

A Study on Performance Analysis in Mutual Funds

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ABSTRACT

A Mutual fund is a pool of money that is managed on behalf of the investors, by a Professional fund manager. The manager uses the money to buy stocks, bonds and other securities according to specific investment objective that have been established for the fund. In return of the investment, the investors are given units for that fund. The investments range from shares to debentures to money market instruments. Each mutual fund with different type of schemes is managed by respective Asset Management Company (AMC). An investor can invest his money in one or more schemes depending upon his choice. The income earned by the investor and the capital appreciation realized by the scheme is shared by the unit holders in proportion to the number of units held by him. Thus mutual fund is a best investment option for a common investor as it offers an opportunity to invest in a diversified, professionally managed portfolio at a relatively lower cost.

Keywords: Finance, accounts, banking, insurance

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INTRODUCTION

Mutual Funds in India are governed by the SEBI (Mutual Fund) Regulations 1996 as amended from time to time. Wide variety of Mutual Fund Schemes exists to cater to the needs such as financial position, risk tolerance and return expectations etc. The table below gives an overview into the existing types of schemes in the Industry.

By Structure

- Open-Ended Schemes
- Close-Ended Schemes
- Interval schemes

By Investment Objective

- Growth Schemes
- Income Schemes
- Balanced Schemes
- Money Market Schemes

Other Schemes

- Tax Saving Schemes
- Special Schemes
- Index Schemes
- Sector Specific Schemes

Open-Ended Schemes

Open-End Funds in India is such that the investors can sell as well as buy all throughout the year. The investors sell and buy units of Open- End Funds in India at the related prices of Net Asset Value (NAV) each day. An investor can buy Open- End Funds in India either from a brokerage house or through the mutual fund company. Open- End Funds in India have no fixed date of maturity. The main advantage of Open- End Funds in India is that it offers liquidity to the investors for they can sell the units whenever they need the money.

Major Open- End Funds in India are:

- UTI Gold Exchange Traded Fund
- Standard Chartered Premier Equity Fund
- Sahara Mid- Cap Fund
- Lotus India Tax Plan
- Reliance Tax Saver (ELSS) Fund
- Canara Robeco Equity Tax Saver- 93
- DSP Merrill Lynch Tax Saver Fund
- Tata Life Sciences and Technology Fund
- JM Arbitrage Advantage Fund
- Kotak Gold ETF

Close-Ended Schemes

Closed-End Funds in India have a fixed period of maturity which can vary between three to fifteen years. Closed- End Funds in India can be subscribed to only during the period of time that has been specified. Investors can make investments in Closed-End Funds in India either during the period of public offer or buy the funds from the stock exchanges.

In Closed- End Funds in India, the number of shares that are sold in the public offer is fixed and after this the selling and buying of the units are possible only in the stock exchanges. Certain Closed- End Funds in India repurchase the units periodically at related prices of Net Asset Value (NAV) in order to provide the investors an exit route.

Major Closed-End Funds in India are:

- UTI Wealth Builder
- HDFC Long-Term Equity
- Standard Chartered Enterprise Equity
- Franklin India Smaller Companies
- Birla Long-Term Advantage
- Tata Capital Builder
- ING Vysya C.U.B.
- Prudential ICICI Fusion
- Tata Equity Management

Net Asset Value

Net asset value (NAV) is a term used to describe the value of an entity's assets less

the value of its liabilities. The term is most commonly used in relation to open-ended or mutual funds due to the fact that shares of such funds are redeemed at their net asset value. However, the term may also be used as a synonym for book value or the equity value of a business.

$$\text{NAV} = \frac{\text{Market Value of All Securities Held by Fund} + \text{Cash and Equivalent Holdings} - \text{Fund Liabilities}}{\text{Total Fund Shares Outstanding}}$$

Entry Load

Investors have to bear expenses for availing of the services (professional management) of the mutual fund. The first expense that an investor has to incur is by way of Entry Load. This is charged to meet the selling and distribution expenses of the scheme. A major portion of the Entry Load is used for paying commissions to the distributor. The distributor (also called a mutual fund advisor) could be an Independent Financial Advisor, a bank or a large national distributor or a regional distributor etc. They are the intermediaries who help an investor with choosing the right scheme, financial planning and investing in schemes from time to time to meet one's requirements. Investors must ensure that his Advisor has passed the AMFI – Mutual Fund (Advisors) module certification.

Exit Loads

As there are Entry Loads, there exist Exit Loads as well. As Entry Loads increase the cost of buying, similarly Exit Loads reduce the amount received by the investor. Not all schemes have an Exit Load, and not all schemes have similar exit loads as well. Some schemes have Contingent Deferred Sales Charge (CDSC). This is nothing but a modified form of Exit Load, wherein the investor has to pay different Exit Loads depending upon his investment period. If the investor exits early, he will have to bear more Exit Load and if he remains

invested for a longer period of time, his Exit Load will reduce. Thus the longer the investor remains invested, lesser is the Exit Load. After some time the Exit Load reduces to nil; i.e. if the investor exits after a specified time period, he will not have to bear any Exit Load. Sale Price, Re Purchase prices, redemptions price options are used for investment.

According to the Fair wealth website source: The systematic investment plan described as follows:

Systematic Investment Plan

A specific amount should require for continuous period at regular period in saving scheme like a recurring deposits. SIP allows the investors to buy shares and investing in mutual fund schemes. In this scheme investors can invest more than one unit and automatically participates in the market swings according to the options in SIP.

CATEGORIES OF MUTUAL FUNDS

Large Cap Funds

Large Cap Funds in India are a kind of mutual fund that looks for appreciation of capital by investing mainly in the shares of companies that are big blue chip. The big blue chip companies in which Large Cap Funds in India make their investments have above- average potential for growth in earnings. The large cap companies in which Large Cap Funds in India makes investments are usually companies that have a market capitalization that is more than Rs. 1000 crores. The main advantage of Large Cap Funds in India is that they are considered to be of low return and low risk category. This ensures that the investments of the investors are relatively safe.

Mid-Cap Funds

The funds are a special type of mutual funds where the investment accumulated in small or medium sized companies i.e., companies with a market capitalization up to Rs. 500

crores are regarded as small and companies with a market capitalization over Rs. 500 crores but below Rs. 1000 crores are medium sized by the mutual fund industry. The investors who are willing to invest in Mid cap funds has to bear high risk factors and thus offer high returns with positive movement at the indexes.

Small-Cap Funds

A small-cap fund, like Turner Small Cap Equity, will focus on companies with a market value below \$1 billion. The volatility of the fund often depends on the aggressiveness of the manager. Aggressive small-cap managers will buy hot growth and technology companies, taking high risks in hopes of high rewards. More conservative "value" managers will look for companies that have been beaten down temporarily by the stock market. Value funds aren't as risky as the hot growth funds, but they can still be volatile. Because of their volatility, small-cap funds require that you have enough time to make up for short-term losses. And as we saw during 1997 and 1998, there are times when the market turns away from small-cap companies altogether for extended periods.

REVIEW OF LITERATURE

According to Rob Bauer, Kees Koedijk, Roger Otten (2005) stated that International evidence is required for ethical mutual funds and finding its performance and investment style. They took 103 German, UK and US ethical mutual funds and there ethical mutual fund performance. They controlling for investment style and performance estimates are robust to ethical indexes and that explaining ethical mutual fund returns variations.

According to Russ Wermers (2002) find the mutual fund performance by decomposition into the stock picking talent and transaction cost with style and expenses. They were always a style of picking the options in the investment. We

find that funds hold stock by 1.3 percent difference for the net percentage. High turnover funds beat the Vanguard index 500 fund on a net returns basis with the evidence supports the values of active mutual fund management.

NEED FOR THE STUDY

- Generally most of the investors investing in mutual funds in order to avail tax benefits and also to earn returns, in this connection they would park their funds in the tax saving schemes.
- A study required to analyze the performance of SBI Tax Saving Scheme to fulfill the objectives of the investors. Hence the study has been undertaken
- The study can helpful to the investor to predict the performance of the SBI Magnum Tax Gain Scheme.

RESEARCH METHODOLOGY

Sources of Data: The data has been collected based on purely secondary data.

Secondary data sources: Secondary data has been collected through internet, books, magazines, journal, manual & records of SBI Funds Management Pvt. Ltd.

Type of study: Descriptive

Tools used

- The tools used for the performance analysis of selected funds are Treynor Ratio and Sharpe Ratio
- The tools used to compare the fund performance with benchmark are Mean, Standard deviation and Beta.

FINANCIAL TOOLS

Variance and Standard Deviation

The following steps are involved in calculating variance or standard deviation of returns of assets or securities using historical returns:

- Calculate the average rate of return using equation

$$AverageReturn(\bar{R}_p) = \frac{\sum R_p}{N}$$

- Calculate the deviation of individual rates of return from the average rate of return and square it. i.e.,
 $(R - \bar{R})^2$

- Calculate the sum of the squares of the deviations as determined in the preceding step and divide it by the number of periods (or observations) less one to obtain variance

$$Variance(V) = \frac{\sum (R - \bar{R})^2}{n - 1}$$

- Calculate the square root of the variance to determine the standard deviation

$$StandardDeviation(S.D.) = \sqrt{V}$$

Calculation of Beta

A measure of risk commonly advocated is beta. The beta of a portfolio is computed the way the beta of an individual security is computed, to calculate the beta of a portfolio, regress the rate or return of the portfolio on the rate of return of a market index. The slope of this regression line is the portfolio beta. Remember that is reflects the systematic risk of the portfolio.

$$Beta(\beta) = \frac{n \sum XY - (\sum X * \sum Y)}{n \sum X^2 - (\sum X)^2}$$

PERFORMANCE MEASURE

For evaluating the performance of a portfolio it is necessary to consider both risk and return. The two popularly employed portfolio performance measure are Treynor measure and the Sharpe measure

Treynor Measure

According to Jack Treynor, systematic risk or beta is the appropriate measure of risk,

as suggested by the capital asset pricing model. The Treynor measure of portfolio relates the excess return on a portfolio to the portfolio beta.

$$\text{Treynor Ratio} = \frac{\text{Average Return on Portfolio} - \text{average return of return on risk free investment}}{\text{S.D. of Return on Portfolio}}$$

$$\text{Treynor ratio} = \frac{\bar{R}_p - R_f}{\beta_p}$$

The numerator of the Treynor measure is the risk premium earned by the portfolio; the denominator, the systematic risk (beta). Hence, the Treynor measure reflects the excess return earned per unit of risk. As systematic risk is the measure of risk, the treynor measure implicitly assumes that the portfolio is well diversified.

Sharpe Ratio

The Sharpe measure is the similar to the Treynor measure except that it employs standard deviation, not beta, as the measure of risk. Thus,

$$\text{Sharp Ratio} = \frac{\text{Average Return on Portfolio} - \text{average return of return on risk free investment}}{\text{S.D. of return of portfolio}}$$

$$\text{Sharp Ratio} = \frac{\bar{R}_p - R_f}{\sigma_p}$$

Hence the Sharpe ratio measure reflects the excess return earned on a portfolio per unit of total risk (standard deviation).

DATA ANALYSIS AND INTERPRETATION

Performance of SBI Magnum Tax Gain Scheme by Using Standard Deviation Calculation of Standard Deviation of Selected Scheme for the Period 2011

$$\text{Average Return}(\bar{R}_p) = \frac{\sum R_p}{N}$$

$$= -32.9571/12$$

$$= -2.74642$$

$$\sum (R - \bar{R})^2 = 283.5104$$

$$\text{Variance}(V) = \frac{\sum (R - \bar{R})^2}{n - 1}$$

$$= 283.5104 / (12 - 1)$$

$$= 25.77367$$

$$\text{Standard Deviation}(S.D.) = \sqrt{V}$$

$$= 5.076778$$

$$\text{Average Return}(\bar{R}_p) = \frac{\sum R_p}{N}$$

$$= 26.67863/12$$

$$= 2.223219$$

$$\sum (R - \bar{R})^2 = 195.7072$$

$$\text{Variance}(V) = \frac{\sum (R - \bar{R})^2}{n - 1}$$

$$= 195.7072 / (12 - 1)$$

$$= 17.79156$$

$$\text{Standard Deviation}(S.D.) = \sqrt{V}$$

$$= 4.218005$$

Table 1. SBI magnum tax gain.

2011	Open	Close	R	R- $\bar{R}$	(R- $\bar{R}$) ²
Jan	65.56	58.69	-11.7056	-8.959147	80.26632
Feb	57.74	55.51	-4.01729	-1.27087	1.615109
Mar	57.25	60.07	4.694523	7.4409477	55.3677
Apr	61.3	60.75	-0.90535	1.8410748	3.389557
May	60.23	58.83	-2.37974	0.3666864	0.134459
Jun	59.08	59.26	0.303746	3.0501708	9.303542
July	59.77	59.04	-1.23645	1.5099748	2.280024
Aug	59.17	54.53	-8.50908	-5.762653	33.20817
Sep	54.8	54.3	-0.92081	1.8256143	3.332868
Oct	53.64	56.57	5.179424	7.9258484	62.81907
Nov	56.15	52.53	-6.8913	-4.144876	17.17999
Dec	53.21	49.93	-6.5692	-3.822772	14.61359
		SUM	-32.9571		283.5104

Source: https://www.valueresearchonline.com/funds/new_snapshot.asp?schemecode=198

Table 2. Calculation of standard deviation of selected scheme for the period 2012.

2012	Open	Close	R	R- $\bar{R}$	(R- $\bar{R}$) ²
Jan	49.9	55.29	9.748598	7.525379	56.63133
Feb	55.61	58.11	4.302186	2.078966	4.322102
Mar	57.81	58.35	0.92545	-1.29777	1.684205
Apr	59.22	58.15	-1.84007	-4.06329	16.51031
May	58.23	55.4	-5.1083	-7.33152	53.75122
Jun	54.64	58.58	6.725845	4.502626	20.27364
July	58.89	59.14	0.422726	-1.80049	3.241776
Aug	59.35	60.06	1.182151	-1.04107	1.083822
Sep	59.84	64.06	6.587574	4.364355	19.0476
Oct	64.34	63.44	-1.41866	-3.64188	13.26331
Nov	63.66	66.49	4.256279	2.03306	4.133333
Dec	66.45	67.05	0.894855	-1.32836	1.764552
		SUM	26.67863		195.7072

Source: https://www.valueresearchonline.com/funds/new_snapshot.asp?schemecode=198

Table 3. Calculation of standard deviation of selected scheme for the period 2013.

2013	Open	Close	R	R- $\bar{R}$	(R- $\bar{R}$) ²
Jan	67.56	66.93	-0.94128	-1.02281	1.046139
Feb	66.66	62.93	-5.92722	-6.00875	36.10505
Mar	63.13	62.6	-0.84665	-0.92817	0.861504
Apr	62.82	65.1	3.502304	3.420777	11.70171
May	65.83	65.99	0.242461	0.160934	0.0259
Jun	65.63	64.13	-2.339	-2.42053	5.858947
July	64.52	62.38	-3.43059	-3.51211	12.33494
Aug	62.18	59.35	-4.76832	-4.84985	23.52105
Sep	60.04	63.05	4.773989	4.692462	22.0192
Oct	63.45	68.93	7.950094	7.868567	61.91435
Nov	69.19	68.79	-0.58148	-0.66301	0.439578
Dec	69.37	71.77	3.344016	3.262488	10.64383
		Sum	0.978327		186.4722

Source: https://www.valueresearchonline.com/funds/new_snapshot.asp?schemecode=198

$$\text{AverageReturn}(\bar{R}_p) = \frac{\sum R_p}{N}$$

$$= 0.978327/12$$

$$= 0.081527$$

$$\sum (R - \bar{R})^2 = 186.4722$$

$$\text{Variance}(V) = \frac{\sum (R - \bar{R})^2}{n - 1}$$

$$= 186.4722 / (12 - 1)$$

$$= 16.95202$$

$$\text{StandardDeviation}(S.D.) = \sqrt{V}$$

$$= 4.117283$$

$$\text{AverageReturn}(\bar{R}_p) = \frac{\sum R_p}{N}$$

$$= 38.15333/12$$

$$= 3.179444$$

$$\sum (R - \bar{R})^2 = 131.5945$$

$$\text{Variance}(V) = \frac{\sum (R - \bar{R})^2}{n - 1}$$

$$= 131.5945 / (12 - 1)$$

$$= 11.96314$$

$$\text{StandardDeviation}(S.D.) = \sqrt{V}$$

$$= 3.458777$$

$$\text{AverageReturn}(\bar{R}_p) = \frac{\sum R_p}{N}$$

$$= -1.66069/12$$

$$= -0.13839$$

$$\sum (R - \bar{R})^2 = 137.9509$$

$$\text{Variance}(V) = \frac{\sum (R - \bar{R})^2}{n - 1}$$

$$= 137.9509 / (12 - 1)$$

$$= 12.54099$$

$$\text{StandardDeviation}(S.D.) = \sqrt{V}$$

$$= 3.541326$$

Table 4. Calculation of standard deviation of selected scheme for the period 2014.

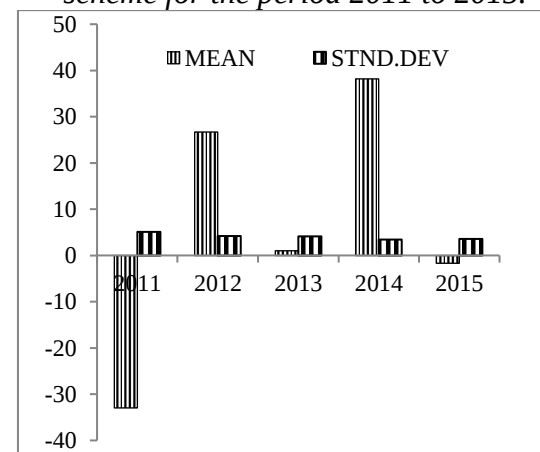
2014	Open	Close	R	R- $\bar{R}$	(R- $\bar{R}$) ²
Jan	71.76	69.91	-2.64626	-5.8257	33.93882
Feb	69.32	73.37	5.519967	2.340523	5.478049
Mar	72.74	77.35	5.959922	2.780478	7.73106
Apr	77.53	78.48	1.210499	-1.96894	3.876743
May	78.66	86.67	9.241952	6.062508	36.754
Jun	88.38	93.69	5.667627	2.488183	6.191055
July	94.01	95.19	1.239626	-1.93982	3.762894
Aug	94.04	99.59	5.572849	2.393405	5.728385
Sep	100.53	101.46	0.916617	-2.26283	5.120385
Oct	101.31	104.39	2.950474	-0.22897	0.052427
Nov	104.42	108.83	4.052191	0.872747	0.761688
Dec	108.68	107.04	-1.53214	-4.71158	22.199
		Sum	38.15333		131.5945

Source: https://www.valueresearchonline.com/funds/new_snapshot.asp?schemecode=198

Table 5. Calculation of standard deviation of selected scheme for the period 2015.

2015	Open	Close	R	R- $\bar{R}$	(R- $\bar{R}$) ²
Jan	107.2	115.23	6.968671	7.107062	50.51033
Feb	115.48	115.72	0.207397	0.345788	0.119569
Mar	118.25	114.33	-3.42867	-3.29028	10.82595
Apr	115.67	109.86	-5.28855	-5.15016	26.52413
May	111.5	114.9	2.959095	3.097486	9.594418
Jun	114.68	114.85	0.148019	0.28641	0.082031
July	115.93	117.46	1.302571	1.440962	2.076372
Aug	117.49	110.93	-5.91364	-5.77525	33.35349
Sep	109.14	111.14	1.799532	1.937923	3.755546
Oct	111.15	111.95	0.714605	0.852996	0.727602
Nov	111.51	110.78	-0.65896	-0.52057	0.270996
Dec	110.98	110.46	-0.47076	-0.33237	0.110468
		Sum	-1.66069		137.9509

Source: https://www.valueresearchonline.com/funds/new_snapshot.asp?schemecode=198

Table 6. Comparison of mean and standard deviation of sbi magnum tax gain scheme for the period 2011 to 2015.

Source: https://www.valueresearchonline.com/funds/new_snapshot.asp?schemecode=198

INFERENCE

- From the above table, we came to know that SBI Magnum Tax Gain fund is performing low in 2015 compared to 2012 and 2014.
- The risk % for SBI Magnum Tax Gain Scheme is gradually decreasing from 2011 to 2014 and again it starts increasing in 2015.

Table 7. Comparison between returns of fund and benchmark for the period 2011 (SBI magnum tax gain).

2011	R(X)	R(Y)	(X)2	XY
Jan	-12.0635	-11.7056	145.529	141.211
Feb	-3.8002	-4.01729	14.44156	15.26652
Mar	7.633809	4.694523	58.27505	35.83709
Apr	-1.08743	-0.90535	1.182514	0.984509
May	-3.17763	-2.37974	10.09735	7.561939
Jun	0.73915	0.303746	0.546343	0.224514
July	-3.35466	-1.23645	11.25378	4.147875
Aug	-9.99591	-8.50908	99.91823	85.05601
Sep	-2.73837	-0.92081	7.498678	2.52152
Oct	7.199099	5.179424	51.82702	37.28718
Nov	-9.58849	-6.8913	91.93916	66.07717
Dec	-7.4094	-6.5692	54.89928	48.67386
Sum	-37.6436	-32.9571	547.4079	444.8492

Source: https://www.valueresearchonline.com/funds/new_snapshot.asp?schemecode=198

Beta calculation for SBI Magnum Tax Gain

$$\text{Beta}(\beta) = \frac{n \sum XY - (\sum X * \sum Y)}{n \sum X^2 - (\sum X)^2}$$

$$= ((12 * 444.85) - (-37.64 * -32.96)) / ((12 * 547.41) - (-37.64)^2)$$

$$= 0.795357$$

$$\text{Beta}(\beta) = \frac{n \sum XY - (\sum X * \sum Y)}{n \sum X^2 - (\sum X)^2}$$

$$= ((12 * 282.87) - (23.60 * 26.68)) / ((12 * 328.75) - (23.60)^2)$$

$$= 0.816091$$

$$\text{Beta}(\beta) = \frac{n \sum XY - (\sum X * \sum Y)}{n \sum X^2 - (\sum X)^2}$$

$$= ((12 * 189.73) - (2.465 * 0.98)) / ((12 * 207.97) - (2.465)^2)$$

$$= 0.913522$$

Table 8. Comparison between returns of fund and benchmark for the period 2012.

2012	R(X)	R(Y)	(X)2	XY
Jan	11.26791	9.748598	126.9658	109.8463
Feb	3.84318	4.302186	14.77003	16.53408
Mar	-1.46543	0.92545	2.147496	-1.35619
Apr	-0.99176	-1.84007	0.983589	1.824908
May	-7.17423	-5.1083	51.46964	36.64814
Jun	6.593019	6.725845	43.46791	44.34363
July	-1.16501	0.422726	1.357238	-0.49248
Aug	0.488662	1.182151	0.238791	0.577673
Sep	7.740569	6.587574	59.9164	50.99157
Oct	-1.51646	-1.41866	2.299647	2.15134
Nov	4.891885	4.256279	23.93054	20.82123
Dec	1.094927	0.894855	1.198865	0.979801
SUM	23.60726	26.67863	328.746	282.87

Source: https://www.valueresearchonline.com/funds/new_snapshot.asp?schemecode=198

Table 9. Comparison between returns of fund and benchmark for the period 2013.

2013	R(X)	R(Y)	(X)2	XY
Jan	1.526063	-0.94128	2.32887	-1.43645
Feb	-6.54744	-5.92722	42.86894	38.80811
Mar	-0.79085	-0.84665	0.625444	0.669573
Apr	4.16269	3.502304	17.32799	14.57901
May	0.988298	0.242461	0.976732	0.239624
Jun	-3.66596	-2.339	13.43926	8.574681
July	-1.61867	-3.43059	2.620088	5.552988
Aug	-5.33931	-4.76832	28.50819	25.45952
Sep	4.424119	4.773989	19.57282	21.12069
Oct	8.477495	7.950094	71.86793	67.39689
Nov	-1.50929	-0.58148	2.277948	0.87762
Dec	2.357778	3.344016	5.559116	7.884447
SUM	2.464933	0.978324	207.9733	189.7267

Source: https://www.valueresearchonline.com/funds/new_snapshot.asp?schemecode=198

Table 10. Comparison between returns of fund and benchmark for the period 2014.

2014	R(X)	R(Y)	(X)2	XY
Jan	-4.49233	-2.64626	20.18099	11.88786
Feb	2.756419	5.519967	7.597845	15.21534
Mar	7.190545	5.959922	51.70394	42.85509
Apr	-0.19686	1.210499	0.038755	-0.2383
May	8.258	9.241952	68.19456	76.32004
Jun	4.611464	5.667627	21.2656	26.13606
July	0.478222	1.239626	0.228697	0.592817
Aug	3.286623	5.572849	10.80189	18.31585
Sep	-0.34882	0.916617	0.121672	-0.31973
Oct	4.235852	2.950474	17.94244	12.49777
Nov	2.693082	4.052191	7.252692	10.91288
Dec	-3.50843	-1.53214	12.30908	5.375406
SUM	24.96377	38.15332	217.6382	219.5511

Source: https://www.valueresearchonline.com/funds/new_snapshot.asp?schemecode=198

$$\text{Beta}(\beta) = \frac{n \sum XY - (\sum X * \sum Y)}{n \sum X^2 - (\sum X)^2}$$

$$= ((12 * 219.55) - (24.96 * 38.15)) / ((12 * 217.64) - (24.96)^2)$$

$$= 0.845959$$

$$\text{Beta}(\beta) = \frac{n \sum XY - (\sum X * \sum Y)}{n \sum X^2 - (\sum X)^2}$$

$$= ((12 * 103.48) - (-8.505 * -1.76)) / ((12 * 100.143) - (-8.50)^2)$$

$$= 1.086273$$

Table 11. Comparison between returns of fund and benchmark for the period 2015.

2015	R(X)	R(Y)	(X)2	XY
Jan	2.742616	6.968671	7.521943	19.11239
Feb	1.014847	0.207397	1.029914	0.210476
Mar	-5.09202	-3.42867	25.92869	17.45886
Apr	-3.41366	-5.28855	11.65309	18.05333
May	2.015669	2.959095	4.062922	5.964557
Jun	-0.81036	0.148019	0.656691	-0.11995
July	2.029397	1.302571	4.118452	2.643433
Aug	-6.51535	-5.91364	42.44985	38.52946
Sep	0.043331	1.700532	0.001878	0.073685
Oct	0.885418	0.714605	0.783965	0.632724
Nov	-1.39111	-0.65896	1.935194	0.916688
Dec	-0.01346	-0.47076	0.000181	0.006337
SUM	-8.5047	-1.75969	100.1428	103.482

Source: https://www.valueresearchonline.com/funds/new_snapshot.asp?schemecode=198

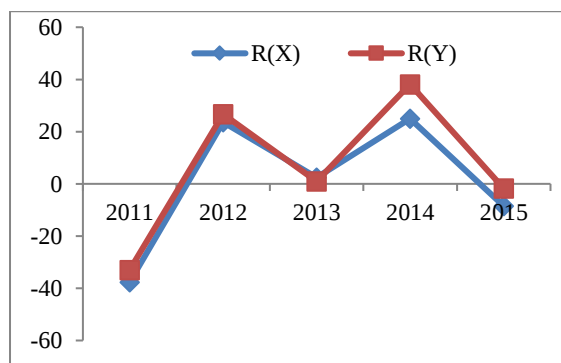


Fig. 1. Comparison between returns of fund and benchmark for the period 2011 to 2015.

(Source: https://www.valueresearchonline.com/funds/new_snapshot.asp?schemecode=198)

INFERENCE

- The fund beta value for the period 2011 to 2014 is less than 1 i.e., (0.80 < 1),

(0.82 < 1), (0.91 < 1), (0.85 < 1) and for the year 2015 it is more than 1 i.e., (1.09 > 1)

- Since the fund beta values are < 1 for the period 2011-2014. So stock is defensive. If the market goes up it will also move up but a little bit lower.

Measuring the Performance of the SBI Tax Gain Scheme for the Period 2011

1. Treynor Ratio

$$\text{Treynor ratio} = \frac{\bar{R}_p - R_f}{\beta_p}$$

$$= (-32.96 - 0.6) / 0.80$$

$$= -42.19$$

Inference: As per Treynor ratio SBI Tax Gain Scheme has not performed well.

2. Sharpe Ratio

$$\text{Sharpe Ratio} = \frac{\bar{R}_p - R_f}{\sigma_p}$$

$$= (-32.96 - 0.6) / 5.08$$

$$= -6.61$$

Inference: As per Sharpe ratio SBI Tax Gain Scheme has not performed well.

Measuring the Performance of the SBI Tax Gain Scheme for the Period 2012

3. Treynor Ratio

$$\text{Treynor ratio} = \frac{\bar{R}_p - R_f}{\beta_p}$$

$$= (26.68 - 0.6) / 0.82$$

$$= 31.96$$

Inference: As per Treynor ratio SBI Tax Gain Scheme has performed well.

4. Sharpe Ratio

$$\text{Sharpe Ratio} = \frac{\bar{R}_p - R_f}{\sigma_p}$$

$$= (26.68 - 0.6) / 4.22$$

$$= 6.18$$

Inference: As per Sharpe ratio SBI Tax Gain Scheme has performed well.

Measuring the Performance of the SBI Tax Gain Scheme for the Period 2013

5. Treynor Ratio

$$\begin{aligned} \text{Treynor ratio} &= \frac{\bar{R}_p - R_f}{\beta_p} \\ &= (0.98 - 0.6) / 0.91 \\ &= 0.41 \end{aligned}$$

Inference: As per Treynor ratio SBI Tax Gain Scheme has performed well.

6. Sharpe Ratio

$$\begin{aligned} \text{Sharp Ratio} &= \frac{\bar{R}_p - R_f}{\sigma_p} \\ &= (0.98 - 0.6) / 4.12 \\ &= 0.09 \end{aligned}$$

Inference: As per Sharpe ratio SBI Tax Gain Scheme has performed well.

Measuring the Performance of the SBI Tax Gain Scheme for the Period 2014

7. Treynor Ratio

$$\begin{aligned} \text{Treynor ratio} &= \frac{\bar{R}_p - R_f}{\beta_p} \\ &= (38.15 - 0.6) / 0.85 \\ &= 44.40 \end{aligned}$$

Inference: As per Treynor ratio SBI Tax Gain Scheme has performed well.

8. Sharpe Ratio

$$\begin{aligned} \text{Sharp Ratio} &= \frac{\bar{R}_p - R_f}{\sigma_p} \\ &= (38.15 - 0.6) / 0.85 \\ &= 10.86 \end{aligned}$$

Inference: As per Sharpe ratio SBI Tax Gain Scheme has performed well.

Measuring the Performance of the SBI Tax Gain Scheme for the Period 2015

9. Treynor Ratio

$$\begin{aligned} \text{Treynor ratio} &= \frac{\bar{R}_p - R_f}{\beta_p} \\ &= (-1.76 - 0.6) / 1.09 \\ &= -2.17 \end{aligned}$$

Inference: As per Treynor ratio SBI Tax Gain Scheme has not performed well.

10. Sharpe Ratio

$$\begin{aligned} \text{Sharp Ratio} &= \frac{\bar{R}_p - R_f}{\sigma_p} \\ &= (-1.76 - 0.6) / 3.54 \\ &= -0.67 \end{aligned}$$

Inference: As per Sharpe ratio SBI Tax Gain Scheme has not performed well.

FINDINGS

Based on different tools such as:

- **Mean:** SBI Tax Gain Scheme is yielding high returns in the year 2014 (i.e., 38%) and low returns in the year 2011 (i.e., -32%).
- **Standard Deviation:** SBI Tax Gain Scheme is having high risk in the year 2011 (i.e., 25.7%) and low risk in the year 2014 (i.e., 11.9%).
- **Beta values:** SBI Tax Gain Scheme having high risk compared to market returns in the year 2015 (i.e., 1.08%) and low risk in the year 2011 (i.e., 0.79%).

SUGGESTIONS

- SBI Tax Gain fund is having high risk, so investors are cautioned about investing in this to earn high returns.
- SBI tax gain has to be revised the portfolio to increase fund returns.
- Fund Manager should take more efforts on spreading awareness about options in ELSS as these investment instruments provides a higher return with tax saving.
- I suggest preferring ELSS scheme with SIP plan. It provides more returns and less Tax burden to the investors.

CONCLUSION

Mutual funds are one of the best options to invest the hard core savings of the investors. SBI Tax Saving Scheme is one of the best plans for Tax payers. It is performing well but it yields low returns in 2015 compared to 2014 due to many external factors and it is having

moderately high risk. Even though, it is the best scheme suggestible to the investors who are interesting to avail Tax benefits.

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