Performance Evaluation of Growth of Mutual Fund Schemes in India

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Abstract

The paper examined the performance of growth mutual fund schemes relative to the benchmark index in India. Monthly net assets value (NAV) of five open-ended growth schemes were taken as a sample of the study covering a period of 5 years, that is, April 2012 to March 2017. The average return, standard deviation (risk), and beta were calculated for the selected schemes. Three performance analysis measures, that is, Treynor ratio, Sharpe ratio, and Jensen's alpha were calculated from the obtained data. Sixty percent of the schemes were found to outperform the market, while 40% had underperformed the market. It is anticipated that the performance measurement results will be helpful to the investors in the future in deciding their investment. The study delved upon the portfolio performance not only on the returns of the funds, but also considered the measures of risk. The basic objective of this performance evaluation was to identify whether the selected funds performed better than the market index or not.

Keywords : Mutual fund, average return, risk, beta, Sharpe ratio, Treynor, Jensen's alpha

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A mutual fund is a collective fund primarily associated with the investment that facilitates the investors to pool their resources in order to purchase stocks, bonds, and other securities. A number of different schemes having different objectives are being launched by the mutual funds from time to time. The fund managers in mutual funds own the responsibilities for investing the accumulated money from the investors into specific securities, that is, stocks or bonds. Mutual fund as a gateway for the savings and investments attracts a large number of investors. In the process, it pulls a large number of investors who invest with a hope to yield appropriate returns. According to different bases, mutual funds can be categorized into different schemes. Based on the investment objective, mutual funds can be growth schemes, income schemes, balance schemes, or money market schemes. Mutual funds can be open-ended schemes or close ended schemes as per the structure of the fund. While taking into account the nature, it can be an equity fund or debt fund. Mutual fund schemes can also be categorized as tax saving schemes, sector specific schemes, and index schemes. Tax savings, liquidity, affordability, diversified portfolio, and professional money management are some of the benefits that are understood to be associated with mutual fund investments. Mutual funds, as an important investment vehicle for investors, are perceived to be a financial instrument of high potential gain. The mutual fund industry is also one of

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the most significant emerging sectors in India. Mutual funds as a major financial intermediary have been playing a vital role in developing the economic condition of the country. Potential return, professional expertise of the managers, capital appreciation, liquidity, marketability, tax saving purpose, and safety are some of the important factors influencing the investments in mutual funds (Chalam, 2003 ; Kumar & Arora, 2013 ; Singh, 2012). The present paper is an attempt to analyze the performance of mutual funds in India. The present study delves upon the portfolio performance not only on the returns of the funds, but also considers the measures of risk. The basic objective of this performance evaluation is to identify whether the selected funds have performed better than the market index or not.

Mutual Funds in India

The origin of Unit Trust of India (UTI) in Indian soil established the notion of mutual funds in 1963. The primary objective of UTI was to attract the small and significant retail investors to invest their money. The first scheme launched by UTI was Unit Scheme 1964 (www.amfi.com). The passing of the Securities and Exchange Board of India (SEBI) Act, 1992 brought a dynamic scenario in the history of mutual funds in India. The SEBI Mutual Fund Regulations came into operation in 1996; the Association of Mutual Funds in India (AMFI), a non-profit organization, was established in 1995. As the industry expanded, the AMFI was established with the objective to promote healthy and ethical marketing practices in the Indian mutual fund industry. As on 31.01.2018, there were a total of thirty-nine (39) mutual funds working in India, out of which six are public and 33 are private mutual funds. The mutual fund industry has undergone several changes over the period. Several developments are being undertaken by asset management companies (AMC) in the mutual fund industry in order to make these more popular and attractive. New investment plan called as systematic investment plan (SIP) has been introduced whereby investors can invest a fixed amount at a fixed interval in the mutual fund scheme. As in December 2017, total assets of mutual fund industry reached to ₹ 21.38 lakh crores, while the total number of accounts in mutual fund till December 2017 was 6.65 crores.

Since there has been a remarkable growth in the mutual fund industry, the present study shall bring new outcome and new perspective to the performance of mutual funds. So, an attempt is made to evaluate the best mutual funds among all the available funds. It is anticipated that the performance measurement results will be helpful in the future in decision making. The results and information developed from the performance analysis will help the investors to control their investments.

Review of Literature

Treynor (1965) coined a fund's performance metric by taking investment risk into account. He used the characteristic regression line for establishing the relationship between the expected return of a portfolio to the rate of return of a market index average. Sharpe (1966) evaluated 34 open-ended mutual funds by developing a composite measure of return and risk. He found out that performance was inversely related with expense ratio, but size was not associated with the performance of the fund. The study by Jensen (1967) evaluated the ability of fund managers in selecting securities during the period from 1945 - 1966. He found that 67% of the funds yielded abnormally poor returns, while only 33 % of the funds had above-average returns. In terms of gross returns, 58% of the funds showed below average results, while 42% of the funds showed above average results. Friend, Crockett, and Blume (1970) compared the performance of 86 funds with random portfolios. Their study found that mutual funds performed badly in terms of total risk. They found that funds with a higher turnover performed better than the composite market index. However, the size of the fund was not associated with the performance of the fund.

The study by Gupta (1974) found performance of all the funds to be better than the market. The

performance results obtained through the three different models, that is, Sharpe, Tryenor, and Jenson models provided identical results. He also observed that funds with higher volatility gave superior performance results.

The study by Chander (2000) found that open-end schemes outperformed close-end schemes in terms of return. Similarly, performance of income funds was better than the performance of growth and balanced funds. Chalam (2003) observed that investors preferred the growth option than the income options and were interested in re-investment benefits rather than the regular dividend. Bahl and Rani (2012) found that 14 out of 29 schemes were outperforming the benchmark returns ; whereas, the rest of the schemes were underperforming. Ahmad, Roomi, and Ramzan (2015) found that open-ended funds performed better than the close - ended funds.

Gowri and Deo (2016) examined the performance evaluation of 15 open ended equity schemes by taking the monthly NAV data and found that the selected schemes had underperformed the benchmark. The study also found that more than 80% of the funds generated negative Sharpe, Treynor, and Jenson alphas. Mishra and Ahuja (2016) observed that mutual funds performed differently in bull and bear phases. Mishra and Ahuja (2016) found a weak relationship between selectivity and market timing in the selected period of the study.

It is observed from the Review of Literature that most of the studies evaluated the performance of mutual funds by using the average rate of return, while risk was measured by using the standard deviation. The popular Sharpe measure, Treynor measure, and Jensen measure were also used by researchers in evaluating the performances of the mutual funds. The present study intends to evaluate the performance of the mutual fund schemes not only on the returns of the funds, but also considers the measures of risk.

Objectives of the Study

The basic objective of this performance evaluation is to identify whether the selected funds performed better than the market index or not. The present study has delved upon the portfolio performance not only on the returns of the funds, but also considers the measures of risk.

Research Methodology

(1) Sampling : The present study is based on secondary data. The study covers the top five asset management companies which were selected on the basis of their highest assets under management. Five oldest open-ended growth schemes from each AMC were taken as a sample of the study. List of the AMC and sampled schemes selected for the study are given in the Table 1.

(2) Data : Monthly net asset value (NAV) of the selected schemes were collected from www.amfi.com . The yield

Table 1. List of the AMCs and Sampled Schemes Selected for the Study

Name of AMC	No. of Growth Schemes*	Name of the Selected Scheme	Scheme Type
ICICI Prudential Mutual Fund	8	ICICI Prudential Balanced Advantage Fund-Growth Plan	Open-ended
HDFC Mutual Fund	35	HDFC Capital Builder Fund - Growth Option	Open-ended
Reliance Mutual Fund	18	Reliance Banking Fund-Dividend Plan-Dividend Option	Open-ended
Birla Sun Life Mutual Fund	14	Birla Sun Life Dividend Yield Plus - Growth - Regular Plan	Open-ended
SBI Mutual Fund	16	SBI Arbitrage Opportunities Fund-Regular Plan - Growth	Open-ended

Source: Compiled from AMFI records.

*as on 31.03.2017

to maturity (YTM) of 91 days treasury bills was taken as the risk-free rate of return which was collected from RBI website. NSE Nifty 100 was taken as the market portfolio and the data were collected from www.nseindia.com website. The performance evaluation of selected mutual fund schemes covered a period of 5 years, that is, from April 2012 to March 2017.

(3) Tools Used : The average return, standard deviation (risk), and beta were calculated for the selected schemes. Three performance analysis measures, that is, Treynor ratio, Sharpe ratio, and Jensen alpha were calculated from the obtained data.

Data Analysis and Results

(1) Returns : Monthly adjusted net asset value (NAV) data of different schemes were used for calculating the returns of the portfolios. The formula used for this is as follows :

$$R_p = \frac{NAV_t - NAV_{t-1}}{NAV_{t-1}} *100$$

where,
R_p = Monthly return of the portfolio,
NAV_t = Current month's NAV,
NAV_{t-1} = Previous month's NAV.

The average return of the mutual fund schemes is calculated as follows :

$$\overline{R}_p = \frac{\sum_{p=1}^{n} R_p}{n}$$

where, $\overline{R}_p$ = average return of mutual fund scheme,
n = number of observations.

Correspondingly, the monthly returns of the market index and average returns of the market index were calculated as given in the formula :

$$R_{mt} = \frac{P_t - P_{t-1}}{P_{t-1}} *100$$

where,
R_{mt} = Monthly return of market index,
P_t = Closing price of current month and,
P_{t-1} = Closing price of the previous month.

$$\overline{R}_m = \frac{\sum_{m=1}^{n} R_m}{n}$$

where,

$\overline{R}_m$ = average return of the market index.

The analysis of average return of the growth schemes and benchmark has been presented in the Table 2.
The Table 2 shows the year-wise monthly average return of the selected growth schemes and the benchmark

Table 2. Year - Wise Monthly Average Return of Selected Growth Schemes and Benchmark

Scheme Name	2012-13	2013-14	2014-15	2015-16	2016-17	2012-13 - 2016-17
ICICI Prudential Balanced Advantage Fund-Growth Plan	1.1068	1.6142	1.9990	0.1520	1.3969	1.2563
HDFC Capital Builder Fund - Growth Option	0.7610	1.8616	3.1050	-0.0327	2.1119	1.5749
Reliance Banking Fund-Dividend Plan-Dividend Option	0.4927	0.5945	2.8941	-1.4592	2.0867	0.9290
Birla Sun Life Dividend Yield Plus - Growth - Regular Plan	0.2531	1.2590	3.0936	-0.8253	2.1537	1.2026
SBI Arbitrage Opportunities Fund-Regular Plan - Growth	0.7047	0.7203	0.6985	0.5208	0.4901	0.6256
Benchmark (Nifty 100)	0.8277	1.4768	2.0533	-0.6644	1.4677	1.0347

index. The schemes gave positive returns during the entire study period except in the year 2015-16. For the year 2015-16, three schemes reflect negative values, that is, HDFC Capital Builder Fund - Growth Option (0.0327), Reliance Banking Fund-Dividend Plan-Dividend Option (-1.4592), and Birla Sun Life Dividend Yield Plus - Growth - Regular Plan (-0.8253). It can be observed that in the same year, the return of the benchmark is also negative.

By comparing with the benchmark index, for 2012-13, only one scheme, that is, ICICI Prudential Balanced Advantage Fund-Growth Plan (1.1087) performs superior to the market ; for 2013-14, two schemes, that is, ICICI Prudential Balanced Advantage Fund-Growth Plan (1.6142) and HDFC Capital Builder Fund - Growth Option (1.8616) have greater returns than the market; for the year 2014 -15, three schemes outperform the market, that is, HDFC Capital Builder Fund - Growth Option (3.1059), Reliance Banking Fund-Dividend Plan-Dividend Option (2.8941), and Birla Sun Life Dividend Yield Plus - Growth - Regular Plan (3.0946) ; for the year 2015-16, three schemes, that is, ICICI Prudential Balanced Advantage Fund-Growth Plan (0.1520), HDFC Capital Builder Fund - Growth Option (-0.0327), and SBI Arbitrage Opportunities Fund-Regular Plan - Growth (0.5208) have greater returns than the benchmark. For 2016 -17, three schemes, that is, HDFC Capital Builder Fund - Growth Option (2.1119), Reliance Banking Fund-Dividend Plan-Dividend Option (2.0867), and Birla Sun Life Dividend Yield Plus - Growth - Regular Plan (2.1537) have higher returns than the market. For the consolidated period, that is, 2012-13 to 2016-17, every scheme has a positive return value. The return is highest in case of HDFC Capital Builder Fund - Growth Option with a value of 0.015. In the consolidated period, when compared with the benchmark, three schemes perform better than the benchmark.

(2) Risk : The risk of the mutual fund schemes and the market index were measured by standard deviation (σ). It measures the variation in the returns of the mutual fund schemes from their expected rate of return for a given period of time. Higher standard deviation signifies higher risk as well as higher volatility of the schemes. The standard deviations are calculated by using the following formula :

$$\sigma_p = \sqrt{\frac{1}{n-1} \sum (R_{pt} - \overline{R}_p)^2}$$

Table 3. Year - Wise Monthly Standard Deviation of Selected Growth Schemes and Benchmark

Scheme Name	2012-13	2013-14	2014-15	2015-16	2016-17	2012-13 - 2016-17
ICICI Prudential Balanced Advantage Fund-Growth Plan	2.9898	3.0469	1.7333	3.6501	1.6441	2.7041
HDFC Capital Builder Fund - Growth Option	4.4406	4.5396	3.8904	6.3538	3.2802	4.5932
Reliance Banking Fund-Dividend Plan-Dividend Option	7.8467	10.9099	7.5888	7.9289	4.2760	7.8625
Birla Sun Life Dividend Yield Plus - Growth - Regular Plan	4.7814	5.0863	4.1821	5.0624	3.4661	4.6102
SBI Arbitrage Opportunities Fund-Regular Plan - Growth	0.1586	0.1405	0.1584	0.1633	0.1255	0.1763
Benchmark (Nifty100)	4.6470	4.4709	3.7867	4.9183	2.8113	4.1497

$$\sigma_m = \sqrt{\frac{1}{n-1} \sum (R_{mt} - \overline{R}_m)^2}$$

where, σ_p and σ_m are the risk of the mutual fund schemes and risk of the market index, respectively. The standard deviation of the growth schemes and the benchmark is presented in the Table 3.

The Table 3 represents the risk in terms of standard deviation of the growth schemes as well as for the market index. On analysis of the table, it can be observed that throughout the study period, three schemes, that is, HDFC Capital Builder Fund - Growth Option, Reliance Banking Fund-Dividend Plan-Dividend Option, and Birla Sun Life Dividend Yield Plus - Growth - Regular Plan have higher standard deviation except in the year 2012-13, when HDFC Capital Builder Fund - Growth Option has a slightly lower value than the benchmark. On the contrary, throughout the period, two schemes, that is, ICICI Prudential Balanced Advantage Fund-Growth Plan and SBI Arbitrage Opportunities Fund-Regular Plan-Growth have lower standard deviation as compared to the benchmark. This indicates that two schemes, that is, ICICI Prudential Balanced Advantage Fund-Growth Plan and SBI Arbitrage Opportunities Fund-Regular Plan-Growth are less risky and less volatile as compared with the market while the other three schemes, that is, HDFC Capital Builder Fund - Growth Option, Reliance Banking Fund-Dividend Plan-Dividend Option, and Birla Sun Life Dividend Yield Plus - Growth - Regular Plan are more risky and more volatile than the market. Similar results are observed for the consolidated period of 5 years. For the consolidated 5 years as a whole, the standard deviation of the selected schemes ranges from 0.1763 to 7.8625. The maximum standard deviation is seen in Reliance Banking Fund-Dividend Plan-Dividend Option (7.8625) while the minimum standard deviation is shown by SBI Arbitrage Opportunities Fund-Regular Plan-Growth (0.1763). Thus, Reliance Banking Fund-Dividend Plan-Dividend Option is the most risky scheme, while SBI Arbitrage Opportunities Fund-Regular Plan-Growth is the least risky scheme.

(3) Beta : Beta measures the volatility of the returns of an investment in response to its market return. It represents the percentage performance of the fund which has historically accompanied a 1% move in the market. It is calculated by using the following formula :

$$\beta = \frac{r_p \cdot \sigma_m \cdot \sigma_p}{\sigma^2_m}$$

where,

Table 4. Year - Wise Monthly Beta of Selected Growth Schemes

Scheme Name	2012-13	2013-14	2014-15	2015-16	2016-17	2012-13 - 2016-17
ICICI Prudential Balanced Advantage Fund-Growth Plan	0.5979	0.6469	0.4095	0.7162	0.5332	0.6082
HDFC Capital Builder Fund - Growth Option	0.9435	0.9640	0.9296	1.2382	1.0733	1.0441
Reliance Banking Fund- Dividend Plan-Dividend Option	1.3783	2.1801	1.6507	1.4644	0.8469	1.5806
Birla Sun Life Dividend Yield Plus - Growth - Regular Plan	0.9958	1.0306	0.9028	1.0023	1.0509	1.0153
SBI Arbitrage Opportunities Fund-Regular Plan - Growth	-0.0022	-0.0041	-0.0046	0.0162	-0.0166	0.0033

r_p = return of the portfolio,
σ_p = Standard deviation of porfolio,
σ_m = Standard deviation of market.

A scheme having beta value more than one suggests that the scheme is more volatile than the benchmark index. It is said to be an aggressive fund. If the beta is less than one, then it indicates that the investment is less risky as compared to the market index. Such investment is said to be defensive. If the beta is equal to one, it represents that the portfolio and the benchmark index are moving in the same direction. When it shows a negative value, it indicates that the stock or the portfolio and the market are in the opposite direction. When the beta equals to zero, this means that the fund has no relation to the market. The beta value of the selected growth schemes has been presented in the Table 4.

On analysis of the Table 4, it can be inferred that ICICI Prudential Balanced Advantage Fund-Growth Plan has its beta value of less than one throughout the period. So, this fund is a defensive fund. For SBI Arbitrage Opportunities Fund-Regular Plan-Growth, it is observed that its beta value is negative throughout the period, thus indicating that this funds moves inversely from the benchmark. Regarding HDFC Capital Builder Fund - Growth Option and Birla Sun Life Dividend Yield Plus - Growth - Regular Plan, their beta value is near about one in the period of the study. In case of the first 3 years, the beta value of HDFC Capital Builder Fund - Growth Option is little less than one, while for the last two years, its beta value is slightly greater than one. Thus, these two funds move akin with the benchmark. For Reliance Banking Fund-Dividend Plan-Dividend Option, except for the year 2016-17, the beta value is more than one in the first four years. This fund is therefore an aggressive fund. Its value is highest in the year 2013-14 with a beta value of more than 2.1.

The values of the funds as found in the consolidated period indicates that ICICI Prudential Balanced Advantage Fund-Growth Plan and SBI Arbitrage Opportunities Fund-Regular Plan - Growth are defensive funds ; HDFC Capital Builder Fund - Growth Option and Birla Sun Life Dividend Yield Plus - Growth - Regular Plan are funds akin with the benchmark; and Reliance Banking Fund-Dividend Plan-Dividend Option is an aggressive fund.

(4) Sharpe Performance Index : Sharpe (1966) developed a composite index which is very similar to the Treynor measure. The difference between the Sharpe and Treynor indexes is that, while Sharpe uses standard deviation, the latter applies beta to measure the portfolio risk. Thus, Sharpe uses the total risk of the portfolio (σ) rather than just the systematic risk beta (β) as used by Treynor.

$$\text{Sharpe} = \frac{R_p - R_f}{\sigma_p}$$

where,

Sharpe = Sharpe performance index,

σ_p = Portfolio standard deviation,

R_f = risk free rate of return,

R_p = Return of the portfolio.

The model used by Sharpe is known as Sharpe's single index model. It is a simplified model proposed for establishing a relationship between each pair of securities which could be measured by comparing each security to a common factor known as 'market performance index' which is shared among all the securities. This model can lessen the burden of large input requirements and the difficult calculation of Markowitz's mean-variance setting (Sharpe, 1963). Sharpe ratio of the selected growth schemes is shown in the Table 5.

A higher Sharpe ratio indicates better fund performance. If the Shape ratio is negative, it indicates that the fund is generating a low return and it has a poor performance as compared to the market.

From the Table 5, it can be ascertained that during 2012-13, out of the five schemes, two schemes, that is, Reliance Banking Fund-Dividend Plan-Dividend Option (-0.0241) and Birla Sun Life Dividend Yield Plus - Growth - Regular Plan (-0.0897) have negative values. The two schemes, ICICI Prudential Balanced Advantage Fund-Growth Plan (0.1429) and SBI Arbitrage Opportunities Fund-Regular Plan - Growth (0.1401) have a higher Sharpe ratio value when compared with the market, thus indicating that these two schemes have better performance than the market. For the year 2013-14, the three schemes, that is, Reliance Banking Fund-Dividend Plan-Dividend Option (-0.0136), SBI Arbitrage Opportunities Fund-Regular Plan - Growth (-0.1612), and Birla Sun Life Dividend Yield Plus - Growth - Regular Plan (0.1014) have a Sharpe ratio value lower than the market, which indicates that these three schemes underperform than the market. Further in the year, the ratio is maximum in case of ICICI Prudential Balanced Advantage Fund-Growth Plan (0.2859) and lowest for SBI Arbitrage Opportunities Fund-Regular Plan - Growth with a value of -0.1612.

In the year 2014-15, SBI Arbitrage Opportunities Fund-Regular Plan - Growth (-0.0548) is the only scheme which has a negative value while all the other four schemes have a positive value. The highest Sharpe ratio is held by ICICI Prudential Balanced Advantage Fund-Growth Plan (0.7452) followed by HDFC Capital Builder Fund - Growth Option (0.6133), Birla Sun Life Dividend Yield Plus - Growth - Regular Plan (0.5706), Reliance Banking

Table 5. Year - Wise Monthly Sharpe Ratio of Selected Growth Schemes and Benchmark

Scheme Name	2012-13	2013-14	2014-15	2015-16	2016-17	2012-13 - 2016-17
ICICI Prudential Balanced Advantage Fund-Growth Plan	0.1419	0.2859	0.7452	-0.1277	0.5211	0.2211
HDFC Capital Builder Fund - Growth Option	0.0176	0.2464	0.6133	-0.1024	0.4791	0.1995
Reliance Banking Fund-Dividend Plan-Dividend Option	-0.0241	-0.0136	0.2881	-0.2620	0.3616	0.0344
Birla Sun Life Dividend Yield Plus - Growth - Regular Plan	-0.0897	0.1014	0.5706	-0.2851	0.4655	0.1180
SBI Arbitrage Opportunities Fund-Regular Plan - Growth	0.1401	-0.1612	-0.0548	-0.5962	-0.3978	-0.1849
Benchmark (Nifty100)	0.0301	0.1641	0.3554	-0.2608	0.3299	0.0907

Fund-Dividend Plan-Dividend Option (0.2881), and SBI Arbitrage Opportunities Fund-Regular Plan - Growth (-0.0548). When compared with the benchmark Sharpe ratio, it shows that ICICI Prudential Balanced Advantage Fund-Growth Plan (0.7452), HDFC Capital Builder Fund - Growth Option (0.6133), and Birla Sun Life Dividend Yield Plus - Growth - Regular Plan (0.5706) show a better performance than the benchmark. Similar results are found in the year 2016-17, where all the four schemes have a positive Sharpe ratio value, but SBI Arbitrage Opportunities Fund-Regular Plan - Growth has a negative Sharpe ratio value. All the four schemes other than the SBI Arbitrage Opportunities Fund-Regular Plan - Growth perform better than the benchmark in the year 2016-17. For the year 2015-16, all the five schemes as well as the benchmark show negative Sharpe ratios.

(5) Treynor Performance Index : In 1965, Jack Treynor, the economist, conceived and developed an index to measure the risk-adjusted performance of an investment portfolio and the same is best known as Treynor performance index. The primary motto of the index is to measure a portfolio's excess return per unit of risk using beta as the risk measure. According to him, the higher the number, the greater is the excess return. The Treynor index is calculated as follows:

$$T_i = \frac{R_p - R_f}{\beta_p}$$

where,
T_i = Treynor Index,
R_f = risk free rate of return,
R_p = Return of the portfolio,
β_p = Beta of the portfolio.

The Table 6 shows the Treynor ratio of the selected growth schemes. A high and positive Treynor ratio indicates a better risk-adjusted performance of the fund and a negative value shows that the fund has poor performance. So, Table 6 depicts that during 2012-13, out of the five schemes, three schemes, that is, Reliance Banking Fund-Dividend Plan-Dividend Option (-0.1376), Birla Sun Life Dividend Yield Plus - Growth - Regular Plan (-0.4310), and SBI Arbitrage Opportunities Fund-Regular Plan - Growth (-9.8707) have poor performance as

Table 6. Year - Wise Monthly Treynor Index of Selected Growth Schemes and Benchmark

Scheme Name	2012-13	2013-14	2014-15	2015-16	2016-17	2012-13 - 2016-17
ICICI Prudential Balanced Advantage Fund-Growth Plan	0.7142	1.3466	3.1544	-0.6509	1.6068	0.9833
HDFC Capital Builder Fund - Growth Option	0.0832	1.1603	2.5792	-0.5257	1.4643	0.8780
Reliance Banking Fund-Dividend Plan-Dividend Option	-0.1376	-0.0681	1.3248	-1.4186	1.8262	0.1713
Birla Sun Life Dividend Yield Plus - Growth - Regular Plan	-0.4310	0.5006	2.6430	-1.4403	1.5354	0.5362
SBI Arbitrage Opportunities Fund-Regular Plan - Growth	-9.8707	5.4943	1.8756	-5.9989	3.0031	-9.6046
Benchmark (Nifty100)	0.1402	0.7338	1.3461	-1.2827	0.9276	0.3765

Source: Calculated from AMFI website data, Nifty 100 index, and risk free rate from RBI report.

these funds have negative Treynor ratio value. Only two schemes, that is, ICICI Prudential Balanced Advantage Fund-Growth Plan (0.7142) and HDFC Capital Builder Fund - Growth Option (0.0832) have positive return value. When compared with the market benchmark, only one scheme, that is, ICICI Prudential Balanced Advantage Fund-Growth Plan (0.7142) performs better than the benchmark as it has higher Treynor ratio than the market.

For the year 2013-14, Reliance Banking Fund-Dividend Plan-Dividend Option (-0.0681) is the only scheme which has a negative Treynor ratio and all other schemes, that is, ICICI Prudential Balanced Advantage Fund-Growth Plan (1.3466), HDFC Capital Builder Fund - Growth Option (1.1603), Birla Sun Life Dividend Yield Plus - Growth - Regular Plan (0.5006), and SBI Arbitrage Opportunities Fund-Regular Plan - Growth fund (5.4943) have positive Treynor ratio value. When compared with market benchmark, three schemes, that is, ICICI Prudential Balanced Advantage Fund-Growth Plan (1.3466), HDFC Capital Builder Fund - Growth Option (1.1603), and SBI Arbitrage Opportunities Fund-Regular Plan - Growth (5.4943) have performed better than the market.

Further, all the five schemes, that is, ICICI Prudential Balanced Advantage Fund - Growth Plan (3.1544), HDFC Capital Builder Fund - Growth Option (2.5792), Reliance Banking Fund-Dividend Plan - Dividend Option (1.3248), Birla Sun Life Dividend Yield Plus - Growth - Regular Plan (2.6430), and SBI Arbitrage Opportunities Fund-Regular Plan - Growth (1.8756) have positive Treynor index value in the year 2014-15.When compared with the market Treynor value, it can be ascertained that other than one scheme, that is, Reliance Banking Fund - Dividend Plan-Dividend Option (1.3248), the other four schemes show a superior performance than the benchmark. For the year 2015-16, all the schemes including the market have a negative Treynor index value. Regarding the year 2016-17, all the five schemes have a positive Treyenor index value and all perform better than the market benchmark.

For the consolidated period, 2012-13 - 2016-17, SBI Arbitrage Opportunities Fund - Regular Plan - Growth (-9.6046) is the only scheme which reflects a negative value, while the other four schemes have a positive ratio. The ICICI Prudential Balanced Advantage Fund-Growth Plan has the highest value (0.9833) followed by HDFC Capital Builder Fund - Growth Option (0.8780), Birla Sun Life Dividend Yield Plus - Growth - Regular Plan (0.5362), and Reliance Banking Fund-Dividend Plan-Dividend Option (0.1713). When compared with the benchmark Treynor ratio, three schemes, that is, ICICI Prudential Balanced Advantage Fund-Growth Plan (0.9833), HDFC Capital Builder Fund - Growth Option (0.8780), and Birla Sun Life Dividend Yield Plus - Growth - Regular Plan (0.5362) reflect better performance than the market.

(6) Jensen's Performance Index : Jensen's alpha, also known as Jensen Index, was developed by Michael C. Jensen by using the capital asset pricing model in order to find out firm's specific return as measured by firm's beta proportionate to market beta (β). Alpha (α) is a coefficient that is proportional to the excess return of a portfolio over its required return, or its expected return, for its expected risk as measured by its beta. Jensen Performance Index is given as follows :

$$Jensen = R_p - [R_f + \beta_p (R_M - R_f)]$$

Here,
R_p = Average return of portfolio,
R_f = Risk free rate of return,
β_p = Measure of systematic risk,
R_M = Average market return.

The return of the portfolio varies in the same proportion of β to the difference between the market return and the riskless rate of return. β is assumed to reflect the systematic risk. The fund's portfolio β will be equal to one if it

Table 7. Year - Wise Monthly Jensen's Alpha of Selected Growth Schemes

Scheme Name	2012-13	2013-14	2014-15	2015-16	2016-17	2012-13 - 2016-17
ICICI Prudential Balanced Advantage Fund-Growth Plan	0.3404	0.3964	0.7405	0.4525	0.3621	1.0272
HDFC Capital Builder Fund - Growth Option	-0.0536	0.4111	1.1464	0.9373	0.5760	0.5235
Reliance Banking Fund-Dividend Plan-Dividend Option	-0.3829	-1.7483	-0.0351	-0.1990	0.7610	-0.3243
Birla Sun Life Dividend Yield Plus - Growth - Regular Plan	-0.5689	-0.2403	1.1709	-0.1579	0.6387	0.1621
SBI Arbitrage Opportunities Fund-Regular Plan - Growth	0.0225	-0.0196	-0.0024	-0.0765	-0.0345	-0.0338

takes a portfolio of all market securities. β would be > 1 if the fund's portfolio consists of securities that are riskier than a portfolio of all market securities. The Table 7 represents the Jensen alpha value of the growth schemes.

A negative value for the Jensen's alpha indicates a fund to be a bad performer. Positive alpha value reveals that the fund has earned a better return as compared to the market. As can be seen from the Table 7, throughout the year, ICICI Prudential Balanced Advantage Fund-Growth Plan earns a positive alpha value. For HDFC Capital Builder Fund - Growth Option, except for the year 2012-13, in which it has a negative alpha value, for all the next 4 years, it shows a positive alpha value. For Reliance Banking Fund-Dividend Plan-Dividend Option, except for the year 2016-17 in which it shows a positive alpha value, for all the first four years, it shows a negative alpha value. For Birla Sun Life Dividend Yield Plus - Growth - Regular Plan, for three years, that is, 2012-13, 2013-14, and 2015-16, it has negative alpha value ; whereas, in case of two years, that is, in case of the years 2014-15 and 2016-17, it earns positive alpha value. For SBI Arbitrage Opportunities Fund-Regular Plan – Growth, except for the year 2012-13 in which it earns a positive alpha value, it shows negative value in all the four consecutive years.

For the consolidated period, that is, 2012-13 to 2016-17, three schemes, that is, ICICI Prudential Balanced Advantage Fund-Growth Plan (1.0272), HDFC Capital Builder Fund - Growth Option (0.5235), and Birla Sun Life Dividend Yield Plus-Growth-Regular Plan (0.1621) have a good performance as they have a positive alpha value ; whereas, Reliance Banking Fund-Dividend Plan-Dividend Option (-0.3243) and SBI Arbitrage Opportunities Fund-Regular Plan - Growth (-0.0338) are found to be bad performers as they have negative value.

(7) Ranking of the Schemes : The ranking of the growth schemes under study on the basis of their monthly average return during the study period is depicted in the Table 8.

On analysis of Table 8, it can be inferred that HDFC Capital Builder Fund - Growth Option is leading with highest average return of 1.5749 during the study period followed by ICICI Prudential Balanced Advantage Fund-Growth Plan with average return of 1.2563, Birla Sun Life Dividend Yield Plus - Growth - Regular Plan with average return of 1.2026, Reliance Banking Fund-Dividend Plan-Dividend Option with average return of 0.9290, and SBI Arbitrage Opportunities Fund-Regular Plan – Growth with average return of 0.6256.

The ranking of the growth schemes under study on the basis of their Sharpe ratio, Treynor ratio, and Jensen's alpha during the study period is presented in the Table 9.

As can be seen in the column 2 of the Table 9, ICICI Prudential Balanced Advantage Fund-Growth Plan is leading with highest Sharpe ratio of 0.2211 during the study period followed by HDFC Capital Builder Fund - Growth Option with Sharpe ratio of 0.1995, Birla Sun Life Dividend Yield Plus - Growth - Regular Plan with

Table 8. Ranking of the Growth Schemes on the Basis of Monthly Average Return

Scheme Name	Avg. Return	Rank
ICICI Prudential Balanced Advantage Fund-Growth Plan	1.2563	2
HDFC Capital Builder Fund - Growth Option	1.5749	1
Reliance Banking Fund-Dividend Plan-Dividend Option	0.9290	4
Birla Sun Life Dividend Yield Plus - Growth - Regular Plan	1.2026	3
SBI Arbitrage Opportunities Fund-Regular Plan - Growth	0.6256	5

Table 9. Ranking of the Growth Schemes

Scheme Name	Sharpe Ratio	Rank	Treynor Ratio	Rank	Jensen's Alpha	Rank
ICICI Prudential Balanced Advantage Fund-Growth Plan	0.2211	1	0.9833	1	1.0272	1
HDFC Capital Builder Fund - Growth Option	0.1995	2	0.8780	2	0.5235	2
Reliance Banking Fund-Dividend Plan-Dividend Option	0.0344	4	0.1713	4	-0.3243	5
Birla Sun Life Dividend Yield Plus - Growth - Regular Plan	0.1180	3	0.5362	3	0.1621	3
SBI Arbitrage Opportunities Fund-Regular Plan - Growth	-0.1849	5	-9.6046	5	-0.0338	4

Sharpe ratio of 0.1180, Reliance Banking Fund-Dividend Plan-Dividend Option with Sharpe ratio of 0.0344, and SBI Arbitrage Opportunities Fund-Regular Plan – Growth with Sharpe ratio of -0.1849.

Regarding, Treynor ratio, as can be seen from the column 4 of Table 9, ICICI Prudential Balanced Advantage Fund-Growth Plan is leading with highest Treynor ratio of 0.9833 during the study period followed by HDFC Capital Builder Fund - Growth Option with Treynor ratio of 0.8780, Birla Sun Life Dividend Yield Plus - Growth - Regular Plan with Treynor ratio of 0.5362, Reliance Banking Fund-Dividend Plan-Dividend Option with Treynor ratio of 0.1713, and SBI Arbitrage Opportunities Fund - Regular Plan – Growth with Treynor ratio of -9.6046. Regarding Jensen's alpha, ICICI Prudential Balanced Advantage Fund-Growth Plan is leading with highest Jensen's alpha of 1.0272 followed by HDFC Capital Builder Fund - Growth Option (0.5235), Birla Sun Life Dividend Yield Plus - Growth - Regular Plan (0.1621), SBI Arbitrage Opportunities Fund-Regular Plan - Growth (-0.0338), and Reliance Banking Fund-Dividend Plan-Dividend Option (-0.3243).

Conclusion

The performance of the selected schemes has been analyzed in terms of average return, standard deviation, and beta. Along with this, analysis has been done on the basis of risk-return relationship for which widely used performance measures, that is, Sharpe ratio, Treynor ratio, and Jensen's ratio have been considered. For calculating the average return, monthly NAV of the selected schemes was taken for the period from April 2012 to March 2017. The fund return has been compared with the benchmark index (Nifty 100) and 91-days treasury bills as the proxy for the risk-free rate. Considering the average return of the schemes, 60% of the total schemes outperformed the market, while 40% underperformed the market; 60% of the schemes were more risky than the market and 40% were less risky as indicated by the value of the standard deviation. Likewise, 60% of the schemes under study were more volatile; whereas, 40% were less volatile as indicated by beta value. As per Sharpe's index, 60% of the schemes showed better performance than the market, while 40% were underperforming. For the Treynor index also, 60% had a higher value than the market, while 40% underperformed the market. Regarding Jensen's index, 60% of the schemes earned positive alpha value, which indicates that 60% of the schemes were good performers, and 40% were bad performers during the study period.

Research Implications

It is important to know the historical performance of mutual funds for investors, fund managers, the sponsors of mutual funds, etc. It is anticipated that the performance measurement results will be helpful in the future in decision making. The results and information developed from the performance analysis will help the investors to control their investment. The risk - adjusted return performance evaluation provides an understanding in identifying the ability of the fund managers in the investment process. The results of the present study are contrary to the findings of Gowri and Deo (2016), Sondhi and Jain (2006), etc. However, the findings of the study are in line with the findings of the study conducted by Mishra and Ahuja (2016) where the mutual funds schemes performed differently in different phases of the market.

Limitations of the Study and Scope for Further Research

The present study is a historical performance evaluation of the selected schemes. It is limited to only five growth schemes selected on the basis of five oldest open-ended growth schemes from the top five asset management companies (AMCs). The risk-free rate of return always varies from time to time. So, a particular rate during the study period has been taken. NSE Nifty 100 has been used as the benchmark index for the present work, which can be replaced by taking BSE- Sensex or other broad base or sector specific indexes as the benchmark index. The area of the mutual fund industry is quite vast. The present study is confined to only the performance of mutual funds in India with certain objectives. There are numerous other factors on which research can be conducted such as the evaluation on the performance of other schemes such as income schemes, close-ended schemes, tax saving schemes, etc. A comparative study can be done by covering both public and private sector mutual funds.

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