

Performance Evaluation of Equity Linked Saving Scheme of Mutual Funds

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ABSTRACT:

Mutual fund is an investment vehicle which pool the money from group of investors and invest in the different types of securities which gives potential high return. ELSS is an equity diversified fund which provides tax benefit to the investor under section 80 C of Income Tax Act 1961. Section 80 C of Income Tax Act 1961 provides an assesses the deduction of Rs 150000 on their taxable income by investing the collected funds in various tax saving schemes. This paper tries to evaluate the performance of 76 open-ended schemes and 48 close-ended schemes on the basis of return and standard deviation and various tools like Sharpe ratio, Sortino ratio, Alpha, Beta, coefficient of determination, expense ratio, net assets value has been used for the study. Out of 76 open-ended schemes Mirae Asset Tax Saver Fund - Direct Plan performed well comparing to other schemes. Out of 48 close-ended ELSS schemes SBI Tax Advantage Fund - Series III - Direct Plan performed well comparing to other close ended schemes. The study compared the close ended and open-ended schemes based on mean and standard deviation and the study revealed that there is no relation between mean and standard deviation of close and open-ended schemes. The study also compared the open-ended schemes and close ended schemes based on investment style and capitalization. Here, the study revealed growth investment style and large capitalization of open-ended fund performed well comparing to close ended schemes and growth investment style and medium capitalization of open-ended fund performed well comparing to close ended schemes and for other there were no schemes under that category to compared in between.

I. INTRODUCTION:

A mutual fund is a financial vehicle for the collective investor. Mutual funds are managed and controlled by the money managers who invest and analyze the funds capital and attempt to deliver capital gain as well as income gain for the fund

investors. The Indian mutual fund industry is an emerging industry which provides the portfolio management and diversification. Each mutual fund scheme has its own investment objective which decides the investment techniques and asset allocation. Meanwhile, there is a class of investors who invest primarily to save the taxable income along with other investment objective of higher return and liquidation. Therefore, most of the assesses consult with the tax professionals and portfolio managers to plan their income in productive manner. As all of the investors are not capable of paying the professional fees so to provide incentives to those investors there is a good mutual fund tax saving scheme. Section 80 C of Income Tax Act 1961 provides an assesses the deduction of Rs 150000 on their taxable income by investing the collected funds in various tax saving schemes. ELSS is a diversified equity mutual fund which invested majority of amount in equities and equities related instruments. This type of mutual fund has lock in period of 3 years from the date of investment. Investors can exit from their holdings after 3 years by selling it. The Equity Linked Saving Schemes is a scheme where the total amount invested in the units of the funds i.e. in the equity shares of companies. ELSS fund manager puts resources in a diversified portfolio, comprising of equity and equity related instruments carrying high risk and which has high potential returns. At the same time investing in mutual funds is less expensive comparing to other investment option.

Options that are considered while making an investment in ELSS are:

Growth option- here in growth option income earned by the fund is not distributed to unit holders. Investors do not earn any dividend, income earned by the fund reflects in the Net Assets Value. When the investors sell his holdings then investor realize the long-term capital gain or loss.

Dividend option- here the fund distributes return to the investors as a dividend. The date of distribution of dividend is declared by the fund itself. However, if fund has the loss then no dividend is distributed. Dividend received by the

investor is not liable to tax in the hands of recipients.

Dividend reinvestment option- here the dividend earned from the investment is reinvested to the fund in behalf of investor.

REVIEW OF THE LITERATURE:

Dr. D.Anusuya, in his research paper titled “An empirical study of performance evaluation of selected ELSS mutual fund schemes”(2014), examined the performance of 49 open-ended tax saving ELSS schemes. different performance evaluation measures like Sharpe ratio, Alpha, Sortion ratio, and Jensen alpha were used to measure the performance of funds. The paper concluded that LIC Nomura MF growth and dividend schemes has performed well compared to the market and bear more risk comparing to other mutual funds schemes.**Dr. Khalid Ashraf and Mr. Amir Rahman** in their research paper titled “Performance evaluation of Equity Linked Saving Schemes: An evidence from India” (2017), tried to evaluate the performance of 10 tax saving mutual funds schemes operated in India for a period of 10 years. They used different measures like average return, Sharpe ratio, Treynor’s measure, beta, Jensen alpha to measure the performance of the selected schemes and they compared with benchmark index of NIFTY 50. The study concluded that selected schemes outperformed the market index in average return and are risky except few schemes. Aditya Birla Sunlife tax relief 96 had performed consistency than benchmark index and also indicated that Axis fund is reliable in the market compared to others. **Ashok Panigrahi**, in his research paper “A study of performance evaluation of ELSS of mutual fund” (2020), attempted to analyse the performance of top five ELSS schemes of various mutual funds in India using different tools like Beta, Sharpe ratio, Jensen ratio etc. The study suggested the best ELSS scheme for the investors to meet their investment objectives. The study revealed that most of the funds had performed extraordinary under Treynor’s and Sharpe ratio.**Dr. Namita Srivastava** in her research paper titled “Performance indicators of Equity Linked Saving Schemes in India: an empirical analysis” (2014), evaluated the performance of ELSS funds and factors affecting their performance. The study concluded that ELSS funds is only kind of mutual funds that provide tax benefits under section 80C of Income Tax Act 1961. Different other benefits obtained while investing in mutual fund investment are higher return at low risk, safety, minimum investment, professional management and transparency.**B.**

kishori, N. Bhagyasree (2016) in their study investigated the performance of open-ended growth-oriented equity schemes of transition economy. From their study they conclude that 14 out of 30 schemes had performed well comparing to the benchmark return. The study showed that because of diversification problem few of the funds were underperformed. The researcher used Sharpe measure to risk adjusted performance which concluded that Sharpe ratio for all schemes was positive which revealed that all funds performed well that they are giving well returns greater than the risk-free rate.

OBJECTIVE OF THE STUDY

1. To evaluate the performance of open and close-ended ELSS schemes using return and risk measures.
2. To rank ELSS funds based on the expense ratio.
3. To study the asset allocation of ELSS open-ended and close-ended mutual funds.
4. To compare the performance of open-ended and close-ended mutual funds.
5. To construct mutual fund portfolios based on fund style and capitalization.

SCOPE OF THE STUDY:

The study was limited to evaluate the performance of open-ended and close-ended ELSS mutual funds using risk and return measures. Various measures like Sharpe’s ratio, sortino ratio, Beta and Alpha were used to evaluate performance of ELSS schemes. The time span of the study was three years starting from 06 February 2017 to 07 February 2020.

RESEARCH DESIGN:

This study is descriptive in nature. Quantitative and numeric nature of data were used in the study.

DATA SAMPLE:

This paper covers the latest three years calendar data from 06 February 2017 to 07 February 2020. The study incorporates the pool of Equity ELSS 76 openended and 48 closeended mutual funds schemes. All available ELSS mutual funds schemes were taken into consideration.

DATA SOURCE:

The study has used data from various websites like valueresearchonline.com, moneycontrol.com. Several research paper from various journals like International Journal of

Scientific Research, International Journal of current Research, NMIMS Journal of Economics and Public Policy were referred for the study.

RESEARCH TOOLS AND TECHNIQUES:

To examine the performance of open-ended and close-ended ELSS mutual fund schemes, various statistical tools and research techniques used are described as:

Statistical tools:

Microsoft Excel and SPSS were used for analysis of the data.

Research Techniques:

For the performance evaluation of mutual fund following parameters were used:

- i. Average Returns
- ii. Standard Deviation
- iii. Sharpe Ratio
- iv. Sortino Ratio
- v. Beta
- vi. Alpha
- vii. R Square

Average Return: average return is acquired by taking average of monthly returns annualized generated in last three years.

Standard Deviation: Standard deviation measures the absolute dispersion. It is also measure of the range of funds' performance which measures of the volatility of a fund. The higher the standard deviation, greater will be the volatility of a fund. Standard deviation is used by the investors to predict the range of returns that mutual funds will offers.

Sharpe Ratio: Sharpe ratio is a measured of risk adjusted performance which indicates the excess returns generated per unit of total risk. Sharpe ratio is measured as the difference between the portfolio's returns and the return earned on risk free investment, which is divided by the standard deviation of the portfolio. The standard deviation is portfolio risk factor which indicate the volatility of the fund. Since, higher the Sharpe ratio reflects better risk adjusted performance that is higher the Sharpe ratio higher the return generated per unit of risk.

Sortino Ratio: Sortino ratio calculates risk adjusted performance, which indicates the excess return generated by an investment for its downside risk. Unlike, Sharpe ratio Sortino ratio uses only downside deviations from mean as its risk measure and not total deviations. A higher the Sortino ratio better will be the risk adjusted performance.

Beta: Beta is the fund's sensitivity to market movements. If the beta is more than 1 then it indicates higher swings in the value of an investments in response to ups and downs in the value of benchmark. If beta is less than 1 then there will be narrow swings.

Alpha: it measures the extra return produced by funds vis-a vis its benchmark to justify the risk taken. It describes the value addition or subtraction by the fund managers investment decision.

Coefficient of determination (R²): R square represent the association between the proportion of a dependent variable to that of independent variable. Coefficient of determination is the relationship between the scheme and its desired benchmark. It ranges from 0 to 1. If R square is closer to 1 then higher the mutual fund portfolio diversified. If R square ranges from 0.85 to 1 then the fund is sync with the benchmark and when R square is 0 then this indicates no definite correlation between the mutual fund and the benchmark.

RESEARCH HYPOTHESIS:

Following Hypothesis are formed to achieve the research objectives:

Hypothesis 1:

Null Hypothesis H₀: $\mu_1 = \mu_2$ ("the two means of open-ended and close-ended funds are equal")

Alternative hypothesis H₁: $\mu_1 \neq \mu_2$ ("the two means of open-ended and close-ended funds are not equal")

Hypothesis 2:

Null Hypothesis H₀: $\sigma_1 = \sigma_2$ ("the variance of open-ended and close-ended funds are equal")

Alternative Hypothesis H₁: $\sigma_1 \neq \sigma_2$ ("the variance between open-ended and close-ended funds are not equal")

II. DATA ANALYSIS:

Performance evaluation of equity ELSS open-ended mutual funds

Table 1: Average return, standard deviation, Sharpe ratio, Sortino ratio, Beta and Alpha

| S.N. | Name of Equity ELSS Open-ended Mutual Funds Schemes | 3 years Average return (%) | Standard Deviation (%) | Sharpe Ratio | Sortino Ratio | Beta | Alpha |
|------|---|----------------------------|------------------------|--------------|---------------|------|-------|
| | | | | | | | |

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|----|---|-------|-------|------|------|------|-------|
| 1 | Aditya Birla Sun Life Relief 96 | 14.31 | 12.95 | 0.47 | 0.71 | 0.93 | 0.33 |
| 2 | Aditya Birla Sun Life Tax Relief 96 – Direct Plan | 15.54 | 12.97 | 0.55 | 0.84 | 0.93 | 1.4 |
| 3 | Axis Long Term Equity Fund | 18.31 | 12.88 | 0.81 | 0.99 | 0.91 | 4.83 |
| 4 | Axis Long Term Equity Fund- Direct Plan | 19.52 | 12.9 | 0.89 | 1.09 | 0.91 | 5.83 |
| 5 | Baroda ELSS 96 Fund | 9.53 | 13.47 | 0.08 | 0.1 | 0.99 | -5.16 |
| 6 | Baroda ELSS 96 Fund – Direct Plan | 10.53 | 13.48 | 0.14 | 0.19 | 1 | -4.27 |
| 7 | BNP Paribas Long Term Equity Fund | 15.78 | 12.19 | 0.56 | 0.8 | 0.88 | 1.37 |
| 8 | BNP Paribas Long Term Equity Fund – Direct Plan | 17.06 | 12.2 | 0.65 | 0.93 | 0.88 | 2.49 |
| 9 | BOI AXA Tax Advantage Fund – Direct Plan | 20.21 | 16.14 | 0.6 | 0.69 | 1.11 | 2.85 |
| 10 | BOI AXA Tax Advantage Fund – Regular Plan | 18.67 | 16.11 | 0.53 | 0.6 | 1.11 | 1.58 |
| 11 | Canara Robeco Equity Tax Saver Fund – Direct Plan | 16.11 | 12.77 | 0.68 | 0.93 | 0.95 | 2.77 |
| 12 | Canara Robeco Equity Tax Saver Fund – Regular Plan | 15.14 | 12.76 | 0.61 | 0.84 | 0.95 | 1.89 |
| 13 | DSP Tax Saver Fund | 14.51 | 13.27 | 0.41 | 0.62 | 1 | -0.7 |
| 14 | DSP Tax Saver Fund – Direct Plan | 15.78 | 13.29 | 0.49 | 0.74 | 1 | 0.37 |
| 15 | Edelweiss Long Term Equity Fund (Tax Saving) – Direct Fund | 14.21 | 12.76 | 0.44 | 0.65 | 0.95 | -0.29 |
| 16 | Edelweiss Long Term Equity Fund (Tax Saving) – Regular Fund | 12.64 | 12.73 | 0.33 | 0.48 | 0.95 | -1.73 |
| 17 | Essel Long Term Advantage Fund | 12.41 | 12.6 | 0.33 | 0.44 | 0.9 | -1.37 |
| 18 | Essel Long Term Advantage Fund – Direct Plan | 14.28 | 12.63 | 0.46 | 0.61 | 0.9 | 0.28 |
| 19 | Franklin India Tax Shield Fund | 10.41 | 11.39 | 0.22 | 0.32 | 0.85 | -2.74 |

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|----|---|-------|-------|------|------|------|-------|
| 20 | Franklin India Tax Shield Fund – Direct Plan | 11.52 | 11.41 | 0.31 | 0.44 | 0.85 | -1.74 |
| 21 | HDFC Tax saver Fund | 10.5 | 13.45 | 0.04 | 0.07 | 0.98 | -5.53 |
| 22 | HDFC Tax saver Fund - – Direct Plan | 11.25 | 13.46 | 0.09 | 0.15 | 0.98 | -4.86 |
| 23 | HSBC Tax Saver Equity Fund | 13.1 | 14.31 | 0.3 | 0.46 | 1.05 | -2.19 |
| 24 | HSBC Tax Saver Equity Fund -Direct Plan | 14.04 | 14.32 | 0.36 | 0.55 | 1.05 | -1.33 |
| 25 | ICICI Prudential Long-term Equity Fund (Tax saving) | 11.77 | 11.4 | 0.36 | 0.54 | 0.83 | -1.01 |
| 26 | ICICI Prudential Long-Term Equity Fund (Tax saving) – Direct Plan | 12.95 | 11.41 | 0.45 | 0.68 | 0.83 | 0.01 |
| 27 | IDBI Equity Advantage Fund -Direct Plan | 14.97 | 13.21 | 0.53 | 0.85 | 0.84 | 1.78 |
| 28 | IDBI Equity Advantage Fund – Regular Fund | 13.1 | 13.18 | 0.41 | 0.65 | 0.84 | 0.16 |
| 29 | IDFC Tax Advantage (ELSS) Fund – Direct Plan | 16.69 | 14.05 | 0.46 | 0.64 | 1.02 | 0.14 |
| 30 | IDFC Tax Advantage (ELSS) Fund – Regular Plan | 15.32 | 14.03 | 0.37 | 0.52 | 1.02 | -1.07 |
| 31 | India Bulls Tax Saving Funds – Direct plan | 1.07 | -- | -- | -- | -- | -- |
| 32 | India Bulls Tax Saving Funds – Regular plan | 0.45 | -- | -- | -- | -- | -- |
| 33 | Invesco India Tax Plan | 14.64 | 12.72 | 0.56 | 0.78 | 0.97 | 1.06 |
| 34 | Invesco India Tax Plan – Direct Plan | 16.39 | 12.73 | 0.67 | 0.95 | 0.97 | 2.56 |
| 35 | ITI Long Term Equity Fund – Direct Plan | -- | -- | -- | -- | -- | -- |
| 36 | ITI Long Term Equity Fund – Regular Plan | -- | -- | -- | -- | -- | -- |
| 37 | JM Tax Gain Fund | 17.66 | 13.93 | 0.6 | 0.8 | 0.98 | 2.19 |
| 38 | JM Tax Gain Fund – Direct Plan | 18.7 | 13.96 | 0.65 | 0.88 | 0.99 | 3.01 |

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|----|---|-------|-------|-------|-------|------|-------|
| 39 | Kotak Tax Saver - Direct Plan | 15.65 | 12.48 | 0.62 | 0.93 | 0.93 | 2.03 |
| 40 | Kotak Tax Saver - Regular Plan | 14.22 | 12.46 | 0.53 | 0.78 | 0.92 | 0.81 |
| 41 | LIC MF Tax Plan | 16.02 | 13.1 | 0.58 | 0.84 | 0.94 | 1.76 |
| 42 | LIC MF Tax Plan – Direct Plan | 17.39 | 13.11 | 0.67 | 0.97 | 0.95 | 2.94 |
| 43 | L and T Tax Advantage Fund | 12.96 | 12.62 | 0.33 | 0.5 | 0.94 | -1.69 |
| 44 | L and T Tax Advantage Fund – Direct Plan | 13.74 | 12.63 | 0.38 | 0.58 | 0.94 | -1.01 |
| 45 | Mahindra Mutual Fund Kar Bachat Yojana – Direct Plan | 8.81 | 11.76 | 0.11 | 0.17 | 0.85 | -3.97 |
| 46 | Mahindra Mutual Fund Kar Bachat Yojana – Regular Plan | 6.52 | 11.73 | -0.07 | -0.1 | 0.85 | -6.05 |
| 47 | Mirae Asset Tax Saver Fund – Direct plan | 21.57 | 12.42 | 0.91 | 1.31 | 0.95 | 5.48 |
| 48 | Mirae Asset Tax Saver Fund – Regular plan | 19.9 | 12.38 | 0.8 | 1.16 | 0.94 | 4.09 |
| 49 | Motilal Oswal Long Term Equity Fund – Direct Plan | 17.7 | 12.65 | 0.66 | 0.88 | 0.85 | 3.08 |
| 50 | Motilal Oswal Long Term Equity Fund – Regular Plan | 16.16 | 12.62 | 0.56 | 0.75 | 0.85 | 1.78 |
| 51 | Nippon India Tax Saver (ELSS) Fund | 8.98 | 17.49 | -0.08 | -0.13 | 1.26 | -9.21 |
| 52 | Nippon India Tax Saver (ELSS) Fund – Direct Plan | 9.95 | 17.51 | -0.03 | -0.05 | 1.26 | -8.36 |
| 53 | Parag Parikh Tax Saver Fund – Direct Plan | -- | -- | -- | -- | -- | -- |
| 54 | Parag Parikh Tax Saver Fund – Regular Plan | -- | -- | -- | -- | -- | -- |
| 55 | PGIM India Long Term Equity Fund – Direct Plan | 15.59 | 11.74 | 0.54 | 0.89 | 0.87 | 0.87 |
| 56 | PGIM India Long Term Equity Fund – Regular Plan | 13.73 | 11.74 | 0.39 | 0.65 | 0.87 | -0.82 |
| 57 | Principal Tax Saving Fund | 14.04 | 14.51 | 0.28 | 0.43 | 1.08 | -2.68 |

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|----|--|-------|-------|-------|-------|------|-------|
| 58 | Principal Tax Saving Fund – Direct Plan | 14.61 | 14.5 | 0.32 | 0.49 | 1.08 | -2.12 |
| 59 | Quant Tax Plan | 11.66 | 12.89 | 0.25 | 0.5 | 0.9 | -2.41 |
| 60 | Quant Tax Plan – Direct Plan | 12.27 | 12.86 | 0.3 | 0.61 | 0.9 | -1.73 |
| 61 | Quantum Tax Saving Fund -Direct Plan | 7.24 | 9.83 | -0.08 | -0.13 | 0.69 | -5.05 |
| 62 | Quantum Tax Saving Fund -Regular Plan | 6.96 | 9.83 | -0.11 | -0.18 | 0.69 | -5.34 |
| 63 | SBI Magnum Tax Gain Scheme | 9.58 | 13.02 | 0.2 | 0.32 | 0.98 | -3.47 |
| 64 | SBI Magnum Tax Gain Scheme- Direct Plan | 10.31 | 13.03 | 0.25 | 0.4 | 0.98 | -2.8 |
| 65 | Shriram Long Term Equity Fund – Direct Plan | -- | -- | -- | -- | -- | -- |
| 66 | Shriram Long Term Equity Fund – Regular Plan | -- | -- | -- | -- | -- | -- |
| 67 | Sundaram Diversified Equity Fund | 11.35 | 13.66 | 0.18 | 0.25 | 1.01 | -3.76 |
| 68 | Sundaram Diversified Equity Fund – Direct Plan | 11.94 | 13.67 | 0.22 | 0.3 | 1.01 | -3.23 |
| 69 | Tata India Tax Saving Fund | 17.06 | 13.92 | 0.49 | 0.66 | 1.03 | 0.51 |
| 70 | Tata India Tax Saving Fund – Direct Plan | 18.62 | 13.95 | 0.59 | 0.78 | 1.03 | 1.85 |
| 71 | Taurus Tax Shield Fund – Direct Plan | 15.87 | 12.16 | 0.59 | 0.85 | 0.91 | 1.44 |
| 72 | Taurus Tax Shield Fund – Regular Plan | 15.22 | 12.15 | 0.54 | 0.78 | 0.91 | 0.87 |
| 73 | Union Long Term Equity Fund | 10.47 | 11.99 | 0.29 | 0.44 | 0.91 | -2.11 |
| 74 | Union Long Term Equity Fund – Direct Plan | 11.15 | 11.99 | 0.34 | 0.52 | 0.91 | -1.52 |
| 75 | UTI Long Term Equity Fund | 12.34 | 12.71 | 0.38 | 0.56 | 0.96 | -1.11 |
| 76 | UTI Long Term Equity Fund -Direct Plan | 13.35 | 12.73 | 0.45 | 0.67 | 0.96 | -0.21 |

Table 1 depicts the performance of equity ELSS schemes average return and standard

deviation for three years starting from 06 February 2017 to 07 February 2020. The average return

ranges between 0 to 21.57%. The highest return is earned by Mirae Asset Tax Saver Fund - Direct Plan with return of 21.57% which is followed by BOI AXA Tax Advantage Fund - Direct Plan with return of 20.21 which is again followed by Mirae Asset Tax Saver Fund - Regular Plan with return of 19.90%. The standard deviation of Equity ELSS open-ended mutual funds ranges in between 0 to 17.51%. Nippon India Tax saver Equity Linked Tax saving scheme Fund - Direct Plan has the highest standard deviation of 17.51% followed by Nippon India Tax Saver (ELSS) Fund with standard deviation of 17.49% which is again followed by BOI AXA Tax Advantage Fund - Direct Plan with standard deviation of 16.14% and BOI AXA Tax Advantage Fund - Regular Plan has standard deviation of 16.11%. Therefore, we can conclude that during the study period, Mirae Asset Tax Saver Fund - Direct Plan having the higher return compare to other schemes it possess lesser risk 12.42% comparing to other schemes.

Sharpe ratio ranges from -0.08 to 0.91. The highest Sharpe ratio is obtained by Mirae Asset Tax Saver Fund - Direct Plan with 0.91 and Lowest Sharpe ratio is obtained by Nippon India Tax Saver (ELSS) Fund with Sharpe ratio of -0.08. Out of 76

schemes 63 of them has positive Sharpe ratio this indicates that all of them had more return than risk free rate.

Sortino ratio ranges between -0.13 and 1.31. Higher the Sortino ratio the scheme has low risk of large loss. Here, from table we come to know Mirae Asset Tax Saver Fund - Direct Plan acquired the higher Sortino ratio of 1.31 whereas Nippon India Tax Saver (ELSS) Fund and Quantum Tax Saving Fund - Direct Plan has the lowest Sortino ratio of -0.13.

Beta is the measure of fund's sensitivity to market movements. If the beta is more than 1 then it shows higher swings in the value of an investments in response to ups and downs in the value of benchmark. If beta is less than 1 then there will be narrow swings. Here, table 1 depicts that the beta value ranges from 0 to 1.26.

From table 1 we can see that alpha varies from -8.36 to 5.83. Axis Long Term Equity Fund - Direct Plan seems to be best scheme as it has highest alpha measure 5.83 comparing to other Equity ELSS open-ended schemes. Based on Alpha, 33 schemes showed positive alpha which indicates the superior performance of the schemes.

Table 2: R-Square, Expense ratio, Net Assets and Asset Allocation

| S.N. | Name of Equity ELSS Open-ended Mutual Funds Schemes | R Square | Expense Ratio | Net Assets (Cr) | Equity Asset (%) | Debt Asset (%) | cash and cash equivalent Asset (%) |
|------|---|----------|---------------|-----------------|------------------|----------------|------------------------------------|
| 1 | Aditya Birla Sun Life Relief 96 | 0.84 | 2.01 | 10,029 | 98.2 | 1.7 | 0.1 |
| 2 | Aditya Birla Sun Life Tax Relief 96 – Direct Plan | 0.84 | 0.81 | 10,029 | 98.2 | 1.7 | 0.1 |
| 3 | Axis Long Term Equity Fund | 0.82 | 1.63 | 21,997 | 93.7 | 5.2 | 1.1 |
| 4 | Axis Long Term Equity Fund- Direct Plan | 0.82 | 0.92 | 21,997 | 93.7 | 5.2 | 1.1 |
| 5 | Baroda ELSS 96 Fund | 0.9 | 2.61 | 165 | 93.1 | 0 | 6.9 |
| 6 | Baroda ELSS 96 Fund – Direct Plan | 0.9 | 1.94 | 165 | 93.1 | 0 | 6.9 |
| 7 | BNP Paribas Long Term Equity Fund | 0.86 | 2.43 | 474 | 93.7 | 0 | 6.3 |
| 8 | BNP Paribas Long Term Equity Fund – Direct Plan | 0.86 | 1.25 | 474 | 93.7 | 0 | 6.3 |

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|----|---|------|------|-------|------|-----|-----|
| 9 | BOI AXA Tax Advantage Fund – Direct Plan | 0.78 | 1.51 | 266 | 94.6 | 0 | 5.4 |
| 10 | BOI AXA Tax Advantage Fund – Regular Plan | 0.78 | 2.65 | 266 | 94.6 | 0 | 5.4 |
| 11 | Canara Robeco Equity Tax Saver Fund – Direct Plan | 0.91 | 1.33 | 1,005 | 95.4 | 0 | 4.6 |
| 12 | Canara Robeco Equity Tax Saver Fund – Regular Plan | 0.91 | 2.31 | 1,005 | 95.4 | 0 | 4.6 |
| 13 | DSP Tax Saver Fund | 0.93 | 1.96 | 6,260 | 96.8 | 0 | 3.2 |
| 14 | DSP Tax Saver Fund – Direct Plan | 0.93 | 1 | 6,260 | 96.8 | 0 | 3.2 |
| 15 | Edelweiss Long Term Equity Fund (Tax Saving) – Direct Fund | 0.92 | 0.68 | 113 | 94.6 | 3.9 | 1.5 |
| 16 | Edelweiss Long Term Equity Fund (Tax Saving) – Regular Fund | 0.92 | 2.39 | 113 | 94.6 | 3.9 | 1.5 |
| 17 | Essel Long Term Advantage Fund | 0.83 | 2.25 | 59 | 95.2 | 0 | 4.8 |
| 18 | Essel Long Term Advantage Fund – Direct Plan | 0.83 | 0.74 | 59 | 95.2 | 0 | 4.8 |
| 19 | Franklin India Tax Shield Fund | 0.92 | 1.94 | 4,124 | 98.6 | 0 | 1.4 |
| 20 | Franklin India Tax Shield Fund – Direct Plan | 0.92 | 0.92 | 4,124 | 98.6 | 0 | 1.4 |
| 21 | HDFC Tax saver Fund | 0.87 | 1.97 | 7,327 | 98.1 | 0 | 1.9 |
| 22 | HDFC Tax saver Fund – Direct Plan | 0.87 | 1.39 | 7,327 | 98.1 | 0 | 1.9 |
| 23 | HSBC Tax Saver Equity Fund | 0.89 | 2.51 | 157 | 97.6 | 0 | 2.4 |
| 24 | HSBC Tax Saver Equity Fund -Direct Plan | 0.89 | 1.24 | 157 | 97.6 | 0 | 2.4 |
| 25 | ICICI Prudential Long-Term Equity Fund (Tax saving) | 0.87 | 2.13 | 6,736 | 96.2 | 0 | 3.8 |
| 26 | ICICI Prudential Long-Term Equity Fund (Tax saving) – Direct Plan | 0.88 | 1.25 | 6,736 | 96.2 | 0 | 3.8 |
| 27 | IDBI Equity Advantage Fund -Direct Plan | 0.67 | 1.15 | 576 | 96.9 | 0 | 3.1 |
| 28 | IDBI Equity Advantage Fund – Regular Fund | 0.67 | 2.37 | 576 | 96.9 | 0 | 3.1 |

| | | | | | | | |
|----|---|------|------|-------|------|---|------|
| 29 | IDFC Tax Advantage (ELSS) Fund – Direct Plan | 0.87 | 1.12 | 2,119 | 96 | 0 | 4 |
| 30 | IDFC Tax Advantage (ELSS) Fund – Regular Plan | 0.87 | 2.15 | 2,119 | 96 | 0 | 4 |
| 31 | India Bulls Tax Saving Funds – Direct plan | -- | 1.68 | 88 | 90.4 | 0 | 9.6 |
| 32 | India Bulls Tax Saving Funds – Regular plan | -- | 2.48 | 88 | 90.4 | 0 | 9.6 |
| 33 | Invesco India Tax Plan | 0.95 | 2.2 | 1,026 | 96.7 | 0 | 3.3 |
| 34 | Invesco India Tax Plan – Direct Plan | 0.95 | 1.35 | 1,026 | 96.7 | 0 | 3.3 |
| 35 | ITI Long Term Equity Fund – Direct Plan | -- | 0.35 | 23 | 95.3 | 0 | 4.7 |
| 36 | ITI Long Term Equity Fund – Regular Plan | -- | 2.5 | 23 | 95.3 | 0 | 4.7 |
| 37 | JM Tax Gain Fund | 0.82 | 2.38 | 36 | 97 | 0 | 3 |
| 38 | JM Tax Gain Fund – Direct Plan | 0.82 | 0.8 | 36 | 97 | 0 | 3 |
| 39 | Kotak Tax Saver -Direct Plan | 0.91 | 1.24 | 1,068 | 98 | 0 | 2 |
| 40 | Kotak Tax Saver -Regular Plan | 0.91 | 2.49 | 1,068 | 98 | 0 | 2 |
| 41 | LIC MF Tax Plan | 0.85 | 2.6 | 273 | 88.4 | 0 | 11.6 |
| 42 | LIC MF Tax Plan – Direct Plan | 0.86 | 1.3 | 273 | 88.4 | 0 | 11.6 |
| 43 | L and T Tax Advantage Fund | 0.91 | 2.02 | 3,382 | 97.8 | 0 | 2.2 |
| 44 | L and T Tax Advantage Fund – Direct Plan | 0.91 | 1.44 | 3,382 | 97.8 | 0 | 2.2 |
| 45 | Mahindra Mutual Fund Kar Bachat Yojana – Direct Plan | 0.86 | 0.66 | 329 | 98.1 | 0 | 1.9 |
| 46 | Mahindra Mutual Fund Kar Bachat Yojana – Regular Plan | 0.86 | 2.3 | 329 | 98.1 | 0 | 1.9 |
| 47 | Mirae Asset Tax Saver Fund – Direct plan | 0.95 | 0.28 | 3,066 | 99.1 | 0 | 0.9 |
| 48 | Mirae Asset Tax Saver Fund – Regular plan | 0.95 | 2.05 | 3,066 | 99.1 | 0 | 0.9 |
| 49 | Motilal Oswal Long Term Equity Fund – Direct Plan | 0.75 | 0.83 | 1,648 | 99.6 | 0 | 0.4 |

| | | | | | | | |
|----|--|------|------|--------|------|-----|------|
| 50 | Motilal Oswal Long Term Equity Fund – Regular Plan | 0.75 | 2.12 | 1,648 | 99.6 | 0 | 0.4 |
| 51 | Nippon India Tax Saver (ELSS) Fund | 0.85 | 1.74 | 10,814 | 98.9 | 0 | 1.1 |
| 52 | Nippon India Tax Saver (ELSS) Fund – Direct Plan | 0.85 | 1.28 | 10,814 | 98.9 | 0 | 1.1 |
| 53 | Parag Parikh Tax Saver Fund – Direct Plan | -- | 1.09 | 25 | 81.1 | 0 | 18.9 |
| 54 | Parag Parikh Tax Saver Fund – Regular Plan | -- | 2.33 | 25 | 81.1 | 0 | 18.9 |
| 55 | PGIM India Long Term Equity Fund – Direct Plan | 0.91 | 0.8 | 356 | 93.4 | 5.1 | 1.5 |
| 56 | PGIM India Long Term Equity Fund – Regular Plan | 0.91 | 2.4 | 356 | 93.4 | 5.1 | 1.5 |
| 57 | Principal Tax Saving Fund | 0.92 | 2.53 | 408 | 97.3 | 0.1 | 2.6 |
| 58 | Principal Tax Saving Fund – Direct Plan | 0.92 | 2.04 | 408 | 97.3 | 0.1 | 2.6 |
| 59 | Quant Tax Plan | 0.81 | 2.48 | 10 | 97.3 | 0 | 2.7 |
| 60 | Quant Tax Plan – Direct Plan | 0.81 | 0.57 | 10 | 97.3 | 0 | 2.7 |
| 61 | Quantum Tax Saving Fund -Direct Plan | 0.8 | 1.29 | 78 | 91.2 | 8.8 | 0 |
| 62 | Quantum Tax Saving Fund -Regular Plan | 0.8 | 1.79 | 78 | 91.2 | 8.8 | 0 |
| 63 | SBI Magnum Tax Gain Scheme | 0.93 | 1.97 | 7,370 | 93.9 | 0 | 6.1 |
| 64 | SBI Magnum Tax Gain Scheme- Direct Plan | 0.93 | 1.3 | 7,370 | 93.9 | 0 | 6.1 |
| 65 | Shriram Long Term Equity Fund – Direct Plan | -- | 0.6 | 25 | 84.1 | 3.8 | 12.1 |
| 66 | Shriram Long Term Equity Fund – Regular Plan | -- | 2.55 | 25 | 84.1 | 3.8 | 12.1 |
| 67 | Sundaram Diversified Equity Fund | 0.89 | 2.08 | 2,578 | 99 | 0 | 1 |
| 68 | Sundaram Diversified Equity Fund – Direct Plan | 0.89 | 1.69 | 2,578 | 99 | 0 | 1 |
| 69 | Tata India Tax Saving Fund | 0.89 | 1.98 | 2,094 | 92.8 | 0 | 7.2 |
| 70 | Tata India Tax Saving Fund – Direct Plan | 0.89 | 0.62 | 2,094 | 92.8 | 0 | 7.2 |

| | | | | | | | |
|----|---|------|------|-------|------|-----|-----|
| 71 | Taurus Tax Shield Fund – Direct Plan | 0.93 | 1.96 | 68 | 97.4 | 0 | 2.6 |
| 72 | Taurus Tax Shield Fund – Regular Plan | 0.93 | 2.48 | 68 | 97.4 | 0 | 2.6 |
| 73 | Union Long Term Equity Fund | 0.94 | 2.6 | 264 | 98.4 | 0.4 | 1.2 |
| 74 | Union Long Term Equity Fund – Direct Plan | 0.94 | 1.99 | 264 | 98.4 | 0.4 | 1.2 |
| 75 | UTI Long Term Equity Fund | 0.93 | 2.17 | 1,309 | 97 | 0 | 3 |
| 76 | UTI Long Term Equity Fund -Direct Plan | 0.93 | 1.5 | 1,309 | 97 | 0 | 3 |

Coefficient of Determination: the highest value 0.95 of Mirae Asset Tax Saver Fund - Direct Plan, Mirae Asset Tax Saver Fund - Regular Plan, Invesco India Tax Plan, Invesco India Tax Plan - Direct Plan illustrates that they are highly sensitive to the benchmark return and correlated to the index.

Mirae Asset Tax Saver Fund - Direct Plan has lowest expense ratio 0.28% which is lower than all other schemes followed by ITI Long Term Equity Fund - Direct Plan, Quant Tax Plan - Direct Plan with expense ratio of 0.35 and 0.57% respectively.

Axis Long Term Equity Fund - Direct Plan, Axis Long Term Equity Fund has the total net assets of Rs 21997 crore higher than other Equity ELSS open-ended mutual funds.

Asset allocation is the process of spreading the investable money across various categories like equity, debt, cash and cash equivalent. Assets allocation helps investors to minimize volatility and maximize their returns. It is determined based on the different factors like age, investors lifestyle, their goals and their risk-taking appetite.

Performance evaluation of equity ELSS close-ended mutual funds

Table 3: Average return, standard deviation, Sharpe ratio, Sortino ratio, Beta and Alpha

| S.N. | Name of Equity ELSS Close-ended Mutual Funds Schemes | Three-year Average return (%) | Standard deviation (%) | Sharpe Ratio | Sortino Ratio | Beta | Alpha |
|------|--|-------------------------------|------------------------|--------------|---------------|------|-------|
| 1 | BOI AXA Midcap Tax Fund Series 1 – Direct Plan | 2.92 | -- | -- | -- | -- | -- |
| 2 | BOI AXA Midcap Tax Fund Series 1 – Regular Plan | 2.62333 | -- | -- | --- | -- | -- |
| 3 | BOI AXA Midcap Tax Fund Series 2 – Direct Plan | 3.24 | -- | -- | -- | -- | -- |
| 4 | BOI AXA Midcap Tax Fund Series 2 – Regular Plan | 2.8 | -- | -- | -- | -- | -- |
| 5 | ICICI Prudential Long-Term Wealth Enhancement Fund | 4.04 | -- | -- | -- | -- | -- |
| 6 | ICICI Prudential Long-Term Wealth Enhancement Fund – | 4.31 | -- | -- | -- | -- | -- |

| | | | | | | | |
|----|--|---------|-------|------|------|------|-------|
| | Direct Plan | | | | | | |
| 7 | SBI Long Term Advantage Fund Series I – Direct Plan | 11.6433 | 13.82 | 0.04 | 0.05 | 0.9 | -1.8 |
| 8 | SBI Long Term Advantage Fund Series II – Direct Plan | 12.5333 | 13.83 | 0.11 | 0.14 | 0.88 | -0.78 |
| 9 | SBI Long Term Advantage Fund Series III – Direct Plan | 12.1 | 13.27 | 0.17 | 0.26 | 0.82 | 0.15 |
| 10 | SBI Long Term Advantage Fund Series III – Regular Plan | 11.03 | 13.25 | 0.1 | 0.15 | 0.81 | -0.75 |
| 11 | SBI Long Term Advantage Fund Series II – Regular Plan | 12.0467 | 13.84 | 0.07 | 0.09 | 0.88 | -1.31 |
| 12 | SBI Long Term Advantage Fund Series I – Regular Plan | 11.15 | 13.83 | 0 | 0 | 0.9 | -2.34 |
| 13 | SBI Long Term Advantage Fund Series IV – Direct Plan | 2.02333 | -- | -- | -- | -- | -- |
| 14 | SBI Long Term Advantage Fund Series IV – Regular Plan | 1.47667 | -- | -- | -- | -- | -- |
| 15 | SBI Long Term Advantage Fund Series V – Direct Plan | 4.85 | -- | -- | -- | -- | -- |
| 16 | SBI Long Term Advantage Fund Series VI – Direct Plan | 4.31 | -- | -- | -- | -- | -- |
| 17 | SBI Long Term Advantage Fund Series VI – Regular Plan | 3.98 | -- | -- | -- | -- | -- |
| 18 | SBI Long Term Advantage Fund Series V – Regular Plan | 4.6 | -- | -- | -- | -- | -- |
| 19 | SBI Tax Advantage Fund – Series II | 17.99 | 15.18 | 0.53 | 0.78 | 0.9 | 5.72 |
| 20 | SBI Tax Advantage Fund – Series III – Direct Plan | 20.3433 | 14.33 | 0.75 | 1.06 | 0.82 | 8.68 |

| | | | | | | | |
|----|---|----------|-------|-------|-------|------|--------|
| 21 | SBI Tax Advantage Fund – Series II – Regular Plan | 19.7167 | 14.34 | 0.71 | 1 | 0.82 | 8.07 |
| 22 | Sundaram Long Term Micro Cap Tax Advantage Fund Series III – Direct Plan | 1.83333 | 20.04 | -0.43 | -0.71 | 1.24 | -11.79 |
| 23 | Sundaram Long Term Micro Cap Tax Advantage Fund Series III – Regular Plan | 1.15 | 19.99 | -0.45 | -0.75 | 1.23 | -12.26 |
| 24 | Sundaram Long Term Micro Cap Tax Advantage Fund Series IV – Direct Plan | -13.41 | -- | -- | -- | -- | -- |
| 25 | Sundaram Long Term Micro Cap Tax Advantage Fund Series IV - Regular Plan | -13.6833 | -- | -- | -- | -- | -- |
| 26 | Sundaram Long Term Micro Cap Tax Advantage Fund Series V – Direct Plan | -12.2867 | -- | -- | -- | -- | -- |
| 27 | Sundaram Long Term Micro Cap Tax Advantage Fund Series VI – Direct Plan | -12.3733 | -- | -- | -- | -- | -- |
| 28 | Sundaram Long Term Micro Cap Tax Advantage Fund Series VI – Regular Plan | -13.09 | -- | -- | -- | -- | -- |
| 29 | Sundaram Long Term Micro Cap Tax Advantage Fund Series V –Regular Plan | -12.5667 | -- | -- | -- | -- | -- |
| 30 | Sundaram Long Term Tax Advantage Fund Series I – Direct Plan | 10.4667 | 12.96 | 0.03 | 0.04 | 0.94 | -2.06 |
| 31 | Sundaram Long Term Tax Advantage Fund Series II – Direct Plan | 11.3333 | 13.11 | 0.08 | 0.12 | 0.95 | -1.4 |
| 32 | Sundaram Long Term Tax Advantage Fund Series III – Direct Plan | -2.47667 | -- | -- | -- | -- | -- |
| 33 | Sundaram Long Term Tax Advantage Fund Series III – Regular | -2.66 | -- | -- | -- | -- | -- |

| | Plan | | | | | | |
|----|--|----------|-------|-------|-------|------|-------|
| 34 | Sundaram Long Term Tax Advantage Fund Series II – Regular Plan | 10.7267 | 13.1 | 0.04 | 0.06 | 0.95 | -1.96 |
| 35 | Sundaram Long Term Tax Advantage Fund Series I – Regular Plan | 10.06 | 12.95 | 0 | 0 | 0.94 | -2.43 |
| 36 | Sundaram Long Term Tax Advantage Fund Series IV – Direct Plan | -2.49667 | -- | -- | -- | -- | -- |
| 37 | Sundaram Long Term Tax Advantage Fund Series IV – Regular Plan | -2.60667 | -- | -- | -- | -- | -- |
| 38 | UTI Long Term Advantage Fund – Series III – Direct Plan | 12.5033 | 17.88 | -0.07 | -0.1 | 1.24 | -4.39 |
| 39 | UTI Long Term Advantage Fund – Series III – Regular Plan | 11.1533 | 17.82 | -0.12 | -0.19 | 1.23 | -5.37 |
| 40 | UTI Long Term Advantage Fund – Series IV – Direct Plan | -5.19667 | 19.38 | -0.19 | -0.32 | 1.34 | -7.22 |
| 41 | UTI Long Term Advantage Fund – Series IV – Regular Plan | -5.86333 | 19.32 | -0.27 | -0.45 | 1.33 | -8.66 |
| 42 | UTI Long Term Advantage Fund – Series V – Direct Plan | -4.55333 | -- | -- | -- | -- | -- |
| 43 | UTI Long Term Advantage Fund – Series VI– Direct Plan | -2.32 | -- | -- | -- | -- | -- |
| 44 | UTI Long Term Advantage Fund – Series VII – Direct Plan | -1.7 | -- | -- | -- | -- | -- |
| 45 | UTI Long Term Advantage Fund – Series VII– Regular Plan | -2.02667 | -- | -- | -- | -- | -- |
| 46 | UTI Long Term Advantage Fund – Series VI – Regular Plan | -2.65 | -- | -- | -- | -- | -- |

| | | | | | | | |
|----|---|----------|-------|------|------|------|-------|
| 47 | UTI Long Term Advantage Fund – Series V– Regular Plan | -5.39333 | -- | -- | -- | -- | -- |
| 48 | UTI Master Equity Plan Unit Scheme | 12.7667 | 12.96 | 0.11 | 0.15 | 0.95 | -1.05 |

Table 3 depicts that the average return ranges between -13.6833% to 20.3433%. The highest return is earned by SBI Tax Advantage Fund - Series III - Direct Plan with return of 20.3433%. The standard deviation of Equity ELSS close-ended mutual funds ranges in between 0 to 20.04%. Sundaram Long Term Micro Cap Tax Advantage Fund Series III - Direct Plan has the highest standard deviation of 20.04%. SBI Tax Advantage Fund - Series III - Regular Plan provides return of 19.7167% with standard deviation of 14.34%. Therefore, during the study period, SBI Tax Advantage Fund - Series III - Direct Plan has performed well in the market while comparing with other Equity ELSS close-ended schemes.

Sortino ratio ranges between -0.75 and 1.06. Higher the Sortino ratio the scheme has low risk of large loss. Here from table 3 we get to know

SBI Tax Advantage Fund - Series III - Direct Plan acquired the higher Sortino ratio of 1.06 whereas Sundaram Long Term Micro Cap Tax Advantage Fund Series III - Regular Plan has the lowest Sortino ratio of -0.75.

If the beta is more than 1 then it indicates higher swings in the value of an investments in response to ups and downs in the value of benchmark. If beta is less than 1 then there will be narrow swings. Here, table 3 depicts that the beta value ranges from 0 to 1.34.

From table 3 we can see that alpha varies from -12.26 to 8.68. SBI Tax Advantage Fund - Series III - Direct Plan seems to be best scheme as it has highest alpha measure 8.68 comparing to other Equity ELSS close-ended schemes. Based on Alpha, 4 out of 48 schemes showed positive alpha which indicates the superior performance of the schemes.

Table 4: R-Square, Expense ratio, Net Assets and Asset Allocation

| S.N. | Name of the Equity ELSS Close-ended Mutual Funds | R Square | Expense Ratio | Net Assets (Cr.) | Equity Asset (%) | Debt Asset (%) | Cash and Cash Equivalent (%) |
|------|--|----------|---------------|------------------|------------------|----------------|------------------------------|
| 1 | BOI AXA Midcap Tax Fund Series 1 – Direct Plan | -- | 0.68 | 92 | 96.3 | 2.3 | 1.5 |
| 2 | BOI AXA Midcap Tax Fund Series 1 – Regular Plan | -- | 0.78 | 92 | 96.3 | 2.3 | 1.5 |
| 3 | BOI AXA Midcap Tax Fund Series 2 – Direct Plan | -- | 0.36 | 55 | 96.6 | 3.3 | 0.1 |
| 4 | BOI AXA Midcap Tax Fund Series 2 – Regular Plan | -- | 0.63 | 55 | 96.6 | 3.3 | 0.1 |
| 5 | ICICI Prudential Long-Term Wealth Enhancement Fund | -- | 1.33 | 44 | 97.2 | 0 | 2.8 |
| 6 | ICICI Prudential Long-Term Wealth Enhancement Fund – Direct Plan | -- | 0 | 44 | 97.2 | 0 | 2.8 |

| | | | | | | | |
|----|--|------|------|-----|------|---|------|
| 7 | SBI Long Term Advantage Fund Series I – Direct Plan | 0.76 | 1.05 | 31 | 93.2 | 0 | 6.8 |
| 8 | SBI Long Term Advantage Fund Series II – Direct Plan | 0.72 | 1.05 | 26 | 90.1 | 0 | 9.9 |
| 9 | SBI Long Term Advantage Fund Series III – Direct Plan | 0.67 | 0.88 | 48 | 88.4 | 0 | 11.6 |
| 10 | SBI Long Term Advantage Fund Series III – Regular Plan | 0.67 | 1.38 | 48 | 88.4 | 0 | 11.6 |
| 11 | SBI Long Term Advantage Fund Series II – Regular Plan | 0.72 | 1.4 | 26 | 90.1 | 0 | 9.9 |
| 12 | SBI Long Term Advantage Fund Series I – Regular Plan | 0.76 | 1.4 | 31 | 93.2 | 0 | 6.8 |
| 13 | SBI Long Term Advantage Fund Series IV – Direct Plan | -- | 0.88 | 174 | 97.7 | 0 | 2.3 |
| 14 | SBI Long Term Advantage Fund Series IV – Regular Plan | -- | 1.38 | 174 | 97.7 | 0 | 2.3 |
| 15 | SBI Long Term Advantage Fund Series V – Direct Plan | -- | 0.76 | 329 | 98.5 | 0 | 1.5 |
| 16 | SBI Long Term Advantage Fund Series VI – Direct Plan | -- | 0.7 | 243 | 97 | 0 | 3 |
| 17 | SBI Long Term Advantage Fund Series VI – Regular Plan | -- | 1.53 | 243 | 97 | 0 | 3 |
| 18 | SBI Long Term Advantage Fund Series V – Regular Plan | -- | 1.36 | 329 | 98.5 | 0 | 1.5 |
| 19 | SBI Tax Advantage Fund – Series II | 0.62 | 1.46 | 27 | 97.1 | 0 | 2.9 |
| 20 | SBI Tax Advantage Fund – Series III – Direct Plan | 0.59 | 0.88 | 23 | 92.8 | 0 | 7.2 |

| | | | | | | | |
|----|---|------|------|----|------|---|-----|
| 21 | SBI Tax Advantage Fund – Series II – Regular Plan | 0.59 | 1.38 | 23 | 92.8 | 0 | 7.2 |
| 22 | Sundaram Long Term Micro Cap Tax Advantage Fund Series III – Direct Plan | 0.68 | 1.28 | 90 | 99.8 | 0 | 0.2 |
| 23 | Sundaram Long Term Micro Cap Tax Advantage Fund Series III – Regular Plan | 0.67 | 1.43 | 90 | 99.8 | 0 | 0.2 |
| 24 | Sundaram Long Term Micro Cap Tax Advantage Fund Series IV – Direct Plan | -- | 1.28 | 45 | 96.1 | 0 | 3.9 |
| 25 | Sundaram Long Term Micro Cap Tax Advantage Fund Series IV - Regular Plan | -- | 1.43 | 45 | 96.1 | 0 | 3.9 |
| 26 | Sundaram Long Term Micro Cap Tax Advantage Fund Series V – Direct Plan | -- | 1.07 | 45 | 96.1 | 0 | 3.9 |
| 27 | Sundaram Long Term Micro Cap Tax Advantage Fund Series VI – Direct Plan | -- | 1.12 | 40 | 96.7 | 0 | 3.3 |
| 28 | Sundaram Long Term Micro Cap Tax Advantage Fund Series VI – Regular Plan | -- | 1.4 | 40 | 96.7 | 0 | 3.3 |
| 29 | Sundaram Long Term Micro Cap Tax Advantage Fund Series V –Regular Plan | -- | 1.4 | 45 | 96.1 | 0 | 3.9 |
| 30 | Sundaram Long Term Tax Advantage Fund Series I – Direct Plan | 0.94 | 0.96 | 18 | 99.1 | 0 | 0.9 |
| 31 | Sundaram Long Term Tax Advantage Fund Series II – Direct Plan | 0.94 | 1.2 | 14 | 99.5 | 0 | 0.5 |

| | | | | | | | |
|----|---|------|------|-----|------|-----|-----|
| 32 | Sundaram Long Term Tax Advantage Fund Series III – Direct Plan | -- | 1.21 | 45 | 99 | 0 | 1 |
| 33 | Sundaram Long Term Tax Advantage Fund Series III – Regular Plan | -- | 1.42 | 45 | 99 | 0 | 1 |
| 34 | Sundaram Long Term Tax Advantage Fund Series II – Regular Plan | 0.93 | 1.41 | 14 | 99.5 | 0 | 0.5 |
| 35 | Sundaram Long Term Tax Advantage Fund Series I – Regular Plan | 0.95 | 1.38 | 18 | 99.1 | 0 | 0.9 |
| 36 | Sundaram Long Term Tax Advantage Fund Series IV – Direct Plan | -- | 1.11 | 29 | 96.4 | 0 | 3.6 |
| 37 | Sundaram Long Term Tax Advantage Fund Series IV – Regular Plan | -- | 1.4 | 29 | 96.4 | 0 | 3.6 |
| 38 | UTI Long Term Advantage Fund – Series III – Direct Plan | 0.85 | 0 | 254 | 99 | 0.1 | 0.9 |
| 39 | UTI Long Term Advantage Fund – Series III – Regular Plan | 0.85 | 1.4 | 254 | 99 | 0.1 | 0.9 |
| 40 | UTI Long Term Advantage Fund – Series IV – Direct Plan | 0.84 | 0 | 146 | 97.8 | 0 | 2.2 |
| 41 | UTI Long Term Advantage Fund – Series IV – Regular Plan | 0.84 | 1.33 | 146 | 97.8 | 0 | 2.2 |
| 42 | UTI Long Term Advantage Fund – Series V – Direct Plan | -- | 0 | 147 | 95.6 | 0 | 4.4 |
| 43 | UTI Long Term Advantage Fund – Series VI– Direct Plan | -- | 0 | 369 | 96.4 | 0.3 | 3.3 |

| | | | | | | | |
|----|---|------|------|-------|------|-----|-----|
| 44 | UTI Long Term Advantage Fund – Series VII – Direct Plan | -- | 0 | 243 | 96.4 | 0.3 | 3.3 |
| 45 | UTI Long Term Advantage Fund – Series VII– Regular Plan | -- | 1.25 | 243 | 96.4 | 0.3 | 3.3 |
| 46 | UTI Long Term Advantage Fund – Series VI – Regular Plan | -- | 1.25 | 369 | 96.4 | 0.2 | 3.4 |
| 47 | UTI Long Term Advantage Fund – Series V– Regular Plan | -- | 1.26 | 147 | 95.6 | 0 | 4.4 |
| 48 | UTI Master Equity Plan Unit Scheme | 0.96 | 1.44 | 1,833 | 98.4 | 0.3 | 1.3 |

Coefficient of Determination: the highest value 0.96 of UTI Master Equity Plan Unit Scheme, Sundaram Long Term Tax Advantage Fund Series I - Direct Plan, Sundaram Long Term Tax Advantage Fund Series II - Direct Plan, Sundaram Long Term Tax Advantage Fund Series II - Regular Plan, Sundaram Long Term Tax Advantage Fund Series I - Regular Plan, UTI Long Term Advantage Fund - Series III - Direct Plan, UTI Long Term Advantage Fund - Series III - Regular Plan illustrates that they are highly sensitive to the benchmark return and correlated to the index.

BOI AXA Midcap Tax Fund Series 2 - Direct Plan has lowest expense ratio 0.36% which

is lower than all other schemes followed SBI Long Term Advantage Fund Series III - Direct Plan with expense ratio of 0.88%.

Higher the total assets better will be the fund UTI Master Equity Plan Unit Scheme has the total net assets of 1833 crores higher than other Equity ELSS close-ended mutual funds.

Asset allocation is the process of spreading the investable money across various categories like in equity, debt, cash and cash equivalent. Assets allocation helps investors to minimize volatility and maximize their returns. It is determined based on the different factors like investors age investors lifestyle, their goals and risk-taking appetite of an investors.

ELSS OPEN ENDED AND CLOSE ENDED MUTUAL FUNDS STYLE AND CAPITALIZATION:

| | | |
|-------------------------|--------------|--------------|
| Investment Style | | |
| Growth | Blend | Value |
| | | |

| | | | | |
|--|--------------------------|--|--------|----------------|
| 1,2,3,4,5,6,7,8,9,10,11,12, 13,14,15,16,17,18,19,20,21, 22,23,24,31,32,33,34,35, 36,37,38,39,40,41,42,43,44,45, 46,47,48,49,50,53,54,55,56,57, 58,63,64,65,66,67,68,69,70,71, 72,73,74,75,76 | 25,26,51,52,59,60,61,62, | | Large | Capitalization |
| 27,28,29,30, | | | Medium | |
| | | | Small | |

Note: The above-mentioned numbers are the serial numbers from table number 1 and 2 which represents the different schemes name.

| Investment Style | | | Large | Capitalization |
|---|-------------|-------|--------|----------------|
| Growth | Blend | Value | | |
| 5,6,15,18,30,31,34,35,38,39, 40,41,42,47,48 | | | Large | Capitalization |
| 1,2,3,4,7,8,9,10,11, 12,13,14,16,17,19,20,21 | 43,44,45,46 | | Medium | |

| | | | | | |
|---|--|--|--|-------|--|
| 22,23,24,25,26,27,28, 29,32,33,36,37 | | | | Small | |
|---|--|--|--|-------|--|

Note: The above-mentioned number are based on the serial number as in table 3 and 4 which represent the different close ended schemes name.

This nine-grid matrix depicts an equity fund with respect to market capitalization and valuation. Market capitalization is the total value of all share of the company. Large and well-established companies have high market capitalization whereas smaller companies have less capitalization. Large-caps shares are more stable whereas smaller companies' shares are more

volatile and less liquid. In other hand, investment fund style depicts whether the funds focus on growth, blend or value-oriented stocks. Where, blend is combination of both growth and value. In growth investment style there will be companies with potential faster growth comparing to others. Here, growth stocks will have above average price to earnings ratio (P/E ratio) and price to book ratio (P/B ratio). Growth stocks will perform well during rapid economic expansion whereas, value stocks perform well during market downturns.

COMPARISION OF OPEN-ENDED AND CLOSE ENDED FUNDS BASED ON INVESTMENT STYLE AND CAPITALIZATION

INVESTMENT STYLE AND CAPITALIZATION FOR OPEN-ENDED SCHEMES

| S.N. | Investment style and Capitalization | Return | Standard Deviation | Sharpe Ratio | Sortino Ratio | Beta | Alpha |
|------|---|---------|--------------------|--------------|---------------|-------|---------|
| 1. | Growth Investment Style and Large Capitalization | 13.9679 | 12.9858 | 0.4457 | 0.63232 | 0.952 | -0.1096 |
| 2. | Blend Investment Style and Large Capitalization | 10.2225 | 12.9025 | 0.1325 | 0.23 | 0.92 | -4.1375 |
| 3. | Growth Investment Style and Medium Capitalization | 15.02 | 13.6175 | 0.4425 | 0.665 | 0.93 | 0.2525 |

Based on the investment style and capitalization, the schemes which fall under growth investment style and medium capitalization performed well as they give higher return of 15.02% comparing to other and also bear more risk of 13.6175%. Sortino ratio is higher for growth investment style and medium capitalization funds which indicates the excess return generated by an

investment for its downside risk. Beta is less than 1 for all which indicates narrow swings in the value of an investments in response to ups and downs in the value of benchmark. Alpha is positive for growth investment style and medium capitalization which indicates the extra return produced by these funds' vis-a vis its benchmark to justify the risk taken.

INVESTMENT STYLE AND CAPITALIZATION FOR CLOSE-ENDED SCHEMES

| S.N. | Investment style and Capitalization | Return | Standard Deviation | Sharpe Ratio | Sortino Ratio | Beta | Alpha |
|------|--|---------|--------------------|--------------|---------------|---------|---------|
| 1. | Growth Investment Style and Large Capitalization | 5.05355 | 15.4977 | -0.0433 | -0.0767 | 1.09667 | -3.8377 |

| | | | | | | | |
|----|---|---------|---------|--------|--------|--------|---------|
| 2. | Growth Investment Style and Medium Capitalization | 8.9368 | 13.9655 | 0.2755 | 0.3922 | 0.8588 | 1.7377 |
| 3. | Blend Investment Style and Medium Capitalization | -2.1742 | -- | -- | -- | -- | -- |
| 4. | Growth Investment Style and Small Capitalization | -7.0556 | 20.015 | -0.44 | -0.73 | 1.235 | -12.025 |

Based on the investment style and capitalization, the schemes which fall under growth investment style and medium capitalization performed well as they give higher return of 8.9368% comparing to other and also bear lesser risk of 13.9655% comparing to other. Sharpe ratio is higher for growth investment style and medium capitalization funds which indicates excess return generated per unit of total risk. Sortino ratio is higher for growth investment style and medium capitalization funds which indicates the excess

return generated by an investment for its downside risk. Beta is more than 1 for growth investment style and large capitalization and growth investment style and small capitalization which indicates higher swings in the value of an investments in response to ups and downs in the value of benchmark. Alpha is positive for growth investment style and medium capitalization which indicates the extra return produced by these funds' vis-a-vis its benchmark to justify the risk taken.

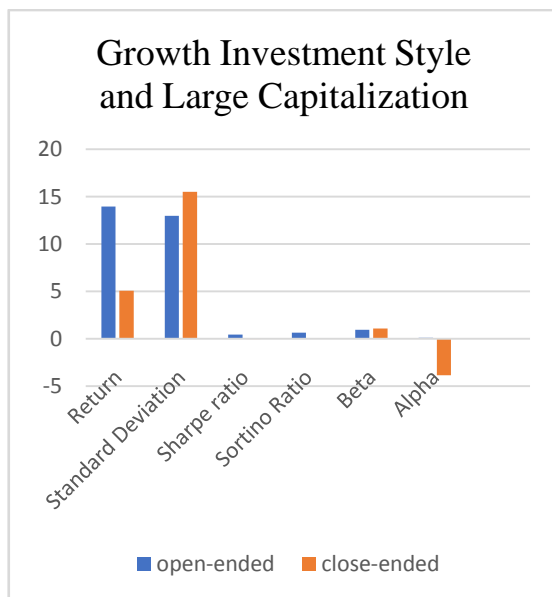


Figure 1

While comparing the open-ended and close ended schemes under growth investment style and large capitalization open ended fund performed well comparing to close ended schemes. Open ended funds have higher return and lesser risk while close ended schemes have lower return and higher risk comparing to open ended schemes.

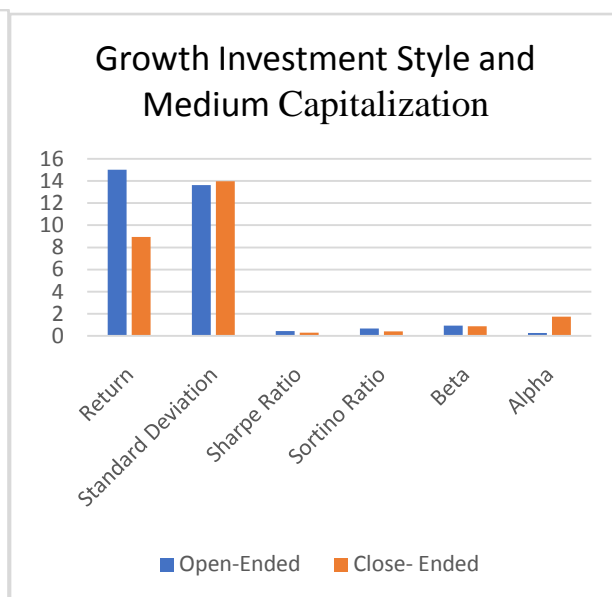


Figure 2

While comparing the open-ended and close ended schemes under growth investment style and medium capitalization open ended fund performed well comparing to close ended schemes. Open ended funds have higher return and lesser risk while close ended schemes have lower return and higher risk comparing to open ended schemes.

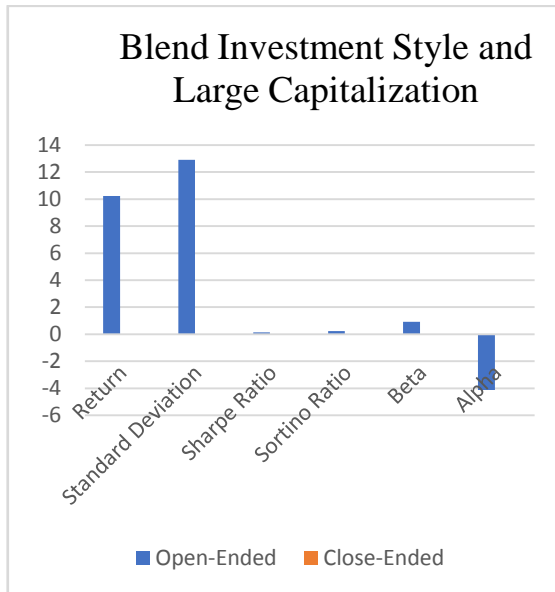


Figure 3

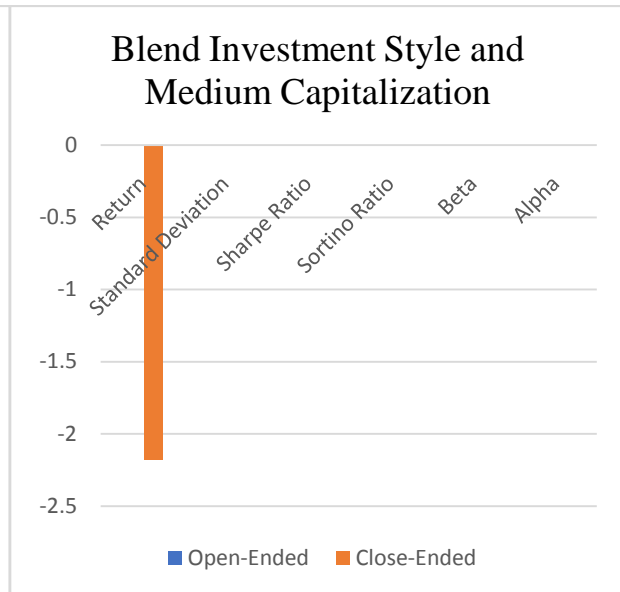


Figure 4

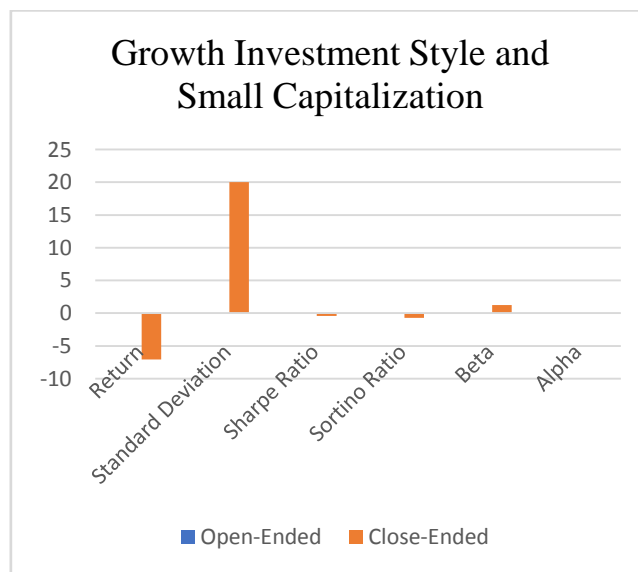


Figure 5

There is no data available for close ended schemes under blend investment style and large capitalization figure 3 depicts performance of open-ended schemes under blend investment style and large capitalization.

There is no data available for open ended schemes under blend investment style and medium capitalization figure 4 depicts performance of open-ended schemes under blend investment style and medium capitalization.

There is no data available for open ended schemes under growth investment style and small capitalization figure 5 depicts performance of open-ended schemes under growth investment style and small capitalization.

INDEPENDENT T TEST FOR SIGNIFICANT DIFFERENCE IN MEAN RETURN AND STANDARD DEVIATION BETWEEN OPEN AND CLOSE ENDED FUNDS:

Mean and Standard deviation calculation

| Group Statistics | | | | | |
|------------------------|------|----|-------------|----------------|-----------------|
| | Fund | N | Mean | Std. Deviation | Std. Error Mean |
| 3 years Average return | O | 76 | 12.52631579 | 5.285147956 | .606248048 |
| | C | 48 | 2.79930533 | 8.984843409 | 1.296850440 |
| Standard Deviation | O | 76 | 11.6434 | 4.21425 | .48341 |
| | C | 48 | 6.3583 | 7.78977 | 1.12436 |

Table 12: Independent sample test:

| Independent Samples Test | | | | | | | | | | |
|--------------------------|-----------------------------|---|------|------------------------------|--------|-----------------|-----------------|-----------------------|---|--------------|
| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
| | | F | Sig. | t | Df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | |
| | | | | | | | | | Lower | Upper |
| 3 years Average return | Equal variances assumed | 17.121 | .000 | 7.594 | 122 | .000 | 9.727010456 | 1.280942773 | 7.191256297 | 12.262764615 |
| | Equal variances not assumed | | | 6.795 | 67.759 | .000 | 9.727010456 | 1.431557809 | 6.870197339 | 12.583823574 |
| Standard Deviation | Equal variances assumed | 81.054 | .000 | 4.895 | 122 | .000 | 5.28509 | 1.07969 | 3.14774 | 7.42244 |
| | Equal variances not assumed | | | 4.318 | 64.599 | .000 | 5.28509 | 1.22387 | 2.84056 | 7.72962 |

t-value when degree of freedom 122 is 1.9796
Here from the above table we can conclude that,

t-test for equality of Means:

since, the p value (0.0001) is lesser than significance level (0.05), we reject null hypothesis and conclude that the mean of open-ended and close-ended fund is significantly different i.e. the mean of open-ended and close-ended funds are not equal.

Levene's Test for Equality of Variance:

Based on the above table, sig. is the p-value corresponding to this test statistic. The p-value of Levene's test is 0.0001 which is lesser than 0.05, so we reject the null of Levene's test and

we can conclude that the variance of open-ended is significantly different close-ended funds i.e. the variance between open-ended and close-ended funds are not equal.

III. CONCLUSION:

In this study performance of 76 open-ended and 48 close-ended schemes were examined for the period of three years from February 6, 2017 to February 7, 2020. Out of 76 open-ended schemes Mirae Asset Tax Saver Fund - Direct Plan performed well comparing to other schemes. Out of 48 close-ended ELSS schemes SBI Tax Advantage Fund - Series III - Direct Plan performed well comparing to other close ended schemes. The performance of the schemes was evaluated based of

Sharpe ratio, Sortino Ratio, alpha and beta. The study also ranked the schemes based on the expense ratio. The study also studied the asset allocation of all schemes to see the various categories where the funded are invested to generate high potential return. The study also compared the close ended and open-ended schemes based on mean and standard deviation and the study revealed there is no relation between mean and standard deviation of close and open-ended schemes. The study also compared the open-ended schemes and close ended schemes based on investment style and capitalization. Here, the study revealed growth investment style and large capitalization of open-ended fund performed well comparing to close ended schemes and growth investment style and medium capitalization of open-ended fund performed well comparing to close ended schemes and for other there were no schemes under the category to compared in between.

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