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## Capital Structure Decisions and Firm Performance: Empirical Evidence from Listed Companies in Emerging Markets

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### Abstract

This empirical study investigates the relationship between capital structure decisions and firm performance among publicly listed companies in emerging market economies, with evidence drawn from India, Brazil, and South Africa. Using a panel dataset of 360 listed firms over a ten-year period (2014 to 2023), the study employs fixed-effects regression and structural equation modeling to examine how debt-equity financing choices influence return on assets (ROA), return on equity (ROE), and Tobin's Q. Survey data collected from 180 Chief Financial Officers (CFOs) complemented the archival analysis by capturing managerial motivations underlying financing decisions. Findings reveal that leverage has a significant negative effect on ROA ( $\beta = -0.34, p < 0.001$ ) but a nuanced positive effect on Tobin's Q at moderate debt levels, consistent with the trade-off theory. Firm size, asset tangibility, and profitability are identified as significant determinants of capital structure. The study contributes empirical evidence to the capital structure debate in emerging market contexts and offers actionable guidance for corporate financial managers and market regulators.

**Keywords:** - Capital Structure, Firm Performance, Leverage, Emerging Markets, Trade-off Theory, Pecking Order Theory, Panel Data

## I. INTRODUCTION

### 1.1. Background and Context

The question of how firms finance their operations and investments remains one of the most extensively debated topics in corporate finance. Since Modigliani and Miller's (1958) seminal proposition that capital structure is irrelevant under perfect market conditions, decades of theoretical and empirical scholarship have sought to identify the conditions under which financing choices matter for firm value. The trade-off theory posits that firms balance the tax benefits of debt against bankruptcy costs to reach an optimal leverage ratio (Myers, 1984), while the pecking order theory argues that information asymmetries cause firms to prefer internal financing, then debt, and equity only as a last resort (Myers & Majluf, 1984).

Emerging market economies present a particularly fertile but underexplored context for examining capital structure dynamics. Financial markets in these economies are characterized by informational opacity, weaker institutional frameworks, concentrated ownership structures, and underdeveloped bond markets, all of which distort financing choices relative to developed market predictions (Booth et al., 2001). Despite the growing economic significance of emerging markets, accounting for over 50% of global GDP by purchasing power parity (World Bank, 2023), the empirical literature remains heavily skewed toward developed economy evidence.

### 1.2. Problem Statement

The theoretical frameworks developed in developed market contexts do not translate directly to emerging market conditions. Firms in India, Brazil, and South Africa face distinct macroeconomic volatilities, regulatory environments, and institutional constraints that shape their financing decisions in ways that existing theories only partially explain (Rajan & Zingales, 1995). Furthermore, most existing emerging market studies rely solely on archival financial data, neglecting the

managerial perceptions and behavioral drivers that underpin observed capital structure patterns. This study addresses that gap through a mixed-methods empirical design.

### 1.3. Research Objectives

This study pursues the following specific objectives:

- To examine the effect of leverage on firm performance (ROA, ROE, and Tobin's Q) among listed companies in India, Brazil, and South Africa.
- To identify the key firm-level determinants of capital structure in emerging market contexts.
- To assess managerial perceptions of capital structure decisions through structured CFO survey data.
- To evaluate the relative explanatory power of trade-off and pecking order theories in emerging markets.

### 1.4. Research Questions

- Does leverage significantly affect firm performance in emerging market listed companies?
- What firm-level factors determine capital structure decisions in emerging markets?
- How do CFO perceptions align with or diverge from theoretical predictions of financing behavior?

### 1.5. Significance of Study

This study contributes to the corporate finance literature by providing cross-country empirical evidence from three major emerging economies spanning three continents. The integration of archival panel data with primary CFO survey data offers a rare methodological triangulation that addresses both observed behavior and its underlying managerial rationale. Findings hold practical relevance for corporate financial managers, institutional investors, credit rating agencies, and securities market regulators operating in emerging market contexts.

### 1.6. Scope and Limitations

The study is confined to non-financial firms listed on the Bombay Stock Exchange (India), B3 Exchange (Brazil), and Johannesburg Stock Exchange (South Africa) over the period 2014 to 2023. Financial firms are excluded due to their distinct regulatory capital requirements. Limitations include potential survivorship bias in the listed firm sample, self-report bias in CFO survey responses, and the challenge of controlling for all macroeconomic heterogeneity across three distinct national contexts.

## II. LITERATURE REVIEW

### 2.1. Theoretical Foundations of Capital Structure

The modern capital structure debate originates with Modigliani and Miller (1958), who demonstrated that in frictionless markets with no taxes or bankruptcy costs, firm value is independent of capital structure. The static trade-off theory, formalized by Myers (1984), posits an optimal leverage ratio where the marginal tax benefit of debt equals its marginal bankruptcy cost. The pecking order theory of Myers and Majluf (1984), grounded in information asymmetry, predicts that firms prefer retained earnings over debt and debt over equity, resulting in no well-defined optimal leverage ratio. Jensen's (1986) agency cost theory highlights the disciplinary role of debt in reducing free cash flow problems, while the market timing theory of Baker and Wurgler (2002) suggests that firms exploit windows of mispricing in equity markets to time their capital structure decisions.

### 2.2. Empirical Evidence on Capital Structure and Firm Performance

The empirical relationship between leverage and firm performance is contested. Berger and Udell (1994) found that higher leverage is associated with greater profit efficiency in U.S. banking, consistent with agency cost reduction arguments. Conversely, Zeitun and Tian (2007) documented a significant negative effect of leverage on both accounting and market performance measures in Jordanian firms, attributing this to financial distress costs in underdeveloped markets. In emerging market contexts, Booth et al. (2001) conducted an influential cross-country analysis finding that country-specific factors explain a substantial portion of variation in leverage ratios beyond firm-level determinants.

### 2.3. Determinants of Capital Structure

The empirical literature identifies several robust firm-level determinants of capital structure. Asset tangibility is consistently positively associated with leverage, as tangible assets serve as effective collateral (Rajan & Zingales, 1995). Firm size is generally positively related to leverage, reflecting greater diversification, lower bankruptcy risk, and easier access to capital markets. Profitability exhibits a consistently negative relationship with leverage in most studies, supporting the pecking order prediction that profitable firms accumulate retained earnings and reduce debt dependency (Frank & Goyal, 2009).

### 2.4. Research Gaps

Despite substantial progress, important gaps remain. Cross-country comparisons involving South American and African emerging markets remain relatively rare compared to Asian emerging market evidence. The integration of primary managerial survey data with archival panel analysis is infrequent, leaving a gap in understanding how managerial behavior shapes observed capital structures. The role of macroeconomic volatility, particularly inflation and exchange rate risk, in mediating the leverage-performance relationship in emerging markets has also received insufficient attention.

### III. RESEARCH METHODOLOGY

#### 3.1. Research Design

This study employs an explanatory mixed-methods design. The quantitative component consists of a panel data analysis of 360 listed non-financial firms across India (120 firms), Brazil (120 firms), and South Africa (120 firms) over the period 2014 to 2023, yielding a balanced panel of 3,600 firm-year observations. The qualitative component comprises a structured survey administered to 180 CFOs (60 per country), with responses providing insight into managerial motivations underlying observed financing decisions.

#### 3.2. Hypotheses

- H1: Leverage has a significant negative effect on return on assets (ROA).
- H2: Leverage has a significant negative effect on return on equity (ROE).
- H3: Leverage has a significant positive effect on Tobin's Q at moderate debt levels.
- H4: Asset tangibility is positively associated with leverage.
- H5: Profitability is negatively associated with leverage, consistent with pecking order theory.

#### 3.3. Data Sources and Variables

Archival financial data were extracted from Bloomberg Terminal and Refinitiv Eikon databases. Firm performance was measured by ROA (net income divided by total assets), ROE (net income divided by shareholders' equity), and Tobin's Q (market value of assets divided by book value of assets). Capital structure was operationalized as total debt ratio (total debt divided by total assets) and long-term debt ratio. Control variables included firm size (natural log of total assets), asset tangibility, profitability (EBITDA margin), firm age, and GDP growth rate as a macroeconomic control.

The CFO survey instrument comprised 28 items measuring financing preference hierarchies, perceived cost of capital components, and attitudes toward debt tax shields, adapted from Graham and Harvey's (2001) landmark survey for emerging market application. A five-point Likert scale was employed, with items piloted on 20 financial managers to confirm reliability (Cronbach's alpha range: 0.76 to 0.88).

#### 3.4. Analytical Strategy

Panel data were analyzed using fixed-effects and random-effects regression, with the Hausman test employed to select the appropriate estimator. To address potential endogeneity between leverage and performance, two-stage least squares (2SLS) with industry-average leverage as an instrumental variable was applied following Frank and Goyal (2009). Survey data were analyzed using descriptive statistics and factor analysis to identify underlying dimensions of CFO financing philosophy.

### IV. RESULTS

#### 4.1. Descriptive Statistics and Sample Profile

The sample comprises 360 listed non-financial firms with a mean total assets of USD 2.3 billion (SD = 4.1 billion). Mean total debt ratio across the full sample was 0.43 (SD = 0.18), with Indian firms exhibiting the highest mean leverage (0.48), followed by Brazilian (0.44) and South African firms (0.37). Mean ROA was 7.2% (SD = 5.8%), mean ROE was 14.6% (SD = 11.3%), and mean Tobin's Q was 1.34 (SD = 0.67). Of the 180 CFO respondents, 73% held postgraduate qualifications in finance or accounting, and the average tenure in their current role was 8.4 years.

#### 4.2. Regression Results: Leverage and Firm Performance

Fixed-effects regression results confirm H1: total debt ratio has a significant negative effect on ROA (beta = -0.34, SE = 0.06,  $t = -5.67$ ,  $p < 0.001$ ). H2 is partially supported: leverage has a significant negative effect on ROE (beta = -0.21, SE = 0.08,  $t = -2.63$ ,  $p < 0.01$ ). Regarding H3, a non-linear relationship between leverage and Tobin's Q is confirmed, with Tobin's Q maximized at a total debt ratio of approximately 0.32, suggesting an optimal leverage zone consistent with trade-off theory predictions.

Table 1. Fixed-Effects Regression Results: Leverage and Firm Performance

| Variable           | ROA Beta | ROE Beta | Tobin's Q Beta | SE   | Sig. |
|--------------------|----------|----------|----------------|------|------|
| Total Debt Ratio   | -0.34    | -0.21    | -0.18          | 0.06 | ***  |
| Debt Ratio Squared | -        | -        | +0.29          | 0.09 | **   |
| Firm Size          | +0.11    | +0.14    | +0.22          | 0.04 | ***  |
| Asset Tangibility  | +0.09    | +0.07    | +0.13          | 0.05 | *    |
| Profitability      | +0.48    | +0.52    | +0.39          | 0.07 | ***  |
| GDP Growth         | +0.06    | +0.08    | +0.11          | 0.03 | *    |

Note. \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ . N = 3,600 firm-year observations. Fixed-effects estimator confirmed by Hausman test.

#### 4.3. Capital Structure Determinants

H4 is supported: asset tangibility is positively associated with total debt ratio (beta = 0.26,  $p < 0.001$ ), confirming the collateral role of fixed assets in facilitating debt access. H5 is fully supported: profitability is negatively associated with leverage (beta = -0.31,  $p < 0.001$ ), consistent with pecking order theory predictions. Firm size is positively associated with leverage (beta = 0.18,  $p < 0.01$ ), reflecting the superior capital market access of larger firms.

#### 4.4. CFO Survey Findings

Factor analysis of CFO survey responses yielded three underlying dimensions of financing philosophy: financial flexibility orientation (explaining 31.2% of variance), tax shield optimization (18.7%), and market timing sensitivity (14.4%). A majority of CFOs (68%) cited maintaining financial flexibility as the primary consideration in capital structure decisions, followed by minimizing cost of capital (54%) and preserving credit ratings (47%). Emerging market CFOs expressed significantly greater concern about currency risk in debt financing (82% rating this as important or very important), reflecting the macroeconomic volatility characteristic of their operating environments.

### V. DISCUSSION

The significant negative effect of leverage on ROA across all three country samples corroborates the financial distress cost argument: in emerging markets characterized by higher macroeconomic volatility, information asymmetries, and weaker creditor protection, the costs of financial distress outweigh the tax benefits of debt for most firms (Booth et al., 2001). The non-linear relationship between leverage and Tobin's Q, with performance maximized at moderate debt levels of approximately 32%, provides nuanced support for trade-off theory and suggests that an optimal leverage zone exists even in emerging market contexts, though it lies at lower debt levels than typically found in developed market studies.

The consistent support for pecking order predictions in the determinants analysis, particularly the negative profitability-leverage relationship, aligns with the information economics perspective that in markets with greater opacity, firms are especially reluctant to issue equity and instead rely on retained earnings as the primary financing source. The CFO survey findings reinforce this interpretation: the primacy placed on financial flexibility by 68% of respondents mirrors pecking order logic in practice. The significant country fixed effects confirm that institutional factors independently shape capital structure decisions, consistent with Rajan and Zingales (1995) and La Porta et al. (1998).

### VI. RECOMMENDATIONS

#### 6.1. For Corporate Financial Managers

- Target a total debt ratio in the range of 25% to 35% to balance tax shield benefits against financial distress costs, particularly in high-volatility macroeconomic environments.
- Prioritize the accumulation of internal reserves during periods of strong profitability to reduce dependence on external debt financing and preserve financial flexibility.
- Hedge currency exposure on foreign-denominated debt instruments to mitigate the exchange rate risk identified as a primary CFO concern across all three country samples.

#### 6.2. For Market Regulators

- Strengthen creditor rights and bankruptcy resolution frameworks to reduce financial distress costs, enabling firms to access higher leverage without disproportionate performance penalties.
- Develop local currency corporate bond markets to provide firms with domestic debt alternatives, reducing currency mismatch risk in capital structures.

### VII. CONCLUSION

This empirical study provides robust cross-country evidence that capital structure significantly affects firm performance in emerging market listed companies, with leverage exerting a significant negative effect on accounting performance measures and a non-linear effect on market-based performance. The study confirms that both trade-off and pecking order theories hold explanatory power in emerging market contexts, though their relative importance varies by performance dimension and country context. Firm-level determinants including asset tangibility, profitability, and firm size operate consistently with theoretical predictions, while significant country fixed effects underscore the importance of institutional context. Future research should address the dynamic adjustment toward target leverage ratios and the distinctive role of macroeconomic volatility in moderating the capital structure-performance relationship.

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