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## ABSTRACT

The present study investigates the past performance of open-ended, growth-oriented, direct plans of large cap equity and index schemes for 1 year, 3 years and 5 years period. S&P BSE 100 and NIFTY 50 were used as Benchmark indices for Large Cap Equity and Index Schemes, respectively. The historical performance of the selected schemes was evaluated based on Weighted Average Return, Mean, Standard Deviation, Alpha, Beta, Sharpe, Tracking Error and Coefficient of Determination ( $r^2$ ); the results of the study will be useful to investors in taking better investment decisions. The return analysis has revealed that none (0%) of the selected index schemes have delivered weighted average returns below NIFTY 50 index whereas 5 out of 10 large cap schemes have delivered above BSE 100 index returns. As per risk-return analysis, UTI NIFTY Index Fund is advisable to aggressive investors (for those willing to take higher risk for superior returns) whereas Franklin India Index Fund-NSE Nifty Plan is suitable for risk-averse investors (those looking for risk free returns). Similarly, Axis Blue Chip Fund and JM Large Cap Fund are suited to aggressive and conservative investors, respectively.

**KEYWORDS:** Open-ended, Growth-oriented, Direct plan, Large Cap, Equity, Index Scheme, S&P BSE 100, NIFTY 50, Benchmark Indices, historical performance, Weighted Average Return, Mean, Standard Deviation, Alpha, Beta, Sharpe, Tracking Error, Coefficient of Determination, aggressive, conservative investors.

## 1. INTRODUCTION

Mutual funds offer an opportunity to the investors to indirectly participate in the stock market and earn superior returns while minimizing the risk. An index scheme invests in stocks that replicate the index by holding all the securities in the same proportion as in the index. These schemes try to generate returns close to the index that they track. Since there is no fund manager, investors can save on the portfolio management expenses. A large cap scheme invests a major portion of its corpus in companies with a high market capitalization. Also these schemes invest in many large companies across the capital market so as to maximize the returns for investors.

As per AMFI, the assets under management (AIM) of the Indian mutual fund industry has more than doubled in a span of 5 years having grown from Rs.12.02 trillion as on 28<sup>th</sup> February, 2015 to Rs. 28.18 trillion as on 31<sup>st</sup> January, 2020.

Out of the mutual fund schemes available in India, 10 schemes each from large cap and index categories were selected in the descending order of AUM. The Compounded Annual Growth Rate (CAGR) for the period of 1 year, 3 years and 5 years was used to calculate the weighted average returns of the selected schemes. The risk evaluation of the selected schemes was done on the basis of Standard Deviation, Alpha, Beta, Sharpe, Tracking Error and Coefficient of Determination ( $r^2$ ).



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## 2. LITERATURE REVIEW

**Leelavathi H.M & Prof. B. Shivaraj (2018)** attempted to evaluate the past performance of 5 large-cap equity mutual funds based on average mean returns, standard deviation, beta, Sharpe ratio and Treynor ratio against their benchmark. As per the study, the average return of HDFC Capital Builder Value Fund is relatively more than the other mutual funds under study. Franklin India Blue-chip Fund is less volatile as the standard deviation is lower among all the mutual funds. All the mutual funds under study have co-integrating relationship.

**Dr S. P. Dhandayuthapani & M. K. Sindhu (2018)** investigated the performance of 20 open ended schemes diversified equity schemes for the period of April 2013 to March 2017 (five years) of transition economy. Daily closing Net Assets Value of similar schemes has been used to calculate the returns from the fund schemes. The historical performance of the selected schemes were evaluated on the basis of Sharpe, Treynor and Jensen measure and aim of the study was to enable investors in taking better investment decisions.

**Dr Nalla Bala Kalyan & Dr S. Gautami (2018)** extensively analysed the risk and returns of selected mutual funds for parameters like Mean, Standard Deviation, Beta, Sharpe Ratio and Treynor Ratio to conclude that mutual fund is a secure and diversified investment. They also understood that both risk and return in Tata Contra Fund are higher in comparison to L & T contra fund.

**Mamta & Satish Chandra Ojha (2017)** compared 10 diversified equity schemes in terms of return and risk analysis, and risk adjusted performance measures (such as Sharpe ratio and Treynor ratio) as against the BSE Sensex benchmark. In a nut shell, thirty percent of the diversified fund schemes had generated higher and superior average returns while the rest had delivered poor returns. Based on the standard deviation, it is understood that ninety percent of the selected schemes are less risky than the market. Seven out of ten funds have beta values less than one and positive, which imply that they were less risky than the market portfolio while the coefficient of determination ( $r^2$ ) of all ten funds were near to one which indicated higher diversification of portfolio. Only one out of the ten schemes had shown a superior performance, under the Sharpe ratio whereas four out of ten in respect of Treynor Ratio had delivered higher returns.

**Geeta Rani & Dr. Vijay Singh Hooda (2017)** conducted a detailed performance analysis of 5 selected schemes (with respect to their risk and returns, mean return, standard deviation and beta). As per the study, Tata Equity P/E Fund showed better performance over other funds in terms of mean return and risk analysis. But during Demonetization i.e. in November 2016, all the schemes have shown negative returns irrespective of the type of schemes. In case of Growth-Direct plans, the returns in January & February 2017 were more than that in March 2017 and the same kind of returns were observed in growth option- regular plans too.

**Dr M. Ravichandran & A. Jeyaraj (2017)** investigated the risk and return assessment of 20 open ended, diversified equity schemes for the period of April 2013 to March 2017 (five years) on the basis of Sharpe, Treynor, Jensen measure whose results will be useful for investors for taking better investment decisions.

**Pinkesh Dhabolkar et al (2017)** has examined the performance of select index mutual funds in India based on tracking error and Jensen's alpha and rank these funds based on their performance. The study revealed that Franklin India index fund had a lower tracking error followed by Birla Sun Life index fund. Rankings using Sharpe and Treynor's ratio further revealed that Franklin India index fund and SBI Nifty index fund respectively were the best performing funds from the selected index funds.

**Muralidhar Prasad Ayaluru (2016)** analysed the performance of 10 selected open-ended equity schemes of Reliance Mutual Fund from risk and returns perspective in both short term and long term investment horizons. From the study, it can be concluded that all the selected 10 reliance funds have performed above the selected benchmark return and the funds are managed by the AMC satisfactorily. There are schemes suitable for every



type of an investor that can be selected based on the investors' choice like risk profile (low, moderate and high risk), expected returns, etc.

**Alka Solanki (2016)** tried to evaluate the performance of 10 Reliance open-ended equity schemes with growth option from 1st April 2007 to 31st March 2016. All the schemes studied have delivered average returns higher than the Benchmark BSE National 100 and SENSEX returns except Reliance Focused Large Cap Fund. Reliance Pharma Fund, Reliance NRI Equity Fund, Reliance Focused Large Cap Fund, Reliance Equity Opportunities Fund and Reliance Focused Large Cap Fund have out-performed the BSE Sensex with respect to the risk and return. Hence it could be implied that investors who invested in these schemes gets better returns per unit of total risk & systematic risk undertaken.

**Satheesh Kumar Rangasamy et al (2016)** studied 18 mutual funds across different categories (equity, index, income, balanced, liquid & gilt) through techniques like Ranking, Average Return, Standard Deviation, Sharpe Ratio and the outcome of the study will guide the investor in choosing the right category of mutual fund.

**N. Bhagyasree & Mrs. B. Kishori (2016)** evaluated the performance of selected open-ended, growth-oriented equity schemes for the period from April 2011 to March 2015 of transition economy. Daily closing NAV of these schemes was used to arrive at the returns from the fund schemes as against the benchmark of S&P BSE-Sensex. The historical performance of the selected schemes were evaluated on the basis of Sharpe, Treynor, and Jensen's measure and the outcome of the study is useful for investors for taking better investment decisions. It was observed that 14 out of 30 mutual fund schemes had outperformed the benchmark returns. The study revealed that Reliance Regular Savings Fund Equity, SBI Contra Fund and HDFC Equity Fund had underperformed due to portfolio diversification issue. The Sharpe ratio was positive for all schemes which showed that funds were providing returns higher than the risk free rate. Results of Jensen measure revealed that 19 out of 30 schemes showed positive alpha which speaks about superior performance of the schemes.

**Arti Sharma (2015)** analysed the performance of 10 top performing sector funds for a period of 5 years (2009-2014) using some mathematical and statistical tools as Compound Annualized Growth Rate of Return, Arithmetic Mean, Standard Deviation, Beta, Alpha, Sharpe Ratio and R-Squared. It was observed that some schemes outperformed the market through reduction in sector specific equity price risk through diversification within the particular sector. With the help of detailed analysis, the selected schemes have been ranked in terms of both risk and returns.

**Mr. Sunil M. Adhav & Dr Pratap M. Chauhan (2015)** studied 390 mutual fund schemes (178 Equity, 138 Debt and 74 Hybrid) with respect to their Annual Return, Standard Deviation and Sharpe Ratio for a period of 5 years. The study inferred that the average return generated by mutual funds of selected Indian companies is above the risk free return of 91 day T-Bill and the benchmark return. The equity schemes (of selected Indian companies) have outperformed the benchmark BSE indices by considerable margins. Similarly, the debt schemes of selected Indian companies have also outperformed. Also the Hybrid schemes generated average returns over and above the benchmark CRISIL balanced fund index. Thus it is concluded that during last 5 years the performance of mutual fund of selected Indian companies is superior.

**Dr M.M. Goyal (2015)** in his study examined the performance evaluation of top 10 Mutual Funds in India as per CRISIL September, 2014 ranking and also compared it with the benchmark index i.e., S&P CNX Nifty. Various absolute and relative performance measures like Sharpe, Treynor and Jensen's Alpha were used to compare the performance. The study found that all the schemes gave higher and better average return than the market. Franklin India Opportunities Fund was the best performer with higher average returns and lower risk which is good for investors who are interested in higher returns at a lower risk.

**Syed Husain Ashraf and Dhanraj Sharma (2014)** analysed the performance of 10 growth oriented open-ended equity funds against risk free rate and benchmark return over the past 5 years i.e. from 2007 to 2012. The performance of the schemes was assessed through risk-return analysis, Coefficient of Variation, Treynor ratio, Sharpe ratio, Jensen measure, Fama's measure and Regression analysis. As per risk-return analysis, 3 schemes have underperformed the market while other 7 schemes have lower total risk than the market and all the schemes have given higher returns than the market rates. Treynor Ratio for all the funds was higher the benchmark market index while Sharpe Ratio of 3 schemes was below the benchmark market index. The result of regression analysis stated that the benchmark market return index has a statistically significant impact on mutual fund return at a 5% level of significance.

**Ms. Shilpi Pal & Prof. Arti Chandani (2014)** conducted the risk and return analysis to compare the performance of 20 Equity and Debt Mutual Fund Schemes using various statistical measures. It was found that HDFC Mid Cap Opportunities (G), Birla Sun Life MNC Fund (G) and Quantum Long-Term Equity (G) were the best in respect of their 3-year and 5-year CAGR. But among these, Birla Sun Life MNC Fund (G) has the highest expense ratio which is 2.35 keeping the scheme out of the competition. Between HDFC Mid Cap Opportunities (G) and Quantum Long-Term Equity (G), the latter has a lower expense ratio at 1.25. But HDFC Mid Cap Opportunities (G) has a lower risk with a standard deviation of 0.013. However, Beta and R-square were almost similar in both the schemes. So, it may be inferred that HDFC Mid Cap Opportunities (G) was the best mutual fund scheme among all the schemes evaluated.

**Ms. Dhanalakshmi K (2013)** compared and analysed the performance of SBI and HDFC Mutual Funds with special reference to Equity, Gilt and Balanced Schemes using Sharpe Ratio, Treynor Ratio and Jensen Ratio. The study covers only three years' performance of the funds, i.e. from January 2010 to December 2012. It was concluded that the performance of the schemes fluctuated depended on the market conditions i.e. the volatility in the market affected the returns of the schemes between 2010 and 2011 but the scheme delivered higher returns in the year 2012 as the market improved. Overall, the study revealed that investment in HDFC (Equity, Balanced, Gilt) Schemes is better as compared to the SBI Schemes.

**Dr Shantanu Mehta & Charmi Shah (2012)** conducted analysis of risk and return over selected equity mutual fund schemes using various parameters and over different investment horizons. It was inferred that long term investors got higher and positive returns over the short term investors. Also the ideal portfolio should be a combination of diversified equity, balanced, debt schemes, etc. for delivering risk free returns. A risk-averse investor should avoid investment in the sectoral funds due to a high risk in these schemes. Investors should select a mutual fund investment considering the past performance and other financial parameters (Standard Deviation, Sharpe ratio, Treynor Ratio, Beta, Correlation, P/E Ratio, P/B Ratio and Expense Ratio, etc.)

**Dr Sarita Bahl & Meenakshi Rani (2012)** assessed the performance of 29 open-ended, growth-oriented equity schemes from April 2005 to March 2011. The monthly NAV of different schemes have been used to calculate the returns from the fund schemes. BSE-Sensex has been used as the market portfolio. The historical performance of the selected schemes was evaluated on the basis of Sharpe, Treynor and Jensen's measure and aim of the study was to enable the investors in taking informed and better investment decisions. The study revealed that 14 out of 29 (48.28%) sample mutual fund schemes had outperformed the BSE-Sensex i.e. the benchmark returns while the remaining schemes have underperformed due to a diversification issue. The Sharpe ratio was positive for all the schemes indicating that the funds were providing returns greater than risk free rate. Results of Jensen measure revealed that 19 out of 29 (65.52%) schemes had shown a positive alpha which indicated the superior performance of the schemes.

**Mitesh Patel (2012)** performed a risk and return evaluation of 43 mutual fund schemes from 2003 to 2010 i.e. for 7 years. As per the study, 4 schemes delivered high returns at a high risk, 14 schemes gave high returns at a low

Risk and 18 schemes had given low returns at a high risk while the remaining 7 schemes delivered low returns at a low risk.

**Nicolas P.B. Bollen & Jeffrey A. Busse (2005)** analyzed the performance of top ten performing sector funds for a period of five years (2009- 2014) using mathematical and statistical tools as Compound Annualized Growth Rate of Return, Arithmetic mean, percentage, standard deviation, Beta, Alpha, Sharpe ratio and R-Squared.

**Treynor (1965)** established a way to measure the performance of the portfolio, known as Reward to Volatility ratio which is describe as the average portfolio excess return. It was followed by **Sharpe (1966)** who developed a Reward to Variability Measure which refers to the average portfolio excess return divided by the portfolio standard deviation. Treynor evaluated systematic risk whereas Sharpe employed overall risk to evaluate the portfolio performance of mutual fund. Both Treynor's and Sharpe's measure of portfolio performance is relative measure that ranks the funds in terms of risk and return.

### 3. OBJECTIVES OF THE STUDY

- To evaluate the performance of select large cap and index schemes on the basis of return.
- To conduct the risk and return analysis of selected schemes with their respective benchmark indices.
- To identify the scheme/s generating the best returns with respect to the risk taken by the investor.

### 4. RESEARCH METHODOLOGY

#### Scope of the Study

The present study involves 20 mutual fund schemes, 10 each from large cap equity and index categories. S&P BSE 100 and NIFTY 50 were used as the benchmark indices for Large Cap and Index Schemes, respectively. Open-ended, growth and direct plan schemes with a vintage of over 5 years and AUM size. The CAGR for 1 year, 3 years and 5 years period was used to calculate the weighted average returns and mean returns of the selected schemes. The data as of 31<sup>st</sup> January 2020 has been considered for the evaluation.

#### Research Design

The current study deploys a descriptive research design based on secondary data collected from the websites of respective mutual fund AMCs and Association of Mutual Funds of India. The paper evaluates the performance of 20 select mutual fund schemes.

#### Data Sources

To gain an insight into the current performance trends of the Indian mutual fund industry, secondary data have been used and collected from the fact sheets, newspapers, journals, books and periodicals. The data was also collected from various websites of AMCs, AMFI, moneycontrol.com etc. S&P BSE 100 and NIFTY 50 were used as benchmark indices for the select large cap equity and index schemes, respectively. The CAGR of 1 year, 3 years and 5 years period was considered for the study.

#### Research Tools

In order to analyse the performance of the selected mutual fund schemes during the period of study, the following statistical methods and techniques have been used:

#### For Return Analysis

**Average Weighted Return:** Average Weighted Return was calculated by randomly assigning weightages of 30%, 40% and 30% to Compounded Annual Growth Rate (CAGR) of the selected mutual fund schemes for 1 year, 3 years and 5 years' period, respectively.

Mean: Mean or Average of Weighted Average Returns was calculated using AVERAGE function in excel.

**For Risk Analysis**

**Standard Deviation:** Standard Deviation is the measure of total risk. It is used to measure the variation in returns from the expected returns. Higher value of standard deviation shows high volatility and high risk.

**Sharpe Measure:** The Sharpe ratio was developed by Nobel laureate William F. Sharpe and is used to help investors understand the return of an investment compared to its risk.

The equation for Sharpe measure is as follows:

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

Where,  $R_p$  is return of mutual fund portfolio,  $R_f$  is risk free rate of return

**Beta:** It measures the volatility or systematic risk of a security with comparison to the market as a whole.

$$\text{Beta } (\beta_p) = (R - \alpha_p - R_f) / (R_m - R_f)$$

$R$  = Actual return earned by the scheme or portfolio

$R_f$  = Risk free rate of return that can be earned on government bonds

$R_m$  = Market return on the index

$\alpha_p$  = Alpha of the fund

**Alpha:** This tool was developed by Michael Jensen (1968, 1969) based on the initial CAPM model of Sharpe (1964) which measures the portfolio manager's predictive ability to achieve higher return than expected at a given risk level. The basic model is:

$$\text{Alpha } (\alpha_p) = R_p - \{R_f + \beta_p(R_m - R_f)\}$$

Where,

$R_p$ : Actual return earned by the Scheme or Portfolio Return

$R_f$ : Risk free rate of Return that can be earned on government bonds

$R_m$ : Market return on the index

$\beta_p$ : Systematic risk of the portfolio

**R-Squared:** It is a measure of the correlation of the portfolio's returns to the benchmark's returns. It is the coefficient of determination of the relationship between a portfolio and its benchmark. It can be considered as a percentage from 1 to 100. R-squared is not a measure of the performance of a portfolio. A great portfolio can have a very low R-squared.

- 70-100% = good correlation between the portfolio's returns and the benchmark's returns.
- 40-70% = average correlation between the portfolio's returns and benchmark's returns.
- 1-40% = low correlation between the portfolio's returns and the benchmark's returns.

**Tracking Error:** Tracking error is the difference between a mutual fund portfolio's returns and the benchmark index it was designed to copy. Since portfolio risk is often measured against a benchmark, tracking error is a commonly used as a metric to gauge how well an investment is performing. Tracking error shows an investment's consistency versus a benchmark over a given period of time. Tracking error is the standard deviation of the difference between the returns of an investment and its benchmark and it is calculated as follows:

$$\text{Tracking Error} = \text{Standard Deviation of } (P - B)$$

P = Return of Manager or Portfolio

B = Return of Benchmark



**5. DATA ANALYSIS**➤ *Performance of the Index Schemes*

Name of the Index Scheme	Returns (%)				
	1 Yr.	3 Yr.	5 Yr.	**Wt Avg.	Rank
UTI Nifty Index Fund	<b>11.69</b>	<b>13.00</b>	<b>7.41</b>	<b>10.93</b>	<b>1</b>
HDFC Index Fund-NIFTY 50 Plan	<b>11.55</b>	<b>13.00</b>	<b>7.43</b>	10.89	<b>2</b>
SBI Nifty Index Fund	11.37	12.80	7.19	10.69	6
ICICI Prudential Nifty Index Fund	11.68	12.64	7.18	10.71	4
Franklin India Index Fund - NSE Nifty Plan	10.91	12.19	6.86	10.21	9
IDBI Nifty Index Fund	11.58	12.65	7.00	10.63	7
IDFC Nifty Fund	<b>11.40</b>	<b>12.94</b>	<b>7.31</b>	10.79	<b>3</b>
Nippon India Index Fund - Nifty Plan	11.51	12.86	7.08	10.72	5
Aditya Birla Sun Life Index Fund	11.06	12.13	6.68	<b>10.17</b>	10
LIC MF Index Fund - Nifty Plan	11.46	12.30	6.76	10.39	8
Nifty 50 TRI	<b>11.84</b>	<b>13.29</b>	<b>7.67</b>	11.17	

**Interpretation**

In terms of CAGR, UTI Nifty Index Fund was the top performer in both 1 year (11.69%) and 3 years (13%) categories whereas HDFC Index Fund had delivered the best returns in 5 year period with 7.43%. UTI Nifty Index Fund has given highest weighted average return of 10.93% whereas Aditya Birla Sun Life Index Fund has delivered the lowest returns at 10.17%. The market portfolio i.e. NIFTY 50 TRI has generated a weighted average return of 11.17% and none (0%) of the selected index schemes have delivered above the market returns.

➤ **Risk and Return Analysis of the Index Schemes**

Name of the Index Fund	Wt Avg. Return	Std Dev	Alpha	Beta	Sharpe	TE	R-Squared
UTI Nifty Index Fund	10.93	12.22	-0.20	0.99	0.79	0.14	99.99
HDFC Index Fund-NIFTY 50 Plan	10.89	12.25	-0.22	1.00	0.78	0.11	99.99
SBI Nifty Index Fund - Growth	10.69	12.29	-0.43	1.00	0.77	0.05	100.00
ICICI Prudential Nifty Index Fund	10.71	12.24	-0.53	1.00	0.76	0.14	99.99
Franklin India Index Fund - NSE Nifty Plan	10.21	12.10	-0.84	0.98	0.74	0.24	99.00
IDBI Nifty Index Fund	10.63	12.25	-0.53	1.00	0.76	0.14	99.99
IDFC Nifty Fund	10.79	12.13	-0.19	0.99	0.79	0.20	99.99
Nippon India Index Fund - Nifty Plan	10.72	12.27	-0.36	1.00	0.78	0.06	100.00
Aditya Birla Sun Life Index Fund	10.17	12.22	-0.98	0.99	0.72	0.22	99.97
LIC MF Index Fund - Nifty Plan	10.39	14.02	2.72	0.96	0.78	4.73	88.87
Peer Group Average or Mean	10.61	12.40	-0.16	0.99	0.77	0.60	98.78



**Inference:**

**Weighted Average Returns:** UTI Nifty Index Fund (10.93%) had delivered superior returns closest to the market portfolio. However, none of the schemes have been successful in beating the market returns. 7 (70%) out of 10 schemes have delivered returns over and above the group average return (10.61%).

**Standard Deviation:** Out of the selected schemes, only 1 (10%) scheme had a higher standard deviation i.e. riskier portfolio than the peer group average or mean (12.40). LIC MF Index Fund- Nifty Plan (14.02) has the standard deviation whereas Franklin India Index Fund - NSE Nifty Plan (12.10) has the lowest standard deviation. Higher standard deviation indicates higher risk in the portfolio.

**Jensen's Alpha:** Only 1 scheme had a higher and positive alpha than the average of the group (-0.16). LIC MF Index Fund-Nifty Plan with the highest Alpha ( $\alpha_p$ ) of 2.72 is expected to generate higher returns than the market or benchmark index whereas Aditya Birla Sun Life Index Fund with the lowest Alpha at -0.98 is expected to generate the lowest returns.

**Beta Measure:** 5 (50%) schemes in the group had beta values greater than the group average (0.99). HDFC Index Fund-NIFTY 50 Plan, SBI Nifty Index Fund and ICICI Prudential Nifty Index Fund, IDBI Nifty Index Fund and Nippon India Index Fund- Nifty Plan with beta values at 1.0 have higher portfolio risk. Hence, these schemes (with beta value of 1.00) deliver higher returns equal to the market.

**Sharpe:** 5 out of the 10 schemes had higher sharpe values than the group mean (0.77). UTI Nifty Index Fund (0.79) and IDFC Nifty Index Fund (0.79) with high sharpe values had delivered superior returns whereas Aditya Birla Sun Life Index Fund (0.72) had generated inferior returns with respect to the risk assumed by the investor.

**Tracking Error:** Only 1 scheme had a tracking error higher than the group average (0.60). SBI Nifty Index Fund has shown the lowest tracking error at 0.05 implying that the scheme was capable of delivering returns closer to the bench mark index whereas LIC MF Index Fund - Nifty Plan with a high tracking error of 4.73 turned out to be a poor performer. So the underlying stocks of SBI Nifty Index Fund are similar to the benchmark index or NIFTY 50 which implies that the scheme performance is highly correlated to the market returns.

**Coefficient of Determination or R-Squared ( $r^2$ ):** 9 out of 10 schemes had a higher and close to 100 tracking error and higher than the group average of 98.78. UTI Nifty Index Fund, HDFC Index Fund-NIFTY Plan, SBI Nifty Index Fund and Nippon India Index Fund have high  $r^2$  values close to 100% which indicates that they deliver near superior returns which are highly correlated to the benchmark index or the market portfolio. However, the performance of LIC MF Index Fund (88.87%) has a low correlation with the benchmark returns.

**Recommendation**

- ✓ High Risk taking investors can invest in UTI Nifty Index Fund for superior returns.
- ✓ Investors with moderate risk taking abilities may include SBI Nifty Index Fund in their portfolio as the scheme with a low tracking error has the potential to beat the benchmark returns.
- ✓ Franklin India Index Fund - NSE Nifty Plan is ideal for risk-averse investors.

➤ **Performance of the Large Cap Schemes**

Name of the Large Cap Scheme	Returns (%)				
	1 Yr.	3 Yr.	5 Yr.	**Wt Avg.	Rank
ICICI Prudential Bluechip Fund	11.34	11.96	8.64	10.78	5
SBI Bluechip Fund	15.65	11.15	9.38	11.97	3
Aditya Birla Sun Life Frontline Equity Fund	9.76	9.84	7.62	9.15	7
HDFC Top 100 Fund	4.92	10.03	6.90	7.56	8

Mirae Asset Large Cap Fund	13.10	14.37	11.15	13.02	2
Nippon India Large Cap Fund	7.97	13.05	8.46	10.15	6
Axis Bluechip Fund	<b>21.85</b>	<b>20.19</b>	<b>11.24</b>	<b>18.00</b>	1
Franklin India Bluechip Fund	7.23	7.74	6.36	7.17	9
UTI Mastershare Unit Scheme	12.75	12.27	7.36	10.94	4
JM Large Cap Fund	5.83	8.14	4.7	<b>6.42</b>	10
S&P BSE 100 TRI	10.58	12.47	7.71	10.48	

**Inference**

In terms of CAGR, Axis Bluechip Fund was the outstanding performer in 1 year (21.85%), 3 years (20.19%) and 5 years (11.24%) horizon having outperformed the benchmark index for the same period. Axis Bluechip Fund (18%) also gave the best weighted average returns whereas JM Large Cap Fund had given the lowest weighted average returns at 6.89%. During this period, the benchmark index i.e. S&P BSE 100 has delivered a return of 10.48%. 5 out of the 10 selected schemes have delivered weighted average returns above the benchmark index i.e. S&P BSE 100.

➤ **Risk and Return Analysis of the Large Cap Schemes:**

Name of the Large Cap Scheme	Wt Avg. Return	SD	Alpha	Beta	Sharpe	TE	R-Squared
ICICI Prudential Bluechip Fund	10.78	11.15	0.47	0.88	0.77	3.08	94.16
SBI Bluechip Fund	11.97	11.96	-0.55	0.93	0.66	3.85	90.24
Aditya Birla Sun Life Frontline Equity Fund	9.15	11.60	-2.18	0.90	0.58	3.79	90.57
HDFC Top 100 Fund	7.56	13.74	-2.14	0.89	0.40	6.45	79.39
Mirae Asset Large Cap Fund	<b>13.02</b>	<b>11.99</b>	<b>1.75</b>	<b>0.95</b>	<b>0.88</b>	<b>2.32</b>	96.49
Nippon India Large Cap Fund	10.15	13.88	0.16	1.06	0.71	4.92	87.79
Axis Bluechip Fund	<b>18.00</b>	<b>11.31</b>	<b>7.73</b>	<b>0.81</b>	<b>1.40</b>	<b>5.74</b>	78.46
Franklin India Bluechip Fund	7.17	12.13	-3.97	0.95	0.40	3.20	93.35
UTI Mastershare Unit Scheme	10.94	11.54	0.42	0.93	0.77	2.33	96.56
JM Large Cap Fund	6.42	6.97	-1.36	0.53	0.68	6.39	86.89

Peer Group Average or Mean	10.52	11.63	0.03	0.88	0.73	4.21	89.39
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**Inference:**

**Weighted Average Returns:** As many as 5 schemes (50%) have delivered returns higher than the market portfolio i.e. S&P BSE 100. Axis Bluechip Fund (18.00%) was the top performing scheme whereas JM Large Cap Fund (6.42) delivered the least returns.

**Standard Deviation:** 5 Schemes (50%) had shown higher standard deviation or total risk than the group average (11.63). Nippon India Large Cap (13.88) had the most risky portfolio whereas JM Large Cap Fund (6.97) had the lowest risk portfolio in the group.

**Jensen's Alpha:** 5 Schemes (50%) had a positive and higher alpha as compared to the group average of 0.03. Axis Blue Chip Fund (7.73) had the highest and positive alpha which generated higher returns than the benchmark index whereas Franklin India Bluechip Fund with the lowest and negative alpha (-3.97) had given lower returns than the benchmark index.

**Beta:** 7 (70%) out 10 selected schemes had shown a higher beta than the mean of the group at 0.88. Nippon India Large Cap Fund with the highest Beta ( $\beta_p$ ) value of 1.06 has a portfolio more volatile than the market whereas JM Large Cap Fund with the lowest Beta ( $\beta_p$ ) of 0.53 delivered returns that are less volatile than the market. While the schemes (with beta value of 1.00) delivered near market returns, the others (beta value less than 1.00) gave returns lower than the market.

**Sharpe Measure:** 4 schemes (40%) had higher sharpe values than the peer group average of 0.73. Axis Blue Chip Fund (1.40) had delivered superior returns whereas HDFC Top 100 Fund (0.40) & Franklin India Bluechip Fund (0.40) were delivering inferior returns with respect to the risk taken. So, the schemes with higher Sharpe (also carrying higher risk) have yielded better returns as compared to their counterparts with lower Sharpe values.

**Tracking Error:** 4 schemes (40%) had shown higher tracking errors than the group average of 4.21. Mirae Asset Large Cap Fund (2.32) with the lowest tracking error had delivered returns closer to the benchmark index whereas HDFC Top 100 Fund (6.45) with the highest tracking error had given returns way below the market or benchmark index. It is also implied that the fund managers of Mirae Asset Large Cap Fund is actively managing the portfolio by changing the stock composition so that the portfolio generates returns higher than the benchmark and as well as its' peers.

**Coefficient of Determination or R-Squared ( $r^2$ ):** 6 schemes (60%) had shown R-squared value over and above the group average (89.39). UTI Mastershare Unit Scheme (96.56%) had higher R-Squared ( $r^2$ ) values indicating that the scheme delivered superior returns which were closer to the benchmark index or the market. However, the performance of Axis Bluechip Fund (78.46%) had a low correlation with the benchmark returns or the scheme delivered lower than the market returns.

**6. RECOMMENDATION**

- ✓ Risk bearing investors can invest in Axis Bluechip Fund for superior returns.
- ✓ Medium risk taking investors may include Mirae Asset Large Cap Fund in their portfolio as it is an actively managed fund giving decent returns.
- ✓ JM Large Cap Fund is ideal for risk-averse investors.

**7. CONCLUSION**

The above study has compared the performance of specific large cap equity diversified mutual fund schemes and index mutual fund schemes. Summary of the results is presented in different tables. In India, innumerable mutual fund schemes are available to general investors and it is often puzzling to pick the best one out of them. The study utilized benchmark portfolios according to the scheme objective such as BSE 100 for all Large Cap equity and NIFTY 50 for index schemes. The performance of sample mutual fund schemes has been specifically evaluated

in terms of return and risk analysis, and risk adjusted performance measures such as Standard Deviation, Alpha, Beta, R-Squared, Sharpe ratio, etc. In terms of weighted average returns, none of the index schemes could beat the market returns whereas 50% of the large cap schemes had outperformed the market. LIC MF Index Fund - Nifty Plan (14.02) and Nippon India Large Cap Fund (13.88) had the highest Standard Deviation (total risk) whereas Franklin India Index Fund - NSE Nifty Plan and JM Large Cap Fund (6.97) had the lowest standard deviation. Coming to Alpha, LIC MF Index Fund - Nifty Plan (2.72) and Axis Bluechip Fund (7.73) had the highest whereas Aditya Birla Sun Life Index Fund (-0.98) and Franklin India Bluechip Fund (-3.97) were with the lowest/negative alpha among the selected schemes. 9 out of 10 index schemes had beta value of less than 1.00 which meant that they had a low risky portfolio compared to the benchmark index; 5 out of 10 large cap schemes had a beta of less than 1.00. UTI Nifty Index Fund (0.79) and Axis Bluechip Fund (1.40) showed the highest Sharpe, HDFC Top 100 Fund (0.40) and Aditya Birla Sun Life Index Fund (0.72). Coming to tracking error, it was the highest in LIC MF Index Fund - Nifty Plan (4.73) and HDFC Top 100 Fund (6.45) whereas it was the lowest in SBI Nifty Index Fund (0.05) and Mirae Asset Large Cap Fund (2.32). The coefficient of determination ( $r^2$ ) in 9 out 10 index schemes was near to 100% which indicated higher diversification of portfolio whereas only in 4 out of 10 large cap schemes the  $r^2$  value was near 100%.

This study has also enabled the researcher in suggesting the retail investor some of the best mutual fund schemes to invest his or her money based on the parameters mentioned above. It is quite relevant in today's financial market context and will form a basis for the performance evaluation of the mutual funds in future also. However, return alone should not be considered as the basis of measurement of the performance of a mutual fund scheme but the study should also include the risk taken by the fund manager, because different funds will have different levels of risk attached to them. Risk associated with a fund, in a general, can be defined as variability or fluctuations in the returns generated by it. The higher the volatility in the returns of a fund during a given period, higher will be the risk associated with it.

It may be concluded that **UTI Nifty Index Fund** has given superior average returns; lower Standard Deviation implying lower volatility; higher Jensen's Alpha indicating the potential to deliver higher than market returns; lower beta values implying involvement of lower risk; Higher Sharpe Ratio indicating that the fund is performing well in respect to the risk associated with it; a low tracking error implying the fund manager is successful in replicating the underlying stocks of the scheme with those of the benchmark index that has resulted in superior returns and high R-Squared value indicating the scheme's potential to deliver near benchmark returns. Considering this, UTI Nifty Index Fund is undoubtedly the best scheme among the selected index schemes.

Similarly, **Axis Blue Chip Fund** (16.60%) has delivered higher average returns; lower Standard Deviation implying lower volatility; higher Jensen's Alpha indicating the potential to deliver higher than market returns; lower beta implying involvement of less risk; Higher Sharpe Ratio indicating that the fund is performing well in respect to the risk associated with it. Considering the low volatility, higher returns and higher Sharpe, Axis Blue Chip Fund is the most desirable fund among the selected large cap schemes.

Based on the performance analysis of peer group average returns over 1, 3, 5 year period, it can be concluded that index schemes have delivered the higher average returns (in short, medium and long term) than large cap equity schemes. Due to higher expenses incurred in portfolio management in case of large cap equity schemes and the limitations of fund managers' efficiency, the benefits of diversification and higher returns sometimes get compromised. However, we have observed that select large cap diversified equity schemes have delivered superior returns due to active portfolio management.

Mutual fund schemes are diversified across various sectors and investors can choose from among a variety of investment options (income funds, growth, balanced, ELSS, thematic, sectoral, specialized fund, large cap, mid cap, small cap, index, money market etc.) based on their investment objectives and time horizons. Advancement in technology has improved investor awareness about the investment pattern, size, time, fund availability, online

payment options, websites etc. Investors can invest either directly or in consultation with the brokers/intermediaries. Direct plan and regular plan in the mutual funds can vary in terms of NAV. Regular plan can affect changes in NAV due to expenses or commission paid to brokers, however direct plan can make more NAV due to exclusion of expenses or commission. This study will help the investors to decide which category of fund is suitable after a careful evaluation of the scheme portfolio and performance. SEBI is recently reduced the commission/brokerage payable to brokers/intermediaries leading to more returns in the hands of investors and also curtailing of haphazard churning of portfolio. However, government and apex bodies governing the Mutual Fund Industry should jointly work to bring in more changes in the products, distribution channels, commission structure, etc. to further reduce complexity and to bring transparency and flexibility to encourage more investors to come into the industry. It is recommended that the investors invest into those schemes that provide good return with respect to the amount of risk taken and to choose a fund category on the basis of standard deviation and positive Sharpe ratios. However, they may note to evaluate the each parameter in conjunction with others for taking a holistic view of the risk and returns that a scheme offers.

On the basis of analysis, it is suggested that those looking to eliminate risk element and reap near benchmark returns may go for index funds. As the index funds comprise primarily of large caps, the investment appreciates whenever there is an upward movement of the benchmark index. However, others who are interested in reaping higher than market returns and are ready to bear some risk and fund management expenses can invest into diversified equity or large cap funds.

The overall exposure to index funds is less when compared to diversified equity mutual funds in India as compared to other developed markets. But in developed economies like the USA, index fund has recently become a major source of investment and returns and a lot of investors have been lured into this scheme by active fund houses. Investment options should be weighed in the light of risk appetite, investable surplus and awareness about the products in the market. Not many studies on returns and risk adjusted performance of index schemes have been made so far in India and world-wide. So, the present study is an attempt to throw some light on the advantages of both index and large cap equity schemes to enable the retail investors make an informed decision on their investments.

Even though the index schemes have many merits, they are not getting popular because of lack of awareness among the Indian investors. Also since the brokerage/ commission payable to intermediaries is very low, the IFA or intermediaries are not keen in promoting these schemes. As per the latest AMFI data, still a vast majority of the retail investors purchase mutual fund plans through intermediaries only. Both in smaller cities and metro cities, 86% of the investors prefer to take distributor or intermediaries' advice while purchasing equity mutual fund schemes.

In view of the above, the following suggestions can be made:

- ✓ Industry advisory bodies like AMFI should adopt innovative measures to popularize the index schemes through mass media and other awareness campaigns.
- ✓ In the interest of the investors, intermediaries should have a minimum allocation to index schemes in each investor's portfolio.
- ✓ PFRDA should bring in guidelines so that fund managers have to compulsorily park a portion the pension fund in index schemes out of the equity allocation.
- ✓ AMCs should promote the index schemes through their investor awareness program for a better visibility.

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