

ADVENT



**AIMS
Journal**

AIMS

A Journal of Management Sciences

ISSN No. 0974-2581

Vol. 3, No. 2

March-August 2011

Advent Institute of Management Studies

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Performance Evaluation of Selected Indian Mutual Funds Schemes: 2000



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Abstract

Performance evaluation reveals a fund manager's success based on examination of the return generated in the investment process. In this paper an attempt is made to evaluate the performance of 137 selected open-ended mutual fund schemes on the basis of monthly returns from January 2000 to December 2009. This paper evaluates the performance of mutual fund schemes by using five performance measures: (a) Rate of Return Measure, (b) Sharpe Ratio, (c) Treynor Ratio, (d) Jensen Measure, (e) Fama's Components of Investment performance measure. The results reported here indicated that the sample schemes, on an average, performed better than the risk free return but performed poorer than the market return. The sample schemes are not adequately diversified. And the performance of sample schemes is not similar across the different measurement criteria. However, there have been some cases where superior performance has surely been reflected. And compared to public sector mutual fund, private sector mutual fund performed better.

I. Introduction :

Mutual funds make saving and investing simple, accessible, and affordable. The advantages of mutual funds include professional management, diversification, variety, liquidity, affordability, convenience, and ease of recordkeeping—as well as strict government regulation and full disclosure. A Mutual Fund is a trust that pools the savings of a number of investors who share a common financial goal. The investment performance of managed portfolio has received significant attention from researchers and practitioners' world over during the past four and a half decades. With the setting up of more and more number of funds every year, offering a wide range of schemes to their investors, it becomes difficult for the investors to choose a particular fund suiting best to their needs and

finances. The mutual funds have made every possible attempt to cater to their investors and keep them informed about their investments through the company prospectus. So that the investors get a good idea of the prospects of the fund performance, the prospectus provides with valuable insight on: How risky is the investment? Whether the company is investing in large, small or medium companies? What is the amount of costs (fees) likely to be incurred? What are the investment strategies adopted by the fund managers while they are investing in different securities?

Rationale of the study :

Mutual Funds have attracted a lot of attention and interest of both academicians and practitioners. There have been excellent studies on the mutual fund performance using the riskadjusted

performance measures, on the market timing and stock selection skills of the fund manager and on how different fund characteristics affect the performance of mutual fund. Performance evaluation of mutual funds has been widely carried out for the US funds and to a lesser extent for India and other countries. The rationale of the study is that, the study used ten year data with 137 open ended schemes to analyze the performance of the selected schemes of mutual funds in India. In India no study has been carried out with ten year period with 137 schemes.

II. Literature Review :

There has been many excellence studies conducted on the mutual fund performance using the risk-adjusted performance measures. This section, therefore, reviews major studies relating to performance evaluation of mutual fund schemes carried out both in India and abroad.

Mutual fund performance related studies in the foreign context :

Irwin Friend and Douglas Vickers (1965)¹ evaluated the performance of mutual funds against the randomly constructed portfolios. The study concluded that mutual funds on the whole had not performed superior to random portfolio. Jack L. Treynor (1965)² developed a methodology for performance evaluation of a mutual fund that is referred to as 'reward to volatility ratio'. This ratio has been normally used both by researcher and practitioners for measuring the performance of mutual fund schemes. This is defined as average excess return on the portfolio. William F. Sharpe (1966)³ developed a methodology to measure the performance of the mutual fund better known as 'reward to variability ratio'. The study used 34 open-ended schemes for the period 1954-63. The average reward to variability ratio of 34 schemes

was considerably smaller than the benchmark portfolio and it was concluded that overall performance of the sample schemes was inferior to a benchmark portfolio. Michael C. Jensen (1968)⁴ developed a measure of performance based upon the Capital Asset Pricing Model. He examined the performance of 115 open-ended mutual schemes over the period of 20 year, 1945-1964. The study reported that 76 out of 115 schemes realized negative risk-adjusted returns after accounting for management fees and transaction cost. He concluded that the evidence on mutual fund performance indicated not only that these 115 mutual fund were on average not able to predict security prices well enough to outperform a buy-the-market-and-hold policy, but also that there were very little evidence that any individual fund was able to significantly better than that which expected from mere random chance. Eugene F. Fama (1972)⁵ suggested that the overall performance could be broken down into several components. He suggested a comprehensive mechanism for segregating the observed investment return due to the managers' ability to pick up the best securities at a given level of risk (selectivity) from that resulting from the prediction of general market price movement (timing). This model combined concepts from modern theories of portfolio selection and capital market equilibrium with those of traditional concepts of what constituted good portfolio management. F. Modigliani and L. Modigliani (1997)⁶ developed a measure to evaluate the annualized risk adjusted performance (RAP) of a portfolio in relation to the market benchmark, expressed in percentage terms. They reported that the portfolio and its benchmark must have the same risk to be compared in terms of basis points of risk-adjusted performance. So they proposed that the portfolio be leveraged or

deleveraged using the risk-free asset. They also reported that for a fund with any given risk and return, this measure was equivalent to the return the fund would have achieved if it had the same risk as the market index. The relationship therefore allowed situating the performance of the fund in relation to that of the market. Stuart Michelson et al. (2008)⁷ investigated the performance of open-end actively managed emerging market mutual funds during the time period 1999 to 2005. The analysis was cross-sectional and time series across a wide range of emerging markets. Monthly fund returns were compared to three indices (emerging markets, MSCI, and S&P 500 Index), using annualized returns, Sharpe ratio and Treynor ratio. The results showed that the emerging market funds outperform the MSCI Index and the S&P 500 Index, but not the emerging market index. During the study period, an investor would have benefited by either investing in emerging market funds or the emerging market index. There was also a negative relationship between emerging market fund returns and turnover, and a positive relationship between fund returns and size.

Mutual fund performance related studies in the Indian context :

Samir K Barua and Jayanth R Varma (1991)⁸ carried out empirical analysis of equity mutual fund performance in India. They studied the investment performance of India's first 7-year closeend equity mutual fund, Mastershare. They concluded that the fund had outperformed the market and performed satisfactorily for large investor in terms of rate of return. Ajay Shah and Thomas Susan (1994)⁹ evaluated the performance of 11 mutual funds schemes on the basis of market price data. The study computed the weekly returns for these schemes since their commencement to April 1994. Jensen and Sharpe measures were used

to evaluate the performance of the schemes. The study concluded that except UGC 2000 of UTI, none of the schemes earned superior return than that of the market, in general. S. Vaid (1994)¹⁰ looked at the performance in terms of the ability of the mutual fund to attract more investors and higher fund mobilization. It showed the popularity of the mutual fund as it was perceived to pay superior returns to the investors. It was concluded that even for equity-oriented funds, investment was more in fixed income securities rather than in equities, which was a distortion. M. Jaydev (1996)¹¹ evaluated performance of two growth oriented mutual fund schemes during the period, June 1992 to March 1994 in terms of returns / benchmark comparison, diversification, selectivity and market timing skills. He concluded that these two schemes were found to be poor in earning better returns either adopting marketing or in selecting under priced securities. And the schemes had not performed better in terms of total risk and were not offering advantages of diversification and professionalism to the investors. O P Gupta and Amitabh Gupta (2004)¹² evaluate the investment performance of 57 growth schemes, for the period of April 1999 to March 2003. They concluded that there was no conclusive evidence that suggest that performance of sample mutual funds was superior to the market but some funds were performing well. Kulbhushan Chandel and O P Verma (2005)¹³ evaluated the performance of 25 sector specific mutual fund schemes on the basis of weekly returns during the period from October 2003 to September 2004. They used three performance measures i.e., Sharpe Index, Treynor Index and Jensen's measure. It was observed that the performance of sample schemes during the study period was best as compared to benchmark index. But there were some cases where poor

performance had been reflected as compared to market. Ramesh Chander (2006)¹⁴ measured the performance of 80 mutual fund schemes for the study period of five years i.e. January 1998 to December 2002. The study found evidence supporting parameter stationarity and the identical persistence of investment performance across all the measurement criteria. Superior performance differentiation was determined in relation to the fund characteristics. The results reported were very strong to provide credence to the performance comparability across diverse market indices and to reverse the myth regarding fund managers' predisposition for a particular index for better performance reporting.

III. Objectives :

The present study has the following objectives:

1. The study intends to evaluate the investment performance of selected open ended mutual fund schemes during the period January 2000 to December 2009 across the different measurement criteria.
2. To study whether the Mutual Fund are earning higher returns than the benchmark returns in terms of risk.
3. In view of the fact that every measurement criterion has its own mechanism to rate investment performance, performance variability is obvious across the measurement criteria. The present study intends to study the parameter stationary of investment performance obtained for different measurement and evaluation criteria.
4. To perform the comparative analysis of the performance of various mutual fund schemes.

IV. Research Methodology and Data :

A. Sample Selection Process :

In case of open ended mutual fund schemes there are various schemes being launched over a period of time and being matured also over a period of time. For the purpose of our study ten years period is selected. Hence out of all the available schemes, the schemes for which data were available for the entire span of study period are selected. For 137 open-ended schemes such data were available from January 2000 to December 2009 and hence they are selected as sample for the study to analyze the performance of the mutual fund schemes. These schemes are from public as well as private sectors. The particulars relating to the sample schemes are given in Table 1. For the purpose of the research the closing value of the NAV, on the last working day of the month, for each fund is considered. NAVs per unit have been adjusted for dividends, bonus and rights for appropriate comparison assuming dividends are reinvested at the ex-dividend NAV. The information on the monthly NAV, of sampled mutual fund schemes were collected from different websites viz., www.indiainfoline.com, www.amfiindia.com, www.mutualfundsindia.com and www.valueresearchonline.com.

The study used BSE 30 as a surrogate for market portfolio and the information in this regard compiled from www.bseindia.com. The researchers have used 91 days T-Bills rate as surrogate for the risk free rate of return the information in this regard compiled from www.rbi.org.

Table 1 : Characteristics of the Sample Schemes

Schemes Characteristics	Scheme Category-wise Classification				
	Growth	Income	Balanced	Tax-Planning	Total Sample Size
Bank Sponsored: Joint Ventures - Predominantly Indian (BS-JV-PI)	7	4	1	2	14
Bank Sponsored: Joint Ventures - Predominantly Foreign (BS-JV-PF)	1	-	-	1	2
Bank Sponsored: Others (BS-O)	2	3	3		8
Institutions (INST.)	2	6	3	1	12
Private Sector: Indian (PS-I)	15	11	4	3	33
Private Sector: Foreign (PS-F)	11	4	2		17
Private Sector: Joint Ventures - Predominantly Indian (PS-JV-PI)	18	17	6	3	44
Private Sector: Joint Ventures - Predominantly Foreign (PS-JV-PF)	1	2	2	2	7
Total Sample Size	57	47	21	12	137

B. The study period :

The researchers have covered 10 years, i.e. from January 2000 to December 2009, as a study period. A maximum of 119 monthly observations could be obtained for each of the sample schemes as well as for the benchmark indexes i.e. BSE 30 and for the 91 days Treasury-bills (Tbills) rate. The above ten-year period is sufficiently long and appropriate for evaluating performance of Indian mutual funds.

C. Performance Evaluation Measures :

For the analysis of the performance of mutual fund schemes several measures have been used. In this study, the researchers have used following measures for evaluating the performance of the selected mutual fund schemes: (a) Rate of Return Measure, (b) Sharpe Ratio, (c) Treynor Ratio, (d) Jensen Measure; (e) Fama’s Components of Investment performance measure. The rationale for selection of these five measures is that, in India many studies have been carried out by using these five performance measures. But the study period used by the past studies is less than ten years. Here the researchers intend to examine the significant

difference if any in the results by different study periods.

D. Risk and Return of the Sample Schemes :

To calculate monthly return of the scheme, following formula is used:

$$R_{jt} = [(NAV_{jt} - NAV_{j,t-1} + D_{jt}) / NAV_{j,t-1}] * 100 \text{ ----- (1)}$$

The monthly returns so computed for single period by using formulae (1) have been compounded to get compounded monthly rates of return of mutual fund scheme. The following formulae (2) has been used to compute monthly compounded rates of return, R_p , for fund “j”:

$$R_p = (R_{j1} * R_{j2} * R_{j3} * \dots * R_{jn})^{1/n} - 1 \text{ ----- (2)}$$

Analogously, the monthly returns for the market index (BSE 30 and Nifty 50) have been computed. The 91 days T-Bills rate has been used as a surrogate for the risk free rate of return. The return on the risk free asset i.e. the monthly yields on 91 days T-Bills are given on an annualized basis on the RBI website, which are converted into monthly basis using the following formula.

$$(1+r)^1 = (1+R) \text{ ----- (3)}$$

Where, r is Monthly risk-free rate, R is Annualized risk-free rate and j is 12 (because r is the monthly return).

Risk Measures :

The underlying idea of the mutual fund is nothing else but investing in the different securities in the market. And as noted in the finance literature, these security prices and returns are subject to random fluctuations. In the capital market industry these random fluctuations and thereby, uncertain returns is often termed as 'risk' of an investment which is reflected in the Standard Deviation, Beta and Unsystematic Risk. The total risk of the sample schemes has been measured by standard deviation (σ) of the return distribution and market risk of the sample schemes has been measured by beta (β).

E. Treynor's Ratio (1965) :

Jack Treynor (1965) conceives an index of portfolio performance measure called as reward to volatility ratio, based on systematic risk. He assumes that the investor can eliminate unsystematic risk by holding a diversified portfolio. Hence his performance measure denoted as TP is the excess return over the risk free rate per unit of systematic risk, in other words it indicates risk premium per unit of systematic risk. Thus, Treynor ratios for different mutual fund schemes as well as benchmark portfolios have been estimated by using the following equation:

$$T_p = \frac{R_p - R_f}{\beta} \quad \text{----- (4)}$$

$$T_m = \frac{R_m - R_f}{\beta_m} \quad \text{----- (5)}$$

Where, TP is Treynor's Ratio for portfolio; TM is Treynor Ratio for benchmark; RP is actual return of the portfolio; Rf is return on the risk-free asset; β_P is Beta coefficient for portfolio; RM is the

return of the Market; β_M is Beta coefficient for benchmark; (Here $\beta_M = 1$. As the market beta is 1) and RF is return on the risk-free asset.

F. Sharpe's Ratio (1966) :

One of the most commonly used measure of risk adjusted performance, the Sharpe Ratio, introduced by William Sharpe (1966), is drawn from the capital market line. This ratio, initially called the reward-to-variability ratio. Thus, Sharpe ratios for different mutual fund schemes as well as benchmark portfolios have been estimated by using the following equation:

$$S_p = \frac{R_p - R_f}{\sigma_p} \quad \text{----- (6)}$$

$$S_m = \frac{R_m - R_f}{\sigma_m} \quad \text{----- (7)}$$

Where, SP is Sharpe Ratio for portfolio; SM is Sharpe Ratio for benchmark; σ_P is standard deviation of the portfolio returns and σ_M is standard deviation of the market returns.

G. Jensen Differential Measure (1968) :

Jensen's alpha is defined as the differential between the return on the portfolio in excess of the risk-free rate and the return explained by the market model. It is calculated by carrying out the following regression:

$$R_p - R_f = \alpha_p + \beta (R_m - R_f) + \epsilon_{pt} \quad \text{----- (8)}$$

Where, α_P is the differential return earned by the scheme and ϵ_{PT} is random error term. The parameters of the Jensen measure were estimated by using standard regression techniques. Thus, it involved running of regression with excess return earned by the mutual fund scheme (dependent variable) on the market portfolio (independent variable). A positive and significant alpha for the mutual fund scheme would indicate that the portfolio has generated an average return greater

than the return on the benchmark portfolio thereby indicating a superior performance.

H. Fama's Components of Investment Performance (1972):

Jensen's measure computes excess returns over expected returns based on premium for systematic risk. Eugene F Fama (1972) goes a step ahead, he suggests to measure fund performance in terms of excess returns over expected returns based on premium for total risk. In other words, the excess returns are computed based on Capital Market Line (CML). Fama breaks down the observed return into four components:

- 1. Risk-free return R_f
- 2. Compensation for systematic risk $\beta(R_M - R_f)$
- 3. Compensation for inadequate diversification $(R_M - R_f) \cdot (\sigma_p / \sigma_M) \cdot (\beta)$
- 4. Net superior returns due to selectivity $(R_p - R_f) - (\sigma_p / \sigma_M) (R_M - R_f)$

The second and third measures indicate the impact of diversification and market risk. By altering systematic and unique risk a portfolio can be reshuffled to get the desired return. Fama says the portfolio performance can be judged by the net superior returns due to selectivity. His

performance measure denoted by FP is defined in equation.

$F_p = \text{Portfolio Return} - \text{Risk Free Return} - \text{Returns due to all risks}$

$$= (R_p - R_f) - (\sigma_p / \sigma_M) (R_M - R_f) \text{ ----- (9)}$$

Where, FP is Fama's measure for portfolio.

A positive value for FP indicates that the fund earned returns higher than expected returns and lies above CML, and a negative value indicates that the fund earned returns less than expected returns and lies below CML.

V. Results and Discussions :

A. Risk & Return Analysis :

Table 1 reveals the risk and return statistics for the sample schemes and for the market portfolio respectively.

An examination of Table 1 indicates that the average return earned by the mutual fund schemes is 0.5952. While average total risk i.e. standard deviation (S.D.) is 6.8047 and average systematic risk (beta) is 0.5847. 76 (55.47%) schemes have depicted higher than average total risk.

Table 1 : Risk and Return of Sample Schemes vs. Benchmark Portfolio

Sr. No.	Scheme Name	Fund Return	Fund Risk	Fund Beta	Unique Risk	R ²
Balanced						
1	Birla Sun Life'95 Fund (G)	1.2262	6.7922	0.7470	3.2146	0.7760
2	Birla Sun Life'95 Fund (D)	0.5927	7.1407	0.7477	3.8898	0.7033
3	DSP Blackrock Balanced Fund (G)	1.2500	5.9349	0.6933	2.0955	0.8753
4	Templeton India Pension Plan (G)	1.0720	3.0416	0.3480	1.2174	0.8398
5	Templeton India Pension Plan (D)	0.2268	4.0021	0.3662	2.7225	0.5372
6	HDFC Prudence Fund (D)	0.4579	7.3191	0.7011	4.6939	0.5887
7	HDFC Prudence Fund (G)	1.7041	6.3036	0.7028	2.8371	0.7974
8	ICICI Prudential Balanced Fund (G)	0.8975	6.1568	0.6869	2.7638	0.7985
9	JM Balanced Fund (G)	0.0545	8.3169	0.6667	6.3760	0.4123
10	JM Balanced Fund (D)	0.1360	7.0876	0.7666	3.5406	0.7505
11	Kotak Mahindra Balance (G)	0.5358	6.1739	0.6270	3.5915	0.6616
12	LIC Mf Balance Fund (D)	0.0044	6.5394	0.6778	3.6461	0.6891
13	LIC Mf Balance Fund (G)	0.6907	6.1543	0.6629	3.1119	0.7443
14	LIC MF Unit Linked Insurance Scheme(D)	-0.1636	6.3939	0.5380	4.7236	0.4542
15	Principal Balanced Fund (D)	0.2929	13.9352	0.5938	13.0986	0.1165
16	Principal Balanced Fund (G)	0.8705	14.4012	0.7646	13.0342	0.1808
17	SBI Magnum Balanced Fund (G)	0.6298	8.9573	0.8171	6.1155	0.5339
18	Tata Balanced Fund (G)	1.1075	6.7511	0.7482	3.1084	0.7880

Table 1 : Risk and Return of Sample Schemes vs. Benchmark Portfolio

Sr. No.	Scheme Name	Fund Return	Fund Risk	Fund Beta	Unique Risk	R ²
Balanced						
19	UTI Balanced Fund (D)	0.2300	6.3185	0.5791	4.2906	0.5389
20	UTI Balanced Fund (G)	1.2460	5.8100	0.6236	2.9675	0.7391
21	UTI Ulip (G)	0.1681	4.0408	0.3506	2.9057	0.4829
	Average	0.6300	7.0272	0.6385	4.4736	0.6194
Growth						
22	Baroda Pioneer Diversified fund (G)	0.9780	8.9906	1.0301	3.5724	0.8421
23	Birla Sun Life Advantage Fund (G)	0.7041	9.1811	1.0508	3.6677	0.8404
24	Birla Sun Life Equity (G)	1.4413	9.5164	1.0665	4.1939	0.8058
25	Birla Sun Life India Opportunities Fund(D)	-0.3084	12.0088	1.0820	8.3129	0.5208
26	Birla Sun Life India Opportunities Fund(G)	0.4950	10.1612	1.0295	5.9377	0.6585
27	Birla Sun Life M N C Fund (G)	1.2274	6.7673	0.7157	3.5966	0.7175
28	Birla Sun Life M N C Fund (D)	0.5564	7.7982	0.7308	5.1524	0.5635
29	DSP Blackrock Equity Fund (G)	-0.5888	11.4696	0.9673	8.4576	0.4563
30	Franklin Fmcg Fund (G)	1.0133	5.8441	0.5449	3.8870	0.5576
31	Franklin India Bluechip Fund (G)	1.6583	7.9523	0.9522	2.2521	0.9198
32	Franklin India Bluechip Fund (D)	0.4704	9.2707	0.9450	5.3530	0.6666
33	Franklin India Prima Fund (G)	1.6337	9.7071	1.0123	5.3374	0.6977
34	Franklin India Prima Fund (D)	0.3068	10.0954	0.9982	6.1639	0.6272
35	Franklin India Prima Plus (G)	1.5592	7.9706	0.9333	2.7654	0.8796
36	Franklin India Prima Plus (D)	0.1364	8.8882	0.9012	5.1863	0.6595
37	Franklin Infotech Fund (D)	-0.5774	11.2626	0.9555	8.2633	0.4617
38	Franklin Infotech Fund (G)	0.3098	10.7649	0.9321	7.7552	0.4810
39	Franklin Pharma Fund (G)	1.0571	6.8995	0.5929	5.0056	0.4737
40	Templeton India Growth Fund (G)	1.6338	8.2109	0.9687	2.6876	0.8929
41	HDFC Capital Builder Fund (D)	0.4275	8.9143	0.8265	5.9704	0.5514
42	HDFC Capital Builder Fund (G)	1.5476	7.8442	0.8530	3.8542	0.7586
43	HDFC Equity Fund (G)	1.8742	8.2567	0.9657	2.8894	0.8775
44	HDFC Equity Fund (D)	0.6901	8.9330	0.8634	5.6549	0.5993
45	HDFC Top 200 Fund (D)	0.4735	9.3011	0.9664	5.1570	0.6926
46	HDFC Top 200 Fund (G)	1.7062	8.3890	0.9722	3.1202	0.8617
47	ICICI Prudential FMCG Fund (G)	1.2200	7.0393	0.6236	4.9600	0.5035
48	ICICI Prudential Growth Plan (G)	1.1316	8.0641	0.9349	2.9942	0.8621
49	ICICI Prudential Growth Plan (D)	-0.2782	9.2321	0.9107	5.6591	0.6243
50	ICICI Prudential Power (G)	1.3557	48.5703	0.3370	48.4953	0.0031
51	JM Basic Fund (G)	-0.1654	13.1351	1.2060	8.9012	0.5408
52	JM Equity Fund (D)	-0.0146	9.5449	1.0321	4.7716	0.7501
53	JM Equity Fund (G)	0.6492	9.3968	1.0858	3.5592	0.8565
54	Kotak Mahindra 30 Unit Scheme (G)	1.1206	8.4262	0.9792	3.0805	0.8663
55	LIC M F Growth Fund (G)	0.6915	9.0641	0.9733	4.6242	0.7397
56	LIC MF Equity Fund (G)	0.6787	9.1046	1.0659	3.1633	0.8793
57	Principal Index Fund (G)	0.9265	7.9996	0.9879	1.1766	0.9784
58	Reliance Growth Fund (D)	0.2575	9.8610	0.9073	6.6655	0.5431
59	Reliance Growth Fund (G)	2.0028	9.0251	0.9765	4.5038	0.7510
60	Reliance Vision Fund (G)	1.8995	8.4412	0.9290	3.9861	0.7770
61	SBI Magnum Contra Fund (G)	1.1866	10.0539	0.9292	6.7598	0.5479
62	SBI Magnum Equity Fund (G)	-0.0331	10.4463	1.0868	5.7750	0.6944
63	SBI Magnum F M C G Fund (G)	0.3504	7.3083	0.6001	5.5051	0.4326
64	SBI Magnum Global Fund-1994 (G)	0.7598	10.8498	1.1460	5.7853	0.7157
65	SBI Magnum I T Fund (G)	-0.5079	11.5765	1.0630	7.8437	0.5409
66	SBI Magnum Multiplier Plus-1993 (G)	0.5990	10.2735	1.1029	5.2454	0.7393
67	SBI Magnum Pharma Fund (G)	0.7789	8.8141	0.7808	6.2114	0.5034
68	Sundaram B N P Paribas Growth Fund (G)	1.1539	8.9555	1.0348	3.3923	0.8565
69	Tata Equity Opportunities Fund (D)	0.7587	8.7566	0.8930	5.0519	0.6672

Table 1 : Risk and Return of Sample Schemes vs. Benchmark Portfolio						
Sr. No.	Scheme Name	Fund Return	Fund Risk	Fund Beta	Unique Risk	R ²
Balanced						
70	Tata Growth Fund (G)	1.6644	8.0220	0.8667	4.0209	0.7488
71	Tata Life Sciences & Technology Fund (G)	0.9985	9.0942	0.9281	5.2394	0.6681
72	Tata Pure Equity Fund (G)	1.4529	8.4361	0.9849	2.9905	0.8743
73	Tata Select Equity Fund (G)	1.0232	10.1507	1.0910	5.1651	0.7411
74	Taurus Bonanza (G)	1.2000	9.5141	1.0129	4.9701	0.7271
75	Taurus Discovery (G)	0.5899	11.0549	1.1198	6.4624	0.6583
76	Taurus Starshare (G)	1.1773	10.7849	1.1431	5.6995	0.7207
77	UTI Master Value Fund (G)	0.4889	9.4503	0.8837	6.2619	0.5609
78	UTI Mastershare (G)	0.6314	7.7026	0.8961	2.7967	0.8682
	Average	0.8101	9.8692	0.9363	5.7177	0.6843
Income						
79	Birla Sun Life Cash Manager-Ret (G)	0.5488	0.1462	-0.0050	0.1406	0.0761
80	Birla Sun Life Cash Plus-Ret (G)	0.5441	0.1487	-0.0059	0.1411	0.0995
81	Birla Sun Life Income Plus-Ret (G)	0.7411	1.8513	0.0346	1.8304	0.0224
82	Birla Sun Life Income Plus-Ret (QD)	0.1139	2.2445	0.0401	2.2214	0.0204
83	DBS Chola Triple Ace (G)	0.4701	1.3786	0.0008	1.3786	0.0000
84	DSP Blackrock Bond Fund (G)	0.6443	1.2771	0.0227	1.2641	0.0203
85	DSP Blackrock Bond Fund (QD)	-0.0015	2.2602	0.0201	2.2544	0.0051
86	Templeton India Income Fund (G)	0.6468	1.0752	0.0262	1.0545	0.0380
87	Templeton India Income Fund (QD)	0.0181	1.5424	0.0385	1.5112	0.0400
88	Templeton India Treasury Management Account (G)	0.5548	0.1564	-0.0058	0.1494	0.0872
89	Templeton India Treasury Management Account (WD)	0.0788	0.2194	-0.0023	0.2186	0.0073
90	HDFC Cash Management Fund - Savings Plan (WD)	0.0403	3.2845	0.0320	3.2745	0.0061
91	HDFC Cash Management Fund - Savings Plan (G)	0.5293	4.2666	-0.0286	4.2604	0.0029
92	HDFC High Interest Fund (QD)	0.0595	2.1341	0.0431	2.1060	0.0261
93	HDFC High Interest Fund (AD)	0.1148	2.4640	0.0224	2.4575	0.0053
94	HDFC High Interest Fund (HD)	0.0571	2.1509	0.0253	2.1413	0.0089
95	HDFC High Interest Fund (G)	0.6568	7.9133	-0.0872	7.8825	0.0078
96	ING Vysya Income Fund-Ret (QD)	0.0707	2.0893	0.0702	2.0123	0.0723
97	ING Vysya Income Fund-Ret (G)	0.6725	1.4021	0.0237	1.3892	0.0183
98	ICICI Prudential Gilt Fund (Investment Plan) (G)	0.9019	2.3413	0.0179	2.3369	0.0038
99	ICICI Prudential Gilt Fund (Treasury Plan) (QD)	0.1041	3.3474	0.0051	3.3471	0.0001
100	ICICI Prudential Gilt Fund (Treasury Plan) (G)	0.6876	1.0064	0.0013	1.0063	0.0001
101	ICICI Prudential Income Plan (G)	0.7525	1.8003	0.0306	1.7835	0.0186
102	JM G-Sec Fund -Regular (D)	0.2494	2.3108	0.0330	2.2957	0.0131
103	JM High Liquidity Fund (G)	0.5515	0.1851	-0.0061	0.1786	0.0688
104	JM High Liquidity Fund (WD)	-0.0701	1.5613	-0.0087	1.5597	0.0020
105	JM Income Fund (G)	0.4816	0.9182	0.0230	0.8996	0.0401
106	JM Income Fund (D)	-0.0282	3.6370	0.0490	3.6158	0.0117
107	Kotak Mahindra Gilt- Savings (G)	0.5304	0.3490	-0.0015	0.3487	0.0012
108	LIC Bond Fund (G)	0.7048	1.1152	0.0121	1.1110	0.0076
109	LIC Bond Fund (D)	0.0016	1.5928	0.0167	1.5872	0.0071
110	LIC Monthly Income Plan (MD)	0.0025	1.7619	0.1429	1.3393	0.4222
111	LIC Monthly Income Plan (G)	0.7686	9.4933	0.2362	9.3029	0.0397
112	LIC MF Govt. Securities Fund-Regular (G)	0.6295	1.8705	0.0297	1.8553	0.0162
113	LIC MF Govt. Securities Fund-Regular (D)	-0.0073	2.5320	-0.0088	2.5311	0.0008
114	SBI Magnum Income Fund-1998 (D)	-0.0121	2.1040	0.0440	2.0743	0.0280
115	SBI Magnum Income Fund-1998 (G)	0.5336	1.2717	0.0320	1.2456	0.0405
116	SBI Magnum Insta Cash Fund (WD)	-0.0563	1.3600	0.0023	1.3598	0.0002
117	SBI Magnum Insta Cash Fund (G)	0.5399	0.6945	-0.0069	0.6923	0.0063
118	Sundaram B N P Paribas Bond Saver (G)	0.5997	1.1240	0.0282	1.1011	0.0404
119	Tata Gilt RIP (G)	0.7694	2.0682	0.0392	2.0442	0.0231
120	Tata Gilt RIP (D)	0.1208	2.2021	0.0500	2.1653	0.0331

Table 1 : Risk and Return of Sample Schemes vs. Benchmark Portfolio						
Sr. No.	Scheme Name	Fund Return	Fund Risk	Fund Beta	Unique Risk	R ²
Balanced						
105	JM Income Fund (G)	0.4816	0.9182	0.0230	0.8996	0.0401
106	JM Income Fund (D)	-0.0282	3.6370	0.0490	3.6158	0.0117
107	Kotak Mahindra Gilt- Savings (G)	0.5304	0.3490	-0.0015	0.3487	0.0012
108	LIC Bond Fund (G)	0.7048	1.1152	0.0121	1.1110	0.0076
109	LIC Bond Fund (D)	0.0016	1.5928	0.0167	1.5872	0.0071
110	LIC Monthly Income Plan (MD)	0.0025	1.7619	0.1429	1.3393	0.4222
111	LIC Monthly Income Plan (G)	0.7686	9.4933	0.2362	9.3029	0.0397
112	LIC MF Govt. Securities Fund-Regular (G)	0.6295	1.8705	0.0297	1.8553	0.0162
113	LIC MF Govt. Securities Fund-Regular (D)	-0.0073	2.5320	0.0088	2.5311	0.0008
114	SBI Magnum Income Fund-1998 (D)	-0.0121	2.1040	0.0440	2.0743	0.0280
115	SBI Magnum Income Fund-1998 (G)	0.5336	1.2717	0.0320	1.2456	0.0405
116	SBI Magnum Insta Cash Fund (WD)	-0.0563	1.3600	0.0023	1.3598	0.0002
117	SBI Magnum Insta Cash Fund (G)	0.5399	0.6945	-0.0069	0.6923	0.0063
118	Sundaram B N P Paribas Bond Saver (G)	0.5997	1.1240	0.0282	1.1011	0.0404
119	Tata Gilt RIP (G)	0.7694	2.0682	0.0392	2.0442	0.0231
120	Tata Gilt RIP (D)	0.1208	2.2021	0.0500	2.1653	0.0331
121	Tata Income Fund (G)	0.5584	1.3507	0.0086	1.3490	0.0026
122	Tata Income Fund (HD)	0.0330	1.7166	0.0244	1.7055	0.0130
123	UTI Bond Fund (D)	-0.0647	3.6219	0.0722	3.5755	0.0255
124	UTI Bond Fund (G)	0.6411	1.6047	0.0184	1.5980	0.0084
125	UTI Money Market Fund (WD)	0.4258	6.3704	-0.0377	6.3632	0.0022
	Average	0.3598	2.1131	0.0240	2.0864	0.0306
Tax-Planning						
126	Baroda Pioneer Elss 96 (G)	0.1446	9.9382	1.0458	5.3482	0.7104
127	Canara Robeco Equity Tax Saver (G)	-0.1356	10.4029	1.0544	6.0748	0.6590
128	HDFC Tax Saver (D)	0.3479	9.6974	0.8848	6.6190	0.5341
129	HDFC Tax Saver (G)	1.3374	9.4920	0.9700	5.4528	0.6700
130	ICICI Prudential Tax Plan (G)	1.4729	9.7149	1.0441	4.9437	0.7410
131	LIC MF Tax Plan (G)	0.3959	9.1539	0.9722	4.8120	0.7237
132	Principal Personal Tax Saver Fund (G)	0.3428	10.6725	1.0102	6.9597	0.5747
133	Principal Tax Savings Fund (G)	0.9005	9.1890	0.9979	4.5340	0.7565
134	SBI Magnum Tax Gain'93 (G)	0.1462	11.1491	1.0579	7.2460	0.5776
135	Sahara Tax Gain Fund (G)	-0.8226	12.4704	1.0684	9.0714	0.4708
136	Tata Tax Saving Fund (G)	0.6381	9.4524	1.0083	4.9124	0.7299
137	Taurus Tax shield (G)	0.4555	11.4827	1.0889	7.4692	0.5769
	Average	0.4353	10.2346	1.0169	6.1203	0.6437
	Over all Average	0.5952	6.8047	0.5847	4.3165	0.4465
Note: Risk Free Return (91 Days T-bills) = 0.5038 ; Market Return (BSE 30) = 1.0224 and Market Risk (BSE 30) = 8.0094						

It also reveals that out of 137 mutual fund schemes, 119 schemes (86.86 %) have earned positive return, while only 18 schemes (13.14 %) have earned negative return. Out of 137 schemes, 65 schemes (47.45 %) have earned the return more than the average return earned by the mutual fund schemes. Thus in terms of returns top five performers are, Reliance Growth Fund (G), Reliance Vision Fund (G), HDFC Equity Fund (G),

HDFC Top 200 Fund (G) and HDFC Prudence Fund (G). While bottom five laggards are Sahara Tax Gain Fund (G), DSP Blackrock Equity Fund (G), Franklin Infotech Fund (D), SBI Magnum I T Fund (G) and Birla Sun Life India Opportunities Fund (D). The average risk free return is 0.5038. Here, the average risk free return is less than the average fund return i.e. 0.5952. Of 137 schemes, 78 (56.93%) mutual fund schemes have earned

returns more than the risk free return. This implies that the sample schemes, on an average, performed better than the risk free return. The average market returns for BSE30 is 1.0224. Here the average market returns is more than the average fund return. This implies that the sample schemes, on an average, performed poorer than the market return. There are only 31 (22.63%) schemes which earned more monthly compounding return than the monthly compounding market returns with respect to BSE30. The average risk of the sample scheme is 6.8047 percent per month whereas for the market it is 8.0094 per month for BSE30. 63 (45.99%) schemes depicted higher than monthly total risk with respect to BSE30 benchmark proxy. The potential advantage of mutual fund investment to the retail investors is diversification of the portfolio. The modern portfolio theory considers that diversification reduces risk of a portfolio. Diversification reduces the unique (unsystematic) risk and not the market (systematic) risk, which in any case has to be borne by the fund managers. So it will be worthwhile to examine as to what extent Indian mutual fund managers have been able to diversify their portfolios. Above table also reveals information regarding the unique risk of mutual funds and the extent of diversification of sample

schemes. The average unique risk of the mutual fund schemes is 4.3165 per month with respect to BSE 30 benchmark proxy. While average diversification for BSE 30 benchmark proxy comes to 44.65%. This entails that sample schemes are not adequately diversified. Out of 137 schemes, 80 schemes (58.39 %) show less than the average unique risk, while 53 mutual fund schemes reflect less than average degree of diversification with respect to BSE 30 benchmark proxy. However, 36 schemes have lower than average unique risk but have higher degree of diversification, as it was higher than the average. While 7 schemes (5.11 %) have higher than average unique risk but have lower degree of diversification with respect to benchmark proxy.

B. Results of Sharpe Ratio and Treynor's Ratio :

Table 2 reveals the Sharpe Ratios and Treynor Ratios for the sample mutual fund schemes as well as for the benchmark portfolios.

The Sharpe Ratio for BSE 30 is 0.0648. Out of 137 schemes, 46 (33.58 %) schemes have outperformed the benchmark portfolios and remaining 91 (66.42 %) schemes yielded inferior performance with respect to both the benchmark proxy.

Table 2 : Sharpe Ratios and Treynor's Ratios of Mutual Fund Schemes

Sr. No.	Scheme Name	Sharpe Ratio (1966)	Rank	Treynor's Ratio (1965)	Rank
Balanced					
1	Birla Sun Life'95 Fund (G)	0.1064	5	0.9671	5
2	Birla Sun Life'95 Fund (D)	0.0125	11	0.1189	11
3	DSP Blackrock Balanced Fund (G)	0.1257	4	1.0764	4
4	Templeton India Pension Plan (G)	0.1868	2	1.6329	2
5	Templeton India Pension Plan (D)	-0.0692	18	-0.7564	19
6	HDFC Prudence Fund (D)	-0.0063	13	-0.0654	13
7	HDFC Prudence Fund (G)	0.1904	1	1.7079	1
8	ICICI Prudential Balanced Fund (G)	0.0640	7	0.5733	7

Table 2 : Sharpe Ratios and Treynor's Ratios of Mutual Fund Schemes					
Sr. No.	Scheme Name	Sharpe Ratio (1966)	Rank	Treynor's Ratio (1965)	Rank
Balanced					
9	JM Balanced Fund (G)	-0.0540	17	-0.6738	17
10	JM Balanced Fund (D)	-0.0519	16	-0.4797	16
11	Kotak Mahindra Balance (G)	0.0052	12	0.0512	12
12	LIC Mf Balance Fund (D)	-0.0764	19	-0.7368	18
13	LIC Mf Balance Fund (G)	0.0304	8	0.2820	9
14	LIC MF Unit Linked Insurance Scheme (D)	-0.1044	21	-1.2405	21
15	Principal Balanced Fund (D)	-0.0151	14	-0.3551	14
16	Principal Balanced Fund (G)	0.0255	9	0.4797	8
17	SBI Magnum Balanced Fund (G)	0.0141	10	0.1543	10
18	Tata Balanced Fund (G)	0.0894	6	0.8068	6
19	UTI Balanced Fund (D)	-0.0433	15	-0.4728	15
20	UTI Balanced Fund (G)	0.1277	3	1.1901	3
21	UTI Ulip (G)	-0.0831	20	-0.9575	20
	Average	0.0226		0.1573	
	Spearman's Rank Correlation Coefficient	0.9974			
Growth					
22	Baroda Pioneer Diversified fund (G)	0.0527	25	0.4604	26
23	Birla Sun Life Advantage Fund (G)	0.0218	30	0.1906	33
24	Birla Sun Life Equity (G)	0.0985	14	0.8790	17
25	Birla Sun Life India Opportunities Fund (D)	-0.0676	53	-0.7506	53
26	Birla Sun Life India Opportunities Fund (G)	-0.0009	40	-0.0086	40
27	Birla Sun Life M N C Fund (G)	0.1069	12	1.0110	13
28	Birla Sun Life M N C Fund (D)	0.0067	39	0.0720	39
29	DSP Blackrock Equity Fund (G)	-0.0953	56	-1.1295	56
30	Franklin Fmcg Fund (G)	0.0872	15	0.9352	15
31	Franklin India Bluechip Fund (G)	0.1452	4	1.2124	8
32	Franklin India Bluechip Fund (D)	-0.0036	43	-0.0353	43
33	Franklin India Prima Fund (G)	0.1164	10	1.1162	12
34	Franklin India Prima Fund (D)	-0.0195	46	-0.1973	45
35	Franklin India Prima Plus (G)	0.1324	9	1.1309	11
36	Franklin India Prima Plus (D)	-0.0413	49	-0.4076	49
37	Franklin Infotech Fund (D)	-0.0960	57	-1.1316	57
38	Franklin Infotech Fund (G)	-0.0180	45	-0.2081	46
39	Franklin Pharma Fund (G)	0.0802	16	0.9333	16
40	Templeton India Growth Fund (G)	0.1376	7	1.1665	9
41	HDFC Capital Builder Fund (D)	-0.0086	44	-0.0923	44
42	HDFC Capital Builder Fund (G)	0.1331	8	1.2237	7
43	HDFC Equity Fund (G)	0.1660	2	1.4192	4

Table 2 : Sharpe Ratios and Treynor's Ratios of Mutual Fund Schemes

Sr. No.	Scheme Name	Sharpe Ratio (1966)	Rank	Treynor's Ratio (1965)	Rank
Balanced					
44	HDFC Equity Fund (D)	0.0209	31	0.2158	31
45	HDFC Top 200 Fund (D)	-0.0032	42	-0.0313	42
46	HDFC Top 200 Fund (G)	0.1433	6	1.2368	6
47	ICICI Prudential FMCG Fund (G)	0.1018	13	1.1485	10
48	ICICI Prudential Growth Plan (G)	0.0779	17	0.6716	20
49	ICICI Prudential Growth Plan (D)	-0.0847	54	-0.8587	54
50	ICICI Prudential Power (G)	0.0175	34	2.5280	1
51	JM Basic Fund (G)	-0.0509	50	-0.5549	52
52	JM Equity Fund (D)	-0.0543	52	-0.5022	51
53	JM Equity Fund (G)	0.0155	36	0.1339	36
54	Kotak Mahindra 30 Unit Scheme (G)	0.0732	18	0.6299	21
55	LIC MF Growth Fund (G)	0.0207	32	0.1929	32
56	LIC MF Equity Fund (G)	0.0192	33	0.1641	34
57	Principal Index Fund (G)	0.0528	24	0.4279	27
58	Reliance Growth Fund (D)	-0.0250	48	-0.2714	48
59	Reliance Growth Fund (G)	0.1661	1	1.5351	2
60	Reliance Vision Fund (G)	0.1654	3	1.5024	3
61	SBI Magnum Contra Fund (G)	0.0679	21	0.7348	18
62	SBI Magnum Equity Fund (G)	-0.0514	51	-0.4940	50
63	SBI Magnum F M C G Fund (G)	-0.0210	47	-0.2556	47
64	SBI Magnum Global Fund-1994 (G)	0.0236	29	0.2234	30
65	SBI Magnum IT Fund (G)	-0.0874	55	-0.9517	55
66	SBI Magnum Multiplier Plus-1993 (G)	0.0093	37	0.0863	37
67	SBI Magnum Pharma Fund (G)	0.0312	27	0.3524	28
68	Sundaram B N P Paribas Growth Fund (G)	0.0726	20	0.6282	22
69	Tata Equity Opportunities Fund (D)	0.0291	28	0.2855	29
70	Tata Growth Fund (G)	0.1447	5	1.3392	5
71	Tata Life Sciences & Technology Fund (G)	0.0544	23	0.5331	24
72	Tata Pure Equity Fund (G)	0.1125	11	0.9637	14
73	Tata Select Equity Fund (G)	0.0512	26	0.4761	25
74	Taurus Bonanza (G)	0.0732	19	0.6874	19
75	Taurus Discovery (G)	0.0078	38	0.0770	38
76	Taurus Starshare (G)	0.0625	22	0.5892	23
77	UTI Master Value Fund (G)	-0.0016	41	-0.0168	41
78	UTI Mastershare (G)	0.0166	35	0.1424	35
	Average	0.0383		0.3747	
	Spearman's Rank Correlation Coefficient		0.9606		
Income					
79	Birla Sun Life Cash Manager-Ret (G)	0.3083	2	-8.9493	31

Table 2 : Sharpe Ratios and Treynor's Ratios of Mutual Fund Schemes

Sr. No.	Scheme Name	Sharpe Ratio (1966)	Rank	Treynor's Ratio (1965)	Rank
Balanced					
80	Birla Sun Life Cash Plus-Ret (G)	0.2710	3	-6.8803	25
81	Birla Sun Life Income Plus-Ret (G)	0.1282	11	6.8541	9
82	Birla Sun Life Income Plus-Ret (QD)	-0.1737	33	-9.7296	32
83	DBS Chola Triple Ace (G)	-0.0244	26	-42.9183	44
84	DSP Blackrock Bond Fund (G)	0.1101	13	6.1926	12
85	DSP Blackrock Bond Fund (QD)	-0.2236	39	-25.1505	42
86	Templeton India Income Fund (G)	0.1331	9	5.4671	13
87	Templeton India Income Fund (QD)	-0.3149	43	-12.6078	36
88	Templeton India Treasury Management Account (G)	0.3264	1	-8.8516	30
89	Templeton India Treasury Management Account (WD)	-1.9373	47	181.3570	1
90	HDFC Cash Management Fund – Savings Plan (WD)	-0.1411	29	-14.4782	37
91	HDFC Cash Management Fund – Savings Plan (G)	0.0060	23	-0.8899	19
92	HDFC High Interest Fund (QD)	-0.2082	38	-10.3166	33
93	HDFC High Interest Fund (AD)	-0.1578	32	-17.3852	39
94	HDFC High Interest Fund (HD)	-0.2077	37	-17.6303	40
95	HDFC High Interest Fund (G)	0.0193	22	-1.7552	21
96	ING Vysya Income Fund-Ret (QD)	-0.2073	36	-6.1721	24
97	ING Vysya Income Fund-Ret (G)	0.1203	12	7.1318	8
98	ICICI Prudential Gilt Fund (Investment Plan) (G)	0.1701	7	22.1900	4
99	ICICI Prudential Gilt Fund (Treasury Plan) (QD)	-0.1194	28	-78.1576	46
100	ICICI Prudential Gilt Fund (Treasury Plan) (G)	0.1826	5	141.9742	2
101	ICICI Prudential Income Plan (G)	0.1382	8	8.1214	6
102	JM G-Sec Fund –Regular (D)	-0.1101	27	-7.7070	27
103	JM High Liquidity Fund (G)	0.2579	4	-7.8768	28
104	JM High Liquidity Fund (WD)	-0.3675	45	65.7221	3
105	JM Income Fund (G)	-0.0241	25	-0.9637	20
106	JM Income Fund (D)	-0.1463	30	-10.8488	34
107	Kotak Mahindra Gilt- Savings (G)	0.0765	16	-17.3694	38
108	LIC Bond Fund (G)	0.1803	6	16.5885	5
109	LIC Bond Fund (D)	-0.3153	44	-29.9899	43
110	LIC Monthly Income Plan (MD)	-0.2845	42	-3.5072	22
111	LIC Monthly Income Plan (G)	0.0279	20	1.1215	17
112	LIC MF Govt. Securities Fund-Regular (G)	0.0672	17	4.2332	14
113	LIC MF Govt. Securities Fund-Regular (D)	-0.2019	35	-57.8811	45
114	SBI Magnum Income Fund-1998 (D)	-0.2452	40	-11.7315	35
115	SBI Magnum Income Fund-1998 (G)	0.0234	21	0.9326	18
116	SBI Magnum Insta Cash Fund (WD)	-0.4118	46	-239.2542	47
117	SBI Magnum Insta Cash Fund (G)	0.0520	18	-5.2544	23
118	Sundaram B N P Paribas Bond Saver (G)	0.0853	15	3.4014	15

Table 2 : Sharpe Ratios and Treynor's Ratios of Mutual Fund Schemes					
Sr. No.	Scheme Name	Sharpe Ratio (1966)	Rank	Treynor's Ratio (1965)	Rank
Balanced					
112	LIC MF Govt. Securities Fund-Regular (G)	0.0672	17	4.2332	14
113	LIC MF Govt. Securities Fund-Regular (D)	-0.2019	35	-57.8811	45
114	SBI Magnum Income Fund-1998 (D)	-0.2452	40	-11.7315	35
115	SBI Magnum Income Fund-1998 (G)	0.0234	21	0.9326	18
116	SBI Magnum Insta Cash Fund (WD)	-0.4118	46	-239.2542	47
117	SBI Magnum Insta Cash Fund (G)	0.0520	18	-5.2544	23
118	Sundaram B N P Paribas Bond Saver (G)	0.0853	15	3.4014	15
119	Tata Gilt RIP (G)	0.1284	10	6.7737	10
120	Tata Gilt RIP (D)	-0.1739	34	-7.6543	26
121	Tata Income Fund (G)	0.0404	19	6.3339	11
122	Tata Income Fund (HD)	-0.2742	41	-19.2982	41
123	UTI Bond Fund (D)	-0.1569	31	-7.8776	29
124	UTI Bond Fund (G)	0.0856	14	7.4795	7
125	UTI Money Market Fund (WD)	-0.0122	24	2.0697	16
	Average	-0.0745		-4.1520	
	Spearman's Rank Correlation Coefficient	0.4770			
Tax-Planning					
126	Baroda Pioneer Elss 96 (G)	-0.0361	10	-0.3434	10
127	Canara Robeco Equity Tax Saver (G)	-0.0615	11	-0.6064	11
128	HDFC Tax Saver (D)	-0.0161	8	-0.1761	8
129	HDFC Tax Saver (G)	0.0878	2	0.8594	2
130	ICICI Prudential Tax Plan (G)	0.0998	1	0.9282	1
131	LIC MF Tax Plan (G)	-0.0118	6	-0.1109	6
132	Principal Personal Tax Saver Fund (G)	-0.0151	7	-0.1593	7
133	Principal Tax Savings Fund (G)	0.0432	3	0.3975	3
134	SBI Magnum Tax Gain'93 (G)	-0.0321	9	-0.3380	9
135	Sahara Tax Gain Fund (G)	-0.1064	12	-1.2415	12
136	Tata Tax Saving Fund (G)	0.0142	4	0.1332	4
137	Taurus Tax shield (G)	-0.0042	5	-0.0443	5
	Average	-0.0032		-0.0585	
	Spearman's Rank Correlation Coefficient	1.0000			
	Overall Average	-0.0064		-1.2495	
	Overall Spearman's Rank Correlation Coefficient	0.7084			
Note: Sharpe Ratio (BSE 30) = 0.0648 and Treynor Ratio (BSE 30) = 0.5187					

The top five prominent winners are Templeton India Treasury Management Account (G), Birla

Sun Life Cash Manager-Ret (G), Birla Sun Life Cash Plus-Ret (G), JM High Liquidity Fund

(G),HDFC Prudence Fund (G) while the bottom five prominent laggards are Templeton India Treasury Management Account (WD),SBI Magnum Insta Cash Fund (WD),JM High Liquidity Fund (WD),LIC Bond Fund (D),Templeton India Income Fund (QD). It is curious to note that out of top five winners, four schemes are from income fund and one is from balanced fund. It is also interesting to note that all the bottom five laggards are from income fund only. In addition , the average Sharpe Ratio for all mutual fund schemes is -0.0064 and 84 (61.31 %) schemes could register better than the overall sample average investment performance.

The Treynor Ratio for BSE 30 and for Nifty 50 is 0.5187 and 0.5208 respectively. Out of 137 schemes, 51 (37.23 %) schemes have outperformed and remaining 86 (62.77 %) schemes yielded inferior performance. The top five prominent winners are Templeton India Treasury Management Account (WD),ICICI Prudential Gilt Fund (Treasury Plan) (G),JM High Liquidity Fund (WD),ICICI Prudential Gilt Fund (Investment Plan) (G) and LIC Bond Fund (G) while the bottom five prominent laggards are SBI Magnum Insta Cash Fund (WD),ICICI Prudential Gilt Fund (Treasury Plan) (QD),LIC MF Govt. Securities Fund-Regular (D),DBS Chola Triple Ace (G) and LIC Bond Fund (D). It is curious to note that all the top five winners and all the bottom five laggards are from income fund only. In addition , the

average Treynor Ratio for all mutual fund schemes is -1.2495 and 110 (80.29 %) schemes could register better than the overall sample average investment performance.

Table 2 shows the results pertaining to Sharpe and Treynor ratios reflect some conflict in performance rankings. The reason for such a conflict arises due to the fact that Sharpe ratio takes into accounts the total risk of the portfolio whereas the Treynor ratio considers only the systematic or the market risk. Thus, it is possible that a portfolio might have outperformed the market in terms of Treynor ratio whereas in terms of Sharpe ratio it did not. The reason for these differences is that the portfolio under consideration may have a relatively larger amount of unique risk. The presence of unique risk in the portfolio does not affect the Treynor ratio whereas it would affect the Sharpe ratio. Therefore, in order to detect any conflict in performance ranking, the sample schemes have been ranked based on scheme category in terms of Sharpe and Treynor ratios and their rank correlation coefficient (RCC) has been worked out. The overall rank correlation coefficient for the sample schemes is 0.7084, which is quite high. It shows that overall there is no much difference in ranking of mutual fund schemes based on both the measures. But if rank correlation coefficient is work out for individual category of the schemes, Tax-planning schemes is having highest RCC=1, reveals that in case of Tax-planning schemes rankings of the schemes

are same (perfectly positive correlation) based on both the measures. Which is followed by Balanced schemes $RCC=0.9974$ and Growth schemes $RCC=0.9606$. While in case of Income schemes $RCC=0.4770$. Thus it is important to note over here that, the RCC, for various groups of the schemes is substantially different. Whereas in Taxplanning, Growth and Balanced schemes it is substantially high, for Income scheme it is quite low. On examining the probable reason for difference in ranking as per

Sharpe and Treynor, it is inferred that, the Sharpe ratio, considers the total risk (σ) where as the Treynor ratio considers the market risk (β). As is known the Income schemes have a very low market risk. This may be the reason contributing to the marked difference in ranking according to two measures.

Thus, in respect of both the measures 41 (29.93 %) schemes have reflected better performance in comparison to their BSE 30 benchmark portfolios.

C. Results of Jensen's Measure :

Table 3 : Jensen's Measures of Mutual Fund Schemes : BSE 30				
Sr. No.	Scheme Name	SML	Alpha	t - Alpha
Balanced				
1	Birla Sun Life'95 Fund (G)	0.8912	0.3350	1.0842
2	Birla Sun Life'95 Fund (D)	0.8915	-0.2989	-0.7803
3	DSP Blackrock Balanced Fund (G)	0.8633	0.3867	1.7371
4	Templeton India Pension Plan (G)	0.6843	0.3878	2.8382*
5	Templeton India Pension Plan (D)	0.6937	-0.4670	-2.0082*
6	HDFC Prudence Fund (D)	0.8674	-0.4095	-0.8333
7	HDFC Prudence Fund (G)	0.8683	0.8358	3.0543*
8	ICICI Prudential Balanced Fund (G)	0.8600	0.0375	0.0399
9	JM Balanced Fund (G)	0.8496	-0.7951	-1.0779
10	JM Balanced Fund (D)	0.9014	-0.7653	-2.3067*
11	Kotak Mahindra Balance (G)	0.8290	-0.2931	-0.9024
12	LIC Mf Balance Fund (D)	0.8553	-0.8509	-2.5124*
13	LIC Mf Balance Fund (G)	0.8476	-0.1569	-0.6190
14	LIC MF Unit Linked Insurance Scheme (D)	0.7828	-0.9465	-2.0714*
15	Principal Balanced Fund (D)	0.8117	-0.5188	0.1450
16	Principal Balanced Fund (G)	0.9003	-0.0298	0.5506
17	SBI Magnum Balanced Fund (G)	0.9276	-0.2977	-0.2551
18	Tata Balanced Fund (G)	0.8918	0.2156	0.7122
19	UTI Balanced Fund (D)	0.8041	-0.5742	-1.4085
20	UTI Balanced Fund (G)	0.8272	0.4188	1.3940
21	UTI Ulip (G)	0.6856	-0.5175	-2.0444*
	Average	0.8349	-0.2050	
Growth				
22	Baroda Pioneer Diversified fund (G)	1.0380	-0.0601	0.0431
23	Birla Sun Life Advantage Fund (G)	1.0488	-0.3447	-0.7608
24	Birla Sun Life Equity (G)	1.0569	0.3843	1.2881
25	Birla Sun Life India Opportunities Fund (D)	1.0650	-1.3734	-1.2028
26	Birla Sun Life India Opportunities Fund (G)	1.0377	-0.5428	-0.6272
27	Birla Sun Life M N C Fund (G)	0.8750	0.3524	1.0490
28	Birla Sun Life M N C Fund (D)	0.8828	-0.3265	-0.5362

Sr. No.	Scheme Name	SML	Alpha	t - Alpha
29	DSP Blackrock Equity Fund (G)	1.0055	-1.5942	-1.1744
30	Franklin Fmcg Fund (G)	0.7864	0.2270	0.6079
31	Franklin India Bluechip Fund (G)	0.9976	0.6606	3.2174*
32	Franklin India Bluechip Fund (D)	0.9939	-0.5235	-0.7771
33	Franklin India Prima Fund (G)	1.0288	0.6049	1.5257
34	Franklin India Prima Fund (D)	1.0215	-0.7147	-0.9130
35	Franklin India Prima Plus (G)	0.9879	0.5714	2.3020*
36	Franklin India Prima Plus (D)	0.9712	-0.8348	-1.5120
37	Franklin Infotech Fund (D)	0.9993	-1.5767	-1.5771
38	Franklin Infotech Fund (G)	0.9872	-0.6775	-0.5290
39	Franklin Pharma Fund (G)	0.8113	0.2458	0.6247
40	Templeton India Growth Fund (G)	1.0062	0.6276	2.6103*
41	HDFC Capital Builder Fund (D)	0.9324	-0.5050	-0.6521
42	HDFC Capital Builder Fund (G)	0.9462	0.6014	1.7746
43	HDFC Equity Fund (G)	1.0046	0.8696	3.3576*
44	HDFC Equity Fund (D)	0.9516	-0.2615	-0.2679
45	HDFC Top 200 Fund (D)	1.0050	-0.5315	-0.8228
46	HDFC Top 200 Fund (G)	1.0080	0.6982	2.5622*
47	ICICI Prudential FMCG Fund (G)	0.8272	0.3928	0.9439
48	ICICI Prudential Growth Plan (G)	0.9886	0.1430	0.6382
49	ICICI Prudential Growth Plan (D)	0.9761	-1.2543	-2.0166*
50	ICICI Prudential Power (G)	0.6785	0.6771	1.3947
51	JM Basic Fund (G)	1.1293	-1.2947	-0.9591
52	JM Equity Fund (D)	1.0391	-1.0537	-2.0680*
53	JM Equity Fund (G)	1.0669	-0.4177	-0.9551
54	Kotak Mahindra 30 Unit Scheme (G)	1.0116	0.1089	0.5480
55	LIC MF Growth Fund (G)	1.0086	-0.3171	-0.4990
56	LIC MF Equity Fund (G)	1.0566	-0.3780	-1.0271
57	Principal Index Fund (G)	1.0162	-0.0896	-0.7700
58	Reliance Growth Fund (D)	0.9744	-0.7169	-0.7965
59	Reliance Growth Fund (G)	1.0102	0.9926	2.5978*
60	Reliance Vision Fund (G)	0.9856	0.9139	2.6289*
61	SBI Magnum Contra Fund (G)	0.9857	0.2009	0.6501
62	SBI Magnum Equity Fund (G)	1.0675	-1.1006	-1.5855
63	SBI Magnum F M C G Fund (G)	0.8150	-0.4646	-0.7559
64	SBI Magnum Global Fund-1994 (G)	1.0981	-0.3384	-0.2076
65	SBI Magnum IT Fund (G)	1.0551	-1.5630	-1.6300
66	SBI Magnum Multiplier Plus-1993 (G)	1.0758	-0.4768	-0.5681
67	SBI Magnum Pharma Fund (G)	0.9087	-0.1298	0.0127
68	Sundaram B N P Paribas Growth Fund (G)	1.0405	0.1134	0.5850
69	Tata Equity Opportunities Fund (D)	0.9669	-0.2082	-0.2443
70	Tata Growth Fund (G)	0.9533	0.7111	2.0117*
71	Tata Life Sciences & Technology Fund (G)	0.9851	0.0134	0.2882
72	Tata Pure Equity Fund (G)	1.0146	0.4383	1.7226
73	Tata Select Equity Fund (G)	1.0696	-0.0465	-0.2820
74	Taurus Bonanza (G)	1.0291	0.1709	0.6523
75	Taurus Discovery (G)	1.0846	-0.4946	-0.4084
76	Taurus Starshare (G)	1.0967	0.0806	0.5509
77	UTI Master Value Fund (G)	0.9621	-0.4732	-0.5240
78	UTI Mastershare (G)	0.9685	-0.3372	-1.2695
	Average	0.9894	-0.1793	
Income				
79	Birla Sun Life Cash Manager-Ret (G)	0.5012	0.0477	6.0933*
80	Birla Sun Life Cash Plus-Ret (G)	0.5007	0.0433	6.5640*
81	Birla Sun Life Income Plus-Ret (G)	0.5217	0.2194	1.2978

Sr. No.	Scheme Name	SML	Alpha	t - Alpha
82	Birla Sun Life Income Plus-Ret (QD)	0.5245	-0.4107	-1.9672
83	DBS Chola Triple Ace (G)	0.5042	-0.0341	-0.2316
84	DSP Blackrock Bond Fund (G)	0.5155	0.1288	1.0713
85	DSP Blackrock Bond Fund (QD)	0.5142	-0.5157	-2.4009*
86	Templeton India Income Fund (G)	0.5173	0.1295	1.2537
87	Templeton India Income Fund (QD)	0.5237	-0.5056	-3.6622*
88	Templeton India Treasury Management Account (G)	0.5008	0.0540	6.5922*
89	Templeton India Treasury Management Account (WD)	0.5025	-0.4238	-19.1561*
90	HDFC Cash Management Fund - Savings Plan (WD)	0.5204	-0.4800	-1.4266
91	HDFC Cash Management Fund - Savings Plan (G)	0.4889	0.0403	0.3026
92	HDFC High Interest Fund (QD)	0.5261	-0.4666	-2.3750*
93	HDFC High Interest Fund (AD)	0.5154	-0.4005	-1.6828
94	HDFC High Interest Fund (HD)	0.5169	-0.4598	-2.2720*
95	HDFC High Interest Fund (G)	0.4585	0.1983	0.6837
96	ING Vysya Income Fund-Ret (QD)	0.5402	-0.4694	-2.5465*
97	ING Vysya Income Fund-Ret (G)	0.5160	0.1564	1.1982
98	ICICI Prudential Gilt Fund (Investment Plan) (G)	0.5131	0.3888	1.8782
99	ICICI Prudential Gilt Fund (Treasury Plan) (QD)	0.5064	-0.4023	-1.1382
100	ICICI Prudential Gilt Fund (Treasury Plan) (G)	0.5044	0.1831	1.9655
101	ICICI Prudential Income Plan (G)	0.5197	0.2329	1.4160
102	JM G-Sec Fund -Regular (D)	0.5209	-0.2715	-1.2271
103	JM High Liquidity Fund (G)	0.5006	0.0509	4.4614*
104	JM High Liquidity Fund (WD)	0.4992	-0.5693	-3.8578*
105	JM Income Fund (G)	0.5157	-0.0340	-0.5090
106	JM Income Fund (D)	0.5292	-0.5574	-1.5312
107	Kotak Mahindra Gilt- Savings (G)	0.5030	0.0275	0.8161
108	LIC Bond Fund (G)	0.5100	0.1947	1.8764
109	LIC Bond Fund (D)	0.5124	-0.5109	-3.4571*
110	LIC Monthly Income Plan (MD)	0.5779	-0.5754	-4.9392*
111	LIC Monthly Income Plan (G)	0.6263	0.1424	0.4825
112	LIC MF Govt. Securities Fund-Regular (G)	0.5192	0.1104	0.6657
113	LIC MF Govt. Securities Fund-Regular (D)	0.5083	-0.5157	-2.1024*
114	SBI Magnum Income Fund-1998 (D)	0.5266	-0.5387	-2.7929*
115	SBI Magnum Income Fund-1998 (G)	0.5203	0.0132	0.0560
116	SBI Magnum Insta Cash Fund (WD)	0.5050	-0.5613	-4.3600*
117	SBI Magnum Insta Cash Fund (G)	0.5002	0.0397	0.6261
118	Sundaram B N P Paribas Bond Saver (G)	0.5184	0.0813	0.7319
119	Tata Gilt RIP (G)	0.5241	0.2453	1.3243
120	Tata Gilt RIP (D)	0.5297	-0.4090	-2.0331*
121	Tata Income Fund (G)	0.5082	0.0501	0.4139
122	Tata Income Fund (HD)	0.5164	-0.4834	-3.0453*
123	UTI Bond Fund (D)	0.5412	-0.6059	-1.6905
124	UTI Bond Fund (G)	0.5133	0.1278	0.8776
125	UTI Money Market Fund (WD)	0.4842	-0.0584	0.2605
	Average	0.5162	-0.1565	
Tax-Planning				
126	Baroda Pioneer Elss 96 (G)	1.0462	-0.9016	-1.4469
127	Canara Robeco Equity Tax Saver (G)	1.0506	-1.1862	-1.7243
128	HDFC Tax Saver (D)	0.9627	-0.6148	-0.5734
129	HDFC Tax Saver (G)	1.0069	0.3306	1.0850
130	ICICI Prudential Tax Plan (G)	1.0453	0.4276	1.2500
131	LIC MF Tax Plan (G)	1.0080	-0.6121	-1.1029
132	Principal Personal Tax Saver Fund (G)	1.0277	-0.6849	-0.5730
133	Principal Tax Savings Fund (G)	1.0213	-0.1209	-0.0067
134	SBI Magnum Tax Gain'93 (G)	1.0525	-0.9062	-0.8446

Sr. No.	Scheme Name	SML	Alpha	t - Alpha
135	Sahara Tax Gain Fund (G)	1.0579	-1.8805	-1.4128
136	Tata Tax Saving Fund (G)	1.0267	-0.3886	-0.5381
137	Taurus Tax shield (G)	1.0685	-0.6130	-0.4385
	Average	1.0312	-0.5959	
	Overall Average	0.8071	-0.2119	

Note: * Significant at 5% level

Table 3 presents the computation for return performance based on Jensen's Measure. It reveals that, out of 137 mutual fund schemes, 56 mutual fund schemes i.e. 40.88% have posted positive alpha estimates across the benchmark criteria. This indicates that fund managers have exhibited superior performance. Table 3 also shows the equilibrium return (SML). Equilibrium returns of a fund is the return that it is expected to earn with the given level of systematic risk or market risk. We can also say that, the schemes with positive alpha have generated return in excess of equilibrium returns.

The alpha values varied widely, the highest being 0.9926 for Reliance Growth Fund (G) and the lowest -1.8805 for Sahara Tax Gain Fund (G). Such large variation of alpha values shows that stock selection abilities of fund managers vary for different mutual fund schemes. Positive alpha values of mutual fund may be a result of adopting better forecast techniques by the fund managers; they seem to have been able to pick up undervalued stocks enabling them to post better performance during the period consideration.

The alpha values can be tested by statistical methods for its degree of significance from a value of zero. The measure for this degree of significance is the t-value, which is merely the alpha value divided by the standard error of the regression. A t-value in excess of 2 is strongly indicative that the performance, either positive or negative, is highly significant in a statistical sense; that is, there is a small probability that the performance results from chance. (Farrell, J L, Jr. (1997)15)

The results indicate that alpha values for only 14 schemes out of 137 schemes viz., Reliance Growth Fund (G), Reliance Vision Fund (G), HDFC Equity Fund (G), HDFC Prudence Fund (G), Tata Growth Fund (G), HDFC Top 200 Fund (G), Franklin India Bluechip Fund (G), Templeton India Growth Fund (G), Franklin India Prima Plus (G), Templeton India Pension Plan (G), Templeton India Treasury Management Account (G), JM High Liquidity Fund (G), Birla Sun Life Cash Manager-Ret (G), Birla Sun Life Cash Plus-Ret (G) are found to be statistically significant at 5 per cent level (one tail test), thus implying that these 14 schemes

have generated above normal returns across the benchmark proxy.

So, the null hypothesis that the observed value of differential measure (alpha) for the same sample schemes is zero cannot be rejected, as for majority of the funds the alpha is not found to be different from zero. If one apply a two-tailed test then find that 21 schemes, viz., Tata Gilt RIP (D), Templeton India Treasury Management Account (WD), HDFC High Interest Fund (HD), HDFC High Interest Fund (QD), Templeton India Pension Plan (D), ING Vysya Income Fund-Ret (QD), Tata Income Fund (HD), Templeton India Income Fund (QD), LIC Bond Fund (D), LIC MF Govt. Securities Fund-Regular (D), DSP Blackrock Bond Fund (QD), UTI Ulip (G), SBI Magnum Income Fund-1998

(D), SBI Magnum Insta Cash Fund (WD), JM High Liquidity Fund (WD), LIC Monthly Income Plan (MD), JM Balanced Fund (D), LIC Mf Balance Fund (D), LIC MF Unit Linked Insurance Scheme (D), JM Equity Fund (D), ICICI Prudential Growth Plan (D), show significant but negative values of alpha at 5 per cent level across the benchmark proxy. This implies that these schemes have not generated even the expected return. Hence, it may conclude that, Indian fund managers do not seem to have generated excess returns than expected. The superior performance is noticeable only in respect of fourteen schemes across both the benchmark proxy.

D. Results of Fama's Components of Investment Performance:

Table 4 : Fama's Components of Investment Performance

Sr. No.	Scheme Name	Compensation for Beta	Compensation for inadequate diversification	Net superior returns due to selectivity	Selectivity
Balanced					
1	Birla Sun Life'95 Fund (G)	0.3875	0.0524	0.2826	0.3350
2	Birla Sun Life'95 Fund (D)	0.3878	0.0746	-0.3735	-0.2989
3	DSP Blackrock Balanced Fund (G)	0.3596	0.0248	0.3619	0.3867
4	Templeton India Pension Plan (G)	0.1805	0.0165	0.3713	0.3878
5	Templeton India Pension Plan (D)	0.1900	0.0692	-0.5362	-0.4670
6	HDFC Prudence Fund (D)	0.3637	0.1103	-0.5198	-0.4095
7	HDFC Prudence Fund (G)	0.3645	0.0437	0.7921	0.8358
8	ICICI Prudential Balanced Fund (G)	0.3563	0.0424	-0.0049	0.0375
9	JM Balanced Fund (G)	0.3458	0.1928	-0.9878	-0.7951
10	JM Balanced Fund (D)	0.3976	0.0614	-0.8267	-0.7653
11	Kotak Mahindra Balance (G)	0.3252	0.0746	-0.3677	-0.2931
12	LIC Mf Balance Fund (D)	0.3515	0.0719	-0.9228	-0.8509
13	LIC Mf Balance Fund (G)	0.3438	0.0547	-0.2116	-0.1569
14	LIC MF Unit Linked Insurance Scheme (D)	0.2791	0.1350	-1.0815	-0.9465
15	Principal Balanced Fund (D)	0.3080	0.5944	-1.1133	-0.5188
16	Principal Balanced Fund (G)	0.3966	0.5360	-0.5658	-0.0298
17	SBI Magnum Balanced Fund (G)	0.4238	0.1562	-0.4540	-0.2977

Sr. No.	Scheme Name	Compensation for Beta	Compensation for inadequate diversification	Net superior returns due to selectivity	Selectivity
18	Tata Balanced Fund (G)	0.3881	0.0491	0.1665	0.2156
19	UTI Balanced Fund (D)	0.3004	0.1088	-0.6830	-0.5742
20	UTI Balanced Fund (G)	0.3235	0.0528	0.3660	0.4188
21	UTI Ulip (G)	0.1818	0.0798	-0.5974	-0.5175
	Average	0.3312	0.1239	-0.3288	-0.2050
Growth					
22	Baroda Pioneer Diversified fund (G)	0.5343	0.0479	-0.1080	-0.0601
23	Birla Sun Life Advantage Fund (G)	0.5450	0.0495	-0.3942	-0.3447
24	Birla Sun Life Equity (G)	0.5532	0.0631	0.3212	0.3843
25	Birla Sun Life India Opportunities Fund (D)	0.5612	0.2164	-1.5899	-1.3734
26	Birla Sun Life India Opportunities Fund (G)	0.5340	0.1240	-0.6668	-0.5428
27	Birla Sun Life M N C Fund (G)	0.3712	0.0670	0.2854	0.3524
28	Birla Sun Life M N C Fund (D)	0.3791	0.1259	-0.4524	-0.3265
29	DSP Blackrock Equity Fund (G)	0.5017	0.2410	-1.8353	-1.5942
30	Franklin Fmcg Fund (G)	0.2826	0.0958	0.1311	0.2270
31	Franklin India Bluechip Fund (G)	0.4939	0.0211	0.6396	0.6606
32	Franklin India Bluechip Fund (D)	0.4902	0.1102	-0.6337	-0.5235
33	Franklin India Prima Fund (G)	0.5250	0.1036	0.5013	0.6049
34	Franklin India Prima Fund (D)	0.5178	0.1360	-0.8507	-0.7147
35	Franklin India Prima Plus (G)	0.4841	0.0321	0.5393	0.5714
36	Franklin India Prima Plus (D)	0.4674	0.1081	-0.9429	-0.8348
37	Franklin Infotech Fund (D)	0.4956	0.2338	-1.8105	-1.5767
38	Franklin Infotech Fund (G)	0.4835	0.2136	-0.8911	-0.6775
39	Franklin Pharma Fund (G)	0.3075	0.1393	0.1065	0.2458
40	Templeton India Growth Fund (G)	0.5024	0.0293	0.5983	0.6276
41	HDFC Capital Builder Fund (D)	0.4287	0.1486	-0.6536	-0.5050
42	HDFC Capital Builder Fund (G)	0.4424	0.0655	0.5359	0.6014
43	HDFC Equity Fund (G)	0.5009	0.0338	0.8358	0.8696
44	HDFC Equity Fund (D)	0.4478	0.1307	-0.3921	-0.2615
45	HDFC Top 200 Fund (D)	0.5013	0.1011	-0.6325	-0.5315
46	HDFC Top 200 Fund (G)	0.5043	0.0390	0.6592	0.6982
47	ICICI Prudential FMCG Fund (G)	0.3235	0.1324	0.2604	0.3928
48	ICICI Prudential Growth Plan (G)	0.4849	0.0373	0.1056	0.1430
49	ICICI Prudential Growth Plan (D)	0.4724	0.1255	-1.3798	-1.2543
50	ICICI Prudential Power (G)	0.1748	2.9705	-2.2933	0.6771
51	JM Basic Fund (G)	0.6255	0.2251	-1.5198	-1.2947
52	JM Equity Fund (D)	0.5353	0.0828	-1.1364	-1.0537
53	JM Equity Fund (G)	0.5632	0.0453	-0.4631	-0.4177
54	Kotak Mahindra 30 Unit Scheme (G)	0.5079	0.0378	0.0711	0.1089
55	LIC M F Growth Fund (G)	0.5048	0.0821	-0.3992	-0.3171
56	LIC MF Equity Fund (G)	0.5529	0.0367	-0.4147	-0.3780
57	Principal Index Fund (G)	0.5124	0.0056	-0.0953	-0.0896
58	Reliance Growth Fund (D)	0.4706	0.1680	-0.8848	-0.7169
59	Reliance Growth Fund (G)	0.5065	0.0780	0.9146	0.9926
60	Reliance Vision Fund (G)	0.4818	0.0648	0.8491	0.9139
61	SBI Magnum Contra Fund (G)	0.4819	0.1691	0.0317	0.2009
62	SBI Magnum Equity Fund (G)	0.5637	0.1128	-1.2133	-1.1006
63	SBI Magnum F M C G Fund (G)	0.3113	0.1620	-0.6266	-0.4646
64	SBI Magnum Global Fund-1994 (G)	0.5944	0.1082	-0.4466	-0.3384
65	SBI Magnum I T Fund (G)	0.5513	0.1983	-1.7613	-1.5630
66	SBI Magnum Multiplier Plus-1993 (G)	0.5720	0.0933	-0.5701	-0.4768
67	SBI Magnum Pharma Fund (G)	0.4050	0.1658	-0.2957	-0.1298
68	Sundaram B N P Paribas Growth Fund (G)	0.5367	0.0432	0.0702	0.1134

Sr. No.	Scheme Name	Compensation for Beta	Compensation for inadequate diversification	Net superior returns due to selectivity	Selectivity
69	Tata Equity Opportunities Fund (D)	0.4632	0.1039	-0.3121	-0.2082
70	Tata Growth Fund (G)	0.4495	0.0700	0.6412	0.7111
71	Tata Life Sciences & Technology Fund (G)	0.4814	0.1076	-0.0941	0.0134
72	Tata Pure Equity Fund (G)	0.5108	0.0355	0.4029	0.4383
73	Tata Select Equity Fund (G)	0.5659	0.0915	-0.1379	-0.0465
74	Taurus Bonanza (G)	0.5254	0.0907	0.0801	0.1709
75	Taurus Discovery (G)	0.5808	0.1351	-0.6297	-0.4946
76	Taurus Starshare (G)	0.5929	0.1055	-0.0249	0.0806
77	UTI Master Value Fund (G)	0.4583	0.1536	-0.6269	-0.4732
78	UTI Mastershare (G)	0.4648	0.0340	-0.3712	-0.3372
	Average	0.4856	0.1535	-0.3328	-0.1793
Income					
79	Birla Sun Life Cash Manager-Ret (G)	-0.0026	0.0121	0.0356	0.0477
80	Birla Sun Life Cash Plus-Ret (G)	-0.0030	0.0127	0.0307	0.0433
81	Birla Sun Life Income Plus-Ret (G)	0.0180	0.1019	0.1174	0.2194
82	Birla Sun Life Income Plus-Ret (QD)	0.0208	0.1246	-0.5353	-0.4107
83	DBS Chola Triple Ace (G)	0.0004	0.0889	-0.1229	-0.0341
84	DSP Blackrock Bond Fund (G)	0.0118	0.0709	0.0578	0.1288
85	DSP Blackrock Bond Fund (QD)	0.0104	0.1359	-0.6517	-0.5157
86	Templeton India Income Fund (G)	0.0136	0.0561	0.0734	0.1295
87	Templeton India Income Fund (QD)	0.0200	0.0799	-0.5855	-0.5056
88	Templeton India Treasury Management Account (G)	-0.0030	0.0131	0.0409	0.0540
89	Templeton India Treasury Management Account (WD)	-0.0012	0.0154	-0.4392	-0.4238
90	HDFC Cash Management Fund - Savings Plan (WD)	0.0166	0.1961	-0.6761	-0.4800
91	HDFC Cash Management Fund - Savings Plan (G)	-0.0149	0.2911	-0.2508	0.0403
92	HDFC High Interest Fund (QD)	0.0223	0.1159	-0.5825	-0.4666
93	HDFC High Interest Fund (AD)	0.0116	0.1480	-0.5485	-0.4005
94	HDFC High Interest Fund (HD)	0.0131	0.1261	-0.5860	-0.4598
95	HDFC High Interest Fund (G)	-0.0452	0.5577	-0.3594	0.1983
96	ING Vysya Income Fund-Ret (QD)	0.0364	0.0989	-0.5683	-0.4694
97	ING Vysya Income Fund-Ret (G)	0.0123	0.0785	0.0779	0.1564
98	ICICI Prudential Gilt Fund (Investment Plan) (G)	0.0093	0.1423	0.2465	0.3888
99	ICICI Prudential Gilt Fund (Treasury Plan) (QD)	0.0027	0.2141	-0.6164	-0.4023
100	ICICI Prudential Gilt Fund (Treasury Plan) (G)	0.0007	0.0645	0.1186	0.1831
101	ICICI Prudential Income Plan (G)	0.0159	0.1007	0.1322	0.2329
102	JM G-Sec Fund -Regular (D)	0.0171	0.1325	-0.4040	-0.2715
103	JM High Liquidity Fund (G)	-0.0031	0.0151	0.0358	0.0509
104	JM High Liquidity Fund (WD)	-0.0045	0.1056	-0.6749	-0.5693
105	JM Income Fund (G)	0.0119	0.0476	-0.0816	-0.0340
106	JM Income Fund (D)	0.0254	0.2101	-0.7675	-0.5574
107	Kotak Mahindra Gilt- Savings (G)	-0.0008	0.0234	0.0041	0.0275
108	LIC Bond Fund (G)	0.0063	0.0659	0.1288	0.1947
109	LIC Bond Fund (D)	0.0087	0.0945	-0.6053	-0.5109
110	LIC Monthly Income Plan (MD)	0.0741	0.0400	-0.6154	-0.5754
111	LIC Monthly Income Plan (G)	0.1225	0.4923	-0.3499	0.1424
112	LIC MF Govt. Securities Fund-Regular (G)	0.0154	0.1057	0.0046	0.1104
113	LIC MF Govt. Securities Fund-Regular (D)	0.0046	0.1594	-0.6751	-0.5157
114	SBI Magnum Income Fund-1998 (D)	0.0228	0.1134	-0.6521	-0.5387
115	SBI Magnum Income Fund-1998 (G)	0.0166	0.0658	-0.0525	0.0132
116	SBI Magnum Insta Cash Fund (WD)	0.0012	0.0869	-0.6481	-0.5613
117	SBI Magnum Insta Cash Fund (G)	-0.0036	0.0485	-0.0089	0.0397
118	Sundaram B N P Paribas Bond Saver (G)	0.0146	0.0582	0.0231	0.0813
119	Tata Gilt RIP (G)	0.0203	0.1136	0.1317	0.2453

Sr. No.	Scheme Name	Compensation for Beta	Compensation for inadequate diversification	Net superior returns due to selectivity	Selectivity
120	Tata Gilt RIP (D)	0.0260	0.1166	-0.5256	-0.4090
121	Tata Income Fund (G)	0.0045	0.0830	-0.0329	0.0501
122	Tata Income Fund (HD)	0.0127	0.0985	-0.5819	-0.4834
123	UTI Bond Fund (D)	0.0374	0.1971	-0.8030	-0.6059
124	UTI Bond Fund (G)	0.0095	0.0944	0.0334	0.1278
125	UTI Money Market Fund (WD)	-0.0195	0.4321	-0.4905	-0.0584
	Average	0.0125	0.1244	-0.2808	-0.1565
Tax-Planning					
126	Baroda Pioneer Elss 96 (G)	0.5424	0.1011	-1.0027	-0.9016
127	Canara Robeco Equity Tax Saver (G)	0.5469	0.1268	-1.3130	-1.1862
128	HDFC Tax Saver (D)	0.4589	0.1690	-0.7838	-0.6148
129	HDFC Tax Saver (G)	0.5031	0.1115	0.2190	0.3306
130	ICICI Prudential Tax Plan (G)	0.5416	0.0875	0.3400	0.4276
131	LIC MF Tax Plan (G)	0.5043	0.0885	-0.7006	-0.6121
132	Principal Personal Tax Saver Fund (G)	0.5240	0.1672	-0.8521	-0.6849
133	Principal Tax Savings Fund (G)	0.5176	0.0775	-0.1983	-0.1209
134	SBI Magnum Tax Gain'93 (G)	0.5487	0.1733	-1.0795	-0.9062
135	Sahara Tax Gain Fund (G)	0.5541	0.2534	-2.1340	-1.8805
136	Tata Tax Saving Fund (G)	0.5230	0.0892	-0.4778	-0.3886
137	Taurus Tax shield (G)	0.5648	0.1788	-0.7918	-0.6130
	Average	0.5274	0.1353	-0.7312	-0.5959

Table 4 presents the results on Mutual Fund Scheme performance based on Fama Measure. As discussed in preceding part, the Fama Measure throws light on -aspects (1) Performance on Systematic Risk, (2) Performance on Diversification and (3) Performance on Net Selectivity.

Performance on Systematic Risk (β):

The performance on systematic risk assesses return being generated by fund managers due to their decision to take risk. They assume risk in the hope of generating extra returns on their portfolios. Table 4 shows that out of 137 mutual fund schemes, 126 schemes have positive performance on account of risk bearing activity of fund managers and only 11 mutual fund schemes have suffered negative performance. JM Basic Fund (G), SBI Magnum Global Fund- 1994 (G), Taurus Starshare (G), Taurus Discovery (G) and SBI Magnum Multiplier Plus-1993 (G) have the highest positive performance with 0.6255, 0.5944, 0.5929, 0.5808 and 0.5720 per month respectively.

While HDFC High Interest Fund (G), UTI Money Market Fund (WD), HDFC Cash Management Fund - Savings Plan (G), JM High Liquidity Fund (WD) and SBI Magnum Insta Cash Fund (G) have the highest negative performance with -0.0452, -0.0195, -0.0149, -0.0045 and -0.0036 per month respectively.

Performance on Diversification:

Note that performance attributed to selectivity can be attributed to diversification and net selectivity. The diversification measures additional return that compensates the portfolio manager for bearing diversifiable risk. Therefore, in the first place an attempt has been made to examine fund managers' performance on diversification. It can be seen from Table 4 that all the schemes have gained a significant part of their returns in pursuit of their diversification activities, as the diversification measure was positive. ICICI Prudential Power (G), Principal Balanced Fund (D), HDFC High Interest Fund (G), Principal Balanced Fund (G) and LIC Monthly Income Plan (G) have earned a

highest positive return for its diversification and while Principal Index Fund (G), Birla Sun Life Cash Manager-Ret (G), Birla Sun Life Cash Plus-Ret (G), Templeton India Treasury Management Account (G) and JM High Liquidity Fund (G) have earned lowest positive return for its diversification.

Performance on Net Selectivity :

After accounting for diversification, the residual performance on selectivity is attributed to net selectivity and it will be equal to (or less than) that on selectivity. A positive net selectivity will indicate superior performance. However, in case net selectivity is negative then it would mean that fund managers have taken diversifiable risk that has not been compensated by extra returns. It may be seen from Table 4 that fund managers of 56 schemes (40.88 %) appeared to possess superior stock selection ability as the selectivity measure was found to be positive. It is interesting to note that in terms of net selectivity there were 46 schemes (33.58 %) showed positive values. This would imply that fund managers of 10 schemes

were not able to get some additional compensation for their diversification activities. The five top performers with regards to net selectivity include Reliance Growth Fund (G), Reliance Vision Fund (G), HDFC Equity Fund (G), HDFC Prudence Fund (G) and HDFC Top 200 Fund (G). All these schemes are from the private sector mutual funds.

VI. Summary and Conclusions :

This paper examined the investment performance of the Indian mutual fund schemes. The study period was from January 2000 to December 2009 (i.e. ten years) with the sample size of 137 open ended mutual fund schemes from public as well as private sector. The researchers have used five performance measures to evaluate the performance of the sample schemes viz., 1) Rate of Return measure, 2) Treynor's Ratio, 3) Sharpe's Ratio, 4) Jensen Differential Measure and 5) Fama's Components of Investment Performance.

Results of Investment Performance of Sample Schemes :

Sr. No.	Performance Measures	Schemes Outperforming	Top Five Performers
1	Rate of Return	31 (22.63%)	Reliance Growth Fund (G), Reliance Vision Fund (G), HDFC Equity Fund (G), HDFC Top 200 Fund (G) and HDFC Prudence Fund (G)
2	Sharpe Ratio	46 (33.58 %)	Templeton India Treasury Management Account (G), Birla Sun Life Cash Manager-Ret (G), Birla Sun Life Cash Plus-Ret (G), JM High Liquidity Fund (G), HDFC Prudence Fund (G)
3	Treynor Ratio	51 (37.23 %)	Templeton India Treasury Management Account (WD), ICICI Prudential Gilt Fund (Treasury Plan) (G), JM High Liquidity Fund (WD), ICICI Prudential Gilt Fund (Investment Plan) (G) and LIC Bond Fund (G)
4	Jensen Differential Measure	56 (40.88%)	Templeton India Treasury Management Account (G), Birla Sun Life Cash Plus-Ret (G), Birla Sun Life Cash Manager-Ret (G), JM High Liquidity Fund (G), HDFC Equity Fund (G)
5	Fama's Components of Investment performance measure		
5.1	Performance on Systematic Risk (β)	126 (92 %)	JM Basic Fund (G), SBI Magnum Global Fund-1994 (G), Taurus Starshare (G), Taurus Discovery (G) and SBI Magnum Multiplier Plus-1993 (G)
5.2	Performance on Diversification	137 (100 %)	ICICI Prudential Power (G), Principal Balanced Fund (D), HDFC High Interest Fund (G), Principal Balanced Fund (G) and LIC Monthly Income Plan (G)
5.3	Performance on Net Selectivity	56 (40.88 %)	Reliance Growth Fund (G), Reliance Vision Fund (G), HDFC Equity Fund (G), HDFC Prudence Fund (G) and HDFC Top 200 Fund (G)

The results reported here indicated that the sample schemes, on an average, performed better than the risk free return but performed poorer than the market return. The sample schemes are not adequately diversified. And the performance of sample schemes is not similar across the different measurement criteria. However, there have been some cases where superior performance has surely been reflected. The average return of the private sector mutual fund schemes (101 schemes) was

found to be 0.6680 and for the public sector mutual fund schemes (36 schemes) was 0.3907. Thus, the private sector mutual fund scheme performed far better than the public sector mutual fund schemes. Moreover, to examine whether this difference is significant or not t-test was also applied and t-value was found to be 3.0895. This necessarily indicates that the difference in average return of two groups of mutual fund schemes was statistically significant.

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