

Diverse Techniques in Evaluating Mutual Fund Performance: A Comparative Study of Risk and Return

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Introduction

People in India usually like to save money. People save their money in five ways ; 1. Saving A/C ,2. Fixed deposit, 3.Gold and Jewellery, 4.RealEstate, 5.Stock Market. In every investment, there are 3 things Return, Risk, Time. Return means how much profit you can earn through investment (they are usually in%) suppose if your inflation is 4% then profit should be more than 4%. Risk means how risky is it to invest, what is the chance of losing all our money in that investment. and, Time means for how long you are investing. If you want more return on investment, then you have to take more risk and have to invest for longer period. Mutual fund is a special kind of investment through which you can invest on different types together (means you can do a diversified investment by investing at one place) through mutual funds we can invest in gold, real estate, share market, debt funds. In simple words, people give their money to Asset Management Company (AMCs are the companies that manage the funds), and that company invests all money collectively at different places. Asset Management Companies also appoint experts. For every mutual scheme fund managers are appointed. To manage the funds of investors, AMC charge some fees which is known as expense ratio e.g., ICICI prudential, SBI mutual funds, Motilal Oswal, etc. are some of the asset management companies. SBI mutual fund has more than 70+ mutual fund schemes such as magnum balanced fund, SBI blue chip fund, SBI regular saving fund etc. In mutual funds, money is invested mainly in two classes Debt and Equity.

Types of Mutual Fund

Mutualfundhas3boardcategories

A. On the basis of Flexibility:

- i. Open ended
- ii. Close ended

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iii. Interval fund

B. On the basis of Dividend:

i. Growth Funds

ii. Dividend funds

C. On the basis of principle Investment:

i. Equity

ii. Debt

iii. Hybrid

iv. Solution oriented scheme

v. Other schemes

Review of Literature

The present study deals with the review of literature on 'Evaluating the performance of Indian mutual fund schemes'. Review of some of the studies is presented in the following discussion.

Ms. Saranya K, Mr Parthiban (2018), conducted a research on performance evaluation of Indian equity mutual fund schemes. This paper examines the performance of selected open-ended Scheme. The performance of this fund is analyzed using three-year NAV and to evaluate the performance these statistical tools were used (Sharpe ratio, Treynor ratio, Jensen alpha). Finding of the study reveal that based on the Sharpe method Kotak Mahindra equity saving fund secured 1st position, and according to the Treynor HDFC mutual fund secured 1st position, and according to Jensen alpha Axis mutual fund secured 1st position. According to this research, it says that return is not only the factor investor should look upon. In order to have good return investors should have the proper information of the fund and their asset management company where they are investing. Aashak Thakkar (2017) attempts to study the performance of selected equity mutual fund by using various risk and return measures i.e., Sharpe ratio, Treynor ratio, Jensen alpha and in his research, it was concluded that none of the selected fund shows consistent return. Birla Sun Life growth scheme has shown good performance in all three

measures, while Tata equity performed well as per the Sharpe measure but didn't perform in other measures.

Vikas Choudhary and Preeti Sehgal Chawala (2014) attempt to analyze the performance of growth-oriented equity diversified scheme on the basis of risk and return by using various financial test like average return, Sharpe ratio, Treynor ratio, standard deviation, beta and co-efficient of determination. The entire selected fund had beta less than one, and positive which implies that they were less riskier than the market portfolio and in terms of coefficient of determination. All the selected 8 funds were near to one which indicates higher diversification. Seven out of eight selected funds have shown superior performance under the Sharpe as well as Treynor ratio.

Geeta Rani and Vijay Singh Hooda (2016) evaluate the performance of selected mutual fund schemes by using Sharpe, Jensen, and Treynor ratio. In the study, it was found that according to Sharpe, Jensen, Treynor ratio Tata equity P/E fund, Sundaram Rural India fund, Birla Sun Life India was found to be top performing fund.

Vikas Kumar and Ankit Srivastav (2016) evaluated the performance of 20 open-ended equity schemes of private sector mutual funds. The period of study was from 1st April 2006 till 31 March 2015. The research analyzed the data with the help of various statistical tools. By comparing overall performance ranking of all schemes, it has been seen that Reliance pharma fund has been the best.

Ratnarajan and P. Madhav (2016) analyzed the risk and return relationship and market volatility of the selected mutual fund and examined the performance of selected schemes from March 2012 to 2016 by using Sharpe and Treynor model. The author investigates the performance of 30 open ended diversification equity schemes performance of reliance regular saving fund equity, SBI contra fund, HDFC equity fund was not found as good. It was found that the Sharpe ratio was positive for all selected scheme.

R. Narayanasamy V. Rathnamani (2013) evaluates the performance of selected equity large cap mutual fund scheme in term of risk and return relationship. The

performance analyses of the selected five equity of large cap fund and the study conclude that all the fund has performed well in high volatile market movement expect Reliance vision.

Research Objectives

The present study attempts to provide an idea about the performance of selected mutual fund schemes prior and during the COVID-19 outbreak. The study has concentrated on open ended schemes & direct growth Plan. This study will help the investor to understand the performance of various schemes prior and during the COVID-19 pandemic. The objectives are mentioned next.

1. To study the performance evaluation of selected (open ended) large cap mutual fund scheme before and during COVID-19 pandemic
2. To examine the performance of selected schemes by using portfolio evaluation model (Sharpe and Treynor)
3. To understand the Market return & Fund return
4. To know, which scheme has given highest return within before & during COVID-19 out break.

1. Research Hypotheses

There is no significant relationship between Index Return and Fund Return.

2. Research Methodology

Data Collection Plan

All the data required for this study have been obtained mainly from Secondary Source. Secondary Data have been collected from various websites like BSE, NSE, Association of Mutual Fund etc.

Sampling Plan

There are various schemes available in the mutual fund like debt, balanced, equity etc. But out of this scheme we have selected Equity Growth Scheme. 10 equity mutual funds have been selected (open ended- large cap growth direct plan) on the basis of AUM (Asset Under Management).

Data Analysis Tool

Techniques used: The tool used for the present study is Average Return, Beta, Standard Deviation, Sharpe Ratio, Treynor Ratio, Jensen alpha.

The following statistical tools used are as follow:

Table - 1

No.	Technique	Formula	Result
1.	Rate of Return	Closing Price/Opening Price-1 Or Closing price-opening price/Opening price*100	AVERAGE Return
2.	Standard Deviation	$\frac{\sqrt{\sum (R-R)^2}}{N}$	Variance and total Risk
3.	Beta	Covariance/ σm^2	Measures the level of volatility associated with the fund compared to the benchmark
4.	Sharpe's Ratio	$R_i - R_f / SD$	Measures the excess return earned on fund per unit of total risk
5.	Treynor's Ratio	$R_i - R_f / \beta$	Measures the excess returns earned per unit of systematic risk
6.	Jensen alpha	$RP - [R_f + \beta (R_m - R_f)]$	The Jensen measure is the difference between Actual Return and expected return.

Limitations

- The study is based on the past data. The expected returns, standard deviation and beta are calculated using past data.
- The study is done using three indicators of portfolio evaluation i.e., Sharpe and Treynor ratio & Jensen alpha.
- The data are collected for a limited period
- Studied only open-ended direct growth plan fund
- The study has been conducted and analysed on the information available.

Data Analysis and Interpretation

For the basic analysis of scheme regarding their returns& risk, mean return, standard deviation & beta were calculated for the year 2019 from (1-1-19 to 31-12-19) assessing their performance in more reliable manner. Further, for assessing their performance in more reliable manner Sharpe, Treynor & Jensen Alpha measures were applied as these techniques are considered and recommended for analyzing.

Table - 2

Mean Return, Standard Deviation& Beta of the selected Mutual Fund

Large cap fund	Fund house	MEAN	S.D.	BETA
SBI Blue chip fund	SBI Mutual fund	0.03%	0.009	0.97
ICICI Prudential blue-chip fund (direct plan-growth)	ICICI Prudential mutual fund	0.02%	0.008	0.93
Axis blue chip	Axis Mutual fund	0.06%	0.008	0.85
Mirae Asset large cap fund	Mirae Asset mutual fund	0.04%	0.009	0.26
Aditya Birla sun life front line equity fund- growth-direct plan	Aditya Birla sun life mutual fund	0.02%	0.009	0.97
HDFC top100fund	HDFC Mutual fund	0.02%	0.001	1.05
Nippon India large cap fund	Nippon India mutual fund	0.02%	0.011	1.15
UTI master share	UTI mutual fund	0.03%	0.008	0.92
Franklin India blue chip Fund	Franklin Templeton mutual fund	0.01%	0.009	0.99
Canara Robeco blue chip Equity fund	Canara Robeco Mutual fund	0.05%	0.008	0.92

In this comparative analysis it is observed that Axis blue chip fund indicates high returns & low market risk among the selected funds. Franklin India blue chip fund is providing low return with high risk. In context to the beta, it is observed from the table that Out of the 10 selected schemes, 2 schemes that is HDFC top100 fund, Nippon India large cap fund are having beta more than 1 which means that they are highly risky Franklin India blue chip fund is having beta close to 1.

Table-3
Performance of the Fund Based on Sharpe Ratio(2019)

Large cap fund	Fund house	SD (daily)	Ri (Mean) Average return	Sharpe index
SBI Blue chip fund	SBI mutual fund	0.0087	0.032%	0.037
ICICI Prudential blue-chip fund	ICICI prudential mutual fund	0.0083	0.024%	0.029
Axis blue chip	Axis mutual fund	0.0079	0.058%	0.073
Mirae asset large cap fund	Mirae asset mutual fund	0.0086	0.037%	0.043
Aditya Birlasun life frontline equity fund	Aditya Birla sun life mutual fund	0.0086	0.017%	0.019
HDFC Top 100 fund	HDFC mutual fund	0.0096	0.016%	0.016
Nippon India large cap fund	Nippon India mutual fund	0.0107	0.016%	0.015
UTI Master share	UTI mutual fund	0.0083	0.028%	0.034
Franklin India blue chip	Franklin Templeton mutual fund	0.0092	0.011%	0.012
Canara Robeco blue-chip equity fund	Canara robeco mutual fund	0.0083	0.048%	0.058

Standard deviation is the variation in the return of the specific funds. Standard deviation helps to know how risky or volatile your investment is. It indicates stability of a mutual fund. Higher standard deviation means higher the volatility. Such figure is obtained in course of field work. Rate of risk-free return is taken (Interest rate offered by RBI on bonds) @7%.

$$\text{Sharpe Index} = \frac{RP - RF}{SD}$$

Interpretation:

Sharpe Ratio is important measure that evaluates the return that a fund has generated relative to its risk taken. This ratio helps an investor to know whether it is safe to invest in this fund by taking quantum of risk. Fund with higher Sharpe ratio is better because it implies that it has generated higher returns for every unit of risk

taken.

As per Sharpe Ratio, Axis blue chip fund is the best performer and placed in the 1st position according to the ranking. In simple words for every 0.02% of Total risk axis scheme provide the returns of 0.073 % (Risk is low and returns are high). Canara Robeco blue-chip equity fund and Mirae asset large cap fund occupied 2nd and 3rd rank respectively. In the study, the Sharpe ratio is positive for all schemes which show that fund is providing return greater than risk free rate.

Table-4
Performance of the Fund Based on Treynor Ratio(2019)

Large cap fund	Fund house	Beta	Ri	Treynor index
SBI Blue chip fund	SBI mutual fund	0.97	0.032%	0.00033
ICICI Prudential blue-chip fund	ICICI prudential Mutual fund	0.93	0.024%	0.00026
Axis blue chip	Axis mutual fund	0.85	0.058%	0.00068
Mirae asset large Cap fund	Mirae asset Mutual fund	0.26	0.037%	0.00145
Aditya Birla sun Life front line equity fund	Aditya Birla sun Life mutual fund	0.97	0.017%	0.00017
HDFCTop100 fund	HDFC mutual fund	1.05	0.016%	0.00015
Nippon India Largecap fund	Nippon India Mutual fund	1.15	0.016%	0.00014
UTI Mastershare	UTI mutual fund	0.92	0.028%	0.00030
Franklin India bluechip	Franklin Templeton mutual fund	0.99	0.011%	0.00012
Canararobcco blue-chip equity fund	Canara robeco mutual fund	0.92	0.048%	0.00053

Interpretation:

Treynor ratio, it measures the excess return per unit of risk taken. It uses beta (market risk) instead of total risk. Treynor ratio relates excess return over the risk-free rate to the additional risk taken.

As per the Treynor index method, calculation is based on systematic risk. Mirae asset large cap fund is the best performer and placed in the 1st position according to the ranking it has

beta less than 1 which is 0.26 means it is less volatile and risky. Axis blue chip fund and Canara Robeco blue-chip fund occupied 2nd and 3rd position respectively. HDFC & Nippon are having beta more than 1 that means they are more volatile and riskier and Franklin has low Treynor ratio than other selected schemes.

Table-5
Performance of the Fund Based on Jensen Alpha (2019)

Large cap fund	Fund house	Rp	Rm	Beta	Rf	JENSEN ALPHA
SBI Bluechip fund	SBI Mutual fund	0.05	0.02	0.97	0.02%	0.00011
ICICI Prudential blue-chip fund (direct plan-growth)	ICICI Prudential mutual fund	0.04	0.02	0.93	0.02%	0.00001
Axis bluechip	Axis Mutual fund	0.08	0.03	0.85	0.02%	0.00037
Mirae asset large cap fund	Mirae asset mutual fund	0.06	0.02	0.26	0.02%	0.00118
Aditya Birla sun life frontline equity fund- growth-direct plan	Aditya Birla sun life mutual fund	0.04	0.03	0.97	0.02%	-0.00013
HDFC top 100 fund	HDFC Mutual fund	0.03	0.02	1.05	0.02%	-0.00010
Nippon India large cap fund	Nippon India mutual fund	0.04	0.02	1.15	0.02%	-0.00008
UTI master share	UTI mutual fund	0.05	0.02	0.92	0.02%	0.00008
Franklin India blue chip	Franklin Templeton Mutual fund	0.03	0.03	0.99	0.02%	-0.00019
Canara Robeco blue chip equity fund	Canara Robeco mutual fund	0.07	0.02	0.92	0.02%	0.00030

Interpretation:

The Ratio in the compared schemes some are positive and few have negative alpha. Funds with negative alpha means that Actual return was less than expected Return. Alpha measure difference between fund return & bench mark return. A positive alpha means the fund has beaten the benchmarks. A negative alpha shows underperformance of the fund.

Out of 10 mutual schemes 6 mutual funds has showed positive alpha which indicates superior performance of the scheme and remaining 4 has negative alpha. Among the entire scheme Axis mutual fund has higher positive alpha that mean

fund has over performed the benchmark index by 0.037%.

Ho=Index Return and Fund Return are not significantly related.

To study the relationship between index, return and fund's return ,Pearson Correlation is calculated for the year 2019 between Index Return And individual fund return.

Table-6
Pearson Correlation between Index Return and Fund Return (2019)

SCHEME	Correlation and p-value	S&PBSE100 TRI (Benchmark)
SBI Blue chip	Pearson Correlation	.975**
	Sig.(2-tailed)	<.001
	N	243
NIPPON India Large Cap Fund	Pearson Correlation	.947**
	Sig.(2-tailed)	<.001
	N	243
UTI Master share	Pearson Correlation	.981**
	Sig.(2-tailed)	<.001
	N	243
Canara Robeco Blue-chip fund	Pearson Correlation	.974**
	Sig.(2-tailed)	<.001
	N	243
SCHEME	Correlation and p-value	NIFTY100TRI (Benchmark)
ICICI Prudential blue-chip fund	Pearson Correlation	.974**
	Sig.(2-tailed)	<.001
	N	243
Mirae Asset large cap fund	Pearson Correlation	.258**
	Sig.(2-tailed)	<.001
	N	244
HDFC Top100 fund	Pearson Correlation	.951**
	Sig.(2-tailed)	<.001
	N	243
FRANKLIN BLUECHIP	Pearson Correlation	.940**
	Sig.(2-tailed)	<.001
	N	243
SCHEME	Correlation and p-value	NIFTY50 (Benchmark)
AXISBLUECHIPFUND	Pearson Correlation	.939**

	Sig.(2-tailed)	<.001
	N	243
ADITIYABIRLA FUND	Pearson Correlation	.976**
	Sig.(2-tailed)	<.001
	N	243

Interpretation:

Table 5 shows the Pearson correlation coefficient and Sig. (2- tailed) value i.e., p-value between all fund index (S&P bse100, Nifty100, Nifty50) Return and selected mutual fund return over the period of 1 year (2019). There is very strong relationship between UTI Master fund and Sensex return with Pearson correlation 0.981 and p- value obtained is <.001(p<0.005).

In the case of Aditya Birla sun life growth fund and Nifty 50 the relationship is very strong with correlation of 0.976 and p-value is <0.001(p<0.005). In case of SBI Blue chip fund the relationship is very strong with correlation of 0.975 and p- value is <0.001(p<0.005).

All the fund has shown strong relationship with their benchmark index and the p-value obtained from all the fund is less than the 0.005, which state that the fund return have significant relationship with the benchmark index return and hence, the hypothesis i.e., “Index Return and fund return are not significantly related” is REJECTED.

Calculation for the year 2020.

For the basic analysis of scheme regarding their return& risk, mean return, standard deviation & beta were calculated for the year 2020 (1-1-20 to 31-12-20) & used to extract their performance. Further, for assessing their performance in more reliable manner Sharpe, Treynor& Jensen measure were applied as these techniques are considered and recommended for analyzing.

Table -7

Mean return, Standard deviation& beta of the selected mutual fund (2020)

Large cap fund	Fund house	Mean	Beta	S.D.
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Large cap fund	Fund house	Mean	Beta	S.D.
SBI Blue Chip Fund	SBI Mutual Fund	0.06	0.96	0.019
ICICI Prudential Blue chip	ICICI Prudential Mutual Fund	0.06	0.96	0.019
Axis Blue Chip	Axis Mutual Fund	0.07	0.79	0.016
Mirae Asset Large Cap Fund	Mirae Asset Mutual Fund	0.06	0.98	0.019
Aditya Birla Sun Life Front Line Equity Fund	Aditya Birla Sun Life Mutual Fund	0.06	0.92	0.018
HDFC Top100Fund	HDFC Mutual Fund	0.03	0.98	0.019
Nippon India Large Cap Fund	Nippon India Mutual Fund	0.03	0.97	0.019
UTI Master Share	UTI Mutual Fund	0.07	0.92	0.018
Franklin India Blue Chip	Franklin Templeton Mutual Fund	0.06	0.95	0.019
Canara Robeco Blue-Chip Equity Fund	Canara Robeco Mutual Fund	0.09	0.88	0.017

Interpretation:

In this analysis it is observed that Canara Robeco blue-chip indicates high return among the selected mutual funds scheme. HDFC top 100 & Nippon India Large cap fund has low mean return with high risk. In the context of beta, the entire selected scheme has beta less than 1 which indicates they belong to low-risk category.

Axis blue chip fund and Canara Robeco blue- chip fund has low beta but Canara Robeco blue-chip fund yield higher returns than other funds. Overall Canara Robeco blue-chip fund is best in all the terms.

Table-8
Performance of the Fund Based on the Sharpe Ratio (2020)

Large cap fund	Fund House	SD	Ri(mean)	Sharpeindex
SBI Blue Chip Fund	SBI Mutual Fund	0.019	0.06%	0.034
ICICI Prudential Blue-Chip Fund	ICICI Prudential Mutual Fund	0.019	0.06%	0.029
Axis Blue Chip	Axis Mutual Fund	0.016	0.07%	0.046

Large cap fund	Fund House	SD	Ri(mean)	Sharpeindex
Mirae Asset Large Cap Fund	Mirae Asset Mutual Fund	0.019	0.06%	0.030
Aditya Birla Sun Life Frontline Equity Fund	Aditya Birla Sun Life Mutual Fund	0.018	0.06%	0.031
HDFC Top 100 Fund	HDFC Mutual Fund	0.019	0.03%	0.014
Nippon India Large Cap Fund	Nippon India Mutual Fund	0.019	0.03%	0.013
UTI Master Share	UTI Mutual Fund	0.018	0.07%	0.040
Franklin India Blue Chip	Franklin Templeton Mutual Fund	0.019	0.06%	0.029
Canara Robeco Blue-Chip Equity Fund	Canara Robeco Mutual Fund	0.017	0.09%	0.050

- Rf= Risk free rate of return
- Ri= Rate of return on security
- Standard deviation is the variation in the return of the respective funds such figure is obtained in the course of field work.
- Sharpe ratio tells us the Correlation between the Risk and Return. It tells us the Return generated per unit for the risk taken.
- Risk free rate is 6%

$$\text{SHARPE INDEX} = \text{RP} - (\text{Rf} * \text{SD})$$

Interpretation:

A High and Positive Sharpe ratio shows a superior risk adjusted performance of the fund while low and negative Sharpe ratio shows is an indication of unfavorable performance. As per the Sharpe index method during the outbreak of COVID19 pandemic, out of the 10 selected funds, the only fund with low Sharpe ratio is Nippon India large cap fund& HDFC Top100 fund. Canara Robeco blue chip fund has occupied 1st Position and its average return is 0.09% which high among the entire fund. Axis blue chip fund has secured 2nd position and UTI master share has secured 3rd position respectively.

Table-9
Performance of The Fund Based on Treynor Ratio (2020)

Large cap fund	Fund house	Beta	Ri (Excess mean return) (Rp-Rf)	Treynor index
SBI Blue Chip Fund	SBI Mutual Fund	0.96	0.06%	0.00067
ICICI Prudential Blue-Chip Fund	ICICI Prudential Mutual Fund	0.96	0.06%	0.00056
Axis Blue Chip	Axis Mutual Fund	0.79	0.07%	0.00093
Mirae Asset Large Cap Fund	Mirae Asset Mutual Fund	0.98	0.06%	0.00058
Aditya Birla Sun Life Frontline Equity Fund	Aditya Birla Sun Life Mutual Fund	0.92	0.06%	0.00061
HDFC Top 100 Fund	HDFC Mutual Fund	0.98	0.03%	0.00027
Nippon India Large Cap Fund	Nippon India Mutual Fund	0.97	0.03%	0.00026
UTI Master Share	UTI Mutual Fund	0.92	0.07%	0.00079
Franklin India Blue Chip	Franklin Templeton Mutual Fund	0.95	0.06%	0.00059
Canara Robeco Blue-Chip Equity Fund	Canara Robeco Mutual Fund	0.88	0.09%	0.00098

All the funds are having beta less than one, which shows that they are less risky compared to their benchmark index during this period. Canara Robeco fund with high positive Treynor ratio shows that the investment has added value in relation to its risk. As Treynor ratio is high it reflects that an investor has generated high returns for market risk he has taken. On the other hand, Nippon India Large cap fund, HDFC top 100 funds has low Treynor ratio compare to the all-other schemes.

Table-10
Performance of the Fund Based on Jensen Alpha

Large Cap Fund	Rp	Beta	Rf	Rm	Jensen index
SBI BlueChipFund	0.08%	0.96	0.02%	0.06%	0.000031
ICICI PrudentialBlue-Chip Fund	0.07%	0.96	0.02%	0.06%	-0.000079

Axis Blue Chip	0.08%	0.79	0.02%	0.06%	0.000115
Mirae Asset Large Cap Fund	0.07%	0.98	0.02%	0.06%	-0.000021
Aditya Birla Sun Life Front line Equity	0.07%	0.92	0.02%	0.06%	-0.000013
HDFCTop100Fund	0.04%	0.98	0.02%	0.06%	-0.000337
Nippon India Large Cap Fund	0.04%	0.97	0.02%	0.06%	-0.000362
UTI MasterShare	0.09%	0.92	0.02%	0.06%	0.000162
Franklin India Blue Chip	0.07%	0.95	0.02%	0.06%	-0.000020
Canara Robeco Blue-Chip EquityFund	0.10%	0.88	0.02%	0.06%	0.000357

Interpretation:

In Jensen measure reveal that out of 10 Selected mutual fund schemes 6 schemes have under performed which means that Fund manager fails to deliver higher returns than benchmark. Positive value indicates superior performance of the scheme and also fund manager better investment decision. Among all the selected funds highest value of Jensen ratio is found in Canara Robeco Implies that fund return has over performed the benchmark index by 0.036%.

H_0 = Index Return and Fund Return are not significantly related.

To study the relationship between index, return and fund's Return, Pearson correlation is calculated between Index return and individual fund's return for the year 2020.

Table-11

Pearson Correlation Between Index Return and fund return for the year (2020)

SCHEME	Correlation and p-value	S&PBSE100
1. SBI	Pearson Correlation	.990**
	Sig.(2-tailed)	<.001
	N	249
2. NIPPON	Pearson Correlation	.971**
	Sig.(2-tailed)	<.001
	N	249

3.UTI	Pearson Correlation	.992 ^{**}
	Sig.(2-tailed)	<.001
	N	249
4. CANARA	Pearson Correlation	.993 ^{**}
	Sig.(2-tailed)	<.001
	N	249
SCHEME	Correlation and p-value	NIFTY100TRI
5.ICICI	Pearson Correlation	.993 ^{**}
	Sig.(2-tailed)	<.001
	N	249
6.MIRAEELARGECAP	Pearson Correlation	.993 ^{**}
	Sig.(2-tailed)	<.001
	N	249
7.HDFC	Pearson Correlation	.975 ^{**}
	Sig.(2-tailed)	<.001
	N	249
8. FRANKLIN	Pearson Correlation	.948 ^{**}
	Sig. (2-tailed)	<.001
	N	249
SCHEME	Correlation and p-value	NIFTY50
9 AXIS	Pearson Correlation	.979 ^{**}
	Sig. (2-tailed)	<.001
	N	249
10.ADITYA	Pearson Correlation	.990 ^{**}
	Sig. (2-tailed)	<.001
	N	249

Interpretation

Table 14 shows the Pearson correlation coefficient and sig.(2tailed) value i.e. p-value between benchmark index return and selected mutual funds returns over 1 year. There is very strong relationship between Canara Robeco blue chip fund and sensex return with Pearson correlation 0.993 and p –value obtained is<.001(p<0.05),

In ICICI and Mirae asset Large cap fund and Nifty return the relationship strong with the correlation of 0.993 and p-value is $<.001(p<0.05)$, In the case of UTI master share the relationship is very strong with correlation of 0.992 and p value is $<.001(p<0.05)$, In the case of SBI blue chip fund & Aditya Birla blue chip fund there is strong relationship with the correlation of 0.990 and p-value is $<.001(P<0.05)$, Axis blue chip fund also shows a strong relationship with the correlation of 0.979 and p-value is $<.001(P<0.05)$, Nippon India large cap fund also have strong correlation of 0.971 and p-value is $<.001(p<0.05)$. All the funds have shown strong Relationship with benchmark and p-value obtained from all the funds is then value 0.05 which state that the fund return have significant relationship with the benchmark index and hence this hypothesis i.e., Index return and fund return are not significantly related and is ‘REJECTED’.

Table-12
Ranking of the fund based on the performance measure

Fund's Name	Sharpe's Measure 2019	Sharpe's Measure 2020	Treynor's Measure 2019	Treynor's Measure 2020	Jensen's Measure 2019	Jensen's Measure 2020
ICICI Prudential Blue-chip Fund	6 th	8 th	6 th	8 th	6 th	8 th
Mirae Asset LargeCap Fund	3 rd	6 th	1 st	7 th	1 st	7 th
HDFC Top 100Fund	8 th	9 th	8 th	9 th	8 th	9 th
Franklin India Blue-chip Fund	10 th	7 th	10 th	6 th	10 th	6 th
AxisBlue Chip Fund	1 st	2 nd	2 nd	2 nd	2 nd	3 rd
Aditya Birla Sun Life Frontline Equity Fund	7 th	5 th	7 th	5 th	9 th	5 th
SBIBlue ChipFund	4 th	4 th	4 th	4 th	4 th	4 th
Nippon India LargeCap	9 th	10 th	9 th	10 th	7 th	10 th
UTI Master Card	5 th	3 rd	5 th	3 rd	5 th	2 nd
Canara Robeco Blue-chip Fund	2 nd	1 st	3 rd	1 st	3 rd	1 st

Interpretation:

If we are examining a well-diversified portfolio, the ranking should be similar in three measures. In 2019, the funds that are having similar ranking SBI Blue-chip fund, UTI master share, HDFC top 100 fund, Franklin India blue-chip. So, if we compare only Sharpe & Treynor measure, out of 10 funds 7 funds are having similar ranking. And if we compare Treynor and Jensen measure then out of 10 funds 8 funds are having similar ranking.

So, in 2020 the funds with similar ranking in all the three measures are Canara Robeco blue-chip fund, SBI Blue-chip fund, Aditya Birla frontline equity fund, ICICI Prudential blue-chip fund, HDFC Top100 fund, Nippon India Large cap fund. If we compare only Sharpe & Treynor then out of 10 mutual fund 8 funds are having similar rankings. And if we compare only Treynor& Jensen Out of 10 mutual fund 8 funds are having similar rankings. And the only fund out of 10 fund who has similar ranking in both the period that is pre covid and post Covid-19 is SBI Blue chip fund. It has secured 4th position in both years.

Major Findings

SHARPE ANALYSIS: The best performer in 2019 was Axis blue chip fund which was having higher Sharpe Ratio than all other selected schemes and low standard deviation among all selected schemes low standard deviation means that returns will be less volatile. Whereas, Franklin India Large cap fund had a low performance and higher standard deviation. In the year 2020 Canara Robeco Blue-chip equity fund was the best performer. Low performance was observed in Nippon India large cap fund. In 2019 & 2020 all the Sharpe ratio were positive that means fund were providing returns greater than risk free rate.

TREYNOR ANALYSIS: All the fund in 2019 were having beta less than 1 except 2 funds that is HDFC Top100 fund, Nippon India large cap fund, Franklin India blue-chip fund was having beta close to 1. Mirae Asset large cap fund secured 1st position as it was having low beta and high Treynor ratio. In 2020 again, Canara Robeco blue-chip was the best performer. Beta in 2020 was less than 1 which means that they are less volatile.

JENSEN ALPHA ANALYSIS: Positive alpha indicates that Actual Return is higher than expected return. In 2019, Out of 10 mutual fund scheme 6 funds had outperformed which means Actual return was higher than expected returns. 4 mutual fund schemes underperformed the benchmark. In 2020 Out of 10 mutual fund 6 schemes had underperformed the benchmark which means Actual returns were lower than expected returns.

Conclusion

Mutual fund is one of the best investment options to the investor to get better returns with a certain level of risk. This study will help the investor to understand the performance of mutual fund before and during COVID-19. Daily closing NAV were used to calculate the returns from the fund schemes. NIFTY50, NIFTY100 TRI, S&P BSE100 have been used for market portfolio. The historical performance of the selected schemes was evaluated on the basis of Sharpe, Treynor, Jensen measure. In 2019 Franklin India didn't perform well. And in 2020 Nippon India blue chip fund didn't perform well the reason might be unfavorable market or Wrong combination of stock picking of fund manager. Canara Robeco blue-chip large cap fund has been in 1st position in all the three measures in 2020. This scheme was the best performing large cap fund over the selected fund. After the Nifty and Sensex Fall in March no one expected bull in the market.

Definitely there would be some strategies of fund manager that they perform fared. Schemes that have performed better, their fund managers might have revisited the portfolio to analyses the company that may not survive in 2020. Out of 10 mutual funds scheme 4 schemes over performed their benchmark gave better returns to the investors even in high volatile market Expect 6 mutual fund scheme. Therefore, it is fundamental for the Investor to consider various parameters like Sharpe ratio, standard deviation, beta, Treynor ratio, etc.

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