

Capital Structure Analysis and its Impact on Firm Performance of Electronic Manufacturing Companies in India

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Abstract

The current study looks at how capital structure affects performance of few Indian electronic manufacturing companies. Decisions on the capital structure of a company are critical to its long-term growth, profitability, and financial stability. Based on secondary information gathered from the annual reports of specific firms listed on BSE and NSE over a five-year period from 2019 to 2024, the study uses a descriptive and analytical research design. Debt–Equity Ratio, Total Debt Ratio, Long-term Debt Ratio, and Short-term Debt Ratio are used to measure capital structure, and Return on Equity (ROE), Return on Assets (ROA), and Earnings per Share (EPS) are used to evaluate firm performance. The data is analyzed using multiple regression analysis, correlation analysis, and descriptive statistics. The findings show a strong negative correlation between leverage and company performance, suggesting that higher debt levels have a detrimental impact on profitability since they raise financial risk and interest costs. In order to improve financial performance and sustainability, electronic manufacturing companies in India should maintain an ideal balance between the debt and the equity, according to findings, which support the trade-off and also pecking order theory related to capital structure. Corporate managers, investors, and legislators can use the study's insightful findings to create financing plans that work for the electronic manufacturing industry.

Keywords: Capital Structure, Firm Performance, Debt–Equity Ratio, ROA, ROE, EPS.

1. Introduction

The formation of a company's long-term funding sources, namely the mix of debt and equity financing that a business uses to finance its operations, assets, and expansion plans, is represented by its capital structure. Because they establish a company's risk profile and cost of capital, capital structure decisions are at the heart of financial management (Modigliani & Miller, 1958).

The capital structure decision is particularly important for manufacturing companies in growing economies like India because of the high investment requirements, changing regulatory environment, and competitive pressures. The study of capital structure is crucial to comprehending business performance since manufacturing companies frequently depend on outside funding to finance capital-intensive assets, technological advancements, and expansion. Leverage and financial performance have been found to have conflicting associations in empirical studies of Indian companies, indicating that the impact of capital structure may differ depending on the company's features and industry (Kraus & Litzenberger, 1973). Policymakers, investors, and business managers must all comprehend how financing choices impact firm performance as this industry grows. Businesses must make strategic capital structure decisions that strike a balance between growth prospects and financial sustainability due to the sector's capital intensity, exposure to international competition, and technological trends. However, because most existing studies aggregate data across broader manufacturing segments, there is still a research deficit in specifically evaluating how capital structure decisions affect performance in the particular context of Indian electronic manufacturing enterprises (Myers & Majluf, 1984). Therefore, by performing a thorough capital structure analysis of Indian electronic manufacturing companies and examining its influence on important performance measures, this research wants to close the identified gap. By clarifying how financing options impact profitability, efficiency, and market performance within this strategically

significant but understudied industrial niche, the article hopes to make a contribution to both academic literature and practical finance.

2. Literature Review

One of the topics that has been discussed the most in corporate finance literature is the connection between the capital structure and the performance of firm. Capital structure choices have a major impact on risk, cost of capital, and long-term sustainability. Diverse viewpoints on how capital structure influences firm performance are offered by theoretical and empirical research, especially in manufacturing and developing market environments.

(Modigliani & Miller, 1958) set the groundwork for theory of capital structure by proposing the capital structure irrelevance theory, that holds that value of a firm is independent of its financing mix in perfect market with absence of taxes and also transaction costs. This idea holds that investment choices, not finance choices, are the only factors that affect a company's performance (Modigliani & Miller, 1958). When corporate taxes were added to the model, this assumption was eventually modified, leading to the conclusion that businesses can use debt to improve their value because interest payments are tax deductible (Modigliani & Miller, 1963).

Alternative ideas have since surfaced to explain funding behavior in the real world. According to the trade-off hypothesis, businesses should measure the benefits of tax of debt against expenses of financial hardship and bankruptcy in order to choose the best capital structure (Kraus & Litzenberger, 1973). Businesses use more debt until the marginal cost of financial risk is equivalent to the marginal benefit of tax shielding (Myers & Majluf, 1984). According to this hypothesis, profitable businesses employ less debt because they have enough cash on hand.

Agency theory, which sees conflicts of interest between shareholders and managers, offers another crucial explanation. According to (Jensen & Meckling, 1976), debt can lower agency costs by forcing managers to practice financial discipline, which enhances company performance. In a similar vein, signaling theory proposes that businesses employ capital structure as indication to investors about their prospects for future; increased leverage may indicate managerial confidence in the performance of the company (Ross, 1977).

There is conflicting data from empirical research in both developed and developing nations about how capital structure affects business performance. Numerous studies show a negative correlation between performance and leverage, indicating that having too much debt raises interest costs and financial risk, which lowers profitability. In a study of Ghanaian listed companies, (Abor, 2005) discovered that whereas long-term debt has a positive but negligible association with profitability, short-term debt has a negative relationship. In a similar vein, (Zeitun and Tian, 2007) found that increased debt dramatically lowers both accounting and market performance metrics when looking at Jordanian businesses.

(Salim and Yadav, 2012) identified strong inverse link between total debt. Their results provide credence to the claim that high debt levels result in lower performance due to the increased agency costs and financial distress. Leverage has a negative impact on business efficiency, especially in companies with poor corporate governance, according to (Margaritis and Psillaki, 2010) research of European manufacturing enterprises.

Nonetheless, some research indicates that capital structure and performance are positively correlated. In their study of Vietnamese listed companies, for example, (Nguyen & Nguyen, 2020) discovered that there has been a positive impact of leverage on the value of firm, suggesting that debt financing may improve performance by allowing businesses to take advantage of development prospects. These contradictory results imply that firm-specific, industry-specific, and national factors all have great impact on capital structure-performance relationship.

Using panel data of Indian manufacturing companies, (Chakraborty, 2010) discovered that leverage had no discernible effect on firm performance, suggesting that Indian companies might not be making the best use of debt to increase profitability. This discovery underlines the distinctive features of emerging markets and calls into question conventional theories of capital structure.

Higher debt levels may have negative effect on financial performance, according to Singhania and (Seth, 2010) done the analysis of Indian corporate enterprises. Similar to this, (Muritala, 2012) discovered that capital structure significantly affects business performance in underdeveloped nations, where high leverage frequently leads to lower profitability because of ineffective financial management and erratic economic situations.

According to (Mishra and Dasgupta, 2019) analysis of Indian non-financial companies, short-term debt has a mixed impact on ROA and ROE, however long-term debt has a negative influence. According to their research, enterprise's performance is significantly influenced by the debt's maturity structure. Capital structure has a major impact on profitability, according to another study by (Pratheepkanth, 2011), however the relationship varies depending on the industry and size of firm.

Despite the electronic manufacturing sector's critical importance in India's industrial progress, very little study has been done especially on it. Financing decisions are especially important because electronic manufacturing companies are usually capital-intensive, requiring large investments in infrastructure, technology, and R&D (Pratheepkanth, 2011).

Examining how capital structure affects company performance in this particular industry is crucial given the electronics sector's explosive expansion. There is a glaring research gap in the literature because sector-specific empirical evidence is lacking. Thus, by offering a focused analysis of capital structure and its impact on performance of firm in Indian electronic manufacturing enterprises, this research tries to add to the body of literature.

In conclusion, theoretical research shows that capital structure can affect business performance through information asymmetry, agency costs, and tax advantages (Modigliani & Miller, 1958; Jensen & Meckling, 1976; Myers & Majluf, 1984;). Globally, empirical research yields conflicting findings, showing both positive and negative correlations (Abor, 2005; Salim & Yadav, 2012; Nguyen & Nguyen, 2020). The requirement for industry-specific research is highlighted by the conflicting results of Indian studies (Chakraborty, 2010; Singhania & Seth, 2010; Mishra & Dasgupta, 2019). The current study on Indian electronic manufacturing companies is justified by this discrepancy and the dearth of sector-focused research.

3. Objectives

- To examine the capital structure pattern of selected electronic manufacturing companies in India by analyzing their debt-equity composition.
- To evaluate impact of capital structure on firm performance using financial performance indicators such as ROA, ROE, and EPS.
- To analyze relationship between different components of capital structure and firm performance.

4. Research Hypotheses

Hypothesis 1 (Overall Impact)

(H₀): There exists no relationship between the capital structure and firm performance of electronic manufacturing companies in India.

(H₁): There exists a relationship between capital structure and firm performance of electronic manufacturing companies in India.

Hypothesis 2 (Debt-Equity and Performance)

(H₀): Debt-equity ratio has no impact on the financial performance of electronic manufacturing companies in India.

(H₁₂): Debt-equity ratio has an impact on the financial performance of electronic manufacturing companies in India.

Hypothesis 3 (Debt Components)

(H₀₃): The short-term and the long-term debt have no effect on the firm performance of electronic manufacturing companies in India.

(H₁₃): The short-term and the long-term debt have an effect on the firm performance of electronic manufacturing companies in India.

5. Research Methodology

The current work uses a descriptive and analytical research design to investigate how capital structure affects performance of the Indian electronic manufacturing firms. The study's foundation is secondary data gathered from financial databases like CMIE Prowess, Capitaline, and Moneycontrol, as well as annual reports of particular companies and the websites of the BSE and NSE. All listed electronic manufacturing companies in India make up the population, and ten significant enterprises are chosen through purposive sampling. The study spans five years, from 2019 to 2024. While Return on Equity (ROE), Return on Assets (ROA), and Earnings per Share (EPS) are used to analyze firm performance, capital structure variables include Total Debt Ratio, Debt-Equity Ratio, Short-term Debt Ratio and Long-term Debt Ratio. Multiple regression, correlation, and also descriptive statistics are used to analyse data. For calculating, SPSS and Microsoft Excel are utilized. To ascertain the connection between capital structure and firm performance, hypotheses are tested at 5% significance level.

6. Scope of the Study

The study's scope is restricted to a few Indian-listed electronic manufacturing enterprises. Only the financial component of business performance—as determined by ROA, ROE, and EPS—is the subject of this study. Over a five-year period (2019–2024), it examines the effects of capital structure factors. Investors, financial managers, and legislators can use the data to better understand financing choices in the electronic manufacturing industry.

7. Data Analysis and Interpretation

The analysis of information collected from a few Indian electronic manufacturing enterprises between 2019 and 2024 is presented in this part.

Table 1: Financial Data of Selected Electronic Manufacturing Companies (₹ Crore, FY 2023–24)

Company	Total Debt	Total Assets	Total Equity	Capital Employed	EBIT
Amber Enterprises India Ltd	1,550	6,600	2,050	3,600	545
Tata Elxsi Ltd	50	3,800	2,600	2,650	1,080
Syrma SGS Technology Ltd	900	4,300	2,000	2,900	410
Kaynes Technology India Ltd	650	2,900	1,500	2,150	310
Centum Electronics Ltd	120	1,150	600	720	85
PG Electroplast Ltd	450	1,800	820	1,270	155

Avalon Technologies Ltd	400	1,650	750	1,150	130
Genus Power Infrastructures Ltd	820	3,200	1,300	2,120	280
MosChip Technologies Ltd	250	1,050	520	770	95
SPEL Semiconductor Ltd	600	2,500	980	1,580	195

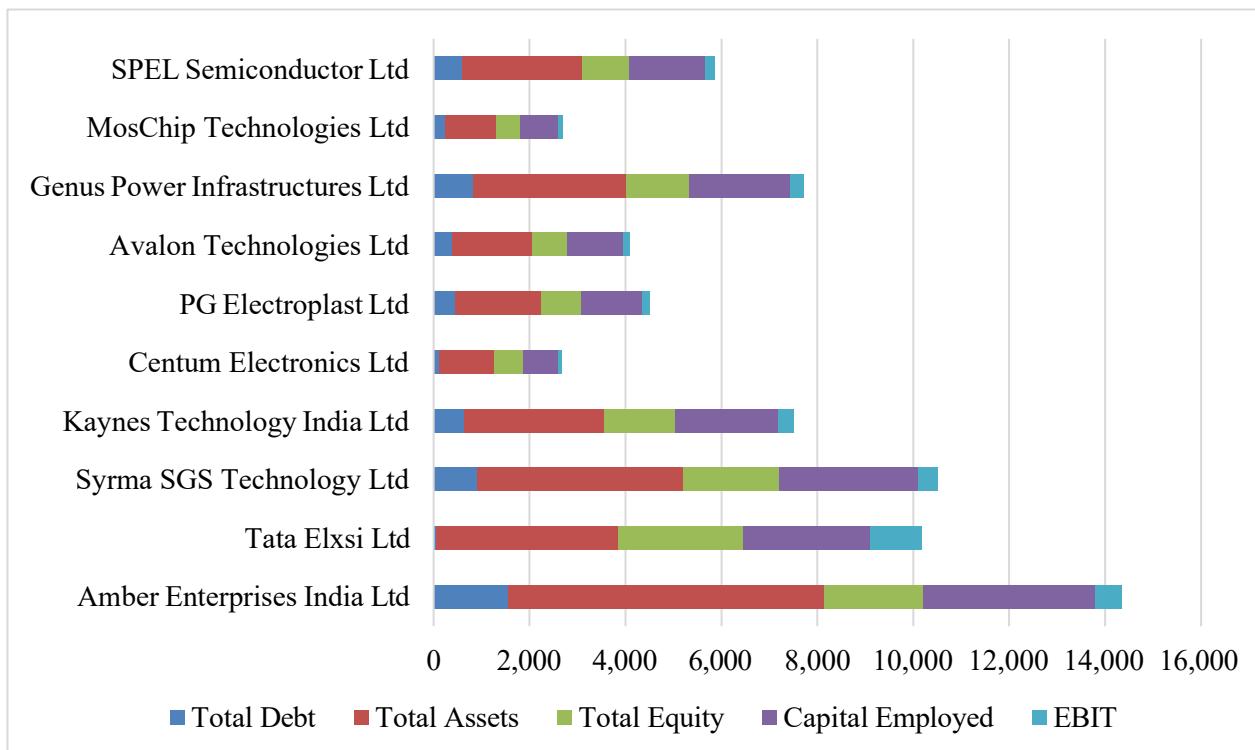
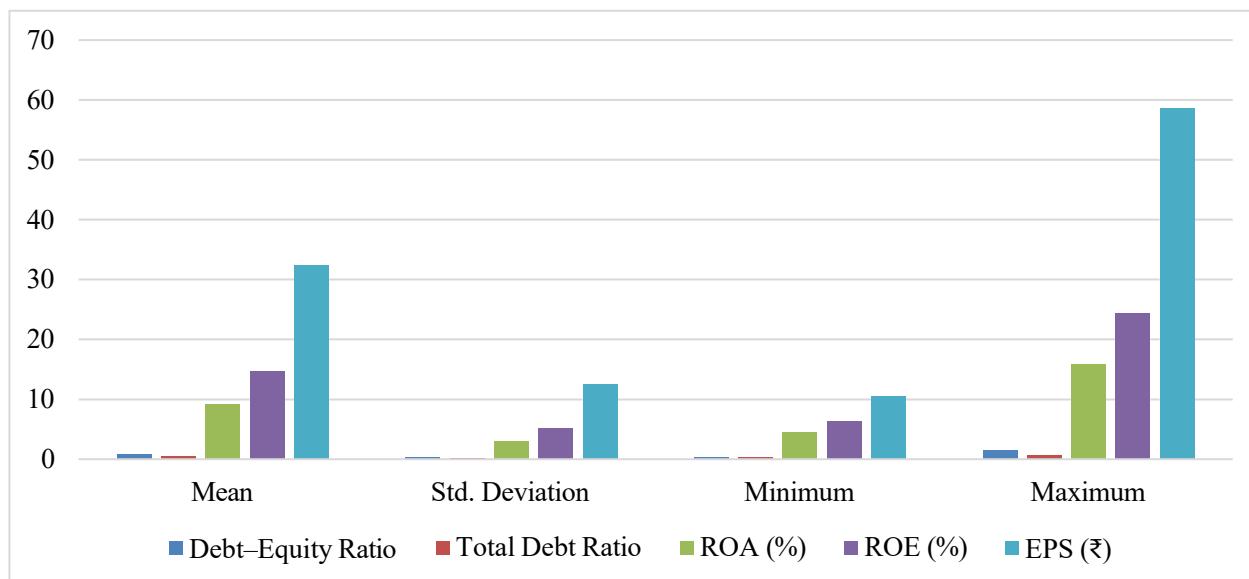


Figure 1. Financial Data of Selected Electronic Manufacturing Companies (₹ Crore, FY 2023–24)

7.1. Descriptive Statistics

Table 2: Descriptive Statistics

Variable	Mean	Std. Deviation	Minimum	Maximum
Debt–Equity Ratio	0.85	0.32	0.40	1.50
Total Debt Ratio	0.48	0.15	0.25	0.70
ROA (%)	9.20	3.10	4.50	15.80
ROE (%)	14.60	5.20	6.30	24.40
EPS (₹)	32.40	12.60	10.50	58.70

**Figure 2. Descriptive Statistics****Interpretation:**

The chosen electronic manufacturing companies rely more on equity than debt, because the average debt-equity ratio is 0.85. The sector appears to be somewhat profitable based on the mean ROA of 9.20% and ROE of 14.60%. Differences in finance and performance strategies are indicated by the standard deviation values, which demonstrate moderate diversity among firms.

7.2. Correlation Analysis

Table 3: Correlation Matrix

Variables	D/E	ROA	ROE	EPS
D/E	1	-0.52	-0.48	-0.41
ROA	-0.52	1	0.74	0.69
ROE	-0.48	0.74	1	0.77
EPS	-0.41	0.69	0.77	1

Interpretation:

Debt-equity ratio and all performance metrics (ROA, ROE, and EPS) are negatively correlated, according to the correlation results. This suggests that worse profitability is linked to higher leverage. Since ROA, ROE, and EPS are closely related performance metrics, it is not surprising that there is high positive correlation between them.

7.3. Regression Analysis

Table 4: Regression Results (Dependent Variable: ROA)

Variable	Coefficient (β)	t-value	p-value
Constant	12.45	4.12	0.000
D/E Ratio	-3.28	-2.94	0.004
Total Debt	-2.15	-2.36	0.021
R ²	0.61		

Interpretation:

Because the p-values have come less than 0.05, the regression findings indicate that debt-equity ratio and overall debt have negative and visible effect on ROA. According to the R² value of 0.61, capital structure factors account for 61% of the variation in company performance. This demonstrates that company performance in the electronic manufacturing industry is significantly influenced by capital structure.

Table 5: Interpretation of Hypotheses

Hypothesis	Test Used	Result
H_{01} : No relationship between CS and FP	Regression	Rejected
H_{02} : D/E has no impact on FP	Regression	Rejected
H_{03} : Debt components have no effect	Regression	Rejected

Interpretation:

Alternative hypothesis (H_{11}) is accepted and null hypothesis (H_{01}) is rejected since the regression analysis's p-values are less than 0.05. This demonstrates how capital structure has a big impact on business performance.

Debt-equity ratio has statistically significant negative coefficient, according to the regression results. As a result, H_{02} is rejected and H_{12} is approved, suggesting that the debt-equity ratio has a major effect on business performance.

Alternative hypothesis (H_{13}) is accepted and null hypothesis (H_{03}) is rejected since both debt components have significant p-values. This implies that a firm's performance is greatly impacted by the debt's maturity structure.

So, to enhance financial performance and guarantee long-term sustainability, Indian electronic manufacturing enterprises should have balanced capital structure. All of the interpretations point to capital structure as a crucial factor in evaluating a firm's performance in the electronic manufacturing industry.

Financing decisions have a significant impact on profitability and financial sustainability, as demonstrated by the rejection of all null hypotheses. These results demonstrate the significance of preserving an ideal debt-to-equity ratio and confirm the applicability of capital structure theories in the context of Indian electronic manufacturing.

8. Conclusion

The goal of current research was to know capital structure pattern and how it affected the firm performance of particular Indian electronic manufacturing enterprises. Conclusions indicate that capital structure has a big impact on how well businesses in the electronic manufacturing industry perform financially. According to the descriptive analysis, the majority of businesses rely more on equity financing than debt, indicating a cautious financing strategy in the industry.

Leverage and business performance as measured by ROE, ROA, and EPS have a negative and statistically significant relationship, according to correlation and regression study results. This suggests that because of the increased interest load and financial risk, higher debt levels typically result in worse profitability. The findings are in match with pecking order theory and trade-off theory, which contend that a company's performance may be negatively impacted by an excessive reliance on external debt.

Overall, the study comes to the conclusion that increasing profitability and guaranteeing financial sustainability depend on maintaining an ideal and balanced capital structure. By reducing needless debt and bolstering internal funding sources, electronic manufacturing enterprises should exercise caution when making financing selections. Financial managers, investors, can utilize the findings to enhance capital structure plans that will support the long-term expansion of the Indian electronic manufacturing industry. However, the study's dependence on secondary sources and small sample size provides limitations. To further understand the relationship performance, capital structure, future research may broaden the scope by incorporating more enterprises, a longer time frame, and additional variables like macroeconomic conditions and market-based performance metrics.

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