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Performance Evaluation of Select Mutual Fund Schemes in India

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Abstract

Mutual funds are portfolios of diversified financial securities chosen by professional fund managers. These funds assure that the risk factor of their portfolios meets the risk preferences of the investors. The study aims to determine the performance of the direct growth plan scheme of different companies by using the Sharpe, Treynor, and Jensen methods. Tata Mutual Fund has the highest average return followed by Axis Mutual Fund, LIC Mutual Fund, and HSBC Mutual Fund. SBI Mutual Fund (12.54), L&T Mutual Fund (11.87), Aditya Birla Sun Life Mutual Fund (10.07), and India bulls Mutual Fund (9.63) all had higher positive Sharpe values among sample companies.

Keywords: mutual funds, performance evaluation, risk-return analysis,

Introduction

The performance of mutual funds has been studied widely in the published financial literature both theoretically and empirically. The majority of previous studies (Sharpe, 1966; Jensen, 1968) reveal that the net performance of mutual funds is inferior to that of a comparable passive market index. Mutual funds have a long history in India, dating back to 1963; UTI was created by an act of Parliament. The Indian mutual fund industry has a whopping Rs. 23.23 trillion in assets under administration. Mutual funds are slowly but steadily becoming the preferred investment choice for retail investors in India, with more than 9.37 crore folios across all forms of mutual funds (Khude, 2021).

Mutual funds are portfolios of diversified financial securities chosen by professional fund managers. These funds assure that the risk factor of their portfolios meets the risk preferences of the investors. The association between fund flows and financial performance is one of the most strong research topics in mutual fund history. (Warther, 1995), (Edelen & Warner, 2001), (Goetzmann & Massa, 2003)give clear evidence that funds flow

into equity and debt mutual funds can exert price pressure on aggregate stock market returns. More recently, (Coval & Stafford, 2007)and (Frazzini & Lamout, 2005) document how individual stock returns can be affected by fund flows into equity and debt mutual funds. The main purpose of this research paper is to study the same scheme of different mutual fund companies will give equal return or not during the study period.

Review of Literature

Many researchers have examined the mutual fund performance as a function of management style, cost ratio, turnover ratio, and other variables. (Carhart, 1997) argues mutual fund performance is significantly and negatively related to mutual fund expenses and turnover ratios. He analyzed this by using the capital asset pricing model (CAPM) and his developed 4-factor model. He resolved that on average every buy and sell trade reduces mutual fund performance by 0.95%. (Bloucher, 2016) illustrates the impact of converging portfolio possessions on the co-development of mutual asset gains is investigated. He studies the features that can affect a firm's susceptibility to network externalities. Construction on the price pressure effects documented in the mutual fund, we imagine that flows into connected funds can affect individual mutual fund performance. (Kapadia, 2010) insists the majority of the collected works use the network analysis method & highlights the position of an entity inside the network, in this paper, we test whether the performance of individual mutual funds is subject to spill over risk caused by funds flows into connected mutual funds. (Chen, 1992) concludes that expense ratio and fund size are positively associated with discernment but negatively associated with timing returns. The reverse directions for the effects of fund features on managerial performance sustain post evidence that there is a trade-off between a manager's stock selection and market timing abilities. This study builds on moderately small literature on the relationship between fund feature variables and the two performance components: discernment and market timing.

(Wu, 2014) examine 170 open-ended equity funds in Taiwan from 2003 to 2012 and resolved that mutual funds with higher turnover and expenses have relatively lower fund returns. Besides, he suggested that underperforming funds are more likely to higher turnover ratio, representing that not only is turnover a determining factor in fund performance but also that fund performance is a determining factor for turnover. (Cornell B, 1991) explains that most debt-driven performance funds use the capital asset pricing model (CAPM) to price bonds. The CAPM model can prove how low-grade bond mutual funds match the performance of high-grade bond funds over a longer period. European bond markets have also shown how the past performance of bonds can repeat. This study offers further analysis to compare recessionary impacts on bond performance in various transitional periods.

(Cherkes, Sagi, & Stanton, 2009) Highlight the appropriateness of closed-end funds to hold illiquid securities, because they are not subject to large-scale creation or redemption of shares, which can lead to potentially large transaction costs, as is the case with open-end funds. (Mark & Sheridan, 1989) describes fund flows themselves have been suggested as a potential source for the well-documented underperformance of mutual funds relative to their benchmarks as great inflows or outflows force mutual funds to engage in costly transactions provide direct proof for the hypothesis that fund flow-induced transaction costs are cause of the underperformance of mutual funds. (Jenson, 1968)Extensive effort has been focused on the development of an adequate performance measure for mutual fund managers. There is significant disagreement regarding an appropriate benchmark. Some funds may be

assessed concerning the average, others concerning a multifactor model, while still others against a benchmark within an investment style classification. Traditionally fund managers have been compared to portfolios on this efficient frontier. In many other cases, managers are compared to a buy-and-hold benchmark. This benchmark requires even less management.

(Lehmann & David, 1987) notes that the fixed weight portfolio strategy does not yield the best risk-return trade-off. To be sure, that constant weight strategy is only appropriate in a world where expected returns and variances do not change through-line. As there is significant evidence that means and variances are to some extent expectable, this implies that dynamic portfolio trading strategies should provide risk-return trade-offs that are better than those using constant weights. Hence, it is no surprise that most mutual funds do not follow a constant-weight portfolio strategy. (Hansen & Jagannathan, 1991) create a managed portfolio strategy that is applied out-of-sample. We measure the performance of this managed portfolio and show it is conceivable to produce an out-of-sample investment strategy whose 'risk' adjusted returns are positive. If positive "alpha" returns were not conceivable, then mutual funds can do so better than a suitably created buy-and-hold trading strategy which any investor should be able to implement on their own. Moreover, our out-of-sample approach provides a practical basis to implement a trading strategy that should guide managers interested in producing positive alpha returns.

(Sharpe F, 1996) explains that a large number of studies have been done on the growth and financial performance of mutual funds. He explains in a modern portfolio theory context that the expected return on an efficient portfolio and its associated risk and linearly related. By integrating various concepts he developed a Sharpe Index. He attempted to rate the performance based on of the optimal portfolio with the risky portfolio and a risk-free asset is the one with the greatest reward-to-variability. The unsystematic risk is related to particular security due to ineffective management. (Wermers, 2000) reveals that specific stock returns can be exaggerated by fund flows into equity mutual funds. Mutual fund flows themselves have been suggested as a possible source for the well-documented underperformance of mutual funds relative to their benchmarks as extreme inflows or outflows force mutual funds to engage in costly transactions proof for the hypothesis that fund flow-induced transaction costs are a cause of the underperformance of mutual funds.

Methodology

In this research paper, an attempt is made to analyze the performance direct growth plan scheme of the different mutual fund companies during the study period and which is from 2016-2020. The study is based on secondary data. A total of 19 companies were considered for the study. The study used the daily closing Net Asset Values (NAV) of select mutual fund schemes and the daily closing price of the benchmark stock index SENSEX to measure risk. To see how risky a scheme is, we calculate its risk coefficient beta, as described in the CAPM.

The study aims to determine the performance of the direct growth plan scheme of different companies by using the Sharpe, Treynor, and Jensen methods. The major distinction between the first two metrics is that the Treynor ratio measures uncertainty using the beta, or market risk, rather than absolute risk (standard deviation), as the Sharpe ratio does. The main objectives of the study are

1. To study the financial performance of select Mutual Find Schemes.

2. To analyze risk-adjusted parameters suggested by Sharpe, Treynor and, Jensen alpha.

The daily growth rate of mutual funds is denoted by R_i. NAV_i stands for net asset value of a scheme at the time i.

$$R_i = \frac{NAV_i - NAV_{i-1}}{NAV_{i-1}} \quad \text{.....(1)}$$

The mean daily growth rate of the scheme is indicated by $\bar{R}_i$.

$$\bar{R}_i = \sum_{i=1}^{n} \frac{R_i}{n} \quad \text{..... (2)}$$

Similarly, for market index SENSEX, R_{mi} is the daily growth rate of the market index

$$R_{mi} = \frac{I_i - I_{i-1}}{I_{i-1}} \quad \text{..... (3)}$$

The mean daily growth rate of the market index is indicated by $\overline{R_m}$.

$$\bar{R}_m = \sum_{i=1}^{n} \frac{R_{mi}}{n} \text{..... (4)}$$

The beta of an asset, which measures the risk of an asset, is calculated by the following formula.

$$\beta = \frac{\delta_s}{\delta_m} (Correlation\ of\ s, m) \text{..... (5)}$$

Data Analysis

Table - 1

S No.	Name	Avg. Return	SD	Beta	Expected Return
1	Aditya Birla Sun Life Mutual Fund	25.80%	1.87%	-0.013	6.81%
2	Axis Mutual Fund	44.93%	29.06%	0.826	19.09%
3	Baroda Mutual Fund	10.27%	32.70%	0.797	18.65%
4	Franklin Templeton Mutual Fund	29.92%	5.94%	0.008	7.11%
5	HSBC Mutual Fund	41.08%	28.22%	0.013	7.18%
6	ICICI Prudential Mutual Fund	30.72%	3.39%	0.007	7.10%
7	IDBI Mutual Fund	25.54%	9.26%	0.012	7.18%
8	IDFC Mutual Fund	35.83%	7.28%	0.013	7.19%
9	Indiabulls Mutual Fund	25.41%	1.91%	0.000	7.01%
10	JM Financial Mutual Fund	23.06%	2.09%	-0.001	6.98%
11	L&T Mutual Fund	27.04%	1.69%	0.000	7.00%
12	LIC Mutual Fund	41.87%	37.24%	-0.023	6.66%
13	Kotak Mahindra Mutual Fund	15.62%	32.13%	0.947	20.85%
14	Motilal Oswal Mutual Fund	32.99%	32.34%	0.879	19.86%
15	Nippon India Mutual Fund	29.97%	21.81%	0.574	15.40%
16	SBI Mutual Fund	28.95%	1.75%	-0.010	6.86%
17	Sundaram Mutual Fund	31.27%	5.03%	0.028	7.41%
18	Tata Mutual Fund	47.73%	29.36%	-0.028	6.59%
19	UTI Mutual Fund	22.75%	30.32%	0.182	9.66%

After calculating the risk parameter (beta) of an asset, and the annual growth rate of the market index, we calculate the expected rate of return of the mutual fund scheme. The formula is derived from the CAPM:

$$E[R_i] = R_f + \beta\big(E[R_m] - R_f\big) \text{..... (6)}$$

This ratio measures the return earned more than the risk-free rate on a portfolio to the portfolio's total risk as measure by the standard deviation in its returns over the measurement period.

$$Sharpe\ Ratio = \frac{R_p - R_f}{\delta_p} \text{.... (7)}$$

This ratio is similar to the above except it uses beta instead of standard deviation. It's also known as the reward to Volatility Ratio, it is the ratio of a fund's average excess return to the fund's beta.

$$Treynor\ Ratio = \frac{R_p - R_f}{\beta_p} \text{..... (8)}$$

It measures the ability of active management to increase returns above those that are purely a reward for bearing market risk.

$$Jensen's\ Measure(\alpha_p) = R_p - E[R_p] \text{..... (9).}$$

Table 1 is the summary description of the direct growth plan scheme of the different mutual fund

companies. It depicts actual returns, standard deviation, systematic risk (beta), and expected return based on the capital asset pricing model (CAPM). Column 1 shows the actual return of 19 mutual fund schemes. Tata Mutual Fund has the highest average return followed by Axis Mutual Fund, LIC Mutual Fund, and HSBC Mutual Fund. Column two gives the standard deviation of all sample schemes. LIC Mutual Fund has the highest standard deviation (37.24%) among sample companies. Standard deviations of other mutual funds are Baroda Mutual Fund (32.70%), Motilal Oswal Mutual Fund (32.34%), and Kotak Mahindra Mutual Fund (32.13%). L&T Mutual Fund has the lost SD of 1.69%.

Using equation (5) we calculate the beta value of each scheme which is listed in the third column of Table 1. A beta value of greater than 1 indicates that the scheme is more risk than the market, and vice versa. The beta value of all same companies has less than one. Tata Mutual Fund (-0.028), L&T Mutual Fund (-0.023), Aditya Birla Sun Life Mutual Fund (-0.013), SBI Mutual Fund (-0.01), JM Financial Mutual Fund (-0.001) have negative betas. The expected return is calculated using the capital asset pricing model and the expected return of Kotak Mahindra Mutual Fund, Motilal Oswal Mutual Fund, Axis Mutual Fund, and Baroda Mutual Fund are 20.85%, 19.86%, 19.09%, and 18.65% respectively.

Table - 2

S No.	Name	Sharpe Ratio	Treynor Ratio	Alpha
1	Aditya Birla Sun Life Mutual Fund	10.07	-14.11	19.00%
2	Axis Mutual Fund	1.31	0.46	25.84%
3	Baroda Mutual Fund	0.10	0.04	-8.38%
4	Franklin Templeton Mutual Fund	3.86	30.20	22.81%
5	HSBC Mutual Fund	1.21	27.02	33.90%
6	ICICI Prudential Mutual Fund	7.00	36.10	23.62%
7	IDBI Mutual Fund	2.00	15.20	18.36%
8	IDFC Mutual Fund	3.96	22.54	28.64%
9	Indiabulls Mutual Fund	9.63	42.03	18.40%
10	JM Financial Mutual Fund	7.69	-15.35	16.08%
11	L&T Mutual Fund	11.87	-48.06	20.04%
12	LIC Mutual Fund	0.94	-15.05	35.21%
13	Kotak Mahindra Mutual Fund	0.27	0.09	-5.23%
14	Motilal Oswal Mutual Fund	0.80	0.30	13.13%
15	Nippon India Mutual Fund	1.05	0.40	14.56%
16	SBI Mutual Fund	12.54	-23.00	22.09%
17	Sundaram Mutual Fund	4.82	8.68	23.86%
18	Tata Mutual Fund	1.39	-14.47	41.15%
19	UTI Mutual Fund	0.52	0.87	13.09%

Table 2 shows the Sharpe ratio, Treynor Ratio, and Jensen Ratio (Alpha). Column 3 depicts the value of the Sharpe ratio for the sample companies' scheme. It indicates an extra return per unit of extra risk taken. The Higher the Sharpe ratio better it is. A positive value of schemes indicates better performance. SBI Mutual Fund (12.54), L&T Mutual Fund (11.87), Aditya Birla Sun Life Mutual Fund (10.07), and India bulls Mutual Fund (9.63) all had higher positive Sharpe values. Treynor Ratio is the difference between the excess return earned and the risk-free return earned per unit of systematic risk i.e. beta. Column 4 shows the Treynor ratio of 19 sample companies. India bulls Mutual Fund has the highest ratio followed by ICICI Prudential Mutual Fund, Franklin Templeton Mutual Fund, and HSBC Mutual Fund. However, 6 companies have a negative Treynor ratio. There are two reasons for the negative Treynor ratio; they are a negative return and a negative beta. The Jensen ratio (Alpha) is the difference between the required return and the expected return (CAPM). Positive alpha Indicates adding value to the company. Tata Mutual Fund (41.15%) has the highest alpha among sample companies followed by LIC Mutual Fund (35.21%), HSBC Mutual Fund (33.90%), and IDFC Mutual Fund (28.64%).

Conclusions

The study has investigated the performance of the direct growth plan scheme of different companies using average rate of return, standard deviation, beta, and the Sharpe, Treynor, and Jensen methods. Tata Mutual Fund has the highest average return 47.73%

among sample companies. A beta value of greater than 1 indicates that the scheme is more risk than the market, and vice versa. The beta value of all same companies has less than 1 during the study period. Higher positive values were seen in SBI Mutual Fund (12.54), L&T Mutual Fund (11.87), Aditya Birla Sun Life Mutual Fund (10.07), and India bulls Mutual Fund (9.63). Finally, Tata Mutual Fund (41.15%) has the highest alpha among sample companies.

References

Bloucher. (2016). Network externalities in mutual fund. *J Financ Mark* , 1-26.

Carhart, M. (1997). On persistence in mutual Fund performance. *journal of finance , 52 No.1*, 57-82.

Chen, C. L. (1992). A cross sectional analysis of mutual funds market timing and security selection skill. *Journal of Business Finance and accounting , 19 No.5*, 659-675.

Cherkes, M., Sagi, J., & Stanton, R. (2009). A Liquidity - Based theory of Closed-end funds. *The Review of Financial Studies , 22* (1), 257-297.

Cornell B, G. K. (1991). The investment performance of low-grade bond funds. *journal of Finance , 46 (1)*, 29-48.

Coval, J. D., & Stafford, E. (2007). Asset Fire Sales (and Purchases) in Equity Markets. *Journal of Financial Economics , 86* (2), 479-512.

Edelen, R. M., & Warner, J. B. (2001). Aggregate price effects of institutional trading: a study of mutual fund flow and market returns. *Journal of Financial Economics , 59* (2), 195-220.

Frazzini, A., & Lamout, O. A. (2005). Dumb Money: Mutual Fund Flows and the Cross-Section of Stock Returns. *Journal of Financial Economics , 88* (2), 299-322.

Goetzmann, W. N., & Massa, M. (2003). Index Funds and Stock Market Growth. *The Journal of Business , 76* (1), 1-28.

Hansen, L. P., & Jagannathan, R. (1991). Implication of Security Market data for models of dynamic economics. *Journal of Political Economies , 99 No.2*, 225-262.

Jensen, M. (1968). The performance of mutual funds in the period 1945–1964. *Journal of Finance , 23*, 389-416.

Jenson, M. (1968). The Performance of the Mutual Funds in the period. *Journal of Finance , 23*, 384-416.

Kapadia, G. p. (2010). Contagian in financial networks. *Proc R Soc A Math phys eng Sci* (466(2120): 2401-2423), 466-475.

Khude, D. (2021). *Detailed List of the Types of Mutual Fund Schemes in India in 2021*. Retrieved from https://www.samco.in/.

Lehmann, B., & David, M. (1987). Mutual Fund Performance evaluation: A Comparision of Benchmarks and benchmark comparision. *Journal of Finance , 21*, 233-265.

Mark, G., & Sheridan, T. (1989). Mutual Fund Performance: an analysis of quarterly portfolio holdings. *The Journal of Business , 62 No.3*, 393-416.

Sharpe F, W. (1996). Mutual Fund Performance. *The Journal of Business , 39 No.1*, 119-138.

Warther, V. A. (1995). Aggregate mutual fund flows and security returns. *Journal of Financial Economics , 39* (2-3), 209-235.

Wermers, R. (2000). Mutual Fund Performance: An empirical decomposition into stock-picking talent, style, transaction costs, and expenses. *The Journal of Finance , 55 No.4*, 1655-1695.

Wu, S.-C. (2014). Interaction between mutual fund performance and portfolio turnover. *Journal of Emerging Issues in Economics, Finance and Banking , 3* (4).

