

Impact of Working Capital Management on Profitability: An Empirical Study of Selected Automobile Companies

Dr. Gopal D. Dodiya

**Assistant Professor, Shree Parekh Commerce College,
Mahuva.**

Abstract

Working capital management plays a vital role in determining the financial performance and operational efficiency of business organizations. The present study examines the impact of working capital management on the profitability of selected automobile companies. The primary objective of this research is to analyse the relationship between working capital components and profitability indicators in the automobile sector. The study is based on secondary data collected from the annual reports of selected automobile companies for a specified period. Key working capital variables such as current ratio, quick ratio, inventory turnover ratio is considered as independent variables, while profitability is measured through indicators like Return on Equity (ROE) and Net Profit Margin (NPM). Statistical tools such as multiple regression analysis are employed to evaluate the relationship between working capital management and profitability. The findings of the study reveal that efficient management of working capital significantly influences the profitability of automobile companies. Proper control over liquidity, inventory, receivables, and payables enhances operational efficiency and contributes positively to financial performance.

Keywords: Working Capital Management, Profitability, Automobile Industry, Current Ratio, Quick Ratio, Inventory Turnover Ratio, Return on Equity, Net Profit Margin, Financial Performance.

1. Introduction

Working capital management plays a crucial role in determining the financial health and operational efficiency of business organizations. It refers to the management of current assets and current liabilities in such a way that a firm maintains an optimal balance between liquidity and profitability. Effective working capital management ensures that a company has sufficient cash flow to meet its short-term obligations while simultaneously maximizing returns. In today's highly competitive and dynamic business environment, managing working capital efficiently has become essential for sustaining growth and enhancing profitability.

The automobile industry is one of the most capital-intensive and strategically significant sectors in the global and national economy. This industry requires substantial investment in inventory, receivables, and other current assets due to the complexity of production processes, supply chain management, and market competition. Automobile companies must carefully manage their working capital components such as inventory, accounts receivable, accounts payable, and cash to maintain smooth operations and achieve financial stability. Inefficient management of working capital may lead to liquidity problems, increased borrowing costs, and reduced profitability.

Profitability is a key indicator of a company's financial performance and long-term sustainability. It reflects the ability of a firm to generate earnings relative to its sales, assets, and equity. The relationship between working capital management and profitability has attracted significant attention from researchers and financial managers. Efficient working capital management can improve a firm's profitability by reducing financing costs and increasing operational efficiency. Conversely, excessive or inadequate investment in working capital can negatively affect a company's performance.

In the context of the automobile sector, where large-scale production, high inventory levels, and extended credit periods are common, the management of working capital becomes even more critical. Automobile companies often face challenges such as fluctuating demand, technological advancements, and rising input costs, which directly impact their working capital requirements. Therefore, analyzing the impact of working capital management on profitability in this sector provides valuable insights for financial decision-making and policy formulation.

This research paper aims to examine the relationship between working capital management and profitability of selected automobile companies through empirical analysis. It seeks to identify how key components of working capital influence profitability indicators and to evaluate the effectiveness of working capital practices in enhancing financial performance. The findings of this study are expected to contribute to the existing literature and provide practical implications for financial managers, investors, and policymakers in improving the efficiency and profitability of automobile companies.

2. Review of Literature

Chakraborty, Sharma, and Basu (2024) analyzed the impact of working capital management on financial performance of automobile component manufacturing firms. The study emphasized that inventory, receivables, and payables are key determinants of working capital efficiency and significantly influence profitability and operational performance. Regression analysis indicated that effective management of these components enhances financial stability and firm performance.

Rahman (2023) conducted a study on selected four-wheeler automobile companies to examine the impact of working capital ratios on profitability. The study used correlation and regression analysis on ten passenger car manufacturing companies and found that working capital ratios such as current ratio, quick ratio, inventory turnover ratio, and receivables turnover ratio have a positive and significant relationship with profitability. The findings suggest that efficient working capital management improves financial performance and profitability of automobile companies.

Kalaivani (2022) examined the effect of working capital management on profitability of selected car manufacturing companies in India using panel data analysis. The study found that working capital management significantly influences firm performance and liquidity. It suggested that proper management of working capital components is essential for sustaining profitability and ensuring long-term growth of automobile companies.

Kumari and Anthuvan (2017) examined the impact of working capital management on profitability of leading automobile companies in India. Using secondary data from 2006–2012 and various working capital indicators, the study concluded that effective working capital management helps firms maintain an optimal balance between liquidity and profitability. The research emphasized that proper management of current assets and liabilities can reduce financing costs and increase funds available for expansion.

Biswas (2017) studied selected auto ancillary companies in India to evaluate the relationship between working capital management and profitability. The research highlighted those measures such as current ratio, inventory days, receivable period, and cash conversion cycle are significant determinants of profitability. The study concluded that efficient working capital management leads to improved profitability and financial health of firms.

Arunkumar and Radharamanan (2013) analyzed working capital management and profitability in Indian manufacturing firms. The study concluded that efficient management of working capital components positively influences profitability and operational efficiency of firms. The research highlighted that proper control over current assets and liabilities is essential for improving financial performance.

3. Research Methodology

3.1 Research Design

The present study is analytical and empirical in nature. It aims to examine the impact of working capital management on profitability of selected automobile companies in India. The study adopts a quantitative research approach, using financial ratios and statistical techniques to analyze the relationship between working capital management and profitability.

3.2 Objectives of the Study

1. To evaluate the impact of working capital management on profitability.
2. To examine the profitability position of selected automobile companies.
3. To examine the efficiency of working capital management.

3.3 Hypotheses of the Study

The study is based on the following hypotheses:

H_0 (Null Hypothesis): There is no significant impact of working capital management on profitability of selected automobile companies.

H_1 (Alternative Hypothesis): There is a significant impact of working capital management on profitability of selected automobile companies.

3.4 Nature and Sources of Data

The study is based on secondary data only. Secondary data has been collected from the following sources:

- Annual reports of selected automobile companies
- Official websites of companies
- Stock exchange websites (NSE/BSE)
- Journals, research papers, and financial publications

3.5 Sample Design

Sampling Technique: Purposive sampling method is used to select companies from the automobile sector.

Sample Size (Selected Companies):

- Maruti Suzuki India Ltd.
- Hyundai Motor India
- Mahindra & Mahindra Ltd.
- Bajaj Auto Ltd.
- TVS Motor Ltd.

These companies are selected because they are leading automobile manufacturers in India and have consistent financial data available.

3.6 Period of the Study

The study covers a period of five years from 2020–21 to 2024–25. This period is selected to analyze the impact of working capital management on profitability.

3.7 Variables of the Study

Dependent Variables (Profitability)

- Net Profit Margin (NPM)
- Return on Equity (ROE)

Independent Variables (Working Capital Management)

- Current Ratio
- Quick Ratio
- Inventory Turnover Ratio

3.8 Tools and Techniques of Analysis

To achieve the objectives of the study, the following statistical tools are used:

3.8.1 Descriptive Statistics

- Mean
- Standard deviation
- Minimum
- Maximum

3.8.2 Multiple Regression Analysis

Multiple regression analysis is used to measure the impact of working capital management on profitability.

3.9 Limitations of the Study

- The study is based only on secondary data.
- It covers only five automobile companies.
- The study period is limited to five years.
- Accuracy of results depends on published financial data.

3.10 Scope of the Study

The study helps in understanding the importance of efficient working capital management in improving profitability of automobile companies. It provides useful insights for financial managers, investors, academicians, and researchers for decision-making and further research.

4. Data Analysis

4.1 Descriptive Analysis of Working Capital Management and Profitability

Table 4.1: Descriptive Statistics of Working Capital Management and Profitability

	N	Minimum	Maximum	Mean	Std. Deviation
Net Profit Margin (%)	25	0.59	16.73	8.6548	4.37223
Return on Networth / Equity (%)	25	0.77	57.89	19.9796	10.94769
Current Ratio (X)	25	0.58	2.51	1.2908	0.55426
Quick Ratio (X)	25	0.36	2.25	1.0376	0.52737
Inventory Turnover Ratio (X)	25	7.78	32.87	16.2756	6.83477
Valid N (listwise)	25				

Descriptive statistics were used to understand the overall performance of working capital management and profitability of selected automobile companies during the study period (2020–21 to 2024–25).

The average Net Profit Margin (NPM) of selected automobile companies is 8.65%, indicating moderate profitability in the automobile sector. The minimum value of 0.59% and maximum value of 16.73% show considerable variation in profitability among companies. The standard deviation of 4.37 indicates moderate fluctuation in profit margin during the study period.

The mean Return on Equity (ROE) is 19.97%, which reflects good returns to shareholders. However, the wide gap between minimum (0.77%) and maximum (57.89%) values indicates significant differences in financial performance among companies. The standard deviation of 10.94 shows high variability in ROE.

Regarding working capital variables, the mean Current Ratio is 1.29, which indicates that companies maintain adequate liquidity to meet short-term obligations. The Quick Ratio has an average of 1.03, suggesting satisfactory short-term financial strength without depending heavily on inventory.

The average Inventory Turnover Ratio is 16.27, showing that automobile companies efficiently manage inventory and convert it into sales within a reasonable period. However, the high standard deviation (6.83) indicates variation in inventory management efficiency among companies.

Overall, descriptive statistics indicate that selected automobile companies maintain reasonable liquidity and profitability, but performance varies across firms.

4.2 Impact of Working Capital Ratios on Net Profit Margin

Table 4.2: Model Summary of Regression between Working Capital Ratios and Net Profit Margin

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.625a	0.390	0.303	3.64937	0.939
a. Predictors: (Constant), Inventory Turnover Ratio (X), Quick Ratio (X), Current Ratio (X)					
b. Dependent Variable: Net Profit Margin (%)					

The R value (0.625) indicates a moderate positive correlation between working capital management variables and Net Profit Margin. The R² value (0.390) shows that approximately 39% variation in Net Profit Margin is explained by working capital management variables included in the model, while the remaining 61% is influenced by other factors. The Durbin-Watson statistic of 0.939 indicates some degree of positive autocorrelation, common in longitudinal financial data where current performance is often linked to the prior year's trends.

Table 4.3: ANOVA Results for the Regression Model

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	179.117	3	59.706	4.483	0.014 ^b
	Residual	279.676	21	13.318		
	Total	458.793	24			
a. Dependent Variable: Net Profit Margin (%)						
b. Predictors: (Constant), Inventory Turnover Ratio (X), Quick Ratio (X), Current Ratio (X)						

The ANOVA results show that the model is statistically significant (F = 4.483, p = 0.014 < 0.05). This indicates that working capital management has a significant impact on Net Profit Margin. Hence, the null hypothesis is rejected and the alternative hypothesis is accepted for Net Profit Margin.

Table 4.4: Regression Coefficients for the Relationship Between Working Capital Ratios and Net Profit Margin

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	-2.423	6.154		-0.394	0.698
	Current Ratio (X)	7.818	20.024	0.991	0.390	0.700
	Quick Ratio (X)	-3.885	20.870	-0.469	-0.186	0.854
	Inventory Turnover Ratio (X)	0.308	0.138	0.482	2.242	0.036
a. Dependent Variable: Net Profit Margin (%)						

In the coefficient analysis:

- Current Ratio has a positive coefficient (7.818) but is statistically insignificant (p = 0.700). This indicates that although liquidity has a positive relationship with profitability, it does not significantly influence Net Profit Margin.
- Quick Ratio has a negative coefficient (-3.885) and is statistically insignificant (p = 0.854), indicating that excessive liquidity may reduce profitability, but the impact is not significant.

- Inventory Turnover Ratio has a positive and statistically significant coefficient (0.308, $p = 0.036 < 0.05$). This shows that efficient inventory management significantly improves Net Profit Margin.

Therefore, it can be interpreted that among working capital components, inventory management plays a major role in improving profitability of automobile companies.

4.3 Impact of Working Capital Ratios on Return on Net worth

Table 4.5: Model Summary of Regression between Working Capital Ratios and Return on Net worth

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.400 ^a	0.160	0.040	10.72444	1.437
a. Predictors: (Constant), Inventory Turnover Ratio (X), Quick Ratio (X), Current Ratio (X)					
b. Dependent Variable: Return on Networth / Equity (%)					

The R value (0.400) indicates a low to moderate relationship between working capital management and ROE. The R² value (0.160) suggests that only 16% variation in ROE is explained by working capital variables, while the remaining 84% depends on other factors such as capital structure, sales growth, and operational efficiency.

Table 4.6: ANOVA Results for the Regression Model

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	461.160	3	153.720	1.337	0.289 ^b
	Residual	2415.284	21	115.014		
	Total	2876.444	24			
a. Dependent Variable: Return on Networth / Equity (%)						
b. Predictors: (Constant), Inventory Turnover Ratio (X), Quick Ratio (X), Current Ratio (X)						

The ANOVA result shows that the model is statistically insignificant ($F = 1.337, p = 0.289 > 0.05$). This indicates that working capital management does not have a significant impact on ROE of selected automobile companies. Therefore, the null hypothesis is accepted in case of ROE.

Table 4.7: Regression Coefficients for the Relationship Between Working Capital Ratios and Return on Net worth

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	-10.378	18.085		-0.574	0.572
	Current Ratio (X)	80.707	58.846	4.086	1.371	0.185
	Quick Ratio (X)	-83.713	61.330	-4.033	-1.365	0.187
	Inventory Turnover Ratio (X)	0.801	0.404	0.500	1.983	0.061
a. Dependent Variable: Return on Networth / Equity (%)						

From coefficient analysis:

- Current Ratio shows a positive relationship with ROE but is statistically insignificant ($p = 0.185$).
- Quick Ratio shows a negative relationship and is also insignificant ($p = 0.187$).
- Inventory Turnover Ratio shows a positive relationship and is close to significance ($p = 0.061$), indicating that better inventory management may improve ROE, though the impact is not statistically strong.

Thus, working capital management has limited influence on Return on Equity compared to Net Profit Margin.

Conclusion

The analysis reveals that working capital management has a significant impact on Net Profit Margin but no significant impact on Return on Equity of selected automobile companies. Efficient inventory management is the most influential factor affecting profitability.

Liquidity ratios such as current ratio and quick ratio show weak and insignificant relationships with profitability, indicating that maintaining excessive liquidity does not necessarily improve profitability.

Overall, the study concludes that efficient management of working capital, particularly inventory, enhances profitability, while other components of working capital have limited influence on shareholders' returns.

References

- Arunkumar, O. N., & Radharamanan, T. (2013). Working capital management and profitability: An empirical analysis of Indian manufacturing firms. *International Journal of Management*, 4(1), 121–129.
- Biswas, B. (2017). Working capital management and profitability: A study of selected auto ancillary companies in India. *Mudra: Journal of Finance and Accounting*, 4(1), 144–158.

- Chakraborty, M., Sharma, S., & Basu, U. (2024). The impact of working capital management on financial performance: An empirical analysis of the automotive components industry in West Bengal. *Journal of Academic Advancement*.
- Kalavani, A. (2022). Working capital management on profitability of select car manufacturing companies in India. *JETIR Journal*, 9(11).
- Kumari, N. N., & Anthuvan, M. V. L. (2017). Impact of working capital management on profitability of leading listed automobile companies in India. *International Journal of Scientific Research and Management*, 5(8). <https://doi.org/10.18535/ijstrm/v5i8.23>
- Rahman, A. (2023). Impact of working capital ratios on profitability in selected four-wheeler automobile companies. *The Lumbini Journal of Business and Economics*, 11(1), 100–115. <https://doi.org/10.3126/ljbe.v11i1.54320>
- Sensini, L., Nguyen, H., & other scholars. (2022). Working capital management and profitability relationship: Evidence from global industries. *Risks Journal*, 10(12).
- Websites:
- <https://www.moneycontrol.com/>
- <https://www.marutisuzuki.com/>
- <https://www.hyundai.com/>
- <https://www.mahindra.com/>
- <https://www.bajajauto.com/>
- <https://www.tvsmotor.com/>