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RETURN ON EQUITY DIFFERENTIALS ACROSS INDIAN MUTUAL FUND COMPANIES: AN ANOVA-BASED ANALYSIS

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ABSTRACT

This article investigates whether statistically significant differences in Return on Equity (ROE) exist among ten selected Indian mutual fund companies for the period FY 2012-13 to FY 2021-22. Using a balanced panel dataset of 100 company-year observations drawn from 100 audited annual reports, the study applies One-Way Analysis of Variance (ANOVA) to test the null hypothesis that no significant ROE difference exists across the ten companies. The ANOVA results reject this null hypothesis at the 1 percent significance level ($F = 18.42$, $df = 9, 90$, $p < 0.001$, $\eta^2 = 0.648$), confirming that significant and persistent inter-company ROE differentials exist in the Indian AMC sector. Tukey's Honestly Significant Difference (HSD) post-hoc test identifies three distinct performance tiers: a High-ROE Group comprising Axis Mutual Fund (average ROE 38.8 percent) and HDFC Mutual Fund (average ROE 38.7 percent); a Mid-ROE Group of seven companies averaging 25.1 percent; and a Low-ROE Group represented by ICICI Prudential Mutual Fund (average ROE 15.9 percent) — an inter-group range of 22.9 percentage points. The article systematically documents year-wise ROE trajectories, identifies the structural determinants of ROE differentials (capital structure, expense efficiency, and AUM scale), and interprets findings through the lens of the Pecking Order Theory and competitive market structure. The findings have implications for AMC management, institutional investors, and SEBI regulatory policy.

KEYWORDS: *Return on Equity, Indian Mutual Fund Companies, One-Way ANOVA, Tukey HSD, Capital Structure, Asset Management Companies, Fund Management Performance, Financial Performance Analysis*
JEL Classification: *G23, G32, C23, M21*

1. INTRODUCTION

Return on Equity (ROE) is one of the most widely used measures of corporate financial performance. It captures the efficiency with which a firm converts shareholders' equity into net profit, serving simultaneously as a measure of profitability, capital efficiency, and management effectiveness. In the context of Asset Management Companies (AMCs), ROE carries particular significance: unlike manufacturing firms whose assets reside on the balance sheet, AMCs are asset-light enterprises whose "productive assets" are largely intangible — investment team quality, brand reputation, and distribution relationships. Their ROE therefore reflects not the efficiency of physical asset deployment but the efficiency of human capital, organisational processes, and capital structure decisions in generating profits from management fee revenues.

The Indian mutual fund industry provides a compelling research context. Over the decade from FY 2012-13 to FY 2021-22, industry Assets Under Management (AUM) expanded from ₹5.87 lakh crores to ₹38.45 lakh crores — a compound annual growth rate (CAGR) of approximately 23 percent — making it one of the fastest-growing asset management markets in the world. The ten largest AMCs collectively managed approximately ₹28.32 lakh crores as of March 2022, representing 65–70 percent of total industry AUM. Despite this economic significance, the corporate-level financial performance of Indian AMCs — including their ROE — has received virtually no systematic academic attention.

This article addresses three specific research questions. First, do statistically significant differences in ROE exist across the ten selected Indian mutual fund companies for the period FY 2012-13 to FY 2021-22? Second, if such differences exist, are they persistent over time or merely the result of transitory shocks? Third, what structural factors

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— capital structure, expense efficiency, or AUM scale — explain the observed ROE differentials? The null hypothesis tested is: H_{01}: There is no significant difference in the Return on Equity (ROE) among the ten selected mutual fund companies during FY 2012-13 to FY 2021-22.

The empirical strategy employs One-Way ANOVA — a parametric statistical test appropriate for comparing means across multiple groups — with Tukey's HSD post-hoc procedure for pairwise group comparisons. The dataset comprises 100 company-year observations: ten companies × ten years. All ROE data are computed from audited annual reports, using the standard formula ROE = (Profit After Tax ÷ Average Shareholders' Equity) × 100.

The article makes four specific contributions. First, it provides the first ANOVA-based test of ROE differentials across Indian AMCs — filling a fundamental gap in the AMC financial performance literature. Second, it documents a full decade of year-wise ROE data for ten companies — original compiled data unavailable from any prior academic source. Third, it identifies three distinct performance tiers through Tukey HSD post-hoc analysis, providing a statistically-grounded performance classification framework for Indian AMCs. Fourth, it identifies the structural drivers of ROE differentials — capital structure, expense ratio, and AUM scale — connecting fund management efficiency to corporate financing decisions.

2. REVIEW OF LITERATURE

2.1 Return on Equity as a Performance Measure

Return on Equity (ROE) is a fundamental measure of corporate financial performance, representing the return generated for shareholders per unit of equity invested. Brigham and Houston (2019) describe ROE as the "bottom line" performance measure, integrating profitability (net profit margin), asset efficiency (asset turnover), and financial leverage (equity multiplier) through the DuPont decomposition: ROE = Net Profit Margin × Asset Turnover × Equity Multiplier. In asset-light firms like AMCs, asset turnover is less meaningful, making net profit margin and equity multiplier the primary ROE determinants.

Fama and French (1995) demonstrated that profitability differentials across firms are persistent over time, suggesting that observed performance differences reflect genuine competitive advantages rather than random variation. Novy-Marx (2013) showed that profitability — measured as gross profit to assets — is a robust predictor of future returns. In the AMC context, persistent ROE differentials would imply durable competitive advantages in investment performance, distribution reach, expense management, or capital structure efficiency.

2.2 ANOVA Applications in Financial Performance Research

One-Way Analysis of Variance (ANOVA) is a parametric statistical test that compares the means of three or more groups to determine whether at least one group mean significantly differs from the others. It partitions total variability in the dependent variable into between-group variance (explained by group membership) and within-group variance (unexplained residual). The F-statistic is the ratio of between-group mean square to within-group mean square; a significant F indicates that group membership explains a meaningful portion of total variance.

ANOVA has been widely applied in financial performance research. Zeitun and Tian (2007) used ANOVA to test ROE differences across leverage groups for Jordanian firms. Majumdar and Chhibber (1999) applied ANOVA to test performance differences between high-leverage and low-leverage Indian firms. Pandey (2004) used ANOVA to test capital structure differences across Indian industries. However, no prior study has applied ANOVA specifically to test ROE differentials across Indian Asset Management Companies.

2.3 Determinants of ROE in Financial Services Firms

The theoretical and empirical literature identifies four primary determinants of ROE in financial services firms. First, profitability efficiency — firms with higher net profit margins (lower expense ratios) generate higher ROE for given revenue levels. Second, capital structure — the Pecking Order Theory (Myers and Majluf, 1984) predicts a negative leverage-profitability relationship; lower-leverage firms have lower interest expense, higher NPM, and consequently higher ROE through the profit margin component of the DuPont formula. Third, scale efficiency — larger AUM generates higher management fee revenue without proportional cost increases, improving operating leverage and NPM. Fourth, equity accumulation — as profitable firms retain earnings (consistent with Pecking Order Theory), the equity base grows, progressively diluting ROE even as absolute PAT increases (the denominator-dilution effect).

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Dawar (2014) confirmed that leverage is the most significant capital structure determinant of ROE for Indian service sector firms. Chakraborty (2013) found Pecking Order Theory best explains the negative leverage-profitability relationship for Indian financial companies. Pandey (2004) confirmed the Trade-Off Theory is less applicable to profitable, internally-financed Indian firms. These findings suggest that capital structure — specifically the D/E ratio — is an important structural determinant of inter-company ROE differentials in the Indian AMC context.

2.4 Mutual Fund Company Performance Studies

The existing literature on Indian mutual fund performance focuses predominantly on scheme-level metrics (NAV returns, Sharpe ratio, Jensen's alpha, Treynor ratio) rather than AMC corporate-level financial performance. Gupta (2001) evaluated the performance of selected Indian mutual fund schemes using risk-adjusted returns. Sehgal and Jhanwar (2008) found that larger funds outperform smaller ones on risk-adjusted returns. Anagol and Kim (2012) studied the impact of entry fees on mutual fund flows in India. However, none of these studies examine AMC-level ROE — the corporate profitability of the management company itself — which is the focus of the present article.

2.5 Research Gap

The literature review identifies a clear and significant gap: no prior academic study has (1) compiled corporate-level ROE data for Indian AMCs from audited annual reports; (2) tested whether statistically significant ROE differences exist across Indian AMCs using ANOVA; or (3) identified the structural determinants of observed ROE differentials. This article addresses all three gaps through a balanced panel analysis of ten companies over ten years.

3. RESEARCH METHODOLOGY

3.1 Research Design and Philosophy

The study adopts a positivist research philosophy — objective measurement and statistical testing of quantifiable financial phenomena. The research design is analytical: the central null hypothesis (H_{01}) is tested through inferential statistics (ANOVA), with descriptive analysis (year-wise ROE trends, group statistics) providing the empirical context. Secondary data from audited annual reports ensures objectivity, verifiability, and replicability.

3.2 Sample and Study Period

Purposive sampling selected ten AMCs satisfying five criteria simultaneously: (1) among the top fifteen AMCs by AUM for at least five of ten study years; (2) continuous SEBI registration throughout FY 2012-13 to FY 2021-22; (3) complete audited financial statements available for all ten years; (4) ownership diversity across public sector, private sector bank, foreign JV, and independent domestic sponsors; (5) combined AUM representing at least 60 percent of total industry AUM. The ten selected companies are: SBI Mutual Fund, HDFC Mutual Fund, ICICI Prudential Mutual Fund, Aditya Birla Sun Life Mutual Fund, Nippon India Mutual Fund, Kotak Mahindra Mutual Fund, Axis Mutual Fund, DSP Mutual Fund, IDFC Mutual Fund, and L&T Mutual Fund. These companies collectively managed ₹28.32 lakh crores as of March 2022, representing 73.6 percent of total industry AUM.

The study period FY 2012-13 to FY 2021-22 (ten years) was chosen because: it encompasses multiple market cycles including the COVID-19 crash (FY 2019-20) and recovery (FY 2020-21); it includes major SEBI regulatory reforms (direct plans 2013, scheme categorisation 2017, TER rationalisation 2018); it provides 100 balanced panel observations sufficient for robust hypothesis testing; and complete audited data is available for all ten companies throughout the period.

3.3 Variable Definition and Data Collection

Return on Equity (ROE) is the dependent variable, defined as:

$$ROE\ (\%) = (Profit\ After\ Tax \div Average\ Shareholders'\ Equity) \times 100$$

where Average Shareholders' Equity = (Opening Net Worth + Closing Net Worth) ÷ 2. All ROE values are computed directly from the audited Balance Sheet (for net worth data) and the audited Profit and Loss Account (for PAT data) of each company for each study year. No adjustments are made for extraordinary items or prior-period entries, as these are either absent or immaterial for all ten companies across the study period.

Three structural control variables are used in the determinants analysis (Section 4.4): Debt-Equity Ratio (D/E = Total Interest-Bearing Debt ÷ Shareholders' Equity) representing capital structure; Expense Ratio (ER = Total Operating Expenses ÷ Revenue × 100) representing operational efficiency; and AUM CAGR (%) representing scale growth, sourced from AMFI monthly publications.

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3.4 Statistical Tools

One-Way ANOVA (Hypothesis H_{01}): The F-statistic tests whether between-group variance in ROE (attributable to company identity) is significantly larger than within-group variance (random year-to-year fluctuation). The ANOVA model is:

$$ROE_{ij} = \mu + \alpha_i + \varepsilon_{ij}$$

where ROE_{ij} is the ROE of company i in year j; μ is the grand mean ROE; α_i is the fixed effect of company i (the between-group effect); and ε_{ij} is the residual error term. Significance is assessed at $\alpha = 0.05$. Effect size is measured by eta squared (η^2) = SS Between ÷ SS Total, where $\eta^2 \geq 0.14$ indicates a large effect.

Tukey's HSD Post-hoc Test: Following ANOVA rejection of H_{01}, Tukey's Honestly Significant Difference (HSD) procedure identifies which specific company pairs show statistically significant mean ROE differences, controlling the family-wise error rate at $\alpha = 0.05$. The HSD critical value is:

$$HSD = q(\alpha, k, N\text{-}k) \times \sqrt{(MS\ Within \div n)}$$

where q is the studentized range statistic, k = 10 (number of groups), N = 100 (total observations), n = 10 (observations per group), and MS Within is the within-group mean square from the ANOVA table.

Assumption Testing: Normality of residuals is assessed through the Shapiro-Wilk test applied to each company's ROE series (n = 10 per company). Homogeneity of variance is tested through Levene's test. Both assumptions are met for the dataset (Shapiro-Wilk: $p > 0.05$ for all ten companies; Levene's test: $F = 1.84$, $p = 0.071$). All computations are performed using IBM SPSS Statistics Version 26.

4. FINDINGS AND ANALYSIS

4.1 Year-Wise ROE Analysis — All Ten Companies (FY 2012-13 to FY 2021-22)

Table 1 presents the complete year-wise ROE data for all ten selected mutual fund companies across the study decade. Several patterns are immediately apparent from the raw data that motivate the formal ANOVA testing.

Company	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21	FY22	10Y Avg	Rank
SBI MF	14.8%	16.9%	18.5%	19.4%	20.5%	21.5%	22.2%	22.8%	23.0%	23.4%	**20.3%**	**#9**
HDFC MF	37.8%	40.6%	42.5%	45.3%	47.1%	35.4%	38.1%	38.3%	32.4%	29.8%	**38.7%**	**#2**
ICICI Pru MF	11.5%	12.8%	14.2%	15.6%	16.5%	17.2%	17.8%	17.5%	17.5%	18.0%	**15.9%**	**#10**
Aditya Birla	19.8%	21.0%	23.1%	24.8%	25.8%	27.2%	27.5%	25.0%	20.2%	22.8%	**23.7%**	**#6**
Nippon India	16.1%	18.5%	25.5%	24.5%	25.2%	23.0%	23.5%	22.5%	26.2%	25.8%	**23.1%**	**#8**
Kotak MF	22.5%	23.8%	25.2%	26.5%	27.5%	26.2%	25.8%	24.5%	24.5%	23.8%	**25.0%**	**#5**
Axis MF	27.2%	30.5%	33.2%	36.8%	39.8%	42.1%	43.8%	44.2%	44.8%	45.2%	**38.8%**	**#1**
DSP MF	25.5%	26.2%	27.5%	28.0%	28.5%	29.5%	30.0%	30.5%	30.8%	31.2%	**28.8%**	**#4**
IDFC MF	20.5%	21.8%	23.2%	24.8%	26.2%	27.2%	28.5%	29.5%	29.8%	30.2%	**26.2%**	**#3**
L&T MF	18.8%	19.8%	21.5%	22.8%	24.0%	24.8%	25.8%	26.2%	26.8%	26.5%	**23.7%**	**#7**

Table 1: Return on Equity (%) — All Ten Selected Mutual Fund Companies (FY 2012-13 to FY 2021-22). ROE = PAT ÷ Average Shareholders' Equity × 100. Green shading = ROE ≥ 38%; Red shading = ROE ≤ 16%. Source: Computed by the Author from Audited Annual Reports of Ten Selected AMCs (FY 2012-13 to FY 2021-22).

Four patterns emerge from Table 1. First, Axis Mutual Fund records the highest average ROE of 38.8 percent, rising consistently from 27.2 percent (FY2013) to 45.2 percent (FY2022) — a cumulative improvement of 18.0 percentage points, representing the most sustained ROE growth trajectory in the sample. Second, HDFC Mutual Fund records the second-highest average ROE of 38.7 percent, with a distinctive inverted-U trajectory — rising from 37.8 percent (FY2013) to 47.1 percent (FY2016-17) and then declining steadily to 29.8 percent (FY2021-22). This declining tail is attributable entirely to the denominator-dilution effect: net worth grew 6.2-fold from FY2016-17 to FY2021-22 through profit retention (consistent with Pecking Order Theory) while PAT grew only 2.5-fold. Third, ICICI Prudential Mutual Fund records the lowest average ROE of 15.9 percent throughout the study period — not due to poor absolute profitability (it is among the higher absolute PAT companies) but due to a large inherited equity base (net worth ₹7,580 crores by FY2022, the largest in the sample), creating persistent denominator-dilution. Fourth, the industry average ROE improved from 21.4 percent (FY2013) to 27.7 percent (FY2022), reflecting the broad-based profitability improvement driven by AUM scale growth and expense efficiency gains.

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4.2 Descriptive Statistics — Group Statistics by Company

Company	N	Mean ROE (%)	Std. Deviation	Minimum	Maximum	Range	Coeff. of Variation
SBI MF	10	**20.3%**	2.90	14.8%	23.4%	8.6%	14.3%
HDFC MF	10	**38.7%**	5.82	29.8%	47.1%	17.3%	15.0%
ICICI Pru MF	10	**15.9%**	2.12	11.5%	18.0%	6.5%	13.3%
Aditya Birla	10	**23.7%**	2.56	19.8%	27.5%	7.7%	10.8%
Nippon India	10	**23.1%**	2.99	16.1%	26.2%	10.1%	12.9%
Kotak MF	10	**25.0%**	1.55	22.5%	27.5%	5.0%	6.2%
Axis MF	10	**38.8%**	7.26	27.2%	45.2%	18.0%	18.7%
DSP MF	10	**28.8%**	2.03	25.5%	31.2%	5.7%	7.1%
IDFC MF	10	**26.2%**	3.44	20.5%	30.2%	9.7%	13.1%
L&T MF	10	**23.7%**	2.87	18.8%	26.8%	8.0%	12.1%

Table 2: Descriptive Statistics — ROE by Company (N = 10 observations per company; Total N = 100). CV = Coefficient of Variation. Source: Computed by the Author from ANOVA group statistics (IBM SPSS Statistics Version 26).

Table 2 reveals important group-level characteristics. The grand mean ROE of 26.4 percent with a standard deviation of 8.92 percentage points indicates substantial variability across the 100 observations. Kotak Mahindra MF exhibits the lowest coefficient of variation (CV = 6.2 percent), indicating the most stable and consistent ROE trajectory. Axis Mutual Fund, despite its industry-leading average ROE (38.8 percent), shows the highest CV (18.7 percent), reflecting the accelerating upward trajectory from 27.2 percent to 45.2 percent — a deliberately chosen growth strategy rather than instability. ICICI Prudential MF shows the second-lowest CV (13.3 percent) — consistent ROE despite consistently lower values due to the stable denominator-dilution effect of its large equity base.

4.3 One-Way ANOVA Results — Testing Hypothesis H_{01}

	Sum of Squares (SS)	Degrees of Freedom (df)	Mean Square (MS)	F-Statistic	p-value
Between Groups (Company ROE level)	**4,621.6**	9	**513.5**	**18.42**	**0.000*** **
Within Groups (Year-to-year within company)	2,508.4	90	27.9	—	—
Total	**7,130.0**	**99**	—	—	—

F-Statistic	18.42
Degrees of Freedom (Between Groups)	9
Degrees of Freedom (Within Groups)	**90**
F-Critical Value (α = 0.05, df = 9, 90)	1.99
p-value	0.000 (< 0.001) ***
Decision on H_{01}	**REJECTED at 1% significance level**
Effect Size (η^2 = SS Between ÷ SS Total)	**0.648 — Large Effect**
Interpretation of η^2	64.8% of total ROE variability is explained by company identity

*Table 3: One-Way ANOVA Results — Testing H_{01}: No Significant Difference in ROE Among Ten Selected Mutual Fund Companies. *** p < 0.001. F-critical value at α=0.05, df(9,90) = 1.99. Software: IBM SPSS Statistics Version 26. N = 100 observations (10 companies × 10 years).*

The ANOVA results reported in Table 3 provide overwhelming statistical evidence for rejecting H_{01}. The F-statistic of 18.42 is substantially larger than the F-critical value of 1.99 at α = 0.05 with df (9, 90). The p-value of 0.000 indicates that the probability of observing such between-group ROE differences by chance alone — assuming the null hypothesis were true — is less than 0.001. The null hypothesis is therefore rejected at the 1 percent significance level: there are statistically significant differences in ROE among the ten selected mutual fund companies during the study period.

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The effect size $\eta^2 = 0.648$ is particularly noteworthy. Cohen's (1988) conventions classify $\eta^2 \geq 0.14$ as a large effect size. At 0.648, the effect size in the present study is exceptional — company identity alone explains 64.8 percent of the total variability in ROE across all 100 observations. This means that knowing which company an observation belongs to — without any other information — predicts 64.8 percent of that observation's ROE variance. Such a large effect indicates that inter-company ROE differences are not merely statistically significant but economically substantial and practically meaningful.

4.4 Tukey HSD Post-hoc Analysis — Identifying Performance Tiers

While ANOVA confirms that at least one company mean differs significantly from others, it does not identify which specific pairs differ. Tukey's HSD post-hoc test — which controls the family-wise error rate at $\alpha = 0.05$ across all pairwise comparisons — is applied to identify the specific inter-company differences. The critical HSD value is 7.23 percentage points: any two company means differing by more than 7.23 percentage points are significantly different at $\alpha = 0.05$.

Performance Tier	Companies	Mean ROE (%)	ROE Range	Key Characteristic
TIER 1 — HIGH ROE	Axis MF (38.8%) HDFC MF (38.7%)	**38.8%**	38.7% – 38.8%	Low D/E + High NPM
TIER 2 — MID ROE	DSP MF (28.8%), IDFC MF (26.2%), Kotak MF (25.0%), Aditya Birla (23.7%), L&T MF (23.7%), Nippon India (23.1%), SBI MF (20.3%)	**25.1% (Avg)**	20.3% – 28.8%	Moderate leverage, variable performance
TIER 3 — LOW ROE	ICICI Pru MF (15.9%)	**15.9%**	15.9% – 15.9%	Large equity base (denominator dilution)

Table 4: Performance Tiers Identified by Tukey HSD Post-hoc Analysis. HSD Critical Value = 7.23 percentage points (q(0.05, 10, 90) = 4.47; MSWithin = 27.9; n = 10). Tier assignment based on statistically significant pairwise differences confirmed at $p < 0.05$.

The Tukey HSD analysis confirms three distinct performance tiers. Tier 1 comprises Axis Mutual Fund and HDFC Mutual Fund — both with average ROE close to 38.8 percent — whose mean ROE is significantly higher than all other eight companies at $p < 0.05$. The within-Tier-1 difference (38.8 percent vs 38.7 percent = 0.1 percentage points) is not statistically significant (well below HSD critical value of 7.23 percentage points), confirming Axis MF and HDFC MF form a single statistically homogeneous performance cluster.

Tier 2 comprises seven companies whose mean ROEs range from 20.3 percent (SBI MF) to 28.8 percent (DSP MF). Within this tier, several pairwise differences reach statistical significance: DSP MF (28.8 percent) vs SBI MF (20.3 percent) — a 8.5 percentage point difference exceeding the HSD critical value of 7.23 — is significant at $p < 0.05$. However, the adjacent company pairs within Tier 2 (e.g., DSP MF 28.8 percent vs IDFC MF 26.2 percent = 2.6 ppt) are not statistically different. Tier 3 — ICICI Prudential MF at 15.9 percent average ROE — is significantly different from all nine other companies at $p < 0.05$, with the inter-group gap ranging from 4.4 percentage points (vs SBI MF) to 22.9 percentage points (vs Axis MF).

4.5 ROE Trajectory Analysis — Temporal Patterns

Beyond the cross-sectional differences captured by ANOVA, the temporal trajectories of ROE across companies reveal important patterns about competitive dynamics in the Indian AMC industry.

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Company	ROE Trend (FY13–FY22)	Trajectory Type	Net Change (ppts)	Primary Driver
Axis MF	27.2% → 45.2%	Consistently Rising ↑↑	**+ 18.0 ppts**	Quality-growth philosophy + 42% direct plan share + lean CS
SBI MF	14.8% → 23.4%	Steadily Rising ↑	**+ 8.6 ppts**	EPFO mandate + branch network expansion + consistent profit retention
DSP MF	25.5% → 31.2%	Steadily Rising ↑	**+ 5.7 ppts**	BlackRock investment discipline + stable post-2018 trajectory
IDFC MF	20.5% → 30.2%	Steadily Rising ↑	**+ 9.7 ppts**	Fixed income franchise + expense control
L&T MF	18.8% → 26.5%	Steadily Rising ↑	**+ 7.7 ppts**	Consistent improvement; acquisition uncertainty FY2022
ICICI Pru MF	11.5% → 18.0%	Slowly Rising ↑	**+ 6.5 ppts**	Large equity base limits ROE despite strong absolute PAT
Kotak MF	22.5% → 23.8%	Relatively Flat ~	**+ 1.3 ppts**	HNI-focused model; equity retention dilutes denominator
Aditya Birla MF	19.8% → 22.8%	Mildly Rising then Dip ↑↓	**+ 3.0 ppts**	COVID-19 debt fund crisis FY2020-21 disruption
Nippon India MF	16.1% → 25.8%	V-Shaped ↓↑	**+ 9.7 ppts**	Transition disruption FY2017-20 then post-rebranding recovery
HDFC MF	37.8% → 29.8%	Rising then Declining ↑↓	**− 8.0 ppts**	Denominator dilution — NW grew 6.2× from profit retention

Table 5: ROE Trajectory Analysis — All Ten Companies (FY 2012-13 to FY 2021-22). Net Change = FY2022 ROE minus FY2013 ROE. Trajectory type classified by the Author based on year-by-year pattern. Source: Compiled from Audited Annual Reports.

Table 5 reveals that nine of ten companies show improved ROE from FY2013 to FY2022, with only HDFC Mutual Fund recording a net decline. However, as discussed in Section 4.2, HDFC MF's apparent ROE decline is entirely attributable to denominator-dilution from exceptional profit retention — its absolute PAT grew from ₹280 crores (FY2013) to ₹1,393 crores (FY2022, 4.97-fold growth) while net worth grew from ₹741 crores to ₹7,245 crores (9.78-fold growth). The industry's universal upward ROE trajectory, interrupted only by COVID-19 in FY2019-20, confirms that the Indian AMC sector is in a strong and sustained profitability expansion phase driven by AUM scale growth and progressive expense efficiency improvement.

4.6 Structural Determinants of ROE Differentials

Having confirmed significant inter-company ROE differences through ANOVA (Section 4.3), this section investigates the structural factors that explain why some companies consistently achieve higher ROE than others. Three structural variables are examined: capital structure (D/E ratio), expense efficiency (expense ratio), and scale (AUM CAGR).

	Avg ROE (%)	Avg D/E Ratio	Avg NPM (%)	Avg ER (%)	AUM CAGR (%)	FM Rank	CS Rank
HDFC MF	**38.7%**	0.107	44.3%	55.7%	10.4%	#1	#1
Axis MF	**38.8%**	0.091	30.3%	69.7%	15.7%	#2	#2
DSP MF	**28.8%**	0.125	30.1%	69.9%	9.1%	#8	#6
IDFC MF	**26.2%**	0.166	30.8%	69.2%	9.0%	#9	#9
Kotak MF	**25.0%**	0.103	29.6%	70.4%	12.2%	#4	#3
Aditya Birla	**23.7%**	0.157	30.5%	69.5%	9.0%	#7	#7
L&T MF	**23.7%**	0.195	32.3%	67.7%	6.7%	#10	#10
Nippon India	**23.1%**	0.176	35.0%	65.0%	8.3%	#6	#8
SBI MF	**20.3%**	0.137	30.9%	69.1%	13.2%	#3	#4
ICICI Pru MF	**15.9%**	0.134	30.8%	69.2%	11.0%	#5	#5

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Table 6: ROE and Structural Determinants — All Ten Companies (10-Year Averages). CS Rank = Capital Structure Efficiency Rank (from full study panel analysis). FM Rank = Fund Management Efficiency Rank. Correlation row shows Pearson r between each variable and average ROE across the ten companies (N = 10 company averages). Source: Compiled from Audited Annual Reports and AMFI AUM Data.

Table 6 reveals the correlational structure of ROE determinants. Net Profit Margin shows the strongest positive correlation with ROE (r = +0.891), confirming that profitability efficiency — the proportion of revenue retained as profit — is the primary determinant of cross-company ROE differentials. The Expense Ratio shows a symmetric negative correlation (r = −0.891) — companies with lower expense ratios achieve higher net profit margins and consequently higher ROE. The D/E ratio shows a negative correlation with ROE (r = −0.398) — consistent with the Pecking Order Theory prediction and the broader panel regression finding (D/E-ROE r = −0.742, $p < 0.001$ from the N=100 observation dataset), though this is attenuated at the company-average level due to the small sample (N=10 company means). AUM CAGR shows only a weak positive correlation (r = +0.162), suggesting that revenue scale growth alone is not the primary determinant of sustained high ROE — consistent with the observation that SBI MF (highest AUM CAGR among the mid-ROE group at 13.2 percent) achieves only 20.3 percent average ROE, while Axis MF (highest AUM CAGR overall at 15.7 percent) achieves the highest ROE (38.8 percent) because of the simultaneous advantages of strong NPM and low D/E.

The ICICI Prudential MF anomaly deserves specific attention. Despite being the second-largest AMC by AUM (Rs.5,25,400 crores, FY2022), having a strong absolute PAT (Rs.1,178 crores, FY2022), and maintaining a moderate D/E ratio (0.134 average), ICICI Pru MF records the lowest average ROE (15.9 percent). The explanation lies entirely in its exceptional equity base: with net worth of Rs.7,580 crores (FY2022) — the largest in the sample — the denominator of the ROE formula is so large relative to PAT that the resulting ROE ratio is consistently low. This denominator-dilution effect is the direct consequence of the company's large historical equity base built through decades of profit retention and, paradoxically, confirms Pecking Order Theory: ICICI Pru MF's profitability has been efficiently converted into equity accumulation — exactly the theory's prediction for consistently profitable firms.

5. DISCUSSION

5.1 Statistical Significance and Economic Significance

The ANOVA results ($F = 18.42$, $p < 0.001$, $\eta^2 = 0.648$) demonstrate that inter-company ROE differences are not only statistically significant but economically substantial. An η^2 of 0.648 implies that if one were to randomly select any two ROE observations from the dataset — one from Axis MF and one from ICICI Pru MF — the expected ROE difference would be 22.9 percentage points, which at a 26.4 percent grand mean ROE represents an 87 percent relative difference. For investors, this magnitude of ROE differentiation has major implications for the valuation and investment merit of listed AMC stocks.

The three-tier performance classification provides an intuitive framework. Tier 1 (Axis MF and HDFC MF) represents companies where capital structure efficiency (low D/E) combines with profitability efficiency (high NPM) to generate consistently superior ROE. Tier 2 represents companies where moderate leverage and moderate expense management produce mid-level ROE. Tier 3 (ICICI Pru MF) represents a special case where a large equity inheritance from historical profit accumulation depresses ROE arithmetically despite strong absolute profitability. This three-tier structure is persistent across the entire study decade, indicating genuine competitive differentiation rather than transient performance variation.

5.2 Capital Structure and ROE — The Leverage-Profitability Nexus

The negative correlation between D/E ratio and ROE (r = −0.398 at company-average level; r = −0.742, $p < 0.001$ at panel observation level from the full N=100 dataset) provides case-level confirmation of the Pecking Order Theory prediction: companies with lower leverage maintain lower interest expense, higher net profit margins, and consequently higher ROE through the profit margin component of the DuPont decomposition. The two Tier-1 companies (Axis MF average D/E 0.091; HDFC MF average D/E 0.107) have the lowest leverage in the sample. L&T MF — with the highest average D/E (0.195) — ranks seventh of ten on ROE (23.7 percent), well below the industry average.

This finding has a precise interpretation through the DuPont decomposition. For an AMC, where Asset Turnover is relatively stable (management fee revenue is a predictable function of AUM), the ROE drivers are: ROE = NPM ×

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Asset Turnover × (1 + D/E). While higher D/E mechanically increases the equity multiplier — which would tend to increase ROE for a given NPM — the ANOVA evidence shows that the net effect is negative, because the interest expense associated with higher D/E reduces NPM more than the equity multiplier effect increases it. This is the direct empirical mechanism through which lower leverage produces higher ROE in the Indian AMC context.

5.3 Axis Mutual Fund — Understanding the Fastest-Rising ROE

Axis Mutual Fund's trajectory from 27.2 percent (FY2013) to 45.2 percent (FY2022) — a consistent 18.0 percentage point improvement — is the most remarkable ROE trajectory in the sample and deserves specific explanation. Three structural factors converge. First, Axis MF maintained the lowest average D/E ratio in the sample (0.091, excluding HDFC MF at zero), ensuring minimal interest expense drag on NPM. Second, Axis MF achieved the highest AUM CAGR (15.7 percent) — growing from Rs.65,200 crores (FY2013) to Rs.2,45,200 crores (FY2022) — which generated operating leverage (revenue growing faster than fixed costs). Third, Axis MF's approximately 42 percent direct plan share (highest in sample by FY2022) progressively reduced distributor commission outflows, compressing the expense ratio and improving NPM. The three factors combined to produce a compounding ROE improvement that consistently widened the gap with the industry average.

5.4 HDFC Mutual Fund — The Denominator-Dilution Paradox

The apparent ROE decline of HDFC Mutual Fund — from 47.1 percent (FY2016-17) to 29.8 percent (FY2021-22) — is a paradox that the raw ROE number does not adequately capture. Absolute PAT grew from Rs.550 crores (FY2016-17) to Rs.1,393 crores (FY2021-22, 2.5-fold growth) while net worth grew from Rs.1,168 crores to Rs.7,245 crores (6.2-fold growth) as profits were retained and equity compounded. This produces declining ROE purely arithmetically — the Pecking Order denominator-dilution effect. When NPM is used instead of ROE as the profitability measure, HDFC MF's superiority is clear: average NPM of 44.3 percent in the full study period, rising to 60.4 percent in FY2020-21 — the highest NPM recorded in any year by any company in the sample. The HDFC MF case illustrates why ROE should be evaluated alongside NPM when assessing profitability in firms with rapidly accumulating equity bases.

5.5 Implications for SEBI and Regulatory Policy

The three-tier ROE classification has an important regulatory implication. The statistically confirmed ROE differentials — with $\eta^2 = 0.648$ indicating that company identity explains 64.8 percent of ROE variance — suggest that structural characteristics of individual AMCs (capital structure, expense management, distribution model) are far more important determinants of financial performance than industry-wide factors. This has two regulatory implications. First, SEBI's current disclosure framework — which focuses on scheme-level performance (NAV returns, TER, Sharpe ratio) — should be supplemented with mandatory standardised AMC-level corporate financial disclosures (ROE, D/E ratio, expense ratio) to enable investor comparison. Second, the 39.6× to 156.5× range of capital adequacy ratios (actual net worth ÷ SEBI minimum ₹50 crores) among the ten companies suggests that the regulatory floor is non-binding and should be updated to a dynamic AUM-linked standard.

6. CONCLUSION

This article has tested whether statistically significant differences in Return on Equity (ROE) exist across ten selected Indian mutual fund companies for the period FY 2012-13 to FY 2021-22. The null hypothesis H_{01} — that no significant ROE difference exists — is decisively rejected ($F = 18.42$, $df = 9, 90$, $p < 0.001$, $\eta^2 = 0.648$). The large effect size of 0.648 indicates that company identity alone explains 64.8 percent of all ROE variability across 100 observations, confirming that inter-company ROE differences in the Indian AMC sector are structurally embedded, persistent, and economically substantial.

Tukey's HSD post-hoc analysis identifies three distinct performance tiers: Tier 1 (High ROE) comprising Axis MF and HDFC MF (average ROE 38.8 percent and 38.7 percent respectively); Tier 2 (Mid ROE) comprising seven companies with average ROE ranging from 20.3 percent to 28.8 percent; and Tier 3 (Low ROE) represented by ICICI Prudential MF (average ROE 15.9 percent). The inter-tier range of 22.9 percentage points between Tier 1 and Tier 3 is statistically significant at $p < 0.05$ for all Tier 1 vs Tier 3 pairwise comparisons.

The structural determinants analysis identifies Net Profit Margin ($r = +0.891$ with ROE) and Expense Ratio ($r = -0.891$ with ROE) as the primary ROE differentiators, with the D/E ratio playing a supporting role through the interest expense transmission channel ($r = -0.398$ at company-average level; $r = -0.742$, $p < 0.001$ at the full panel level). The

findings are consistent with the Pecking Order Theory prediction that profitable, internally-financed firms maintain lower leverage and consequently deliver higher ROE — and with the denominator-dilution corollary that companies retaining the highest profits experience declining ROE ratios despite growing absolute profitability.

The article has several limitations. First, the ROE measure is computed from accounting data and may be influenced by accounting policy choices (e.g., depreciation methods, provisions). Second, the ten-company sample, while representing 73.6 percent of industry AUM, does not capture smaller or specialist AMCs. Third, this article does not formally test the causal relationships between structural determinants (D/E, ER) and ROE using multivariate regression — a natural extension for future research.

Future research directions include: (1) a formal multivariate regression analysis of ROE determinants for Indian AMCs, distinguishing the independent contributions of capital structure, expense efficiency, and scale; (2) an extended sample covering all 44 registered AMCs; (3) a comparison of accounting-based ROE with market-based measures (Tobin's Q, P/B ratio) for the three listed AMCs; and (4) a cross-country comparative study examining whether similar ROE differentials exist in AMC sectors in the USA, UK, and other Asian markets.

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