).

The data used in this study are quantitative secondary data in the form of annual financial reports from companies in the food and beverage sub-sector listed on the Indonesia Stock Exchange (IDX). Data were sourced from the official IDX website at www.idx.co.id and related sites. Data collection was carried out through library research and documentation methods to gather information related to capital structure, liquidity, and profitability.

The population of this study consists of all food and beverage sub-sector manufacturing companies listed on the IDX. Sampling was conducted using the purposive sampling method based on specific criteria, resulting in 10 companies with a period of 2020 to 2023, yielding 40 observations. The independent variables consist of Debt to Equity Ratio (DER) as a measure of capital structure and Current Ratio (CR) as a measure of liquidity, while Return on Assets (ROA) serves as the dependent variable measuring profitability.

Data analysis was conducted using IBM SPSS software and included: (1) descriptive analysis of research variables; (2) data testing comprising linearity and normality tests; (3) classical assumption tests including autocorrelation, multicollinearity, and heteroscedasticity tests; and (4) hypothesis testing comprising multiple linear regression analysis, coefficient of determination test, partial t-test, and simultaneous F-test.

Results and Discussion

Descriptive Analysis of Research Variables

Capital Structure (DER) Development

Table 2. Average and Development of DER in Food and Beverage Sub-Sector Manufacturing Companies, 2020–2023

Year	Average DER	Development (%)
2020	9.791	-
2021	35.189	259%
2022	8.736	-75%
2023	6.485	-26%
Total	60.200	158%
Average	15.050	53%

Source: Processed data using SPSS

The average DER experienced significant fluctuations, with the highest surge in 2021 at 259%. However, in 2022 and 2023, DER declined sharply. The average value of 15.050 indicates a tendency for companies to rely more on debt than equity, which may increase financial risk if not managed optimally.

Liquidity (CR) Development

Table 3. Average and Development of CR in Food and Beverage Sub-Sector Manufacturing Companies, 2020–2023

Year	Average CR	Development (%)
2020	17.846	-
2021	15.300	-14%
2022	18.176	19%
2023	19.936	10%
Total	71.258	1,421
Average	17.815	474

Source: Processed data using SPSS

The Current Ratio (CR) remained relatively stable, with a 14% decrease in 2021, followed by increases of 19% and 10% in 2022 and 2023, respectively. An average CR of 17.815 indicates that companies are generally able to meet their short-term obligations.

Profitability (ROA) Development

Table 4. Average and Development of ROA in Food and Beverage Sub-Sector Manufacturing Companies, 2020–2023

Year	Average ROA	Development (%)
2020	0.595	-
2021	0.971	63%
2022	0.788	-19%
2023	0.837	6%
Total	3.190	51%
Average	0.798	17%

Source: Processed data using SPSS

Return on Assets (ROA) also experienced fluctuations, increasing significantly by 63% in 2021, then declining in 2022, and slightly recovering in 2023. The average ROA of 0.0798 or 7.98% indicates that corporate profitability is relatively low but remains positive.

Linearity and Normality Tests

Based on the studentized residual scatterplot, data points were randomly scattered around zero without any specific pattern, indicating a linear relationship among variables. Although the regression results were not statistically significant, the direction of the coefficients aligns with theory, and the residual scatter pattern supports the fulfillment of the linearity assumption. Based on the Normal P-Plot graph, the data points spread relatively close to the diagonal line, indicating that the residual distribution does not deviate significantly from normality. Therefore, the data meet the normality assumption and are suitable for further regression analysis.

Classical Assumption Tests

Autocorrelation Test

Table 5. Autocorrelation Test Results

Model	R	R Square	Adj. R Square	Std. Error	Durbin-Watson
1	.246a	.061	.010	.06113	1.909

Source: Processed data using SPSS

Based on Table 5, the Durbin-Watson value is 1.909. With 40 observations and 2 independent variables, this value is close to 2, indicating that there is no autocorrelation in the regression model, either positive or negative. The model therefore meets the assumption of being free from autocorrelation.

Multicollinearity Test

Table 6. Multicollinearity Test Results

Model	Tolerance	VIF
(Constant)		
DER	0.918	1.089
CR	0.918	1.089

Source: Processed data using SPSS

Based on Table 6, the DER variable has a Tolerance value of 0.918 (> 0.10) and a VIF value of 1.089 (< 10). Similarly, the CR variable has a Tolerance of 0.918 (> 0.10) and a VIF of 1.089 (< 10). Since all independent variables show Tolerance values above 0.10 and VIF values below 10, the model is free from multicollinearity problems.

Heteroscedasticity Test

Based on the scatterplot graph, residual data points are randomly scattered both above and below zero on the Y-axis without forming any clear pattern. This random distribution indicates that the residual variance is constant (homoscedastic). Consequently, the regression model is free from heteroscedasticity symptoms and meets the assumption of stable residual variance.

Hypothesis Testing

Multiple Linear Regression Analysis

Table 7. Multiple Linear Regression Analysis Results

Model	B	Std. Error	Beta	t	Sig.
(Constant)	0.077	0.026		2.926	0.006
DER	-0.003	0.002	-0.223	-1.340	0.188
CR	0.005	0.013	0.059	0.356	0.724

Source: Processed data using SPSS

Based on Table 7, the regression equation is: $ROA = 0.077 - 0.003DER + 0.005CR$. The constant of 0.077 indicates that if DER and CR are zero, ROA is estimated at 0.077. The DER regression coefficient of -0.003 indicates a negative relationship with ROA, meaning that each one-unit increase in DER is expected to decrease ROA by 0.003, assuming CR remains constant. The CR regression coefficient of 0.005 indicates a positive relationship with ROA, meaning that each one-unit increase in CR is expected to increase ROA by 0.005, assuming DER remains constant. However, both significance values (DER: 0.188; CR: 0.724) exceed 0.05, indicating that neither variable has a statistically significant effect on ROA.

Coefficient of Determination (R^2)

Table 8. Coefficient of Determination Results

Model	R	R Square	Adj. R Square	Std. Error
1	.246a	.061	.010	.06113

Source: Processed data using SPSS

Based on Table 8, the Adjusted R Square value obtained is 0.010, equivalent to 1%. This indicates that CR and DER together explain only 1% of the variability in ROA. The remaining 99% is influenced by other factors not included in this regression model, indicating that the model's predictive ability is limited.

Partial t-Test

Table 9. Partial t-Test Results

Model	B	Std. Error	Beta	t	Sig.
(Constant)	0.077	0.026		2.926	0.006
DER	-0.003	0.002	-0.223	-1.340	0.188
CR	0.005	0.013	0.059	0.356	0.724

Source: Processed data using SPSS

Based on Table 9, the t-statistic for DER is -1.340 , which is less than the t-table value of 2.0262 in absolute terms, and the significance value of 0.188 exceeds 0.05 . Therefore, capital structure (DER) does not have a significant effect on profitability (ROA), and H1 is rejected. For CR, the t-statistic is 0.356 , which is less than the t-table of 2.0262 , with a significance value of 0.724 exceeding 0.05 . Therefore, liquidity (CR) also does not have a significant effect on profitability (ROA), and H2 is rejected. Both variables have different directions of influence: DER negatively and CR positively.

Simultaneous F-Test

Table 10. Simultaneous F-Test Results (ANOVA)

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	0.009	2	0.004	1.196	0.312
Residual	0.138	37	0.004		
Total	0.147	39			

Source: Processed data using SPSS

Based on Table 10, the F-statistic value of 1.196 is less than the F-table of 3.25 at a 5% significance level ($df_1=2$, $df_2=37$). This indicates that simultaneously, CR and DER do not have a significant effect on ROA, and H3 is rejected. The regression model is thus unable to explain the combined influence of the two independent variables on the dependent variable in a statistically significant manner.

Discussion

Effect of Capital Structure (DER) on Profitability (ROA)

Companies can obtain financing from internal or external sources to strengthen their capital structure. A low Debt to Equity Ratio (DER) reflects a healthy fundamental condition, as the proportion of debt is smaller than available equity (Wardoyo et al., 2022). Based on Signalling Theory, the use of debt as a financing source can serve as a positive signal to investors, indicating management's optimism regarding the company's future prospects (Sarma & Handayani, 2025).

The test results for DER show a significance value of 0.188 , which exceeds the 0.05 threshold, and a t-statistic of -1.340 , which is less than the t-table of 2.0262 in absolute terms. This finding indicates that DER does not have a significant effect on ROA. The negative regression coefficient reflects an inverse relationship, although it is not statistically significant. The average DER of 15.050 suggests that companies tend to use more debt than equity. This finding indicates that high debt ratios have not been effectively utilized to improve profitability. Financial burdens from high debt, when not offset by efficient use of funds, can suppress corporate earnings.

This finding is consistent with Fathoni and Syarifudin (2021) and Wulandari and Widyastuti (2023), who found that DER has a negative and insignificant effect on ROA. This is contrary to the findings of Hidayah et al. (2023), who reported a significant positive effect of capital structure on profitability. The inconsistency suggests that in the food and beverage sector, which tends to be stable and reliant on equity, debt-based financing does not necessarily contribute directly to profitability improvements. This also aligns with findings from international studies such as Salim

and Yadav (2012), who showed that the direction and significance of leverage effects on profitability vary depending on the industry and economic context.

Effect of Liquidity (CR) on Profitability (ROA)

Liquidity is a financial indicator reflecting a company's ability to fulfill short-term obligations using its current assets. A higher Current Ratio (CR) provides greater opportunity for companies to maintain operational performance and develop their business (Rahmawati et al., 2023). From the perspective of Signalling Theory, an increase in liquidity can be interpreted as a positive signal to investors, indicating financial stability and health (Bahri, 2022).

Based on the data analysis, the significance value for the CR variable is 0.724, exceeding the 0.05 threshold. The t-statistic of 0.356 is below the t-table of 2.0262. This indicates that CR does not have a significant effect on ROA. The average CR of 17.815 indicates that companies are generally capable of meeting their short-term obligations; however, high liquidity does not necessarily translate directly into profitability improvements. This may occur because current assets are not productively utilized, thereby not contributing optimally to earnings.

This result is consistent with Wulandari and Widyastuti (2023), who found that liquidity (CR) has a positive but insignificant effect on profitability. This finding suggests that high liquidity has not reflected efficient utilization of current assets. In the relatively stable food and beverage manufacturing sub-sector, excess current assets are not always maximally utilized. This contrasts with Rinofah et al. (2021) and Alarussi and Alhaderi (2018), who reported a significant positive effect of liquidity on profitability.

Conclusion

Based on the results of data analysis and discussion, this study concludes that capital structure as measured by Debt to Equity Ratio (DER) has a negative and insignificant effect on profitability as measured by Return on Assets (ROA). This indicates that debt-based financing in food and beverage manufacturing companies has not yet made a meaningful contribution to improving corporate asset performance. Liquidity as measured by Current Ratio (CR) also shows a positive yet insignificant effect on profitability, suggesting that high liquidity does not reflect effective management of current assets for profit generation. Overall, neither capital structure nor liquidity has been statistically proven to play a significant role in influencing profitability in the companies studied during the observation period.

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