THE EFFECT OF LIQUIDITY, LEVERAGE, SALES GROWTH, AND COST-TO-REVENUE ON THE ROA OF INDONESIAN CONSUMER GOODS COMPANIES

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Abstract

This research aims to analyze the effect of Liquidity Ratio, Leverage Ratio, Sales Growth, and Cost to Revenue Ratio on Return on Assets (ROA) in consumer goods companies listed on the Indonesia Stock Exchange (IDX) for the period 2019–2024. The primary research problem focuses on how liquidity management, funding structure, sales growth, and cost efficiency determine profitability amidst intense competition and economic dynamics.Using an explanatory quantitative method, this research involves 53 companies selected through purposive sampling, resulting in a total of 318 observations. Secondary data were analyzed using panel data regression through software, with model selection procedures including the Hausman test and redundant fixed effects test.Theoretically, liquidity and sales growth are predicted to have a positive effect, while leverage and cost-to-revenue are expected to have a negative impact on ROA. This study also integrates control variables such as inventory turnover, Net Profit Margin (NPM), Average Collection Period (ACP), and firm size. In conclusion, operational efficiency and financial stability are crucial for management and investors in optimizing asset utilization to improve the financial performance of consumer goods companies in Indonesia.

Keywords: Return On Asset, Liquidity Ratio, Leverage Ratio, Sales Growth, Cost to Revenue

INTRODUCTION

Companies in the consumer goods sector play a significant role in the Indonesian economy because they produce essential daily necessities, such as food, beverages, personal care products, and household items. The high purchasing power of consumers has a direct implication for the financial performance of firms in this sector. Several factors, including liquidity, leverage, sales growth, and the cost-to-revenue ratio, are believed to influence corporate profitability, which is commonly measured by Return on Assets (ROA) (Khoza, 2025). The financial performance of companies in this sector is therefore a major concern for management, investors, regulators, and other stakeholders, as it reflects the firm's ability to sustain business continuity, generate employment, and deliver attractive returns to shareholders.

Liquidity is defined as a company's ability to meet its short-term obligations when they become due, as measured by liquidity ratios, such as the current ratio (Khoza, 2025). In the context of consumer goods companies listed on the Johannesburg Stock Exchange, liquidity is regarded as an indicator of financial stability because firms must be able to finance daily operations, maintain healthy cash flows, and remain resilient to economic shocks such as rising raw material prices or declining purchasing power. For consumer goods companies in Indonesia, balanced liquidity management is essential to ensure that current assets are not excessively idle, while still remaining sufficient to support smooth operations and minimize the risk of default.

Leverage is measured using ratios that reflect the extent to which a company's assets are financed by debt relative to equity (Khoza, 2025). Theoretically, leverage is associated with the trade-off theory, whereby the use of debt can increase firm value through tax benefits (tax shields), but may also raise the risk of bankruptcy and interest burdens when the proportion of debt becomes excessively high. For consumer goods companies in Indonesia that require substantial financing for production and distribution activities, effective management of the debt structure is therefore crucial to maximize the benefits of leverage without amplifying financial risk.

The sales growth rate is considered one of the firm-specific indicators that influence profitability (Bhunia & Bhattacharjee, 2025). Sales growth reflects a company's ability to increase sales volume and value over time, expand market share, and strengthen brand positioning. Conceptually, high sales growth is expected to enhance profitability through economies of scale and more optimal utilization of asset capacity. In the Indonesian context, however, consumer goods companies often face intense price competition and aggressive promotional strategies; these conditions may increase sales volume but do not necessarily improve Return on Assets (ROA) if the cost structure remains inefficient.

In the study by Bhunia & Bhattacharjee (2025), the cost-to-revenue ratio is used to describe operational cost efficiency, indicating the proportion of costs incurred by a company to generate one unit of revenue. For consumer goods companies in Indonesia, the cost-to-revenue ratio serves as an important indicator for evaluating cost management efficiency amid rising raw material prices, increasing distribution costs, and intense price competition; a high cost ratio will directly erode profitability even when nominal sales increase.

Return on Assets (ROA) in the study by Khoza (2025) is used as the primary proxy for financial performance and is calculated as the ratio of net income to total assets. ROA is

selected because it effectively reflects the extent to which management utilizes the company's overall asset resources to generate profits. Similarly, Bhunia & Bhattacharjee (2025) employ Return on Assets (ROA) as one of the profitability indicators to assess the ability of FMCG companies in India to utilize their assets effectively. Accordingly, both studies position ROA as an asset-based measure of profitability. In the context of Indonesian consumer goods companies, which tend to be asset-intensive and highly dependent on working capital, the use of ROA as the dependent variable is particularly relevant because it captures the combined effects of liquidity decisions, capital structure, sales growth, and cost efficiency.

Based on the foregoing discussion, it is evident that liquidity, leverage, sales growth, and the cost-to-revenue ratio play important roles in explaining variations in financial performance, as proxied by Return on Assets (ROA), among consumer goods companies across different countries. However, empirical evidence from South Africa and India may not fully reflect market conditions, cost structures, and competitive dynamics in Indonesia. Moreover, there is still limited research that comprehensively integrates these four variables within a single model to examine their effects on Return on Assets (ROA) among consumer goods companies listed on the Indonesia Stock Exchange. This gap underscores the need for further research to gain a deeper understanding of how the combined management of liquidity, financing structure, sales growth, and cost efficiency influences the financial performance of consumer goods companies in Indonesia.

REVIEW OF LITERATURE

This study is based on the assumption that the financial performance of consumer goods companies, as proxied by Return on Assets (ROA), is influenced by several internal factors, namely liquidity, leverage, sales growth, and the cost-to-revenue ratio. The conceptual framework is developed by adapting the main findings of Khoza (2025) and Bhunia & Bhattacharjee (2025) to the context of consumer goods companies in Indonesia.

Khoza (2025) examined 13 consumer goods companies listed on the Johannesburg Stock Exchange (JSE) over the period 2015–2024 and employed ROA as the primary proxy for financial performance. The main independent variables were liquidity (LIQ) and leverage (LEV), including its quadratic component (LEV^2), while net profit margin, inventory turnover, average collection period, and firm size were included as control variables. The results indicate that liquidity and quadratic leverage (LEV^2) have a positive and significant effect on ROA, whereas linear leverage has a negative and insignificant effect. These findings confirm that liquidity stability and an optimally managed debt structure contribute to improvements in financial performance.

Bhunia & Bhattacharjee (2025) investigated the profitability of FMCG companies listed on the Bombay Stock Exchange (BSE) in India using several profitability indicators, including net profit margin, return on equity, and return on assets. The explanatory variables included sales growth, total asset growth, earnings per share growth, the cost-to-revenue ratio, and the dividend payout ratio. The results show that the cost-to-revenue ratio, sales growth, and total asset growth collectively have a significant effect on profitability, with specific findings indicating that the cost-to-revenue ratio is negatively correlated with return on assets, while sales growth has a positive effect on return on equity.

Based on these two primary references, the conceptual framework of this study integrates the roles of four independent variables:

Liquidity

Liquidity reflects a company's ability to meet its short-term obligations and is commonly measured using the current ratio (current assets relative to current liabilities). Khoza (2025) found that liquidity has a positive and significant effect on Return on Assets (ROA) among consumer goods companies in South Africa, supporting the view that liquidity stability enables firms to maintain smooth operations, reduce the risk of default, and enhance investor confidence.

Theoretically, adequate liquidity enables companies to meet short-term obligations on time, maintain smooth operations, and take advantage of investment opportunities without being constrained by cash shortages. From the perspective of liquidity preference theory, firms tend to hold liquid assets to reduce uncertainty and preserve operational flexibility, which ultimately can enhance financial performance. Khoza (2025) found that liquidity, measured by the ratio of current assets to current liabilities, has a positive and significant effect on Return on Assets (ROA). This finding indicates that companies with stronger liquidity positions tend to generate higher returns on assets. Several studies cited in that research also confirm that financial stability and effective working capital management are associated with improved profitability.

Leverage

Leverage describes the extent to which a company's assets are financed by debt, for example through the ratio of total assets to equity. In Khoza's (2025) study, linear leverage has a negative and insignificant effect on Return on Assets (ROA), whereas the quadratic component (LEV^2) has a positive and significant effect, indicating a non-linear relationship between leverage and financial performance. This concept is consistent with the trade-off theory, which suggests that at certain levels, the use of debt can increase firm value through tax benefits, while excessive leverage increases the risk of bankruptcy.

Leverage reflects a company's financing structure, particularly the proportion of debt used to finance its assets. Trade-off theory explains that the use of debt can enhance firm value through tax benefits, but it may also increase the risk of bankruptcy and agency costs when the level of debt becomes excessively high. In Khoza's (2025) study, leverage measured by the ratio of total assets to equity shows a negative and insignificant effect on Return on Assets (ROA), whereas its quadratic component (LEV^2) has a positive and significant effect. This indicates a non-linear relationship between leverage and ROA: at certain levels of leverage, additional debt can still have a positive effect on ROA, but beyond the optimal point, excessive leverage reduces financial performance.

Sales Growth

Sales growth reflects the increase in sales over time and serves as one of the indicators of firm growth. In Bhunia's (2025) study, sales growth is employed as a firm-specific factor presumed to influence profitability, and the results indicate that sales growth affects profitability, including a positive impact on Return on Equity (ROE), while collectively with other variables it influences Return on Assets (ROA). Theoretically, sustained sales growth can enhance profitability through more efficient utilization of production capacity and the achievement of economies of scale.

Sales growth reflects a company's ability to increase sales volume or value over time, indicating the strength of market demand, the effectiveness of marketing strategies, and product competitiveness. Theoretically, sustained sales growth can enhance profitability through more optimal utilization of production capacity and economies of scale, allowing fixed costs to be spread over larger production volumes. Bhunia's (2025) panel regression results demonstrate that sales growth influences profitability indicators, including a positive effect on Return on Equity (ROE) and, collectively with other variables, an effect on Return on Assets (ROA), although its individual coefficient on ROA is not always statistically significant. In the context of consumer goods companies in Indonesia, high sales growth is expected to improve asset utilization and profit contribution, thereby positively affecting Return on Assets (ROA).

Cost-to-Revenue Ratio

The cost-to-revenue ratio represents cost efficiency, namely the comparison between costs (such as operating expenses) and revenue. In Bhunia's (2025) study, the cost-to-revenue ratio is found to be negatively correlated with profitability, indicating that the higher the proportion of costs relative to revenue, the lower a firm's ability to generate profits from its resources. Cost efficiency is therefore particularly critical in the FMCG/consumer goods sector, which faces price pressures, input cost fluctuations, and intense competition.

The cost-to-revenue ratio measures cost efficiency by comparing total costs (such as operating expenses) to total revenue. This ratio indicates the magnitude of costs incurred by a company to generate a given level of revenue; the lower the ratio, the more efficient the firm is in managing its costs. In Bhunia's (2025) study, the cost-to-revenue ratio is found to be negatively correlated with profitability indicators, including Return on Assets (ROA). Panel regression results show that the cost-to-revenue ratio is negatively associated with ROA, leading to the conclusion that the cost-to-revenue ratio, together with sales growth and total asset growth, significantly influences the profitability of FMCG companies. These findings imply that the higher the proportion of costs relative to revenue, the lower the firm's ability to generate profits from its assets. In the context of consumer goods companies in Indonesia, which face competitive pressures, rising raw material prices, and increasing distribution costs, cost efficiency is therefore crucial for sustaining profitability.

Return on Assets

Return on Assets (ROA) is selected as the primary indicator of financial performance because it reflects a company's ability to generate profits from its total managed assets. Both Khoza (2025) and Bhunia & Bhattacharjee (2025) position ROA as a central asset-based profitability indicator in the analysis of financial performance among consumer goods/FMCG companies.

RESEARCH METHOD

This study employs a quantitative approach with an explanatory method. The objective is to examine the causal relationships between the independent variables (Liquidity, Leverage, Sales Growth, and Cost-to-Revenue Ratio) and the dependent variable (Return on Assets/ROA), while taking into account control variables (Inventory Turnover, Net Profit Margin, Average Collection Period, and Firm Size) (Bhunia & Bhattacharjee, 2025; Khoza, 2025).

Research Hypothesis

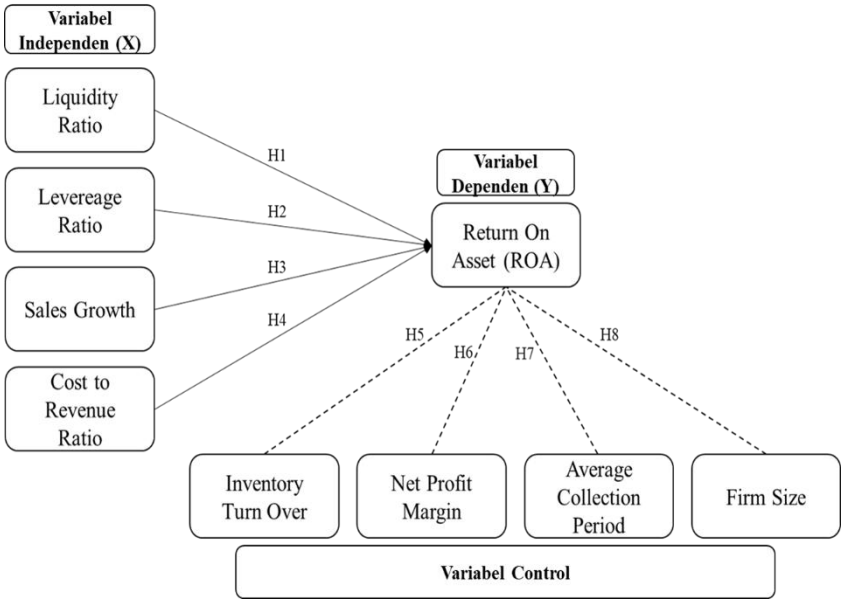
This study aims to analyze the effects of the Liquidity Ratio, Leverage Ratio, Sales Growth, and Cost-to-Revenue Ratio on Return on Assets (ROA) among consumer goods companies listed on the Indonesia Stock Exchange (IDX) during the 2019–2024 period.

Based on this objective, the research hypotheses are formulated as follows:

- H1: Liquidity has a positive effect on the Return on Assets (ROA) of consumer goods companies listed on the Indonesia Stock Exchange.
- H2: Leverage has a negative effect on the Return on Assets (ROA) of consumer goods companies listed on the Indonesia Stock Exchange.
- H3: Sales growth has a positive effect on the Return on Assets (ROA) of consumer goods companies listed on the Indonesia Stock Exchange.
- H4: The cost-to-revenue ratio has a negative effect on the Return on Assets (ROA) of consumer goods companies listed on the Indonesia Stock Exchange.
- H5: Inventory turnover has a positive effect on the Return on Assets (ROA) of consumer goods companies listed on the Indonesia Stock Exchange.
- H6: Net profit margin has a positive effect on the Return on Assets (ROA) of consumer goods companies listed on the Indonesia Stock Exchange.
- H7: Average Collection Period (ACP) has a negative effect on the Return on Assets (ROA) of consumer goods companies listed on the Indonesia Stock Exchange.
- H8: Firm size has a positive effect on the Return on Assets (ROA) of consumer goods companies listed on the Indonesia Stock Exchange

Research Model

Referring to the theoretical framework and empirical evidence discussed above, the conceptual framework of this study can be illustrated as follows:



The model diagram in this study indicates that the four independent variables have direct relationships with Return on Assets. This study uses secondary data obtained from the financial statements of consumer goods companies (old sector classification) listed on the Indonesia Stock Exchange (IDX), applying a census/purposive sampling method in which all population members are included as samples provided that they meet the data completeness criteria.

Variables and Measurement of Variables

This study aims to examine the effects of the Liquidity Ratio (LIQ), Leverage Ratio (LEV), Sales Growth (GSALES), Cost-to-Revenue Ratio (CRR), as well as the control variables Inventory Turnover (INV), Net Profit Margin (NPM), Average Collection Period (ACP), and Firm Size (FS) on Return on Assets (ROA) among consumer goods companies listed on the Indonesia Stock Exchange (IDX) during the 2020–2024 period. Based on the selected model, this study employs the Fixed Effect Model (FEM). The following section presents the measurement procedures for each variable:

Table 1.
Variables and Measurement of Variables

Variabel Type	Variabel Name	Measurement / Formula	Source
Dependen	Return on Assets (ROA)	Net Income/ Total Asset	Khoza (2025)
Independen	Likuiditas (LIQ)	CR= Current Asset / Current Liabilities	Khoza (2025)
	Leverage (LEV)	Total Utang / Total Ekuitas	Khoza (2025)
	Sales Growth	(Current Period Sales − Previous Period Sales) / Previous Period Sales × 100%	Bhunia & Bhattacharjee (2025)
	Cost to Revenue Ratio	Total Revenue / Total Costs	Bhunia & Bhattacharjee (2025)
Kontrol	Inventory Turnover (INVT)	Cost of Goods Sold (COGS) / Average Inventory	Khoza (2025)
	Net Profit Margin (NPM)	Net Income / Revenue	Khoza (2025); Bhunia & Bhattacharjee (2025)
	Average Collection Period (ACP)	(Accounts Receivable / Sales) × 365	Khoza (2025)
	Firm Size (FS)	Total Assets	Khoza (2025)

Sampling Method

This study uses secondary data obtained from the financial statements of consumer goods companies (old sector classification) listed on the Indonesia Stock Exchange (IDX). The research population includes all issuers in the consumer goods sector (old classification) listed on the IDX during the observation period from 2020 to 2024. Audited annual financial statements are used as the primary source of corporate financial data. Companies in this sector are identified through the IDX issuer list, after which the financial statements of each company are downloaded from the official IDX website and extracted for analysis. After applying purposive sampling, out of a total population of 63 consumer goods issuers (old classification), only 53 companies met the selection criteria, with observations covering a five-year period. Consequently, the total number of observations amounts to 265 (53 companies × 5 years).

RESULTS AND DISCUSSION

Uji Chow

The Chow test is conducted to determine the most appropriate panel data model, namely to choose between the Common Effect Model (CEM) and the Fixed Effect Model (FEM). In this test, the hypotheses are formulated as H0: Common effect, which indicates that there are no significant individual effects, and Ha: Fixed effect, which indicates the presence of significant individual effects. The decision criterion is based on the probability value of the cross-section Chi-square at a 5% significance level ($\alpha = 0.05$). If the probability value of the cross-section Chi-square is greater than or equal to 0.05, H0 is accepted and the selected model is CEM. Conversely, if the probability value of the cross-section Chi-square is less than 0.05, Ha is accepted and the more appropriate model is FEM.

Table 2.

Uji Chow

Cross Section Chi Square	Df	Prob.
206,380040	52	0,0000

Source: Data processed (2026)

Based on the results of the Chow test for all models in Table 1, the p-value of the cross-section Chi-square is 0.0000, which is less than 0.05. This indicates that H0 is rejected; therefore, the selected model is the Fixed Effect Model (FEM).

Uji Hausman

The Hausman test is conducted when the Chow test indicates that the selected model is the Fixed Effect Model (FEM). The Hausman test is used to determine the most appropriate panel data model between the Fixed Effect Model (FEM) and the Random Effect Model (REM). The hypotheses in this test are formulated as H0: Random Effect Model, which states that the differences in coefficients across models are not systematic, and Ha: Fixed Effect Model, which states that the differences in coefficients are systematic. The decision rule is based on the probability value of the cross-section Chi-

square at a 5% significance level (α = 0.05). If the probability value of the cross-section Chi-square ≥ 0,05, H0 is accepted and the appropriate model is REM. Conversely, if the probability value of the cross-section Chi-square < 0,05, H0 is rejected and the appropriate model is FEM.

Table 3.
Hausman Test

Cross Section Chi Square	Chi-Sq.d.d	Prob.
72,375521	8	0,0000

Source: Data processed (2026)

Based on the results of the Hausman test, the p-value of the cross-section random is 0.0000 < 0,05. This indicates that H0 is rejected; therefore, the selected model is the Fixed Effect Model (FEM).

Breusch Test–Pagan Lagrange Multiplier (LM)

The Lagrange Multiplier (LM) test is used to examine whether a panel model that incorporates individual effects is superior to the pooled OLS model. Khoza (2025) reports a Breusch–Pagan LM probability value of 0.0168 (< 0.05), indicating that a panel estimator is appropriate and that the pooled model is inadequate as a specification. In this study, the LM test is conducted only when the Chow test selects the Common Effect Model (CEM), as the LM test aims to determine the appropriate model choice between the CEM and the Random Effect Model (REM). The hypotheses are formulated as H0: CEM and Ha: REM, with the decision criterion based on the probability value of the cross-section Breusch–Pagan at a 5% significance level (α = 0.05). If the Breusch–Pagan probability value is < 0,05, H0 is accepted and the appropriate model is CEM; conversely, if the probability value is less than 0.05, H0 is rejected and the appropriate model is REM. However, since the Chow test in this study selects the Fixed Effect Model (FEM), the LM test does not need to be conducted. Therefore, FEM is the most appropriate model to be used in this study.

Statistical Tests

Before testing the theoretical hypotheses, classical assumption tests are first conducted. For panel data models, classical assumption testing is performed only if the selected model is the Common Effect Model (CEM); if the Fixed Effect Model (FEM) or Random Effect Model (REM) is selected, classical assumption tests are not required (Widarjono, 2018). Based on the model selection results above, classical assumption testing is not conducted because the selected model is FEM.

Descriptive Statistics

Descriptive statistics are used to provide an overview of the characteristics of the research data, as reflected by the mean, maximum, minimum, and standard deviation prior to panel regression estimation. The maximum and minimum values are used to identify the highest and lowest values of each variable. The mean represents the central tendency

of each variable, while the standard deviation indicates the degree of data dispersion or homogeneity. Descriptive statistics describe the data using statistical measures for each variable, namely ROA, LIQ, LEV, GSALES, CRR, INV, NPM, ACP, and FS.

The dependent variable in this study is Return on Assets (ROA). The main independent variables include Liquidity (LIQ), Leverage (LEV), Sales Growth (GSALES), and the Cost-to-Revenue Ratio (CRR). This study also incorporates control variables, namely Inventory Turnover (INV), Net Profit Margin (NPM), Average Collection Period (ACP), and Firm Size (FS).

Table 4
Descriptive Analysis

Variable	Mean	Max	Min	Std. Dev
ROA	0.048569	0.943569	-0.948898	0.152005
LIQ	3,866154	98,63435	0,089030	9,601236
LEV	2,034669	18,03699	-22,61757	2,428867
GSALES	9,345410	247,2852	-85,49474	37,07284
CRR	12,36908	1197,342	0,189836	106,8690
INV	4,728817	25,27064	0,002050	3,830893
NPM	-0,045809	0,938941	-7,256624	0,634836
ACP	58,71807	246,6167	0,023484	42,05449
FS	28,54074	32,93787	24,60427	1,769276

Source: Data processed (2026)

Based on the descriptive statistics of 265 observations, all variables exhibit varying degrees of variation across firms and periods.

Return on Assets (ROA) has a mean of 0.048569 with a standard deviation of 0.152005, indicating that the profitability level of the sample is quite diverse. The highest ROA of 0.943569 was recorded by PSDN (2023), while the lowest ROA of −0.948898 occurred at INAF (2023). Liquidity (LIQ) has an average value of 3.866154 with a standard deviation of 9.601236, indicating highly heterogeneous liquidity, with a maximum value of 98.63435 at IIKP (2020) and a minimum value of 0.089030 at INAF (2024). Leverage (LEV) has a mean of 2.034669 and a standard deviation of 2.428867 (heterogeneous), with a maximum of 18.03699 at PSDN (2022) and a minimum of −22.61757 at FOOD (2024). Sales Growth (GSALES) has an average of 9.345410 and a standard deviation of 37.07284, showing that sales growth fluctuates substantially, with a maximum of 247.2852 at PCAR (2021) and a minimum of −85.49474 at BTEK (2021). The Cost-to-Revenue Ratio (CRR) has a mean of 12.36908 and a standard deviation of 106.8690, indicating extremely high variation; the maximum value is 1,197.342 at MERK (2020) and the minimum value is 0.189836 at IIKP (2024).

For operational variables, Inventory Turnover (INV) has a mean of 4.728817 with a standard deviation of 3.830893 (relatively more homogeneous compared to other variables), with a maximum of 25.27064 at PCAR (2024) and a minimum of 0.002050 at KAEF (2022). Net Profit Margin (NPM) has a mean of −0.045809, indicating that, on average, the sample firms experienced negative net profit margins; the variation is highly heterogeneous (SD 0.634836), with a maximum of 0.938941 at AISA (2020) and a minimum of −7.256624 at IIKP (2022). Average Collection Period (ACP) has a mean of 58.71807 with a standard deviation of 42.05449, reflecting relatively homogeneous variation in collection periods, with a maximum of 246.6167 at MRAT (2020) and a minimum of 0.023484 at BTEK (2020). Finally, Firm Size (FS) has a mean of 28.54074 and a standard deviation of 1.769276, indicating that firm size is relatively homogeneous, with a maximum value of 32.93787 at INDF (2024) and a minimum value of 24.60427 at FOOD (2024).

Goodness-of-Fit Test (R^2)

The coefficient of determination test is conducted to determine the extent to which the independent variables are able to explain the variation in the dependent variable within a model, by examining the adjusted R-square (Adjusted R^2) value. The closer the Adjusted R^2 value is to 1, the greater the ability of the independent variables included in the model to explain changes in the dependent variable, indicating a very strong relationship. Conversely, if the Adjusted R^2 value approaches 0, the ability of the independent variables to explain the dependent variable is considered very weak. Therefore, the interpretation of the Adjusted R^2 value is used as the basis for assessing the model's strength or goodness of fit. The results of the goodness-of-fit test using the Adjusted R^2 are presented as follows.

Table 5.
Goodness-of-Fit Test (R^2)

Model		Adj.R^2
ROA	0,960001	0,948237

Source: Data processed (2026)

Simultaneous Test (F test)

The F-test aims to determine whether all independent variables together with the control variables simultaneously (jointly) have an effect on the dependent variable. In this test, the hypotheses are formulated as H0: b1 = b2 = b3 = b4 = b5 = b6 = b7 = 0, which means that all independent variables have no effect on the dependent variable, and Ha, which states that at least one independent variable has a significant effect on the dependent variable. Therefore, the F-test (simultaneous test) is used to assess the overall significance of the model, namely whether the constructed model is valid and capable of explaining the dependent variable through the contribution of the independent variables included in it. The results of the F-test analysis are presented in the table below.

Table 6.
Simultaneous Test (F test)

MODEL	F-Statistic	Prob(F-statistic)
ROA	81,60257	0,000000

Source: Data processed (2026)

Based on the data in Table 6, the p-value of the F-statistic is 0.000000, which is less than 0.05. This indicates that H0 is rejected, thereby confirming that at least one independent variable has a significant effect on the dependent variable, ROA.

Individual Test (T-Test)

H1: Liquidity has a positive effect on the Return on Assets (ROA) of consumer goods companies listed on the Indonesia Stock Exchange.

Hypothesis 1 was tested to examine the positive effect of Liquidity (LIQ) on Return on Assets (ROA). The estimation results show that LIQ has an estimated coefficient of −0.003397, indicating that a higher LIQ leads to a decrease in ROA, and vice versa. With a negative estimated coefficient, it can be concluded that LIQ is not proven to have a positive effect on ROA. This finding indicates that, for consumer goods companies listed on the Indonesia Stock Exchange, an increase in liquidity (current ratio) does not automatically enhance ROA. Excessively high liquidity may reflect idle current assets (such as unused cash, inventories, or receivables) or unproductive working capital, which reduces asset efficiency and consequently lowers ROA.

The results of this study are consistent with the findings of Irawan et al. (2022), which show that liquidity does not have a significant effect on ROA in certain cases. The partial hypothesis testing (t-test) indicates that the t-statistic for liquidity is 2.306 with a significance level of 0.744, which is greater than 0.05, implying that the industry has not been able to adequately meet its short-term commitments.

The results of this study are also in line with the research conducted by (Fahreza et al., 2025), which found that liquidity (Current Ratio) does not have a significant effect on ROA. Their test results show that the t-statistic for the Current Ratio is 0.883 with a significance level of 0.396, which is greater than 0.05.

In contrast to the study conducted by Khoza (2025), which found that LIQ has a positive and significant effect on ROA for consumer goods companies listed on the JSE, this difference may be attributable to variations in market context between Indonesia and South Africa, differences in working capital structures, and cash management practices, which can lead to differing optimal levels of liquidity.

The findings of this study indicate that an increase in the ability to meet short-term obligations does not significantly enhance asset profitability. The negative direction suggests the potential presence of overinvestment in current assets, such as inventories and receivables, which are not fully productive in generating profits. However, the insignificance of the results indicates that ROA in FMCG companies is more strongly influenced by other factors, such as operational efficiency, margins, asset turnover, and

more specific working capital management practices, rather than merely the level of the Current Ratio.

H2: Leverage has a negative effect on the Return on Assets (ROA) of consumer goods companies listed on the Indonesia Stock Exchange.

Hypothesis 2 was tested to examine the negative effect of Leverage (LEV) on Return on Assets (ROA). The estimation results show that LEV has an estimated coefficient of −0.000858, indicating that a higher LEV leads to a decrease in ROA, and vice versa. With a p-value of 0.3763 > 0.05, H0 is accepted and Ha is rejected. Therefore, it can be concluded that LEV is not proven to have a negative and significant effect on ROA.

The coefficient direction is indeed negative (indicating that debt tends to suppress ROA through interest expenses and risk); however, the insignificant result suggests that variations in leverage among the sampled consumer goods companies listed on the Indonesia Stock Exchange are not strong enough to convincingly explain changes in ROA. This may also be due to firms having relatively manageable debt costs, or because the effect of leverage is overshadowed by more dominant efficiency-related variables (CRR, NPM, ACP, and INV).

This finding is consistent with the study by Faujia & Nurulrahmatia (2024), which shows that leverage, proxied by the Debt to Equity Ratio (DER), has a t-value of −1.991 and a significance level of 0.087, which is greater than 0.05. Therefore, it can be concluded that DER does not have a significant effect on ROA. This may occur because companies use a portion of their profits to meet debt obligations, thereby reducing the income available to generate profits, which in turn leads to a decline in Return on Assets (ROA). This condition may also pose a risk to the company if it is unable to meet its obligations at maturity (Herliana, 2021).

This finding is also consistent with the study by Meynabuga Tunggaloga & Witono (2025), in which leverage was found to have a significance value of 0.807, which is greater than 0.05. Therefore, it was concluded that leverage does not have a significant effect on ROA. According to Meynabuga Tunggaloga & Witono (2025), although leverage is often used as an indicator of capital structure, the level of debt owned by a company does not directly affect the magnitude of profits generated. In this context, the use of debt by firms is not proven to influence profitability either positively or negatively.

This result is also in line with the study conducted by Khoza (2025), which found that linear leverage has a negative but insignificant effect on ROA. However, Khoza also identified a positive and significant effect of squared leverage (LEV^2), indicating that the relationship between leverage and ROA tends to be non-linear and exhibits an optimal point. In the present study, leverage is tested only in a linear form; therefore, if an optimal leverage effect also exists in Indonesia, such a relationship may not be captured under a linear specification.

H3: Sales growth has a positive effect on the Return on Assets (ROA) of consumer goods companies listed on the Indonesia Stock Exchange.

Hypothesis 3 was formulated to examine the positive effect of Sales Growth (GSALES) on Return on Assets (ROA). The estimation results indicate that GSALES has an estimated coefficient of −2.94E−06, meaning that an increase in GSALES leads to a decrease in ROA, and vice versa. With a p-value of 0.4700 > 0.05, the null hypothesis (H0) is accepted and the alternative hypothesis (Ha) is rejected. Therefore, it can be concluded that GSALES is not proven to have a positive and significant effect on ROA.

This finding is consistent with the study conducted by Windari & Muniarty (2025) which reported a t-statistic of 1.137 with a significance value of 0.293, or greater than 0.05, indicating that sales growth does not have a partial effect on ROA.

This study is also consistent with the research conducted by Winanty et al. (2025), which states that Sales Growth has a coefficient value of 0.000 and a significance level of 0.95, which is greater than 0.05. Therefore, it is concluded that, in that study, Sales Growth does not have a positive effect on ROA. Winanty et al. (2025) explains that this occurs because an increase in sales is not necessarily accompanied by cost efficiency or profit growth; in other words, even when sales increase, companies may still record low profits if operating costs, production costs, or operating expenses rise significantly.

The results of this study are also consistent with the research conducted by Bhunia & Bhattacharjee (2025), which states that Sales Growth does not have a positive and significant effect on ROA.

This study indicates that an increase in sales in the consumer goods business does not automatically lead to higher asset profitability. Sales growth may be driven by rising operational and distribution costs, increased working capital requirements, and more aggressive promotional or price reduction strategies. All of these factors can result in higher sales without a corresponding increase in profits. Therefore, companies should focus on profitable growth strategies by improving margins, reducing costs, and optimizing asset utilization to enhance return on assets (ROA).

H4: Cost-to-revenue ratio has a negative effect on the Return on Assets (ROA) of consumer goods companies listed on the Indonesia Stock Exchange.

Hypothesis 4 was formulated to examine the negative effect of the Cost-to-Revenue Ratio (CRR) on Return on Assets (ROA). The estimation results show that CRR has an estimated coefficient of −5.14E−05, indicating that a higher CRR leads to a decrease in ROA, and vice versa. With a p-value of 0.0000 < 0.05, the null hypothesis (H0) is rejected and the alternative hypothesis (Ha) is accepted. Therefore, it can be concluded that CRR has a negative and significant effect on ROA.

These findings are consistent with the study by Fitri & Salsabilla (2024), in which CRR, proxied by operational efficiency, has a regression coefficient of −0.004 and a significance value of 0.327. The results confirm that operational efficiency has a negative but insignificant effect on Return on Assets (ROA).

This result is also in line with the research conducted by Bhunia & Bhattacharjee (2025), which found that CRR has a negative effect on ROA in FMCG companies in India. Nevertheless, in the overall conclusion of their study, CRR together with ROA is still

considered a factor that collectively influences the profitability of FMCG companies in India.

H5: Inventory Turnover has a positive effect on the Return on Assets (ROA) of consumer goods companies listed on the Indonesia Stock Exchange.

Hypothesis 5 was formulated to examine the positive effect of Inventory Turnover (INV) on Return on Assets (ROA). The estimation results show that INV has an estimated coefficient of 0.002055, indicating that a higher INV leads to an increase in ROA, and vice versa. With a p-value of 0.0096 < 0.05, the null hypothesis (H0) is rejected and the alternative hypothesis (Ha) is accepted. Therefore, it can be concluded that INV has a positive and significant effect on ROA.

These findings are consistent with the study by Alfio & Maratno (2025), which reported that Inventory Turnover has a regression coefficient of 0.240 with a significance level of < 0.001. The results confirm that Inventory Turnover has a positive and significant effect on Return on Assets (ROA) in the retail industry in Indonesia.

This result is also in line with the study conducted by Khoza (2025), which found that Inventory Turnover has a positive effect on ROA in FMCG companies listed on the Johannesburg Stock Exchange. However, despite the positive direction, the findings indicate that the relationship between Inventory Turnover and ROA in this sector is not statistically significant.

H6: Net Profit Margin has a positive effect on the Return on Assets (ROA) of consumer goods companies listed on the Indonesia Stock Exchange.

Hypothesis 6 was formulated to examine the positive effect of Net Profit Margin (NPM) on Return on Assets (ROA). The estimation results show that NPM has an estimated coefficient of 0.341057, indicating that a higher NPM leads to an increase in ROA, and vice versa. With a p-value of 0.0000 < 0.05, the null hypothesis (H0) is rejected and the alternative hypothesis (Ha) is accepted. Therefore, it can be concluded that NPM has a positive and significant effect on ROA.

These findings are consistent with the study by Zulwahidah et al. (2025), which reports that Net Profit Margin has a calculated t-value of 130,152, which is higher than the critical t-value of 1,8595. This indicates that Return on Assets increases in line with an increase in Net Profit Margin. Therefore, the results confirm that Net Profit Margin has a positive and significant effect on Return on Assets (ROA).

This result is also in line with the study conducted by Khoza (2025), which found that Net Profit Margin has a positive and significant effect on ROA among FMCG companies listed on the Johannesburg Stock Exchange. This implies that every percentage increase in NPM leads to a significant increase in ROA. These findings indicate that when NPM increases, a company's profitability based on sales also improves, which ultimately enhances the firm's ability to generate profits from its assets.

H7: Average Collection Period (ACP) has a negative effect on the Return on Assets (ROA) of consumer goods companies listed on the Indonesia Stock Exchange.

Hypothesis 7 was formulated to examine the negative effect of the Average Collection Period (ACP) on Return on Assets (ROA). The estimation results show that ACP has an estimated coefficient of −0.000151, indicating that a higher ACP leads to a decrease in ROA, and vice versa. With a p-value of 0.0002 < 0.05, the null hypothesis (H0) is rejected and the alternative hypothesis (Ha) is accepted. Therefore, it can be concluded that ACP has a negative and significant effect on ROA.

These findings are consistent with the study by Rediono et al. (2025), which explains that ACP has a negative and significant effect on ROA of −0.020, meaning that an increase in the Average Collection Period leads to a decline in ROA. This indicates that a shorter Average Collection Period contributes to an increase in Return on Assets. Therefore, the results confirm that ACP has a negative and significant effect on Return on Assets (ROA).

This result is also in line with the study conducted by Khoza (2025), which found that the Average Collection Period has a negative and statistically significant effect on ROA among FMCG companies listed on the Johannesburg Stock Exchange. This is reflected in a coefficient of −0.000286, indicating that the longer or higher the Average Collection Period (ACP), the lower the financial performance measured by ROA. These findings suggest that a longer ACP implies that a company's funds are tied up in trade receivables, which increases the risk of bad debts and reduces corporate liquidity.

H8: Firm Size has a positive effect on the Return on Assets (ROA) of consumer goods companies listed on the Indonesia Stock Exchange.

Hypothesis 8 was formulated to examine the positive effect of Firm Size (FS) on Return on Assets (ROA). The estimation results show that FS has an estimated coefficient of −0.000148, indicating that a higher FS leads to a decrease in ROA, and vice versa. With a p-value of 0.4802 > 0.05, the null hypothesis (H0) is accepted and the alternative hypothesis (Ha) is rejected. Therefore, it can be concluded that FS is not proven to have a positive and significant effect on ROA.

This study is consistent with the research conducted by Aprianingsih & As'ari (2023), which found that firm size does not have a positive effect on ROA. Meynabuga Tunggaloga & Witono (2025) also reported results consistent with this study, showing a significance value of 0.680, which is greater than 0.05; therefore, it was concluded that Firm Size does not affect ROA. This study is also in line with the research conducted by Khoza (2025), which stated that firm size (FS) has a coefficient of −0.042620, indicating a statistically insignificant and negative effect.

The results of this study indicate that during the research period, firm size is not proven to have a statistically significant effect on ROA among consumer goods companies. Therefore, firm size cannot be used as a primary factor to explain variations in asset returns (ROA). The negative coefficient suggests that larger firms may experience lower asset utilization efficiency due to higher overhead costs and increased complexity; however, this effect is inconsistent and statistically insignificant. From a managerial perspective, these findings imply that rather than relying solely on business scale

expansion, improvements in operational efficiency, optimization of asset utilization, cost control, and effective working capital management are more essential for enhancing ROA.

Table 7.
Individual Test (T-Test)

Variable	Coeff	T stat	P-value	Information
ROA	-0,003397	-1,743416	-1,743416	Not supported
LIQ	-0,000858	-0,315780	-0,315780	Not supported
LEV	-2,94E-06	-0,075419	-0,075419	Not supported
GSALES	-5,14E-05	-7,279458	-7,279458	Supported
CRR	0,002055	2,360386	2,360386	Supported
INV	0,341057	17,63918	17,63918	Supported
NPM	-0,000151	-3,695876	-3,695876	Supported
ACP	-0,000148	-0,049653	-0,049653	Not supported
FS	-0,003397	-1,743416	-1,743416	Not supported

Source: Data processed (2026)

CONCLUSION

Based on the model selection, this study employs the Fixed Effect Model (FEM). Overall, the model is appropriate, with an Adjusted R^2 of 0,948237, indicating that the variables included in the model are able to explain 94,8237% of the variation in ROA, and the simultaneous test confirms that the model is significant (Prob(F-statistic) = 0.000000). Therefore, the conclusions are summarized as follows:

1. Liquidity (LIQ): LIQ has a negative and significant effect on ROA ($\beta = -0.003397$; $p = 0.0414$), indicating that an increase in liquidity is associated with a decline in ROA; thus, the LIQ hypothesis is not supported (opposite direction).
2. Leverage (LEV): LEV has a negative but insignificant effect on ROA ($\beta = -0.000858$; $p = 0.3763$), indicating that leverage is not proven to affect ROA; therefore, the LEV hypothesis is not supported.
3. Sales Growth (GSALES): Sales Growth shows a negative and insignificant relationship with ROA ($\beta = -2.94E-06$; $p = 0.4700$), indicating that sales growth does not significantly improve ROA; thus, the GSALES hypothesis is not supported.
4. Cost-to-Revenue Ratio (CRR): CRR has a negative and significant effect on ROA ($\beta = -5.14E-05$; $p = 0.0000$), confirming that an increase in the cost-to-revenue ratio reduces ROA; therefore, the CRR hypothesis is supported.
5. Inventory Turnover (INV): INV has a positive and significant effect on ROA ($\beta = 0.002055$; $p = 0.0096$), indicating that faster inventory turnover leads to higher ROA;

thus, the INV hypothesis is supported.

6. Net Profit Margin (NPM): NPM has a positive and significant effect on ROA (β = 0.341057; p = 0.0000), meaning that an increase in net profit margin substantially strengthens ROA; therefore, the NPM hypothesis is supported.
7. Average Collection Period (ACP): ACP has a negative and significant effect on ROA (β = −0.000151; p = 0.0002), indicating that longer receivables collection periods reduce ROA; thus, the ACP hypothesis is supported.
8. Firm Size (FS): FS shows a negative but insignificant effect on ROA (β = −0.000148; p = 0.4802), indicating that firm size is not proven to affect ROA; therefore, the FS hypothesis is not supported.

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