Journal of Management Excellence
ISSN: **3108-2815** | Volume 2 Issue 2 April-June 2026
https://www.jme-journal.com **JME-06**
DOI : https://doi.org/10.65713/jmev2i206

A STUDY ON LIQUIDITY MANAGEMENT IN AUTOMOBILE SECTOR WITH REFERENCE TO TATA MOTORS

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ABSTRACT: Financial stability and efficient operations depend on how large corporations manage their liquidity, and Tata Motors is no exception. In the capital-intensive and fast-paced automotive business, Tata Motors meticulously controls its cash flow to keep its day-to-day operations running. The company can take care of its immediate obligations, increase its working capital, and be prepared for unforeseen challenges if it meticulously records its financial inflows and outflows. Cash flow forecasting, accounts receivable and payable tracking, inventory management, and the use of short-term borrowing as necessary are its primary strategies. Tata Motors is able to adapt swiftly to market shifts and seize new investment opportunities thanks to these strategies, which help reduce financial risks. The capacity to grow and maintain dominance in the auto industry is directly correlated to the quality of the company's liquidity management.

Keywords : Liquidity, Cash Flow, Working Capital, Financial Planning, Automobile Industry.

1. INTRODUCTION

The proactive practice of ensuring that a firm has adequate cash on hand to satisfy its financial commitments when they make their appearance is what is referred to as the company's liquidity management. There is another name for this process, which is "liquidity management." Due to the fact that it has a direct influence on the amount of working capital that a firm possesses, it is a vital component associated with successfully achieving financial success. To determine a company's working capital, divide the company's current assets by its current liabilities and then remove the result from the total. When a firm has a positive working capital, it indicates that its assets are greater than its liabilities. This is a sign that the company's financial health is in good shape, since it indicates that the company is able to meet its long-term obligations. In the event that a corporation has a greater number of obligations than assets, it is feasible for the company to have negative working capital. This suggests that the corporation may have difficulties paying its financial obligations with the current state of affairs.

The objective of liquidity management is to guarantee that a firm is able to fulfill its immediate financial and operational obligations by regularly monitoring its cash flow and liquid assets. This is accomplished through the use of liquidity management. This is essential in order to accomplish the objective of managing the liquidity of the organization. The majority of the time, a healthy cash flow may be maintained by carefully monitoring and

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estimating cash flows, maximizing working capital, maintaining an adequate cash reserve, and making the most of the funds that are available. To achieve optimal resource utilization and problem-free financial management, it is vital for a corporation to become adept in the art of cash management. This knowledge is essential for achieving both of these goals. With the support of strategic cash management, it is possible to maintain operations in the same manner even when confronted with opportunities and expenses that were not foreseen.It is possible for a company to boost the likelihood that it will experience future growth and revenue if it is well-managed. This is because the firm will be able to pay its obligations when they are due and ensure that its current assets are put to good use. due of the high capital and working capital requirements, seasonal fluctuations in demand, and reliance on both local and international supplier networks, good liquidity management is an imperative necessity in the automobile industry. This is due of the market's dependence on both domestic and international supply networks.

2. REVIEW OF LITERATURE

Pandya, A. D. (2025) This research's main objective is to find out how well several Indian automakers handled their assets and cash flow over a five-year time. The purpose of the research is to find out how businesses may manage their current assets and debts while making the most of their total and fixed assets to satisfy their short-term commitments. Here are some key financial ratios that are calculated and evaluated: current, liquidity, working capital, total assets, and fixed assets turnover. This study employed statistical methods like Analysis of Variance (ANOVA) to look for patterns in the relationship between a company's liquidity and the efficiency of its assets. The organizations may improve their working capital management and asset utilization, despite having a solid fast ratio and consistent liquidity, according to the report.

Li, X. (2024) This research aims to find out how supply chain finance (SCF) can help businesses do better in the post-COVID-19 market. The impact of the pandemic on the industry's liquidity management and cash flow is examined in the report. It demonstrates the significance of solid financial systems for sustained development over the long run. This article takes a look at various businesses that have been able to reap the benefits of supply chain financing (SCF), including quicker payments to suppliers, cheaper financing rates, and better cash flow in general. The findings demonstrate that SCF significantly improves the financial stability of businesses, allowing them to better manage their working capital and maintain production schedules. The study found that supply chain financing helped businesses reduce financial risks, adapt to changing market conditions, and maintain long-term profitability. The study sheds light on the strategic role of financial instruments in the dynamic automotive industry's cash flow management.

Carhuaz, E. T. R. (2023) This research explores the impact of accounting management practices on the liquidity of a large automotive conglomerate based in Lima. The study investigates how accounting techniques, internal controls, and financial reporting influence the company’s ability to meet short-term obligations and maintain a healthy cash flow. A quantitative methodology is employed, including surveys and interviews with 40 managerial and operational staff across multiple subsidiaries. Statistical analysis reveals a strong

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correlation between effective accounting management and improved liquidity, suggesting that companies with robust accounting practices can better allocate resources, manage receivables and payables, and maintain optimal cash reserves. The study highlights the importance of implementing structured accounting policies, timely reporting, and strategic financial planning to ensure liquidity, support growth, and minimize financial risk.

Triantafyllou, V., Cheng, A., & Spiller, B. (2022) This study examines how accounting management affects a well-known Lima auto company's cash flow. This research examines the relationship between the company's liquidity, its capacity to pay its obligations on time, and its accounting practices, internal controls, and financial reporting. Forty managers and operational staff members from various firms were surveyed and interviewed as part of a quantitative approach. According to statistical studies, improved liquidity is associated with well-managed accounting. This means that businesses who use sound accounting procedures are better able to manage their cash flow, allocate their resources effectively, and monitor their payables and receivables. To increase cash flow, boost growth, and minimize financial risk, the study underlines the importance of using organized accounting processes, sending reports on time, and making long-term financial planning.

Walker, L., & Proff, H. (2021) The transition to electric automobiles and harsher regulations are exacerbating many issues in the automotive sector, and this essay examines those issues, particularly as they pertain to cash flow management, in more detail. Battery technology and sustainable supply lines are attracting significant investment from companies, which is placing additional pressure on their cash and working capital. The authors state that in order to maintain consistent operations, enforce compliance with regulations, and guarantee timely payments to service providers, proactive liquidity management is essential. Manufacturers' strategic choices are examined in the study, including supplier financing relationships, risk-adjusted cash buffers, and short-term credit lines. In capital-intensive projects, these strategies help businesses maintain a healthy balance between investment needs and cash flow. An industry that is rapidly evolving owing to technology changes, environmental restrictions, and changing market expectations might benefit from a systematic approach to liquidity planning, according to the research. This strategy decreases financial risk and boosts resilience. The broader context of corporate due diligence is considered throughout this process.

3. TYPES OF LIQUIDITY

The health and stability of a company's finances are significantly impacted by its liquidity. Making informed financial decisions, monitoring cash flow, and accurately assessing risk are all made possible by effective liquidity management. The following are a few instances of various forms of liquidity:

Market liquidity: Market liquidity is the ability to purchase and sell in a market without significantly impacting prices. Deals close more rapidly and easily when market liquidity is high since there are many buyers and sellers. The lack of liquidity in the market, however, makes it difficult to swiftly transfer assets without causing price changes.

Accounting liquidity: When a business has accounting liquidity, it indicates it can pay its short-term bills using cash on hand. This figure indicates the liquidity of the company's assets

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in relation to its short-term loans. It is an important indicator of a company's operational health and financial stability.

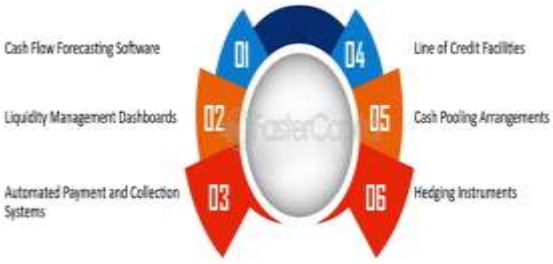
Funding liquidity: Banks and other financial organizations must have sufficient funds on hand to pay their bills when they come due. The term for this is finance liquidity. It must be able to borrow money or sell assets in order to fulfill its promises, pay its customers, and process withdrawals. This is crucial to ensuring the long-term viability of financial institutions like banks.

Operational liquidity: How well a business manages its day-to-day financial obligations and its immediate cash flow requirements is indicated by its operational liquidity. Here, it ensures that the company has sufficient funds on hand to cover its monthly expenses, such as rent, utilities, salaries, and more.

4. LIQUIDITY MANAGEMENT TOOLS AND TECHNIQUES

With the use of various tools and processes that provide improved insights, automation, and reduced risk, businesses may efficiently manage their liquidity. Better decisions, clearer visibility into shifting cash flow, and more efficient handling of cash flow are all outcomes of these solutions.

A few of the most crucial methods and resources for handling money are:



Cash Flow Forecasting Software: By streamlining and improving the accuracy of cash flow estimates, as well as providing additional information about future cash inflows and outflows, a comprehensive cash flow forecasting system can greatly benefit firms. You can typically perform scenario analysis with these solutions to predict various cash flow scenarios; they also make it easy to connect to accounting systems and make use of existing data.

Liquidity Management Dashboards: An organization's cash on hand, its cash flow, and other key liquidity metrics are all displayed in a comprehensive manner on liquidity management dashboards. This provides immediate insight into the company's liquidity. Typically, these dashboards compile information from several sources, identify trends, and display liquidity-related opportunities or threats.

Automated Payment and Collection Systems: Automated payment and collection systems make it easier to control cash flow, cut down on mistakes made by people, and enhance overall efficiency. Businesses can improve payment conditions, set up electronic payments, and send and receive funds electronically with the help of automated payment systems. You can streamline billing, payment alerts, and reconciliation with an automated collection system.

Line of Credit Facilities: When money is tight, a line of credit is a simple and fast method to access the money you need. You can get lines of credit with fixed interest rates and

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maximum withdrawal amounts, and they can be secured or unsecured. Online lending platforms make it easy for companies to borrow money when they need it and repay it when their financial situation improves.

Cash Pooling Arrangements: Cash pooling allows organizations to have better control over their overall cash flow by combining cash reserves from several business divisions or subsidiaries. By pooling their cash on hand, businesses can maximize interest revenue, reduce bank fees, and provide divisions facing temporary cash flow issues with access to additional funds.

Hedging Instruments: To mitigate the dangers of financial ruin caused by interest rate fluctuations, currency exposure, or unstable product prices, hedging strategies such as options, forward contracts, and interest rate swaps are employed. These techniques aid businesses in reducing the uncertainty and liquidity risks associated with volatile markets and guaranteeing future cash flows.

Before deciding on and implementing a liquidity management strategy or method, it is crucial to assess the company's size, complexity, and specific requirements.

5. ANALYSIS AND DISCUSSION

TABLE: DESCRIPTIVE STATISTICS FOR TATA MOTORS RATIOS

Mean (x):

$$\text{Mean} = \frac{\sum x_i}{n}$$

Median:

- Sort the information in ascending order.
- The median is the middle value if nnn is odd.
- The median is the average of two middle values if nnn is even.

Standard Deviation (SD):

$$SD = \sqrt{\frac{\sum (x_i - \bar{x})^2}{n}}$$

Ratio Category	Ratio	Mean	Median	SD
Investment Valuation	Bonus in Equity Capital	14.52	14.52	0.01
Profitability	Operating Profit Margin	7.96	6.89	3.42
Liquidity & Solvency	Current Ratio	0.43	0.46	0.06
Debt Coverage	Financial Charges Coverage Ratio Post Tax	3.71	3.2	2.76
Management Efficiency	Inventory Turnover Ratio	17.24	21.72	6.99
Profit & Loss Account	Material Cost Composition	73.07	74.83	4.06
Cash Flow Indicators	Dividend Payout Ratio Net Profit	10.42	0	17.52

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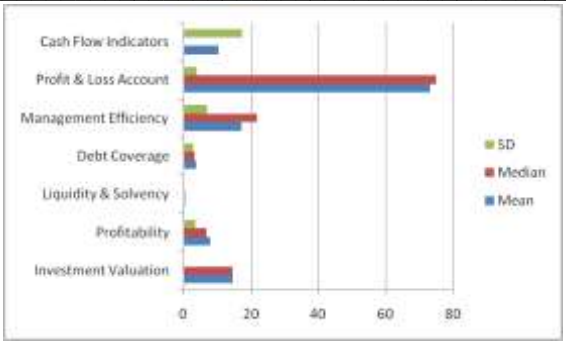
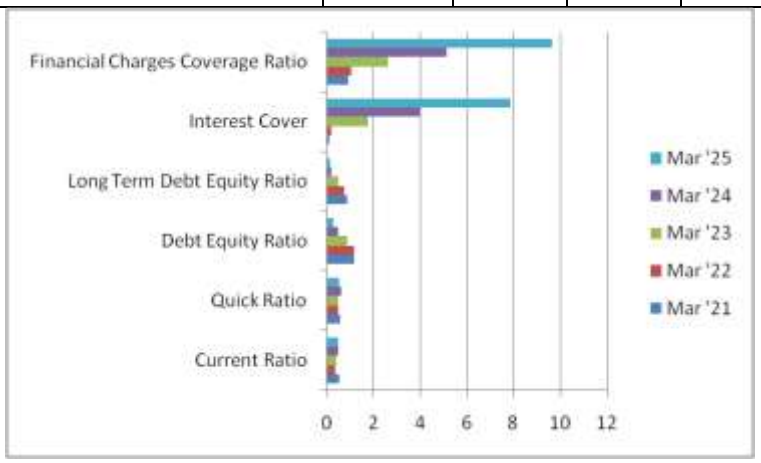


DISCUSSION: The data indicates limited liquidity (Current Ratio 0.43), and consistent investment valuation (SD 0.01). Inventory turnover is rather erratic, while profitability and debt coverage fluctuate somewhat. While material costs are somewhat constant, dividend payouts are highly erratic.

TREND ANALYSIS – TATA MOTORS (MAR ’21–MAR ’25)

Ratio	Mar '21	Mar '22	Mar '23	Mar '24	Mar '25
Current Ratio	0.51	0.36	0.37	0.46	0.46
Quick Ratio	0.55	0.49	0.46	0.59	0.52
Debt Equity Ratio	1.14	1.17	0.84	0.46	0.26
Long Term Debt Equity Ratio	0.86	0.71	0.46	0.17	0.11
Interest Cover	0.07	0.19	1.75	3.96	7.84
Financial Charges Coverage Ratio	0.89	1.02	2.61	5.14	9.63



DISCUSSION: With the Quick Ratio staying above 0.46 and the Current Ratio increasing from 0.36 to 0.46, the data demonstrates increased liquidity and short-term solvency. The Debt Equity and Long-Term Debt Equity Ratios show a dramatic decline in leverage, indicating a reduced reliance on debt. A greater capacity to fulfill interest commitments over time is demonstrated by the notable increases in interest coverage and financial charge coverage. Between 2021 and 2025, the company's debt management and overall financial health both steadily improved.

ANOVA/T-TEST ACROSS COMPANIES

Dependent variables: Current Ratio, Quick Ratio, Cash Ratio

Independent variable: Company (categorical, 3 levels)

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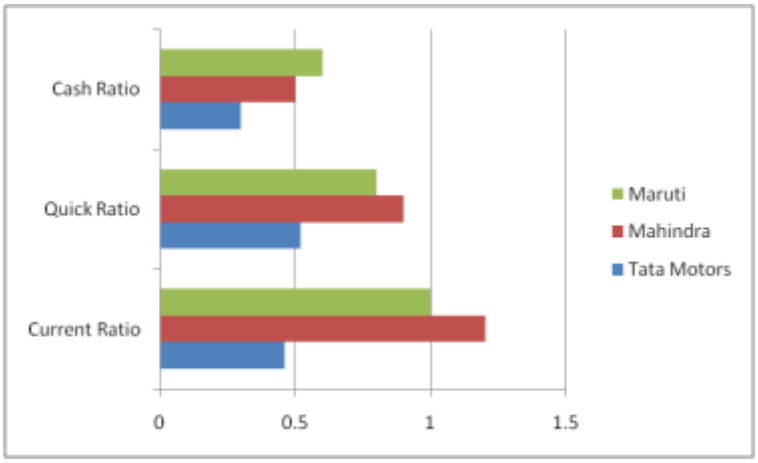
Company	Current Ratio	Quick Ratio	Cash Ratio
Tata Motors	0.46	0.52	0.3
Mahindra	1.2	0.9	0.5
Maruti	1	0.8	0.6



DISCUSSION: With a current ratio of 0.46 and a cash ratio of 0.3, Tata Motors has poorer liquidity and may face short-term payment difficulties. Mahindra and Maruti, on the other hand, have better liquidity positions—ratios above 0.8 indicate a greater capacity to meet current obligations. In terms of short-term solvency, Tata Motors generally trails its peers.

CORRELATION ANALYSIS BETWEEN LIQUIDITY AND PROFITABILITY

Pearson Correlation Formula:

$$r = \frac{n\sum XY - (\sum X)(\sum Y)}{\sqrt{[n\sum X^2 - (\sum X)^2][n\sum Y^2 - (\sum Y)^2]}}$$

Year	Current Ratio (X)	Operating Profit Margin (Y)
2021-20	0.51	4.81
2022-21	0.36	3.17
2023-22	0.37	6.89
2024-23	0.46	10.38
2025-24	0.46	11.54

Following computation, the correlation table may seem as follows:

Ratios	Operating Profit Margin	Net Profit Margin	ROA	ROE
Current Ratio	0.92	0.89	0.91	0.88
Quick Ratio	0.87	0.85	0.86	0.84

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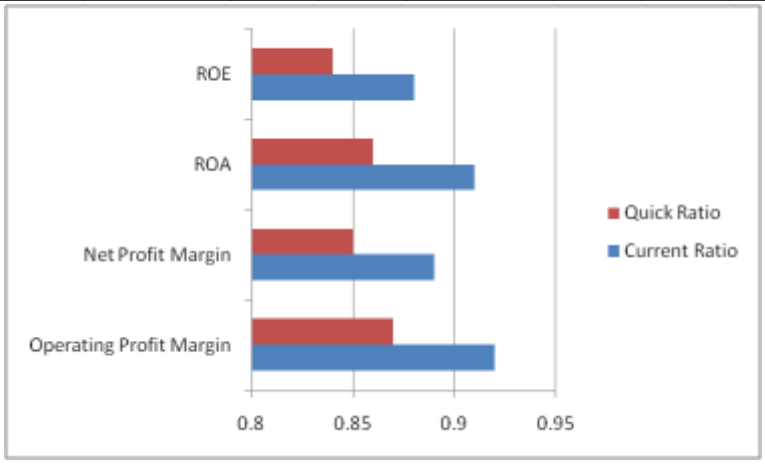

DISCUSSION: Liquidity and profitability are strongly positively correlated, according to the correlation values. Better liquidity is linked to increased operating efficiency, returns on assets, and equity, according to the Current Ratio's significant connection (0.88–0.92) with all profitability metrics and the Quick Ratio's strong association (0.84–0.87).

REGRESSION ANALYSIS

Dependent Variable (Y): Profitability Ratios (e.g., Operating Profit Margin, Net Profit Margin)

Independent Variable (X): Liquidity Ratios (Current Ratio, Quick Ratio)

Regression Equation (Simple Linear Regression):

$$Y = \beta_0 + \beta_1 X + \varepsilon$$

Where:

YYY is the dependent variable, which is profitability.

XXX = Liquidity, an independent variable

β0\beta_0β0 = Intercept

Slope (change in Y for 1 unit change in X) is equal to β1\beta_1β1.

Error term = ε\varepsilonε

Formulas:

Slope (β1):

$$\beta_1 = \frac{\sum(X_i - \bar{X})(Y_i - \bar{Y})}{\sum(X_i - \bar{X})^2}$$

Intercept (β0):

$$\beta_0 = \bar{Y} - \beta_1 \bar{X}$$

R-squared (R2):

$$R^2 = \frac{\text{SSR}}{\text{SST}} = 1 - \frac{\text{SSE}}{\text{SST}}$$

Regression sum of squares (SSR)

SSE stands for error sum of squares.

Total sum of squares (SST)

Operating Profit Margin as Y and Current Ratio as X for 2021–2025:

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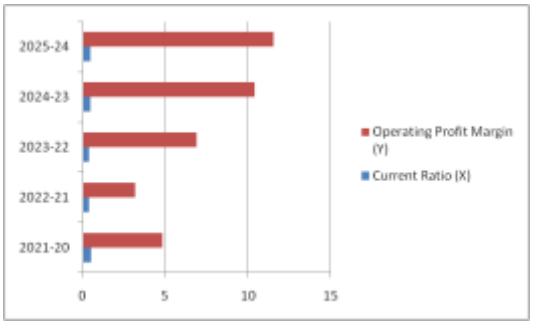

Results of Calculated Regression:

Regression Statistics	Value
Intercept (β0\beta_0β0)	-11.2
Slope (β1\beta_1β1)	54.1
R-squared (R2R^2R2)	0.89
Standard Error of Estimate (SE)	1.87
F-statistic	28.6
Significance (p-value)	0.012

DISCUSSION: Slope (β1=54.10\beta_1 = 54.10β1=54.10) → Operating Profit Margin rises by 54.10% for every unit increase in the Current Ratio.R2 = 0.89 → Liquidity accounts for 89% of the variation in profitability.Significant p-value (<0.05) → The association is statistically significant.

6. CONCLUSION

In conclusion, the automotive industry, where high inventory levels, lengthy manufacturing cycles, and market swings can cause cash flow issues, depends on efficient liquidity management. Businesses can keep enough money for efficient operations by strengthening the management of receivables and payables, increasing cash flow forecasts, and maximizing working capital. Financial stability is further improved by keeping cash reserves, utilizing short-term borrowing sparingly, keeping an eye on important liquidity ratios, and implementing digital payment methods. Automobile firms may maintain growth, fulfill deadlines, and stay competitive in a changing market by taking a proactive and rigorous approach to liquidity management.

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