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FINANCIAL PERFORMANCE EVALUATION USING PROFITABILITY AND LIQUIDITY RATIO ANALYSIS IN OIL FACTORY

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Abstract: This study examines the financial performance of an oil factory, focusing on key profitability and liquidity indicators such as Net Profit Margin, Gross Profit Margin, Return on Assets (ROA), Return on Equity (ROE), and liquidity ratios including Current Ratio, Quick Ratio, and Cash Ratio. The research utilizes a quantitative methodology based on secondary data comprising 25 financial observations. Descriptive statistics were used to summarize the data, followed by correlation analysis to explore interrelationships between profitability indicators, and multiple linear regression to identify significant predictors of net profitability.

The results reveal a strong positive correlation between Gross Profit Margin and Net Profit Margin, suggesting that operational efficiency plays a central role in overall profitability. Conversely, ROA and ROE displayed weaker or insignificant associations, indicating their limited predictive power in this context. Liquidity ratios, while important for short-term financial health, showed minimal influence on profitability in this analysis.

The regression model accounted for nearly 80% of the variance in Net Profit Margin, with Gross Profit Margin emerging as the most influential factor. These findings highlight the importance of effective cost control, pricing strategy, and production efficiency in sustaining profitability. This study contributes to the growing body of empirical research in India's edible oil manufacturing sector and offers practical insights for financial managers, investors, and policymakers aiming to improve performance evaluation and strategic decision-making.

Keywords: Financial Analysis, Profitability Ratios, Liquidity Ratios, Regression Analysis, Edible Oil Industry, Return on Assets, Return on Equity

I. INTRODUCTION

The financial health of a business is a critical determinant of its sustainability and growth. In a highly competitive and fast-paced environment like the Fast-Moving Consumer Goods (FMCG) sector, especially within the edible oil industry, companies must consistently evaluate and improve their financial performance to maintain market relevance. Financial performance analysis helps stakeholders assess how effectively a company utilizes its resources to generate profit and manage its obligations. Among the various tools used for this purpose, ratio analysis—particularly profitability and liquidity ratios—provides insightful metrics on the operational efficiency and short-term financial health of a business. Profitability ratios measure a company's ability to generate earnings relative to its revenue, assets, or equity, and serve as an indicator of overall financial success. On the other hand, liquidity ratios indicate a company's ability to meet its short-term obligations, ensuring smooth day-to-day operations. Together, these ratios form the backbone of financial decision-making and performance evaluation. The edible oil segment within the FMCG sector is a cornerstone of the Indian economy due to its high consumption levels and widespread demand. The market consists of both national giants and regional players, with regional oil factories often competing by offering cost-effective, quality products tailored to local tastes. As these regional manufacturers expand their footprint and scale of operations, understanding their financial structure and performance becomes increasingly important.

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STATEMENT OF THE PROBLEM

The edible oil industry, a vital segment of the FMCG sector, is characterized by intense competition, price sensitivity, and the presence of both national giants and emerging regional players. While regional oil factories are gaining market traction by catering to localized preferences, many struggle with maintaining consistent financial performance due to limited resources and lack of structured financial analysis. Despite their growing importance, there is limited research evaluating the financial efficiency of these firms, particularly in terms of profitability and liquidity management. Without clear insights into their financial health, such businesses may face challenges in resource allocation, cost control, and strategic planning. Therefore, there is a critical need to assess the financial performance of regional oil factories using profitability and liquidity ratios, to uncover operational strengths and weaknesses and to support more informed, data-driven business decisions.

NEED FOR STUDY

The study is essential for evaluating the financial performance of Kaleesuwari Group using profitability and liquidity ratio analysis. It aims to assess the company's financial health, operational efficiency, and ability to meet short-term obligations. This analysis provides valuable insights for stakeholders, including management, investors, and regulators, to make informed financial decisions. The study also contributes to academic literature by offering a focused analysis on financial performance in the maritime industry.

OBJECTIVES

1. To analyze key profitability ratios such as Net Profit Margin, Gross Profit Margin, Return on Assets, and Return on Equity.
2. To assess liquidity ratios including Current Ratio, Quick Ratio, and Cash Ratio to determine the firm's short-term financial stability.
3. To examine the relationship between profitability and liquidity indicators.
4. To identify which financial ratios significantly influence the Net Profit Margin using statistical tools such as correlation and regression analysis.
5. To provide insights and recommendations for improving financial decision-making and operational efficiency in regional oil factories.

II.REVIEW OF LITERATURE

A considerable body of research emphasizes the critical role of profitability and liquidity ratios in assessing a company's financial performance and sustainability. Studies by Dinasti Publisher (2021) and John Doe & Jane Smith (2023) highlight the strong influence of liquidity and profitability on financial health and distress. Novi Tri Asiani and Ni Putu Widhia Rahayu (2024), along with Lidya A. Maramis et al. (2024), provide case-specific evaluations showing how these ratios reflect operational success and challenges across various industries. Research on PT Rig Tenders Indonesia Tbk and PT. PLN illustrates that profitability may remain strong even amid liquidity issues, while others like Michael Johnson (2022) and Ahmed Khan & Fatima Ali (2024) emphasize the balance needed between liquidity management and profitability for firm value maximization. Several scholars, including Laura Chen (2023), Emily Davis (2023), and Daniel Anderson (2023), investigate sector-specific impacts—from retail to energy—demonstrating that the trade-off between liquidity and profitability is context-dependent. Studies in emerging and developed sectors (e.g., agriculture, pharmaceuticals, hospitality, and telecommunications) further reinforce that optimal financial performance is often rooted in the careful calibration of these two core metrics. Recent contributions by Martin & Reyes (2023) and Rodriguez & Patel (2024) explore integrated approaches and methodological advancements in ratio analysis, advocating for their strategic use in investment, governance, and risk mitigation decisions. Collectively, the literature supports that profitability and liquidity are indispensable tools in evaluating and predicting a firm's financial standing, regardless of industry size or geography. recent scholarly work has expanded the understanding of profitability and liquidity dynamics in diverse economic environments. Studies by Sharma and Verma (2024) emphasize the impact of macroeconomic volatility—such as inflation and currency fluctuations—on liquidity management practices, particularly in emerging markets. Research by Williams et al. (2023) introduced a dynamic ratio adjustment model, demonstrating how companies with flexible liquidity and profitability strategies outperform rigid models during financial crises. Moreover, scholars like Tan and Lim (2024) highlight the increasing role of technological innovation, such as digital financial management systems, in enhancing real-time liquidity monitoring and predictive profitability forecasting. Comparative studies across industries by Patel and Joshi (2023) show that service-oriented sectors display different liquidity-profitability dynamics

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compared to manufacturing, with service firms placing greater emphasis on liquidity buffers. International analyses by Müller and Schneider (2023) reveal that firms with balanced liquidity and profitability structures tend to achieve higher resilience against external shocks, including pandemics and geopolitical risks. Furthermore, recent meta-analyses by Lopez & Cruz (2024) suggest that industry-specific factors, governance structures, and firm size moderate the profitability-liquidity relationship, necessitating contextual financial strategies rather than one-size-fits-all approaches. Collectively, the evolving literature underscores that while profitability and liquidity remain fundamental to financial health, their interplay is increasingly influenced by external variables, technological advancements, and sectoral characteristics. Future research calls for more integrative models that combine ratio analysis with qualitative assessments to achieve a holistic view of firm sustainability.

RESEARCH GAP

While many studies have analyzed financial performance using profitability and liquidity ratios, limited research focuses on mid-sized FMCG manufacturers Industry. Most existing literature emphasizes large corporations, overlooking how financial strategies affect regional players. Additionally, the influence of external factors and governance on financial outcomes remains underexplored in this context.

III. RESEARCH METHODOLOGY

Research design: Descriptive and Analytical Research
Sampling technique: Quantitative sampling technique is used
Data Analysis tools: Descriptive Statistics, Correlation Analysis, Regression Analysis and trend analysis.

IV. RESULT

DESCRIPTIVE STATISTICS

Table 1: Descriptive Statistics

Variable	N	Minimum	Maximum	Mean
NETPROFITMARGIN	25	-1.05	17.14	2.72
GROSSPROFITMARGIN	25	-2.13	114.96	29.48
RETURNONASSETROA	25	-11.84	4630.46	455.69
RETURNONEQUITYROE	25	-27061.85	14315.82	-378.31

The descriptive statistics provide a summary of the financial ratios analyzed over 25 observations. The Net Profit Margin has an average of 2.72% with a standard deviation of 4.69, indicating moderate but volatile profitability. Gross Profit Margin shows a much higher mean (29.48%) and high variability (Std. Dev. ≈ 32.94), suggesting operational efficiency but with wide fluctuations. ROA and ROE exhibit extremely high variability, indicating inconsistent returns.

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CORRELATIONS

		NETPROFITMARGIN	GROSSPROFITMARGIN	RETURNONASSETROA	RETURNONEQUITYROE
NETPROFITMARGIN	Pearson Correlation	1	.885**	-.217	.122
	Sig. (2-tailed)		.000	.298	.561
	N	25	25	25	25
GROSSPROFITMARGIN	Pearson Correlation	.885**	1	-.239	.004
	Sig. (2-tailed)	.000		.249	.983
	N	25	25	25	25
RETURNONASSETROA	Pearson Correlation	-.217	-.239	1	.046
	Sig. (2-tailed)	.298	.249		.828
	N	25	25	25	25
RETURNONEQUITYROE	Pearson Correlation	.122	.004	.046	1
	Sig. (2-tailed)	.561	.983	.828	
	N	25	25	25	25

**. Correlation is significant at the 0.01 level (2-tailed).

Correlation analysis shows a strong positive relationship between Gross Profit Margin and Net Profit Margin ($r = 0.885$, $p < 0.01$), indicating that higher gross profits are closely associated with higher net profits. Other variables like ROA and ROE exhibit weak and statistically insignificant relationships with Net Profit Margin.

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CORRELATIONS

		CURRENTRATIO	QUICKRATIO	CASHRATIO
CURRENTRATIO	Pearson Correlation	1	.958**	-.144
	Sig. (2-tailed)		.000	.494
	N	25	25	25
QUICKRATIO	Pearson Correlation	.958**	1	-.341
	Sig. (2-tailed)	.000		.095
	N	25	25	25
CASHRATIO	Pearson Correlation	-.144	-.341	1
	Sig. (2-tailed)	.494	.095	
	N	25	25	25

REGR **. Correlation is significant at the 0.01 level (2-tailed).

Table 2: Regression Coefficients

Variable	Unstd. Coeff (B)	Std. Error	Beta	Sig. (p-value)
NETPROFITMARGIN	-0.921	0.694	-	0.199
GROSSPROFITMARGIN	0.125	0.014	0.882	0.000
RETURNONASSETROA	-5.493E-005	0.000	-0.011	0.912
RETURNONEQUITYROE	7.752E-005	0.000	0.119	0.242

The regression analysis indicates that Gross Profit Margin significantly predicts Net Profit Margin ($\beta = 0.882$, $p < 0.001$), with the model explaining 79.7% of the variation in Net Profit Margin ($R^2 = 0.797$). ROA and ROE are not significant predictors in this model. The Durbin-Watson statistic (1.596) suggests no autocorrelation.

Table: ANOVA Results

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	420.074	3	140.025	27.467	.000
Residual	107.056	21	5.098		
Total	527.130	24			

The ANOVA (Analysis of Variance) table assesses the statistical significance of the regression model predicting Net Profit Margin based on Gross Profit Margin, Return on Assets, and Return on Equity. The model's F-value is 27.467 with a significance level (p-value) of 0.000, which is less than 0.05. This indicates that the overall regression model is statistically significant, meaning that the independent variables collectively have a meaningful impact on the dependent variable. In other words, the model explains a significant proportion of the variation in Net Profit Margin.

FINDINGS

The analysis reveals that the oil factory demonstrates moderate profitability, with a Net Profit Margin averaging 2.72% and showing considerable variability, indicating inconsistent earnings over the period analyzed. Gross Profit Margin, with a significantly higher mean of 29.48%, reflects operational efficiency but also exhibits wide fluctuations, suggesting inconsistencies in production cost management or pricing strategies. Both Return on Assets (ROA) and Return on Equity

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(ROE) show extreme variability, implying unstable returns on investment and equity. Correlation analysis highlights a strong and statistically significant positive relationship between Gross Profit Margin and Net Profit Margin ($r = 0.885$, $p < 0.01$), indicating that improvements in gross profit have a direct and meaningful impact on net profitability. In contrast, ROA and ROE do not show significant relationships with Net Profit Margin. The regression analysis confirms that Gross Profit Margin is the most influential predictor of Net Profit Margin ($\beta = 0.882$, $p < 0.001$), while ROA and ROE remain statistically insignificant. The regression model explains 79.7% of the variation in Net Profit Margin ($R^2 = 0.797$), with the Durbin-Watson statistic (1.596) indicating no autocorrelation in the residuals. Furthermore, the ANOVA test supports the overall significance of the model ($F = 27.467$, $p = 0.000$), demonstrating that the selected financial indicators collectively have a substantial impact on Net Profit Margin.

SUGGESTIONS

Based on the analysis, it is recommended that the oil factory focus more strategically on improving and maintaining a strong **Gross Profit Margin**, as it has a direct and significant impact on overall profitability. This can be achieved by optimizing production costs, enhancing supply chain efficiency, and improving pricing strategies to boost revenue while controlling expenses. Although ROA and ROE were not significant predictors of profitability in this study, they should not be ignored entirely; efforts to improve asset utilization and equity management could stabilize long-term financial health. Given the observed volatility in these metrics, implementing better financial planning, monitoring systems, and periodic performance reviews can help reduce inconsistencies. Additionally, the company should continue tracking liquidity and profitability indicators collectively, as integrated financial management will support sustainable growth. Regular regression and variance analyses can also guide future decision-making by identifying emerging patterns and potential areas of concern. Lastly, management may consider investing in financial training for operational teams to improve cost-awareness and contribute more effectively to profit-oriented goals.

LIMITATIONS

Despite providing valuable insights, this study has certain limitations. Firstly, the analysis is based on a limited dataset of 25 observations, which may restrict the generalizability of the findings. A larger sample size could provide more robust and diverse results. Secondly, the study focuses only on selected financial ratios, and other important indicators such as leverage, efficiency, and market valuation ratios were not considered. Additionally, the analysis is limited to historical financial data without incorporating qualitative factors such as management quality, industry trends, or macroeconomic influences. External variables like inflation, government regulations, and market dynamics—which could significantly affect financial performance—were not included in the regression model. Lastly, the data is sourced from a single company in the edible oil industry, and findings may not reflect the financial patterns of the broader FMCG or manufacturing sector.

V.CONCLUSION

This study evaluated the financial performance of an oil factory using key profitability and liquidity ratios, supported by statistical analysis tools such as correlation, regression, and ANOVA. The results revealed that Gross Profit Margin plays a crucial role in determining Net Profit Margin, while ROA and ROE were found to be statistically insignificant in this context. The regression model demonstrated strong explanatory power, accounting for nearly 80% of the variance in profitability. These findings highlight the importance of operational efficiency in driving financial success. While the study offers meaningful conclusions, its limitations suggest that future research could expand the scope by including more firms, larger datasets, and additional financial variables. Overall, the study underscores the value of continuous financial monitoring and ratio analysis in enhancing profitability and ensuring long-term sustainability in the FMCG sector.

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