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CAPITAL STRUCTURE AND PROFITABILITY OF SELECTED INDIAN AUTOMOBILE COMPANIES: A COMPARATIVE STUDY OF PRE AND POST COVID-19 PERIODS

KEY WORDS: Capital structure, Profitability, Automobile Industry, COVID-19, Debt-to-equity Ratio, Net Profit Margin.

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ABSTRACT

This study examines changes in the capital structure and profitability of four selected Indian automobile companies before and after the COVID-19 pandemic. The sample comprises Maruti Suzuki India Ltd., Bajaj Auto Ltd., Mahindra & Mahindra Ltd. and Eicher Motors Ltd. The study uses published standalone financial statements for the pre-COVID period (2017–18 to 2019–20) and the post-COVID period (2021–22 to 2023–24), while 2020–21 is treated as the pandemic year and excluded from the two-period comparison. Debt-to-equity ratio and net profit margin are used as the principal measures. Descriptive analysis indicates a modest rise in the sample's average debt-to-equity ratio after the pandemic, while average net profit margin changed only slightly. An exact Wilcoxon signed-rank test does not show a statistically significant difference for either measure. The results should be interpreted cautiously because the sample contains only four companies. The study provides a focused comparison rather than claiming that COVID-19 alone caused the observed changes.

1. INTRODUCTION

Capital structure is an important financial decision because it concerns the proportion of funds raised through borrowing and owners' funds. A company may use debt to finance expansion, machinery and other long-term requirements. Borrowing can support growth, but excessive debt also creates interest and repayment obligations. Profitability, in turn, indicates how successfully a company converts its business activity into earnings. The two areas are connected, although the relationship is not always straightforward.

The COVID-19 pandemic created an unusual challenge for Indian businesses. Lockdowns, supply interruptions, lower mobility and uncertainty affected production and demand. The automobile industry was exposed to these conditions because manufacturing depends on suppliers, distribution networks and consumer spending. The period after the initial disruption also brought a recovery in demand, changes in input costs and renewed investment. It is therefore useful to compare the financing position and profitability of automobile companies before and after the pandemic.

This paper studies four established automobile manufacturers using a small, clearly defined sample and simple financial ratios. The intention is to make the analysis understandable and to identify whether the companies' debt-equity position and net profit margins changed between the two periods.

2. Review of Literature

Modigliani and Miller (1958) provided the foundational argument that, under restrictive assumptions such as perfect capital markets and no taxes, a firm's value is independent of its financing mix. In actual business conditions, however, taxes, bankruptcy costs, information differences and financing constraints make capital structure decisions relevant. Myers (1984) explained that firms may prefer internal funds first, followed by debt and then equity, an approach commonly known as the pecking-order theory. These ideas help explain why companies with different cash positions and risk profiles may choose different levels of borrowing.

Indian automobile-sector research has already examined capital structure and profitability. Suresh and Sengottaiyan (2015) studied selected Indian automobile companies and reported mixed positive and negative relationships between capital structure measures and profitability. Agwan (2017) also examined selected two- and three-wheeler manufacturers and reported a positive relationship between capital structure and financial performance. These studies show that the relationship can vary by company and by the measures selected.

More recent work has considered the pandemic period. Vodwal and Vodwal (2024) examined the effect of COVID-19 on performance and financing decisions among Indian manufacturing and service firms, noting that the shock affected firms and industries differently. Panchal and Chand (2023) studied capital structure and firm performance in the Indian manufacturing sector over 2013–2022 using panel-data methods. The Reserve Bank of India's corporate-sector review by Yogindran et al. (2025) describes a post-pandemic recovery in manufacturing profitability and improvements in corporate balance sheets at an aggregate level. Together, these studies establish the relevance of the subject, but they do not remove the value of a concise company-level comparison using a defined automobile sample.

3. Research Gap

Existing studies have examined capital structure and profitability in Indian automobile or manufacturing companies, and recent research has separately considered the pandemic shock. The present study takes a narrower descriptive approach by comparing the average debt-to-equity ratio and net profit margin of four named automobile manufacturers across three pre-COVID and three post-COVID financial years, with the pandemic year kept outside the two comparison periods. Its contribution is the focused period-wise comparison and transparent use of two easily understood indicators.

4. Objectives of the Study

1. To compare the capital structure of selected Indian automobile companies before and after COVID-19.
2. To examine changes in the profitability of the selected companies across the two periods.
3. To test whether the differences in the selected financial indicators are statistically significant.

5. Hypotheses

H01: There is no significant difference in the debt-to-equity ratio of the selected companies between the pre-COVID and post-COVID periods.

H02: There is no significant difference in the net profit margin of the selected companies between the pre-COVID and post-COVID periods.

6. Research Methodology

The study follows a descriptive and comparative research design and is based entirely on secondary data. Four listed manufacturers—Maruti Suzuki India Ltd., Bajaj Auto Ltd., Mahindra & Mahindra Ltd. and Eicher Motors Ltd.—were selected purposively to represent major passenger-vehicle, two-wheeler and multi-vehicle businesses. The analysis uses standalone financial-statement figures in ₹ crore.

The pre-COVID period covers FY2017–18, FY2018–19 and FY2019–20. FY2020–21 is treated as the pandemic year and excluded from the comparison. The post-COVID period covers FY2021–22, FY2022–23 and FY2023–24. For each company, annual ratios were calculated and then averaged within each period.

Debt-to-equity ratio is calculated as total borrowings divided by shareholders' funds (share capital plus reserves), multiplied by 100. Net profit margin is calculated as net profit divided by sales, multiplied by 100. The paired Wilcoxon signed-rank test is used as the main inferential test because the paired company-level sample is very small (n=4) and normality cannot be meaningfully assessed. A paired t-test is shown as a supplementary check, not as the principal basis for conclusions. The 5 per cent significance level is used.

7. Data Analysis and Interpretation

7.1 Company-wise Comparison

Company	Pre-COVID D/E (%)	Post-COVID D/E (%)	Pre-COVID NPM (%)	Post-COVID NPM (%)
Maruti Suzuki India Ltd.	0.34	1.00	8.63	6.83
Bajaj Auto Ltd.	0.61	1.60	16.19	15.78
Mahindra & Mahindra Ltd.	8.69	11.06	6.94	8.83
Eicher Motors Ltd.	1.30	0.97	20.36	19.21

Note: Each value is the arithmetic mean of the three annual ratios in the relevant period. D/E = borrowings ÷ (share capital + reserves); NPM = net profit ÷ sales. Figures are rounded to two decimals.

The table shows that the average debt-to-equity ratio increased after COVID-19 for Maruti Suzuki, Bajaj Auto and Mahindra & Mahindra, while it declined for Eicher Motors. Mahindra & Mahindra had the highest leverage in both periods within this sample. The changes are not uniform, suggesting that financing decisions were company-specific rather than identical across the industry.

Net profit margin declined for Maruti Suzuki, Bajaj Auto and Eicher Motors, while it improved for Mahindra & Mahindra. The variation indicates that post-pandemic recovery in sales did not translate into the same margin movement for every company. Differences in product mix, input costs, operating efficiency, investment and other income may also influence profitability.

7.2 Overall Period Averages

Indicator	Pre-COVID mean (%)	Post-COVID mean (%)	Change
Debt-to-equity ratio	2.73	3.66	+0.92 percentage points
Net profit margin	13.03	12.66	-0.37 percentage points

Across the four-company sample, the average debt-to-equity ratio rose from 2.73 per cent to 3.66 per cent. The average net profit margin moved slightly down from 13.03 per cent to 12.66 per cent. These are small sample averages and should not be treated as estimates for the entire Indian automobile industry.

7.3 Statistical Test

The Wilcoxon signed-rank test compared each company's pre-COVID and post-COVID average. For the debt-to-equity ratio, the exact two-sided p-value was 0.250. For net profit margin, the exact two-sided p-value was 0.875. Both values exceed 0.05; therefore, the null hypotheses are not rejected. The supplementary paired t-test produced p-values of 0.196 for debt-to-equity ratio and 0.678 for net profit margin, leading to the same decision.

The statistical results do not establish that the two periods were identical. With only four paired companies, the tests have very low statistical power and may fail to detect meaningful differences. The results should therefore be read as an exploratory comparison, not as conclusive evidence that COVID-19 had no effect.

8. Findings of the Study

4. The average debt-to-equity ratio increased slightly in the post-COVID period, but the direction of change differed across companies.
5. Mahindra & Mahindra recorded the highest average debt-to-equity ratio among the four selected companies in both periods.
6. The average net profit margin of the sample declined marginally after COVID-19, although Mahindra & Mahindra showed an improvement.
7. The Wilcoxon signed-rank test did not find statistically significant pre- and post-COVID differences in either indicator at the 5 per cent level.
8. The findings suggest that the pandemic and recovery period were associated with different company-level outcomes; a single industry-wide conclusion would be too broad.

9. CONCLUSION

The study compared the capital structure and profitability of four Indian automobile companies before and after COVID-19. The descriptive results show a small increase in average debt-to-equity ratio and a slight decline in average net profit margin in the post-COVID period. However, company-level movements were mixed. The statistical tests did not indicate significant differences, but the small sample means that this result must be interpreted carefully.

The study highlights that capital structure and profitability are influenced by more than a single external event. Company-specific financing policies, operating conditions and investment decisions also matter. A larger study covering more automobile manufacturers and a longer period could provide stronger evidence. The findings offer a simple and transparent picture of how selected companies' financial indicators changed across the two periods.

Appendix: Statistical Test Summary

Indicator	Test	Statistic	Exact / two-sided p-value	Decision at 5%
Debt-to-equity ratio	Wilcoxon signed-rank	W = 1.00	0.250	Not significant
Net profit margin	Wilcoxon signed-rank	W = 4.00	0.875	Not significant
Debt-to-equity ratio	Paired t-test	t(3) = 1.659	0.196	Not significant
Net profit margin	Paired t-test	t(3) = -0.458	0.678	Not significant

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