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Efficiency and Profitability: An Analysis of Working Capital and Asset Management Strategies in Indian Railway Companies

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ABSTRACT

The study discusses the rapid modernization and expansion of the Indian railway network to meet growing mobility demands, backed by significant government investments and strategic initiatives. It highlights the importance of efficient working capital management in ensuring smooth operations and optimizing liquidity for businesses across industries, emphasizing the need to strike a balance between current assets and liabilities to maximize profitability and minimize risk. The prime objective of the study is to assess and analyse the impact of Working Capital Policies on Earnings in the selected listed Indian Railway companies of India. The study collects data from top companies across diverse railway-related sectors, selecting one company from each of the six sectors. The dataset covers five years from 2018-19 to 2022-23, facilitating a thorough longitudinal analysis of trends and patterns. The independent variables comprise of Current Ratio, Quick Ratio, Debtors Turnover Ratio, Investments Turnover Ratio and Asset Turnover Ratio while Return on Asset is a dependent variable. It shows that there is a significant relationship between Working Capital Policies as well as Asset Management Policies and Return on Assets in the selected listed Indian Railway companies of India. The study shows certain theoretical, societal and practical implications.

Keywords: Working Capital, Asset Management, Indian Railways, Railway Stocks, Financial Performance

INTRODUCTION

The Indian railway network is undergoing rapid modernization and expansion to bolster the country's transportation infrastructure and meet rising mobility demands. As per official government statistics, Indian Railways carried over 8.4 billion passengers and transported 1.2 billion tons of freight in 2021 (Ministry of Railways, 2022). It operates over 13,000 passenger trains and over 9,000 freight trains across a vast 67,956 km rail route network (Railway Board, 2021). Propelled by over INR 2,15,000 crore worth major projects underway, the sector aims to construct 25,000 kilometres of new rail lines by 2025 to boost connectivity and accessibility (Venkatasubramanian, 2021). The emergence of high-speed corridors, private operators, and dedicated freight routes coupled with large technology investments exemplifies the railway sector's strategic priority within India's socioeconomic growth trajectory (Thakur & Mallya, 2013). With increasing capital outlays aligned to expansion plans as per the National Rail Plan, the evolving industry landscape offers immense potential while necessitating efficient financial and operational management.

Working capital management is a fundamental aspect of financial performance for businesses of all sizes and across industries. It involves the efficient management of a company's short-term assets and liabilities to ensure smooth operations and optimize liquidity. Essentially, it's about maintaining the right balance between current assets and current liabilities to support day-to-day operations while maximizing profitability and minimizing risk.

Working capital management directly affects the liquidity and profitability of the company. A firm's value cannot be maximized in the long run unless it survives the short run. Maximizing profits is said to be the objective of all firms. Efficiency in working capital management is so vital in a production firm; assets are mostly composed of current assets. Managing essential elements such as cash, inventory, accounts payable, and receivable is part of this.

REVIEW OF LITERATURE

Efficient working capital management is essential for companies to ensure they have sufficient current assets to fund ongoing operations and invest in future growth (Panigrahi, 2013). The Indian railway industry has seen rapid expansion, technological upgrades, and rising investments in recent years. As per official Indian Railway Board (2020) reports, there are plans to continue improving rail infrastructure and transportation capabilities to boost economic progress. However, academic insight

into working capital strategies adopted by Indian railway companies is limited. Furthermore, the potential impacts of the sector’s changing dynamics on the working capital-profitability relationship have not been analysed. As the railway industry evolves, companies may need to reassess their approaches to managing components like cash, receivables, and inventory to optimize profit. Efficient working capital management is an important determinant of profitability and sustainability across business contexts (Pais & Gama, 2015). Working capital policies involve balancing trade-offs between liquidity, risk, and profit goals based on factors like cash conversion cycles, credit periods, and inventory management (Singhania & Mehta, 2017). As the Indian railway sector undergoes major infrastructure upgrades and service improvements, understanding these dynamics is critical. Investments to expand route capacity, modernize technology, and strengthen logistics connectivity require sizeable capital outlays (Railway Board, 2022). Managing working capital effectively will enable railway companies to balance these spending needs with profit targets that justify such public investments. Scholars highlight that the sector must also contend with rising external competition and input costs (Mishra, 2014). In this landscape, optimizing working capital to focus cash flows on productive avenues while ensuring smooth operations is paramount. Further research can provide insights on suitable cash conversion cycles, inventory turnover ratios, and credit terms that allow railway firms to pursue ambitious development goals without compromising financial health. Proactive working capital management aligned with strategic objectives is thus integral for the railway industry to deliver socio-economic value. The conceptual theory underlying the association between working capital management and profitability is rooted in the trade-off between liquidity and profitability in financial decisions (Eljelly, 2004). Working capital policies dictate the level of current assets relative to short term liabilities, impacting the cash available to fund operations (Raheman & Nasr, 2007). Conceptually, more aggressive policies targeting lower cash conversion cycles and higher inventory turnover improve capital efficiency. This allows firms to free up capital for more productive investments while reducing costs, thus boosting returns (Falope & Ajilore, 2009; Tauringana & Afrifa, 2013). Thus, firms theoretically aim to establish an optimal level of working capital that maximizes returns yet retains enough liquidity buffer for smooth functioning (Singhania & Mehta, 2017). Furthermore, this optimal balance is expected to vary with factors like sector characteristics, business models, company size, and financial management strategies. Empirical analysis within specific industries can quantify contextual benchmarks guiding firms towards appropriate working capital structures for maximizing profitability. Overall, the underlying theoretical association reflects intertemporal resource allocation decisions balancing returns across time periods.

RESEARCH METHODOLOGY

Objectives of the Study

The prime objective of the study is to comprehensively assess and analyse the impact of Working Capital and Asset Management on Earnings within the context of selected listed Indian Railway companies in India. This encompasses several key components like evaluation of working capital policies, assessment of earnings, identifying and analysing the factors and provide recommendations and implications for Indian Railway companies regarding their working capital management strategies.

Hypotheses

H0₁: There is no significant relationship between Working Capital Policies and Return on Assets in the selected listed Indian Railway companies of India.

H0₂: There is no significant relationship between Asset Management Policies and Return on Assets in the selected listed Indian Railway companies of India.

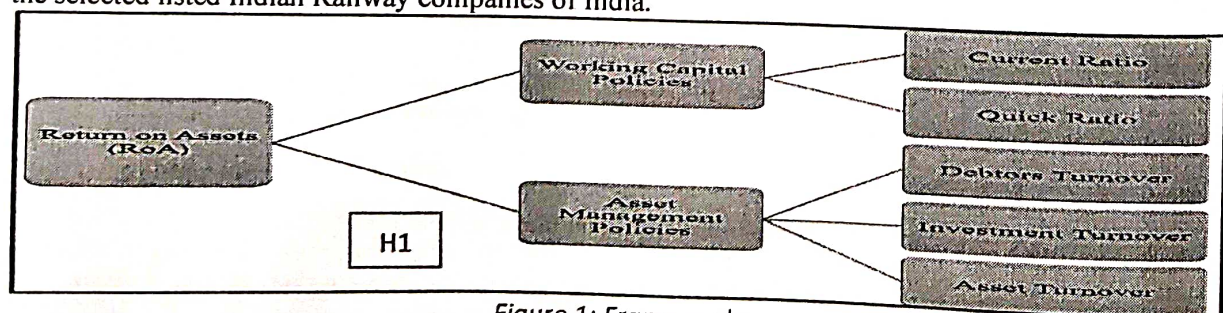


Figure 1: Framework

Sources of Data and Sampling

H2

The study involves the collection of data from leading companies representing diverse sectors linked to the railway industry. Specifically, one company has been meticulously selected from each of the six sectors, employing market capitalization as the criterion for selection. The data spans a comprehensive period of five years, encompassing the years 2018-19 through 2022-23, thereby offering a robust longitudinal analysis of trends and patterns. It's imperative to note that the data utilized in this study is of a secondary nature, sourced from the published annual reports of the selected sample companies, which are readily accessible on their official websites. This ensures the reliability and authenticity of the data.

For the study, top railway stocks of six emerging and important industries were selected out of which, top listed company based on market capitalization is considered. The samples are as follows:

Table 1: Samples of Railway Stocks

Industries	Railway Stocks
Railways	IRCTC - Indian Railway Catering & Tourism Corporation Ltd.
Logistics	Container Corporation of India Ltd.
Construction	Rail Vikas Nigam Ltd.
Infrastructure Developers & Operators	RITES Ltd.
Aerospace & Defence	BEML Ltd.
Capital Goods - Non-Electrical Equipment	Titagarh Rail Systems Ltd.

DATA ANALYSIS AND INTERPRETATION

Descriptive Statistics

Table 2: Descriptive Statistics of Samples

Descriptive Statistics	Return on Assets	Current Ratio	Quick Ratio	Debtors Turnover Ratio	Investment Turnover Ratio	Asset Turnover Ratio
Mean	167.020	1.922	1.882	14.703	11.038	1.244
Standard Error	32.644	0.137	0.171	3.746	9.827	0.085
Median	98.235	1.660	1.560	5.590	1.295	1.255
Standard Deviation	178.798	0.752	0.938	20.516	53.822	0.465
Kurtosis	1.129	1.641	0.532	6.454	29.996	-0.203
Skewness	1.615	1.349	1.175	2.417	5.477	0.443
Range	557.210	3.160	3.280	91.340	295.470	1.870
Minimum	17.930	1.010	0.870	1.180	0.530	0.560
Maximum	575.140	4.170	4.150	92.520	296.000	2.430
Sum	5010.61	57.66	56.45	441.10	331.13	37.33
Count	30	30	30	30	30	30

The table presents a comprehensive summary of financial ratios of samples. The mean return on assets across these companies stands at 167.020%, suggesting a strong performance in utilizing assets to generate earnings. However, the wide standard deviation of 178.798 indicates considerable variability in asset performance among the companies. The current and quick ratios, measuring liquidity, show means of 1.922 and 1.882 respectively, with relatively low standard deviations, indicating consistent liquidity levels across the companies. The debtors turnover ratio, at 14.703, indicates the speed at which debtors are converted into cash, with a high standard deviation of 20.516 suggesting varying collection efficiencies among the companies. The investment turnover ratio and asset turnover ratio reflect the efficiency of investments and asset utilization in generating revenue, with means of 11.038 and 1.244 respectively. The range of values for each ratio highlights the variability within the companies over the five-year period, and the consistent count of 30 observations ensures reliability in the statistical measures across all companies. Overall, the table offers insights into the financial performance and efficiency of asset utilization, liquidity, and debt management among the six companies in the railway industry over the specified timeframe.

Regression Analysis

Table 3: Regression Statistics

Regression Statistics				
Multiple R	R Square	Adjusted R Square	Standard Error	Observations
0.724	0.525	0.426	135.503	30

In regression analysis, the R Square value, also known as the coefficient of determination, is a crucial metric that measures the proportion of the variance in the dependent variable that is explained by the independent variables included in the model. In this specific regression model, the R Square value is 0.525, indicating that approximately 52.5% of the variability in the Return on Assets can be accounted for by the Debtors Turnover, Investment Turnover and Asset Turnover Ratios. Put differently, about 52.5% of the fluctuations observed in the RoA can be attributed to the factors considered in the regression model. This indicates a moderate degree of correlation between the independent and dependent variables.

Table 4: Regression ANOVA Statistics

Regression ANOVA					
	df	SS	MS	F	Significance F
Regression	5	486433.883	97286.777	5.299	0.002
Residual	24	440663.891	18360.995		
Total	29	927097.774			

The above table provides important information regarding the overall significance of the regression model. In this case, the F-value is 5.299, indicating that the regression model is statistically significant at a level of significance of 0.05. This means that there is strong evidence to reject the null hypothesis that all regression coefficients are equal to zero, suggesting that the model as a whole provides valuable information in predicting the dependent variable. The Significance F value (0.002) further supports this conclusion, indicating that the probability of obtaining an F-statistic as extreme as observed, assuming the null hypothesis is true, is very low. Therefore, based on the ANOVA table, we can conclude that the regression model is statistically significant in explaining the variability in the dependent variable.

Analysis of Variance (ANOVA)

Table 5: Analysis of Variance

Dependent Variable	F	P-value	F crit	Criterion
Return on Assets	22.16	0.00	2.27	H0 is failed to be accepted

The F-value of 22.159 far exceeds the F-critical value of 2.266. This suggests there is significantly higher variability between the group means compared to variability within groups in the sample data. Additionally, the p-value indicates strong evidence to reject the null hypothesis. There is an exceptionally low probability that the observed difference in means is due to chance.

IMPLICATIONS

Theoretical Implications: It supports the efficient market hypothesis, as rising profits and demand indicate the market recognizes the improved financial performance of Indian Railways. It illustrates how state-owned enterprises can successfully pursue commercialization and profit goals while still fulfilling broader social objectives

Societal Implications: The increased railway profits could support further investment and expansion, improving transportation access for more Indians. Higher profits may translate into better employee wages, improving quality of life. However, pursuit of profitability could also incentivize fare hikes or spending cuts on safety or maintenance, negatively impacting accessibility

Practical Implications: The Indian Railway stocks have become more attractive for investors seeking growth opportunities. Rising stock values and demand should improve the ability of Indian Railways to raise capital via equity offerings. Higher market capitalization indicates improved financial health and public confidence, aiding future debt financing efforts. The government can use railway profits to fund public spending in other areas if dividends are paid.

CONCLUSION

The positive relationship is observed between working capital and asset management with profitability in Indian Railway stocks holds promising implications for various stakeholders. As efficient working capital and asset management practices contribute to enhanced profitability, they pave the way for a brighter future for investors, employees, and the broader economy. Investors can expect improved returns on their investments, while employees may benefit from enhanced job stability and growth opportunities within the thriving railway sector. Moreover, the positive financial performance of Indian Railway stocks signals broader economic growth potential, fostering confidence among stakeholders and attracting further investment. Overall, the synergistic relationship between working capital, asset

management, and profitability in Indian Railway stocks not only augurs well for the railway industry but also presents opportunities for sustainable development and prosperity for all stakeholders involved. The growing profitability reflects better utilization of assets but also raises questions around balancing profits, affordability, safety, and access for a public service like railways. The financial performance needs to translate into service improvements for societal impact. Appropriately channelling profits for re-investment and social welfare is key.

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