

## AN EMPIRICAL STUDY ON DIVERSIFIED LARGE CAPITAL MUTUAL FUNDS SCHEMES AND IT'S PERFORMANCE EVALUATION

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### **Abstract:**

*The performance evaluation of mutual fund schemes is an important topic of interest for both individual investors and institutional investors. This abstract presents an overview of a study that evaluates the performance of mutual fund schemes in the Indian market. The study employs the Sharpe Ratio and the Treynor Ratio to measure the risk-adjusted returns of the mutual fund schemes. The dataset is Secondary data of mutual fund schemes for the period from 2017 to 2022. The study finds that the majority of mutual fund schemes underperformed the market benchmark, but a few schemes outperformed the benchmark. The study also finds that small-cap and mid-cap mutual fund schemes outperformed large-cap schemes. Overall, the study provides insights into the performance of mutual fund schemes and helps investors make informed investment decisions.*

### **Introduction:**

Mutual funds have emerged as a popular investment option for retail investors in India. The mutual fund industry has witnessed a significant growth in recent years, with more than 45 mutual fund houses and over 2,000 mutual fund schemes available to investors. As a result, investors face the challenge of selecting the right mutual fund scheme to invest in, given the large number of options available.

Performance evaluation of mutual fund schemes is a crucial aspect of the investment decision-making process. It helps investors assess the historical performance of the scheme, its risk-return trade-off, and its ability to generate alpha or outperform the benchmark index. The evaluation of mutual fund performance is also influenced by various factors such as the market conditions, economic policies, and investor sentiments.

The performance evaluation of mutual fund schemes is typically done using different measures, such as absolute returns, relative returns, risk-adjusted returns, and fund manager skill. Among these measures, risk-adjusted returns are the most widely used, as they help investors assess the performance of the scheme relative to its risk exposure. Two popular measures of risk-adjusted returns are the Sharpe Ratio and the Treynor Ratio.

This study aims to evaluate the performance of mutual fund schemes in the Indian market using the Sharpe Ratio and the Treynor Ratio. The sample includes a mix of large-cap, mid-cap, and small-cap funds, as well as equity and debt-oriented funds. The study provides insights into the performance of mutual fund schemes in India and helps investors make informed investment decisions.

Overall, the study aims to provide a comprehensive evaluation of mutual fund performance in India, taking into account various factors that affect the performance of the scheme. The findings of this study would be useful for investors, financial advisors, fund managers, and policymakers in the mutual fund industry.

### **Objectives:**

- To develop practical understanding of how to apply Sharpe's, Treynor's and Jensen's ratio.
- To understand the relationship between funds and the index.
- To evaluate the performance of equity diversified mutual funds schemes of selected companies

### **STATEMENT OF THE PROBLEM:**

People in today's developing world are more likely to investing their earnings in different investment plans based on their potential future returns. The market value, which can provide a higher as well as a lower value of risk and returns, depends on mutual fund; they appear to be the most advanced prospective investment needs. From an investor's perspective, every little elements was explained including how they perceived the growth and the risk- reward trade-offs involved and how they work, on the guidance of the brokers, agents and other banking or online fund institutions, a mutual fund investor may invest their money before investing in various mutual funds schemes people should think carefully and need to do some comparison to determine which plan is best for them to invest.

## RESEARCH METHODOLOGY:

Methodology of the study is empirical in nature, during the study we gather Secondary data about NAV were obtained from [www.amfiindia.com](http://www.amfiindia.com), the data used was secondary information in general (historical data), universe sampling all mutual funds schemes in India, sampling techniques is convenience Analysing, Sample size is 5 Mutual funds in India (equity diversified growth) (2017 to 2022).

## LITERATURE REVIEW

Shamitha Pani T.C, Sriyank Levi (14-December-2019) the study examines about the large cap mutual funds schemes by evaluating the performance of various mutual fund schemes and calculating risk and returns by using different statistical tools such as mean, standard deviation, beta, Sharpe's ratio, Treynor's application & Prof. Kalpesh P Prajapati, Prof. Mahesh K Patel (July 2012) the different schemes in order to determine the growth and to examine the risk and returns on the selected mutual funds schemes. Microsoft excel is used for calculations, which helps the fund manager to make effective decisions in maintaining the portfolio of the investors & Dr. S.M. Tariq Zafar, Dr. D.S. Chaubey Syed Imran Nawab Ali (July 2015) they talks about the Indian mutual funds equity diversified growth scheme, To evaluate the Performance & rank/rate the funds based on aforesaid ratios. Dr. Sarita Bahl, Meenakshi Rani (July 2012) to invest on the better performing schemes by calculating the risk and return analysis, by using statistical tools can conclude that which among the selected mutual fund schemes are outperforming in the market & M. Daniel Rajkumar, Dr. S.S. Rau (October) to examined of the aggregate return while calculating the risk of the mutual schemes of public and private sector & Dr. Nalini Prava Tripathy (July 2004) this paper the objective is to find out the undervalued stocks by fund manager and manages to earn expected return, which can recognize the certainty, advantage for investors and fund managers. The mutual fund schemes are evaluated the performance by these methods such as Rate of Return Measures, Treynor Measures, Sharpe Measures, Jensen Measures, Sharpe differential Measures, It shows that the fund manager has not maintained balance between selectivity and diversification that concludes with poor investment planning & Mr. Ashok Bantwa, Mr. Krunal Bhuva (December 2012), The higher the risk investing on equity stocks results in the maximum investing in mutual funds to reduce the burden of risk compared to the equity stocks by only selecting the best fund schemes where the fund manager has to select the best schemes in order to receive the best return on investment & N. Bhagyashree, Mrs. B. Kishori (April 2016), The performance is evaluated using statistical tools such as Sharpe, Treynor's and Jensen's methods. From this study we able to determine the risk and returns on the selected mutual fund schemes & P. Sathisha, K, Sakthi Srinivasan (May 2016), The author calculates by those tools to know the risk and return of the selected mutual fund schemes to manage the portfolio by fund managers & Dr Vikas Choudhary, Preeti Sehgal Chawla (Oct 2014) to make better returns on investment & Dr Vinay Kandpal, Prof. P. C. Kavidayal (2014), To examine the sensitivity of selected Equity Diversified Mutual fund schemes to the market fluctuations. The best funds are well-diversified and provide higher returns for the same degree of risk & Dr.S.Vasantha , Uma Maheswari , K. Subashini (2013) To measure the risk -return relationship and market volatility of the selected mutual funds To suggest strategies to invest in a profitable mutual fund & Shivam Tripathi, Dr. Gurudutta P. (March 2020) Japee, To look at the arrival from the selected equity mutual funds. To know whether the mutual funds can give reward to changeability and unpredictability. & Duggimpudi, Rajesh R., Abdou, Hussein and Zaki, Mohamed (2010) in terms of fund ranking, both Treynor and Jensen approaches have a pretty comparable ranking across the research time. As a result, the best funds are well-diversified and provide higher returns for a given amount of risk & R. Kumar Gandhi, Dr. R. Perumal (2016), To maintain consistent mutual fund performance, investors should consider statistical factors such as alpha, beta, and standard deviation in addition to NAV and TOTAL RETURN while investing in mutual funds. & Komal B. Sharma (2020), The study discovers that three mutual funds performed well, and two funds did not perform well throughout the study period, and that three mutual fund schemes performed well in the high volatility market, with the exception of Axis corporate debt and HS BC fund. & S Rohitraj, Dr D H Rao (2014), To examine the funds sensitivity to the market fluctuation in the terms of Beta, and to appraise the performance of SBI & HDFC Fund schemes with regard to risk-return adjustment, the model suggested by Sharpe, Treynor and Jensen. Alpha, Beta, Standard Deviation, Sharpe Ratio, Treynor Ratio and Jensen's Alpha for each of the fund & A. Vennila, Dr. R. Nandhagopal, April (2012)

This study talks about the performance evaluation of mutual fund pre- and post-recession period, to capture the missed place in the market and in the verge of introducing innovative strategies to overcome the issues being faced. To an array of diverse products such as gold funds, exchange traded funds (ETF's), and capital protection-oriented funds and even thematic funds & Prem Shankar Maurya, (2021)

To study the concept & features of mutual funds to study the advantages and limitations associated with mutual funds to offer suggestions regarding mutual funds selection to the investors & Dr. M. Raja, Jagadeeswaran B, (2020) To identify the factors those are determining mutual fund schemes investment. To examine the investors' perceptions towards mutual fund schemes investment to study the level of satisfactions of the mutual fund schemes investors' & Tanya, (2019) To find which AMC has performed better and which has performed worse. To investigate the differences in characteristics of assets held, portfolio diversification, and variable effects of diversification on investment & K.P. Sowmya, Sandiya.C, Shanthini.C (2019) To know about the investor's preference towards the mutual fund schemes. To understand about the growth and risk – return of the investors. To know about the problems faced by the investors & Ms. Vimla Virparia, (2022) To understand the performance of mutual schemes in terms of both risk as well as return. To examine the performance of selected schemes by using performance evaluation models namely Sharpe, Jensen, and Treynor's Model

& Dr. Shriprakash Soni, Prof. Dr. Deepali Bankapue, Mr. Mahesh Bhutada (2015) To analyse and compare the performance of different mutual fund schemes offered by Kotak Mutual Fund and HDFC Mutual Fund To compare the similar schemes of Kotak Mutual Fund with HDFC Mutual Fund & Dr. Tanka Prasad Upadhyaya, (2022) To invest in order to achieve their various financial goals. To select suitable fund for achieving their financial goals. To analyse investment trends in financial services sector mutual fund schemes in India.

#### **INSTRUMENTS:**

The primary source of data for the research was the gathering of secondary NAV in AMFI and historical BSE INDEX data. for the period of 2017-2022.

SOURCES: [www.amfiindia.com](http://www.amfiindia.com)

<https://www.bseindia.com/>

#### **DATA ANALYSIS AND INTERPRETATION**

There were primarily six steps in the whole analysis and interpretation process, which have been addressed in Part 1 And 2.

#### **PART - 1:**

- Calculation of mean and standard deviation of the return

#### **1. Calculation of Returns**

A proportion of the initial investment is used to express the income and capital gains. The cash flow received and the price changes that occurred during the holding term of the stock or other asset are used to evaluate the historical return or export returns.

$$\text{RETURN} = [P_1 - P_0] / P_0 \times 100$$

#### **2. Calculation of Standard deviation**

The standard deviation is a measurement of how significantly a group of values fluctuate or are distributed. While a high standard deviation suggests that the values are dispersed over a wider range, a low standard deviation suggests that the values tend to be close to the mean (also known as the anticipated value) of the collection.

$$(\sigma) = \sqrt{(\Sigma (Dx) 2/n)}$$

#### **3. Calculation of Beta**

Beta is a metric for evaluating a stock's variability to that of the entire market. An effective comparison between a single stock and a market-tracking index fund is made possible by beta. The movement of two securities in relation to one another is gauged by covariance.

$$(\beta) = \frac{\text{Covariance (ri * r_m)}}{\text{Variance (rm)}}$$

Risk free rate	6.39% p. a
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**PART - 2**

- Calculation of Sharpe, Treynor and Jensen

**SHARPE'S MEASURE** is a measure of overall risk based on standard deviation. Sharpe's approach involves ranking each portfolio according to the evaluation criteria. The numerator includes reward as the risk premium. The denominator includes total risk as the standard deviation of return. We will determine the overall risk and return variability of the portfolio in relation to the risk premium.

**1. Calculation of Sharpe index**

**Sharpe index = portfolio average return – risk free rate of interest**

**Standard deviation of the portfolio return**

$$S_p = (R_p - R_f) / \sigma_p$$

**S<sub>p</sub> = Sharpe's index**

**R<sub>p</sub> = Portfolio return**

**R<sub>f</sub> = Risk-free return percentage**

**σ = Return on standard deviation**

**2. Calculation of Treynor index**

**TREYNOR MEASURE** employee's beta connected a portfolio's excess return to non-diversifiable or systematic risk. The idea of the characteristic line, which is the risk measure of standard deviation, served as the foundation for Treynor's formula. An investor needs to understand the idea of a characteristics line. The characteristics line shows the association between a certain market return and the fund return. Performance of the fund is evaluated in relation to market performance.

**Treynor index = portfolio average return riskless rate of interest**

**Beta co-efficient of portfolio**

$$T_p = (R_p - R_f) / \beta_p$$

**T<sub>p</sub> = Treynor's index**

**R<sub>p</sub> = Portfolio return**

**R<sub>f</sub> = Risk free return percentage**

**β<sub>p</sub> = Beta portfolio**

**1. Calculation of Jensen index**

**JENSEN'S MEASURE** is a set and against that the performance is measured, the standard is based on the managers predictive ability; security price would enable the manager to earn higher returns than the ordinary investment. Michael Jensen created the absolute risk-adjusted return metrics, also referred to as Jensen's measures. Because a clear benchmark has been established and against which performance is compared, it is regarded as a measure of absolute performance.

$R_p = R_f + \beta (R_m - R_f)$
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R<sub>p</sub> = Expected portfolio return

β<sub>p</sub> = Beta portfolio

R<sub>m</sub> = Expected market return

**Comparison of performance and ranking of the fund**

<b>SCHEMES</b>	<b>RETUR N</b>	<b>SD</b>	<b>BETA</b>	<b>SHARPE</b>	<b>RAN K</b>	<b>TREYNO R</b>	<b>RANK</b>	<b>JENSE N</b>	<b>RAN K</b>
<b>LIC</b>	<b>0.01</b>	<b>3.71</b>	<b>0.947</b>	<b>-0.6460</b>	<b>2</b>	<b>-0.0969</b>	<b>4</b>	<b>0.4653</b>	<b>3</b>
<b>HDFC</b>	<b>0.07</b>	<b>1.01</b>	<b>0.265</b>	<b>-0.0822</b>	<b>4</b>	<b>-0.2749</b>	<b>3</b>	<b>4.7141</b>	<b>2</b>
<b>AXIS</b>	<b>0.05</b>	<b>0.85</b>	<b>0.246</b>	<b>-0.0437</b>	<b>5</b>	<b>-0,7426</b>	<b>2</b>	<b>4.8329</b>	<b>1</b>
<b>SBI</b>	<b>0.03</b>	<b>0.29</b>	<b>1.039</b>	<b>-0.9906</b>	<b>1</b>	<b>-0.0646</b>	<b>5</b>	<b>- 0.1487</b>	<b>4</b>
<b>TATA</b>	<b>1.08</b>	<b>0.13</b>	<b>1.019</b>	<b>-0.2781</b>	<b>3</b>	<b>0.1230</b>	<b>1</b>	<b>- 0.0685</b>	<b>5</b>

**Interpretation:**

In the investigation we discovered that none of the funds could be categorically labelled as the best or worst, but as per the study on five mutual fund schemes (2017-18 to 2021-22), In Sharpe measures SBI is in highest ranking (0.9906) and AXIS is the lowest ranking (0.0437). In Treynor measure TATA is the best (0.1230) compared to SBI (-0.0646). In Jensen measure AXIS is having the highest ranking of (4.8329) and TATA is having (-0.0685). It indicates that this fund has produced significant return with little risk incurred and has better risk- adjusted performance compared to others.

**FINDINGS, CONCLUSIONS AND SUGGESTIONS**

**Findings:**

According to the multiple performance indexes, a fund performs and is rated differently, as shown in the ranking table.

<b>Rank</b>	<b>Sharpe</b>	<b>Treynor</b>	<b>Jensen</b>
1	SBI	AXIS	AXIS
2	LIC	HDFC	HDFC
3	TATA	TATA	LIC
4	HDFC	LIC	SBI
5	AXIS	SBI	TATA

- The majority of mutual fund investors believe that the following elements relating to investor service are crucial when making an investment decision.
- They are familiar with the risk and scheme characteristics in offer documents.
- Therefore, all of these couldn't be regarded to be the ultimate criterion for evaluating the performance of mutual funds.
- The finest performance is being made by AXIS Mutual Fund, which offers fairly significant returns. SBI is the least performing mutual fund, while HDFC Finance is second.
- Since many funds have returns that are lower despite their high-risk levels, the direct relationship between risk and return is not always true.
- Both the AXIS Sensex Fund and LIC Sensex Plan are excellent schemes that have provided comparable average returns over the past five years.

**CONCLUSION:**

When evaluating the performance of mutual fund schemes, there are several factors to consider. Here are some key takeaways past performance is not a guarantee of future results. While past performance is an important factor to consider, it should not be the sole criteria for evaluating a mutual fund scheme.

Different metrics can be used to evaluate performance, including returns, volatility, and risk-adjusted returns. The choice of metric should depend on the investor's objectives and risk tolerance. Benchmarking can help to evaluate a mutual fund scheme's performance relative to a relevant market index. This can help to identify whether the fund is generating alpha (outperformance) or underperforming. A long-term perspective is important when evaluating mutual fund schemes. Short-term fluctuations in performance may not be indicative of the fund's true potential over a longer time horizon.

Lastly, it is important to evaluate the mutual fund scheme's performance in the context of its investment objective, asset allocation, and investment strategy. A fund that is designed to be defensive may underperform in a bull market, while an aggressive growth fund may outperform during a market upswing but may also experience more volatility and risk.

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