A STUDY ON RISK-RETURN RELATIONSHIP OF MUTUALFUND EQUITY SCHEMES

Dr.R.SARADHAMANI *

ABSTRACT

The relation between risk and return determines the performance of a mutual fund. As risk is commensurate with the acceptable associated risk level it helps in demarcating the better performer among the prevailing players. Mutual funds invest according to the underlying investment objective as specified at the time of launching a scheme. The objective of the equity scheme is capital appreciation. The investors will get return only when the fund is earning from its investments. Hence the risk is higher. The objective of the study is to evaluate the performance of selected mutual fund equity schemes based on Risk and Return. For the study 55 open ended growth oriented equity schemes were selected from both private and public sector mutual funds. To analyze the risk adjusted performance of mutual fund schemes the variables like Net Asset Values (NAV), BSE Bench mark index, Risk- free return, and market portfolio return were used. The performances of selected schemes were evaluated against Risk free rate of return and BSE -100 index. The average Fund return and Fund risk of selected equity schemes were higher than average market return and market risk. Comparatively private sector funds performed better than public sector funds.

Key words: Performance, Capital appreciation, Risk and return,

* Associate Professor, Department of Management Studies, SNS College of Engineering Kurumbapalayam (P.O),Coimbatore, TAMILNADU

Introduction

The mutual fund industry in India has registered significant growth since the liberalization of Indian Economy in 1991 and has emerged as a significant financial intermediary. The growing importance of Indian mutual funds may be noted in terms of the increased mobilization of funds and the increasing number of schemes and investors in the industry. To fulfill the expectations of millions of account holders, the mutual funds are required to function as successful institutional investors. Measuring the growth and evaluating the performance of mutual funds is important as well as a matter of concern to the fund managers, investors and researchers alike.

The relation between risk and return determines the performance of a mutual fund. As risk is commensurate with return, providing maximum return on the investment made within the acceptable associated risk level helps in demarcating the better performer among the prevailing players. During the study period many private sector mutual funds introduced new schemes in India

Objectives

- To compare the performance of fund return with market return
- To evaluate the performance of selected equity mutual funds on the basis of risk-return relationship

Methodology

Period of Study

The study period is a three year period from April 1, 2009 to March 31, 2012. Mutual funds considered for the study have been in operation for more than five years on March 31,2012.

Sample Design

For the performance evaluation the growth option schemes only were, covered in this study. The study used a sample of 55 open - ended equity schemes which has been drawn from 12 private and 5 public sector mutual fund companies including UTI.

Data source

The study mainly relies on secondary data. The data used for the study were Net Asset Values (NAVs), Risk free return, and BSE Benchmark Index (BSE-100) were sourced mainly from the websites of Association of Mutual Funds in India (AMFI), Securities and Exchange Board of India (SEBI), Reserve Bank of India (RBI), and the respective mutual fund websites.

Review of literature

Barua and Varma (1991) Ajay Shah and Thomas Susan (1994) Droms and William G (1994) Jaideep and Sudipta, Majumdar (1994) Kaura and Jayadev (1995) Jayadev (1996) Yadav R.A, Biswadeep Mishra (1996) Ramachandran G (1997) Thiripalraja M, Patil and Prabhakar R Deepa Chatterjee (2000) found that performances of funds are improving and resource mobilizations have 100% growth for the early nineties. Bulk of the collections has been by the private sector mutual funds rather than the public sector mutual funds. There is a tremendous change in the mutual fund investors from depositors in the bank. Rameshchander (2000) Vijayalakshmi S. (2000) Jaspal Singh (2003) Nilesh Shah (2003) Gupta O.P and Amitabh Gupta (2004) found that the Indian mutual fund industry has not performed up to the mark in gaining investor confidence, Nalani Prava Tripathy (2004) in her study evaluated the performance of tax planning schemes in India and examined the investment performance in terms of six performance measures.

Aala Santhosh Reddy (2005) examined and found that it is important that the past performance is not a guarantee for future returns, but a good track record is a must.

Shishir Kumar (2005) Mei-Chen (2006) John (2006), Banerjee and Ashok (2008)

Kaushik and Abhay (2009) investigated the performance of mutual funds that hold a small number of stocks in their portfolio. They found that average small holdings fund did not outperform the S&P 500 index.

Vennila .A and Nandhagopal.R (2012) comment that investors of Coimbatore become more cautions after they lost their savings with unincorporated bodies, Nidhis, Benefit Funds and some Non-Banking Finance Companies. They are now turning more to mutual funds because of safety, liquidity, capital gains and transparency. Moreover they wish to route their investments through mutual funds. Most of the investors rely on investment consultants to choose the right fund for them. They monitor their investments periodically. AMC find a need to increase the public awareness of mutual funds. According to the investors' Opinion, the main reason for the quick popularity of the mutual funds is the guaranty to redeem at net asset values. The investors have realized the benefits of investing in mutual funds. The authors also comment that there is a necessity to establish more mutual funds in India to decentralize the concentration of mutual funds from metro to semi urban and rural areas. They determine to go for new funds for their further investments. Thus mutual fund industry has a good prospect in Coimbatore. It is likely to show a remarkable progress in the coming years.

Risk and Return Analysis

For the performance evaluation purpose 55 open-ended equity schemes were selected from 12 private and 5 public Asset management companies. Monthly NAVs were calculated by taking the daily NAVs of each month and averaging over that month, were used for calculating returns of each scheme. The difference between present and previous month's NAV, expressed in terms of percentage over its previous month NAV was considered as the return of the scheme for that month. The standard deviations of monthly returns were calculated as the risk of the scheme. The returns of each fund were compared with the return of Benchmark index, BSE -100 Natex to evaluate the performance of each scheme. Risk free returns were calculated by assessing the prevailing bank interest rates for deposits made for one to three years during the study period and the interest was converted per month to compare the monthly NAV returns with that of monthly risk free returns.

Returns

For each mutual fund scheme in the sample returns are computed on the basis of Net Assets values (NAVs) of the funds . Similarly, returns on the market Index are computed on the basis of BSE Natex values of the respective dates.

The return has been calculated as follows:

Portfolio return $$R_{pt} = \frac{NAV_t - NAV_{t-1}}{NAV_{t-1}}$$

The average return on the market portfolio is determined as follows.

$$R_P = \sum_{t=1}^{n} R_{pt}/n$$

Market return

Similarly return on the market index is computed by using the following formula.

$$R_{mt} = \frac{M.Ind_t - M.\ Ind_{t-1}}{M.Ind_{t-1}}$$

The average return on market index is as follows:-

$$R_m = \sum_{t=1}^{n} R_{mt}/n$$

.Risk

Risk is the variability of returns.

Systematic risk is market related or non- diversifiable. It includes all types of factors which influence all securities available in the market. It is a non – diversifiable. It is popularly called as Beta (β). Unique risk or unsystematic risk is the one that is unique to given particular mutual fund portfolio and is diversifiable. It is expressed as σ (sigma). Standard deviation of monthly returns is to be taken as risk. Total risk of the scheme portfolio is calculated as follows:

$$\sigma_p = [1/n \sum_{t=1}^{n} (RE_{pt} - RE_p)^2]^{1/2}$$

The total risk of the market portfolio is calculated as follows:-

$$\sigma_{mt} = [1/n \sum_{t=1}^{n} (RE_{mt} - RE_m)^2]^{1/2}$$

Risk-free rate of return

Risk- free returns were calculated by assessing the prevailing bank interest rates for deposits made for one to three years during the study period and the interest was converted per month to compare the monthly NAV returns with that of monthly risk -free returns.

Risk and Return: Equity schemes vs. Benchmark portfolio

The following table presents the risk and return of equity schemes together with risk and return of Benchmark portfolio and risk -free return.

Table 1

Risk and Return: Equity schemes vs. Benchmark portfolio.

(%)

S.No	Scheme	Fund Return	Risk free return	Fund risk	Market return	Market risk
1	Alliance Basic Industries Fund	2.672	0.510	6.189	0.811	6.070
2	Alliance Buy India Fund	1.303	0.510	6.284	0.811	6.070
3	Alliance New Millennium Fund	0.424	0.510	10.406	0.811	6.070
4	Alliance Capital Tax Relief '96	2.273	0.529	9.932	1.297	6.312
5	Birla Equity Plan	2.484	0.540	9.027	1.622	6.355
6	Birla MNC Fund	1.430	0.517	5.239	1.145	6.314
7	Birla Advantage Fund	2.543	0.454	5.189	2.044	5.190
8	Can Expo	1.043	0.514	7.716	0.950	6.139
9	Can Equity Tax Saver	0.910	0.540	8.660	1.622	6.355
10	DSPML equity Fund-	1.199	0.537	7.822	1.622	6.355
11	Franklin India Bluechip Fund	1.887	0.532	8.878	1.420	6.361
12	Franklin India Tax Shield	2.380	0.472	6.425	1.597	5.663
13	Franklin India Opportunities Fund	1.794	0.472	7.193	1.597	5.663
14	Franklin Pharma Fund	1.657	0.472	5.093	1.597	5.663
15	Franklin Info tech Fund	1.528	0.472	12.770	1.597	5.663
16	Franklin India Prima Fund	3.412	0.532	8.706	1.420	6.361
17	Franklin India Prima Plus	2.520	0.532	6.928	1.420	6.361
18	GIC D'MAT	1.087	0.526	5.239	1.244	6.337
19	GIC Fortune '94	2.156	0.540	6.783	1.622	6.355
20	GIC Growth Plus II	1.669	0.540	7.714	1.622	6.355
21	HDFC Equity Fund	2.921	0.537	6.521	1.612	6.394
22	HDFC Tax Saver	2.678	0.537	9.083	1.612	6.394
23	HDFC Capital Builder Fund	4.643	0.537	11.252	1.612	6.394
24	HDFC TOP 200 Fund	2.161	0.540	6.904	1.622	6.355
25	ING Vysya Select Stocks Fund	0.846	0.477	9.232	1.603	5.616
26	JM Basic Fund	0.076	0.477	10.743	1.603	5.616
27	JM Equity Fund	1.434	0.540	8.064	1.622	6.355
28	Kotak 30	1.844	0.540	6.993	1.622	6.355
29	Kotak MNC	1.359	0.503	5.646	1.039	5.875
30	Kotak Tech	0.611	0.500	10.867	1.274	5.593
31	LICMF Tax Plan	1.194	0.540	7.555	1.622	6.355
32	LICMF Equity Fund	0.790	0.526	6.726	1.244	6.337

33	LIC MF Growth Fund	1.260	0.540	7.289	1.622	6.355
34	Magnum Equity Fund	1.180	0.540	10.740	1.622	6.355
35	Magnum Global Fund	1.911	0.540	9.398	1.622	6.355
36	Magnum Sector Funds Umbrella - FMCG Fund	0.902	0.532	6.117	1.420	6.361
37	Magnum Sector Funds Umbrella - IT Fund	1.435	0.550	12.284	1.420	6.361
38	Magnum Tax Gain	2.255	0.540	11.322	1.622	6.355
39	Magnum Multiplier Plus 1993	1.717	0.540	10.265	1.622	6.355
40	Principal Tax Saving Fund	2.242	0.540	7.783	1.622	6.355
41	Pru ICICI FMCG Fund	1.416	0.514	5.619	0.950	6.139
42	Prudential ICICI Technology Fund	0.870	0.488	8.352	1.189	5.750
43	Prudential ICICI Tax Plan	3.159	0.477	6.872	1.603	5.616
44	Sundaram Tax Saver 98	2.137	0.540	6.783	1.622	6.355
45	Tata Life Sciences & Technology Fund	1.879	0.532	8.389	1.420	6.361
46	Tata Tax Saving Fund	1.723	0.540	11.549	1.622	6.355
47	UTI-Growth Sector Fund - Brand Value	1.236	0.529	7.927	1.297	6.402
48	UTI-Equity Tax Savings Plan	1.463	0.517	7.347	1.145	6.314
49	UTI-Growth Sector Fund – Services	2.158	0.540	11.504	1.622	6.355
50	UTI-Growth Sector Fund – Petro	1.339	0.529	8.711	1.297	6.312
51	UTI-Growth Sector Fund – Software	1.190	0.529	12.506	1.297	6.312
52	UTI-Growth Sector Fund – Pharma	0.852	0.529	5.413	1.297	6.312
53	UTI-Master Index Fund	1.423	0.540	6.132	1.622	6.355
54	UTI-MNC Fund	1.071	0.540	5.712	1.622	6.355
55	UTI-Nifty Index Fund	1.091	0.507	5.956	0.817	6.114
	Average	**1.688**	**0.521**	**8.105**	**1.435**	**6.180**

Source: Computed value

It is seen from the table that the average return earned from the schemes is 1.688%. The average fund risk is 8.105%. The average market return of these schemes was found to be 1.435% which is lower than the fund return (1.688%). The fund risk (8.105%) is also found to be higher than the market risk (6.180%). Among the 55 equity schemes, the highest return (4.643%) was from HDFC Capital Builder Fund, followed by Franklin India Prima Fund (3.412%). Nearly one third of the schemes have earned an average returns of more than 2% and more than 50% of the schemes have earned returns of 1–2 % and very few schemes, that is 9 schemes out of 55 schemes have earned returns less than 1%. Twenty schemes ie. Nearly 36% of equity schemes have delivered lower returns than the market returns. The lowest return (0.076%) was from JM Basic Fund with fund risk of more than 10%. The highest risk (12.77%) was from Franklin InfoTech Fund, followed by UTI Growth Sector Fund–Software (12.506%) and Magnum Sector Fund Umbrella – IT Fund (12.28%). Interestingly, all these high risk funds are found to be IT sector related funds.

Risk –Return Grid of sample schemes

The selected schemes are presented in the four quadrant picture form as given below

Quadrant I – High Return / High risk (Rp >Rm; σp > σ m)

Quadrant II – High Return / Low risk (Rp >Rm; σp < σ m)

Quadrant III – Low Return / High risk (Rp <Rm; σp > σ m)

Quadrant IV – Low Return / Low risk (Rp<Rm; σp < σ m)

This section attempts to present the Quadrant picture of selected schemes

Risk –Return Grid of Equity schemes.

The figure in the next page presents the Quadrant picture of Equity schemes.

	II	*I*
High	$R_p > R_{m}, \sigma_p < \sigma_m$ *Birla MNC Fund* *Birla Advantage Fund* *Franklin Pharma Fund.* *Kotak MNC* *Pru. ICICI FMCG Fund.* *UTI- Nifty Index Fund.*	$R_p > R_m, \sigma_p > \sigma_m$ *Alliance Basic Industries Fund.* *Alliance Buy India Fund.* *Alliance Capital Tax Relief- '96.* *Birla Equity Plan.* *Can Expo Growth.* *Franklin India Bluechip Fund* *Franklin India Tax Shield* *Franklin India Opportunities Fund* *Franklin India Prima Fund.* *Franklin India Prima Plus.* *GIC Fortune '94* *GIC Growth Plan II.*

Return ***Low***		*HDFC Equity Fund.* *HDFC Tax Saver.* *HDFC Capital Builder Fund.* *HDFC Top 200 Fund.* *Kotak 30.* *Magnum Global Fund.* *Magnum Sector Fund – Umbrella – I Fund* *Magnum Tax Gain.* *Magnum Multiplier Plus 1993.* *Principal Tax Saving Fund.* *Pru ICICI Tax Plan.* *Sundaram Tax Saver 98.* *Tata Life Securities & Technology Fund.* *Tata Tax Saving Fund.* *UTI –Equity Tax Savings Plan.* *UTI – Growth Sec. Fund – Services.* *UTI – Growth Sec. Fund – Petro.*
	IV	***III***
	$R_P < R_m, \sigma_p < \sigma_m$ *GIC DMAT* *Magnum Sector Fund* *Umbrella – FMGC. Fund.* *UTI Growth Sec. Fund – Pharma* *UTI master Index Fund.* *UTI MNC Fund*	$R_p < R_m$; $\sigma_p > \sigma_m$ *Alliance New Millennium Fund* *Can Equity Tax Saver* *DSP ML. Equity Fund* *Franklin InfoTech Fund.* *Ing Vysya Select Stocks Fund.* *JM Basic Fund.* *JM Equity Fund.* *Kotak Tech.* *LIC MF Tax Plan* *LIC MF Growth Fund.* *LIC MF Equity Fund* *Magnum Equity Fund.* *Pru. ICICI Technology Fund.* *UTI Growth Sec. Fund – Brand value.* *UTI – Growth Sec- Fund – Software*

Low **Risk** **High**

Quadrant I present schemes which have earned higher returns than the market by taking higher risk than the market. (High return / High risk.).Out of 55 schemes 29 schemes are falling under this category. They are Alliance Basic Industries Fund, Alliance Buy India Fund, Alliance

Capital Tax Relief '96, Birla Equity Plan, Can Expo Growth, Franklin India Bluechip Fund, Franklin India Tax Shield, Franklin India Opportunities Fund, Franklin India Prima Fund, Franklin India Prima Plus, GIC Fortune'94, GIC Growth Plus II, HDFC Equity Fund, HDFC Tax Saver, HDFC Capital Builder Fund, HDFC Top 200 Fund, Kotak 30, Magnum Global Fund, Magnum Sector Fund- Umbrella, Magnum Tax Gain, Magnum Multiplier 1993, Principal Tax Saving Fund, Pru ICICI Tax Plan, Sundaram Tax Saver98, Tata Life Securities & Technology Fund, Tata Tax Savings Fund, UTI- Equity Tax Savings Plan, UTI – Growth Sec Fund- Services, UTI –Growth Sec Fund – Petro. These schemes are earning higher returns by taking higher risk.

Quadrant II contains schemes which earned higher returns by taking lower risk than the market. (High return / low risk). These schemes are considered to be well performed than the market portfolio. Six schemes are falling under this category. They are Birla MNC Fund, Birla Advantage Fund, Franklin Pharma, Kotak MNC, Pru ICICI FMCG Fund, UTI- Nifty Index Fund..

Quadrant III contains all those schemes whose returns have been found to be lower than the market return but Funds risk are higher than the market risk (Low return / High risk). Under this category 15 schemes are falling. These schemes are Alliance New Millennium Fund, Can Equity Tax Saver, DSP ML Equity Fund, Franklin Info Tech Fund, Ing Vysya Select Stocks Fund, JM Basic Fund, JM Equity Fund, Kotak Tech, LIC MF Tax Plan, LIC MF Growth Fund, LIC MF Equity Fund, Magnum Equity Fund, Pru ICICI Technology Fund, UTI Growth Sec. Fund – Brand Value, UTI – Growth Sec Fund - Software.

Quadrant IV presents those schemes whose returns are less than the market and Funds risk are also lower than the market risk (Low return /Low risk). 5 schemes are falling under this category. They are GIC DMAT, Magnum Sector Funds, Umbrella – FMCG Fund, UTI Growth Sec. Fund – Pharma, UTI Master Index Fund, UTI MNC Fund. These schemes have earned lower return than the market by taking low risk.

Conclusion

The performances of selected schemes were evaluated against Risk free rate of return and BSE - 100 index. The average Fund return and Fund risk of selected equity schemes were higher than average market return and market risk. 35 (64%) equity schemes outperformed the market. 46 (84%) schemes had incurred lower risk than the average market risk. 53 schemes (96%) earned higher return than the risk free return. The highest return was earned by HDFC Capital Builder Fund and the lowest was from JM Basic Fund. 2 schemes Alliance New Millennium and JM Basic Fund had not even earned risk – free return. In the private sector, 24 (75%) out of 32 equity schemes, In the public sector, 11 (48%) out of 23 equity schemes, earned higher return than the market return. Comparatively private sector funds performed better than public sector Funds.

References

Books

Avadhani.V.A. (2007) **Portfolio *Management*** (2007) Himalaya Publishing House.

Bhalla V.K. (2004) ***Investment Management – Security Analysis and Portfolio Management*** New Delhi : S.Chand & Company Ltd,

Jaspal Singh (2006) ***Mutual funds; Growth, performance and prospects,*** Deep and Deep Publication Pvt Ltd.

Journals

Aala Santhosh Reddy (2005), **"*Mutual fund performances, Comparative analysis*"** Chartered Financial Analyst, July, pp 17-22.

Ajay, Shah and Thomas Susan (1991), *"**Performance evaluation of professional portfolio management in India**",* An Article prepared by CMIE, 10th April

Banerjee and Ashok (2008), ***"Persistence in performance of Indian equity mutual funds: An Empirical Invesigation."*** Management Review, June 2008, Vol. 20, Issue 2. pp 172-187

Barua and Varma (1991), ***"Master Shares; A Bonanza for Large Investors",*** Vikalpa, Volume 16, No 1, January - March, pp. 29 -34.

Deepa Chatterjee (2000), *"Growth of mutual fund in India",* Research paper presented in IIM (Bombay).

Droms and William G (1994), ***"Performance of mutual funds",*** Journal of Financial Research, Volume 17 Issue 1, p 1.

Gupta 0.P and Amithab Gupta (2004), ***"Performance evaluation of select mutual fund schemes: An empirical study",*** The ICFAI Journal of Applied Finance, Dec, pp.81-97.

Jaideep and Sudipta Majumdar (1994), "***Performance evaluation of mutual funds in India***", NMIS Management Review, Volume I, No 2, July - December pp. 66-78.

Jaspal Singh (2003), **"*Growth, Performance and Prospects of Mutual Funds in India*"**, Ph.D. Theis, submitted to Gurunanak Deemed University, Punjab, 2002.

Jayadev (1996), ***"Regulatory frame work of mutual funds; An analytical review",*** Investment policies and performance of mutual funds. pp. 94-127.

John (2006), **"*Performance of Mutual Funds*",** Journal of Financial and Quantitative Analysis, June, pp. 31-33

Kaura and Jayadev (1995), ***"Performance of Growth Oriented Mutual Funds: An Evaluation",*** The ICFAI Journal of Applied Finance, Volume I, No 1, January, pp. 1-14.

MEi-Chen Lin (2006), ***"An Examination of the Determinants of Mutual Fund Performance over DIfferent Investment Horizons",*** International Journal of management, March, Volume 23, Issue. 1 pp 147-156

Nalini Prava Tripathy (2004), ***"Empirical analysis on performance evaluation of mutual funds in India***" A study on equity linked saving schemes. The ICFAI Journal of Applied Finance, July, pp. 36-54.

Nilesh Shah (2003), **"*Indian mutual funds: Way ahead*",** Chartered Financial Analyst, July, pp. 47-48.

Ramachandran G (1998), ***"Pitfalls in portfolio performance measures and their implications to mutual funds Industry",*** Indian Capital Markets, Theories and Empirical Evidence, Quest publications, pp. 234-274.

Ramesh chander **(**2000)**, "*Performance appraisal of mutual funds in India*",** Finance India, December , pp. 1256-1261.

Shishir Kumar (2005), **"*Market penetration redefining distribution*",** Chartered Financial Analyst, July, pp 18-20.

Thiripalraja M and Patil, Prabhakar R (1998), **"*Micro and Macro Forecasting abilities of Indian Fund managers*",** Indian capital markets; Theories and empirical evidence, Quest Publications, pp. 205-218.

Vijaylakshmi S (2000), **"*Performance Analysis of Mutual Funds in India An empirical evaluation of diversification and timing performance*",** Ph.D. Thesis, Institute for Financial Management and Research, Chennai.

Yadav R.A and Biswadeep Mishra (1996), ***"Performance evaluation of mutual fund s: An empirical analysis",*** MDI Management Journal, Volume 9, No 2, July, pp. 117-125.