

# **ANALYZING PERFORMANCE TREND OF OPEN ENDED EQUITY MUTUAL FUNDS IN INDIA**

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## **Abstract:**

A mutual fund is a trust that pools the savings of a number of investors who share a familiar monetary goal. The money consequently composed is invested by the fund manager in various types of securities keeping in mind the objective of the scheme. These investment options could range from equity to debt to money market instruments. The profit earned through these investments and the capital appreciation realized by the mutual fund scheme is shared by its unit holders in fraction to the number of units owned by them. Thus a mutual fund is the most suitable investment for the common man. Hence in order to assist an investor, an evaluation of selected Mutual Fund schemes of top AMCs HDFC, ICICI, Aditya Birla, Nippon India and SBI has been done in the current study. Trend of their growth has been measured for the time period of year 2010 to year 2019. Descriptive analysis has been done inclusive of CAGR, Average Annualized Returns and coefficient of variance has been also computed for better understanding. Further Sharpe, Treynor and Jensen ratios have been also calculated for an in-depth investigation of selected Mutual Fund schemes. ANOVA test has been applied in the last section to comprehend the significance of performance of various schemes of specific AMC.

**Key Words:** Mutual Fund, Annualized Returns, Performance, Sharpe, Treynor, Jensen

## **1. Introduction**

The Indian financial system is based on four basic components like financial market, financial institutions, financial service and financial instruments. All play an important role for smooth activities for the transfer of the funds and allocation of the funds. The main aim of an Indian financial system is to provide the efficient services to Indian capital market. In the past, a large proportion of increased saving has gone into bank deposits and small saving schemes. At present the increase in savings have been in shares, real estate and mutual funds. The increase in savings is expected to flow more into mutual funds, due to its increased return and the recent tax incentives offered by the government. According to Gokarn (2011), Mutual Funds play an important role in the development of the financial system. First, they pool the resources of small investors together, increasing their participation in financial markets, which helps both inclusion and the efficient functioning of markets.

The mutual fund industry has observed a significant growth in recent time. Even in the pandemic situation the inclination of investor is towards mutual fund industry found to a great extent. Along with new products, the industry is focusing on investing in digital technologies. While the industry is already one of the fastest adopters of technology, technology is only set to become a larger component of the overall framework in the next few years. The regulator is continuously looking for ways to enhance expansion and penetration (tie-ups with e-wallets, e-commerce distribution, etc.). As per the records of AMFI, Assets Under Management (AUM) of Indian Mutual Fund Industry as on July 31, 2020 stood at ₹27,11,894 crore. The AUM of the Indian MF Industry has grown from ₹ 6.69 trillion as on July 31, 2010 to ₹27.12 trillion as on July 31, 2020 more than 4 fold increase in a span of 10 years. With lower bank interest rates and demonetization, the AUM of the Indian mutual fund industry is expected to touch 30 lakh crore INR sooner than expected. Industry has realized a remarkable growth with an inception of

reforms like Simplification of mutual fund products, Control over expenses related to mutual funds, Regulation of mutual fund distribution system, Net settlement of government securities by AMCs, Enhancement of Limit for Overseas investment limit for funds, reporting of securities transaction by access persons and Simplifying the format for half-yearly unaudited results.

Current study is based on Performance Evaluation of Mutual Funds where open ended Mutual Funds schemes in India have been computed with their trends and other significant ratios. An open-ended fund or scheme is one that is available for subscription and repurchase on a continuous basis. These schemes do not have a fixed maturity period. Investors can conveniently buy and sell units at Net Asset Value (NAV) related prices which are declared on a daily basis. Though there are hundreds of schemes available in the market but to keep the study on track, composed and focused only Income (liquid, Debt.), Growth (ELSS, Equity) and Balanced schemes of the open ended category were taken into consideration for the analysis.

## **2. Review of literature**

This section, therefore, focuses on both theoretical and empirical literature to understand the need for performance evaluation of mutual funds in specific context to Indian industry. Literature related to the concern topic was gathered from e- resources and then tabulated as below with their findings and conclusion

**Review Table**

| Paper Title   | Author   | Published | Data   | Techniques  | Results  |
|---|--|-----------|--|---|--|
| A Study of Mutual Funds: Investment Policy and Investment Company Performance         | Irwin, Brown, FE   | 1965      | 1939-1942  | Ratio and correlation techniques used.  | The schoolwork identified that mutual funds had a significant impact on the price movement in the stock market. The cram concludes that, on an average, funds did not perform better than the composite markets and there was no persistent relationship between portfolio turnover and fund performance.  |
| Can Mutual Funds Outguess The Markets   | Treynor and Mazuy  | 1966      | 57 fund managers                                 | Treynor's Technique   | The results show that, investors were completely dependent on fluctuations in the market. Improvement in the rates of return was due to the fund managers' ability to identify under-priced industries and companies.  |
| Mutual Fund Performance   | Sharpe, William F  | 1966      | 34 open-end mutual funds for the period 1944-63. | Variability ratio   | Developed a composite measure of return and risk. Reward to variability ratio for each scheme was significantly less than DJIA and ranged from 0.43 to 0.78.   |
| The Performance of Mutual Funds   | Jensen   | 1968      | 115 fund Managers during the period 1945-66.     | Ratio Analysis  | Analysis of net returns indicated that, 39 funds had above average returns, while 76 funds yielded abnormally poor returns. Using gross returns, 48 funds showed above average results and 67 funds below average results.   |
| Mutual Fund Performance: An Analysis of Monthly Returns                               | M. Jayadev   | 1996      | 72 Actively traded securities.                   | Analysis of data is planned with the help of mean, chi-square technique and analysis of variance. | Growth oriented mutual funds are expected to offer the advantages of Diversification, Market timing and Selectivity. In the sample, Magnum Express is found to be highly diversified fund and because of high diversification it has reduced total risk of the portfolio.  |
| Investment Management of Mutual Funds: Evidence of Timing and Selectivity from India. | Joyjit Dhar  | 2005      | 1997-2003  | Jensen measure and Fama criteria.   | The study, has revealed that majority of the fund managers possess superior selectivity skills based on Fama criterion. However, in terms of Jensen criterion, they failed to show superior stock selection ability. This difference in performance between these two criteria may be due to lack of diversification of the sample portfolio. The study has also noted that while fund managers of open-end schemes are superior performers than their closed-end counterpart. |
| An evaluation of equity diversified mutual funds: the case of the Indian market       | Rajesh R. Duggimpudi<br>Hussein A. Abdou<br>Mohamed Zaki | 2010      | 2000 to 2009, covering 17 mutual funds           | Treynor, Sharpe and Jensen techniques used.   | 17 funds have outperformed the market in terms of their performance with higher returns for a given unit of risk. Furthermore, as to the ranking of different funds, both Treynor and Jensen techniques have a relatively have a relatively similar ranking over the study period  |

### 3. Objectives of the study

Following are the specific objectives of the study:

1. To estimate trend of annualized returns of growth schemes of mutual funds industry for the period 2010-19.
2. To evaluate and compare the performance of growth schemes of mutual funds industry for the period 2010-19.

### 4. Research design

Mutual funds offer an assortment of many asset classes. So it is only normal that a variety of hybrid funds have been launched to attend to unstable investor requirements. In this section database used and the methodology adopted for this research has been elaborated. The study revolves around selected AMCs, their specific mutual fund schemes and the techniques applied on them.

#### 4.1 Asset management companies selected

The basis of selection has been purely their Assets Under Management (AUM). Top five AMCs have been taken on the basis of Assets Under Management. Coincidentally leading public sector bank SBI sponsored and remaining Two

HDFC and ICICI are privately operated or private sector bank sponsored and other two Aditya Birla and reliance Nippon India is purely private amongst them. All of them top the chart for having maximum assets under management in their respective categories. Hence a Public- Private inclusion will make this study more fruitful and applicable is possible.

## 4.2 Schemes selected

Though there are hundreds of schemes available in the market but to keep the study on track, composed and focused only income, growth and balanced schemes of the above mentioned AMCs will be taken into consideration for the analysis. These schemes have also been selected because they are more popular and preferred as compared to other types of schemes. The list of mutual funds schemes considered only with the year of inception before year 2010 and are presented as below:

| Sr. No | Scheme Name   | AU M  | Date of Inception | Index              | Type               | Mar-19   |
|--------|---|-------|-------------------|--------------------|--------------------|----------|
| 1      | HDFC Tax Saver                                      | 414   | 02-Apr-96         | Nifty 500 TRI      | Growth/Equity/ELSS | 7153.80  |
| 2      | HDFC Capital Builder Value Fund                     | 4533  | 01-Feb-94         | Nifty 500 TRI      | Growth/Equity      | 4440.37  |
| 3      | HDFC Equity Fund                                    | 22490 | 01-Jan-95         | Nifty 500 TRI      | Growth/Equity      | 21703.60 |
| 4      | HDFC Top 100 Fund                                   | 17613 | 11-Oct-96         | Nifty 100 TRI      | Growth/Equity      | 15968.26 |
| 5      | HDFC Equity Savings Fund                            | 4732  | 17-Sep-04         | Nifty 50           | Growth/Equity      | 5989.71  |
| 6      | ICICI Prudential Balanced Advantage Fund            | 28286 | 30-Dec-06         | Nifty 50           | Growth/Equity      | 28982.23 |
| 7      | ICICI Prudential Value Discovery Fund               | 15462 | 16-Aug-04         | S&P BSE 500 TRI    | Growth/Equity      | 16307.17 |
| 8      | ICICI Prudential Multi-Asset Fund                   | 11534 | 31-Oct-02         | Nifty 50           | Growth/Equity      | 11274.82 |
| 9      | ICICI Prudential Equity Arbitrage Fund              | 13391 | 30-Dec-06         | Nifty 50           | Growth/Equity      | 8102.55  |
| 10     | ICICI Prudential Long Term Equity Fund (Tax Saving) | 6524  | 19-Aug-99         | Nifty 500 TRI      | Growth/Equity/ELSS | 5941.56  |
| 11     | Aditya Birla Sun Life Frontline Equity Fund         | 21211 | 30-Aug-02         | Nifty 50 TRI       | Growth/Equity      | 21637.86 |
| 12     | Aditya Birla Sun Life Equity Fund                   | 11593 | 27-Aug-98         | Nifty 50           | Growth/Equity      | 10625.78 |
| 13     | Aditya Birla Sun Life Equity Advantage Fund         | 5111  | 24-Feb-95         | Nifty 50           | Growth/Equity      | 5498.50  |
| 14     | Aditya Birla Sun Life Focused Equity Fund           | 4360  | 24-Oct-05         | Nifty 50 TRI       | Growth/Equity      | 4156.13  |
| 15     | Aditya Birla Sun Life MNC Fund                      | 3949  | 27-Dec-99         | Nifty MNC TRI      | Growth/Equity      | 3603.47  |
| 16     | Nippon India Focused Equity Fund                    | 4280  | 26-Dec-06         | S&P BSE 500 TRI    | Growth/Equity      | 4355.02  |
| 17     | Nippon India Value Fund                             | 3151  | 08-Jun-05         | Nifty 50           | Growth/Equity      | 3166.06  |
| 18     | Nippon India Growth Fund                            | 6493  | 08-Oct-95         | S&P BSE MidCap TRI | Growth/Equity      | 6613.87  |
| 19     | Nippon India Multicap Fund                          | 10020 | 29-Mar-05         | S&P BSE 500 TRI    | Growth/Equity      | 10218.39 |

|    |                                  |           |           |                    |                        |              |
|----|----------------------------------|-----------|-----------|--------------------|------------------------|--------------|
| 20 | Nippon India Tax Saver Fund      | 982<br>6  | 21-Sep-05 | S&P BSE 100<br>TRI | Growth/Equity/<br>ELSS | 10314.<br>84 |
| 21 | SBI Magnum Tax Gain Scheme       | 735<br>8  | 31-Mar-93 | S&P BSE 500        | Growth/Equity/<br>ELSS | 6788.1<br>3  |
| 22 | SBI Focused Equity Fund          | 612<br>5  | 08-Oct-04 | S&P BSE 500        | Growth/Equity          | 3826.5<br>9  |
| 23 | SBI Magnum Multicap Fund         | 833<br>4  | 29-Sep-05 | S&P BSE 500        | Growth/Equity          | 6844.9<br>9  |
| 24 | SBI BlueChip Fund                | 235<br>85 | 14-Feb-06 | S&P BSE 100        | Growth/Equity          | 21448.<br>56 |
| 25 | SBI Arbitrage Opportunities Fund | 520<br>8  | 03-Nov-06 | Nifty 50           | Growth/Equity          | 2670.4<br>5  |

### 4.3 Period of study

Though mutual funds have been active in India since 1963 but giving due importance to the availability of historical data the period of study has been decided upon as 2010-19. The reason for this is that this very period has seen tremendous growth in this industry in spite of the frequent hiccups, this time period has been said to be the crucial years for mutual funds.

### 4.4 Data type and source

As per the nature of the study, it shall be based on secondary data. The requisite data will be compiled from various official sources like institutions concerned with the selected mutual funds, journals related to finance, economy, capital market, management and commerce, websites of AMFI, SEBI, ICICI, HDFC, Aditya Birla, reliance Nippon, SBI, NSE etc, monthly fact sheets and other reports of selected mutual funds, and any other reliable sources of data.

### 4.5 Techniques applied

Evaluation is an appraisal of performance. Whether the investment activity is carried out by individuals or through mutual funds or portfolio managers, evaluation of the performance becomes essential. Performance Evaluation of the selected mutual fund schemes is carried out in this section under the following heads:

- ❖ Risk – Return Analysis using descriptive statistics
- ❖ Risk-Adjusted Performance Analysis
  - Sharpe Ratio
  - Treynor Ratio
- ❖ Analysis of the Stock Selection Skill of the Fund Managers
  - Jensen's Alpha
- ❖ Further hypothesis testing was done using ANOVA Test.

### 5.0 Results and discussion:

Mutual Fund is one of the most preferred investment alternatives for the small investors as it offers an opportunity to invest in a diversified, professionally managed portfolio at a relatively low cost. The paradigm shift towards mutual funds assumed greater importance ever since the financial sector gained momentum under the globalized and liberalized environment. The performance of the mutual fund products becomes more complex in context of accommodating both risk and return measurement while giving due importance to investment objectives. We can measure the level of diversification by computing the correlation between the returns of the portfolio and the market portfolio. The models devised by Sharpe, Treynor and Jensen have been applied to evaluate the performance of sample schemes.

For the evaluation of mutual fund schemes, 25 schemes from 5 mutual funds have been selected on the basis of AUM. The sample schemes selected for the study are grouped on the basis of their stated objectives of the schemes, i.e. Growth/Equity/ELSS schemes.

### 5.1 Performance evaluation of open ended schemes

Trend analysis of annualized returns has been done to evaluate the performance of selected open ended schemes. Descriptive statistics have been also computed and presented. Annualized returns have been calculated on the basis of daily NAV during time period of year 2010-2019.

## 1.1 Trend of annualized returns of growth or equity based open ended schemes:

5 AMC's were selected for which 5 schemes from each AMC were taken for further analysis.

### 1.1.1 Performance of open ended Equity schemes of HDFC AMC

| (Calculations of Annual Returns from NAV)                           |                |              |                                 |              |                  |              |                   |              |                          |              |
|---|----------------|--------------|---------------------------------|--------------|------------------|--------------|-------------------|--------------|--------------------------|--------------|
| Net Asset Value and return of HDFC Equity Open Ended Growth Schemes |                |              |                                 |              |                  |              |                   |              |                          |              |
| TIME  | HDFC Tax Saver | Return (Rpt) | HDFC Capital Builder Value Fund | Return (Rpt) | HDFC Equity Fund | Return (Rpt) | HDFC Top 100 Fund | Return (Rpt) | HDFC Equity Savings Fund | Return (Rpt) |
| 2010  | 205.68         | -            | 97.21                           |              | 236.27           |              | 184.75            |              | 16.55                    |              |
| 2011  | 232.91         | 13.24        | 111.74                          | 14.95        | 283.28           | 19.89        | 215.23            | 16.50        | 17.82                    | 7.67         |
| 2012  | 223.00         | -4.25        | 105.56                          | -5.53        | 269.18           | -4.98        | 208.06            | -3.33        | 19.68                    | 10.44        |
| 2013  | 225.33         | 1.04         | 112.84                          | 6.90         | 286.43           | 6.41         | 222.87            | 7.12         | 20.81                    | 5.74         |
| 2014  | 276.79         | 22.84        | 139.28                          | 23.43        | 331.99           | 15.91        | 253.63            | 13.80        | 23.12                    | 11.10        |
| 2015  | 398.16         | 43.85        | 199.46                          | 43.21        | 492.95           | 48.48        | 363.63            | 43.37        | 25.91                    | 12.07        |
| 2016  | 354.03         | -11.08       | 194.38                          | -2.55        | 417.00           | -15.41       | 309.11            | -14.99       | 26.40                    | 1.89         |
| 2017  | 469.00         | 32.47        | 248.33                          | 27.75        | 543.77           | 30.40        | 401.86            | 30.01        | 32.53                    | 23.22        |
| 2018  | 500.29         | 6.67         | 284.52                          | 14.57        | 620.87           | 14.18        | 447.97            | 11.47        | 34.55                    | 6.21         |
| 2019  | 528.73         | 5.68         | 302.61                          | 6.36         | 681.21           | 9.72         | 502.70            | 12.22        | 36.80                    | 6.51         |
| Average   | 341.39         | 12.27        | 179.59                          | 14.34        | 416.29           | 13.85        | 310.98            | 12.91        | 25.42                    | 9.43         |
| G.M   | 321.10         |              | 164.98                          |              | 389.80           |              | 293.58            |              | 24.53                    | 7.82         |
| S.D   | 125.55         | 17.81        | 77.77                           | 15.39        | 159.82           | 18.70        | 112.20            | 17.00        | 7.15                     | 6.06         |
| C.V   | 36.77          | 145.10       | 43.30                           | 107.32       | 38.39            | 135.06       | 36.08             | 131.72       | 28.14                    | 64.22        |
| CAGR  | 11.06          |              | 13.45                           |              | 12.49            |              | 11.76             |              | 9.29                     |              |

It is revealed from above analysis that average annualized returns was found highest for HDFC Capital Builder Value Fund (14.34%) during the study period whereas it was lowest for HDFC Equity Savings Fund (9.43%). HDFC Capital Builder Value Fund has shown highest CAGR of 13.45% and HDFC Equity Savings Fund was at the bottom with CAGR of 9.29%. Highest variance was found in the annualized returns of HDFC Tax Saver with 145.10% whereas it was lowest for the annualized returns in the case of HDFC Equity Savings Fund with 64.22%. The above table reveals that open ended schemes of HDFC have given average annual return in the range of 9% to 15% only during the time period of year 2010 to year 2019.

#### 1.1.1.1 Performance evaluation on the basis of Sharpe, Treynor and Jensen ratios of HDFC AMC schemes

| Annualized Return of Open Ended Schemes |                       |                  |                             |  |                               |                                |                                       |
|---|-----------------------|------------------|-----------------------------|--|-------------------------------|--------------------------------|---------------------------------------|
|   | Returns of Nifty( Rm) | Risk free Return | HDFC Tax Saver Return (Rpt) | HDFC Capital Builder Value Fund Return (Rpt) | HDFC Equity Fund Return (Rpt) | HDFC Top 100 Fund Return (Rpt) | HDFC Equity Savings Fund Return (Rpt) |
| 2010                                    | 12.78                 | 4.40             | 111.91                      | 108.61                                       | 115.52                        | 95.86                          | 23.69                                 |
| 2011                                    | -5.57                 | 7.30             | 13.24                       | 14.95  | 19.89                         | 16.50                          | 7.67                                  |
| 2012                                    | 16.07                 | 9.00             | -4.25                       | -5.53  | -4.98                         | -3.33                          | 10.44                                 |
| 2013                                    | 0.91                  | 8.20             | 1.04                        | 6.90   | 6.41                          | 7.12                           | 5.74                                  |
| 2014                                    | 44.66                 | 8.85             | 22.84                       | 23.43  | 15.91                         | 13.80                          | 11.10                                 |
| 2015                                    | -14.14                | 8.25             | 43.85                       | 43.21  | 48.48                         | 43.37                          | 12.07                                 |
| 2016                                    | 13.19                 | 7.25             | -11.08                      | -2.55  | -15.41                        | -14.99                         | 1.89                                  |
| 2017                                    | 28.81                 | 5.82             | 32.47                       | 27.75  | 30.40                         | 30.01                          | 23.22                                 |
| 2018                                    | -1.78                 | 6.11             | 6.67                        | 14.57  | 14.18                         | 11.47                          | 6.21                                  |
| 2019                                    | 12.36                 | 6.15             | 5.68                        | 6.36   | 9.72                          | 12.22                          | 6.51                                  |
| Average Return                          | 10.73                 | 7.13             | 22.24                       | 23.77  | 24.01                         | 21.20                          | 10.85                                 |
| Total Risk (S.D)                        | 17.18                 | 1.49             | 35.70                       | 33.15  | 36.67                         | 30.74                          | 7.28                                  |
| Variance ( S.D <sup>2</sup> )           | 295.16                | 2.23             | 1274.66                     | 1099.14                                      | 1344.52                       | 945.01                         | 52.94                                 |
| Beta                                    | 1.00                  | 0.00             | 0.06                        | -0.03  | -0.19                         | -0.15                          | 0.13                                  |
| correlation( r)                         | -                     | -                | 0.03                        | -0.01  | -0.09                         | -0.08                          | 0.32                                  |
| Sharpe ratio                            | -                     | -                | 0.42                        | 0.50   | 0.46                          | 0.46                           | 0.51                                  |
| Treynor                                 |                       |                  | 2.660                       | -5.969                                       | -0.910                        | -0.963                         | 0.277                                 |
| Jensen                                  |                       |                  | 0.149                       | 0.167  | 0.175                         | 0.146                          | 0.032                                 |

Average annualized risk free return was found highest for HDFC Equity Fund Return with 24.01% and lowest for HDFC Equity Savings Fund Return with 10.85%. As far as total risk is concerned, it was highest in the case of HDFC Equity Fund Return (S.D., 36.67) and lowest for HDFC Equity Savings Fund Return (S.D., 7.28). Hence it can be stated that HDFC Equity Savings Fund Return with lower value of standard deviation is having a higher chance to be continued with similar returns in future whereas other schemes with higher standard deviation values may vary. It is well confirmed from Beta values that volatility or systematic risk was found very less in HDFC Equity Fund Return (Beta, -0.19), HDFC Top 100 Fund Return (Beta, -0.15) and HDFC Capital Builder Value Fund Return (Beta, -0.03). HDFC Equity Savings Fund Return (Sharpe ratio, 0.51) and HDFC Capital Builder Value Fund Return (Sharpe ratio, 0.50) schemes with higher Sharpe ratio have been given preference as they have given higher risk-adjusted return in comparison to other schemes of HDFC AMC during the study period. Higher value of Treynor's ratio of HDFC Tax Saver Return (2.660) and HDFC Equity Savings Fund Return (0.277) during year 2010-2019 reveals that fund has been able to give better returns for the amount of risk taken as compared to other schemes hence have been preferred by the investors. HDFC Equity Fund Return (Jensen ratio, 0.175) and HDFC Capital Builder Value Fund Return (Jensen ratio, 0.167) were the two schemes during the study period which have beaten the nifty returns and that is why considered better as compared to other schemes.

**1.1.2 Performance of open ended Equity schemes of ICICI AMC**

| TIME    | Risk free Return | ICICI Prudential Balanced Advantage Fund | Return (Rpt) | ICICI Prudential Value Discovery Fund | Return (Rpt) | ICICI Prudential Multi-Asset Fund | Return (Rpt) | ICICI Prudential Equity Arbitrage Fund | Return (Rpt) | ICICI Prudential Long Term Equity Fund (Tax Saving) | Return (Rpt) |
|---------|------------------|--|--------------|---------------------------------------|--------------|-----------------------------------|--------------|--|--------------|---|--------------|
| 2010    | 4.40             | 12.67                                    |              | 43.13                                 |              | 95.27                             |              | 12.50                                  |              | 127.34  |              |
| 2011    | 7.30             | 13.92                                    | 9.87         | 48.11                                 | 11.55        | 109.25                            | 14.67        | 13.55                                  | 8.40         | 140.93  | 10.67        |
| 2012    | 9.00             | 14.71                                    | 5.68         | 48.78                                 | 1.39         | 106.13                            | -2.86        | 14.53                                  | 7.23         | 135.84  | -3.61        |
| 2013    | 8.20             | 17.11                                    | 16.32        | 56.09                                 | 14.99        | 110.55                            | 4.16         | 16.08                                  | 10.67        | 144.94  | 6.70         |
| 2014    | 8.85             | 20.03                                    | 17.07        | 68.81                                 | 22.68        | 143.57                            | 29.87        | 17.62                                  | 9.58         | 186.98  | 29.01        |
| 2015    | 8.25             | 25.61                                    | 27.86        | 118.91                                | 72.81        | 188.80                            | 31.50        | 19.14                                  | 8.63         | 270.86  | 44.86        |
| 2016    | 7.25             | 25.64                                    | 0.12         | 108.79                                | -8.51        | 175.52                            | -7.03        | 20.42                                  | 6.69         | 255.32  | -5.74        |
| 2017    | 5.82             | 30.24                                    | 17.94        | 131.28                                | 20.67        | 230.24                            | 31.18        | 21.75                                  | 6.51         | 324.23  | 26.99        |
| 2018    | 6.11             | 33.22                                    | 9.85         | 143.36                                | 9.20         | 252.12                            | 9.50         | 23.00                                  | 5.75         | 347.44  | 7.16         |
| 2019    | 6.15             | 35.34                                    | 6.38         | 146.30                                | 2.05         | 267.99                            | 6.29         | 24.38                                  | 6.00         | 378.00  | 8.80         |
| Average | 7.13             | 22.85                                    | 12.34        | 91.36                                 | 16.31        | 167.94                            | 13.03        | 18.30                                  | 7.72         | 231.19  | 13.87        |
| G.M     | 6.98             | 21.46                                    | 7.28         | 82.10                                 |              | 156.89                            |              | 17.87                                  | 7.56         | 213.26  |              |
| S.D     | 1.49             | 8.33                                     | 8.31         | 42.35                                 | 23.37        | 64.90                             | 14.78        | 4.11                                   | 1.70         | 96.20   | 16.52        |
| C.V     | 20.94            | 36.44                                    | 67.30        | 46.36                                 | 143.24       | 38.64                             | 113.42       | 22.46                                  | 21.99        | 41.61   | 119.13       |
| CAGR    | 3.79             | 12.07                                    |              | 14.54                                 |              | 12.18                             |              | 7.71                                   |              | 12.85   |              |

It is revealed from above analysis that average annualized returns was found highest for ICICI Prudential Equity Arbitrage Fund (16.31%) during the study period whereas it was lowest for ICICI Prudential Value Discovery Fund (7.72%). ICICI Prudential Value Discovery Fund has shown highest CAGR of 14.54% and ICICI Prudential Equity Arbitrage Fund was at the bottom with CAGR of 7.71%. Highest variance was found in the annualized returns of ICICI Prudential Value Discovery Fund with 143.24% whereas it was lowest for the annualized returns in the case of ICICI Prudential Equity Arbitrage Fund with 21.99%. The above table reveals that open ended schemes of ICICI AMC have given average annual return in the range of 7% to 17% only during the time period of year 2010 to year 2019.

**1.1.2.1 Performance evaluation on the basis of Sharpe, Treynor and Jensen ratios of ICICI AMC schemes**

|  | Returns of Nifty (Rm) | Risk free Return | ICICI Prudential Balanced Advantage Fund Return (Rpt) | ICICI Prudential Value Discovery Fund Return (Rpt) | ICICI Prudential Multi-Asset Fund Return (Rpt) | ICICI Prudential Equity Arbitrage Fund Return (Rpt) | ICICI Prudential Long Term Equity Fund (Tax Saving) Return (Rpt) |
|--|-----------------------|------------------|---|--|--|---|--|
|  |                       |                  |   |  |  |   |  |



|                              |        |      |        |         |        |        |         |
|------------------------------|--------|------|--------|---------|--------|--------|---------|
| 2010                         | 12.78  | 4.40 | 49.41  | 159.35  | 92.23  | 3.22   | 123.87  |
| 2011                         | -5.57  | 7.30 | 9.87   | 11.55   | 14.67  | 8.40   | 10.67   |
| 2012                         | 16.07  | 9.00 | 5.68   | 1.39    | -2.86  | 7.23   | -3.61   |
| 2013                         | 0.91   | 8.20 | 16.32  | 14.99   | 4.16   | 10.67  | 6.70    |
| 2014                         | 44.66  | 8.85 | 17.07  | 22.68   | 29.87  | 9.58   | 29.01   |
| 2015                         | -14.14 | 8.25 | 27.86  | 72.81   | 31.50  | 8.63   | 44.86   |
| 2016                         | 13.19  | 7.25 | 0.12   | -8.51   | -7.03  | 6.69   | -5.74   |
| 2017                         | 28.81  | 5.82 | 17.94  | 20.67   | 31.18  | 6.51   | 26.99   |
| 2018                         | -1.78  | 6.11 | 9.85   | 9.20    | 9.50   | 5.75   | 7.16    |
| 2019                         | 12.36  | 6.15 | 6.38   | 2.05    | 6.29   | 6.00   | 8.80    |
| Average Return               | 10.73  | 7.13 | 16.05  | 30.62   | 20.95  | 7.27   | 24.87   |
| Total Risk (S.D)             | 17.18  | 1.49 | 14.10  | 50.31   | 28.66  | 2.14   | 38.12   |
| Variance (S.D <sup>2</sup> ) | 295.16 | 2.23 | 198.74 | 2531.35 | 821.48 | 4.58   | 1452.78 |
| Beta                         | 1.00   | 0.00 | -0.03  | -0.30   | 0.21   | -0.01  | 0.10    |
| correlation( r)              | -      | -    | -0.04  | -0.10   | 0.13   | -0.04  | 0.04    |
| Sharpe ratio                 | -      | -    | 0.63   | 0.47    | 0.48   | 0.06   | 0.47    |
| Treynor                      |        |      | -2.594 | -0.779  | 0.654  | -0.257 | 1.797   |
| Jensen                       |        |      | 0.090  | 0.246   | 0.131  | 0.002  | 0.174   |

Average annualized risk free return was found highest for ICICI Prudential Value Discovery Fund Return with 30.62% (S.D., 50.31) and lowest for ICICI Prudential Equity Arbitrage Fund Return with 10.85% (S.D., 2.14). As far as total risk is concerned, it was highest in the case of ICICI Prudential Value Discovery Fund Return and lowest for ICICI Prudential Equity Arbitrage Fund Return. Hence it can be stated that ICICI Prudential Equity Arbitrage Fund Return with lower value of standard deviation is having a higher chance to be continued with similar returns in future whereas other schemes with higher standard deviation values may vary. It is well confirmed from Beta values that volatility or systematic risk was found very less in ICICI Prudential Value Discovery Fund Return (Beta, -0.30), ICICI Prudential Balanced Advantage Fund Return (Beta, -0.03) and ICICI Prudential Equity Arbitrage Fund Return (Beta, -0.01). ICICI Prudential Balanced Advantage Fund Return (Sharpe ratio, 0.63) and ICICI Prudential Equity Arbitrage Fund Return (Sharpe ratio, 0.06) schemes were the schemes with highest and lowest Sharpe ratio respectively. ICICI Prudential Balanced Advantage Fund Return have been given preference as it has given higher risk-adjusted return in comparison to other schemes of ICICI AMC during the study period. Higher value of Treynor's ratio of ICICI Prudential Long Term Equity Fund (Tax Saving) Return (1.797) during year 2010-2019 reveals that fund has been able to give better returns for the amount of risk taken as compared to other schemes hence have been preferred by the investors. ICICI Prudential Value Discovery Fund Return (Jensen ratio, 0.246) and ICICI Prudential Long Term Equity Fund (Tax Saving) Return (Jensen ratio, 0.174) were the two schemes during the study period which have beaten the nifty returns and that is why considered better as compared to other schemes.

**1.1.3 Performance of open ended Equity schemes of Aditya Birla AMC**

| TIME    | Risk free Return | Aditya Birla Sun Life Frontline Equity Fund | Return (Rpt) | Aditya Birla Sun Life Equity Fund | Return (Rpt) | Aditya Birla Sun Life Equity Advantage Fund | Return (Rpt) | Aditya Birla Sun Life Focused Equity Fund | Return (Rpt) | Aditya Birla Sun Life MNC Fund | Return (Rpt) |
|---------|------------------|---|--------------|-----------------------------------|--------------|---|--------------|---|--------------|--------------------------------|--------------|
| 2010    | 4.40             | 81.02                                       |              | 252.91                            |              | 150.86                                      |              | 20.50                                     |              | 176.30                         |              |
| 2011    | 7.30             | 89.90                                       | 10.96        | 260.06                            | 2.83         | 157.71                                      | 4.54         | 23.14                                     | 12.88        | 205.01                         | 16.28        |
| 2012    | 9.00             | 84.84                                       | -5.63        | 236.56                            | -9.04        | 141.39                                      | -10.35       | 22.12                                     | -4.41        | 230.29                         | 12.33        |
| 2013    | 8.20             | 99.47                                       | 17.24        | 252.69                            | 6.82         | 146.81                                      | 3.83         | 24.31                                     | 9.90         | 240.68                         | 4.51         |
| 2014    | 8.85             | 116.17                                      | 16.79        | 319.89                            | 26.59        | 189.18                                      | 28.86        | 30.54                                     | 25.63        | 308.44                         | 28.15        |
| 2015    | 8.25             | 171.87                                      | 47.95        | 487.03                            | 52.25        | 294.95                                      | 55.91        | 43.12                                     | 41.19        | 578.56                         | 87.58        |
| 2016    | 7.25             | 155.45                                      | -9.55        | 463.93                            | -4.74        | 281.88                                      | -4.43        | 40.90                                     | -5.15        | 560.98                         | -3.04        |
| 2017    | 5.82             | 193.10                                      | 24.22        | 626.32                            | 35.00        | 369.44                                      | 31.06        | 51.10                                     | 24.94        | 631.64                         | 12.60        |
| 2018    | 6.11             | 214.87                                      | 11.27        | 688.39                            | 9.91         | 405.56                                      | 9.78         | 54.89                                     | 7.42         | 730.47                         | 15.65        |
| 2019    | 6.15             | 226.74                                      | 5.52         | 730.68                            | 6.14         | 404.28                                      | -0.32        | 59.44                                     | 8.29         | 770.29                         | 5.45         |
| Average | 7.13             | 143.34                                      | 13.20        | 431.85                            | 13.97        | 254.21                                      | 13.21        | 37.01                                     | 13.41        | 443.27                         | 19.95        |
| G.M     | 6.98             | 133.48                                      |              | 393.73                            |              | 232.95                                      |              | 34.36                                     |              | 384.85                         |              |
| S.D     | 1.49             | 56.11                                       | 16.95        | 194.74                            | 20.00        | 110.36                                      | 21.25        | 14.77                                     | 14.96        | 233.26                         | 26.84        |
| C.V     | 20.94            | 39.14                                       | 128.42       | 45.09                             | 143.11       | 43.41                                       | 160.83       | 39.91                                     | 111.57       | 52.62                          | 134.55       |
| CAGR    | 3.79             | 12.11                                       |              | 12.51                             |              | 11.58                                       |              | 12.56                                     |              | 17.80                          |              |

It is revealed from above analysis that average annualized returns was found highest for Aditya Birla Sun Life MNC Fund (19.95%) during the study period whereas it was lowest for Aditya Birla Sun Life Frontline Equity Fund (13.20%). Aditya Birla Sun Life MNC Fund has shown highest CAGR of 17.80% and Aditya Birla Sun Life Equity Advantage Fund was at the bottom with CAGR of 11.58%. Highest variance was found in the annualized returns of Aditya Birla Sun Life Equity Advantage Fund with 160.83% whereas it was lowest for the annualized returns in the case of Aditya Birla Sun Life Focused Equity Fund with 111.57%. The above table reveals that open ended schemes of Aditya Birla AMC have given average annual return in the range of 13% to 20% only during the time period of year 2010 to year 2019.

**1.1.3.1 Performance evaluation on the basis of Sharpe, Treynor and Jensen ratios of ICICI AMC schemes**

|                   | Returns of Nifty( Rm) | Risk free Return | Aditya Birla Sun Life Frontline Equity Fund Return (Rpt) | Aditya Birla Sun Life Equity Fund | Aditya Birla Sun Life Equity Advantage Fund | Aditya Birla Sun Life Focused Equity Fund | Aditya Birla Sun Life MNC Fund |
|-------------------|-----------------------|------------------|--|-----------------------------------|---|---|--------------------------------|
| 2010              | 12.78                 | 4.40             | 91.18  | 102.09                            | 96.71                                       | 77.03                                     | 101.76                         |
| 2011              | -5.57                 | 7.30             | 10.96  | 2.83                              | 4.54  | 12.88                                     | 16.28                          |
| 2012              | 16.07                 | 9.00             | -5.63  | -9.04                             | -10.35                                      | -4.41                                     | 12.33                          |
| 2013              | 0.91                  | 8.20             | 17.24  | 6.82                              | 3.83  | 9.90                                      | 4.51                           |
| 2014              | 44.66                 | 8.85             | 16.79  | 26.59                             | 28.86                                       | 25.63                                     | 28.15                          |
| 2015              | -14.14                | 8.25             | 47.95  | 52.25                             | 55.91                                       | 41.19                                     | 87.58                          |
| 2016              | 13.19                 | 7.25             | -9.55  | -4.74                             | -4.43                                       | -5.15                                     | -3.04                          |
| 2017              | 28.81                 | 5.82             | 24.22  | 35.00                             | 31.06                                       | 24.94                                     | 12.60                          |
| 2018              | -1.78                 | 6.11             | 11.27  | 9.91                              | 9.78  | 7.42                                      | 15.65                          |
| 2019              | 12.36                 | 6.15             | 5.52   | 6.14                              | -0.32                                       | 8.29                                      | 5.45                           |
| Average Return    | 10.73                 | 7.13             | 21.00  | 22.79                             | 21.56                                       | 19.77                                     | 28.13                          |
| Total Risk (S.D)  | 17.18                 | 1.49             | 29.38  | 33.64                             | 33.14                                       | 24.57                                     | 36.19                          |
| Variance ( S.D^2) | 295.16                | 2.23             | 863.38   | 1131.87                           | 1098.51                                     | 603.71                                    | 1309.59                        |
| Beta              | 1.00                  | 0.00             | -0.20  | 0.06                              | 0.02  | 0.01                                      | -0.46                          |
| correlation( r)   | -                     | -                | -0.12  | 0.03                              | 0.01  | 0.01                                      | -0.22                          |
| Sharpe ratio      | -                     | -                | 0.47   | 0.47                              | 0.44  | 0.51                                      | 0.58                           |
| Treynor           |                       |                  | -0.693   | 2.627                             | 7.955                                       | 10.675                                    | -0.456                         |
| Jensen            |                       |                  | 0.146  | 0.154                             | 0.144                                       | 0.126                                     | 0.227                          |

Average annualized risk free return was found highest for Aditya Birla Sun Life MNC Fund with 28.13% (S.D., 36.19) and lowest for Aditya Birla Sun Life Focused Equity Fund with 19.77% (S.D., 24.57). As far as total risk is concerned, it was highest in the case of Aditya Birla Sun Life MNC Fund and lowest for Aditya Birla Sun Life Focused Equity Fund. Hence it can be stated that Aditya Birla Sun Life Focused Equity Fund with lower value of standard deviation is having a higher chance to be continued with similar returns in future whereas other schemes with higher standard deviation values may vary. It is well confirmed from Beta values that volatility or systematic risk was found very less in Aditya Birla Sun Life Frontline Equity Fund Return (Beta, -0.20) and Aditya Birla Sun Life MNC Fund (Beta, -0.46). Aditya Birla Sun Life MNC Fund (Sharpe ratio, 0.58) and Aditya Birla Sun Life Equity Advantage Fund (Sharpe ratio, 0.44) schemes were the schemes with highest and lowest Sharpe ratio respectively. Aditya Birla Sun Life MNC Fund have been given preference as it has given higher risk-adjusted return in comparison to other schemes of Aditya Birla’s AMC during the study period. Higher value of Treynor’s ratio of Aditya Birla Sun Life Focused Equity Fund (Tax Saving) Return (10.675) during year 2010-2019 reveals that fund has been able to give better returns for the amount of risk taken as compared to other schemes hence have been preferred by the investors. Aditya Birla Sun Life MNC Fund with leading Jensen ratio (0.277) was the scheme during the study period which has beaten the nifty returns and that is why considered better as compared to other schemes.

**1.1.3 Performance of open ended Equity schemes of Nippon India AMC**

| TIME    | Risk free Return | Nippon India Focused Equity Fund | Return (Rpt) | Nippon India Value Fund | Return (Rpt) | Nippon India Growth Fund | Return (Rpt) | Nippon India Multicap Fund | Return (Rpt) | Nippon India Tax Saver Fund | Return (Rpt) |
|---------|------------------|----------------------------------|--------------|-------------------------|--------------|--------------------------|--------------|----------------------------|--------------|-----------------------------|--------------|
| 2010    | 4.40             | 13.80                            |              | 28.62                   |              | 439.20                   |              | 31.25                      |              | 18.73                       |              |
| 2011    | 7.30             | 14.93                            | 8.19         | 30.31                   | 5.90         | 459.37                   | 4.59         | 35.72                      | 14.32        | 21.13                       | 12.84        |
| 2012    | 9.00             | 14.14                            | -5.29        | 27.67                   | -8.71        | 444.02                   | -3.34        | 36.70                      | 2.76         | 21.30                       | 0.80         |
| 2013    | 8.20             | 14.75                            | 4.31         | 29.65                   | 7.16         | 465.29                   | 4.79         | 42.90                      | 16.89        | 22.97                       | 7.83         |
| 2014    | 8.85             | 18.78                            | 27.32        | 34.78                   | 17.30        | 508.96                   | 9.38         | 49.85                      | 16.19        | 28.60                       | 24.52        |
| 2015    | 8.25             | 33.19                            | 76.73        | 52.37                   | 50.58        | 837.30                   | 64.51        | 78.53                      | 57.53        | 51.04                       | 78.45        |
| 2016    | 7.25             | 30.31                            | -8.68        | 48.42                   | -7.54        | 729.23                   | -12.91       | 66.46                      | -15.38       | 42.72                       | -16.30       |
| 2017    | 5.82             | 41.28                            | 36.19        | 61.62                   | 27.26        | 968.58                   | 32.82        | 79.84                      | 20.14        | 54.88                       | 28.45        |
| 2018    | 6.11             | 45.66                            | 10.61        | 70.40                   | 14.25        | 1135.67                  | 17.25        | 93.67                      | 17.32        | 63.05                       | 14.90        |
| 2019    | 6.15             | 47.39                            | 3.79         | 74.43                   | 5.72         | 1120.43                  | -1.34        | 99.66                      | 6.39         | 55.92                       | -11.32       |
| Average | 7.13             | 27.42                            | 17.02        | 45.83                   | 12.44        | 710.80                   | 12.86        | 61.46                      | 15.13        | 38.04                       | 15.57        |
| G.M     | 6.98             | 24.32                            |              | 42.72                   |              | 661.17                   |              | 56.66                      |              | 34.43                       |              |
| S.D     | 1.49             | 13.82                            | 26.58        | 18.17                   | 18.25        | 286.80                   | 23.34        | 25.43                      | 19.34        | 17.24                       | 27.89        |
| C.V     | 20.94            | 50.39                            | 156.18       | 39.65                   | 146.72       | 40.35                    | 181.49       | 41.37                      | 127.83       | 45.32                       | 179.10       |
| CAGR    | 3.79             | 14.69                            |              | 11.20                   |              | 10.97                    |              | 13.75                      |              | 12.92                       |              |

It is revealed from above analysis that average annualized returns was found highest for Nippon India Focused Equity Fund (17.02%) during the study period whereas it was lowest for Nippon India Value Fund (12.44%). Nippon India Focused Equity Fund has shown highest CAGR of 14.69% and Nippon India Growth Fund was at the bottom with CAGR of 10.97%. Highest variance was found in the annualized returns of Nippon India Growth Fund with 181.49% whereas it was lowest for the annualized returns in the case of Nippon India Multicap Fund with 127.83%. The above table reveals that open ended schemes of Nippon India AMC have given average annual return in the range of 12% to 18% only during the time period of year 2010 to year 2019.

**1.1.3.1 Performance evaluation on the basis of Sharpe, Treynor and Jensen ratios of Nippon India AMC schemes**

|      | Returns of Nifty( Rm) | Risk free Return | Nippon India Focused Equity Fund | Nippon India Value Fund | Nippon India Growth Fund | Nippon India Multicap Fund | Nippon India Tax Saver Fund |
|------|-----------------------|------------------|----------------------------------|-------------------------|--------------------------|----------------------------|-----------------------------|
| 2010 | 12.78                 | 4.40             | 94.92                            | 112.79                  | 110.31                   | 129.57                     | 91.95                       |
| 2011 | -5.57                 | 7.30             | 8.19                             | 5.90                    | 4.59                     | 14.32                      | 12.84                       |
| 2012 | 16.07                 | 9.00             | -5.29                            | -8.71                   | -3.34                    | 2.76                       | 0.80                        |
| 2013 | 0.91                  | 8.20             | 4.31                             | 7.16                    | 4.79                     | 16.89                      | 7.83                        |

|                              |        |      |         |         |         |         |         |
|------------------------------|--------|------|---------|---------|---------|---------|---------|
| 2014                         | 44.66  | 8.85 | 27.32   | 17.30   | 9.38    | 16.19   | 24.52   |
| 2015                         | -14.14 | 8.25 | 76.73   | 50.58   | 64.51   | 57.53   | 78.45   |
| 2016                         | 13.19  | 7.25 | -8.68   | -7.54   | -12.91  | -15.38  | -16.30  |
| 2017                         | 28.81  | 5.82 | 36.19   | 27.26   | 32.82   | 20.14   | 28.45   |
| 2018                         | -1.78  | 6.11 | 10.61   | 14.25   | 17.25   | 17.32   | 14.90   |
| 2019                         | 12.36  | 6.15 | 3.79    | 5.72    | -1.34   | 6.39    | -11.32  |
| Average Return               | 10.73  | 7.13 | 24.81   | 22.47   | 22.61   | 26.57   | 23.21   |
| Total Risk (S.D)             | 17.18  | 1.49 | 35.14   | 36.10   | 37.87   | 40.52   | 35.70   |
| Variance (S.D <sup>2</sup> ) | 295.16 | 2.23 | 1234.86 | 1302.98 | 1433.99 | 1642.20 | 1274.83 |
| Beta                         | 1.00   | 0.00 | -0.18   | -0.13   | -0.32   | -0.33   | -0.35   |
| correlation( r)              | -      | -    | -0.09   | -0.06   | -0.15   | -0.14   | -0.17   |
| Sharpe ratio                 | -      | -    | 0.50    | 0.42    | 0.41    | 0.48    | 0.45    |
| Treynor                      |        |      | -0.970  | -1.174  | -0.480  | -0.587  | -0.453  |
| Jensen                       |        |      | 0.183   | 0.158   | 0.166   | 0.206   | 0.174   |

Average annualized risk free return was found highest for Nippon India Multicap Fund with 26.57% (S.D., 40.52) and lowest for Nippon India Value Fund with 22.47% (S.D., 36.10). As far as total risk is concerned, it was highest in the case of Nippon India Multicap Fund and lowest for Nippon India Focused Equity Fund. Hence it can be stated that Nippon India Focused Equity Fund with lower value of standard deviation is having a higher chance to be continued with similar returns in future whereas other schemes with higher standard deviation values may vary. It is well confirmed from Beta values that volatility or systematic risk was found very less in Nippon India Growth Fund, Nippon India Multicap Fund and Nippon India Tax Saver Fund with (Beta, -0.32), (Beta, -0.33) and (Beta, -0.35) respectively. Nippon India Focused Equity Fund (Sharpe ratio, 0.50) and Nippon India Growth Fund (Sharpe ratio, 0.41) schemes were the schemes with highest and lowest Sharpe ratio respectively. Nippon India Growth Fund have been given preference as it has given higher risk-adjusted return in comparison to other schemes of Nippon India’s AMC during the study period. Negative value of Treynor’s ratio for all Nippon India AMC’s schemes during year 2010-2019 reveals that fund has not been able to give better returns for the amount of risk taken. Nippon India Multicap Fund with leading Jensen ratio (0.206) was the scheme during the study period which has beaten the nifty returns and that is why considered better as compared to other schemes.

**1.1.4 Performance of open ended Equity schemes of SBI AMC**

| TIME | Risk free Return | SBI Magnum Tax Gain Scheme | Return (Rpt) | SBI Focused Equity Fund | Return (Rpt) | SBI Magnum Multicap Fund | Return (Rpt) | SBI BlueChip Fund | Return (Rpt) | SBI Arbitrage Opportunities Fund | Return (Rpt) |
|------|------------------|----------------------------|--------------|-------------------------|--------------|--------------------------|--------------|-------------------|--------------|----------------------------------|--------------|
| 2010 | 4.40             | 57.80                      |              | 34.87                   |              | 17.83                    |              | 14.14             |              | 12.64                            |              |
| 2011 | 7.30             | 60.07                      | 3.93         | 39.63                   | 13.65        | 17.66                    | -0.95        | 14.56             | 2.97         | 13.49                            | 6.72         |
| 2012 | 9.00             | 58.35                      | -2.86        | 44.54                   | 12.39        | 16.43                    | -6.96        | 14.02             | -3.71        | 14.66                            | 8.67         |
| 2013 | 8.20             | 62.60                      | 7.28         | 53.76                   | 20.70        | 17.65                    | 7.43         | 16.84             | 20.13        | 16.01                            | 9.21         |
| 2014 | 8.85             | 77.35                      | 23.56        | 59.39                   | 10.47        | 20.78                    | 17.73        | 19.13             | 13.61        | 17.45                            | 8.99         |

|         |       |        |        |        |       |       |        |       |        |       |       |
|---------|-------|--------|--------|--------|-------|-------|--------|-------|--------|-------|-------|
| 2015    | 8.25  | 114.33 | 47.81  | 91.33  | 53.78 | 32.14 | 54.67  | 29.15 | 52.34  | 18.98 | 8.77  |
| 2016    | 7.25  | 105.12 | -8.06  | 90.02  | -1.43 | 32.59 | 1.40   | 27.92 | -4.21  | 20.20 | 6.43  |
| 2017    | 5.82  | 126.70 | 20.53  | 107.30 | 19.20 | 40.51 | 24.30  | 33.57 | 20.24  | 21.42 | 6.04  |
| 2018    | 6.11  | 137.13 | 8.23   | 130.29 | 21.43 | 45.96 | 13.45  | 37.74 | 12.43  | 22.70 | 5.98  |
| 2019    | 6.15  | 144.68 | 5.51   | 140.55 | 7.87  | 48.67 | 5.90   | 39.21 | 3.88   | 24.00 | 5.73  |
| Average | 7.13  | 94.41  | 11.77  | 79.17  | 17.56 | 29.02 | 13.00  | 24.63 | 13.07  | 18.16 | 7.39  |
| G.M     | 6.98  | 88.55  |        | 70.82  |       | 26.64 |        | 22.78 |        | 17.76 | 7.26  |
| S.D     | 1.49  | 35.01  | 16.79  | 38.30  | 15.36 | 12.64 | 18.36  | 10.06 | 17.36  | 3.94  | 1.47  |
| C.V     | 20.94 | 37.08  | 142.65 | 48.37  | 87.43 | 43.55 | 141.26 | 40.84 | 132.76 | 21.71 | 19.94 |
| CAGR    | 3.79  | 10.73  |        | 16.75  |       | 11.80 |        | 12.00 |        | 7.38  |       |

It is revealed from above analysis that average annualized returns was found highest for SBI Focused Equity Fund (17.56%) during the study period whereas it was lowest for SBI Arbitrage Opportunities Fund (7.39%). SBI Focused Equity Fund has shown highest CAGR of 16.75% and SBI Arbitrage Opportunities Fund was at the bottom with CAGR of 7.38%. Highest variance was found in the annualized returns of SBI Magnum Tax Gain Scheme with 142.65% whereas it was lowest for the annualized returns in the case of SBI Arbitrage Opportunities Fund with 19.24%. The above table reveals that open ended schemes of Nippon India AMC have given average annual return in the range of 7% to 18% only during the time period of year 2010 to year 2019.

### 1.1.4.1 Performance evaluation on the basis of Sharpe, Treynor and Jensen ratios of SBI AMC schemes

|                   | Returns of Nifty(Rm) | Risk free Return | SBI Magnum Tax Gain Scheme | SBI Focused Equity Fund | SBI Magnum Multicap Fund | SBI Blue Chip Fund | SBI Arbitrage Opportunities Fund |
|-------------------|----------------------|------------------|----------------------------|-------------------------|--------------------------|--------------------|----------------------------------|
| 2010              | 12.78                | 4.40             | 86.99                      | 152.68                  | 84.58                    | 80.82              | 3.78                             |
| 2011              | -5.57                | 7.30             | 3.93                       | 13.65                   | -0.95                    | 2.97               | 6.72                             |
| 2012              | 16.07                | 9.00             | -2.86                      | 12.39                   | -6.96                    | -3.71              | 8.67                             |
| 2013              | 0.91                 | 8.20             | 7.28                       | 20.70                   | 7.43                     | 20.13              | 9.21                             |
| 2014              | 44.66                | 8.85             | 23.56                      | 10.47                   | 17.73                    | 13.61              | 8.99                             |
| 2015              | -14.14               | 8.25             | 47.81                      | 53.78                   | 54.67                    | 52.34              | 8.77                             |
| 2016              | 13.19                | 7.25             | -8.06                      | -1.43                   | 1.40                     | -4.21              | 6.43                             |
| 2017              | 28.81                | 5.82             | 20.53                      | 19.20                   | 24.30                    | 20.24              | 6.04                             |
| 2018              | -1.78                | 6.11             | 8.23                       | 21.43                   | 13.45                    | 12.43              | 5.98                             |
| 2019              | 12.36                | 6.15             | 5.51                       | 7.87                    | 5.90                     | 3.88               | 5.73                             |
| Average Return    | 10.73                | 7.13             | 19.29                      | 31.07                   | 20.15                    | 19.85              | 7.03                             |
| Total Risk (S.D)  | 17.18                | 1.49             | 28.57                      | 45.11                   | 28.49                    | 26.96              | 1.80                             |
| Variance ( S.D^2) | 295.16               | 2.23             | 816.44                     | 2035.31                 | 811.92                   | 726.73             | 3.24                             |
| Beta              | 1.00                 | 0.00             | -0.04                      | -0.35                   | -0.15                    | -0.28              | 0.00                             |
| correlation( r)   | -                    | -                | -0.02                      | -0.13                   | -0.09                    | -0.18              | 0.00                             |
| Sharpe ratio      | -                    | -                | 0.43                       | 0.53                    | 0.46                     | 0.47               | -0.06                            |
| Treynor           |                      |                  | -3.090                     | -0.676                  | -0.876                   | -0.461             | -3.393                           |
| Jensen            |                      |                  | 0.123                      | 0.252                   | 0.136                    | 0.137              | -0.001                           |

Average annualized risk free return was found highest for SBI Focused Equity Fund with 31.07% (S.D., 45.11) and lowest for SBI Arbitrage Opportunities Fund with 7.03% (S.D., 1.80). As far as total risk is concerned, it was

highest in the case of SBI Focused Equity Fund and lowest for SBI Arbitrage Opportunities Fund. Hence it can be stated that SBI Arbitrage Opportunities Fund with lower value of standard deviation is having a higher chance to be continued with similar returns in future whereas other schemes with higher standard deviation values may vary. It is well confirmed from Beta values that volatility or systematic risk was found very less in all the schemes of SBI AMC having Beta values in minus or zero. SBI Focused Equity Fund (Sharpe ratio, 0.53) and SBI Arbitrage Opportunities Fund (Sharpe ratio, -0.06) schemes were the schemes with highest and lowest Sharpe ratio respectively. SBI Focused Equity Fund have been given preference as it has given higher risk-adjusted return in comparison to other schemes of SBI's AMC during the study period. Negative value of Treynor's ratio for all SBI AMC's schemes during year 2010-2019 reveals that fund has not been able to give better returns for the amount of risk taken. SBI Focused Equity Fund with leading Jensen ratio (0.252) was the scheme during the study period which has beaten the nifty returns and that is why considered better as compared to other schemes.

**5. Results of hypothesis testing:**

H0: There is no significant difference in the average return of selected AMC schemes during 2010-2019.

Ha: There is significant difference in the average return of selected AMC schemes during 2010-2019.

| Type of schemes  | AMC Name              | F value  | P-value  | Result of Hypothesis testing |
|------------------|-----------------------|----------|----------|------------------------------|
| Equity or growth | HDFC                  | 0.316822 | 0.865236 | H0 Accepted                  |
|                  | ICICI                 | 0.786328 | 0.54013  | H0 Accepted                  |
|                  | SBI                   | 0.825063 | 0.516185 | H0 Accepted                  |
|                  | Aditya Birla Sun Life | 0.105432 | 0.980036 | H0 Accepted                  |
|                  | Nippon India          | 0.022066 | 0.999015 | H0 Accepted                  |

Significant assessment of 'F' at 95% likelihood point was found more than to a large extent than the pragmatic value of 'F', and significance value is also more than .05, as a consequence null hypothesis is accepted in all above cases. Hence no significant difference was found in the average return of open ended selected Schemes of selected AMC during 2010-2019.

**Key Findings:**

1. Mutual Fund Growth and Balanced schemes of HDFC AMC, Aditya Birla and Nippon India have shown remarkable performance as compared to other AMCs schemes namely ICICI and SBI during time period of 2010 to 2019. Nippon India and SBI AMCs schemes have shown much better as compared to other AMCs schemes as far as Debt or Income scheme is concerned for the same duration of time.
2. In the context of Growth schemes of selected AMCs, Aditya Birla Sunlife MNC Fund (19.95% per annum) followed by SBI Focused Equity Fund (17.56% p.a.), Nippon India Focus Fund (17.02% p.a.), ICICI prudential Value Discovery Fund (16.31% p.a.) has provided highest average annualized return during the study period of year 2010 to 2019.
3. Result of hypothesis testing reveal that difference in the performance of different schemes of a specific AMC was not much significant. Consequently, asset management for these schemes should be critically appraised.

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