

## Performance Evaluation of Open-Ended ELSS Mutual Fund Schemes in India during Recession

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### Abstract

*This study examined the performance of the open-ended equity linked saving mutual fund schemes (ELSS) in India during the financial distress in 2008-2009. In this study, the month end net asset values of selected equity linked saving mutual fund schemes were considered and the data was obtained from the website of Association of Mutual Funds in India (AMFI). This paper empirically examined the risk-adjusted, selectivity, diversification and market-timing performances of the open-ended (ELSS) mutual fund schemes. Here, Sharpe, Treynor, Jensen and Treynor & Mazuy models were used to measure the above stated performances. It was observed that the Sharpe and Treynor ratios of the open-ended mutual fund schemes (ELSS) were negative during the recession. Similarly, the stock-selection and market-timing performances of the managers were statistically insignificant and finally, the diversification performances of the mutual fund schemes (ELSS) were found to be unsatisfactory. Therefore, it might be concluded that the overall performances of the open-ended mutual fund schemes (ELSS) were very unsatisfactory during the recession.*

**Keywords:** *Mutual Fund, Performance, Recession, Sharpe model, Treynor model*

### INTRODUCTION

The economic progress of a country is, to a certain extent, linked to the growth of the country's capital market; and the growth of the capital market depends on the savings of the nation. In India, notwithstanding a high rate of savings by the community, the capital market has not been able to grow fast because the common person has not acquired the necessary expertise to select appropriate investment avenues. Therefore, the savings have mainly been

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directed towards non-security investment avenues such as bank deposits, real estate/gold etc. In these circumstances, there is enough scope for mutual funds to operate. At present, mutual funds are one of the most preferred investment alternatives for small as well as medium type investors. As investment vehicles, they collect funds from the public and collectively invest them in various asset classes. This enables investors to obtain satisfactory returns due to professional asset management at a relatively low cost. Investors expect good returns from investment managers because of their stock selection ability, risk bearing activities, diversification performance and market timing skills. With the growing popularity of mutual funds, performance evaluation of mutual fund schemes has become an important issue for both professionals and academicians. In this context, it becomes relevant to study the performance of the Indian mutual fund institutions.

In this study, the performance of some selected open-ended equity linked mutual fund schemes (ELSS) has been examined during a period of financial distress (i.e. the 2008-2009 period) in India. After a short introduction in section one, the literature review is presented in section two. And the objective of the study is given in section three. Data and research methodology are presented in sections four and five respectively. The results are shown in section six and finally, the study ends with a conclusion in section seven.

### **REVIEW OF LITERATURE**

A large number of academicians as well as professionals are spending their valuable time on mutual fund research worldwide. Research on mutual funds' performance first started in the USA and gradually spread all over the world because of its global importance to both investors and fund managers. There have been several performance measures suggested to evaluate the performance of mutual funds but a large number of studies have used risk-adjusted performance measures to evaluate mutual fund performance. Available literature on the performance of mutual funds addresses some important issues namely stock selection ability, market timing performance, and diversification level associated with mutual funds. In this paper, an attempt has been made to examine the performance of selected open-ended (ELSS) mutual fund schemes based on the above issues.

Treynor (1965) developed a portfolio performance evaluation model, which is popularly known as 'the reward to volatility ratio'. According to Treynor's model, portfolios are well diversified and there is non-existence of diversifiable risk. Therefore, beta (a measure of systematic risk) is the appropriate measure of risk. Similarly, Sharpe (1966)

developed another model of portfolio performance evaluation popularly known as ‘the reward to variability ratio’. In this ratio, total risk is considered in place of systematic risk. This is the difference between the Sharpe ratio and the Treynor ratio. Therefore, total variability is the appropriate measure of risk according to Sharpe. According to this model it may be said that the return is not the only factor in evaluating mutual fund performance; the element of risk also apparently influences mutual fund performance.

Jensen (1968) developed an important model for the evaluation of portfolio performance, which is universally known as the Jensen alpha ( $J_\alpha$ ) and is derived from capital asset pricing model (CAPM). The basic objective of this model is to forecast the performance of portfolio managers through successful prediction of security prices. According to this model, the ability of portfolio managers can be judged with the help of the alpha value. If the value of alpha is positive, it may be expected that the portfolio managers will offer to the investors an abnormal return. Nevertheless, no confirmation of positive alpha could be found in the study. Fama (1972) developed an important model of portfolio performance evaluation. The earlier research studies were mainly based on risk and return and were restrained into a single period only. Fama’s model evaluates portfolio performance using different parameters namely: - stock-selection, market timing, diversification and return for bearing risk.

Treynor and Mazuy (1966) developed a model through which the market timing performances of managers could be examined. They examined market timing performances of 57 mutual funds and reported that there was no evidence of statistically significant market-timing performances. Henrikson and Merton (1981) hereafter referred to as H&M, evaluated the performances of 116 mutual fund schemes. The study reported that only three schemes offered statistically significant market-timing performance. EL-Khoury (1993) examined the risk-return relationship by taking into account the data from the Amman Stock Exchange. The study reported that the debt-to-equity ratios of the funds were not correlated with required return. Shah and Hijazi (2005) examined mutual fund performance in Pakistan from 1997 to 2004. They considered a sample of equity and balanced funds. They used Sharpe, Treynor and Jensen differential measures to study the risk-adjusted performances and selectivity of the funds. Their study reported existence of negative Sharpe ratio but on overall basis, the Sharpe ratio was 0.47 as compared to that of the market (0.27). Similarly, the Treynor ratios of all the funds were less than the beta values. However, on overall basis, the Treynor ratio was 0.13. Finally, the study reported that some of the funds had negative alpha but on overall basis, the alpha value of the funds industry was found to be 6.03.

Kapil Choudhary (2007) examined the overall performance of mutual fund managers by taking into consideration 50 equity mutual fund schemes in India over a period of eight years (from January 1998 to December 2005). Fama's decomposition theory was used in this study to measure investment performance and the study reported that the stock-selection ability of the investment managers was satisfactory but market-timing performance was absent. However, the return for bearing risk and diversification performances were positive. G.Artikis (2004) evaluated the performance of 30 domestic bond mutual fund managers in Greece over the period from 15/03/1999 to 31/12/2001 by applying the Treynor & Mazuy model. The study reported that 90% of the fund managers had the ability to choose under-priced securities, 20% of the sample mutual fund managers had the power to outguess the market at right time and another 20% of the sample mutual fund managers had the ability to select under-priced securities as well as outguess the market at correct time. Similarly, Filippas and Psoma (2001) examined the performance of 17 equity mutual funds in Greece. They applied the Treynor & Mazuy model to examine the market timing performances of the mutual fund managers and the study reported that four out of 17 mutual funds exhibited superior market-timing performance.

Santos, Costa, Tusi and Silva (2005) examined mutual fund performance in Brazil over from April 2001 to July 2003 by taking into account 307 Brazilian stock mutual funds. They applied the stochastic frontier approach in their study. The study reported that fund efficiency depends on management skills and properly managed funds can outperform the market. Jordan, Jorgensen and Smolira (2004) examined mutual fund performance over from 1995 to 2001 by taking into consideration 78 closed US mutual funds. For the study, they collected data from the Centre for Research in Security Prices' mutual fund database and they applied the Sharpe, Treynor, Jensen and Fama & French models. They reported that the mutual funds performed well in 12 months before closing and their performances declined after closing. Thanou (2008) evaluated the performance of Greek mutual funds from 1997 to 2005. He selected 17 Greek equity mutual funds from the Association of Greek Institutional Investors, ensured continuity and uniformity and employed risk-adjusted performance measures of Sharpe, Treynor, Jensen and Treynor & Mazuy. He divided the period of study into three sub-periods and divided the market into two categories namely: - up-market condition and down-market condition. In this study, monthly return data was considered. The study reported that the ranks of the funds as per the Sharpe and Treynor measures were the same and also that the fund managers could not outguess the market at right time.

Bello(2009) examined the performance of 5 categories of U.S. equity mutual funds during the recessions of 1990 and 2001 and during the 12 months after each recession that was identified by the National Bureau of Economic Research (NBER). After analysis of results, the study reported that the return performances of all the mutual funds were significantly higher than the market index and after the recession of 1990. Similarly, during the recession of 2001, he reported that the entire sample's performance was in decline trend during the post-recession period. He also observed that one category fund (small company) had positive returns during the depression while the remaining samples experienced negative returns during the recession and after the recession.

Roy and Ghosh (2010) examined the diversification performance of open-ended income and growth schemes in India from January 2001 to December 2009. The study reported that the diversification performance of both types of schemes were not satisfactory. Similarly, Roy and Ghosh (2011) examined the selectivity performances of the open-ended mutual fund schemes in India over the period of nine years. They applied Jensen model and reported that the selectivity performances of the managers were very unsatisfactory. This study seeks to examine; a) the risk-adjusted performance, b) the selectivity performance, c) the diversification performance and d) the market-timing performance of the open-ended ELSS.

### **DATA**

The sample consisted of 52 open-ended equity linked saving (ELSS) mutual fund schemes selected from different mutual fund companies. The period of study was from January 2008 to February 2009 (14 months). The study used secondary data because it pertained empirical analysis of reported financial data. Monthly closing net assets values (NAV), obtained from the official website of Association of Mutual Funds in India (AMFI), and closing prices for the benchmark market index (BSE Sensitive Index) were used. Finally, the study employed the post office saving deposit interest rate of as the proxy risk-free rate of return. This data was collected from the report of currency and finance, published by the Reserve Bank of India. In India, the T-Bill rate is used as the risk-free rate of return. But the reason behind using the post office interest rate as the risk free rate is because Indian investors at least deposit their minimum savings in the post office because of the high security associated with the post office .

### **METHODOLOGY**

In this study, various models were applied to examine the objectives. After Markowitz's portfolio performance evaluation theory, Treynor in 1965 introduced the risk-adjusted performance measure, popularly known as the reward to volatility ratio. He computed the excess return over the risk-free rate (risk premium) and then divided it by the systematic risk (beta coefficient). The model as under:

$$T_i = \frac{R_i - R_f}{\beta_i} \quad (1)$$

Where,  $T_i$  is the Treynor index of the  $i^{\text{th}}$  scheme,  $R_i$  is the average monthly return of the  $i^{\text{th}}$  scheme,  $R_f$  is the average monthly risk-free rate of return of the  $i^{\text{th}}$  scheme,  $\beta_i$  is the beta coefficient of the  $i^{\text{th}}$  scheme. The Treynor ratios of the schemes were computed and ranked according to their performances in descending order and compared with the market's Treynor ratios to find out the outperformers. The Sharpe measure provides the reward to variability trade-off. This ratio is similar to the Treynor ratio except that it defines reward per unit of total risk. Thus, the Sharpe ratio was computed by taking into consideration the return of the scheme in excess of the risk-free rate and divided by the scheme's standard deviation. The Sharpe ratio is as under:

$$S_i = \frac{R_i - R_f}{\sigma_i} \quad (2)$$

Where,  $S_i$  is the Sharpe ratio of the  $i^{\text{th}}$  scheme,  $R_i$  is the average monthly return of  $i^{\text{th}}$  scheme,  $R_f$  is the average monthly risk-free rate of return of the  $i^{\text{th}}$  scheme,  $\sigma_i$  is the standard deviation of the  $i^{\text{th}}$  scheme which is a numerical measure of total risk of the  $i^{\text{th}}$  scheme and computed as under:

$$\sigma_i = \sqrt{\frac{\sum R_i}{n} - \left(\frac{\sum R_i}{n}\right)^2} \quad (3)$$

This model measures the excess return earned ( $R_i - R_f$ ) per unit of total risk. The Sharpe ratios of the schemes were computed and ranked according to their performances in descending order and they were then compared with the market to find out the outperformers. It was

assumed that if the managers completely reduced the quantum of unsystematic risk, then the ranks of the schemes on both measures would be same. In this study, the Jensen measure which is under the capital asset pricing model framework was used.. The risk-adjusted Jensen model allows examining whether the mutual fund managers have the ability to select the right scheme in a statistically significant way or not. The model is as under:

$$R_i = \alpha_i + \beta_i(R_m) + e_i \quad (4)$$

Where,  $R_i$  is the average monthly return of the  $i^{\text{th}}$  mutual fund scheme,  $R_m$  is the average monthly market return of the  $i^{\text{th}}$  mutual fund scheme,  $\beta_i$  is the beta coefficient of the  $i^{\text{th}}$  scheme,  $\alpha_i$  is the intercept term of the  $i^{\text{th}}$  scheme that indicates manager's ability of stock picking ability and  $e_i$  is the error term, assumed to follow a Gaussian distribution with zero mean and constant standard deviation. Positive values for alpha indicate superior stock selection ability of managers while negative alpha values highlight inferior stock selection ability of the managers.

In addition to these, the market-timing performances of the mutual fund schemes were examined during the market downturn. If a fund manager possesses superior market forecasting ability, then he/she can easily predict the market movement and adjusts the portfolio's composition accordingly. During market rallies, the market return exceeds the risk free return ( $R_m > R_f$ ) and at times of market downturn, the risk-free return exceeds the market return ( $R_f > R_m$ ). An efficient mutual fund manager changes the portfolio composition to more high risk securities with the expectation of higher return in high market and to more low risk securities with the fear of loss in market downturn. The Treynor & Mazuy model has been applied in this study to examine the market timing performance of the schemes. The model is as under:

$$R_i - R_f = \alpha_i + \beta_i(R_m - R_f) + \gamma_i(R_m - R_f)^2 + e_i \quad (5)$$

Where,  $(R_i - R_f)$  is the excess return over the risk-free rate of  $i^{\text{th}}$  mutual fund scheme,  $\gamma_i$  is the gamma coefficient (a numerical measure of market-timing ability) of the  $i^{\text{th}}$  mutual fund

scheme  $R_m$  is the market return,  $R_f$  is the risk free rate,  $e_i$  is the error term and  $\alpha_i$  is the intercept term. A statistically significant gamma value indicates a manager's superior market-timing ability and a negative gamma value represents a manager's inferior market-timing ability..

The return ( $R_i$ ) of the open-ended (ELSS) mutual fund scheme over a period of time is computed as under:

$$R_i = \frac{\text{Nav}_t - \text{Nav}_{t-1}}{\text{Nav}_{t-1}} * 100 \quad (6)$$

Where,  $\text{Nav}_t$  is the net asset value of the current month of the  $i^{\text{th}}$  scheme and  $\text{Nav}_{t-1}$  is the net asset value of the previous month of the  $i^{\text{th}}$  scheme. Similarly, the market return ( $R_m$ ) is calculated as under:

$$R_m = \frac{\text{Market Index}_t - \text{Market Index}_{t-1}}{\text{Market Index}_{t-1}} * 100 \quad (7)$$

Where,  $\text{Market Index}_t$  is the monthly market return of the current month and  $\text{Market Index}_{t-1}$  is the monthly market return of the previous month.

### EMPIRICAL FINDINGS AND DISCUSSION

In the study, the Sharpe, Treynor, Jensen and T&M models were used to study the risk-adjusted, selectivity, diversification and market timing performances of the open-ended (ELSS) mutual fund schemes during financial depression. The risk-adjusted performances of the open-ended mutual fund schemes based on Sharpe and Treynor measures are presented in Table.1. It was observed that the risk premiums ( $R_i - R_f$ ) of the open-ended equity linked saving mutual fund schemes were negative during the stock market downturn and therefore, the Sharpe ratios of the schemes were also negative. Thus, it might be said that the managers were unable to generate positive returns during the financial comedown.



When the schemes were ranked by their Sharpe measures in descending order, the first rank was given to the Canara Robeco Equity Tax Saver-Dividend Option scheme whose Sharpe ratio was -0.4416. The second rank was given to the Birla Sun Life Relief 96-Dividend Option scheme which had a Sharpe ratio of -0.6212 and so on. Finally, the last rank was given to the ICICI Prudential Tax Plan-Dividend scheme whose Sharpe ratio was found to be -2.3630. Thus, it might be said that the net asset values of the open-ended equity linked saving mutual fund schemes were gradually decreased; and as a result, the Sharpe ratios of the schemes also became negative. According to the Treynor ratio, the computed risk premiums ( $R_i - R_f$ ) of the schemes were negative. Therefore, it is evident that the reward-to-volatility ratios of the schemes became negative during the period of financial distress.

On ranking the schemes by their Treynor Measures, The first rank was given to the Franklin India Index Tax Fund whose reward to volatility ratio was found to be -11.6764 and the second highest rank was awarded to Birla Sun Life Relief 96-Dividend Option (-12.4848) and so on. The last rank was posted to DSP Black Rock Tax Saver Fund-Dividend whose Treynor ratio was -1017.03. Hence, it might be said that the returns of the schemes were negative during the financial depression because of unfavourable movement of net asset values of the schemes. The Treynor ratios of the schemes were found to be negative and this adversely affected the investors. In this study, the Jensen measure was applied to examine stock selection performances of the open-ended equity linked saving mutual fund schemes during the economic downturn. The selectivity performances of the mutual fund managers were presented in Table.2.

In respect to stock selection performance, managers are said to be efficient only when they generate positive alphas as they ultimately provide positive returns to investors. Sometimes, managers provide abnormal returns over and above normal returns. This happens only when managers generate statistically significant alphas. It was observed that the Jensen alphas of the open-ended equity linked saving mutual fund schemes were negative during the recession. At that time, the managers could not select the right stock for satisfactory returns. The insignificant t-statistics of alpha values also point to the absence of superior stock

selection performance. Therefore, it might be said that managers could not provide satisfactory returns the investors through stock selection activities during financial depression.

In this study, diversification performances of the open-ended (ELSS) mutual fund schemes were measured with the help of the coefficient of determination ( $R^2$ ). In regression, the coefficient of determination ( $R^2$ ) is a statistical measure of how well the regression line approximately fit with the real data. It compares the explained variation (variation of the model's estimation) with the total variation (real data). The value of  $R^2$  lies between 0 and 1. Generally, the diversification performance depends on the value of  $R^2$ . If the  $R^2$  value is higher, then the diversification performance will be better. Diversification is a risk minimisation procedure. Generally, the managers spread the quantum of unsystematic risks in many securities as a strategy of risk reduction. The diversification performances of the mutual fund schemes are presented in Table.3. Generally, the extent of systematic risk ( $\beta$ ) cannot be eliminated because of market factors but unsystematic risk can be reduced by adopting a proper diversification strategy. In this study, the  $R^2$  value varied from 0.000 to 0.651. The highest  $R^2$  value was that of the Franklin India Index Tax Fund scheme (0.651), followed by that of the Franklin India Index tax shield-Dividend (0.423). The third highest  $R^2$  value was that of theHDFC long term advantage fund-Growth Option (0.301). Thus, it may be concluded that inadequate diversification of mutual fund schemes provide excessive amount of risks with negative excess returns ( $R_i - R_f$ ) during the economic downturn.

Finally, the Treynor & Mazuy model was used to examine the market-timing performances of the open-ended (ELSS) mutual fund schemes. Market timing is a business strategy which is applied by the mutual fund managers in times of market volatility. Satisfactory market-timing performance provides higher returns to the investors. Sometimes, fund managers provide extra returns to investors' when they generate statistically significant gamma values. The market-timing performances of the open-ended (ELSS) mutual fund schemes were presented in Tab.3. The gamma values of the schemes were estimated through quadratic regression equation as suggested by Treynor & Mazuy. It was observed that the

gamma values of seven (ELSS) mutual fund schemes were negative and the gamma values of the remaining schemes were positive. The gamma values of the schemes were very poor. However, the gamma value of HSBC Tax Saver Equity Fund-Dividend was found 0.037, which was statistically significant at 5% confidence level. Therefore, it might be said that the manager of that scheme successfully predicted the market movement. But, in overall sense, the market-timing performances of the open-ended (ELSS) mutual fund schemes were unsatisfactory and investors did not benefit from market-timing performances.

### **CONCLUSION**

In this study, performances of open-ended equity linked saving mutual fund schemes (ELSS) were examined during the financial distress period from January 2008 to February 2009 in India. In this paper, several kinds of performances were empirically examined namely: - risk-adjusted performance, market-timing performance, diversification performance and selectivity performance. The risk-adjusted performances of the open-ended mutual fund schemes (ELSS) were evaluated using the Sharpe and Treynor measures and found negative during the market downturn. On the other hand, the diversification, selectivity and market-timing performances were examined during that period and observed unsatisfactory. Therefore, it might be concluded that the overall performances of the open-ended mutual fund (ELSS) schemes were poor during the stock market comedown. Hence, managers of open-ended mutual fund schemes were unable to generate positive returns for the investors. Further, at the time of market come down, it may be said that the mutual funds are not the attractive investment avenues for investors seeking assured and adequate returns.

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## APPENDIX

TABLE 1

## Sharpe Ratio and Treynor Ratio of The Open-Ended Mutual Fund Schemes

Sl.No	Scheme Name	R/V Ratio	Rank	Treynor Ratio	Rank
1	ABN Amro Tax Adv Plan(ELSS)-D. Option	-1.4902	47	-38.651	24
2	ABN Amro Tax Adv Plan(ELSS)-Gr. Option	-0.8092	10	-16.058	4
3	Baroda Pioneer ELSS 96	-0.8896	13	-30.5429	19
4	Birla Sun Life Relief 96-Div.Option	-0.6212	2	-12.4848	2
5	Birla Sun Life Relief 96-Growth.Option	-0.6359	4	-45.677	30
6	Birla sun life tax plan dividend option	-1.1483	27	-62.4032	37
7	Birla sun life tax plan growth option	-0.6886	5	-19.6271	7
8	Canara robeco equity tax saver-div option	-0.4416	1	-354.700	50
9	DBS chola tax saver fund-cumulative Option	-0.6315	3	-32.9459	21
10	DBS chola tax saver fund-dividend Option	-1.3730	44	-49.8582	33
11	DWS tax saving fund-dividend	-1.1883	30	-67.164	41
12	DWS tax saving fund-growth	-2.0150	51	-41.2255	26
13	DSP black rock tax saver fund-dividend	-1.3627	42	-1017.03	52
14	DSP black rock tax saver fund-growth	-0.7406	6	-39.6629	25
15	Escorts tax plan-dividend	-0.8610	11	-33.8195	22
16	Escorts tax plan-Growth	-0.9807	15	-25.2702	12
17	Fidelity tax advantage fund-dividend option	-1.3645	43	-486.856	51
18	Fidelity tax advantage fund-growth option	-1.2173	34	-59.6905	36
19	Franklin India Index tax fund	-0.9509	14	-11.6764	1
20	Franklin India Index taxshield-dividend	-1.3225	37	-20.1422	8
21	Franklin India Index taxshield-growth	-0.7442	7	-139.868	44
22	HDFC long term advantage fund-dividend opt	-1.3181	36	-247.511	49
23	HDFC long term advantage fund-growth opt	-1.3469	39	-24.3586	10
24	HDFC tax saver-dividend plan	-1.1477	26	-44.9824	29
25	HDFC tax saver-growth plan	-0.7202	8	-13.0653	3
26	HSBC tax saver equity fund-dividend	-1.0350	18	-46.731	31
27	HSBC tax saver equity fund-growth	-1.3506	40	-149.809	46

28	ICICI prudential tax plan-dividend	-2.3630	<b>52</b>	-55.4794	34
29	ICICI prudential tax plan-growth option	-1.2008	31	-24.5012	11
30	ING tax saving fund-bonus option	-1.6926	50	-42.0743	27
31	ING tax saving fund-dividend option	-1.3968	45	-151.298	47
32	ING tax saving fund-growth option	-1.6706	49	-42.5858	28
33	JM tax gain fund-dividend option	-1.2038	32	-131.988	45
34	JM tax gain fund-growth option	-1.0845	20	-66.9789	40
35	Kotak tax saver scheme-dividend	-1.1542	28	-57.2696	35
36	Kotak tax saver scheme-growth	-1.4056	46	-66.8759	39
37	LIC nomura MF tax plan-dividend	-1.0754	19	-107.313	43
38	LIC nomura MF tax plan-growth	-1.0299	17	-27.5044	45
39	Principal personal tax saver fund	-1.0865	22	-18.9067	6
40	Principal personal tax saving fund	-1.5899	48	-30.7429	20
41	Reliance tax saver(ELSS) fund-D. Pln-Dv. Op	-1.0968	23	-47.7161	32
42	Reliance tax saver(ELSS) fund-G. Pln-Gr. Op	-1.1536	29	-71.0750	42
43	Religare tax plan-dividend	-0.8085	9	-16.2208	5
44	Religare tax plan-growth	-0.8695	12	-63.5716	38
45	SBI magnum tax gain scheme 1993-dividend	-1.2167	33	-28.2493	16
46	SBI magnum tax gain scheme 1993-growth	-1.1209	25	-29.4583	18
47	Sundaram tax saver OE-Dividend	-1.0864	21	-158.878	48
48	Sundaram tax saver OE-Appreciation	-1.2221	35	-22.9357	9
49	Tata tax saving fund	-1.3453	38	-27.1027	14
50	Tarus tax shield-growth option	-1.0159	16	-25.2707	13
51	UTI – ETSP-Growth Option	-1.3626	41	-29.3419	17
52	UTI – ETSP – income option	-1.1145	24	-35.8966	23

**TABLE 2**  
**Selectivity Performance of the Mutual Fund Schemes**

Sl.No	Scheme Name	$\alpha$ (Alpha)	t-statistic
1	ABN Amro Tax Adv Plan(ELSS)-D. Option	-6.493	-4.313
2	ABN Amro Tax Adv Plan(ELSS)-Gr. Option	-3.703	-1.911
3	Baroda Pioneer ELSS 96	-6.250	-2.424
4	Birla Sun Life Relief 96-Div.Option	-2.924	-1.253
5	Birla Sun Life Relief 96-Growth.Option	-4.718	-1.686
6	Birla sun life tax plan dividend option	-5.161	-3.188
7	Birla sun life tax plan growth option	-3.783	-1.609
8	Canara robeco equity tax saver-div option	-9.680	-1.867
9	DBS chola tax saver fund-cumulative Option	-4.122	-1.591
10	DBS chola tax saver fund-dividend Option	-6.443	-3.919
11	DWS tax saving fund-dividend	-7.741	-3.453
12	DWS tax saving fund-growth	-6.596	-6.214
13	DSP black rock tax saver fund-dividend	-6.983	-4.147
14	DSP black rock tax saver fund-growth	-4.724	-1.948
15	Escorts tax plan-dividend	-5.796	-2.308
16	Escorts tax plan-Growth	-5.714	-2.615
17	Fidelity tax advantage fund-dividend option	-8.802	-4.254
18	Fidelity tax advantage fund-growth option	-7.450	-3.514
19	Franklin India Index tax fund	-3.587	-2.827
20	Franklin India Index taxshield-dividend	-5.914	-4.077
21	Franklin India Index taxshield-growth	-3.809	-2.031
22	HDFC long term advantage fund-dividend option	-6.613	-3.908
23	HDFC long term advantage fund-growth option	-4.441	-3.811
24	HDFC tax saver-dividend plan	-5.499	-3.169
25	HDFC tax saver-growth plan	-2.733	-1.524
26	HSBC tax saver equity fund-dividend	-10.599	-3.733
27	HSBC tax saver equity fund-growth	-7.899	-4.033
28	ICICI prudential tax plan-dividend	-8.097	-7.379
29	ICICI prudential tax plan-growth option	-4.606	-3.272



30	ING tax saving fund-bonus option	-7.820	-5.069
31	ING tax saving fund-dividend option	-10.078	-4.675
32	ING tax saving fund-growth option	-7.978	-4.995
33	JM tax gain fund-dividend option	-9.183	-3.624
34	JM tax gain fund-growth option	-10.183	-3.650
35	Kotak tax saver scheme-dividend	-9.032	-3.371
36	Kotak tax saver scheme-growth	-6.826	-4.064
37	LIC nomura MF tax plan-dividend	-7.267	-3.154
38	LIC nomura MF tax plan-growth	-5.478	-2.762
39	Principal personal tax saver fund	-4.657	-2.953
40	Principal personal tax saving fund	-5.657	-4.720
41	Reliance tax saver(ELSS) fund-D. Pln-Dv. Op	-5.684	-3.039
42	Reliance tax saver(ELSS) fund-G. Pln-Gr. Op	-6.184	-3.287
43	Religare tax plan-dividend	-4.269	-1.952
44	Religare tax plan-growth	-6.738	-2.829
45	SBI magnum tax gain scheme 1993-dividend	-5.135	-3.341
46	SBI magnum tax gain scheme 1993-growth	-5.320	-3.041
47	Sundaram tax saver OE-Dividend	-5.607	-3.312
48	Sundaram tax saver OE-Appreciation	-3.714	-3.272
49	Tata tax saving fund	-4.753	-3.772
50	Tarus tax shield-growth option	-6.141	-2.748
51	UTI – ETSP-Growth Option	-5.453	-3.866
52	UTI – ETSP – income option	-8.192	-3.166

**TABLE. 3**  
**Diversification and Market-Timing Performance of The Mutual Fund Schemes**

Sl.No	Scheme Name	R <sup>2</sup>	$\gamma$	t-statistic
1	ABN Amro Tax Adv Plan(ELSS)-D. Option	0.147	0.021	1.697
2	ABN Amro Tax Adv Plan(ELSS)-Gr. Option	0.251	0.019	1.137
3	Baroda Pioneer ELSS 96	0.057	0.000	0.019
4	Birla Sun Life Relief 96-Div.Option	0.244	0.013	0.598
5	Birla Sun Life Relief 96-Growth.Option	0.019	0.000	0.017
6	Birla sun life tax plan dividend option	0.033	0.007	0.446
7	Birla sun life tax plan growth option	0.121	0.008	0.379
8	Canara robeco equity tax saver-div option	0.090	-0.076	-1.867
9	DBS chola tax saver fund-cumulative Option	0.036	0.010	0.440
10	DBS chola tax saver fund-dividend Option	0.074	0.021	1.563
11	DWS tax saving fund-dividend	0.031	0.041	0.698
12	DWS tax saving fund-growth	0.235	0.004	0.469
13	DSP black rock tax saver fund-dividend	0.000	0.015	1.036
14	DSP black rock tax saver fund-growth	0.034	0.022	1.053
15	Escorts tax plan-dividend	0.064	0.077	0.306
16	Escorts tax plan-Growth	0.148	-0.033	-0.167
17	Fidelity tax advantage fund-dividend option	0.001	0.002	0.121
18	Fidelity tax advantage fund-growth option	0.041	0.027	1.526
19	Franklin India Index tax fund	0.651	0.002	0.169
20	Franklin India Index taxshield-dividend	0.423	0.002	0.179
21	Franklin India Index taxshield-growth	0.003	0.010	0.610
22	HDFC long term advantage fund-div option	0.003	0.007	0.481
23	HDFC long term advantage fund-growth opt	0.301	-0.008	-0.738
24	HDFC tax saver-dividend plan	0.064	0.010	0.666
25	HDFC tax saver-growth plan	0.298	0.007	0.412
26	HSBC tax saver equity fund-dividend	0.048	0.019	0.715
27	HSBC tax saver equity fund-growth	0.008	0.037	2.696**
28	ICICI prudential tax plan-dividend	0.179	0.000	-0.038
29	ICICI prudential tax plan-growth option	0.237	-0.006	-0.499
30	ING tax saving fund-bonus option	0.159	0.014	1.083

31	ING tax saving fund-dividend option	0.008	0.033	1.774
32	ING tax saving fund-growth option	0.151	0.013	0.900
33	JM tax gain fund-dividend option	0.008	0.002	0.092
34	JM tax gain fund-growth option	0.026	0.017	0.692
35	Kotak tax saver scheme-dividend	0.040	0.014	0.583
36	Kotak tax saver scheme-growth	0.044	0.021	1.483
37	LIC nomura MF tax plan-dividend	0.010	-0.021	-1.062
38	LIC nomura MF tax plan-growth	0.137	0.015	0.850
39	Principal personal tax saver fund	0.324	0.032	0.082
40	Principal personal tax saving fund	0.263	0.065	0.157
41	Reliance tax saver(ELSS) fund-D. Pln-Dv. Op	0.052	-0.432	-0.967
42	Reliance tax saver(ELSS) fund-G. Pln-Gr. Op	0.026	0.025	1.666
43	Religare tax plan-dividend	0.244	-0.016	-0.809
44	Religare tax plan-growth	0.018	0.013	0.610
45	SBI magnum tax gain scheme 1993-dividend	0.182	0.004	0.254
46	SBI magnum tax gain scheme 1993-growth	0.142	0.013	0.868
47	Sundaram tax saver OE-Dividend	0.005	0.012	0.797
48	Sundaram tax saver OE-Appreciation	0.279	0.001	0.116
49	Tata tax saving fund	0.243	-0.002	-0.143
50	Tarus tax shield-growth option	0.159	0.017	0.844
51	UTI – ETSP-Growth Option	0.213	0.007	0.540
52	UTI – ETSP – income option	0.095	0.002	0.967

\*\* Significant at 5% level.