

Original Research

Received 28 May 2026

Revised 22 June 2026

Accepted 17 July 2026

Natural Resources for Human
Health 2026, Vol. 6 (9s): 1204–1209

KEYWORDS:

Index Mutual Funds, Risk-
Adjusted Performance, Sharpe
Ratio, SEBI Regulations 2026,
Tracking Fidelity.

A Study on the Performance Evaluation of Selected Index Mutual Funds in India: An Empirical Analysis Under the SEBI Regulations, 2026 and AMFI Industry Landscape

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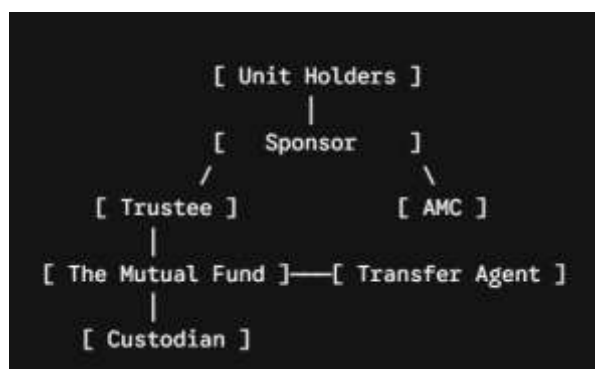
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ABSTRACT: This study evaluates the risk-adjusted performance of five major Nifty 50 index mutual fund schemes in India: ICICI Prudential Nifty Index Fund (G), SBI Nifty Index Fund-REG (G), TATA Nifty Index Fund-REG (G), LIC MF Nifty Index Fund (G), and IDBI Nifty Index Fund (G). Utilizing monthly Net Asset Value (NAV) data over a four-year analytical horizon, statistical parameters including Average Return, Standard Deviation, Variance, Covariance, Correlation, and Beta were calculated alongside classic modern portfolio performance metrics—specifically the Sharpe Ratio and Treynor Ratio. The empirical findings reveal near-perfect correlation ($r \geq 0.997$) across schemes relative to the benchmark index, reflecting passive tracking fidelity. TATA Nifty Index Fund demonstrated superior risk-adjusted execution across Sharpe (0.0038) and Treynor (0.0044) metrics due to tighter total risk management. These empirical results are contextualized against SEBI's regulatory reforms—including the SEBI (Mutual Funds) Regulations, 2026, the MF Lite framework for passive schemes, and unbundled Base Expense Ratio (BER) caps—providing strategic insights for retail investors, fund managers, and asset management companies (AMCs).

1. INTRODUCTION

A mutual fund acts as a financial conduit that pools capital from retail and institutional investors to invest in a diversified portfolio of capital market instruments, such as equities, debentures, and money market securities. Passive mutual funds, specifically Index Mutual Funds, seek to replicate the composition and weightings of a chosen benchmark equity index (such as the Nifty 50 or BSE Sensex) without engaging in active security selection. By minimizing human bias and manager discretion, index funds aim to provide broad market exposure, minimal style drift, low portfolio turnover, and lower management costs.



The Indian mutual fund ecosystem has undergone structural expansion, with industry Assets Under Management (AUM) crossing ₹82 lakh crore as of mid-2026. This growth is largely supported by systematic investment plans (SIPs) from retail households, digital onboarding platforms, and financial awareness campaigns driven by the Association of Mutual Funds in India (AMFI). Concurrently, the Securities and Exchange Board of India (SEBI) has updated its market microstructure rules:

- **SEBI (Mutual Funds) Regulations, 2026:** Formally notified in January 2026 to supersede the legacy 1996 framework, these regulations streamlined regulatory code by 54% and institutionalized modernized asset management practices.
- **Mutual Fund Lite (MF Lite) Framework:** Codified to offer a simplified compliance framework for passive-only asset managers, lowering sponsor net-worth thresholds (down to ₹25–50 crore) and simplifying disclosure documents to encourage low-cost index products.
- **Unbundled Fee & Expense Architecture:** Effective April 1, 2026, SEBI unbundled the legacy Total Expense Ratio (TER) into a capped **Base Expense Ratio (BER)** (capped at 0.90% for index funds and ETFs), while separating statutory levies (GST, STT) and brokerage costs (capped at 6 bps for cash market transactions) on actuals.

This paper performs an empirical evaluation of five leading Nifty 50 index mutual fund schemes to measure tracking behavior, variance, and risk-adjusted efficiency.

2. LITERATURE REVIEW

The academic evaluation of mutual fund efficiency traces its roots to Modern Portfolio Theory (Markowitz, 1952) and the Capital Asset Pricing Model (Sharpe, 1964; Treynor, 1965; Jensen, 1968).

- **Tripathy (2004)** evaluated Indian mutual fund performance using risk-adjusted return measures (Sharpe, Treynor, Jensen), observing that portfolio selection skill varies significantly across active equity fund managers.
- **Mohammedzaheeruddin (2013)** examined equity funds relative to the S&P CNX Nifty Index, observing that active management frequently incurs operational fees without delivering consistent benchmark-beating alpha.
- **Dwivedi et al. (2014)** reviewed the applicability of classical quantitative ratios in evaluating fund efficiency, emphasizing that Sharpe and Treynor models remain fundamental metrics for benchmarking portfolio risk-adjusted returns.
- **Masiperiyannan & Mohanamani (2016)** and **Ojha (2017)** evaluated open-ended diversified equity funds, highlighting that expense ratios and tracking friction play a direct role in long-term unitholder value generation.
- **Dash & Lali (2018)** and **Jasmine (2018)** analyzed investor perceptions, concluding that low-cost, professionally managed funds serve as efficient wealth-accumulation tools for risk-averse investors.
- **Thakkar (2019)** utilized Data Envelopment Analysis (DEA) to analyze equity growth schemes, observing volatility across multi-year cycles and recommending automated, rule-based investment mandates.
- **Hymavathi (2021)** conducted risk-return trade-off analysis across equity and debt funds, noting the need to study index mutual funds as a distinct category.

Existing literature focuses predominantly on active equity, hybrid, or debt schemes, leaving a clear research gap in evaluating passive index mutual funds under updated regulatory regimes. This study addresses that gap.

3. DATA AND METHODOLOGY

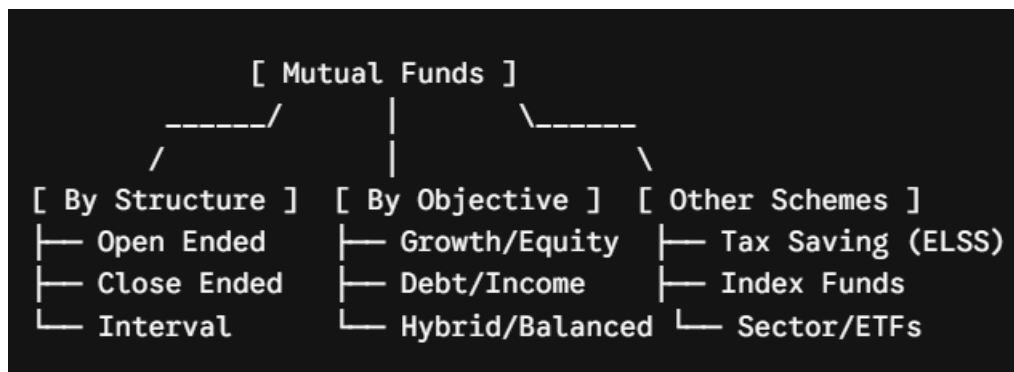
3.1 Sample Universe

The analytical sample comprises five major Nifty 50 index mutual fund schemes in India:

1. **ICICI Prudential Nifty Index Fund (Growth)**
2. **TATA Nifty Index Fund (Growth)**
3. **SBI Nifty Index Fund - Regular (Growth)**

4. LIC MF Nifty Index Fund (Growth)

5. IDBI Nifty Index Fund (Growth)



3.2 Quantitative Formulas

The empirical framework utilizes secondary NAV data collected over a four-year monthly frequency. Data processing and matrix calculations were executed in MS Excel.

□ Average Return ($\bar{R}_p$):

$$\bar{R}_p = \frac{\sum_{t=1}^N R_{p,t}}{N}$$

□ Standard Deviation (σ_p): Measures total volatility (systematic plus unsystematic risk):

$$\sigma_p = \sqrt{\frac{\sum_{t=1}^N (R_{p,t} - \bar{R}_p)^2}{N - 1}}$$

□ Variance (σ_p^2): Square of the standard deviation representing overall portfolio disperse value.

□ Covariance ($\text{Cov}_{p,m}$): Measures joint variability between the fund's return (R_p) and the market benchmark return (R_m):

$$\text{Cov}_{p,m} = \frac{\sum (R_{p,t} - \bar{R}_p)(R_{m,t} - \bar{R}_m)}{N - 1}$$

□ Correlation Coefficient ($r_{p,m}$):

$$r_{p,m} = \frac{\text{Cov}_{p,m}}{\sigma_p \cdot \sigma_m}$$

□ Beta Coefficient (β_p): Volatility measure relative to systematic market movements:

$$\beta_p = \frac{\text{Cov}_{p,m}}{\sigma_m^2}$$

□ Sharpe Ratio: Measures excess return relative to total portfolio risk (σ_p):

$$\text{Sharpe Ratio} = \frac{\bar{R}_p - R_f}{\sigma_p}$$

□ Treynor Ratio: Measures excess return relative to systematic risk (β_p):

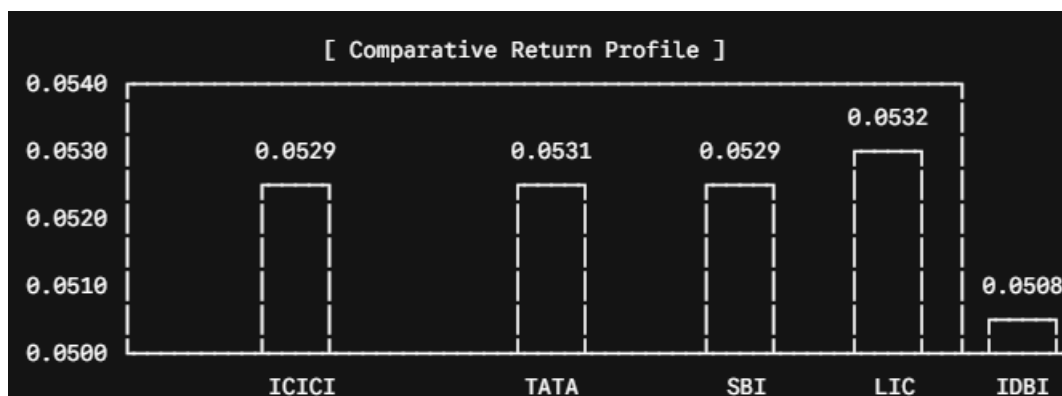
$$\text{Treynor Ratio} = \frac{\bar{R}_p - R_f}{\beta_p}$$

4. ANALYSIS AND FINDINGS

The processed statistical parameters derived from the four-year empirical dataset across the five selected index funds are compiled below:

Master Statistical Performance Summary

Statistical Metric	ICICI Pru Nifty	TATA Nifty	SBI Nifty	LIC MF Nifty	IDBI Nifty
Average Return	0.0529	0.0531	0.0529	0.0532	0.0508
Annualized Return Metric	0.0044	0.0045	0.0044	0.0044	0.0042
Variance	1.3980	1.3510	1.4100	1.4000	1.4100
Standard Deviation (σ)	1.1826	1.1626	1.1907	1.1844	1.1904
Covariance	N/A	1.3733	1.4068	1.3992	1.4063
Correlation (r)	N/A	0.9970	0.9980	1.0000	0.9990
Beta (β)	N/A	1.0159	0.9921	0.9973	0.9925
Treynor Model	N/A	0.0044	0.0044	0.0044	0.0043
Sharpe Model	N/A	0.0038	0.0037	0.0037	0.0036



Detailed Evaluation of Key Parameters

1. Average & Annualized Returns:

- **LIC MF Nifty Index Fund** generated the highest monthly average return (0.0532), followed by **TATA Nifty Index Fund** (0.0531).
- **IDBI Nifty Index Fund** generated the lowest average return (0.0508) and annualized return metric (0.0042).
- **TATA Nifty Index Fund** posted the highest annualized return metric (0.0045).

2. Total Volatility (Standard Deviation & Variance):

- **TATA Nifty Index Fund** demonstrated the lowest risk profile ($\sigma = 1.1626$; Variance = 1.3510).
- **SBI Nifty** ($\sigma = 1.1907$) and **IDBI Nifty** ($\sigma = 1.1904$) carried higher variance profiles (1.4100), reflecting greater tracking variance.

3. Systematic Risk & Correlation:

- **Linear Correlation (r):** All five funds maintained near-perfect correlation with the underlying Nifty index, ranging from 0.9970 (TATA) to 1.0000 (LIC MF).
- **Beta (β):** **TATA Nifty** operated with a Beta slightly above unity ($\beta = 1.0159$). Conversely, **SBI Nifty** ($\beta = 0.9921$), **IDBI Nifty** ($\beta = 0.9925$), and **LIC MF Nifty** ($\beta = 0.9973$) exhibited slightly defensive behavior ($\beta < 1.00$).

4. Risk-Adjusted Ratios (Sharpe & Treynor):

- **Sharpe Ratio:** **TATA Nifty Index Fund** achieved the highest Sharpe ratio (0.0038), outperforming **SBI Nifty** (0.0037), **LIC MF Nifty** (0.0037), and **IDBI Nifty** (0.0036).
- **Treynor Ratio:** TATA, SBI, and LIC posted identical Treynor scores (0.0044), while IDBI lagged slightly at 0.0043.

5. Industry Implications Under SEBI & AMFI Mandates

The performance differences observed across index mutual funds stem from operational factors, including expense ratios, transaction drag, cash holding buffers, and portfolio execution:

1. Impact of the MF Lite Regime:

Under the SEBI (Mutual Funds) Regulations, 2026, passive fund sponsors operating under the MF Lite framework benefit from streamlined compliance structures and lower capital entry requirements. This regulatory model reduces fund house overhead, enabling lower expense ratios and better tracking efficiency for investors.

2. Unbundled Base Expense Ratio (BER) Framework:

Prior to 2026, funds reported a single, bundled Total Expense Ratio (TER). Under the modernized framework, the Base Expense Ratio (BER) for index funds is capped at 0.90%, with trading brokerage (6 bps max for equity cash) and statutory levies (STT, GST) charged separately. This fee transparency prevents hidden charges from diluting long-term compounding returns for unitholders.

3. Mandatory Overlap & Style Disclosure:

SEBI's 2026 guidelines require monthly disclosure of portfolio overlap (capped at 50% for similar category schemes) and strict tracking error reporting. This ensures that passive index funds maintain direct replication fidelity relative to their underlying benchmark.

6. RECOMMENDATIONS & STRATEGIC CONCLUSIONS

6.1 Recommendations for Unitholders

- **Primary Recommendation:** **TATA Nifty Index Fund** is the most optimal scheme within the evaluated cohort due to its lower total volatility ($\sigma = 1.1626$) and higher Sharpe ratio (0.0038).
- **Selection Criteria:** Investors should evaluate passive funds using risk-adjusted metrics (Sharpe ratio, Beta, and tracking error) alongside Expense Ratio disclosures, rather than relying solely on Net Asset Value (NAV) numbers.
- **Defensive Asset Allocation:** For conservative unitholders seeking lower systematic exposure, schemes with Beta values below 1.00 (such as SBI Nifty and LIC MF Nifty) provide steady alignment with benchmark returns.
- **Portfolio Construction:** Allocations to underperforming funds with higher operational drag (such as IDBI Nifty Index Fund) should be reviewed to optimize portfolio efficiency.

6.2 Conclusion

This empirical study demonstrates that passively managed index mutual funds provide an efficient vehicle for capturing long-term market growth. Four out of the five evaluated Nifty index schemes demonstrated strong tracking alignment and consistent risk-adjusted performance. Supported by SEBI's 2026 regulatory updates—including the MF Lite framework and unbundled BER fee limits—index mutual funds remain a transparent, low-cost investment channel for retail and institutional investors in India.

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