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Analysis of Mutual Funds: Performance Evaluation, Risk Assessment & Investment Insights

Md. Ehtasamul Haque[1]; Shilpa Sharma[2]

(Student)[1] (Lecturer)[2]

[1,2]The Bhawanipur Education Society College Kolkata, West Bengal

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Abstract: This study presents a comprehensive analysis of mutual funds across equity, hybrid, and debt categories in the Indian financial market, focusing on their performance evaluation, risk assessment, and investment suitability. Utilizing a range of quantitative metrics such as Sharpe Ratio, Sortino Ratio, Alpha, Beta, Standard Deviation, R-squared, CAGR, Expense Ratio, and Treynor Ratio, the research evaluates 18 different mutual fund categories over a three-year period (2022– 2025). The findings highlight significant variation in risk-return profiles across fund types, offering tailored insights for investors based on their risk preferences—aggressive, balanced, or conservative. The study reveals that while certain actively managed funds outperform benchmarks on a risk- adjusted basis, many fail to justify higher costs. The analysis also emphasizes the importance of cost- efficiency, long-term consistency, and investor awareness in fund.

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I. INTRODUCTION

A mutual fund is an investment tool where capital is collected from numerous investors to invest in a range of financial instruments like stocks, bonds, and other assets. These funds are managed by experienced fund managers who make decisions on behalf of the investors. This diversification helps spread risk across assets, potentially resulting in better returns. In mutual funds, people combine their money to invest jointly, benefiting from lower costs and expert guidance. Instead of buying individual stocks or bonds, we purchase fund units, becoming part- owners of its holdings. By investing in a mutual fund, we are hiring professionals to grow our money. These managers evaluate options, choose assets, and track performance based on the fund's objectives—whether targeting growth, income, or index alignment.

➢ *The Key Features of Mutual Funds Are:*

- *Diversification :*
  Spreads investments across multiple assets to reduce risk.

- *Transparency :*
  Fund performance and holdings are regularly disclosed.

- *Professional Management :*
  Managed by experienced fund managers who research and select investments.

- *Affordability :*
  We can start investing with as little as ₹100 (especially in SIPs)

- *Liquidity :*
  Most mutual funds (especially open-ended ones) can be easily be bought or sold.

II. LITERATURE REVIEW

➢ *Barua, S.K., Raghunathan, V., & Varma, J.R. (1991) :*
This early Indian study examined the efficiency and performance of mutual funds by analyzing returns relative to risk using Sharpe and Treynor measures. The research highlighted that Indian mutual funds, in their formative years, lacked consistent performance and often underperformed market indices. The study laid the groundwork for Indian mutual fund performance analysis and underscored the need for better fund management practices and regulatory oversight.

➢ *Prasanna Chandra (2001):*
Chandra evaluated the risk-return profile of Indian equity mutual funds using traditional metrics like Sharpe, Treynor, and Jensen's Alpha. The study found that while

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some funds outperformed the market, most failed to justify their fees when adjusted for risk. This research emphasizes the importance of investor awareness and the growing need for transparency in fund disclosures and performance attribution in India.

- *Gupta, A. (2001):*

This study evaluated the performance of Indian mutual funds using Sharpe, Treynor, and Jensen's Alpha measures. It found that while some funds achieved excess returns, most failed to consistently outperform market benchmarks. The study also linked performance variability to management style and broader market volatility.

It provides region-specific insights and underlines the importance of fund strategy and economic conditions in assessing mutual fund performance in emerging markets

- *Triparty, N.P. (2007) :*

This study analyzed the performance of equity-diversified mutual funds in India from 1997 to 2007. It applied various risk-adjusted measures and concluded that market volatility significantly impacted returns, and that only a few fund managers showed persistent outperformance, It contributed to literature by highlighting the role of macroeconomic cycles and fund manager decisions in shaping mutual fund performance in the Indian capital markets.

- *Sehgal, S., & Jhanwar, M. (2008):*

Sehgal and Jhanwar examined the market timing and selectivity skills of Indian mutual fund managers using the Treynor- Mazuy and Henriksson-Merton models. The study found little evidence of effective market timing, but selectivity contributed modestly to fund performance.Their work adds to the Indian literature by questioning the value of active management and suggesting limited scope for consistent alpha generation in Indian mutual funds.

- *Sondhi, H.J., & Jain, P.K. (2010):*

This study examined the risk-adjusted performance of Indian mutual funds during pre- and post-recession periods (2007–2009), using Sharpe, Treynor, and Jensen's Alpha. It found a significant drop in fund performance during the crisis, with very few funds able to outperform the market even during recovery phases. The study emphasizes the vulnerability of Indian mutual funds to global shocks, highlighting the need for robust risk management and diversification strategies in portfolio design

- *Singh, R. & Yadav, R.A. (2015):*

This research assessed performance consistency among Indian mutual funds using monthly NAVs of equity-oriented schemes over a 5- year period. It applied statistical tools like the Information Ratio and Sortino Ratio, concluding that while a few funds displayed persistence in performance, the majority did not beat market benchmarks consistently. The study provides valuable investment investment insights for retail investors, indicating that fund selection should be based on long-term consistency rather than short- term returns.

- *Sharma, R. & Mehta, D. (2018):*

The authors analyzed systematic risk exposure of Indian mutual funds using the Capital Asset Pricing Model (CAPM) and Multi-Factor Models. Results indicated that fund returns were largely influenced bymarket movements, with minimal alpha generation. High-expense funds often yielded poorer net returns.

The study highlights the importance of cost- efficiency and market sensitivity in evaluating mutual fund performance in India's dynamic economic environment

- *Bansal, V., & Gupta, S. (2020):*

This recent study used performance metrics and investor perception surveys to evaluate both quantitative and qualitative aspects of Indian mutual funds. While funds with moderate risk profiles attracted more investors, performance was not the only consideration—brand trust and past reputation also influenced investor decisions .The study contributes to a holistic view of investment insights, integrating behavioral finance with traditional risk-return evaluation in the Indian context.

III. RESEARCH OBJECTIVES

- To evaluate and analyse the historical performance of 18 different categories of mutual funds across Equity, Hybrid, and Debt segments over the last 3 years (2022-2025) using key financial quantitative metrics
- To assist investors in portfolio construction and fund selection by identifying fund types best suited for each investor style, based on a comprehensive multi-metric comparison.
- To compare mutual fund performance against peer funds in the same category as
  Well as different category.

IV. RESEARCH METHODOLOGY

This study analyzes 18 different categories of mutual funds using various nine quantitative financial tools to assess risk, evaluate performance, and provide investment insights.

- *Research Design :*

This study follows Longitudinal Research Design with a descriptive approach to analyze data given over a specific period of time ,in this case 3 years (2022-2025)

- *Research Approach :*

The approach used in this study is quantitative approach, as it involves collecting data through different websites and sources.

- *Data Collection Method :*

The data used in this study is Secondary in nature , collected from credible and relevant sources.

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➢ *Time Period :*

The time period taken is of last 3 years i.e. 2022-23,2023-24 ,2024- 25 as latest as of May ,2025.

➢ *Tools and Techniques:*

- To analyze the respective mutual funds , nine financial quantitative tools is used in this study:

✓ *Sharpe Ratio*
✓ *Sortino Ratio*
✓ *Alpha*
✓ *Beta*
✓ *R Squared Ratio*
✓ *Standard Deviation*
✓ *Expense Ratio*
✓ *Treynor Ratio*
✓ *Cagr*

- Total 18 different categories of mutual funds types is considered in this study ; divided into

➢ *Equity :*

Large Cap, Mid Cap. , Small Cap. , Multi Cap. , Flexi Cap. , Index Funds, ELSS Fund

➢ *Hybrid :*

Hybrid Fund : Aggresive, Hybrid Fund : Conservative, Arbritrage Fund

➢ *Debt :*

Debt : Short Duration, Debt: Medium Duration, Debt:, Long Duration, Gilt Fund , Corporate Bond Fund , Banking & PSU Fund, Dynamic Bond, Floater Fund

- The average of every category of different fund's house mutual fund is taken in this study

- Only Direct Plan is considered in this study for every type of mutual fund.

V. LIMITATIONS OF THE STUDY

➢ *Data Availability and Accuracy:*

The analysis is based on historical data, which may suffer from gaps, inaccuracies, or inconsistencies due to differing reporting standards among mutual fund houses.

➢ *Limited Time Frame :*

The study examines fund performance over the past 3 years only, which may not capture long-term market trends or the effects of different economic cycles.

➢ *Restricted Fund Coverage & Mutual Fund Plans :*

Only selected categories of mutual funds and direct plans were analyzed. This narrow scope may not represent the broader mutual fund market or include all investment options available to investors.

➢ *Simplified Risk Assessment :*

Risk was evaluated using quantitative measures like standard deviation, Sharpe ratio, and beta. However, these metrics may not fully capture qualitative risks such as fund manager changes, economic policy shifts, or market disruptions**.**

➢ *Lack of Personalization :*

The findings are generalized and do not account for individual investor profiles, including financial goals, tax situations, or risk tolerance levels.

VI. DATA ANALYSIS & INTERPRETATION

➢ *Methods of Analysing Mutual Funds*

- *Sharpe Ratio*

The Sharpe Ratio is a widely used measure to evaluate the risk- adjusted return of a mutual fund. It helps investors understand how much excess return they are earning for the extra risk they are taking compared to a risk-free investment. It is developed by American economist and Noble laureate William F. Sharpe.

Higher Sharpe Ratio means greater returns from an investment but with a higher risk level.

$$\textbf{FORMULA : Sharpe Ratio} = \frac{R_p - R_f}{\sigma_d}$$

Where:

- R_p= Return of the portfolio (e.g., Nifty 50 returns or your mutual fund returns)
- R_f = Risk-free rate (typically the yield on a 10-year Indian Government Bond or fixed deposit rates)
- σ_d = Standard deviation of portfolio returns (volatility)

Table 1 Summary of Different Categories of Mutual Funds and Their Average Sharpe Ratio Values of Last 3 Years (2022-2025)

SL No.	Fund Type	Sharpe Ratio	SL No.	Fund Type	Sharpe Ratio
1	Large Cap	0.51	10	Arbitrage Fund	-0.27
2	Mid Cap	0.79	11	Debt: Short Duration	-0.59
3	Small Cap	0.7	12	Debt: Medium Duration	-0.21
4	Multi Cap	0.72	13	Debt: Long Duration	0.38
5	Flexi Cap	0.57	14	Gilt Fund	0.12
6	Index Funds	0.26	15	Corporate Bond Fund	-0.58

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➢ *Graphical Presentation of this Data:*

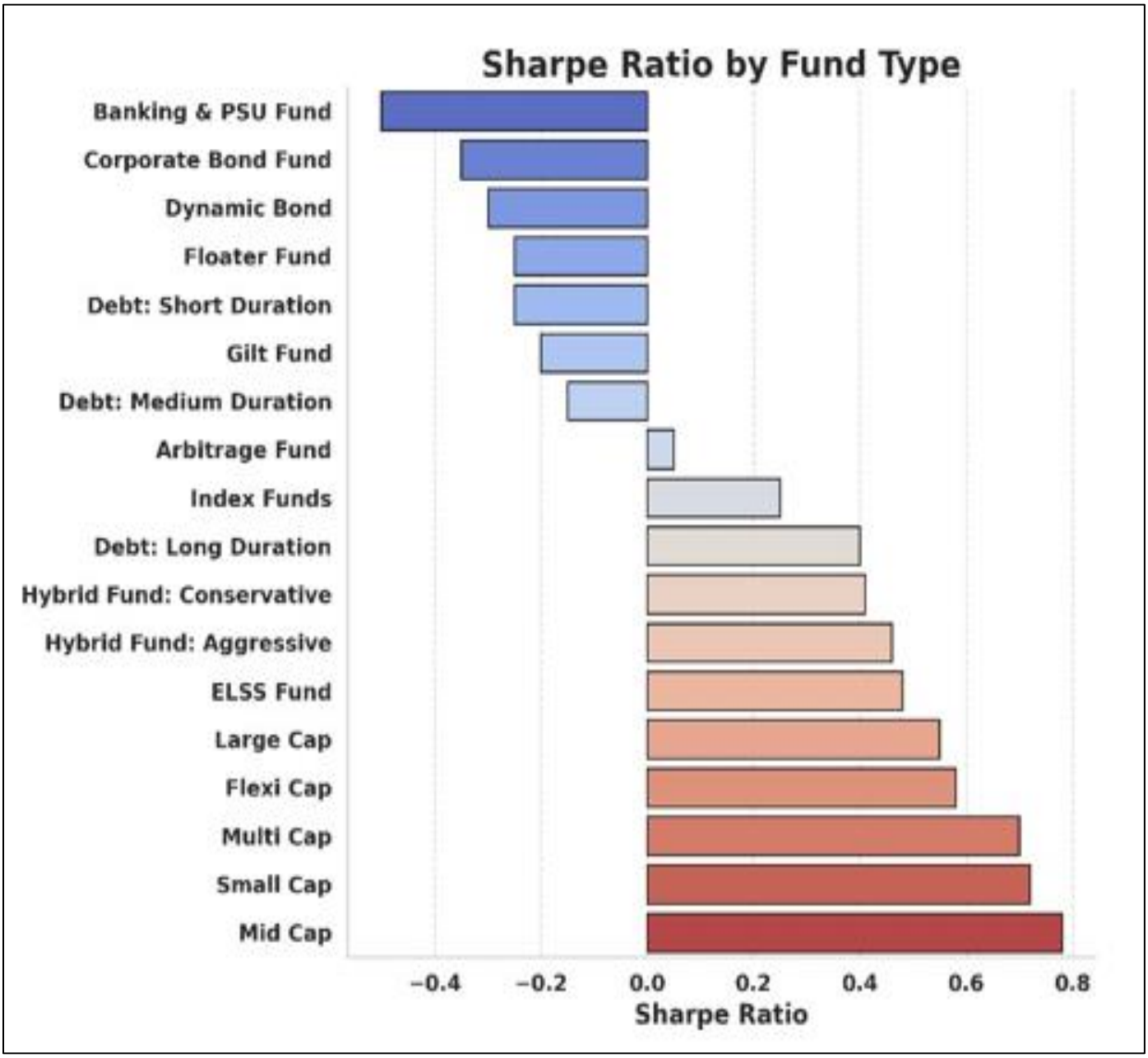

Fig 1 Graphical Presentation of This Data

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➢ *Data Interpretation & Findings*

Table 2 Data Interpretation & Findings:

SHARPE RATIO	INTERPRETATION
Less than 0.5	**Poor** (Investment's returns are low relative to the risk taken)
0.5 – 1.0	**Moderate** (Returns are decent but not outstanding for the risk level. Suitable for conservative or balanced investors.)
1.0 – 1.5	**Good** (Indicates solid risk-adjusted returns. The investment is efficiently compensating for the risk taken.)
1.5 – 2.0	**Very Good** (Strong returns relative to risk. Shows excellent fund management and good portfolio diversification.)
Greater than 2.0	**Excellent** (Outstanding risk-adjusted returns. The investment is delivering very high returns for the level of risk)

➢ *Data Interpretation by Investor Style*

- *Aggressive Investor*

✓ *Funds (High Sharpe Ratios)*
Mid Cap (0.79) ,Multi Cap (0.72) ,Small Cap (0.70) ,ELSS Fund (0.61) ,Hybrid Aggressive (0.60)

▪ *Insight*
These funds deliver high excess return per unit of total risk, ideal for growth-focused investors comfortable with volatility.

- *Balanced Investor*

✓ *Funds (Moderate Sharpe Ratios):*
Flexi Cap (0.57) ,Large Cap (0.51) ,Hybrid Conservative (0.46) ,Index Funds (0.26) ,Debt: Long Duration (0.38)

▪ *Insight:*
Suitable for investors seeking steady returns with moderate risk, balancing equity and debt exposure.

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- *Conservative Investor*

✓ *Funds (Positive But Lower Sharpe)*

Gilt Fund (0.12) ,Dynamic Bond (0.023) **Funds to Avoid (Negative Sharpe):**

Arbitrage Fund (−0.27) ,Debt: Short/Medium Duration (−0.59, −0.21) ,Corporate Bond Fund (−0.58), Banking & PSU Fund (−0.65) ,Floater Fund (−0.24)

- *Insight***:**

Conservative investors should avoid funds with negative Sharpe Ratios, which underperform relative to risk. Prefer select debt funds with at least positive risk-adjusted returns.

- *Sortino Ratio :*

The Sortino ratio was developed by Frank A. Sortino in the 1980s as an improvement to the Sharpe ratio. While the Sharpe ratio measures returns relative to total risk (both upside and downside volatility), Sortino argued that investors only care about downside risk — the risk of losing money.

The Sortino ratio is a measure of risk-adjusted return that focuses only on downside risk — the returns that fall below a certain minimum acceptable level. It helps investors understand how much return they're getting for the risk of losing money, without penalizing positive volatility.

A higher Sortino Ratio indicates better risk- adjusted returns by focusing only on downside volatility. It means the investment is generating strong returns while minimizing harmful or negative fluctuations, making it more attractive to risk-averse investors.

$$\textbf{FORMULA}: \text{Sortino Ratio} = \frac{R_p - R_f}{\sigma_d}$$

Where:

- R_p = Portfolio return
- R_f = Risk-free rate (like 10-year Indian G-Sec yield)
- σ_d = Downside deviation (volatility of negative returns)

Table 3 Summary of different categories of mutual funds and their average Sortino ratio values of last 3 years (2022-2025)

SL. No.	Fund Type	Sortino Ratio	SL. No.	Fund Type	Sortino Ratio	SL. No.
1	Large Cap	0.63	10	Arbitrage Fund	-0.18	1
2	Mid Cap	1.01	11	Debt: Short Duration	0.41	2
3	Small Cap	0.90	12	Debt: Medium Duration	-0.32	3
4	Multi Cap	0.39	13	Debt: Long Duration	0.10	4
5	Flexi Cap	0.76	14	Gilt Fund	0.14	5
6	Index Funds	0.85	15	Corporate Bond Fund	-0.32	6
7	ELSS Fund	0.66	16	Banking & PSU Fund	0.69	7
8	Hybrid Fund: Aggresive	0.56	17	Dynamic Bond	0.16	8
9	Hybrid Fund: Conservative	0.60	18	Floater Fund	0.83	9

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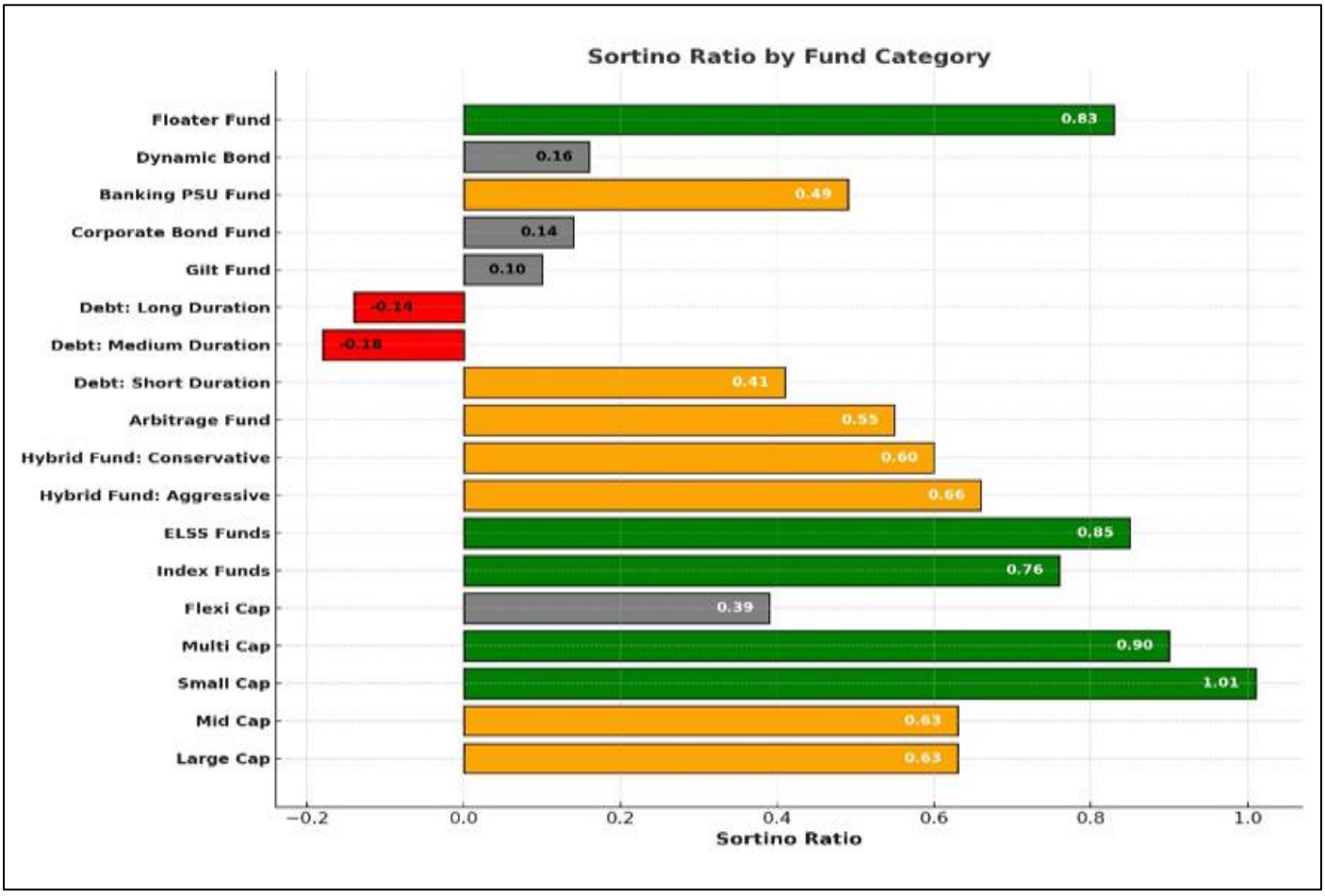

Fig 2 Graphical Presentation of This Data:

➢ *Data Interpretation & Findings*

Table 4 Data Interpretation & Findings

SORTINO RATIO	INTERPRETATION
Less than 0	**Poor** (Returns are lower than the risk-free rate)
0 - 0.5	**Suboptimal** (High downside risk for low returns)
0.5 – 1.0	**Moderate** (Acceptable risk-adjusted returns)
1.0 – 2.0	**Good** (Balanced return relative to downside risk)
2.0 – 3.0	**Very Good** (Strong risk-adjusted returns)
Greater than 3.0	**Excellent** (Exceptional return with low downside risk)

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- *Data Interpretation by Investor Style*

✓ *Aggressive Investor :*

▪ *Funds (High Sortino Ratios)*
Mid Cap (1.01) ,Small Cap (0.90) ,Flexi Cap (0.76) ,Index Funds (0.85) ,ELSS Fund (0.66)

▪ *Insight:*
These funds offer strong downside risk- adjusted returns, making them ideal for aggressive investors willing to tolerate volatility for higher gains.

- *Balanced Investor*

✓ *Funds (Moderate Sortino Ratios)*

Large Cap (0.63) ,Hybrid Conservative (0.60) ,Hybrid Aggressive (0.56) ,Banking & PSU Fund (0.69) ,Floater Fund (0.83)

▪ *Insight***:**
Suitable for balanced investors seeking good downside protection while achieving reasonable growth.

- *Conservative Investor*

✓ *Funds (Lower but Positive Sortino Ratios)*

Debt: Short Duration (0.41) ,Dynamic Bond (0.16) ,Debt: Long Duration (0.10) ,Gilt Fund (0.14)

▪ *Funds to Avoid (Negative Sortino Ratios)*
Arbitrage Fund (-0.18) ,Debt: Medium Duration (-0.32) ,Corporate Bond Fund (-0.32)

▪ *Insight:*
Conservative investors should focus on funds with positive downside risk-adjusted returns and avoid those with negative ratios indicating poor risk management during downturns.

- *ALPHA (A)*

The Alpha of a mutual fund, particularly known as Jensen's Alpha, was developed by American economist Michael Jensen in 1968. This metric is used to measure a fund manager's performance by evaluating the fund's returns relative to its expected returns, taking into account the fund's correlation to the market.

Alpha measures the excess return a mutual fund generates above the market return, adjusted for risk. It tells you whether the fund manager added value through active management or if the returns just reflect market movements.

Formula: $\alpha = R_p - [R_f + \beta(R_m - R_f)]$

Where:

- α → Alpha **(**excess return over the market**)**
- R_p → Actual return of the mutual fund
- R_f → Risk-free return (e.g., returns on 10-year Indian government bonds**)**
- **(Beta)** β → Fund's sensitivity to market movements
- R_m → Market return **(**e.g., Nifty 50 or BSE Sensex returns

Table 5 Summary of Different Categories of Mutual Funds and Their Average ALPHA Values of Last 3 Years (2022-2025)

SL. No.	Fund Type	ALPHA	SL No	Fund Type	ALPHA
1	Large Cap	1.98	10	Arbitrage Fund	-0.05
2	Mid Cap	1.46	11	Debt: Short Duration	0.19
3	Small Cap	2.46	12	Debt: Medium Duration	1.15
4	Multi Cap	2.36	13	Debt: Long Duration	1.30
5	Flexi Cap	1.44	14	Gilt Fund	1.18
6	Index Funds	0.76	15	Corporate Bond Fund	0.20
7	ELSS Fund	2.13	16	Banking & PSU Fund	-0.17
8	Hybrid Fund: Aggresive	2.08	17	Dynamic Bond	0.48
9	Hybrid Fund: Conservative	0.90	18	Floater Fund	0.34

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➢ *Graphical Presentation of This Data:*

Table 6 Data Interpretation & Findings

ALPHA VALUE	INTERPRETATION
Less than 0	Fund has outperformed its benchmark; positive risk-adjusted returns.
Equal to 0	Fund has performed in line with its benchmark; neutral performance.
Greater than 0	Fund has underperformed its benchmark; negative risk-adjusted returns.

➢ *Data Interpretation By Investor Style*

- *Aggressive Investor*

✓ *Funds (High Alpha):*
Small Cap (2.46) , Multi Cap (2.36) ,ELSS Fund (2.13),Hybrid Aggressive (2.08) ,Large Cap (1.98)

✓ *Insight:*
These funds generate strong positive excess returns above the benchmark, rewarding risk-taking investors with superior alpha.

✓ *Balanced Investor*

▪ *Top Funds (Moderate Alpha):*
Mid Cap (1.46) ,Flexi Cap (1.44) ,Hybrid Conservative (0.90) ,Index Funds (0.76)

▪ *Insight:*
Good alpha generation with moderate risk, suited for investors seeking growth balanced with risk control.

- *Conservative Investor*

✓ *Top Funds (Lower Alpha but Positive):*
Debt: Long Duration (1.30) ,Debt: Medium Duration (1.15) ,Gilt Fund (1.18) ,Dynamic Bond (0.48) ,Floater Fund (0.34)

▪ *Funds to Avoid (Negative Alpha):*
Banking & PSU Fund (-0.17) ,Arbitrage Fund (-0.05)

▪ *Insight:*
Conservative investors should focus on debt funds with positive alpha for stable returns. Avoid funds with negative alpha, indicating underperformance versus the benchmark.

- *BETA (β) :*

The concept of beta in mutual funds comes from Modern Portfolio Theory (MPT), developed by Harry Markowitz in the early 1950s .The beta of a mutual fund is a measure of its volatility or systematic risk compared to the overall market or a benchmark index (like the Nifty 50 or Sensex in India). It shows how much a fund's returns move in response to market movements.

High beta funds suit aggressive investors seeking high growth but willing to accept bigger swings.

Low beta funds are better for conservative investors who want steadier returns and lower risk.

- *FORMULA (β) :*

$$\frac{\text{Covariance (Fund Returns, Market Returns)}}{\text{Variance (Market Returns)}}$$

Where:

- *Covariance:*
Measures how fund returns move in relation to market returns.

- *Variance:*
Measures how much market returns deviate from their average.

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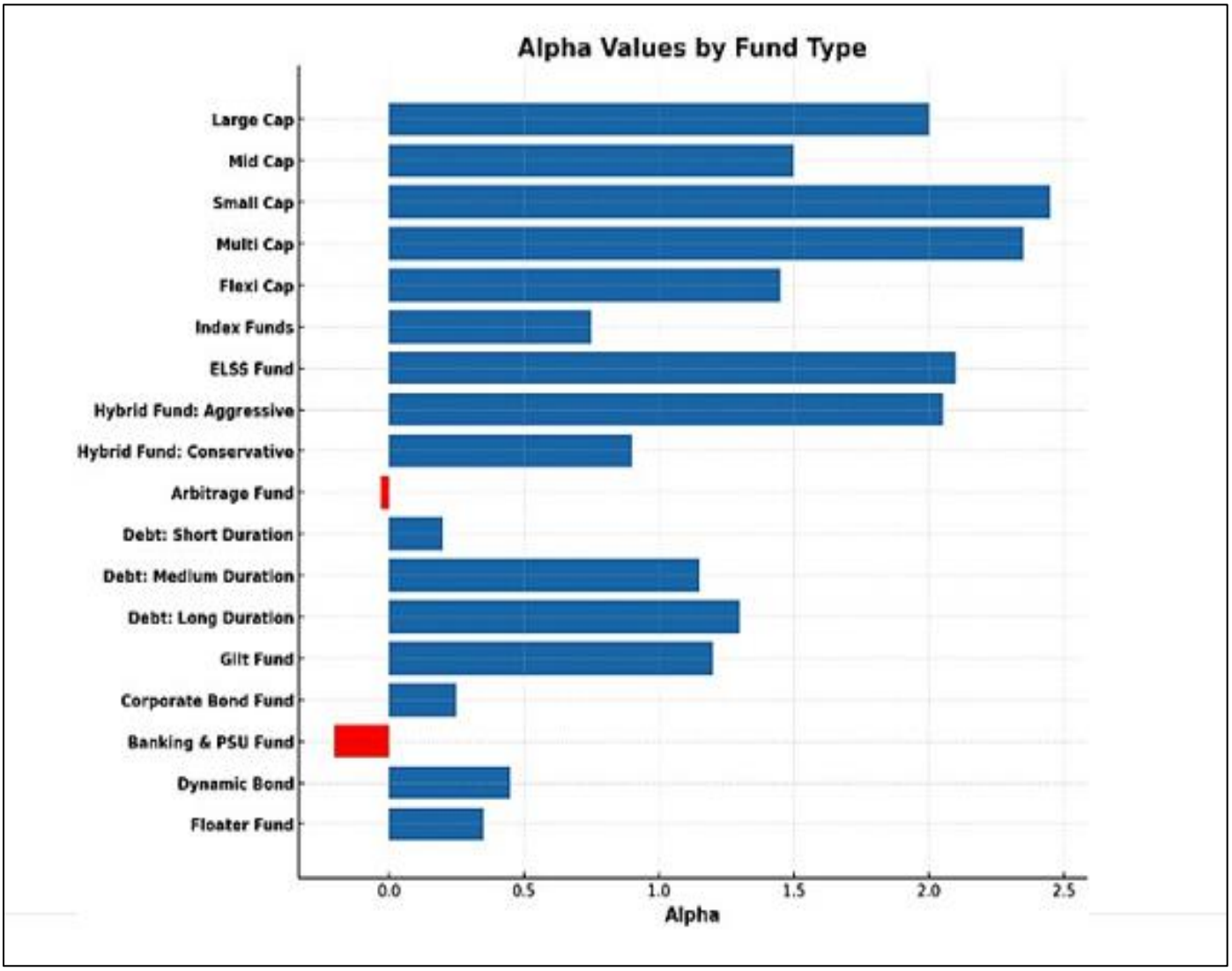

Fig 3 Alpha Values by Fund Type

Table 7 Summary of Different Categories of Mutual Funds and Their Average BETA Values of Last 3 Years (2022-2025)

SL. No.	Fund Type	BETA	SL No.	Fund Type	BETA
1	Large Cap	0.94	10	Arbitrage Fund	0.51
2	Mid Cap	0.89	11	Debt: Short Duration	0.79
3	Small Cap	0.81	12	Debt: Medium Duration	1.05
4	Multi Cap	0.88	13	Debt: Long Duration	0.57
5	Flexi Cap	0.92	14	Gilt Fund	1.42
6	Index Funds	0.91	15	Corporate Bond Fund	0.88
7	ELSS Fund	0.91	16	Banking & PSU Fund	0.41
8	Hybrid Fund: Aggressive	1.19	17	Dynamic Bond	0.64
9	Hybrid Fund: Conservative	0.96	18	Floater Fund	0.72

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➢ *Graphical Presentation of This Data:*

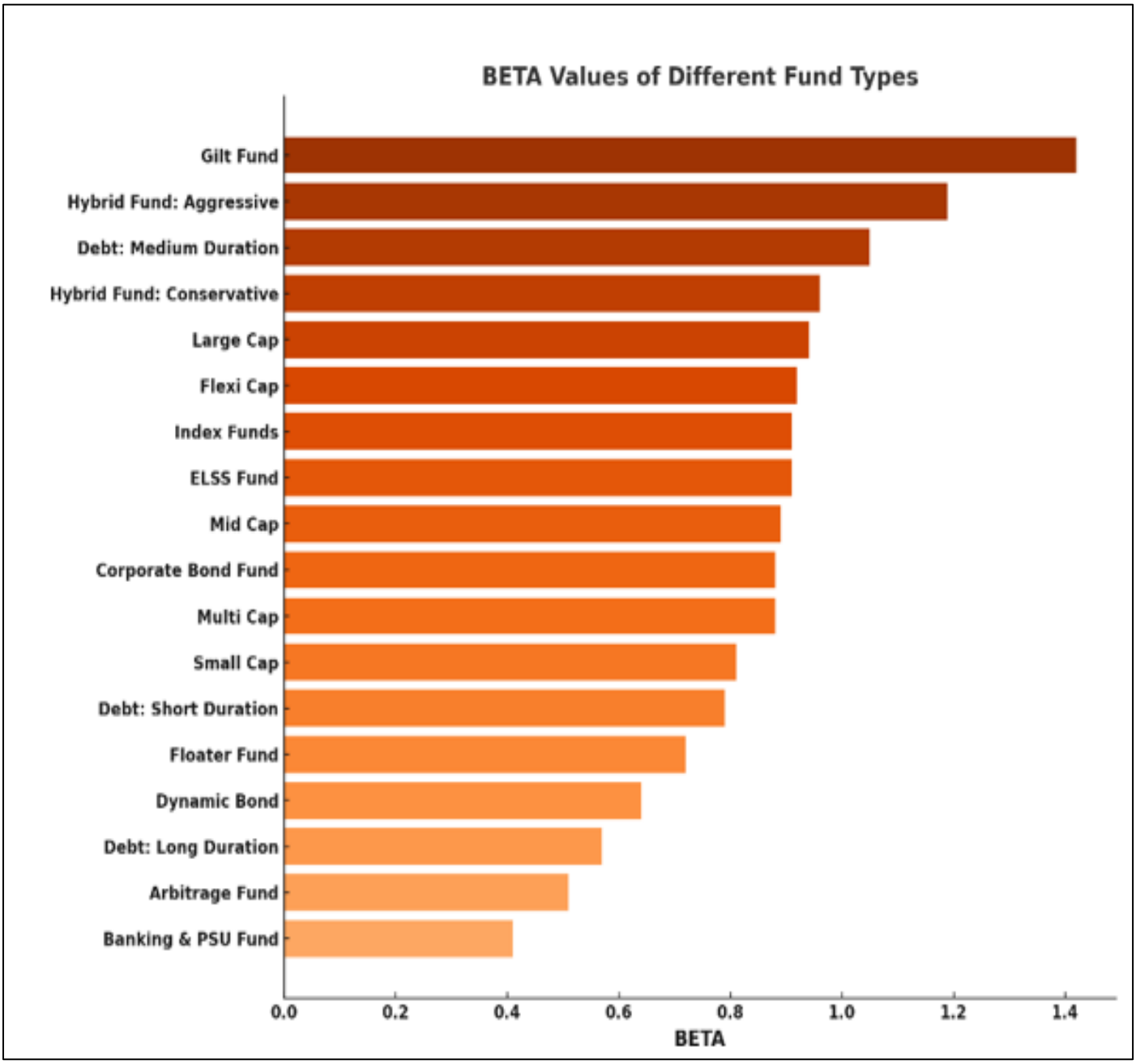

Fig 4 Beta Values of Different Found Type

- *Data Presentation & Findings:*

✓ *Insight:*

These funds have higher sensitivity to market movements, suitable for aggressive investors who can tolerate higher volatility for potentially higher returns.

➢ *Balanced Investor*

- *Funds with Moderate Beta (~0.85 - 1):*

Large Cap (0.94) ,Mid Cap (0.89) ,Multi Cap (0.88),Flexi Cap (0.92) ,Index Funds (0.91), ELSS Fund (0.91) ,Hybrid Fund: Conservative (0.96) ,Corporate Bond Fund (0.88)

✓ *Insight***:**

These funds balance market risk and stability, fitting balanced investors aiming for moderate growth with controlled risk.

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Table 8 Funds with Moderate Beta (~0.85 - 1):

BETA VALUE	INTERPRETATION
Less than 1	Fund is less volatile than the benchmark index, suggesting lower risk.
Equal to 1	Fund's performance mirrors the benchmark index's volatility.
Greater than 1	Fund is more volatile than the benchmark index, suggesting higher risk.

➢ *Conservative Investor*

- *Funds with Low Beta (<0.8):*

Small Cap (0.81) ,Arbitrage Fund (0.51) ,Debt: Short Duration (0.79) ,Debt: Long Duration (0.57) ,Banking & PSU Fund (0.41) ,Dynamic Bond (0.64) ,Floater Fund (0.72)

➢ *Data Interpretation by Investor Style*

- *Aggressive Investor*

▪ *Insight:*

Low beta funds exhibit lower market volatility, ideal for conservative investors focused on capital preservation and steady returns.

▪ *Funds with High Beta (>1):*

Hybrid Fund: Aggressive (1.19) ,Gilt Fund (1.42) ,Debt: Medium Duration (1.05)

✓ *R-SQUARED (R^2) :*

The concept of R^2 originates from statistics and regression analysis. It is a key output of the coefficient of determination, first introduced in the early 20th century in the field of regression models.

R-Squared serves as a key analytical metric in mutual fund analysis, indicating how closely a mutual fund's returns align with those of a specific benchmark index. Investors rely on R-squared to evaluate the level of diversification a fund offers. It plays a vital role in revealing a fund's investment approach and associated risk. A mutual fund showing a high R-squared typically reflects behavior similar to its benchmark, suggesting minimal influence of manager expertise. On the other hand, a low R-squared might suggest active fund management aimed at outperforming the benchmark, which may involve greater risk and deviation from index performance.

$$\textbf{FORMULA:} \quad R^2 = \frac{Cov(R_f, R_m)}{\sigma_f \cdot \sigma_m}$$

or simply,

$$R^2 = (r)^2$$

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Table 9 Summary of different categories of mutual funds and their Average R-Squared values of last 3 years (2022-2025)

SL. No.	Fund Type	R Squared (%)	SL. No.	Fund Type	R Squared (%)
1	Large Cap	94.12%	10	Arbitrage Fund	91%
2	Mid Cap	93%	11	Debt: Short Duration	89.68%
3	Small Cap	91%	12	Debt: Medium Duration	72.50%
4	Multi Cap	92.70%	13	Debt: Long Duration	89%
5	Flexi Cap	87.63%	14	Gilt Fund	73%
6	Index Funds	96.50%	15	Corporate Bond Fund	72.50%
7	ELSS Fund	90%	16	Banking & PSU Fund	86%
8	Hybrid Fund: Aggresive	84%	17	Dynamic Bond	62%
9	Hybrid Fund: Conservative	67.50%	18	Floater Fund	70%

Where

- $\mathbf{R_f}$ = Returns of the mutual fund
- $\mathbf{R_m}$ = Returns of the benchmark index (e.g., Nifty 50, Sensex)
- $\mathbf{Cov(R_f, R_m)}$ = Covariance between the fund and the benchmark returns
- $\boldsymbol{\sigma_f}$ = Standard deviation of the fund's returns
- $\boldsymbol{\sigma_m}$= Standard deviation of the benchmark's returns
- **r** = Correlation coefficient between the fund and the benchmark

➢ *Graphical Presentation of This Data:*

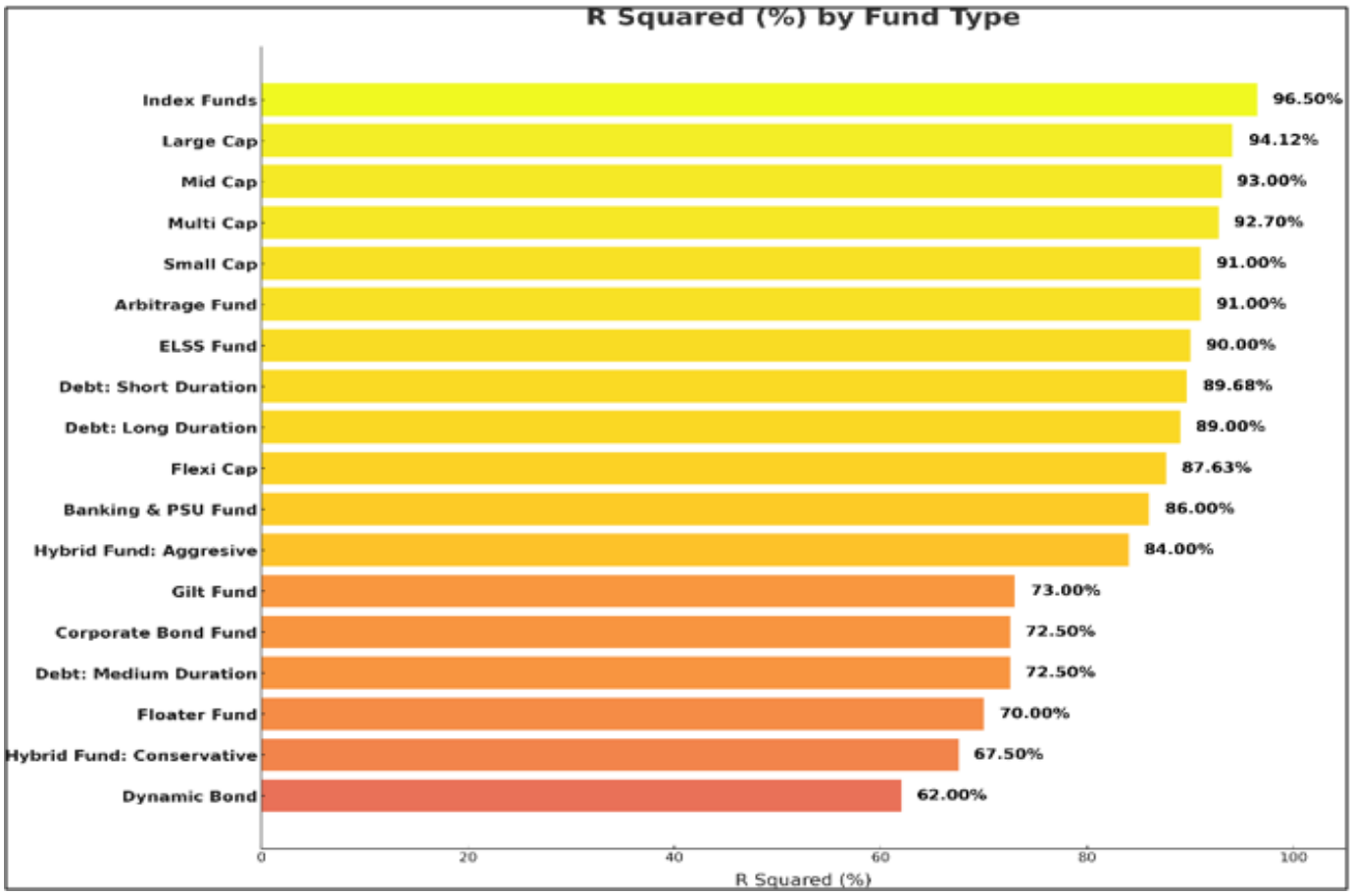

Fig 5 Graphical Presentation of This Data:

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➢ *Data Interpretation & Findings*

Table 10 Data Interpretation & Findings:

R^2 RANGE	INTERPRETATION
0% - 40%	**Very low correlation**. The fund moves independently of the benchmark
40% -70%	**Moderate correlation**. The fund has its own strategy but still follows the benchmark to some extent.
70% - 90%	**High correlation**. The fund closely tracks the benchmark but allows some deviation
90% - 100%	**Very high correlation**. The fund almost mirrors the benchmark's movements.

➢ *Data Interpretation by Investor Style*

- *Aggressive Investor*

✓ *Funds*:
Large Cap, Mid Cap, Small Cap, Multi Cap, Flexi Cap, ELSS Fund, Hybrid Fund: Aggressive

▪ *Insights:*
These funds show high R-Squared values (84%–94%), indicating strong benchmark correlation.

They are suitable for high-growth investors who prefer performance closely aligned with market trends.

- *Balanced Investor*

▪ *Funds:*
Hybrid Fund: Conservative, Hybrid Fund: Aggressive, ELSS Fund, Banking & PSU Fund, Debt: Medium Duration, Large Cap

▪ *Insights*:
R-Squared values vary (67%–94%), showing a mix of benchmark-tracking and diversification.

Ideal for moderate investors seeking stability with some growth and flexibility.

- *Conservative Investor*

▪ *Funds*
Index Funds, Arbitrage Fund, Debt: Short Duration, Debt: Medium Duration, Debt: Long Duration, Gilt Fund, Corporate Bond Fund, Banking & PSU Fund, Dynamic Bond, Floater Fund

▪ *Insights:*
These funds range widely in R-Squared (62%–96.5%), with some tracking the index closely and others being actively managed.

- *Standard Deviation*
Standard deviation in mutual funds is a statistical tool that reflects the level of risk or variability in a fund's returns during a specific time frame. It measures how much the returns deviate from the fund's average (mean) performance.

A higher standard deviation implies the fund's returns are more unpredictable and may differ widely from the average. In contrast, a lower standard deviation suggests that the fund's returns tend to remain stable and closely aligned with the mean over the period analyzed.

Table 11 Summary of Different Categories of Mutual Funds and Their Average Standard Deviation Values of Last 3 Years (2022-2025)

SL.No.	Fund Type	Std. Dev.	SL.No.	Fund Type	Std. Dev.
1	Large Cap	12.91	10	Arbitrage Fund	0.904
2	Mid Cap	15.10	11	Debt: Short Duration	1.04
3	Small Cap	15.42	12	Debt: Medium Duration	1.977
4	Multi Cap	14.54	13	Debt: Long Duration	3.31
5	Flexi Cap	13.49	14	Gilt Fund	2.201
6	Index Funds	11.85	15	Corporate Bond Fund	0.995
7	ELSS Fund	13.65	16	Banking & PSU Fund	1.136
8	Hybrid Fund: Aggresive	10.23	17	Dynamic Bond	2.036
9	Hybrid Fund: Conservative	3.52	18	Floater Fund	0.80

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$$\textbf{FORMULA : } \sqrt{\frac{1}{N-1}\sum_{i=1}^{n}(R_i - \bar{R})^2}$$

Where :

- σ = Standard deviation
- R_i = Return in each period (monthly, yearly, etc.)
- $\bar{R}$ = Average return over the period
- **N** = Number of periods

➢ *Graphical Presentation of This Data:*

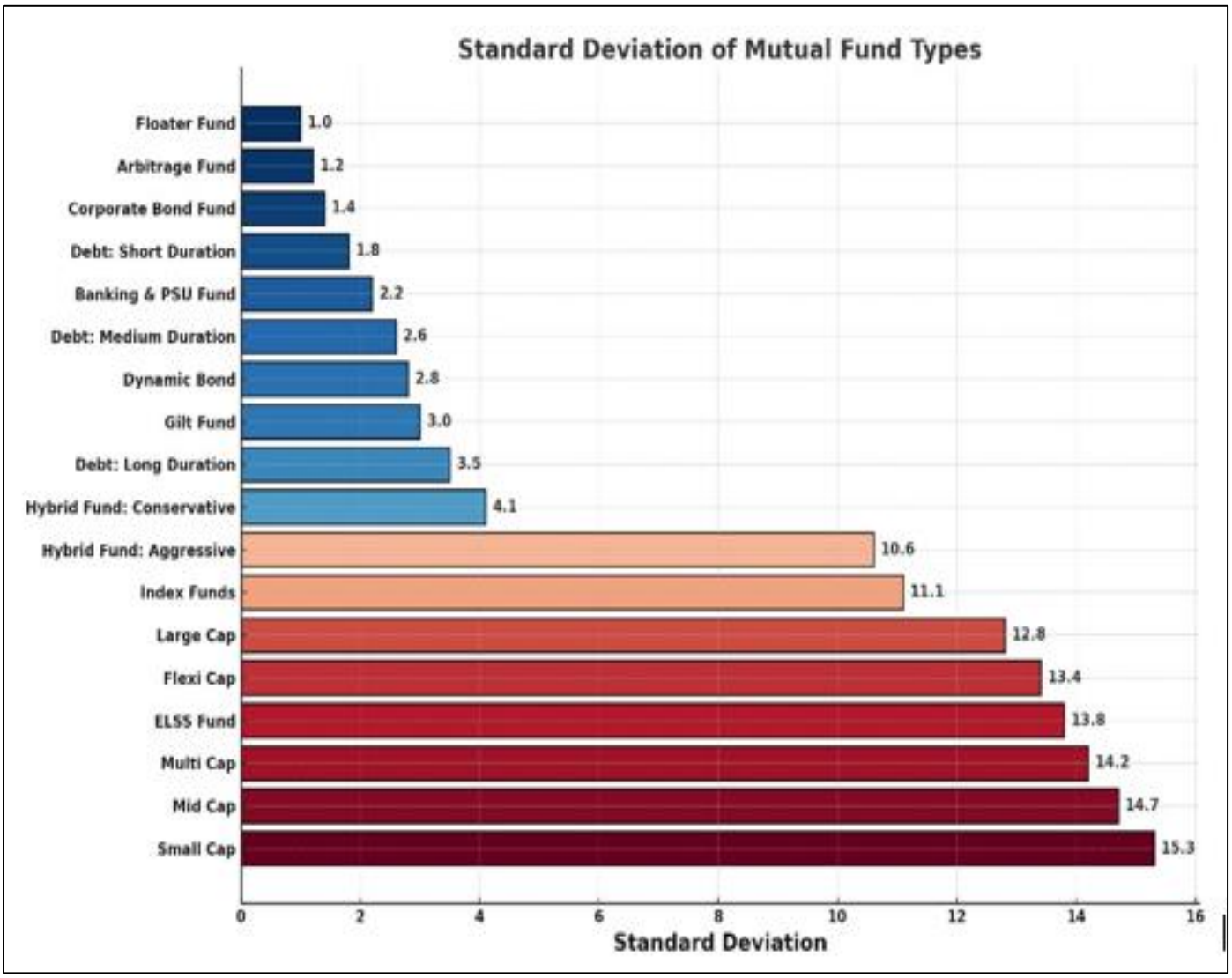

Fig 6 Graphical Presentation of This Data:

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➢ *Data Interpretation & Findings*

Table 12 Data Interpretation & Findings:

RANGE	INTERPREATION
Less than 2%	**Very Low risk** — suitable for ultra- short term (e.g., liquid funds).
2%-5%	**Low risk** — common for debt and short-duration funds. Good capital preservation
6%-10%	**Moderate risk** — typically seen in hybrid/balanced funds. Some equity exposure.
10%-14%	**Acceptable risk** — ideal for large cap and index funds. Balanced growth and stability.
14%-18%	**High risk** — common in mid cap and aggressive flexi cap funds. Higher return potential.
18%-25%	**Very High risk** — small cap and thematic funds. Suitable for long- term, bold investors.
Above 25%	**Extremely volatile** — speculative or highly concentrated funds. Proceed with caution.

➢ *Data Interpretation by Investor Style*

- *Aggressive Investor*

✓ *Funds:*
Small Cap (15.42%), Mid Cap (15.10%), Multi Cap (14.54%), ELSS (13.65%), Flexi Cap (13.49%), Large Cap (12.91%), Hybrid Aggressive (10.23%)

▪ *Insight:*
These funds show high volatility, reflecting higher risk and potential for larger returns. Suitable for investors with high risk tolerance aiming for growth.

- *Balanced Investor*

✓ *Funds*:
Hybrid Conservative (3.52%), Index Funds (11.85%), Corporate Bond Fund (0.995%), Banking & PSU Fund (1.136%)

▪ *Insight*:
Moderate volatility funds offering a balance between risk and return, fitting investors seeking growth with controlled risk.

- *Conservative Investor*

✓ *Funds*:
Arbitrage Fund (0.904%), Debt: Short Duration (1.04%), Debt: Medium Duration (1.977%), Debt: Long Duration (3.31%), Gilt Fund (2.201%), Dynamic Bond (2.036%), Floater Fund (0.80%)

▪ *Insight:*
These funds exhibit low volatility, ideal for risk-adverse investors focused on capital preservation and stable income

- *Treynor Ratio :*
Jack L. Treynor, a key figure in the development of modern portfolio theory and the Capital Asset Pricing Model (CAPM), introduced the Treynor Ratio. Also referred to as the Treynor Measure or Reward-to-Volatility Ratio, this financial indicator assesses how well an investment (such as a mutual fund or portfolio) performs after accounting for its systematic risk, or market-related risk. It reveals the amount of excess return earned per unit of risk, with risk being measured by beta (unlike the Sharpe Ratio, which uses standard deviation).

A higher Treynor Ratio reflects strong performance adjusted for market risk, suggesting the fund provides solid returns relative to its beta. In contrast, a low or negative Treynor Ratio points to weak results, where the investment may not justify the risk and could even lag behind risk-free alternatives.

$$\textbf{FORMULA}: \text{Treynor Ratio} = \frac{R_p - R_f}{\beta_p}$$

Where:

- R_p = Return of the portfolio
- R_f = Risk-free rate
- β_p = Beta of the portfolio (sensitivity to market movements)

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Table 13 Summary of Different Categories of Mutual Funds and Their Average Treynor Ratio Values of Last 3 Years (2022-2025)

SL No	Fund Type	Treynor Ratio	SL No	Fund Type	Treynor Ratio
1	Large Cap	0.07	10	Arbitrage Fund	-0.0044
2	Mid Cap	0.14	11	Debt: Short Duration	-0.0054
3	Small Cap	0.13	12	Debt: Medium Duration	0.0034
4	Multi Cap	0.12	13	Debt: Long Duration	0.0033
5	Flexi Cap	0.08	14	Gilt Fund	0.0017
6	Index Funds	0.06	15	Corporate Bond Fund	-0.0085
7	ELSS Fund	0.9	16	Banking & PSU Fund	-0.17
8	Hybrid Fund: Aggresive	0.06	17	Dynamic Bond	0.09
9	Hybrid Fund: Conservative	0.10	18	Floater Fund	-0.0009

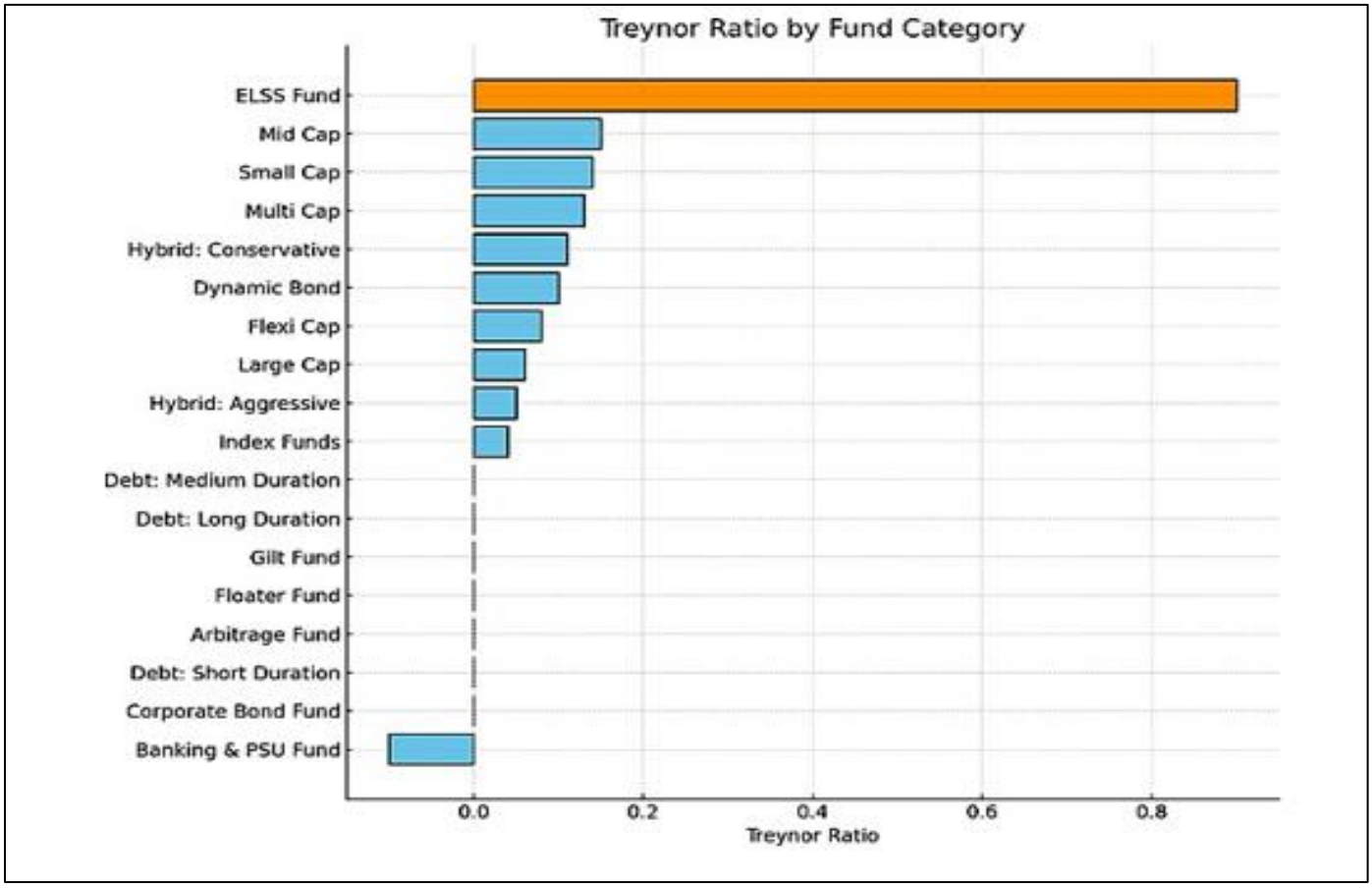

Fig 7 Graphical Presentation of This Data:

- *Graphical Presentation of This Data :*

- *Data Interpretation & Findings:*

Table 14 Data Interpretation & Findings

RANGE	INTERPRETATION
Less than 0.05	**Poor risk-adjusted performance** — not compensating well for market (systematic) risk.
0.05-0.10	**Below average** — modest returns for the risk taken. Suitable for conservative investors.
0.10-0.15	**Good** — balanced risk and reward. Typical of well-managed diversified equity funds.
0.15-0.20	**Very good** — strong risk- adjusted performance. Often seen in outperforming funds.
Above 0.20	**Excellent** — exceptional performance relative to risk. May not be consistent year- on-year

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➢ *Data Interpretation by Investor Style*

- *Aggressive Investor*

✓ *Funds (High Risk-Adjusted Returns per Unit of Market Risk):*
ELSS Fund (0.90), Mid Cap (0.14), Small Cap (0.13), Multi Cap (0.12)

These funds offer strong returns relative to their systematic risk, making them ideal for aggressive investors who accept market volatility in pursuit of high returns.

- *Balanced Investor*

✓ *Funds (Moderate Treynor):*
Flexi Cap (0.08), Large Cap (0.07), Hybrid Fund: Conservative (0.10), Hybrid Fund: Aggressive (0.06), Dynamic Bond (0.09), Index Funds (0.06)

▪ *Insight:*
These funds balance risk and return effectively. Suitable for investors seeking steady long-term growth without overexposure to market risk.

- *Conservative Investor*

✓ *Funds (Low but Positive Treynor):*
Debt: Medium Duration (0.0034), Debt: Long Duration (0.0033), Gilt Fund (0.0017)

▪ *Funds to Avoid (Negative Treynor):*
Banking & PSU (-0.17), Corporate Bond Fund (-0.0085), Debt: Short Duration (-0.0054), Arbitrage Fund (-0.0044), Floater Fund (- 0.0009)

▪ *Insight***:**
Conservative investors should focus on low- risk debt funds with positive Treynor Ratios, while avoiding those with negative values, which indicate returns below the risk-free rate when adjusted for market risk.

Table 15 Summary of Different Categories of Mutual Funds and Their Average Expense Ratio Values of Last 3 Years (2022-2025)

SL. No.	Fund Type	Expense Ratio	SL. No.	Fund Type	Expense Ratio
1	Large Cap	0.625	10	Arbitrage Fund	0.38
2	Mid Cap	0.70	11	Debt: Short Duration	0.40
3	Small Cap	0.67	12	Debt: Medium Duration	0.70
4	Multi Cap	0.75	13	Debt: Long Duration	0.63
5	Flexi Cap	0.77	14	Gilt Fund	0.60
6	Index Funds	0.225	15	Corporate Bond Fund	0.325
7	ELSS Fund	0.70	16	Banking & PSU Fund	0.375
8	Hybrid Fund: Aggresive	0.75	17	Dynamic Bond	0.50
9	Hybrid Fund: Conservative	0.90	18	Floater Fund	0.325

➢ *Expense Ratio*
The Expense Ratio of a mutual fund refers to the annual fee levied by the fund company for handling our investment. It is represented as a percentage of the fund's average Assets Under Management (AUM).

This ratio indicates the portion of our invested money spent on covering operational expenses of the fund. It includes yearly costs such as management charges, administrative fees, distribution expenses, and promotional spending. The value of the expense ratio is influenced by the fund's total size. A mutual fund with limited financial resources must dedicate a fixed portion for effective management, which raises the ratio of expenses in relation to the overall fund amount.

FORMULA : EXPENSE RATIO

$$\frac{\text{Total Expenses of the Fund}}{\text{Average AUM}} * 100$$

Where:

- **Total Expenses** : All operational costs of managing the fund (management fees, administrative costs, etc.)
- **AUM** : Average Assets Under Management over a specific period

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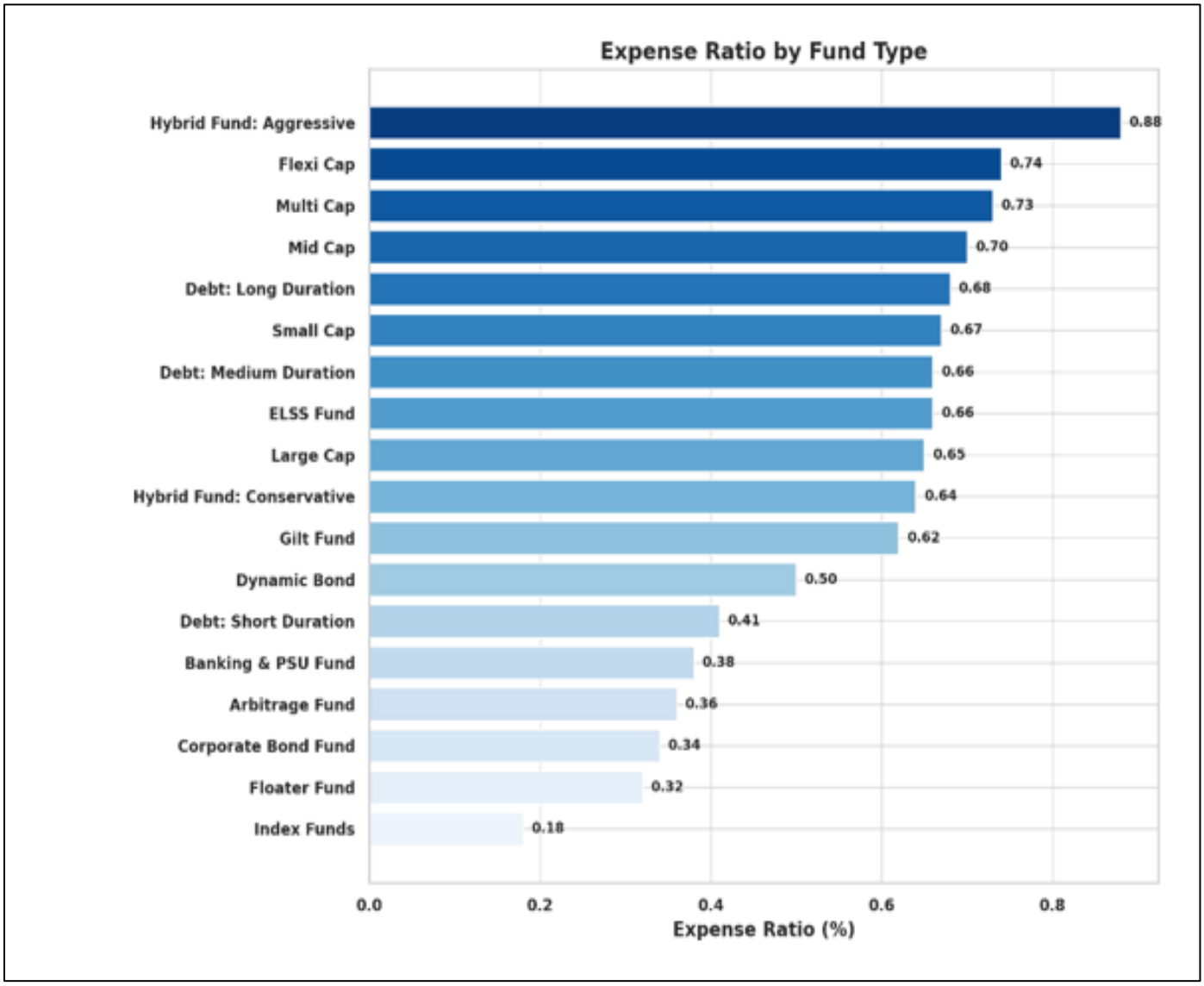

Fig 8 Expense Ratio by Type

- *Graphical Presentation of this Data*

- *Data Interpretation & Findings*

Table 15 Data Interpretation & Findings

RANGE	INTERPRETATION
Less than 0.50	**Very Low** — Typically in direct plans and index funds. Very cost- efficient.
0.50 – 1.00	**Low** — Good for direct equity/debt funds. Helps retain more of your returns
1.00 -1.50	**Moderate** — Common in well- managed active funds. Acceptable if performance justifies it.
1.50 -2.0	**High** — Requires strong historical performance to justify costs. Monitor closely.
Above 2.0	**Very High** — May eat into returns. Often seen in regular plans or underperforming funds. Avoid if not justified.

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➢ *Data Interpretation by Investor Style*

- *Aggressive Investor*

✓ *Funds:*

Small Cap. (0.67), Mid Cap. (0.70), Multi Cap. (0.75), Flexi Cap (0.77), ELSS Fund (0.70),

Hybrid Fund: Aggressive (0.75)

▪ *Insight:*

These funds aim for high growth and typically come with higher volatility. Expense ratios are on the higher side (~0.72 avg), reflecting active management and a focus on long-term capital appreciation.

- *Balanced Investor*

✓ *Funds*:

Large Cap (0.625), Index Funds (0.225), Hybrid Fund: Conservative (0.90), Hybrid Fund: Aggressive (0.75), Debt: Medium Duration (0.70), Corporate Bond Fund (0.325)

▪ *Insight:*

Balanced portfolios mix equity and debt to manage risk and growth. Expense ratios range widely (~0.60 avg), offering a diversified strategy with moderated volatility and reasonable returns.

- *Conservative Investor*

✓ *Funds*:

Arbitrage Fund (0.38), Debt: Short Duration (0.40), Debt: Medium Duration (0.70), Debt: Long Duration (0.63), Gilt Fund (0.60), Corporate Bond Fund (0.325), Banking & PSU Fund (0.375), Dynamic Bond (0.50), Floater Fund (0.325)

▪ *Insight*:

Designed for capital preservation and steady income with low risk. These funds have lower average expenses (~0.45), making them efficient choices for cautious investors prioritizing stability over high returns.

- *Compound Annual Growth Rate (CAGR)*

CAGR (Compound Annual Growth Rate) is an essential financial indicator used to assess mutual fund performance over a specific time frame. It reflects the average yearly growth rate of an investment, assuming profits are reinvested annually. Unlike simple average returns, CAGR eliminates the impact of fluctuations and shows a steady annual return rate, making it suitable for evaluating long-term outcomes. It factors in the power of compounding, meaning the returns grow progressively over time. CAGR shows how an investment grows annually to reach its end value. It presents fund growth clearly, helping investors easily understand and compare it with other options.

A higher CAGR reflects strong and consistent mutual fund growth, indicating effective fund management and steady performance over time. Such funds are often preferred by long- term investors seeking reliable capital appreciation.

A lower CAGR suggests slower or inconsistent growth, possibly due to market volatility, poor stock selection, or high expenses. While not always negative, it signals the need for closer evaluation before investing.

Table 16 Summary of different categories of mutual funds and their average CAGR values of last 3 years (2022-2025)

SLNo	Fund Type	CAGR (%)	SLNo	Fund Type	CAGR (%)
1	Large Cap	14.16%	10	Arbitrage Fund	7.25%
2	Mid Cap	18.79%	11	Debt: Short Duration	7.49%
3	Small Cap	18.03%	12	Debt: Medium Duration	8.23%
4	Multi Cap	17.50%	13	Debt: Long Duration	9.27%
5	Flexi Cap	14.86%	14	Gilt Fund	8.40%
6	Index Funds	13.57%	15	Corporate Bond Fund	7.41%
7	ELSS Fund	15.70%	16	Banking & PSU Fund	7.37%
8	Hybrid Fund: Aggresive	13.89%	17	Dynamic Bond	8.28%
9	Hybrid Fund: Conservative	9.36%	18	Floater Fund	7.73%

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➢ *Graphical Presentation of This Data*

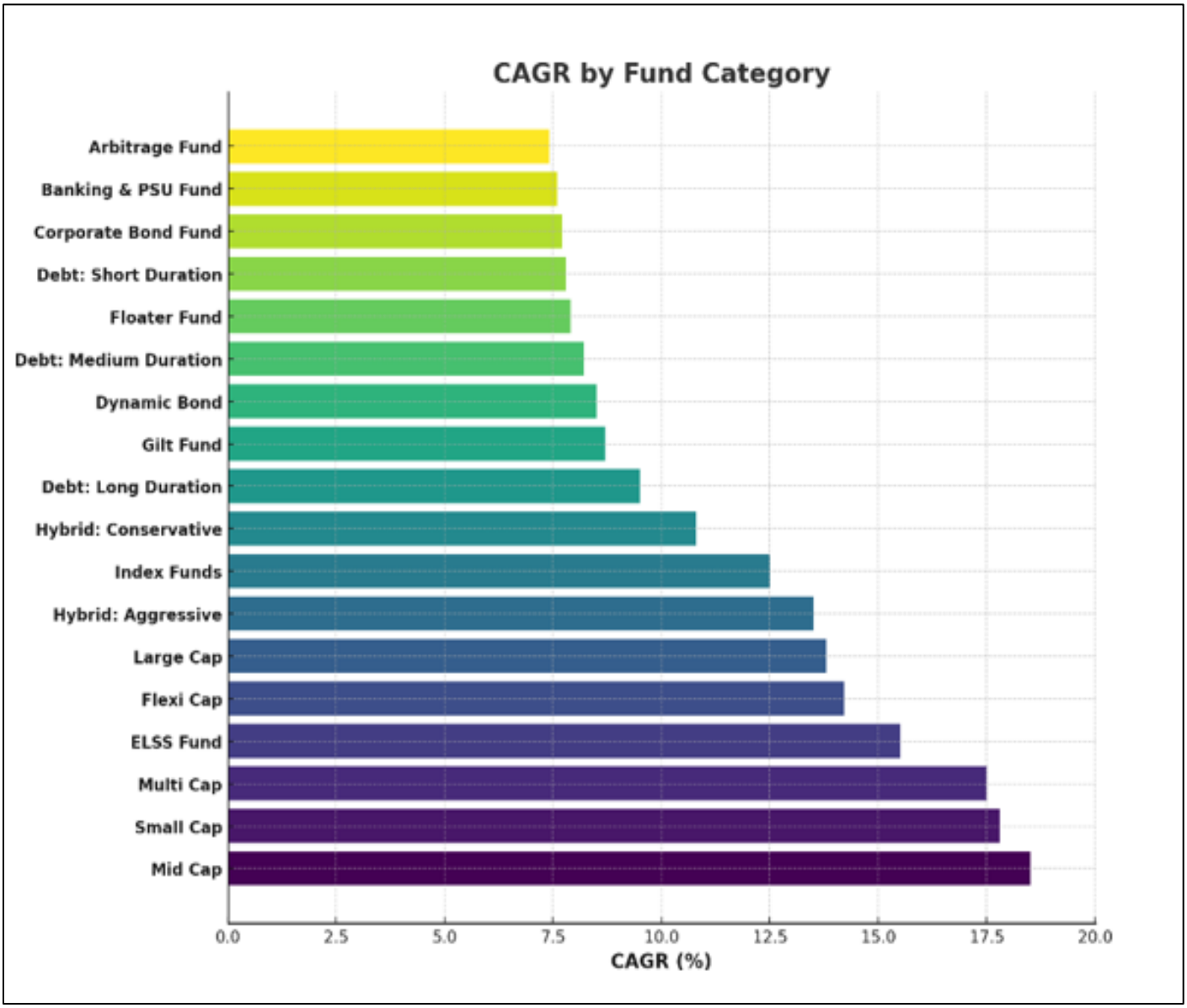

Fig 9 Graphical Presentation of This Data

$$\textbf{FORMULA}: \textbf{CAGR} = \left(\frac{\text{Initital Value}}{\text{Final Value}}\right)^{\frac{1}{N}} - 1$$

Where:

- **Final Value =** the value of investment at the end
- **Initial Value =** the value at the beginning
- **n =** number of year

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Table 17 Data Interpretation & Findings:

RANGE	INTERPRETATION
Less than 6%	**Low** — Usually seen in liquid or short-term debt funds. Suitable for capital preservation.
6% - 9%	**Moderate** — Common in debt and conservative hybrid funds. Beats inflation, low risk.
9% - 12%	**Good** — Typical for large cap and balanced equity funds. Stable long-term growth.
12% -15%	**Very Good** — Often seen in mid-cap, flexi-cap, or ELSS. Good balance of risk and reward.
15% -18%	**Excellent** — Aggressive small cap or sectoral funds. High potential, higher risk.
Above 18%	**Exceptional** — Rare and often unsustainable long-term. May indicate high risk or short-term outperformance.

➢ *Data Interpretation by Investor Style*

- *Aggressive Investor*

✓ *Funds (High CAGR)*

Mid Cap (18.79%), Small Cap (18.03%), Multi Cap (17.50%) ,ELSS Fund (15.70%), Large Cap (14.16%)

▪ *Insight:*

High long-term return potential, ideal for investors with high risk tolerance seeking capital appreciation.

- *Balanced Investor*

✓ *Funds (Moderate CAGR)*

Flexi Cap (14.86%), Hybrid Fund: Aggressive (13.89%) ,Index Funds (13.57%) ,Hybrid Fund: Conservative (9.36%)

▪ *Insight***:**

Balanced funds deliver steady growth with controlled risk, suitable for moderate-risk investors**.**

- *Conservative Investor*

✓ *Funds (Stable CAGR):*

Debt: Long Duration (9.27%) ,Gilt Fund (8.40%) ,Dynamic Bond (8.28%) ,Floater Fund (7.73%) ,Debt: Medium Duration (8.23%)

▪ *Insight:*

Lower but consistent returns with reduced volatility. Suitable for income-focused or risk- adverse investors

VII. CONCLUSION

The study titled *"**Analysis of Mutual Funds :Performance Evaluation, Risk Assessment & Investment Insights**"* concludes that a comprehensive evaluation of mutual funds is essential for informed investment decision- making. By employing performance metrics such as the Sharpe Ratio, Alpha, Beta, and Sortino Ratio, investors can better understand the risk- adjusted returns and the effectiveness of fund management. Risk assessment plays a crucial role in this process, highlighting the importance of market volatility, sensitivity, and diversification when selecting funds. The study reveals that while certain actively managed funds do outperform market benchmarks, many fail to justify their higher fees once risk and cost factors are considered.

Moreover, the study underscores that mutual fund selection must be aligned with individual investor profiles—aggressive, balanced, or

➢ *Adoption of Multi-Factor Performance Models :*

While traditional metrics like Sharpe Ratio, Alpha, etc are valuable, future research should adopt more robust evaluation frameworks such as the Fama-French three- or five-factor models and the Carhart four-factor model. These models incorporate factors like size, value, momentum, and profitability, offering a more comprehensive understanding of mutual fund performance. This shift will enable researchers to better isolate the sources of returns and distinguish true managerial skill from market- driven gains.

➢ *Integration of Qualitative Factors and Behavioral Insights :*

To capture the full spectrum of fund performance, future studies should incorporate qualitative dimensions, such as fund manager experience, consistency of investment strategy, and decision-making conservative—as each group has varying tolerance for risk and return expectations. It also emphasizes the growing influence of market dynamics, including behavioral patterns and emerging themes like ESG (Environmental, Social, and Governance) investing, in shaping mutual fund strategies. The findings suggest that long-term consistency in fund performance is more meaningful than short-term gains, which may be driven by market fluctuations.

Ultimately, the study advocates for a disciplined, diversified, and continuously monitored investment approach. Investors are encouraged to consider both quantitative analysis and broader economic trends to align their portfolios with evolving financial goals and market conditions. This balanced strategy is deemed vital for achieving sustainable investment success in a dynamic financial environment.

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RECOMMENDATION

Behavior. Additionally, including behavioral finance perspectives—like investor sentiment, herd behavior, and overconfidence—can shed light on anomalies in fund returns that quantitative models alone cannot explain.

- *Extending the Time Horizon for Performance Analysis*

The current study is limited to a three-year time frame, which may not fully reflect the impact of different economic cycles. Researchers should consider expanding the dataset to cover at least 10 years, which will provide insight into long-term performance consistency and fund resilience during periods of economic downturns or market volatility, such as the COVID-19 crash or global financial crises.

- *Comparative Study of Active vs Passive Fund Performance*

Given the ongoing debate between active and passive investing, future research should examine mutual fund alpha after adjusting for costs such as expense ratios and taxes. A focus on net alpha and tracking error will help determine whether active fund managers are truly adding value beyond index performance, especially in the Indian context where passive investing is growing rapidly.

- *Inclusion of ESG and Thematic Investment Analysis :*

Environmental, Social, and Governance (ESG) factors are increasingly shaping investment strategies. Future research can explore the risk-adjusted returns of ESG-focused funds compared to conventional funds. The study may also include thematic funds—such as technology, sustainability, or sectoral funds—to evaluate whether these strategies align with long-term investment goals and ethical considerations.

- *Segmentation of Investor Profiles for Fund Suitability :*

Building on the investor- style categorization in the current study, future research should deepen the segmentation of investors—such as aggressive, balanced, and conservative— based on demographic and behavioral traits. This would allow for more personalized recommendations and better alignment of fund types with investor financial goals, risk tolerance, and investment horizons.

- *Use of Regression and Predictive Analytics*

Researchers are encouraged to integrate statistical and machine learning models to predict fund performance and investor behavior. Multiple regression analysis, along with models such as random forest or XGBoost, can be used to identify key performance drivers and build predictive models for fund selection, risk forecasting, and return optimization.

- *Correlation of Macroeconomic Indicators with Fund Returns*

To enrich the practical applicability of mutual fund research, studies should examine the impact of macroeconomic indicators like GDP growth, inflation, interest rates, and global indices (e.g., S&P 500 or MSCI EM) on fund performance. This can help investors and fund managers anticipate shifts in fund behavior under different economic conditions.

- *Global Comparative Analysis of Mutual Fund Markets*

Expanding research to include international comparisons would provide a valuable benchmark for evaluating Indian mutual funds. By analyzing mutual funds across different countries—especially the U.S., Europe, and China—researchers can gain insights into regulatory structures, investor behavior, fund structure efficiencies, and innovation trends that can inform local practices.

- *Evaluation of Investor Awareness and Financial Literacy*

A critical extension of this study could involve conducting surveys or interviews with retail investors to assess their understanding of mutual fund concepts, performance metrics, and risk factors. This qualitative approach would help identify knowledge gaps and inform strategies for improving investor education, trust in mutual fund products, and overall financial inclusion.

REFERENCES

[1]. S.K. Barua, V. Raghunathan, and J.R. Varma, "Efficiency and performance of Indian mutual funds," Indian Institute of Management Ahmedabad Working Paper, 1991.
[2]. Prasanna Chandra, "Performance appraisal of mutual funds," *Investment Analysis and Portfolio Management*, 2nd ed., Tata McGraw Hill, 2001.
[3]. A. Gupta, "Mutual fund performance in India: A study with reference to Sharpe, Treynor and Jensen's measures," *Finance India*, vol. 15, no. 4, pp. 1235-1246, 2001.
[4]. N.P. Tripathy, "A study of performance of Indian mutual funds with special reference to equity diversified mutual funds," *The ICFAI Journal of Applied Finance*, vol. 13, no. 2, pp. 26-45, 2007.
[5]. S. Sehgal and M. Jhanwar, "Market timing and selectivity performance of Indian mutual funds: An empirical investigation," *Vision: The Journal of Business Perspective*, vol. 12, no. 4, pp. 25-37, 2008.
[6]. R. Singh and R.A. Yadav, "Persistence in performance of Indian mutual funds: Evidence from equity schemes," *Asian Journal of Management Research*, vol. 6, no. 2, pp. 87–101, 2015.
[7]. R. Sharma and D. Mehta, "Systematic risk exposure and performance of Indian mutual funds: An application of CAPM and multi-factor models," *Indian Journal of Finance*, vol. 12, no. 5, pp. 28–43, 2018.
[8]. V. Bansal and S. Gupta, "Mutual fund performance and investor perceptions: Evidence from India," *International Journal of Financial Services*, vol. 10, no. 2, pp. 14– 29, 2020.