

Impact of Capital Structure on Profitability of Listed Companies on NSE and BSE

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ABSTRACT: This study investigates the impact of capital structure on the profitability of 20 Nifty 50 companies listed on the NSE and BSE of India, spanning seven sectors including Information Technology, Banking, Automobiles, Metals and Mining, Pharmaceuticals, FMCG, and Infrastructure, over five financial years (FY2020–FY2024). The Debt-to-Equity (D/E) ratio serves as the capital structure proxy, while Return on Equity (ROE), Return on Assets (ROA), and Net Profit Margin (NPM) measure profitability. Employing descriptive statistics, trend analysis, scatter plots, and Pearson correlation on exclusively secondary data from published annual reports and NSE/BSE regulatory filings, the study reveals a moderate negative relationship between leverage and profitability in non-financial corporate sectors (D/E-ROE: -0.42; D/E-ROA: -0.38). Zero-leverage IT and FMCG companies consistently deliver superior profitability, while high-leverage metals and banking firms exhibit cyclical and structural constraints respectively. The findings support the Pecking Order Theory and carry important implications for corporate finance practitioners, equity analysts, and policymakers

KEYWORDS: Capital Structure, Debt-to-Equity Ratio, Profitability, ROE, ROA, NPM, NSE, BSE, Nifty 50, Pecking Order Theory, Trade-off Theory, Indian Listed Companies.

I. INTRODUCTION

Capital structure the proportion of debt and equity used to finance a firm's assets — is among the most consequential decisions in corporate financial management. Debt offers a tax shield but creates financial risk through fixed obligations; equity provides flexibility but at a higher cost. The optimal mix varies by sector, business model, and macroeconomic context.

India's listed corporate sector offers a rich laboratory for studying this relationship. The NSE and BSE collectively list over 5,000 companies across dozens of sectors, spanning the full spectrum from zero-leverage IT majors (TCS, Infosys) to structurally high-leverage banks (SBI D/E: 8.70). This study focuses on 20 Nifty 50 companies across seven sectors, covering FY2020–FY2024 — an analytically rich period encompassing the COVID-19 disruption, a commodity supercycle, and subsequent normalisation.

The research bridges key theoretical tensions: the Modigliani-Miller irrelevance proposition (1958), the Tax-adjusted MM framework (1963), the Trade-off Theory balancing tax benefits against distress costs, the Pecking Order Theory predicting a negative leverage-profitability link, and Agency Theory's debt-discipline argument.

II. LITERATURE REVIEW

Modigliani and Miller (1958) established that in perfect capital markets, firm value is independent of capital structure; their 1963 revision introduced the interest tax shield, providing the foundational case for debt financing. Kraus and Litzenberger (1973) formalised the Trade-off Theory, where firms balance tax benefits of debt against financial distress costs, implying sector-specific optimal leverage. Myers and Majluf (1984) proposed the Pecking Order Theory — information asymmetry drives firms to prefer internal financing, predicting a negative leverage-profitability

relationship. Jensen (1986) added the agency perspective: moderate debt disciplines managers and reduces free cash flow waste.

Indian empirical literature broadly supports the negative leverage-profitability relationship. Singh and Bagga (2019), studying Nifty 50 companies over 2008–2017, found significant capital structure effects on ROA and ROE. Chaklader and Chawla (2016) documented a negative profitability-leverage link across NSE CNX 500 companies, consistent with Pecking Order Theory. Jain and Gupta (2020) confirmed negative relationships between long-term debt ratios and ROA across BSE 100 companies. Kavya and Nagasubba Reddy (2024) found a significant negative D/E–ROE relationship among NSE-listed agricultural companies during FY2020–FY2024. International evidence from Ebaid (2009, Egypt) and Sorana (2015, Romania) corroborates these findings across non-banking corporate sectors. A consistent research gap is the limited cross-sectoral, post-COVID comparative analysis using exclusively authenticated secondary data — a gap this study addresses.

III. RESEARCH METHODOLOGY

3.1 Sample and Data

The sample comprises 20 companies from the Nifty 50 index, purposively selected for sectoral diversity and data availability across all five years (FY2020–FY2024), generating a panel of 100 firm-year observations. All data is sourced exclusively from audited annual reports and NSE/BSE regulatory filings — no primary surveys are used.

Sector	Companies
Information Technology	TCS, Infosys, Wipro, HCL Technologies
Banking	HDFC Bank, ICICI Bank, State Bank of India (SBI)
Automobiles	Maruti Suzuki, Tata Motors
Metals & Mining	Tata Steel, Hindalco, JSW Steel
Pharmaceuticals	Sun Pharma, Dr. Reddy's Laboratories
FMCG	ITC, Nestle India
Infrastructure / NBFC	Larsen & Toubro, Bajaj Finance, Adani Ports

3.2 Variables

Independent Variable: Debt-to-Equity Ratio (D/E) = Total Debt / Total Shareholders' Equity.

Dependent Variables: Return on Equity (ROE), Return on Assets (ROA), and Net Profit Margin (NPM) — all expressed as percentages.

3.3 Hypotheses

- H1: Significant negative relationship between D/E and ROE
- H2: Significant negative relationship between D/E and ROA
- H3: Significant variation in D/E ratios across industry sectors
- H4: IT sector companies demonstrate superior and more stable profitability compared to high-leverage sectors

3.4 Methods

Analysis employs descriptive statistics (mean, SD, min, max), five-year trend analysis, scatter plot visualisation, and Pearson correlation. The study is quantitative, analytical, and longitudinal, using cross-sectional and time-series perspectives.

IV. DATA ANALYSIS AND KEY FINDINGS

4.1 Descriptive Statistics (FY2024)

Variable	Mean	Std Dev	Min	Max
D/E Ratio	2.14	2.86	0.00 (TCS, Infosys, ITC)	8.70 (SBI)
ROE (%)	26.3	28.4	9.8 (Tata Steel)	131.2 (Nestle)
ROA (%)	15.4	17.8	1.2 (SBI)	68.2 (Nestle)
NPM (%)	19.8	9.6	6.2 (Hindalco)	34.2 (Adani Ports)

High standard deviations reflect deliberate sample heterogeneity capturing the full spectrum of Indian corporate capital structure and profitability.

4.2 Sectoral Capital Structure Patterns

Sector-wise average D/E ratios reveal dramatic structural variation. Banking (avg. ~6.4) and NBFC (4.40) sectors exhibit institutionally embedded high leverage. Metals & Mining (avg. ~1.07) shows the highest non-financial leverage, reflecting capital-intensive operations. IT (avg. ~0.02) and FMCG (avg. ~0.01) cluster at zero — confirming that India's most profitable sectors are entirely self-financing. This variation confirms H3 and underpins the leverage-profitability analysis.

Sector	Avg (FY2024)	D/E	Avg ROE (%) (FY2024)	Capital Structure Norm
IT	~0.02	~37%		Zero leverage; internal financing
FMCG	~0.01	>80%*		Zero leverage; brand-driven margins
Pharmaceuticals	~0.10	~26%		Low leverage; R&D-funded growth
Automobiles	~1.55	~15%		Moderate; capex-intensive
Metals & Mining	~1.07	~11%		Moderate; commodity-cycle driven
Infrastructure/NBFC	~2.73	~17%		High; project & intermediation debt
Banking	~6.40	~19%		Structurally high; Basel III governed

* Elevated by Nestle India's extraordinary ROE of 131.2%

4.3 Leverage-Profitability Relationship

The Pearson correlation matrix confirms a moderate negative relationship between D/E and profitability for non-financial companies:

Correlation Pair	Coefficient	Hypothesis	Outcome
D/E vs ROE	-0.42	H1	H1 Alternate Supported
D/E vs ROA	-0.38	H2	H2 Alternate Supported
D/E vs NPM	-0.31	—	Moderate negative
ROE vs ROA	+0.78	—	Strong internal consistency
ROA vs NPM	+0.82	—	Strong internal consistency

The negative D/E-ROA correlation is particularly significant because ROA is leverage-unaffected, confirming that companies with higher leverage generate genuinely lower asset productivity — not just an artefact of the equity

denominator in ROE. Strong positive correlations among all three profitability measures validate the multi-metric approach.

4.4 IT and FMCG: The Zero-Leverage Profitability Benchmark (H4)

TCS's ROE rose from 37.2% (FY2020) to 52.9% (FY2024) with D/E = 0.00 throughout. Nestle India's ROE exceeded 100% at D/E < 0.05, ROA at 68.2% — the highest in the sample by far. Infosys, ITC, and Dr. Reddy's similarly demonstrate high and rising profitability with minimal leverage. These benchmark cases powerfully support H4 and the Pecking Order Theory: the most profitable Indian listed companies have no need for external debt.

4.5 High-Leverage Cases: Amplification and Cyclicity

Tata Motors's D/E of 4.80 corresponded to ROE of -46.2% in FY2021, recovering to 22.6% at D/E 2.40 in FY2024 — illustrating that leverage symmetrically amplifies both profits and losses. Tata Steel's dramatic swing (ROE 4.2% in FY2020 → 36.4% at the FY2022 supercycle peak → 9.8% in FY2024, with D/E declining from 2.10 to 0.90) demonstrates that commodity-cycle-driven profitability and deliberate deleveraging can coexist. Banking sector ROEs of 18–20% at D/E ratios of 5–10 remain structurally below zero-leverage TCS (52.9%), questioning whether banking leverage generates commensurate shareholder returns relative to structural complexity and risk.

4.6 Post-COVID Deleveraging Trend

A systematic deleveraging pattern emerged post-FY2020: Reliance Industries (0.79 → 0.41), Tata Steel (2.10 → 0.90), Hindalco (1.40 → 0.75), and Tata Motors (4.80 → 2.40). In each case, D/E reduction was associated with improving or stabilising profitability metrics, consistent with both Pecking Order and Trade-off Theory predictions.

V. DISCUSSION

5.1 Theoretical Interpretation

The Pecking Order Theory receives strongest empirical support. Profitable IT and FMCG companies self-finance entirely, accumulating no external debt — precisely as Myers and Majluf (1984) predicted. The negative leverage-profitability correlations (-0.38 to -0.42) are consistent with the broader Indian literature (Singh & Bagga, 2019; Chaklader & Chawla, 2016). The Trade-off Theory receives partial support: IT and FMCG companies' near-zero leverage may reflect insufficient tax shield benefits relative to Pecking Order preferences, while metals companies' higher historical leverage fits the theory's asset-tangibility prediction. Agency Theory gains contextual validation from the Tata Motors and Tata Steel turnarounds, where debt-service obligations may have disciplined operational efficiency improvements.

5.2 Sector vs. Capital Structure as Profitability Determinants

The contrast between Nestle (ROA 68.2%) and L&T (ROA 6.2%) illustrates that sector-structural factors — asset intensity, pricing power, competitive dynamics — dwarf the contribution of capital structure choices to profitability outcomes. Capital structure is most consequential in highly cyclical sectors (metals, automobiles) where leverage amplification can transform operating profit swings into catastrophic or windfall equity returns.

VI. MANAGERIAL AND POLICY IMPLICATIONS

6.1 For Corporate Finance Managers

Conservative to moderate leverage is empirically associated with superior and more stable profitability in Indian non-financial listed companies. High-leverage IT, FMCG, and Pharma companies should resist adding debt to amplify short-term returns — their capital efficiency already exceeds leveraged peers through the cycle. Metals and Infrastructure companies should view post-COVID deleveraging as validated strategy, with D/E below 1.0 improving profitability stability.

6.2 For Equity Analysts and Investors

Low D/E companies in high-profitability sectors warrant premium valuations reflecting superior capital efficiency. High-leverage cyclical sector companies require explicit downside scenario modelling. The study's sector-wise benchmarks — IT D/E ~0.02, Metals ~1.07, Banking ~6.4 — provide reference points for leverage appropriateness assessments in equity valuation.

6.3 For Policymakers

Banking sector leverage generating ROEs only modestly above zero-leverage non-financials supports continued Basel III capital adequacy implementation. For the non-banking corporate sector, evidence on post-COVID deleveraging improving financial health supports policies incentivising conservative balance sheets.

VII. LIMITATIONS AND FUTURE RESEARCH

The sample of 20 Nifty 50 companies may not generalise to smaller-cap segments. Descriptive correlation analysis does not establish causality or control for unobserved firm-level heterogeneity as panel econometrics would. The D/E ratio does not capture debt maturity, security type, or covenant complexity. The study period includes extraordinary disruptions (COVID, commodity supercycle) that may distort longer-run relationships. Future research should employ Fixed Effects or Random Effects panel regression on Nifty 500 companies over 10 years (FY2015–FY2025), incorporate debt maturity structure and covenant variables, examine governance dimensions (family-owned vs. professionally managed firms), and model sector-specific optimal D/E ratios using Trade-off Theory frameworks.

VIII. CONCLUSION

This study examined whether companies that use more debt perform better or worse financially, using secondary data from 20 Nifty 50 companies across seven sectors over FY2020–FY2024. The evidence is clear: in the Indian non-financial corporate sector, lower leverage is consistently associated with higher and more stable profitability. India's highest-performing listed companies (TCS, Infosys, Nestle, ITC, Sun Pharma, Dr. Reddy's) maintain near-zero leverage and consistently deliver the best ROE, ROA, and NPM in the sample. Pecking Order Theory provides the most coherent account of this pattern, while the post-COVID deleveraging trend across metals and industrial companies reinforces the finding that balance sheet conservatism and profitability improvement are complementary strategic goals. The optimal capital structure for most Indian listed companies outside the financial sector is conservative to moderate leverage, with a strong preference for internal financing. This finding has actionable implications for corporate boards, equity investors, and financial regulators seeking to understand and improve capital efficiency in India's growing listed company universe.

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