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# RISK AND RETURN ANALYSIS OF SIP V/S LUMP SUM INVESTMENT IN MUTUAL FUND SCHEME (EQUITY & HYBRID & ELSS)

Vijiyakumar M*
Dr. Kabirdoss Devi**

**ABSTRACT**

*This paper conducts a comprehensive risk and return analysis comparing systematic investment plan (SIP) and lump sum investment approaches in various categories of mutual fund schemes, including equity, hybrid, and Equity Linked Savings Schemes (ELSS). The study examines historical data to evaluate the performance, volatility, and risk-adjusted returns of both SIP and lump sum investments over different time horizons. Key metrics such as annualized returns, standard deviation, Sharpe ratio, and maximum drawdown are employed to provide insights into the comparative risk and return profiles of these investment strategies. The findings contribute to a better understanding of the trade-offs between SIP and lump sum investments in different mutual fund categories, aiding investors in making informed decisions based on their risk tolerance, investment objectives, and time horizon.*

***KEYWORDS***: *SIP, Equity, Hybrid, ELSS, Risk, Return, Volatility, Sharpe Ratio, Investment Strategy.*

## Introduction

Investors often grapple with the decision between systematic investment plans (SIPs) and lump sum investments in various mutual fund schemes, including those in equity, hybrid, and Equity Linked Savings Schemes (ELSS). This analysis involves evaluating the associated risks and potential returns of each approach. SIPs, characterized by regular, periodic investments, offer the advantage of rupee-cost averaging, mitigating the impact of market volatility over time. In contrast, lump sum investments entail a single large investment at once, exposing investors to immediate market conditions. The decision between the two hinges on factors such as individual risk tolerance, investment goals, and market outlook. By conducting a thorough risk and return analysis, investors can make informed decisions tailored to their financial objectives, considering factors like investment horizon, market volatility, and potential returns.

## Statement of the Problem

The statement of the problem aims to investigate and compare the risk and return characteristics of systematic investment plans (SIPs) versus lump sum investments in various mutual fund schemes, including equity, hybrid, and Equity Linked Savings Schemes (ELSS). This study seeks to address the prevalent dilemma among investors regarding the optimal investment strategy in mutual funds. By examining SIPs, which involve regular, periodic investments, against lump sum investments, which consist of a single large investment, the research intends to provide insights into the performance and volatility dynamics of these two approaches across different types of mutual fund schemes. Specifically, the analysis will delve into the historical returns, standard deviation, beta, Sharpe ratio, and other relevant risk and return metrics to offer a comprehensive understanding of the trade-offs involved in

* II MBA, School of Management Studies, Vels Institute of Science Technology and Advanced Studies (VISTAS), Pallavaram, Chennai, India.
** Associate professor, School of Management Studies, Vels Institute of Science Technology and Advanced Studies (VISTAS), Pallavaram, Chennai, India. (Corresponding Author)

each investment method. The investigation further aims to discern whether SIPs, with their systematic and disciplined approach, outperform lump sum investments in terms of risk-adjusted returns, or if lump sum investments, with their potential for higher initial investment and market timing benefits, prove to be superior in certain scenarios. Through this exploration, investors can make more informed decisions tailored to their financial goals, risk appetite, and investment horizon.

**Need for Study**

The study begins by identifying and categorizing the diverse range of risks inherent in mutual fund investments. It aims to provide a comprehensive understanding of these risks, including market volatility, liquidity risk, and interest rate risk, among others. By classifying these risks, the study seeks to equip investors with the knowledge needed to make informed decisions and effectively manage their investment portfolios.

Furthermore, the research delves into a comparative analysis between systematic investment plans (SIP) and lump sum investments across various mutual fund categories. It scrutinizes how different investment strategies influence both risk and return outcomes. Additionally, the study investigates the impact of SIP and lump sum investments on portfolio diversification, assessing their role in spreading risk across asset classes. Through this analysis, the study aims to evaluate the potential for long-term wealth creation, providing valuable insights for investors seeking to optimize their investment strategies.

**Objective of Study**

The objective of the study is to:

- Conduct a comprehensive risk and return analysis comparing systematic investment plans (SIP) and lump sum investments across mutual fund schemes, including Equity, Hybrid, and ELSS (Equity Linked Savings Scheme).
- Perform a comparative study between SIP and lump sum investments in mutual funds to evaluate their respective performance.
- Assess portfolio performance utilizing key metrics such as the Sharpe index, Treynor’s ratio, Jensen ratio, standard deviation, and BETA.
- Explore the variety of schemes available through mutual funds with the aim of gaining a deeper understanding of these investment vehicles

**Review of Literature**

**Dr. Alpesh Gajera (2020),** This research compares the risk and return of mutual fund investments through SIP or lump sum investments. It analyzes ten popular mutual fund ELSS schemes from ten Asset Management Companies with the highest Asset under Management as of December 2019. The results suggest lump sum investment is more suitable for small investors evaluating return and risk.

**Dr. Nalla Bala Kalyan,** The Indian mutual funds industry is experiencing rapid growth due to infrastructure development, increased personal financial assets, and foreign participation. As a result, mutual funds are becoming a preferred investment option due to growing risk appetite, income, and consciousness. This study evaluates the risk and return of selected mutual funds schemes in India, aiming to assess their financial performance.

**Dr. M. Raja (2020),** Mutual funds pool small and medium investors' savings and invest them in securities under expert management. Investors must consider factors like scheme, company, and investor services. A study evaluated investors' perception of mutual fund schemes, revealing that companies should disclose important information like return performance, risk, asset number, and fund reputation to prospectors.

**Shruthi. M. P, T.Manjunatha (2018),** The study examines the risk-return relationship of ten mutual funds from Jan 01, 2017 to Dec 31, 2017, using daily Net Asset Values. Results show that 10% have high return and less risk, 10% have negative returns, and 80% have high risk and less return. This information can help investors understand the risk-return relationship in Indian mutual funds.

**VG Murugan (2023),** A survey conducted in Chennai, Tamil Nadu, India, found that mutual funds, bank deposits, and equity shares are the most popular investment liquid options for retired and salaried employees. Investors focus on return, risk, liquidity, and tax benefits when selecting investment options, with procedural clarity being less important. The study recommends that investors carefully read the mutual fund's offer document to ensure they can make informed decisions about their investments.

### Limitation of Study

- Future market behavior, particularly during periods of volatility or unusual economic conditions, may not be accurately predicted solely based on historical data.
- Availability and coverage of historical data for mutual fund schemes may vary, potentially limiting the ability to draw definitive conclusions.
- Individual investor behavior, influenced by emotions and discipline, can impact the effectiveness of SIPs versus lump sum investments, potentially skewing the analysis.
- Tax implications, transaction costs, management fees, and other expenses associated with mutual fund investments can differ between SIPs and lump sum investments, affecting returns in varying ways.

### Research Methodology

- Research Design – Descriptive Research
- Sources of Data – Secondary Data
- Instrument - Morning Ster, NGEN, Advisorkhoj

### Statistical Techniques

- Sharpe ratio
- Treynor's ratio
- Jensen ratio
- Standard deviations
- Beta
- Annual Returns

### Analysis and Interpretation

**Table 1: Sharpe Ratio Ranking for the MF Large Cap**

| S. No | Fund Name | Sharpe Ratio | Rank |
|---|---|---|---|
| 1 | Nippon India Large Cap Fund- Growth Plan -Growth Option | 1.42 | 1 |
| 2 | ICICI Prudential Blue-chip Fund – Growth | 1.33 | 2 |
| 3 | HDFC Top 100 Fund - Growth Option - Regular Plan | 1.2 | 3 |
| 4 | BARODA BNP PARIBAS LARGE CAP Fund- Regular Plan - Growth Option | 1.1 | 4 |
| 5 | Invesco India Large cap Fund Growth | 0.95 | 5 |

Formula- Sharpe Ratio Formula= (R(p)-R(f))/SD

### Interpretation

From the above Table 1, It is interpreted that Nippon India Large Cap Fund tops the list with the highest Sharpe ratio of 1.42, indicating that it has achieved the best risk-adjusted returns among the funds analysed. Conversely, Invesco India Large Cap Fund ranks lowest with a Sharpe ratio of 0.95, suggesting comparatively lower risk-adjusted returns.

**Table 2: Treynor's Ratio Ranking for the MF Large Cap**

| S. No | Fund Name | Treynor's Ratio | Rank |
|---|---|---|---|
| 1 | Nippon India Large Cap Fund- Growth Plan -Growth Option | 0.189 | 1 |
| 2 | ICICI Prudential Blue-chip Fund – Growth | 0.177 | 2 |
| 3 | HDFC Top 100 Fund - Growth Option - Regular Plan | 0.161 | 3 |
| 4 | BARODA BNP PARIBAS LARGE CAP Fund- Regular Plan - Growth Option | 0.128 | 4 |
| 5 | Invesco India Large cap Fund Growth | 0.126 | 5 |

Formula -Treynor Ratio = $(rp - rf) \div \beta p$

**Interpretation**

From the above table 2, It is interpreted in Nippon India Large Cap Fund secures the top spot with a Treynor's ratio of 0.189, indicating the highest returns per unit of systematic risk among peers. ICICI Prudential Blue-chip Fund follows closely with a ratio of 0.177, reflecting strong performance in balancing risk and return. HDFC Top 100 Fund ranks third with a ratio of 0.161, demonstrating competitive risk-adjusted returns. Baroda BNP Paribas Large Cap Fund and Invesco India Large Cap Fund complete the top five, offering respective ratios of 0.128 and 0.126, showcasing their risk-return profiles within the large-cap category.

**Table 3: Jensen Ratio Ranking for the MF Large Cap**

| S. No | Fund Name | Jensen Ratio | Rank |
|---|---|---|---|
| 1 | Nippon India Large Cap Fund- Growth Plan -Growth Option | 6.78 | 1 |
| 2 | ICICI Prudential Blue-chip Fund – Growth | 4.99 | 2 |
| 3 | HDFC Top 100 Fund - Growth Option - Regular Plan | 4.03 | 3 |
| 4 | BARODA BNP PARIBAS LARGE CAP Fund- Regular Plan - Growth Option | 2.14 | 4 |
| 5 | Invesco India Large cap Fund Growth | 1.13 | 5 |

Formula -Jensen's alpha = Portfolio return - [Risk Free Rate + Portfolio Beta * (Market Return - Risk Free Rate)]

**Interpretation**

From the above table 3, It is interpreted in Nippon India Large Cap Fund as the top performer with a ratio of 6.78, reflecting strong performance relative to its risk. Following closely is ICICI Prudential Bluechip Fund with a ratio of 4.99, indicating solid returns considering its risk profile. HDFC Top 100 Fund secures the third position with a ratio of 4.03, showcasing consistent returns relative to its risk exposure. Baroda BNP Paribas Large Cap Fund and Invesco India Largecap Fund trail behind, with ratios of 2.14 and 1.13 respectively, suggesting comparatively lower risk-adjusted returns.

**Table 4: Standard Deviation Ranking for the MF Equity Large Cap**

| S. No. | Fund Name | SD | Rank |
|---|---|---|---|
| 1 | ICICI Prudential Blue chip Fund – Growth | 11.58 | 1 |
| 2 | BARODA BNP PARIBAS LARGE CAP Fund- Regular Plan - Growth Option | 11.97 | 2 |
| 3 | HDFC Top 100 Fund - Growth Option - Regular Plan | 12.79 | 3 |
| 4 | Nippon India Large Cap Fund- Growth Plan -Growth Option | 12.96 | 4 |
| 5 | Invesco India Largecap Fund Growth | 13.22 | 5 |

Formula – $s = \sqrt{\sum(X-\bar{x})^2 / n-1}$

**Interpretation**

From the above table 4, It is interpreted that ICICI Prudential Bluechip Fund has the lowest SD (11.58) and thus ranks first, suggesting it has the least volatility among the funds analysed. In contrast, Invesco India Large cap Fund has the highest SD (13.22) and ranks fifth, indicating higher volatility compared to the other funds.

**Table 5: Beta Ranking for the MF Equity Large Cap**

| S. No. | Fund Name | Beta | Rank |
|---|---|---|---|
| 1 | ICICI Prudential Blue-chip Fund – Growth | 0.87 | 1 |
| 2 | BARODA BNP PARIBAS LARGE CAP Fund- Regular Plan - Growth Option | 0.9 | 2 |
| 3 | HDFC Top 100 Fund - Growth Option - Regular Plan | 0.95 | 3 |
| 4 | Invesco India Large cap Fund Growth | 0.97 | 4 |
| 5 | Nippon India Large Cap Fund- Growth Plan -Growth Option | 0.98 | 5 |

Formula -Beta = (Fund return - Risk free rate) ÷ (Benchmark return - Risk free rate)

**Interpretation**

From the above table 5, It is interpreted that Nippon India Large Cap Fund stands out with the highest score of 0.98, indicating strong growth prospects. Invesco India Largecap Fund follows closely with a score of 0.97, suggesting robust performance potential. HDFC Top 100 Fund also exhibits promising growth with a score of 0.95, while ICICI Prudential Bluechip Fund and BARODA BNP PARIBAS LARGE CAP Fund lag slightly behind with scores of 0.87 and 0.9 respectively.

**Table 6: Comparative Returns measures of LUMPSUM and SIP in Equity Large cap**

| S. No. | Fund Name | LUMPSUM | SIP |
|---|---|---|---|
| | | 3 years Returns | 3 years Returns |
| 1 | ICICI Prudential Bluechip Fund – Growth | 21.19% | 12.24% |
| 2 | Nippon India Large Cap Fund- Growth Plan - Growth Option | 24.30% | 13.52% |
| 3 | HDFC Top 100 Fund - Growth Option - Regular Plan | 21.13% | 11.91% |
| 4 | BARODA BNP PARIBAS LARGE CAP Fund- Regular Plan- Growth Option | 18.57% | 11.19% |
| 5 | Invesco India Largecap Fund Growth | 18.39% | 9.95% |

Formula -Annual Return = [(Ending Value/ Beginning Value) ^ (1/n)] – 1

**Interpretation**

From the above table 6, It is interpreted that Nippon India Large Cap Fund stands out with the highest returns at 24.30% annually, followed closely by ICICI Prudential Blue chip Fund at 21.19%. HDFC Top 100 Fund also demonstrates strong performance with a 3-year return of 21.13%. Meanwhile, Baroda BNP Paribas Large Cap Fund and Invesco India Large cap Fund present slightly lower returns at 18.57% and 18.39% respectively, but still showcase competitive performance within the large-cap segment.

**Findings of the Study**

- The Nippon India Large Cap Fund outperforms other funds with the highest Sharpe ratio of 1.42, indicating superior risk-adjusted returns.
- Conversely, the Invesco India Large Cap Fund ranks lowest with a Sharpe ratio of 0.95, suggesting comparatively lower risk-adjusted returns.
- Nippon India Large Cap Fund also secures the top position in Treynor's ratio with a value of 0.189, signifying the highest returns per unit of systematic risk.
- ICICI Prudential Blue-chip Fund closely follows with a Treynor's ratio of 0.177, demonstrating strong performance in balancing risk and return.
- In terms of Jensen ratio, Nippon India Large Cap Fund exhibits the strongest performance with a ratio of 6.78, reflecting robust returns relative to its risk.
- ICICI Prudential Bluechip Fund and HDFC Top 100 Fund also showcase solid performance in Jensen ratio, with ratios of 4.99 and 4.03 respectively.
- ICICI Prudential Bluechip Fund stands out with the lowest standard deviation (SD) of 11.58, indicating the least volatility among the funds analyzed.
- In contrast, Invesco India Large Cap Fund displays the highest SD of 13.22, suggesting higher volatility.
- Nippon India Large Cap Fund leads the Beta ranking with a score of 0.98, signaling strong growth prospects.
- Invesco India Largecap Fund closely follows with a score of 0.97 in Beta ranking, indicating robust performance potential.
- Nippon India Large Cap Fund also demonstrates the highest annual returns at 24.30%, closely followed by ICICI Prudential Bluechip Fund at 21.19%.
- HDFC Top 100 Fund exhibits strong performance with a 3-year return of 21.13%, while Baroda BNP Paribas Large Cap Fund and Invesco India Large cap Fund present slightly lower returns.

**Suggestions**

The analysis highlights the performance of various mutual fund schemes within the large-cap category, employing consistent interpretation across different metrics to facilitate comparison. Notably, the Nippon India Large Cap Fund emerges as a standout performer across multiple metrics, showcasing superior risk-adjusted returns and growth potential. Conversely, the Invesco India Large Cap Fund demonstrates relatively lower performance in several aspects. Moreover, when considering comparative returns for lump sum and SIP investments, it's essential to weigh the advantages and disadvantages of each method. Lump sum investments offer potential for higher returns but carry greater risk, while SIPs provide a disciplined approach and mitigate timing risk. Additionally, emphasizing the significance of diversification across different fund categories is crucial for mitigating risk and optimizing returns, guiding investors towards a well-balanced portfolio. Recommendations for risk management strategies, such as dollar-cost averaging for SIPs and periodic portfolio rebalancing, are essential to align investments with market conditions and investor objectives, ensuring long-term financial success and stability.

## Conclusion

After conducting a comprehensive risk and return analysis of SIP versus lump sum investments across various mutual fund schemes including Equity, Hybrid, and ELSS, it can be concluded that while lump sum investments may offer the potential for higher returns due to immediate exposure to market fluctuations, SIP investments provide a more disciplined approach that helps mitigate market volatility and enables investors to benefit from rupee-cost averaging.

Furthermore, SIP investments tend to offer better risk management by spreading investments over time, thereby reducing the impact of market downturns. However, the choice between SIP and lump sum investments ultimately depends on individual investor preferences, risk tolerance, and investment objectives. Therefore, it's advisable for investors to carefully assess their financial goals and risk appetite before deciding on the most suitable investment strategy.

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