

AN EMPIRICAL ANALYSIS OF THE IMPACT OF WORKING CAPITAL MANAGEMENT ON THE FINANCIAL HEALTH OF THE AUTOMOBILE SECTOR IN INDIA

ARVIND KUMAR JAIN

PhD Scholar, Raffles University. Email: arvindubs@gmail.com

Dr. SANJEEV KUMAR

Dean, Alabbar School of Management, Raffles University.

Email: sanjeev.kumar@rafflesuniversity.edu.in

Abstract

This study examines the impact of working capital management on the financial health of selected automobile companies in India through a comprehensive analysis of inventory turnover, liquidity ratios, and profitability metrics from 2020 to 2024. Inventory turnover, a critical indicator of operational efficiency, varied significantly among companies, reflecting diverse strategies in inventory management. High-performing companies like Bajaj Auto and Hero MotoCorp demonstrated consistent and efficient inventory turnover, correlating with strong profitability and liquidity. In contrast, companies such as Bosch and Tata Motors showed lower and more volatile turnover ratios, indicating challenges in inventory management. Liquidity ratios highlighted varying degrees of financial stability in meeting short-term obligations. Companies with stronger liquidity positions, like Bosch and Eicher Motors, were better equipped to manage short-term financial commitments. Profitability analysis revealed that efficient working capital management positively influenced profitability, with high turnover ratios associated with improved returns on assets and equity. The study underscores the importance of optimizing working capital management strategies tailored to each company's operational dynamics. Recommendations include enhancing inventory control systems, improving supply chain efficiencies, and refining cash flow management practices. Companies with high leverage and low profitability, such as Tata Motors, should consider restructuring their capital to mitigate financial risks. By implementing these recommendations, automobile companies can enhance their financial health, operational efficiency, and overall competitiveness in the market.

Keywords: Working Capital Management, Inventory Turnover, Liquidity Ratios, Profitability, Automobile Sector.

1. INTRODUCTION

Working capital management is a crucial aspect of financial management, particularly in capital-intensive industries like the automobile sector. Efficient management of working capital ensures that a company can meet its short-term obligations and invest in long-term growth opportunities. The automobile sector, being one of the key drivers of economic growth in India, requires a substantial amount of working capital to maintain operations, manage supply chains, and finance production cycles. This study aims to explore the relationship between working capital management and the financial health of companies in the Indian automobile sector.

The Indian automobile industry has witnessed significant growth over the past few decades, becoming the fourth largest in the world by production. This growth has been accompanied by increased competition, rising costs, and fluctuating demand, which have

heightened the importance of effective working capital management. Companies must balance their current assets and liabilities to ensure liquidity while optimizing profitability. Mismanagement of working capital can lead to liquidity crises, increased borrowing costs, and ultimately, financial distress. Therefore, understanding the dynamics of working capital management is essential for sustaining financial health and achieving long-term success in the automobile sector.

Previous research has highlighted the impact of various components of working capital, such as inventory management, accounts receivable, and accounts payable, on a firm's profitability and liquidity. However, there is a need for more comprehensive studies focusing specifically on the automobile sector in India. This study seeks to fill this gap by providing empirical evidence on how working capital management practices influence the financial performance of automobile companies. By analyzing financial data from major automobile manufacturers, this research will identify key working capital management strategies that contribute to better financial outcomes.

In addition to its academic contributions, this study has practical implications for financial managers and policymakers in the automobile industry. Effective working capital management can enhance a company's competitive edge, improve cash flow, and reduce dependency on external financing. Policymakers can also benefit from the findings by formulating regulations that promote best practices in working capital management. Ultimately, this research aims to provide actionable insights that can help automobile companies in India navigate the complexities of financial management and achieve sustainable growth.

The structure of this paper is as follows: the next section reviews the existing literature on working capital management and its impact on financial health. Following that, the research methodology is outlined, detailing the data sources, sample selection, and analytical techniques used. The results and discussion section presents the empirical findings and their implications. Finally, the key insights and suggests avenues for future research. Through this comprehensive study, we aim to contribute to a deeper understanding of the critical role of working capital management in the financial well-being of the automobile sector in India.

2. BACKGROUND OF THE STUDY

The automobile industry is a cornerstone of the Indian economy, contributing significantly to the country's GDP and employment. Over the past few decades, India has emerged as a global hub for automotive manufacturing, attracting investments from major international players and fostering the growth of numerous domestic companies. This sector's rapid expansion has been driven by increasing urbanization, rising disposable incomes, and supportive government policies. However, the dynamic and competitive nature of the industry necessitates robust financial management practices to sustain growth and profitability.

Working capital management is a critical component of financial management that focuses on the administration of a company's short-term assets and liabilities. Effective

working capital management ensures that a company maintains sufficient liquidity to meet its short-term obligations while optimizing the use of its resources to enhance profitability. In the automobile sector, managing working capital is particularly challenging due to the high capital requirements, extended production cycles, and complex supply chains. Companies must strategically manage inventories, accounts receivable, and accounts payable to maintain operational efficiency and financial stability.

Historically, the focus on working capital management within the automobile industry has been driven by the need to balance growth with financial prudence. The sector's capital-intensive nature means that substantial funds are tied up in inventories and receivables, which can strain liquidity if not managed effectively. For instance, maintaining high levels of inventory to meet demand fluctuations can lead to increased holding costs and potential obsolescence. Conversely, extending credit to customers to boost sales can result in higher accounts receivable, impacting cash flow. Similarly, negotiating favorable terms with suppliers can optimize accounts payable but may require balancing relationships and costs.

The financial health of automobile companies is intrinsically linked to their working capital management practices. Companies that manage their working capital efficiently can reduce financing costs, improve cash flow, and invest in growth opportunities. Conversely, poor working capital management can lead to liquidity crises, increased borrowing, and financial distress. Given the competitive pressures and economic uncertainties in the automotive sector, companies must adopt best practices in working capital management to maintain financial resilience and drive long-term success.

Despite the critical importance of working capital management, there is a paucity of comprehensive studies focusing on its impact on the financial health of the automobile sector in India. Most existing research has either been broad, encompassing multiple industries, or has not delved deeply into the specific challenges and dynamics of the automobile sector. This gap underscores the need for focused research that examines the nuances of working capital management within the context of the Indian automotive industry.

This study aims to address this gap by providing an in-depth analysis of working capital management practices and their impact on the financial health of automobile companies in India. By examining the financial data of key players in the industry, this research seeks to identify effective strategies for managing working capital and their correlation with financial performance. The insights gained from this study will not only contribute to the academic literature but also offer practical guidance for financial managers and policymakers striving to enhance the financial stability and growth prospects of the Indian automobile sector.

The effective management of working capital is essential for sustaining the financial health and competitiveness of automobile companies in India. This study seeks to illuminate the critical role of working capital management and provide actionable insights that can help industry stakeholders navigate the financial complexities of this dynamic sector. Through a comprehensive analysis, this research will contribute to a deeper

understanding of the financial management practices that drive success in the Indian automobile industry.

2.1 Research Relevance:

The relevance of this research on the impact of working capital management on the financial health of the automobile sector in India cannot be overstated. The automobile industry is a vital component of the Indian economy, contributing significantly to the nation's GDP, employment, and technological advancements. As the sector continues to grow and evolve, effective financial management practices, particularly in working capital management, become crucial for maintaining competitiveness and ensuring sustainable growth.

In the context of the Indian automobile sector, which is characterized by high capital intensity and intricate supply chain dynamics, managing working capital efficiently is imperative. Companies in this sector deal with substantial inventories, extended production cycles, and complex relationships with suppliers and customers. Effective working capital management ensures that these companies can meet their short-term obligations without compromising their long-term growth potential. By maintaining optimal levels of liquidity, companies can avoid the pitfalls of financial distress and seize growth opportunities, which is particularly relevant in a rapidly evolving market.

Moreover, the automobile industry in India is experiencing significant changes driven by technological advancements, regulatory shifts, and changing consumer preferences. The advent of electric vehicles, stricter emission norms, and the increasing demand for smart and connected vehicles are transforming the industry landscape. In such a dynamic environment, the ability to manage working capital effectively becomes a competitive advantage. Companies that can optimize their working capital can respond more agilely to market changes, invest in innovation, and enhance their operational efficiency.

From an academic perspective, this research fills a critical gap in the literature by focusing specifically on the Indian automobile sector. While there is extensive research on working capital management across various industries, studies that delve deeply into the unique challenges and dynamics of the automobile industry in India are scarce. This research contributes to the academic discourse by providing empirical evidence on the relationship between working capital management and financial health in this specific context. The findings can inform future research and provide a foundation for developing more nuanced financial management theories tailored to the automobile sector.

Practically, this research holds significant implications for financial managers, policymakers, and industry stakeholders. For financial managers, the insights gained from this study can guide the development and implementation of more effective working capital management strategies. Understanding the key factors that influence working capital efficiency can help managers optimize inventory levels, streamline receivables, and negotiate favorable terms with suppliers. This, in turn, can enhance liquidity, reduce financing costs, and improve overall financial performance.

For policymakers, the findings of this research can inform the development of regulatory frameworks that promote sound financial management practices in the automobile sector. By understanding the impact of working capital management on financial health, policymakers can design interventions that support the stability and growth of the industry. This could include initiatives to improve access to financing, promote best practices in financial management, and support the adoption of advanced technologies that enhance working capital efficiency.

The relevance of this research lies in its potential to provide valuable insights into the critical role of working capital management in the financial health of the Indian automobile sector. By addressing a significant gap in the literature and offering practical guidance for industry stakeholders, this study aims to contribute to the sustainable growth and competitiveness of one of India's most important industries. Through a comprehensive analysis, this research will enhance the understanding of financial management practices that drive success in the dynamic and rapidly evolving automobile sector.

3. THE PROBLEM STATEMENT

The Indian automobile industry, a significant contributor to the nation's GDP and employment, faces a multitude of financial challenges, particularly in the realm of working capital management. Despite its critical role in maintaining liquidity and operational efficiency, many automobile companies struggle with managing their working capital effectively. This challenge is compounded by the capital-intensive nature of the industry, extended production cycles, fluctuating demand, and complex supply chain networks. Inefficient working capital management can lead to liquidity crises, increased borrowing costs, and ultimately financial distress, threatening the stability and growth of these companies.

The primary problem this study seeks to address is the lack of comprehensive understanding and empirical evidence on the impact of working capital management on the financial health of the automobile sector in India. While there is extensive literature on working capital management across various industries, research specifically focusing on the unique challenges and dynamics of the Indian automobile sector is scarce. This gap in the literature leaves financial managers and policymakers without clear guidance on best practices and strategies for optimizing working capital in this context.

Additionally, the existing research does not sufficiently address the specific components of working capital management—such as inventory management, accounts receivable, and accounts payable—and their individual and collective impacts on financial performance in the Indian automobile sector. This lack of detailed analysis hinders companies from developing targeted strategies to manage their working capital effectively. As a result, many automobile companies continue to grapple with suboptimal liquidity, high financing costs, and missed opportunities for growth and innovation.

The problem is further exacerbated by the rapid changes occurring in the automobile industry. Technological advancements, regulatory shifts, and evolving consumer preferences are transforming the market landscape. Companies need to invest in new

technologies, comply with stricter emission norms, and meet the growing demand for electric and connected vehicles. These changes increase the capital requirements and complexity of working capital management, making it even more critical for companies to adopt effective financial management practices.

In this context, the problem statement of this study is to investigate how working capital management affects the financial health of companies in the Indian automobile sector. The study aims to identify the key components of working capital management that significantly influence financial performance and provide empirical evidence on their impact. By addressing this problem, the research seeks to fill the existing gap in the literature and offer actionable insights for financial managers and policymakers to enhance the financial stability and growth prospects of the Indian automobile industry.

To achieve this, the study will analyze financial data from major automobile companies in India, examining the relationship between working capital management practices and various indicators of financial health, such as profitability, liquidity, and solvency. The research will also explore the challenges and opportunities associated with managing working capital in the context of the dynamic and rapidly evolving automobile sector. Through this comprehensive analysis, the study aims to provide a deeper understanding of the critical role of working capital management and contribute to the development of more effective financial management strategies in the Indian automobile industry. The problem this study addresses is the need for a detailed and empirical investigation into the impact of working capital management on the financial health of the Indian automobile sector. By filling this gap in the literature and providing practical insights, the research aims to support the sustainable growth and competitiveness of one of India's most important industries.

4. SIGNIFICANCE OF THE STUDY

The significance of this study on the impact of working capital management on the financial health of the automobile sector in India is multifaceted, encompassing academic, practical, and policy dimensions. As one of the fastest-growing industries in the world, the Indian automobile sector plays a pivotal role in the country's economic landscape. Effective working capital management is essential for maintaining liquidity, optimizing operations, and ensuring long-term profitability in this capital-intensive industry. This study seeks to provide valuable insights that can enhance financial practices, inform policy decisions, and contribute to academic literature.

From an academic perspective, this study addresses a critical gap in the existing literature. While there is substantial research on working capital management, studies specifically focusing on the Indian automobile sector are limited. The unique challenges and complexities of managing working capital in this sector necessitate a focused investigation. By providing empirical evidence on the relationship between working capital management practices and financial performance, this research will contribute to the development of more nuanced theories and models that are tailored to the automobile industry. This contribution to academic knowledge can serve as a foundation for future

research, fostering a deeper understanding of financial management in capital-intensive industries. Practically, this study holds significant implications for financial managers and executives in the automobile sector. Efficient working capital management can lead to improved liquidity, reduced borrowing costs, and enhanced profitability. By identifying the key components of working capital that influence financial health, this research provides actionable insights that can help companies optimize their financial practices. For instance, better inventory management can reduce holding costs and minimize obsolescence, while effective accounts receivable strategies can enhance cash flow. These insights are crucial for companies striving to maintain financial stability and competitiveness in a rapidly evolving market.

Additionally, the findings of this study can guide financial managers in developing robust working capital strategies that align with the dynamic nature of the automobile industry. With the advent of electric vehicles, stricter emission norms, and the increasing demand for smart and connected vehicles, the industry is undergoing significant transformation. Companies need to invest in new technologies and comply with regulatory requirements, which heightens the importance of effective working capital management. This research provides a framework for financial managers to navigate these challenges and leverage working capital management as a tool for strategic growth and innovation.

For policymakers, the significance of this study lies in its potential to inform regulatory frameworks and support mechanisms that promote sound financial management practices in the automobile sector. Understanding the impact of working capital management on financial health can help policymakers design interventions that enhance the stability and growth of the industry. This could include policies that improve access to financing for working capital needs, encourage the adoption of best practices, and support the implementation of advanced technologies that streamline working capital management. Such policy measures can contribute to a more resilient and competitive automobile industry in India. Moreover, the broader economic significance of this study cannot be overlooked. The automobile industry is a major driver of economic growth, employment, and technological advancement in India. By enhancing the financial health of automobile companies through improved working capital management, this research can contribute to the overall economic development of the country. Financially stable and profitable automobile companies can invest more in innovation, expand their operations, and create more jobs, thereby generating positive economic spillovers.

In conclusion, the significance of this study on the impact of working capital management on the financial health of the Indian automobile sector is profound. It contributes to academic literature by filling a critical gap, provides practical insights for financial managers, informs policy decisions, and supports broader economic development. By offering a comprehensive analysis of working capital management practices and their effects, this research aims to enhance the financial resilience and competitiveness of one of India's most important industries. Through its multifaceted contributions, the study underscores the vital role of effective financial management in sustaining growth and innovation in the Indian automobile sector.

5. RESEARCH OBJECTIVES

- ❖ To examine the relationship between leverage and profitability of the select companies
- ❖ To measure and analyze the liquidity and profitability position of the select companies
- ❖ To analyze the inventory turnover as a part of asset management in select companies

6. LITERATURE REVIEW

Working Capital Management (WCM) is a crucial aspect of financial management that has garnered significant interest from financial managers, academics, and researchers. They have conducted studies to examine its influence on a company's performance (Ukaegbu, 2014¹). WCM is crucial for all organisations operating in both developed and developing nations. Effective management of working capital allows companies to promptly and effectively respond to unforeseen market fluctuations. The primary objective of working capital management is to provide sufficient liquidity to ensure the seamless operation of a company entity. Liquidity constraints have been identified as a significant obstacle to a company's profitability (Afrifa, 2013²). Conversely, an abundance of liquidity may also have a detrimental impact on the profitability of enterprises (Baek, 2006³). Therefore, it is recommended that companies allocate a greater portion of their investments into current assets rather than fixed assets in order to provide sufficient liquidity.

In 1974, Schwartz presented the case on the financial benefit. Managers are motivated by the financial benefit to create a highly effective plan for managing receivables. This theory posits that contemporary suppliers get ongoing advantages from traditional borrowers via the evaluation of consumer creditworthiness, monitoring of repayments, and promotion of loan reimbursement in the event of default (Altawalbeh M.A.F, 2020⁴). The benefits of lending to consumers over financial institutions include the capacity to derive financial resources from current assets, acquire specialised knowledge, and exercise authority over purchasers. (Bari, M, A., & Muturi, W & Samantar, M, S., 2019⁵). The idea delineates many methodologies that might be used in the management of receivables. The research aims to ascertain the tactics used by different SMEs in managing their receivables and evaluate their financial implications. The present investigation supports the hypothesis of financial benefits. Therefore, the present research used the financial advantage hypothesis because of its practicality in managing account receivables.

A company's capacity to operate efficiently is hindered by ineffective methods of managing working capital. As a result, chief executive officers place a premium on effective management of working capital. Most studies on WCM have focused on how well and how profitable businesses that use WCM are. More profits for the company are often a byproduct of well-executed WCM processes, According to several studies (Lefebvre, 2022⁶). As a result, the nature of the relationships between WCM strategies and business outcomes varies greatly between industries and geographies. After the global financial crisis, most companies' WCM policies indicated a preference for short-

term financial gains over long-term ones (Akbar, Akbar, Nazir, Poulová and Ray, 2021⁷). According to the GMM methodology there is a concave relationship between WCM practices and company performance. The time it takes for suppliers to be paid for the goods and services they provide is called accounts payable turnover (Arcuri & Pisani, 2021⁸). Improving results requires careful attention to detail in managing each part working capital and achieving these objectives. Consequently, managers should be concerned with working capital management (Akbar et al., 2021). Making sure that short-term commitments are met on time and that long-term assets are properly protected is a critical part of managing working capital effectively for any company.

An asset's capacity to satisfy its short-term commitments, or payments due in the near future, may be evaluated using the current ratio. A high current ratio, according to Ilham (2020⁹), indicates that a company's profits are strong as well, since it shows the return on assets is high. Investors can anticipate a substantial rate of return in the event that earnings are enhanced. Subtracting current liabilities from current assets yields the current ratio. There was a little but beneficial effect of the current equity return rules effect, according to Warrad (2014¹⁰). In contrast, Alkadmani and Nobanee (2020¹¹) found that stock returns were unaffected by the existing rationing. Examining the role of governance quality as a moderator between working capital management (WCM) and economic value added (EVA) is the primary objective of this research. Managers and investors in emerging and developing countries' non-financial sectors will find this study's findings very useful. Nobody has written anything yet. In short-term operations, the time it takes to collect money is inversely linked to the number of days left before payment is due. When it comes to this, the company or group may offer its customers a variety of accounts. Immediate payment following completion of sales is an essential component of efficient receivables management. On the other side, customers should be respectful to the company that provides them with the goods or services.

Minimize the number of customers who have outstanding payments. Customers that have outstanding debts are individuals or entities who have engaged in transactions with the firm but have not yet fulfilled their financial obligations for the items or services they have received. The primary objective of account holder management is to minimize the duration between bid submission and acceptance of an installment (Mielcarz, Osiichuk, & Behr, 2018¹²). Sales growth, as defined by Mukti and Milikan (2015¹³), refers to an upward trend in sales over a period of one year or longer. Managers use several approaches to assess working capital, most of which are not grounded in accepted financial principles but instead rely on subjective criteria or models. There is just a modest correlation between workflow continuity management (WCM) methods and financial outcomes. The amount of time that passes between the date of service or commodities given and the date of payment is known as accounts payable turnover. Businesses experiencing significant sales growth may need more investment in a variety of assets, including both fixed assets and current assets. Based on Hantono's (2018¹⁴) findings, the company may forecast its potential profit by approximating the magnitude of the sales increase. To find out how much a company's sales have increased from one year to the next, one might utilize the sales growth ratio. Sales growth rates impact a company's

bottom line, which in turn impacts the efficiency with which the business runs its day-to-day operations.

Vural et al. (2012¹⁵) found that there was no variation in the performance of all the firms listed on Borsa Istanbul from 2002 to 2009. Enqvist et al. (2014¹⁶) conducted a study that examined the relationship between effective WCM and the profitability of firms listed on India's Dhaka Stock Exchange. The study used data gathered from 2005 to 2009. Their study demonstrated a statistically significant correlation between working capital items and profitability evaluations across all industries, with the exception of the food industry.

Mohammadzadeh et al. (2013¹⁷) conducted an inquiry that included thirty pharmaceutical businesses in Iran. The main goal was to analyse how the financial architecture of these enterprises impacted their profitability. In this research, we examined financial data using metrics like net margin profit, debt to asset ratio, and control variable, we examined the company's profitability and capital structure from 2001 to 2010. There seems to be a strong correlation between a company's financial makeup and its profitability

7. METHODOLOGY OF THE STUDY

This study employs a comprehensive secondary data analysis methodology to investigate the intricate relationship between working capital management and the financial health of companies within the Indian automobile sector. By leveraging existing financial statements, industry reports, and pertinent publications, this retrospective research design aims to provide a holistic understanding of the operational and financial dynamics influencing companies in this sector. A purposive sampling strategy is applied to select a diverse group of companies based on criteria such as size, market presence, and financial stability, ensuring a representative dataset for analysis. The primary data sources for this study comprise audited financial statements, regulatory filings, and industry-specific reports sourced from reputable databases and financial institutions, ensuring the accuracy and reliability of the data. The selected variables encompass critical financial metrics, including leverage ratios, liquidity indicators, profitability measures, working capital components, and inventory turnover.

Quantitative data analysis is conducted using statistical techniques such as correlation analysis and regression modeling to assess the relationships between working capital management variables and financial performance. Correlation analysis helps identify the strength and direction of relationships between variables, while regression modeling provides insights into the predictive power of working capital management practices on financial health indicators. To ensure the validity and reliability of the secondary data, meticulous care is taken to source information from reputable and transparent data providers. The study acknowledges potential limitations inherent in secondary data, such as variations in reporting standards and the absence of detailed contextual information. These limitations are addressed through rigorous validation and cross-referencing of the selected data.

Ethical considerations in this study involve respecting the confidentiality and privacy standards of the original data sources. All data used in the analysis are anonymized, and

no proprietary information is disclosed. The study adheres to ethical guidelines for secondary data analysis, ensuring that the use of data is appropriate and respects the rights of the original data providers. The inherent limitations of secondary data analysis, including potential variations in reporting standards across different companies and time periods, as well as the lack of detailed contextual information, are acknowledged. These limitations are mitigated through careful selection of data sources and comprehensive cross-referencing.

By adopting this secondary data analysis methodology, the study aims to contribute valuable insights into the working capital management practices and financial performance of companies in the dynamic landscape of the Indian automobile sector. The findings of this research will provide a deeper understanding of how effective working capital management can enhance financial health and support the sustainable growth of the automobile industry in India.

7.1 Research design:

The research design of this study is a comprehensive secondary data analysis aimed at exploring the relationship between working capital management and the financial health of companies in the Indian automobile sector. This retrospective study leverages existing financial statements, industry reports, and relevant publications to provide an in-depth understanding of the operational and financial dynamics within the industry. A purposive sampling strategy is employed to select a diverse group of companies based on criteria such as size, market presence, and financial stability, ensuring a representative and robust dataset. The primary data sources include audited financial statements, regulatory filings, and industry-specific reports from reputable databases and financial institutions, ensuring data accuracy and reliability. Key financial metrics analyzed include leverage ratios, liquidity indicators, profitability measures, working capital components, and inventory turnover. Quantitative data analysis techniques such as correlation analysis and regression modeling are used to examine the relationships between these variables. The study takes meticulous care to validate and cross-reference data from reputable sources to ensure reliability and addresses ethical considerations by maintaining the confidentiality and privacy of the original data sources. By employing this rigorous research design, the study aims to generate valuable insights into effective working capital management practices and their impact on the financial performance of the Indian automobile sector.

8. DATA COLLECTION METHODS

The data collection method for this study involves gathering secondary data from a variety of reputable sources to analyze the relationship between working capital management and the financial health of companies in the Indian automobile sector. The primary sources of data include audited financial statements, regulatory filings, and industry-specific reports, which are obtained from established financial databases and institutions. These documents provide detailed and reliable financial metrics necessary for the analysis, such as leverage ratios, liquidity indicators, profitability measures, working

capital components, and inventory turnover. A purposive sampling strategy is employed to select companies that represent a diverse cross-section of the industry based on criteria like size, market presence, and financial stability. The collected data is meticulously validated and cross-referenced to ensure accuracy and reliability. By relying on high-quality, transparent data sources, the study ensures that the analysis is based on robust and credible information, providing a solid foundation for examining the financial practices within the Indian automobile sector.

9. DATA ANALYSIS PROCEDURES

The data analysis procedure for this study involves a systematic approach to examining the relationship between working capital management and the financial health of companies in the Indian automobile sector. Initially, the collected data, which includes key financial metrics such as leverage ratios, liquidity indicators, profitability measures, working capital components, and inventory turnover, is organized and cleaned to ensure accuracy and consistency. Statistical techniques are then employed to analyze the data, beginning with descriptive statistics to provide an overview of the dataset. This is followed by correlation analysis to identify the strength and direction of relationships between variables. Regression modeling is subsequently used to determine the predictive power of working capital management practices on financial health indicators. Throughout the analysis, rigorous validation processes are implemented to cross-check findings and ensure robustness. By employing these quantitative analysis techniques, the study aims to uncover significant patterns and insights into how effective working capital management can influence the financial performance of companies in the Indian automobile sector.

10. EMPIRICAL FINDINGS

Objective 1: Relationship between Leverage and Profitability

Table 1: Data Analysis showing Correlation between Leverage ratios and Return on Assets & Return on Equity (%) for the selected Automobile Organisations

Name of the Organisation	Correlation with ROA	Correlation with ROE
Ashok Leyland Limited	0.711	0.764
Bajaj Auto Limited	0.495	0.762
Bosch	0.853	0.848
Eicher Motors Limited (Royal Enfield)	0.721	0.723
Force Motors Limited	-0.308	-0.291
Hero MotoCorp Limited	-0.887	-0.806
Mahindra & Mahindra Limited	0.503	0.491
Maruti Suzuki India Limited	-0.291	-0.233
Tata Motors Limited	-0.897	-0.835
TVS Motor Company Limited	0.715	0.802

The correlation analysis reveals varying impacts of leverage on profitability metrics (ROA and ROE) across selected automobile organizations in India. Ashok Leyland Limited exhibits strong positive correlations with both ROA (0.711) and ROE (0.764), indicating

that increased leverage improves its profitability. Similarly, Bajaj Auto Limited shows a moderate positive correlation with ROA (0.495) and a strong positive correlation with ROE (0.762), suggesting that higher leverage is more strongly associated with higher equity returns. Bosch demonstrates very strong positive correlations with both ROA (0.853) and ROE (0.848), indicating consistent profitability improvements with higher leverage. Eicher Motors Limited also shows strong positive correlations with ROA (0.721) and ROE (0.723), reinforcing the beneficial impact of leverage on its financial performance.

Conversely, Force Motors Limited has negative correlations with ROA (-0.308) and ROE (-0.291), indicating that higher leverage decreases its profitability. Hero MotoCorp Limited exhibits very strong negative correlations with ROA (-0.887) and ROE (-0.806), suggesting significant reductions in profitability with increased leverage. Tata Motors Limited also shows very strong negative correlations with ROA (-0.897) and ROE (-0.835), indicating that higher leverage significantly lowers its profitability.

Mahindra & Mahindra Limited displays moderate positive correlations with ROA (0.503) and ROE (0.491), suggesting a moderate positive impact of leverage on profitability. Maruti Suzuki India Limited, however, shows weak negative correlations with ROA (-0.291) and ROE (-0.233), indicating a slight adverse effect of leverage on profitability. TVS Motor Company Limited exhibits strong positive correlations with ROA (0.715) and ROE (0.802), suggesting that higher leverage enhances its profitability.

Overall, the analysis highlights that companies like Bosch, Ashok Leyland, and Eicher Motors benefit from increased leverage, while Hero MotoCorp, Tata Motors, and Force Motors experience detrimental effects. Bajaj Auto and Mahindra & Mahindra show balanced impacts with moderate positive correlations, whereas Maruti Suzuki experiences slight adverse effects. These insights can guide financial strategies and risk management practices within these organizations, emphasizing the importance of tailored leverage strategies.

Objective 2: Liquidity and Profitability Position

Table 4.23.A: Result table showing 2024 Year Performance of the selected Automobile Organizations for the study:

Name of the Organization	Current Ratio	Quick Ratio	ROA	ROE	Net Profit Margin(%)
Ashok Leyland Limited	1.090	0.940	3.670	27.580	5.850
Bajaj Auto Limited	1.300	1.110	19.590	26.610	16.580
Bosch	1.950	1.580	14.360	20.660	14.880
Eicher Motors Limited (Royal Enfield)	1.150	0.760	17.290	22.170	21.480
Force Motors Limited	1.250	0.540	8.950	17.260	5.740
Hero MotoCorp Limited	1.460	1.210	14.310	21.150	10.220
Mahindra & Mahindra Limited	1.300	1.050	4.760	17.020	8.010
Maruti Suzuki India Limited	0.870	0.670	11.690	15.750	9.320
Tata Motors Limited	0.560	0.430	11.950	26.210	10.780
TVS Motor Company Limited	1.020	0.910	3.990	24.850	4.650

The liquidity ratios for 2024 reveal varying levels of financial stability among selected automobile organizations in meeting short-term obligations. Bosch leads with the highest current ratio (1.950) and quick ratio (1.580), indicating strong liquidity. Hero MotoCorp Limited follows with a current ratio of 1.460 and a quick ratio of 1.210, suggesting robust liquidity. Bajaj Auto Limited and Mahindra & Mahindra Limited both have a current ratio of 1.300, but Bajaj Auto has a higher quick ratio (1.110) compared to Mahindra & Mahindra (1.050).

Force Motors Limited has a moderate current ratio (1.250) but a low quick ratio (0.540), indicating reliance on inventory to meet short-term obligations. Eicher Motors Limited and Ashok Leyland Limited show moderate liquidity with current ratios of 1.150 and 1.090, respectively, and quick ratios of 0.760 and 0.940. Maruti Suzuki India Limited and TVS Motor Company Limited have relatively low liquidity ratios, with Maruti Suzuki's current ratio at 0.870 and quick ratio at 0.670, and TVS Motor's current ratio at 1.020 and quick ratio at 0.910. Tata Motors Limited exhibits the lowest liquidity ratios, with a current ratio of 0.560 and a quick ratio of 0.430, suggesting potential liquidity challenges.

In terms of profitability ratios for 2024, Bajaj Auto Limited leads with the highest ROA (19.590%), ROE (26.610%), and a strong net profit margin (16.580%), indicating excellent utilization of assets and equity. Eicher Motors Limited shows strong profitability with a high ROA (17.290%), ROE (22.170%), and the highest net profit margin (21.480%). Bosch follows with a ROA of 14.360%, ROE of 20.660%, and a net profit margin of 14.880%. Hero MotoCorp Limited displays good profitability with a ROA of 14.310%, ROE of 21.150%, and a net profit margin of 10.220%.

Maruti Suzuki India Limited and Tata Motors Limited show moderate profitability, with Maruti Suzuki's ROA at 11.690%, ROE at 15.750%, and a net profit margin of 9.320%, while Tata Motors has a ROA of 11.950%, ROE of 26.210%, and a net profit margin of 10.780%. Ashok Leyland Limited and Force Motors Limited exhibit lower profitability, with Ashok Leyland's ROA at 3.670%, ROE at 27.580%, and a net profit margin of 5.850%, and Force Motors' ROA at 8.950%, ROE at 17.260%, and a net profit margin of 5.740%. TVS Motor Company Limited and Mahindra & Mahindra Limited show the lowest profitability, with TVS Motor's ROA at 3.990%, ROE at 24.850%, and a net profit margin of 4.650%, and Mahindra & Mahindra's ROA at 4.760%, ROE at 17.020%, and a net profit margin of 8.010%.

In summary, Bosch and Hero MotoCorp Limited lead in liquidity, showcasing strong financial stability, while Bajaj Auto Limited and Eicher Motors Limited excel in profitability, indicating highly efficient operations and significant returns on assets and equity. Tata Motors Limited and TVS Motor Company Limited show weaker liquidity but moderate to high profitability, whereas Ashok Leyland Limited and Force Motors Limited exhibit moderate liquidity and profitability. Maruti Suzuki India Limited and Mahindra & Mahindra Limited display moderate liquidity and profitability, with slight challenges in maintaining high profitability.

Objective 3: Inventory Turnover Analysis

Table 3: Data Analysis showing Descriptive statistical results for the selected organizations under study towards Inventory Turnover and overall organization performance

Name of the Company	2024	2023	2022	2021	2020	Average	Median	Standard Diviation	Variance
Ashok Leyland Limited	7.58	10.25	6.96	7.79	14.29	9.37	7.79	3.020	9.12233
Bajaj Auto Limited	18.00	18.27	16.28	18.57	28.13	19.85	18.27	4.713	22.2151
Bosch	1.95	1.80	1.83	1.93	8.82	3.27	1.93	3.105	9.64373
Eicher Motors Limited (Royal Enfield)	8.76	8.64	6.91	11.21	17.52	10.61	8.76	4.156	17.2754
Force Motors Limited	5.26	5.37	4.32	3.56	5.59	4.82	5.26	0.855	0.73165
Hero MotoCorp Limited	17.21	18.79	15.98	20.96	26.41	19.87	18.79	4.103	16.8335
Mahindra & Mahindra Limited	7.78	8.43	8.23	11.39	13.38	9.84	8.43	2.437	5.93947
Maruti Suzuki India Limited	16.44	11.94	12.07	23.08	23.54	17.41	16.44	5.681	32.2758
Tata Motors Limited	13.86	12.52	7.66	4.54	11.46	10.01	11.46	3.830	14.6671
TVS Motor Company Limited	17.83	16.63	13.67	11.42	15.81	15.07	15.81	2.544	6.47032

The inventory turnover data from 2020 to 2024 for various automotive companies reveals significant insights into their inventory management efficiency and overall performance. Ashok Leyland Limited exhibits moderate variability in inventory turnover, ranging from 6.96 in 2022 to 14.29 in 2020, with an average of 9.37 and a high variance of 9.12233.

Bajaj Auto Limited consistently maintains high turnover ratios, peaking at 28.13 in 2020, with an average of 19.85, indicating strong and stable inventory management despite a variance of 22.2151. Bosch shows significantly lower and inconsistent turnover ratios, averaging 3.27 with a median of 1.93, reflecting occasional spikes in efficiency and a high variance of 9.64373.

Eicher Motors Limited displays moderate variability with turnover ratios ranging from 6.91 to 17.52 and an average of 10.61. Force Motors Limited maintains stable turnover ratios, averaging 4.82 with low variability, indicating consistent inventory management.

Hero MotoCorp Limited shows high and consistent turnover ratios, averaging 19.87 with moderate variability, suggesting robust inventory management. Mahindra & Mahindra Limited demonstrates moderate turnover ratios with an average of 9.84, indicating consistent performance.

Maruti Suzuki India Limited has a significant variability in turnover ratios, averaging 17.41, which suggests fluctuations in inventory management efficiency. Tata Motors Limited exhibits moderate variability with an average turnover ratio of 10.01. TVS Motor Company Limited maintains high and relatively stable turnover ratios, averaging 15.07.

The analysis highlights that companies like Bajaj Auto Limited and Hero MotoCorp Limited excel in inventory management, reflected in their high turnover ratios and robust sales operations. In contrast, Bosch and Force Motors Limited show lower and more stable turnover ratios, indicating different inventory management approaches.

Variability in turnover ratios, as shown by standard deviation and variance, underscores the need for some companies to stabilize their inventory management processes to enhance overall efficiency. Efficient inventory management is crucial as it reduces holding costs and improves liquidity, contributing to better organizational performance. Each company's unique trends offer valuable insights into their operational strategies and areas for potential improvement.

11. RECOMMENDATIONS FOR THE STUDY

Based on the comprehensive analysis of working capital management and its impact on the financial health of selected automobile companies in India, several key recommendations emerge.

Firstly, companies with high variability in inventory turnover, such as Bosch and Maruti Suzuki, should focus on stabilizing their inventory management processes. Implementing more robust inventory control systems and demand forecasting techniques can help reduce fluctuations and improve efficiency.

Secondly, firms like Ashok Leyland and Eicher Motors, which show moderate variability, could benefit from enhancing their working capital management practices by optimizing their supply chain operations and improving coordination with suppliers and distributors. For companies exhibiting strong performance in inventory turnover, such as Bajaj Auto and Hero MotoCorp, it is recommended to continue leveraging their efficient inventory practices while exploring opportunities for further optimization, such as adopting advanced technologies for real-time inventory tracking and management.

Additionally, firms with low liquidity ratios, like Tata Motors and Maruti Suzuki, should consider strategies to improve their liquidity position. This could involve better cash flow management, reducing unnecessary capital expenditures, and exploring short-term financing options.

Companies with high leverage ratios that negatively impact profitability, such as Hero MotoCorp and Tata Motors, should reassess their capital structure to find an optimal balance between debt and equity, potentially through refinancing existing debt or equity infusion to reduce financial risk. Overall, the study highlights the importance of tailored strategies for different companies based on their unique financial metrics and operational contexts. By focusing on specific areas of improvement and leveraging their strengths,

automobile companies can enhance their financial health, operational efficiency, and overall market competitiveness.

12. CONCLUSION

This study provides a comprehensive analysis of the relationship between working capital management and the financial health of selected automobile companies in India. The findings reveal significant variability in inventory turnover ratios, liquidity, and profitability across the companies, highlighting the diverse strategies and operational efficiencies within the sector.

Companies such as Bajaj Auto and Hero MotoCorp demonstrate robust inventory management and profitability, suggesting effective working capital practices. In contrast, firms like Bosch and Tata Motors exhibit challenges in maintaining consistent inventory turnover and liquidity, indicating potential areas for improvement.

The study underscores the critical role of efficient working capital management in enhancing financial performance, reducing costs, and improving liquidity. By adopting tailored strategies based on individual company performance metrics, automobile companies can optimize their working capital management, enhance profitability, and achieve better financial stability.

This research provides valuable insights for stakeholders, guiding them in implementing effective financial strategies to improve overall organizational health and competitiveness in the dynamic automotive industry.

Reference

- 1) Ukaegbu, B. (2014). The significance of working capital management in determining firm profitability: Evidence from developing economies in Africa. *Research in International Business and Finance*, 31, 1–16. <https://doi.org/https://doi.org/10.1016/j.ribaf.2013.11.005>
- 2) Afrifa, G. A. (2013). Working capital management and aim listed some companies profitability: A Mixed Research Method Approach. Bournemouth University. <https://doi.org/https://doi.org/10.6007/IJARAFMS/v3-i4/390>
- 3) Baek, H. Y. (2006). Free cash flow, leverage, and performance: Evidence from Canadian acquisitions. *Prieigaperinternetā*: <http://libra.Acadia.ca/library/ASAC/v27/content/authors/n/ng,%20alex/FREE%20CASH>
- 4) Altawalbeh M.A.F, (2020). impact of working capital management on financial performance: evidence from Jordan, *International Journal of Academic Research in Accounting, Finance, and Management Sciences* 10 (1): 308-315
- 5) Bari, M, A., & Muturi, W & Samantar, M, S (2019) effect of Cash Management on Financial Performance of Food and Beverage Retailers in the Puntland State of Somalia: A Case of Garowe District. *International Journal of Contemporary Applied Researches* (6), 3
- 6) Lefebvre, V. (2022). Performance, working capital management, and liability of smallness: A question of opportunity costs? *Journal of Small Business Management*, 60(3), 704-733
- 7) Akbar, A., Akbar, M., Nazir, M., Poulová, P., & Ray, S. (2021). Does Working Capital Management Influence Operating and Market Risk of Firms? *Risks*, 9. doi:10.3390/risks9110201

- 8) Arcuri, M. C., & Pisani, R. (2021). Is Trade Credit a Sustainable Resource for Medium-Sized Italian Green Companies? *Sustainability*, 13, 2872
- 9) Ilham, I. (2020). The Influence of Current Ratio and Debt to Asset Ratio on Return on Assets at PT Selaras Aditama. *Jurnal Ad'ministrare*, 6, 229.
- 10) Warrad, L. (2014). Effect of Current Ratio on Jordanian Real Estate Sector's Net Profit Margin. *European Journal of Economics, Finance and Administrative Sciences*, 35-39.
- 11) Alkadmani, L., & Nobanee, H. (2020). Financial Ratios Analysis of Nestle. *International Journal of Higher Education*, 6, 27
- 12) Mielcarz, P., Osiichuk, D., & Behr, A. (2018). The influence of capital expenditures on working capital management in the corporate sector of an emerging economy: the role of financing constraints. *Economic Research-Ekonomska Istraživanja*, 31, 946-966.
- 13) Mukti, A., & Milikan, A. (2015). The Influence of Financial Performance towards Income Smoothing in Property, Real Estate, and Building Construction Industry Listed in Indonesia Stock Exchange. 1, 1-9.
- 14) Hantono, H. (2018). The Effect of Current Ratio, Debt to Equity Ratio, Toward Return on Assets (Case Study on Consumer Goods Company). *Accountability*, 7, 64.
- 15) Vural G, Sökmen AG, and Çetenak EH (2012). Affects of working capital management on firm's performance: Evidence from Turkey. *International Journal of Economics and Financial Issues*, 2(4): 488-495.
- 16) Enqvist J, Graham M, and Nikkinen J (2014). The impact of working capital management on firm profitability in different business cycles: Evidence from Finland. *Research in International Business and Finance*, 32: 36-49. <https://doi.org/10.1016/j.ribaf.2014.03.005>
- 17) Mohammadzadeh M, Rahimi F, Rahimi F, Aarabi SM, and Salamzadeh J (2013). The effect of capital structure on the profitability of pharmaceutical companies the case of Iran. *Iranian Journal of Pharmaceutical Research*, 12(3): 573-577.