RISK AND RETURN ANALYSIS OF EQUITY LINKED SAVINGS SCHEMES OF MUTUAL FUNDS IN INDIA

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Abstract

In this paper, an attempt has been made to evaluate the performance of all 32 growth oriented open ended equity linked savings schemes of tax saving mutual funds in india. Performance has been analysed on the basis of monthly return compared to indian stock market bench mark s&p cnx nifty. For this purpose, risk-adjusted performance measures suggested by sharpe, treynor and jenson have been used. Last five years net asset value of tax saving schemes from 2006-07 to 2010-11 has been employed. It is found that no fund performed well during the entire study period. All the schemes follow the same patter in its return and moves along with the stock market index s&p cnx nifty. Invariably all the fund has given negative return during 2008-09 but it is higher than stock market index. The average return of all theschemes is higher and average risk is lower than the benchmark s&p cnx nifty.

Keywords : performance measures, equity linked savings scheme,risk adjusted return.

1.introduction

Majority tax assessee likes to save their money without paying tax. To escape from paying tax they have to invest required amount in to tax shielded avenue. Along with tax exemption they expect return out of it. Tax saving mutual fund is one of the avenue which provides market related return with tax exemption. Investors can avail tax exemption of rs. 1,00,000 by investing into tax saving mutual funds.

Mutual fund industry is emerged in 1964 in india and developed enormously. It is an general idea that through diversified portfolio mutual funds could give returns with low risk than the market risk and the volatility of the mutual fund market is less than the stock market. An investor, who is invested into stock market need to monitor the market on regular basis. Whereas, those who invested into mutual fund no need to watch the market movement for reducing the loss. The fund manager of every asset management company takes care of the investors' money. They diversify the investors' money into various sectors like oil, bank, automobile, information technology, agriculture, etc., the return from this diversified portfolio distributed to all the investor. Hence mutual fund provides nominal return with lower risk.

India has 32 open ended elss of tax saving mutual funds. This study evauates the performance of tax saving mutual funds for the past five years from 2006-07 to 2010-11. The study utilize the benchmark index s&p cnx nifty to compare mutual fund performance.

The rest of the paper is organized as summarizing the related literature on mutual fund performance, presenting data and methodology, results of the tax saving mutual funds performance analyses and final section discusses the conclusion of this paper.

2. Review of lieterature

William f. Sharpe (1966) [1], made an attempt to measure and predict the performance of mutual funds by a simple measure like average return and risk and identified that good performance of funds is associated with low expense ratio.

[1] William Sharpe, F." Mutual Fund Performance", The Journal of Business, Vol. 39, No.1, pp.119-138, 1966.

Eugene f. Fama and kenneth r. French (1992)[2], identified five common risk factors in the returns on stock and bonds. There are three stock market factors such as overall market factor, factors related to firm size and book-to-market equity. There are two bond-market factors, related to maturity and default risks. Stock returns are linked to both stock-market factors and bond market returns.

Sitkin and pablo(1992)[3], defined risk perception as risk assessment in uncertainty and it depends on the familiarity with organizational and management system. The authors also developed a model of determinants of risk behaviour and identified personal risk preferences and past experiences are the important risk factors and social influence also affects the individual's perception.

John n. Sorros(2003)[4], evaluated the risk and return of 16 equity mutual funds operating in the greek financial market over the period of 1995-1999. The study revealed that all sixteen mutual funds showed lower total risk, and risk-return coefficient than the general index of the athens stock exchange (ase) and there was a variation in return in all sixteen mutual funds.

hossein varamini svetlana kalash(2008)[5], made a this study to test the efficient market hypothesis for different market capitalization and investment styles of mutual funds. The results of the study for the entire period of 1994-2007 indicated that small cap funds have provided the highest risk-adjusted return for the entire period whereas growth funds have exhibited lower returns. The author found that the mutual funds market is not always efficient, which makes it possible for an investor or a mutual fund manger to earn excess return on a risk-adjusted basis.

Viviane y. Naimy (2008)[6], compared the return of eight different us equity funds with the nyse composite index for the period of 2000-2007 and found that both the returns are relatively moving together. The article

[2] Eugene Fama, F. and Kenneth French, R. "Common Risk Factors in the Returns on Stocks and Bonds", Journal of financial Economics, Vol. 33, pp. 3-56, 1992.

[3] Sitkin, S.B. and Pablo, Reconceptualizing the Determinants of Risk Behaviour, Academy of Management Review 17, No. 1, pp. 9-39, 1992.

[4] John Sorros, N. "Return and Risk Analysis : A case study of Equity Mutual Funds Operating in the Greek Financial Market", Managerial Finance, Vol. 29, No 9, pp. 21-28, 2003.

[5] Hossein Varamini Svetlana Kalash, "Testing Market Efficiency for Different Market Capitalization Funds", American Journal of Business, Vol. 23, Issue. 2, pp.17-27, 2008.

[6] Viviane Naimy ,Y." Equity Mutual Funds Versus Market Performance : Illusion or Reality?", The Business Review, Vol. 11, No. 1, pp.71-75, 2008.

also criticized that investors need to be aware of problems and issues of mutual funds and have to reconsider other investment alternatives for better returns.

Mukhopadhyay j.n. and veena viswanathan(2009)[7], examined whether mutual funds could actually impart more value than the stock market and protect the interest of the investors during the downturn. It was found that during the sharp downturn the schemes not only gave negative returns but also underperformed the index.

Kavitha chavali and shefali jain (2009)[8], evaluated the performance of 16 equity-linked schemes using risk and return and compared their performance with its benchmark s&p cnx nifty. It has been found in the article that majority of the investors were aware of mutual funds, its risk and return proportion.

Zakri y. Bello (2009)[9], examined five factors namely default risk premium, term premium, monetary conditions, federal fund premium, market risk premium and confirms that mutual fund returns can be strongly predicted by analyzing these factors.

3.Data

Thirty two indian based tax saving mutual funds has been obtained for the purpose of study. Daily returns of these funds are obtained from the first financial year 2006-07 to 2010-11. Daily returns of all the schemes were collected from association of mutual fund industries (amfi) reports and company reports. The proxy used in this study for the risk-free rate of return is the average yield(3.5 per cent) on post office savings scheme.

4.Methodology

this study estimates risk-return profiles for tax saving mutual funds that have been varied from five-year period to one-year period. Daily returns are used for computing annual returns and measures of return and risk. Mean returns are calculated by

[7] Mukhopadhyay, J.N. and Veena Viswanathan, "Mutual fund schemes in India – Can they Protect the Interest of the Retail Investors?", Journal of Business Management, Vol. 1, No. 1-2, pp. 81-98, 2009.

[8] Kavitha Chavali and Shefali Jain, "Investment Performance of Equity-Linked Saving Schemes- An Empirical Study", India Journal of Finance, pp. 15-22, 2009.

[9] Zakri Bello ,Y. "On the predictability of Mutual fund Returns", Journal of Business & Economic Studies, Vol. 15, No.1 pp. 70-81, 2009.

averaging the monthly returns over the relevant time period.

Nav return is the change in the net asset value of mutual fund over a given time period.

nav return = current value of units – previous value of units x 100 ----- formula (1)

previous value of units

Total risk measures by the standard deviation of returns. Systematic (market) risk is estimated by beta. Risk premium related to the total risk is measures by sharpe index. Fund's performance in relation to the market performance is measured by treynor index. Jensen's alpha is used to compare the actual or realized return of the portfolio with the predicted or calculated return. The market benchmark used here is s&p cnx nifty.

The standard deviation is a measure of variability which is used as the standard measure of the total risk of individual assets and the residual risk of portfolios of assets. This can be calculated by using the formula

$$\sigma = \sqrt{\frac{1}{N}\sum_{i=1}^{N}(x_i - \mu)^2}$$

---------- formula (2)

σ = standard deviation

X_i = each data value

μ = mean value of data

N = sample size

Sharpe measures developed by william sharpe are referred to as the sharpe ratio of the reward variability ratio. It is the ratio of the reward or risk premium to the variability of return or risk as measured by the standard deviation of return. The index assigns the highest values to assets that have best risk-adjusted average rate of return. The formula for calculating sharpe ratio may be stated as:

Sharpe ratio (sr) $= r_p - r_f$

---------- ---------- formula (3)

σ_p

Where, r_p = realised return on the portfolio

r_f = risk free rate of return

σ_p = standard deviation of the portfolio

Treynor ratio is the performance measure developed by jack treynor is referred to as treynor ratio or reward to volatility ratio. It is the ratio of the reward or risk premium to the volatility of return as

measured by the portfolio beta. The formula for calculating treynor ratio may be stated as :

$$\text{treynor ratio (tr)} = r_p - r_f \quad \text{--- formula (4)}$$

β_p

where, r_p = realised return on the portfolio

r_f = risk free rate of return

β_p = portfolio beta

Jensen ratio is another type of risk adjusted performance measure has been developed by michael jensen and is referred to as the jensen measure or ratio. This ratio attempts to measure the differential between the actual return earned on a portfolio and the return expected from the portfolio given its level of risk. The formula for calculating jensen ratio may be stated as :

$$\text{jensen ratio (jr)} = r_p - r_f + \beta_p (r_m - r_f)$$

---------- formula (5)

where, r_p = realised return on the portfolio

r_f = risk free rate of return

β_p = portfolio beta

R_m = market return

The higher sharpe, treynor and jenson perform shows the better performance of the funds in the market. The highest standard deviation has high volatility in the market.

5.Results of the study

thirty two equity linked savings schemes annualized monthly return has been identified in table i with bench mark s&p cnx nifty. From table 1, it is evident that all the schemes performed well during the financial year 2009-11. Five schemes has performed well and produced more than two per cent monthly average return. 11 schemes performed modertately, produced more then one per cent monthly average return. 16 schemes underfperformed and produced lesser than one per cent monthly average return. Icici prudential tax plan performed well and produced maximum of 6.39 per cent of average monthly return during the period 2009-10. Average monthly return of all the schemes during the year 2009-10 is higher than the risk free market return (3.5 per cent). All the schemes under performed, produced negative return during the year

2008-09 and it is higher than the stock market indices of s&p cnx nifty (-0.15 per cent), the performance decline in 2008-09 is due to the global economic crises. All the schemes performed better during the year 2007-08 than 2006-07.

Chart 1 reveales that there was ups and downs in the return of mutual funds from 2006-11. It is understood that most of the schemes does not performed well during 2006-07 and it is good during 2007-08 and does not performed well during 2008-09 and performed well in 2009-10 and performance is declined in 2010-11. From the past it can be expected that the performance of 2011-12 could be better than 2010-11.

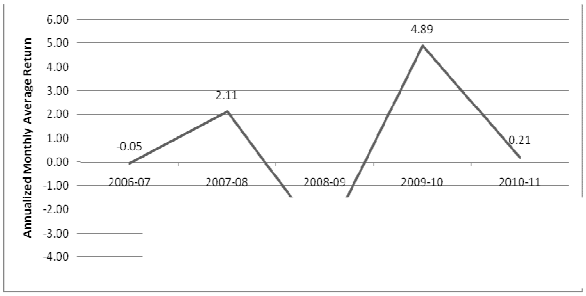
Table 1 annualized monthly average return of tax saving mutual funds

S.no	Schemes	Monthly average return (in %)				
		2006-07	2007-08	2008-09	2009-10	2010-11
1.	Sbi magnum tax gain scheme 1993	1.96	1.96	-3.40	4.96	-0.29
2.	Canara robeco equity tax saver	0.34	0.75	-2.53	5.91	0.47
3.	Hdfc taxsaver	-0.20	1.96	-2.87	5.81	0.53
4.	Licmf tax plan	-0.75	1.79	-3.40	4.00	0.64
5.	Sahara tax gain	-0.40	2.93	-2.63	4.98	0.37
6.	Franklin india tax shield	-0.87	2.53	-2.52	4.80	0.66
7.	Icici prudential tax plan	-0.45	1.68	-3.07	6.39	0.41
8.	Uti - etsp-growth	-1.06	2.52	-3.19	4.13	0.09
9.	Escorts tax plan	2.39	2.66	-5.57	4.12	-0.28
10.	Hdfc long term advantage fund	-0.20	1.60	-3.16	5.31	0.92
11.	Ing tax savings fund	0.01	0.65	-4.42	5.48	0.66
12.	Sundaram tax saver oe- app	-1.30	2.84	-2.83	4.27	-0.10
13.	Reliance tax saver (elss) fund	-0.33	1.08	-2.48	4.55	0.69
14.	L&t tax saver fund	-0.32	0.94	-4.30	6.08	-0.03
15.	Kotak tax saver-scheme	0.72	1.85	-3.85	4.77	0.03
16.	Bnp paribas tax advantage plan	-0.75	3.28	-4.97	4.00	-0.07
17.	Fidelity tax advantage fund	0.33	2.30	-2.40	4.89	0.91
18.	Dws tax saving fund	Na	3.10	-3.44	4.15	-0.49

19.	Birla sun life tax plan	Na	1.72	-3.24	4.59	0.21
20.	Hsbc tax saver equity fund	Na	1.83	-2.33	4.65	-0.10
21.	Religare tax plan	Na	2.12	-3.23	5.35	0.29
22.	Dsp black rock tax saver fund	Na	3.20	-3.14	5.23	0.17
23.	Taurus tax shield	Na	4.52	-2.40	5.03	0.33
24.	Birla sun life relief 96	Na	Na	-3.63	5.47	-0.32
25.	Jm tax gain fund -	Na	Na	-6.38	4.08	-0.81
26.	Bharti axa tax advantage fund-eco plan	Na	Na	Na	5.98	-0.81
27.	Bharti axa tax advantage fund-regular plan	Na	Na	Na	5.95	-0.81
28.	Idfc tax advantage (elss) fund	Na	Na	Na	4.28	0.16
29.	Quantum tax saving fund	Na	Na	Na	4.72	0.81
30.	Jpmorgan india tax advantage fund	Na	Na	Na	3.90	0.65
31.	Edelweiss elss fund	Na	Na	Na	3.65	0.27
32.	Axis tax saver fund	Na	Na	Na	Na	1.56
	Bench mark					
	S&p cnx nifty	**0.054**	**0.13**	**-0.15**	**0.24**	**0.045**

Source : historical nav report from 1-april-2006 to 31-march-2011, association of mutual funds in india (amfi)

Chart-1 All schemes Annualized Monthly Average Return



Source : historical nav report from 1-april-2006 to 31-march-2011, association of mutual funds in india (amfi)

The scheme with higher standard deviation is higher risk. Table 2 revealed standard deviation of all selected tax saving mutual funds. It shows that all the schemes had highest volatility during the period 2008-09. The scheme with lowest standard deviation is escorts tax plan with the standard deviation value of 8.09 in the year of 2008-09.

The average market risk of all schemes is lower during the period 2010-11. It can be noted that many mutual funds volatility is higher than stock market volatility. Generally it is said that mutual funds are risk diversified but it is proofed that market risk of mutual funds are goes along with the stock market index even some mutual funds volatility is higher than the stock market. Other than mutual fund features like diversification of fund, fund managed

By amc, no entry and exit charges, etc., all mutual funds are not risk less instrument for the retail investors.

Sharpe ratio measures the total risk of the funds on the basis of return per unit of total risk. While a high and positive sharpe ratio shows a superior risk-adjusted performance of a fund, a low and negative sharpe ratio is an indication of unfavorable performance. Table 3 revealed sharpe ratio of selected equity linked savings schemes of mutual funds. It is generally assumed that people will prefere for 'more return' and 'less risk'. Risk in the context of the sharpe ratio is return volatility. An investor would rank portfolios by their sharpe ratios. Portfolios with higher sharp and lower volatilities are preferred than portfolios with lower sharpe and higher volatilities.

Table 3 reveals that no fund has given positive sharpe value during the period 2008-09. The highest sharpe measure obtained (0.84) is by icici prudential tax plan during 2009-10, the lowest sharpe measure obtained (-0.69) is by escorts tax plan during 2008-09. In comparison, the sharpe measure of benchmark s&p cnx nifty is lower than all schemes during the period of study.

Table 2 standard deviation of tax saving mutual funds

S.no	Schemes	Standard deviation				
		2006-07	2007-08	2008-09	2009-10	2010-11
1.	Sbi magnum tax gain scheme 1993	6.24	6.52	10.81	8.74	4.69
2.	Canara robeco equity tax saver	6.67	9.90	11.78	9.25	1.55
3.	Hdfc taxsaver	6.93	7.74	10.97	7.71	1.77
4.	Licmf tax plan	7.55	8.59	10.92	9.09	0.83
5.	Sahara tax gain	5.72	8.19	9.90	9.12	1.21
6.	Franklin india tax shield	5.56	7.62	10.22	6.60	2.20
7.	Icici prudential tax plan	7.71	7.98	12.45	7.53	1.38
8.	Uti - etsp-growth	6.48	7.62	9.59	7.37	0.30
9.	Escorts tax plan	5.33	8.73	8.09	8.74	0.91
10.	Hdfc long term advantage fund	5.45	6.55	10.30	7.50	4.74
11.	Ing tax savings fund	7.91	8.09	13.18	9.45	4.73
12.	Sundaram tax saver oe- app	7.43	8.92	8.64	9.55	5.00
13.	Reliance tax saver (elss) fund	7.04	8.60	8.97	7.26	5.25
14.	L&t tax saver fund	6.23	7.36	13.46	9.70	5.13
15.	Kotak tax saver-scheme	7.60	7.89	11.20	9.31	4.84
16.	Bnp paribas tax advantage plan	8.52	9.83	10.33	7.02	5.26
17.	Fidelity tax advantage fund	5.99	7.33	9.92	6.97	4.53
18.	Dws tax saving fund	Na	9.44	11.21	6.89	5.12
19.	Birla sun life tax plan	Na	8.33	10.38	8.70	4.42
20.	Hsbc tax saver equity fund	Na	8.33	8.63	7.66	5.16
21.	Religare tax plan	Na	6.36	10.44	7.22	4.43
22.	Dsp black rock tax saver fund	Na	9.72	10.22	7.64	4.77
23.	Taurus tax shield	Na	6.85	11.88	11.05	4.98
24.	Birla sun life relief 96	Na	Na	12.58	9.93	1.05
25.	Jm tax gain fund -	Na	Na	14.25	8.38	4.87

26.	Bharti axa tax advantage fund-eco plan	Na	Na	Na	11.53	5.47
27.	Bharti axa tax advantage fund-regular plan	Na	Na	Na	11.57	5.47
28.	Idfc tax advantage (elss) fund	Na	Na	Na	7.10	5.03
29.	Quantum tax saving fund	Na	Na	Na	6.63	4.45
30.	Jpmorgan india tax advantage fund	Na	Na	Na	7.29	4.74
31.	Edelweiss elss fund	Na	Na	Na	7.75	4.65
32.	Axis tax saver fund	Na	Na	Na	Na	3.59
	Bench mark					
	S&p cnx nifty	6.641	8.759	12.09	9.267	5.539

Source : historical nav report from 1-april-2006 to 31-march-2011, association of mutual funds in india (amfi)

Table 3 shows sharpe ratio of tax saving mutual funds

S.no	Schemes	Sharpe ratio				
		2006-07	**2007-08**	**2008-09**	**2009-10**	**2010-11**
1.	Sbi magnum tax gain scheme 1993	0.31	0.29	-0.32	0.56	-0.07
2.	Canara robeco equity tax saver	0.05	0.07	-0.22	0.63	0.28
3.	Hdfc taxsaver	-0.03	0.25	-0.26	0.75	0.28
4.	Licmf tax plan	-0.10	0.20	-0.31	0.44	0.73
5.	Sahara tax gain	-0.08	0.35	-0.27	0.54	0.27
6.	Franklin india tax shield	-0.16	0.33	-0.25	0.72	0.29
7.	Icici prudential tax plan	-0.06	0.21	-0.25	0.84	0.28
8.	Uti - etsp-growth	-0.17	0.33	-0.34	0.56	0.18
9.	Escorts tax plan	0.44	0.30	-0.69	0.47	-0.34
10.	Hdfc long term advantage fund	-0.04	0.24	-0.31	0.70	0.19
11.	Ing tax savings fund	0.00	0.08	-0.34	0.58	0.13
12.	Sundaram tax saver oe- app	-0.05	0.31	-0.33	0.44	0.21
13.	Reliance tax saver (elss) fund	-0.02	0.12	-0.28	0.62	0.12

14.	L&t tax saver fund	-0.01	0.12	-0.32	0.62	-0.01
15.	Kotak tax saver-scheme	0.03	0.23	-0.35	0.51	0.00
16.	Bnp paribas tax advantage plan	-0.03	0.33	-0.48	0.57	-0.02
17.	Fidelity tax advantage fund	0.01	0.31	-0.25	0.70	0.19
18.	Dws tax saving fund	Na	0.32	-0.31	0.60	-0.10
19.	Birla sun life tax plan	Na	0.20	-0.32	0.52	0.04
20.	Hsbc tax saver equity fund	Na	0.22	-0.27	0.60	-0.03
21.	Religare tax plan	Na	0.33	-0.31	0.74	0.06
22.	Dsp black rock tax saver fund	Na	0.33	-0.31	0.68	0.03
23.	Taurus tax shield	Na	0.66	-0.20	0.45	0.06
24.	Birla sun life relief 96	Na	Na	-0.29	0.55	-0.33
25.	Jm tax gain fund -	Na	Na	-0.45	0.48	-0.17
26.	Bharti axa tax advantage fund-eco plan	Na	Na	Na	0.52	-0.16
27.	Bharti axa tax advantage fund-regular plan	Na	Na	Na	0.51	-0.16
28.	Idfc tax advantage (elss) fund	Na	Na	Na	0.60	0.02
29.	Quantum tax saving fund	Na	Na	Na	0.71	0.17
30.	Jpmorgan india tax advantage fund	Na	Na	Na	0.53	0.13
31.	Edelweiss elss fund	Na	Na	Na	0.47	0.05
32.	Axis tax saver fund	Na	Na	Na	Na	0.42
	Bench mark					
	S&p cnx nifty	0.01	0.05	-0.07	0.11	0.01

Source : historical nav report from 1-april-2006 to 31-march-2011, association of mutual funds in india (amfi)

Treynor is a measurement of the returns earned in excess of that which could have been earned on an investment that has no diversifiable risk per each unit of market risk assumed. Table 4 shows treynor meausre of equity linked tax saving fund. The higher the treynor ratio, the better the performance under analysis. From analysis it is noted that

All the schemes are performed well than the stock market index s&p snx nifty during the entire period of study.

Alpha is a risk-adjusted measure return on an investment. It is the return in excess of

the compensation for the risk borne. The alpha measure shows the level of risk associated with the return. If alpha(α_i) < 0, the investment has earned too little for its risk (or, was too risky for the return), if alpha(α_i) = 0, the investment has earned a return adequate for the risk taken and if alpha(α_i) > 0, the investment has a return in excess of the reward for the assumed risk.

Table 5 shows alpha measures of equity linked tax saving fund for the year 2006-07 to 2010-11. It is noted that the stock market has equivalent return for the risk. Stock market alpha is zero for the entire study period. It can be said that 2009-10 is glorious time for the investor, invariably all the mutual funds are produced better return during this peiod. Icici prudential tax plan seems to be a good plan, it has given highest alpha measure of 6.19 with the comparision of all other tax saving mutual funds during the period of 2006-11.

Table 4 shows treynor ratio of tax saving mutual funds

S.no	Schemes	Treynor ratio				
		2006-07	2007-08	2008-09	2009-10	2010-11
1.	Sbi magnum tax gain scheme 1993	1.92	2.75	-3.46	5.45	-0.43
2.	Canara robeco equity tax saver	0.29	0.76	-2.40	6.06	0.75
3.	Hdfc taxsaver	-0.21	2.32	-2.93	7.19	0.77
4.	Licmf tax plan	-0.66	1.95	-3.44	4.18	0.78
5.	Sahara tax gain	-0.48	3.28	-2.92	5.20	0.51
6.	Franklin india tax shield	-1.06	2.96	-2.70	6.99	0.85
7.	Icici prudential tax plan	-0.47	2.12	-2.83	8.12	0.53
8.	Uti - etsp-growth	-1.04	3.02	-3.64	5.35	0.07
9.	Escorts tax plan	4.03	2.95	-7.76	4.87	-0.42
10.	Hdfc long term advantage fund	-0.29	2.32	-3.43	6.75	1.20
11.	Ing tax savings fund	-0.02	0.83	-3.69	5.53	0.85
12.	Sundaram tax saver oe- app	-2.14	2.88	-3.81	4.25	-0.18
13.	Reliance tax saver (elss) fund	-0.35	1.24	-3.15	6.22	0.83
14.	L&t tax saver fund	-0.39	1.18	-3.50	6.09	-0.08
15.	Kotak tax saver-scheme	0.61	2.24	-3.75	4.88	-0.01

16.	Bnp paribas tax advantage plan	-0.60	1.85	-13.20	5.47	-0.13
17.	Fidelity tax advantage fund	0.31	2.89	-2.64	6.76	1.24
18.	Dws tax saving fund	Na	2.94	-3.33	5.75	-0.70
19.	Birla sun life tax plan	Na	2.01	-3.39	5.01	0.25
20.	Hsbc tax saver equity fund	Na	2.05	-2.94	5.86	-0.16
21.	Religare tax plan	Na	3.40	-3.39	7.04	0.39
22.	Dsp black rock tax saver fund	Na	3.33	-3.35	6.48	0.19
23.	Taurus tax shield	Na	4.64	-2.29	4.43	0.42
24.	Birla sun life relief 96	Na	Na	-3.21	5.21	-0.44
25.	Jm tax gain]und -	Na	Na	-5.12	4.93	-1.15
26.	Bharti axa tax advantage fund-eco plan	Na	Na	Na	5.10	-1.04
27.	Bharti axa tax advantage fund-regular plan	Na	Na	Na	5.05	-1.04
28.	Idfc tax advantage (elss) fund	Na	Na	Na	5.95	0.17
29.	Quantum tax saving fund	Na	Na	Na	6.98	1.13
30.	Jpmorgan india tax advantage fund	Na	Na	Na	5.65	0.81
31.	Edelweiss elss fund	Na	Na	Na	4.50	0.35
32.	Axis tax saver fund	Na	Na	Na	Na	-7.43
	Bench mark					
	S&p cnx nifty	0.02	0.09	-0.186	0.2053	0.01

Source : historical nav report from 1-april-2006 to 31-march-2011, association of mutual funds in india (amfi)

Table 5 shows alpha ratio of tax saving mutual funds

S.no	Schemes	Alpha ratio				
		2006-07	**2007-08**	**2008-09**	**2009-10**	**2010-11**
1.	Sbi magnum tax gain scheme 1993	1.90	1.86	-3.25	4.74	-0.33
2.	Canara robeco equity tax saver	0.28	0.63	-2.37	5.67	0.43
3.	Hdfc taxsaver	-0.26	1.85	-2.72	5.61	0.49

4.	Licmf tax plan	-0.81	1.68	-3.25	4.74	-0.33
5.	Sahara tax gain	-0.45	2.82	-2.50	4.75	0.32
6.	Franklin india tax shield	-0.92	2.42	-2.38	4.63	0.62
7.	Icici prudential tax plan	-0.51	1.58	-2.90	6.19	0.37
8.	Uti - etsp-growth	-1.11	2.41	-3.06	3.94	0.05
9.	Escorts tax plan	2.34	2.55	-5.47	3.91	-0.32
10.	Hdfc long term advantage fund	-0.26	1.50	-3.02	5.12	0.88
11.	Ing tax savings fund	-0.05	0.55	-4.23	5.25	0.62
12.	Sundaram tax saver oe- app	-1.35	2.72	-2.73	4.10	-0.15
13.	Reliance tax saver (elss) fund	-0.38	0.97	-2.37	4.30	0.64
14.	L&t tax saver fund	-0.37	0.84	-4.11	5.86	-0.07
15.	Kotak tax saver-scheme	0.66	1.74	-3.69	4.51	-0.02
16.	Bnp paribas tax advantage plan	-0.81	1.82	-3.92	3.70	-0.12
17.	Fidelity tax advantage fund	0.28	2.19	-2.27	4.66	0.86
18.	Dws tax saving fund	Na	2.97	-3.28	4.08	-0.53
19.	Birla sun life tax plan	Na	1.61	-3.10	4.37	0.17
20.	Hsbc tax saver equity fund	Na	1.71	-2.21	4.46	-0.14
21.	Religare tax plan	Na	2.03	-3.09	5.16	0.25
22.	Dsp black rock tax saver fund	Na	3.07	-3.00	5.03	0.13
23.	Taurus tax shield	Na	4.40	-2.24	4.77	0.28
24.	Birla sun life relief 96	Na	Na	-3.45	5.22	-0.36
25.	Jm tax gain]und -	Na	Na	-6.18	3.88	-0.85
26.	Bharti axa tax advantage fund-eco plan	Na	Na	Na	5.71	-0.86
27.	Bharti axa tax advantage fund-regular plan	Na	Na	Na	5.68	-0.86
28.	Idfc tax advantage (elss) fund	Na	Na	Na	4.10	0.12
29.	Quantum tax saving fund	Na	Na	Na	4.55	0.76
30.	Jpmorgan india tax advantage fund	Na	Na	Na	3.72	0.61
31.	Edelweiss elss fund	Na	Na	Na	3.45	0.23
32.	Axis tax saver fund	Na	Na	Na	Na	1.53

	Bench mark					
	S&p cnx nifty	0.00	0.00	0.00	0.00	0.00

Source : historical nav report from 1-april-2006 to 31-march-2011, association of mutual funds in india (amfi)

there are various tools help investors to measure the performance of mutual funds, decision cannot be taken by referring the results of one tool. It is necessary to use number of tools to evaluate the performance.

Nav return shows the actual return on the investment over a period of time. The past performance will not guarantee the future, still it is important to analyse the past data to forecast the future. The annualized monthly return of taurus tax shield-growth option and fidelity tax advantage fund-growth option is good during the period of study.

standard deviation is a tool that shows the volatility of the fund. It is advisable not to invest in a fund which is unstable. From the sample data, it is analysed that escorts tax plan-growth, hdfc long term advantage fund - growth option has lower volatility during the period of study than all other schemes.

Sharpe ratio measures total risk of a portfolio, it is useful measure to analyse investment area that are in similar type. Higher sharpe ratio shows better performance with lower market risk. Taurus tax shield-growth option and religare tax plan – growth plan adjusted with market return and produced better sharpe ratio during the study period.

Treynor ratio uses systematic risk, higher the treynor ratio, better the performance under analysis. Taurus tax shield-growth option and religare tax plan – growth performed well in the study period.

Alpha ratio is the difference between the average realized return of a portfolio manager with private information and the expected return of the passive strategy based upon public information only with equal systematic risk. Taurus tax shield-growth option and fidelity tax advantage fund-growth option does better during the period of study.

6. Conclusion

This paper evaluated the risk-adjusted performance of tax saving mutual funds in india. Analyzing the seasonality of funds return and benchmark return volatility in

terms of the mean adjusted. Yearly standard deviation from the daily return obtained from amfi reports and nse reports. Examining the fund volatility, it is found that the highest volatility occurs in the period of 2008-09. Risk- adjusted performance is measure by sharpe, treynor and alpha. From these measures it is found that there are certain schemes which underperform than the benchmark index that show a strong negative risk–return relation. There are certain schemes that outperform than the benchmark index with positive risk-return relation.

investor who wants to invest into tax saving mutual funds needs to make two decisions. One is which fund to hold and how much money to invest each. This study helps the investors to choose the suitable schemes for investment. It can also be stated the past performance of the funds does not reflect in future. Most of the schemes performed well in the initial period. This study analysis shows all the tax saving mutual funds is having volatility but not all the schemes volatility is lesser than the benchmark s&p cnx nifty. Most of the schemes are given higher return than the benchmark s&p cnx nifty. All the schemes are performed in same pattern towards market. Eventhough the fund movements are similar, the degree of change is not same in all theschemes. Investors' interest and keen updation of the market will help them to attain their expected return from the equity linked savings schmes of tax saving mutual funds.

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