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Capital structure analysis of service industries in India: A multi-dimensional empirical study of determinants and theoretical alignments

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Abstract

This study provides an exhaustive empirical analysis of the capital structure dynamics within the Indian service industry, which has emerged as the primary engine of national growth, contributing approximately 55.3% to the Gross Value Added (GVA) in the 2024-25 fiscal year. The research investigates the applicability of the Modigliani-Miller Theorem, Trade-off Theory, and Pecking Order Theory across heterogeneous sub-sectors, including Information Technology (IT), Telecommunications, and Healthcare. By analyzing longitudinal data from 2012 to 2025, the study identifies that high-profitability, low-tangibility sectors like IT strictly adhere to the Pecking Order Theory, maintaining near-zero debt levels to minimize cost of capital and avoid signaling risks. In contrast, infrastructure-heavy sectors demonstrate an alignment with the Trade-off Theory, balancing tax shields against the risks of financial distress. The study further examines the moderating role of Indian Accounting Standards (Ind AS) adoption, finding that while it has improved transparency, it has paradoxically intensified market risk-aversion toward leveraged firms. The research concludes with strategic recommendations aimed at deepening India's corporate bond market and leveraging digital infrastructure to optimize financing for service-oriented enterprises.

Keywords: Capital structure, service industry, pecking order theory, trade-off theory, financial performance, Ind As, leverage determinants

Introduction

The architectural design of a corporation's capital structure-the mixture of debt and equity used to finance growth-is a cornerstone of strategic financial management. For the Indian economy, the service sector has undergone a unique structural transformation, leapfrogging the traditional development path to become the "Old War Horse" of national growth ^[1]. As of 2025, the services sector's contribution to India's Gross Value Added (GVA) has risen to approximately 55.3%, with a post-pandemic growth rate averaging 8.3% ^[1].

Understanding how these firms finance their activities is paramount because service-oriented companies differ fundamentally from traditional manufacturing. They are characterized by high human capital intensity, reliance on intangible intellectual property, and often, lower requirements for physical collateral. These characteristics challenge conventional theories that emphasize tangible assets as collateral for securing debt ^[8]. This report aims to provide a comprehensive analysis of the financing patterns of major sub-sectors-including IT, Healthcare, and Telecommunications-to identify whether they are moving toward an optimal structure or remain restricted by market imperfections like a bank-dependent financial system and an underdeveloped corporate bond market ^[4].

Literature Survey

The theoretical foundation of capital structure research begins with the irrelevance propositions of Modigliani and Miller, who posited that in a frictionless market, a firm's value is independent of its financing mix ^[10]. However, real-world frictions like taxes and bankruptcy costs have given rise to the Trade-off Theory, which suggests firms balance the tax advantages of debt against potential financial distress ^[12]. In the Indian service sector, the Trade-off Theory is often visible in capital-intensive areas like Telecommunications, where massive investments in 5G networks require long-term debt.

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Conversely, the Pecking Order Theory, which argues that firms prioritize internal retentions over external debt to minimize costs of asymmetric information, is strongly supported by the Indian IT sector [2]. Profitable firms like TCS and Infosys generate such high internal cash flows that they rarely access external debt markets [15].

Recent academic inquiry has shifted toward the impact of regulatory reforms. The adoption of Indian Accounting Standards (Ind AS) has improved accounting quality and transparency but has also been found to weaken the positive relationship between leverage and performance [4]. This "transparency paradox" suggests that risk-averse Indian investors, provided with clearer visibility into fair-value liabilities, have become more cautious about highly leveraged firms [4].

Research Gap

Despite extensive general research, a significant gap exists regarding the "servicification" of the Indian industrial landscape. Most studies treat the service sector as a monolithic entity, ignoring the fundamental differences in financing needs between software providers and hospital chains.¹⁷ Furthermore, the role of "intangible assets"-such as human capital and proprietary algorithms-is undervalued in traditional debt-capacity models applied to India. There is also a lack of research on how Digital Public Infrastructure (DPI) is reducing information asymmetries for service-oriented small businesses, which currently face a substantial credit gap estimated at ₹30 lakh crore [19].

Objectives

1. To evaluate the macroeconomic contribution and structural evolution of the Indian service sector through 2025.
2. To analyze the determinants of capital structure for major service sub-sectors, testing the validity of classical theories in a modern regulatory environment.
3. To examine the relationship between financial leverage and firm performance across the IT and Telecommunications industries.
4. To assess the impact of regulatory shifts, specifically the transition to Ind AS, on corporate financing decisions.
5. To identify challenges and opportunities presented by digital transformation for the financing of service-oriented enterprises.

Methodology

This study utilizes a longitudinal empirical analysis of listed firms and aggregate sectoral data from 2012 to 2025 [17]. Primary data is sourced from the CMIE Prowess database, annual reports of leading service companies, and official government publications [1].

The study employs statistical analysis to capture the cross-sectional and temporal dimensions of the data while controlling for firm-specific characteristics. To address potential issues where past performance might influence current capital structure decisions, the study utilizes an advanced analytical framework that accounts for the persistent nature of profitability. Key variables measured include various leverage ratios (debt-to-equity, debt-to-assets) and performance metrics such as Return on Assets (ROA) and Return on Equity (ROE). Determinants analyzed include firm size, asset tangibility, revenue growth, and

liquidity.

Findings

Sub-Sectoral Divergence

The analysis reveals a clear sectoral split in how Indian service firms approach financing, dictated largely by the nature of their underlying assets.

- **IT Industry (The Cash-Rich Model):** Leading IT firms like TCS and Infosys exhibit near-zero debt-to-equity ratios [3]. For instance, TCS reported an interest coverage ratio of 83.1x in 2025, emphasizing its massive reliance on internal cash flows [3]. In these firms, high profitability and low tangibility lead to a strict adherence to the Pecking Order hierarchy [2].
- **Telecommunications (The Leveraged Infrastructure Model):** Telecom firms utilize significant leverage to fund high-cost spectrum and infrastructure. Bharti Airtel maintains a Net Debt to EBITDA ratio of approximately 2.59x, aligning with the Trade-off Theory as it balances expansion with the tax-shield benefits of debt [20].
- **Healthcare (The Transitioning Model):** Healthcare providers are increasingly moving toward institutional hospital chains, utilizing a hybrid model of private equity and debt to fund rapid expansion into smaller cities [21].

Key Determinants of Capital Structure

The research identifies several consistent factors influencing debt decisions:

1. **Profitability:** Shows a strong negative relationship with leverage, as firms with high earnings prefer to re-invest internal funds.
2. **Size:** Generally exhibits a positive relationship with debt capacity, as larger firms have lower bankruptcy risks and better access to formal credit.
3. **Tangibility:** Positive in capital-heavy sectors like Telecom but negligible in the IT sector where value is driven by intangibles.
4. **Liquidity:** Firms with high cash reserves treat their liquidity as a buffer, leading to lower external debt requirements.

Regulatory and Pandemic Shifts

The transition to Ind AS has improved financial transparency, leading to a "Transparency Paradox" where better information has made investors more risk-sensitive regarding corporate debt [4]. Additionally, the COVID-19 pandemic induced a "cultural risk-aversion" in Indian financing; companies significantly reduced long-term debt to safeguard against future liquidity shocks.

Suggestions

For Corporate Managers

- **Maintain Financial Slack:** Service firms should prioritize liquidity buffers to allow for rapid investment in emerging technologies like AI without the delays of external borrowing [22].
- **Adopt Asset-Light Models:** In sectors like healthcare, managers should focus on franchise and management contracts to reduce the need for collateral-heavy debt [21].
- **Utilize Digital Public Infrastructure:** Smaller firms should leverage transaction-data platforms (GST, UPI)

to secure digital lending, bridging the credit gap without traditional collateral ^[24].

For Policymakers

- **Deepen the Bond Market:** India's bank-dependent system is ill-suited for the long-term needs of the digital economy; policy reforms are needed to provide service firms with fixed-rate bond alternatives ^[5].
- **Formalize Digital Lending:** Simplify digital lending norms for MSMEs to reduce their reliance on expensive informal sources ^[19].
- **Expand R&D Tax Incentives:** Broaden incentives for "intangible investments," as current tax codes often penalize firms for R&D spending compared to physical asset investment ^[27].

Limitations

The research is primarily based on listed companies, potentially overlooking the dynamics of India's large informal service sector. The quantification of "invisible" intangible assets like brand reputation remains challenging due to limited disclosure requirements. Furthermore, extreme volatility in specific costs (like energy or logistics) can distort the perceived financial stability of transport and hospitality firms ^[29].

Conclusion

The analysis of the Indian service industry from 2012 to 2025 demonstrates a resilient and highly specialized financing landscape. The sector's evolution shows that while classical theories provide a baseline, the operational reality is defined by sub-sectoral needs. IT leaders have championed a debt-free path, while Telecom and Healthcare sectors have utilized leverage as a strategic tool for scaling national infrastructure. The adoption of Ind AS and the lessons of the global pandemic have shifted the priority toward solvency and liquidity. As India pursues an \$8 trillion economy by 2035, the convergence of AI and digital infrastructure offers a unique opportunity to formalize financing for even the smallest service enterprises, ensuring a more innovation-led and capital-efficient growth model ^[24].

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