



## Capital structure and profitability: A study of paper industry of India

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### Abstract

This study looks into how capital structure affects the Indian paper industry's profitability. Managers, investors, and policymakers must comprehend how financial leverage impacts company performance since the paper industry is crucial to the nation's economic expansion. The study examines how capital structure choices, particularly the proportion of debt and equity financing affect profitability metrics like net profit ratio (NPR), return on equity (ROE) and return on assets (ROA). The study uses quantitative methods to investigate the relation of capital structure and profitability using financial data from top Indian paper businesses over a five-year period. This study offers insightful information on association of capital structure and profitability of selected paper companies listed on BSE for the five period from 2019-20 to 2023-24. The study revealed negative association of capital structure and profitability.

**Keywords:** Capital structure, debt-equity ratio, paper companies, profitability

### Introduction

An important financial choice that has a big impact on how profitable a business is and financial condition in general is capital structure. It describes the combination of debt and equity used to fund the running and growing of a business. While an unbalanced structure may result in financial trouble, profitability for an enterprise may be increased with the proper ratio of debt-to-equity funding. Capital structure decisions are crucial in establishing long-term viability and profitability in the Indian paper sector, as businesses must contend with capital-intensive procedures, variable raw material costs, and competitive pricing forces. With rising demand for packaging, printing, and hygiene goods, India's paper industry is a major contributor to the country's economy. Nevertheless, the sector necessitates significant expenditures in raw materials, machinery, and technological advancements, making it extremely capital-intensive. Businesses must weigh the cost of capital, financial risks, and expected returns when determining how much debt to take on versus how much stock to issue. Businesses may reduce financial risk and increase profitability with the aid of an ideal capital structure.

### Review of Literature

The study "Impact of Capital Structure on Profitability: An Empirical Analysis of Listed Firms in India" was conducted by scholars. This study's goal was to investigate and analyze experimentally how capital structure decisions affect businesses' profitability. 35 Indian pharmaceutical businesses that are listed on the Bombay Stock Exchange were selected as samples for this study, which lasted five years. Regression analysis was utilized to quantify how capital structure affected profitability. As capital structure parameters, ratios such as total debt to total assets (DA), long-term debt to total assets (LDA), and short-term debt to total assets (SDA) were employed. On the other hand, the Return on Equity (ROE) ratio was used to gauge profitability. The findings of this study showed that DA and SDA had a favourable effect on ROE. However, LDA has little to no effect on ROE.

examined the efficacy of companies in the Indian industrial sector that are listed on the BSE and found no meaningful correlation between financial leverage and return on assets for businesses. Additionally, financial debt substantially and adversely affects return on equity.

The top 25 environmentally conscious businesses that make up the S&P BSE GREENEX as on August 28, 2021, were chosen. Non-probability purposive sampling was employed to achieve the paper's goals. The study's findings show a strong correlation between green businesses' profitability and their capital structure. Both the ROA and ROE metrics of a company's profitability show a positive correlation, indicating that as financial leverage rises, so do the returns on that investment. Businesses were proven to be more lucrative when they use more borrowed capital. However, the study's findings show that green businesses were risk conservative and use fewer borrowed capital than equity funds. As a result of their limited utilization of less expensive funding sources, green businesses have low returns.

The paper's primary goal was to add to the body of knowledge on capital structure and assess how it affects and is related to the profitability of particular automakers that are listed on the Karachi Stock Exchange. Nineteen firms were selected as the research's sample, and the study period ran from 2006 to 2012. Information was gathered from the chosen companies' publications. With the use of statistics SPSS, regression and correlation analyses were performed to forecast the outcome. According to the study's findings, capital structure and profitability were inversely correlated, meaning that a reduction in loan capital raised a company's profitability and vice versa.

**Research Methodology:** The study employs a quantitative research design to examine the relationship between capital structure and profitability in the Indian paper industry. The research focuses on testing the impact of debt-to-equity (D/E) ratios on key profitability indicators, including:

- **Net Profit (NP):** Measures the overall profitability of firms.
- **Return on Equity (ROE):** Indicates the return generated on shareholders' equity.
- **Return on Assets (ROA):** Reflects how effectively the company's assets generate profits

**Objectives of the study**

- To analyse the capital structure of selected paper companies
- To measure profitability of selected paper companies
- To know the association of capital structure on profitability of the selected paper companies

**Hypothesis of the study**

**H0:** There is no significant association of capital structure and profitability in selected paper companies.

**H1:** There is significant association of capital structure and profitability in selected paper companies.

**Period of the study:** The study is performed for five years financial data, from 2019-20 to 2023-24.

**Tools and Techniques:** The tools and techniques used for the study are -

- Accounting tool: Ratio analysis
- Statistical Tools: Correlation Analysis

**Sample Design**

Sr. No.	Name of the Company
1	Seshayayee Paper & Board
2	Kuantum Papers
3	West Coast Paper
4	JK Paper
5	Pudumjee Paper

**Scope of the Study:** The study the profitability and capital structure and the association of capital structure with profitability of the selected paper companies is the functional scope of the study. Five paper companies listed on BSE are studied which makes it the geographical scope of this research work.

**Data Collection:** The study relies on secondary data collected from financial statements of paper companies in India. annual reports and disclosures available on company websites or financial databases. Financial information platforms such as Moneycontrol.

**Result and Analysis:** In this study, five variables are used to analyse the association of capital structure with profitability of the selected companies. Following are the variables used for the study:

Variables	Symbol	Formula
Debt-Equity ratio	D/E	Total Debt / Total Shareholder's Equity
Net Profit ratio	NPR	Net Profit / Net Sales*100
Return on Equity	ROE	Net Profit / Shareholders Funds*100
Return on Assets	ROA	Net Profit / Total Assets*100

**Debt to Equity Ratio**

Table 1.1

Debt-Equity Ratio					
Year	Seshayayee Paper & Board	Kuantum Papers	West Coast Paper	JK Paper	Pudumjee Paper
2019-20	1.42	1.86	1.85	2	1.84
2020-21	1.34	1.98	1.77	2.32	1.76
2021-22	1.33	2.02	1.55	2.34	1.74
2022-23	1.28	1.75	1.31	2.07	1.58
2023-24	1.26	1.68	1.28	1.74	1.45
Min	1.26	1.68	1.28	1.74	1.45
Max	1.42	2.02	1.85	2.34	1.84
Average	1.326	1.858	1.552	2.094	1.674

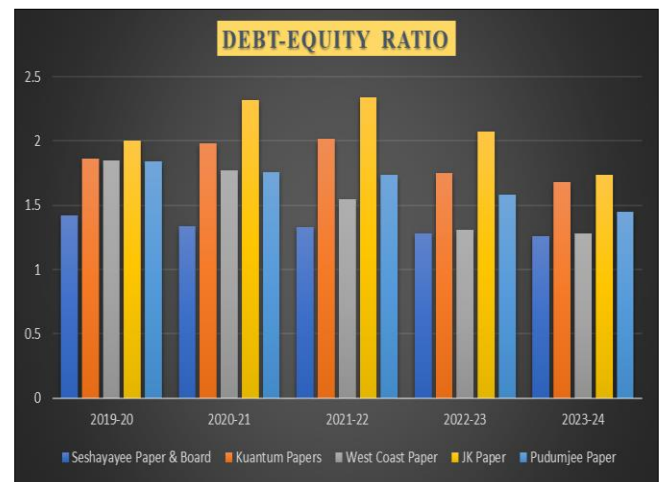


Fig 1

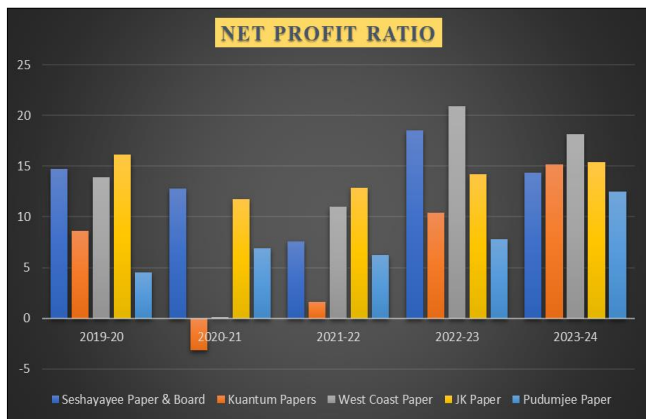
**Analysis**

The above table portrays the debt-equity ratio of selected paper companies of India. Seshayayee paper & board Ltd. reduced its financial leverage steadily from 1.42 in 2019-20 to 1.26 in 2023-24. This indicates a conservative financial approach, prioritizing equity over debt, which lowers financial risk. Kuantum Papers increased its financial leverage, reaching a peak of 2.02 in 2021-22. Afterward, it gradually reduced its debt, reaching 1.68 by 2023-24. West Coast Paper reduced its financial leverage from 1.85 in 2019-20 to 1.28 in 2023-24 JK Paper followed an aggressive financial strategy, reaching its peak D/E of 2.34 in 2021-22. The ratio dropped to 1.74 by 2023-24, signalling debt reduction efforts. Pudumjee Paper reduced its D/E ratio steadily from 1.84 in 2019-20 to 1.45 in 2023-24. This indicates a deleveraging strategy, potentially through debt repayment or higher retained earnings. JK Paper has the highest average D/E ratio (2.094), making it the most financially leveraged, indicating aggressive expansion strategies. Seshashayee Paper has the lowest average D/E ratio (1.326), reflecting a low-risk financial policy. West Coast Paper and Pudumjee Paper show steady deleveraging, reducing financial risk over time. Kuantum Papers displayed higher financial risk until 2021-22, but its recent decline in D/E indicates stabilization efforts.

**Net Profit Ratio**

**Table 2**

Net Profit Ratio					
Year	Seshayayee Paper & Board	Kuantum Papers	West Coast Paper	JK Paper	Pudumjee Paper
2019-20	14.74	8.63	13.94	16.13	4.5
2020-21	12.82	-3.15	0.14	11.75	6.87
2021-22	7.6	1.61	10.98	12.83	6.21
2022-23	18.56	10.39	20.89	14.2	7.82
2023-24	14.39	15.17	18.15	15.39	12.5
Min	7.6	-3.15	0.14	11.75	4.5
Max	18.56	15.17	20.89	16.13	12.5
Average	13.622	6.53	12.82	14.06	7.58



**Fig 2**

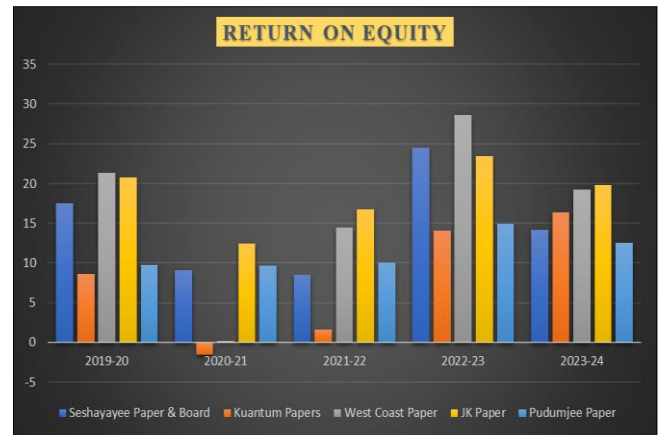
**Analysis**

Net Profit ratio of selected five paper companies is analysed from the above table for the period of five years from 2019-20 to 2023-24. West Coast Paper showed the most dramatic recovery, rising from 0.14% to 20.89%, achieving the highest profitability. JK Paper maintained consistent and high profitability throughout, with a stable NP ratio. Kuantum Papers experienced significant volatility, with a loss in 2020-21 but a remarkable comeback, ending with 15.17%. Seshashayee Paper & Board had steady profitability with minor fluctuations, maintaining above-average margins. Pudumjee Paper, despite starting with the lowest NP ratio, demonstrated gradual improvement and achieved respectable profitability by 2023-24.

**Return on Equity Ratio**

**Table 3**

Return on Equity					
Year	Seshayayee Paper & Board	Kuantum Papers	West Coast Paper	JK Paper	Pudumjee Paper
2019-20	17.48	8.63	21.33	20.8	9.72
2020-21	9.1	-1.55	0.15	12.39	9.67
2021-22	8.55	1.61	14.46	16.78	10.07
2022-23	24.52	14.08	28.63	23.45	14.96
2023-24	14.11	16.35	19.19	19.82	12.5
Min	8.55	-1.55	0.15	12.39	9.67
Max	24.52	16.35	28.63	23.45	14.96
Average	14.75	7.82	16.75	18.65	11.38



**Fig 3**

**Analysis:** The table displays the ROE (%) for five paper companies. Seshayayee Paper & Board showed fluctuating performance, with a significant dip in 2020-21 and 2021-22, followed by a strong recovery in 2022-23. The 2022-23 peak (24.52%) indicates an exceptionally profitable year. Kuantum Papers faced a negative ROE in 2020-21, indicating losses. However, it recovered well, with the highest ROE (16.35%) in 2023-24, showing improved profitability. West Coast Paper shows volatile performance. It had a near-zero ROE in 2020-21, indicating a weak or break-even year, but recovered with a strong peak in 2022-23. JK Paper maintains a stable and robust ROE throughout the years. Even during low-performing years, its ROE remains healthy, indicating consistent profitability. Pudumjee Paper shows modest but stable profitability. It does not experience extreme fluctuations, indicating consistent but moderate financial performance.

**Return on Assets Ratio**

**Table 4**

Return on Assets					
Year	Seshayayee Paper & Board	Kuantum Papers	West Coast Paper	JK Paper	Pudumjee Paper
2019-20	12.23	4.63	11.52	22.12	5.27
2020-21	6.79	-0.78	0.08	10.98	5.48
2021-22	6.4	0.8	9.35	14.45	5.78
2022-23	19.14	8.05	21.93	23.87	9.48
2023-24	11.19	9.73	15	17.68	13.73
Min	6.4	-0.78	0.08	10.98	5.27
Max	19.14	9.73	21.93	23.87	13.73
Average	11.15	4.486	11.576	17.82	7.948



**Fig 4**

**Analysis**

JK Paper showed highest average ROA (17.82%) indicating efficient use of assets to generate profits. Peak was at 23.87% in 2022-23, showcasing strong profitability. With consistent performance above 10% every year, making it the most reliable and efficient company in terms of asset utilization. Seshayayee Paper & Board had an average ROA: 11.15%, indicating steady profitability. Highest was in 2022-23 with 19.14%, showcasing a strong recovery. Weak performance was during 2020-21 and 2021-22, with ROA around 6.4%, indicating temporary struggles. In 2023-24, ROA slightly declined to 15%, but still relatively strong, showing sustained profitability. West Coast Paper had average ROA: 11.58%, indicating stable and effective asset utilization. It had significant recovery from 0.08% (2020-21) to 21.93% (2022-23), demonstrating a remarkable turnaround. Pudumjee Paper had average ROA of 7.95%, indicating moderate profitability. Also, gradual improvement from 5.27% (2019-20) to 13.73% (2023-24) showing a consistent upward trend was observed. This indicates enhanced efficiency in utilizing assets to generate profits over time Kuantum Papers had lowest Average ROA: 4.49% indicating poor and inconsistent asset utilization. Negative ROA was displayed in 2020-21 (-0.78%), reflecting losses. Gradual recovery was noted to 9.73% in 2023-24, but still the lowest performer among the companies. Significantly weaker performance compared to peers.

**Correlation Analysis**

**Table 5**

Variables	D/E	NP	ROE	ROA
D/E	1			
NP	-0.367	1		
ROE	-0.227	0.918	1	
ROA	-0.116	0.867	0.926	1

**Analysis:** The relationship between the independent variable and the several dependent variables employed in this study is displayed in the above table. It is evident from the preceding table that there is a negative correlation between capital structure and profitability. A negative correlation indicates that as the independent variable decreases, the dependent variables increase, and when the independent variable increases, the dependent variables drop. Therefore, certain profitability ratios improve when the debt-to-equity ratio decreases, while certain profitability ratios drop when the debt-to-equity ratio increases.

**Conclusion**

One of the main concerns in contemporary finance is the optimal capital structure. Every business seeks to reduce its different expenses in order to boost profitability. Many scholars have theorized that since debt is a less expensive source of capital, its overall cost would fall, increasing profitability. Nonetheless, the findings of the numerous empirical investigations conducted worldwide are incongruous. This study looked at the relationship between capital structure and profitability during a five-year period, from 2019–20 to 2023–24, in five chosen paper firms. The findings of this study indicate that there is a negative correlation between capital structure and profitability.

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