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Analysis Of Mutual Funds In India

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Abstract:
This research paper presents a meticulous examination of five prominent large-cap mutual funds, centring on performance evaluation and investment strategies. Employing widely recognized metrics such as Sharpe ratio, Treynor ratio, and Jensen's Alpha, we conduct a thorough assessment of the funds' performance over distinct time frames pre-COVID, post-COVID, and during the COVID period. By delving into these specific time segments, we aim to capture the nuanced impact of the pandemic on the funds' performance. Our findings contribute valuable insights into the effectiveness of investment strategies employed by these funds across varying market conditions, providing practical implications for investors and fund managers alike.

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I. Introduction

The primary duty of Mutual funds is to pool money acquired from many investors and buy a diversified portfolio of stocks, bonds, and other securities. The funds are generally managed by professional portfolio managers who allocate these resources on various assets. The main benefit that the mutual fund experiences is diversification. There are various types of funds which have different investment objective such as equity funds, bond funds, money market funds etc. The value of a mutual fund is calculated based on NAV which is calculated at the end of each trading day. Mutual funds are highly regulated by government authorities. The fees are based on management fees and performance fees which depends on the returns the fund has generated. The risk and returns of different funds are different and both the parameters are an important determination for investors. Investors should be cautious when they put in money with the mutual funds and a thorough analysis of the funds is necessary.

II. Literature Review

Shefali (2021) studied the trend of large cap, mid cap, and small cap stocks during Covid 19. It was found that during covid the large cap funds fluctuated the most compared to mid-cap and small cap funds and small cap funds were the most stable. The study revisits the theory of large cap being more stable.

Malviya and Khanna (2020) studied the performance of mutual funds in India based on the NAV of the mutual funds. They chose three schemes which were large, medium, and small cap from five different funds. The paper concluded that large cap funds did better in the long term rather than the short term. The mid cap funds gave better return in the medium term compared to short and long term. The small cap also gave the investors better return in the mid term and long term.

Prajapati and Patel (2022) evaluates the performance of mutual funds with the help risk return analysis, Treynor's Ratio, Jensen's Measure and Fama's Measure. The study period is between the year 2007 and 2011 when the global financial crisis occurred. It was concluded by the study that most of the funds gave a positive return.

Kishori and Bhagyashree (2016) investigates 30 funds between the period 2011 and 2015. Returns have been calculated using the NAV and the evaluation was done with the help of Sharpe, Treynor and Jensen's Measure. 14 out of 30 funds beat the market and all the funds had a positive Sharpe ratio which showed the fund gave higher returns than the risk-free rate.

Zaheeruddin et.al (2013) investigates performance of mutual funds based on return, standard deviation and Beta and evaluate the selected funds based on performance ratios followed by giving them ranking. The paper concludes that mutual funds are the best investment for small investors in India. It gives them high returns with little savings as well.

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III. Research Methodology

Secondary data has been used to evaluate the performance of the 5 large cap mutual funds in India. The NAV of the 5 mutual funds and data for benchmark indices have been collected from www.yahoofinance.com. The screening of mutual funds has been done from https://www.tickertape.in. The benchmark index for the mutual funds have been found with the help of www.moneycontrol.com. The time period chosen is from 31st March 2019 to 31st March 2023 which has been divided into 4 phases.

1. Before Covid: - 1st March 2019 to 1st March 2020
2. Covid Phase I: - 1st March 2020 to 1st March 2021
3. Covid Phase II: - 1st March 2021 to 1st March 2022
4. After Covid: - 1st March 2022 to 1st March 2023

The ten-year bond yields' historical data is used as the risk-free rate, and it has been extracted from https://in.investing.com.

After collecting the data Sharpe ratio, Treynor ratio and Jensen's alpha has been calculated for each mutual fund for each time period to determine the changes in large cap mutual funds' performance as covid progressed.

The following are the mutual fund schemes chosen for study purposes and the risk-free rates taken for different time periods: -

Table I Large Cap Open Ended Mutual Fund schemes

Mutual Fund	Mutual Fund Scheme	Benchmark Index
ICICI Mutual Fund	ICICI Prudential Bluechip Fund Direct Plan Growth	Nifty 100
Axis Mutual Fund	Axis Bluechip Fund Direct Plan Growth	S&P BSE 100
HDFC Mutual Fund	HDFC Top 100 Fund -Direct Plan - Growth	Nifty 100
SBI Mutual Bluechip	SBI Bluechip Fund Direct Growth	S&P BSE 100
Mirae Mutual Fund	Mirae Asset Large Cap Fund Direct Plan Growth	Nifty 100

Table II Risk Free Rate

G-Sec 10 Year bond	Before Covid	Phase I	Phase II	After Covid
Risk Free Rate	6.80000%	5.99000%	6.31550%	7.28000%

Research Objective

Evaluate the performance of 5 large cap funds pre, during and post covid and determine whether covid drastically impacted the funds performance.

Data Analysis and Interpretation

As mentioned before Sharpe Ratio, Treynor Ratio and Jensen's Alpha can be used to evaluate the performance of mutual fund schemes in various period.

Sharpe's Ratio

In simple terms Sharpe's ratio is risk adjusted return. It compares the performance of an investment or a portfolio to risk free return after adjusting for risk. It is a very important tool to compare the performance of mutual funds as it takes total risk into account. It was developed by William Sharpe in 1966. A high Sharpe ratio of mutual funds indicate a better performance compared to low Sharpe Ratio. Mathematically it can be represented in the following way: -

Sharpe Ratio $= \frac{R_P - R_f}{\sigma}$

R_P- Returns of Mutual Fund Scheme
R_f- Risk Free Rate
σ- Total Risk of Mutual Fund Scheme

Table III: Performance evaluation using Sharpe's Ratio for the four phases.

Mutual Fund Scheme	Sharpe Ratio (before Covid)	Ran k	Sharpe Ratio (Phase I)	Rank	Sharpe Ratio (Phase II)	Rank	Sharpe Ratio (After Covid)	Ran k
ICICI Prudentia l Bluechip Fund Direct Plan Growth	-0.219244935	4	0.741371	2	0.720595508	1	0.01107 4	2

Axis Bluechip Fund Direct Plan Growth	0.826397103	1	0.57598	5	0.353798424	4	- 0.56315	5
HDFC Top 100 Fund - Direct Plan - Growth	-0.569207967	5	0.720098	3	0.397150399	3	0.25665 4	1
SBI Bluechip Fund Direct Growth	0.013754661	2	0.799761	1	0.3104267	5	0.07107 3	3
Mirae Asset Large Cap Fund Direct Plan Growth	0.005894282	3	0.687422	4	0.518172192	2	-0.17906	4

Fig. I: Sharpe Ratio of different periods

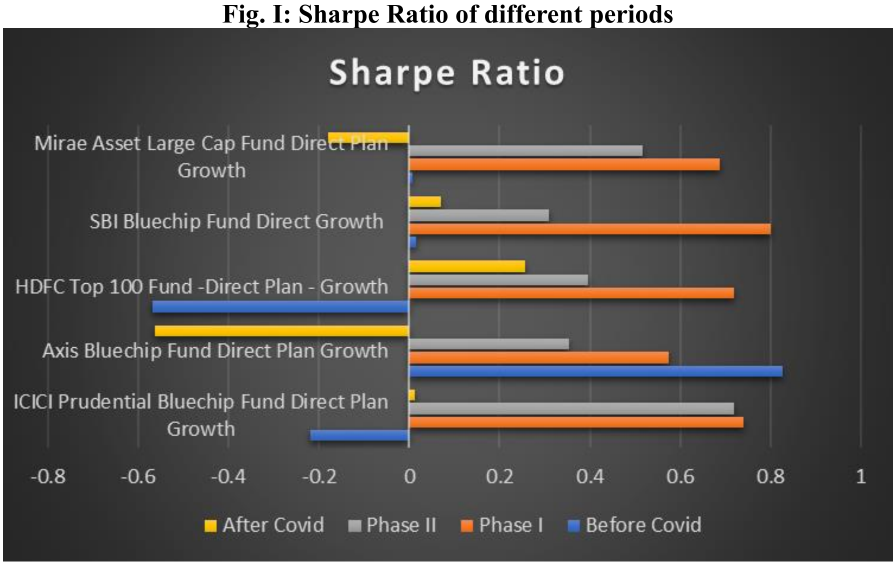

Table II presents with the data of rankings of the 5 mutual funds according to Sharpe's Ratio over the course of the 4 phases and figure I represents it into a graphical format.

Axis Bluechip fund clearly outperformed the other funds before covid-19. The annualized average return of the fund was 17.97% which was the highest and the risk it generated was just 13.5% which was the lowest compared to other firms. The S&P 500 BSE clocked a return of just 2.17% before covid 19. Before covid 19 HDFC was the worst performing Fund with a return of negative 2.6% and the risk of almost 15%. The disparity between the performance of axis mutual fund and other funds can be clearly seen in figure I.

During the first wave of covid 19 all the funds performed equally well as we can see the range of Sharpe's ratio being between 0.7 to 0.8. The Axis mutual fund performed the worst compared to others with an annualized return of just 20.99% however it took the least amount of risk compared to other funds. The nifty clocked an annualized return of 26.83% during phase 1.

During the second phase of covid 19 ICICI had the highest Sharpe's Ratio with a return of 16.98% and risk of 14.80%. The return of other funds declined significantly ranging from 11% to 14%. And nifty clocked about 13.7% return. Overall, the second phase did not turn out to be better than first phase which can be clearly seen with the help of orange bar graphs and grey bar graphs.

After Covid the things were completely opposite compared to before covid with Axis blue chip fund giving the worst performance and HDFC top 100 funds giving the best performance. Axis Bluechip fund gave a negative return of 2.1% with the highest risk of around 17%. The nifty and S&P clocked around just 1.3% and

3.8% respectively. Overall, after covid we can see that the overall performance of the funds was not as great as during covid waves.

Figure I shows that phase I of covid was the best period for all the funds with a slight decline in performance during phase II. However, both before and after covid was not as great for all the funds and for indices.

Treynor's Ratio

Treynor's Ratio is the measurement of performance which looks at excess return over systematic risk. It assumes that the asset or the portfolio is not exposed to undiversifiable risk. Therefore, it helps in judging the performance of mutual funds in terms of Beta. The ratio is named after Jack L. Treynor. The higher the Treynor's ratio the better the performance of mutual fund. The ratio can be described mathematically in the following way: -

Treynor's Ratio= $\frac{R_p - R_f}{\beta}$

R_p- Returns of Mutual Fund Scheme

R_f- Risk Free Rate

β- Systematic risk

Table IV: Performance evaluation using Treynor Ratio for the four phases.

Mutual Fund Scheme	Treynor Ratio (before Covid)	Rank	Treynor Ratio (Phase I)	Rank	Treynor Ratio (Phase II)	Rank	Treynor Ratio (After Covid)	Rank
ICICI Prudential Bluechip Fund Direct Plan Growth	-0.033371	4	0.2351558	2	########	1	0.0017	3
Axis Bluechip Fund Direct Plan Growth	0.13763453	1	0.1908556	5	0.072527	3	-0.1115	5
HDFC Top 100 Fund -Direct Plan - Growth	-0.088432	5	0.2324697	3	0.064929	4	0.0404	2
SBI Bluechip Fund Direct Growth	0.0021213	2	0.2566969	1	0.050148	5	0.0111	1
Mirae Asset Large Cap Fund Direct Plan Growth	0.00098699	3	0.2200839	4	0.083856	2	-0.0299	4

Fig II: Treynor's Ratio of different periods

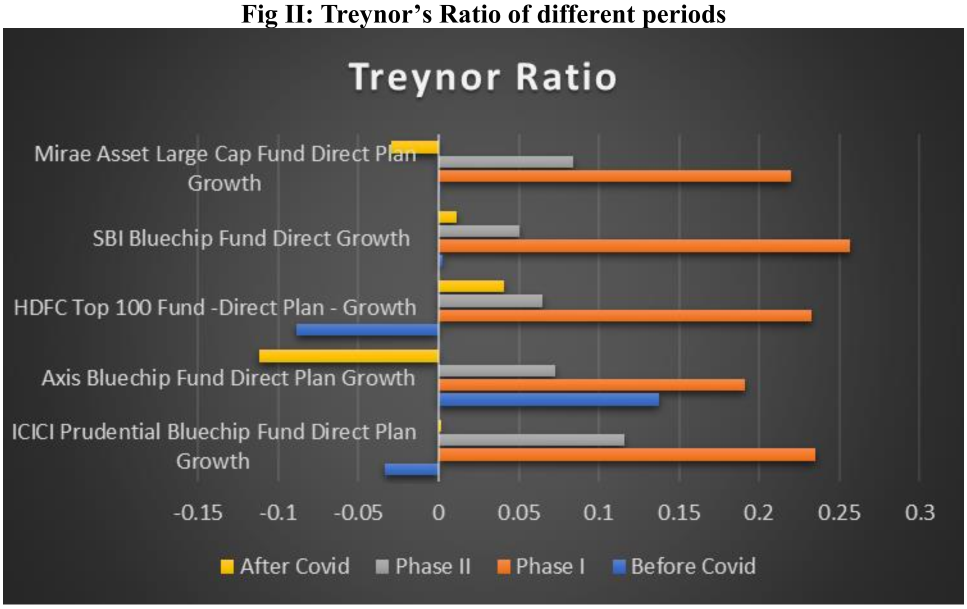

Table III presents with the data of rankings of the 5 mutual funds according to Treynor's Ratio over the course of the 4 phases and figure II represents it into a graphical format.

Before covid the only mutual fund which had a significantly positive Treynor's Ratio was Axis Bluechip fund. It had the highest return of 17.92% and lowest Beta of 0.81 compared to other 4 mutual funds. The Beta of HDFC was greater than 1 which shows higher systematic risk, and it had the lowest return.

During phase I of covid almost all the mutual funds schemes performed equally well however a dip in performance of Axis blue chip fund can be seen in Figure II compared to its performance before covid.

The rankings of mutual funds schemes before Covid and during phase I are the same as the Sharpe's measure which shows less impact of diversification.

During phase II the rankings of HDFC of top 100 fund and Axis Blue chip fund swapped when systematic risk was considered with Axis blue chip fund performing better. The axis blue chip fund was able to earn higher return of 13.11% compared to 12.65% return of HDFC Top 100 fund with a lower systematic risk of 0.93 compared to 0.97 of HDFC top 100 fund. The Treynor's Ratio of all the mutual funds indicates a positive outlook of the market with ICICI leading the way.

Lastly, after covid the diversifiable risk shows that SBI blue chip fund performed better than ICICI prudential Bluechip fund compared to if we look at total risk. After covid the scenario was completely different as HDFC Top fund was the best performing fund and Axis Blue Chip fund becoming the worst performing Fund.

Overall, it was only SBI Blue chip fund which was able to perform consistently in all the scenarios as it shows a positive Treynor's Ratio in all the cases.

Jensen's Alpha

Jensen's Alpha helping in determining the excess return that the stock earns over the expected return calculated from CAPM. It helps in showing the abnormal returns that the mutual funds have earned compared to their expected return. Mathematically it can be expressed in the following way:

$$\alpha = R_p - [R_f + \beta(R_m - R_f)]$$

α- Jensen's Alpha
R_p- Return of Mutual fund Schemes
R_f- Risk Free Rate
R_m- Return of market
β- Systematic risk

Table V: Performance evaluation using Jensen's Alpha for the four phases.

Mutual Fund Scheme	Alpha (before Covid)	Performance
ICICI Prudential Bluechip Fund Direct Plan Growth	0.821%	Outperformed
Axis Bluechip Fund Direct Plan Growth	14.933%	Outperformed
HDFC Top 100 Fund -Direct Plan - Growth	-4.946%	**Underperformed**
SBI Bluechip Fund Direct Growth	4.698%	Outperformed
Mirae Asset Large Cap Fund Direct Plan Growth	3.788%	Outperformed
Mutual Fund Scheme	**Alpha (Phase I)**	**Performance**
ICICI Prudential Bluechip Fund Direct Plan Growth	2.566%	Outperformed
Axis Bluechip Fund Direct Plan Growth	-1.785%	**Underperformed**
HDFC Top 100 Fund -Direct Plan - Growth	2.362%	Outperformed
SBI Bluechip Fund Direct Growth	4.165%	Outperformed
Mirae Asset Large Cap Fund Direct Plan Growth	1.223%	Outperformed
Mutual Fund Scheme	**Alpha (Phase II)**	**Performance**
ICICI Prudential Bluechip Fund Direct Plan Growth	3.890%	Outperformed
Axis Bluechip Fund Direct Plan Growth	0.162%	Outperformed
HDFC Top 100 Fund -Direct Plan - Growth	-0.848%	**Underperformed**
SBI Bluechip Fund Direct Growth	-2.033%	**Underperformed**
Mirae Asset Large Cap Fund Direct Plan Growth	0.952%	Outperformed
Mutual Fund Scheme	**Alpha (After Covid)**	**Performance**
ICICI Prudential Bluechip Fund Direct Plan Growth	5.284%	Outperformed
Axis Bluechip Fund Direct Plan Growth	-6.842%	**Underperformed**
HDFC Top 100 Fund -Direct Plan - Growth	8.960%	Outperformed
SBI Bluechip Fund Direct Growth	4.078%	Outperformed
Mirae Asset Large Cap Fund Direct Plan Growth	2.491%	Outperformed

Fig III: Performance evaluation using Jensen's Alpha for the four phases.

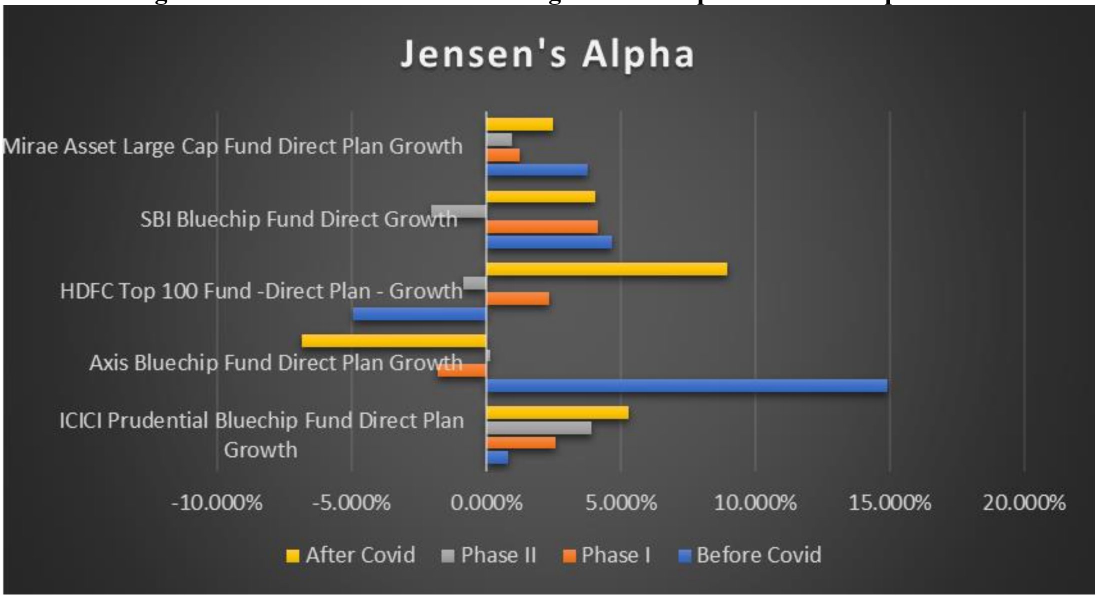

Table IV presents with the data Positive and negative alpha of the 5 mutual funds over the course of the 4 phases and figure III represents it into a graphical format. Positive alpha indicates outperformance whereas a negative alpha indicates underperformance.

Before Covid 19 all the mutual funds outperformed except HDFC which had a negative alpha of -4.94%. Axis bank had an alpha of almost of 15% which was much greater than the other mutual fund schemes.

The only scheme to underperform during phase I was Axis Blue Chip fund which also complements the analysis of Sharpe Ratio and Treynor Ratio.

HDFC top 100 fund and SBI mutual fund underperformed during phase II. The only fund to outperform significantly during phase II was ICICI prudential blue-chip fund.

HDFC top 100 fund had a drastic improvement in its performance after covid as it was able to outperform by almost 9%. Axis blue chip fund underperformed by almost 7% which shows the decrease in its performance compared to before covid. The other funds had an improved alpha.

The only fund which consistently improved its alpha was ICICI Prudential Bluechip fund whose alpha can be seen improving gradually but consistently through different time periods in figure III.

IV. Conclusion

Covid did have an impact on all the funds but in a positive way. The Sharpe ratio shows that during both phases of covid all the funds outperformed the risk-free rate by a greater margin. In the first phase SBI Bluechip fund performed the best and in the second phase ICICI prudential performed the best. The after covid performance of all the funds dipped with axis blue chip fund performing the worst. Before the axis Bluechip fund performed the best but HDFC top 100 fund performed the worst. The same story is shown by Treynor's measure and Jensen's Alpha. The only fund which had a consistent growth in terms of alpha was ICICI prudential.

All in all, we can clearly see that covid had a positive impact on the performance of all the large cap funds. The funds were able to capitalize on the high volatility of the market. The same performance of the funds was not seen pre or post covid.

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