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Research Paper

Finance

Comparison of performance of Selected Indian Mutual Fund Schemes with its benchmark returns (special reference to Pharmaceutical, Banking & I.T. sector) - An empirical Study

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ABSTRACT

This study has been carried out to evaluate the performance of selected 11 mutual fund schemes during the study period of June 2007 to May 2012. An attempt has been made to evaluate the fund's diversified. Negative correlation between level of diversification, measured by R2 and unique risk proved that, fund managers remained successful in reducing unique risk through better diversification. The study performance, level of diversification and manager's ability to pick the undervalued stocks. Risk adjusted performance in terms of Sharpe and Treynor ratio showed that 60% of the fund schemes bear positive values. The findings also revealed that majority of the schemes were adequately also revealed that about 80% of the schemes were able to beat the market with help of better stock selection skill of fund managers. Overall, Reliance Pharma Fund (G), Reliance Banking Fund (G), SBI One India Fund (Growth) are among the best performing funds.

KEYWORDS : Beta, Mutual fund performance Evaluation, Mutual Funds, Unsystematic Risk, Standard deviation, Portfolio Return

INTRODUCTION

Because of increased importance of mutual fund as an investment avenue in recent years, the performance evaluation of mutual funds in India has received greater attention from both practitioners and academicians. The considerations underlying the performance evaluation of mutual funds is a matter of concern to investors, fund managers and researchers alike.

LITERATURE REVIEWS

The pioneering work on the mutual funds in U.S.A. was done by Friend, et al., (1962) in Wharton School of Finance and Commerce for the period 1953 to 1958. In the Indian Context, one of the early work in the area was by Barua and Verma (1991). They evaluated the performance of 'Mastershare' the first close ended fund in India during 1987-1991 and concluded with the satisfactory performance of the fund using Jensen and other measures.

Shukla and Singh (1994) attempted to identify whether portfolio manager's professional education brought out superior performance. They found that equity mutual funds managed by professionally qualified managers were riskier but better diversified than the others. Though the performance differences were not statistically significant, the three professionally qualified fund managers reviewed outperformed others.

Gupta (1974) evaluated the performance of mutual fund industry for the period 1962-71 using Sharpe, Treynor, and Jensen models. All the funds covered under the study outperformed the market irrespective of the choice of market index. The results indicated that all the three models provided identical results. All the mutual fund subgroups outperformed the market using DJIA while income and balanced groups underperformed S&P 500.

METHODOLOGY

Traditionally, it was a tendency to overlook the risk involved in mutual fund schemes (pharmaceutical, banking & I.T sector) that is one of the important elements in the measurement of the performance of mutual fund schemes. In financial terms risk is defined as variability in expected return from investment. Following tools and techniques have been used to measure the performance of various equity diversified mutual funds.

Sharpe Ratio

The Sharpe ratio is a single number which represents both the risk, and return inherent in a fund. Therefore the ratio looks at both, return and risk and delivers a single measure that is proportional to the risk adjusted return.

$$S_p = \frac{R_p - R_f}{\sigma_p}$$

Where, R_m measures average market return and σ_m is the standard deviation of benchmark market return.

Treynor's Measure

Developed by Jack Treynor, this performance measure evaluates funds on the basis of Treynor's Index. This Index is a ratio of return generated by the fund over and above risk free rate of return (generally taken to be the return on securities backed by the government, as there is no credit risk associated), during a given period and systematic risk associated with it (beta).

$$T_p = \frac{R_p - R_f}{\beta}$$

Jensen's Alpha Measure

This measure was developed by Michael Jensen in 1968 an is referred to as the differential return method. This measure involves evaluation of the returns that the fund has generated vs. the returns actually expected out of the fund given the level of its systematic risk. Symbolically;

$$\alpha_p = R_p - \left[R_f + \beta_p (R_m - R_f)\right]$$

Fama's Selectivity Model

The net selectivity represent the stock selection skill of the fund manager as it is the excess return over and above the return required to compensate for the total risk taken by the fund manager.

$$\text{Net Selectivity} = (R_p - R_f) - \frac{\sigma_p}{\sigma_m (R_m - R_f)}$$

A positive high value indicates that the fund has achieved superior return and investors are benefited out of the selectivity exercised by the fund manager.

Definitions of some used concepts

Portfolio Return

Fundamentally return on a portfolio is:

$$R_p = \frac{NAV_t - NAV_{t-1}}{NAV_{t-1}} \times 100$$

Where R_p is the return on portfolio, NAV is the net asset value of fund and *t* is the time period.

Market Return

Similarly the return on market index is calculated as under;

$$R_m = \frac{Market\text{i } Index_t - Market\text{i } Index_{t-1}}{Market\text{i } Index_{t-1}} \times 100$$

Risk

The risk is calculated as standard deviation of monthly returns.

$$\sigma_p = \sqrt{\frac{\Sigma(R_p - \overline{R_p})^2}{n-1}}$$

DATABASE

This paper covers performance evaluation of 11 mutual fund schemes (pharmaceutical, banking & I.T sector) of various fund houses. This study is based on the data for the period of five years, from June 2007 to May 2012. As this study is based on monthly NAV data, the study period is long enough to draw meaningful inferences on the performance and its determinants.

Table 1 Mutual Schemes, Their Benchmarks and Asset Under Management

Name of Fund Scheme	Benchmark
SBI Pharma Fund (G)	BSE PHARMA
Reliance Pharma Fund (G)	BSE PHARMA
SBI One India Fund (Growth)	BSE-200
Religare Invesco Banking Fund - Regular Plan (G)	BSE-100
Goldman Sachs Banking Index Exchange Traded Scheme	S&P CNX NIFTY
Reliance Banking Fund (G)	S&P CNX NIFTY
ING Dividend Yield Fund (Growth)	BSE-200
UTI Banking Sector Fund	BSE SENSEX
ICICI Prudential Dynamic Plan (Growth)	S&P CNX NIFTY
Franklin Infotech Fund (G)	BSE SENSEX
Birla Sun Life New Millennium (G)	BSE SENSEX
ICICI Prudential Technology Fund (G)	BSE SENSEX

EMPIRICAL FINDINGS AND DISCUSSION

Risk Adjusted Performance of Mutual Funds

Table 2 highlights the average yearly return of 11 sampled schemes, standard deviation of their return, their beta and average yearly return of their benchmarks. During the selected period of June' 2007 to May' 2012 all the sampled mutual fund schemes have recorded positive average return. Out of all selected funds 3 funds recorded average yearly return of more than 20%, total 6 schemes recorded average yearly return of more than 10% but less than 20% returns and remaining 2 schemes recorded average yearly return of less than 5%. The top 3 performers in terms of these variables are Reliance Pharma Fund (G), Reliance Banking Fund (G), ICICI Prudential Technology Fund (G). The least performing schemes are Birla Sun Life New Millennium (G), ICICI Prudential Dynamic Plan (Growth), ING Dividend Yield Fund (Growth) with average return of less than 14%.

Table 2: Return and Risk in Sampled Equity Diversified Mutual Funds

Name of Fund Scheme	Average Yearly Return	Standard Deviation of Yearly Return	Beta	Average Yearly Return of Market	Sharpe Ratio of Fund	Sharpe Ratio of Benchmark	Treynor Ratio of Fund
SBI Pharma Fund (G)	18.46	49.27	1.05	18.35	0.23	0.24	10.72
Reliance Pharma Fund (G)	27.43	58.02	1.17	18.35	0.35	0.87	17.28
SBI One India Fund (Growth)	15.29	38.71	0.78	3.70	-0.466	-0.223	-9.141
Religare Invesco Banking Fund - Regular Plan (G)	15.51	54.67	1.03	2.99	0.15	-0.29	8.05
Goldman Sachs Banking Index Exchange Traded Scheme	15.84	54.23	1.02	3.38	0.16	-0.31	8.40
Reliance Banking Fund (G)	22.47	54.66	1.02	3.38	0.28	-0.31	14.99
ING Dividend Yield Fund (Growth)	13.48	22.44	1.17	3.70	0.278	-0.223	5.325
UTI Banking Sector Fund	17.85	54.42	1.02	2.43	0.19	-0.36	10.38
ICICI Prudential Dynamic Plan (Growth)	9.28	19.54	1.3	3.38	0.104	-0.311	1.562
Birla Sun Life New Millennium (G)	3.98	51.39	0.60	2.43	-0.06	-0.36	-5.49
ICICI Prudential Technology Fund (G)	18.91	69.17	0.80	2.43	0.17	-0.36	14.65
BSE PHARMA	15.76	46.71					
BSE-200	15.76	12.78					
BSE-100	20.12	14.78					
S&P CNX NIFTY	20.12	12.43					
BSE SENSEX	23.70	13.47					
Correlation of coefficient between Sharpe and Treynor	0.401807						

Out of total selected schemes 6 schemes have beta value of more than 1, which show high volatility of these schemes. The average beta value of all the schemes is 0.84. The top five performing funds in terms of Treynor measure are: Reliance Pharma Fund (G), Reliance Banking Fund, ICICI Prudential Technology Fund (G), SBI Pharma Fund (G), UTI Banking Sector Fund.

Diversification

The correlation coefficient between R2 and unique risk is 0.512. So the overall results substantiate the fact that higher the level of diversification lower the level of unique risk and expectedly higher the return. The fund managers who have diversified their portfolio very successfully are Franklin Infotch fund, SBI Pharma & Goldman Sachs Banking Index Exchange Traded Scheme The average R2 ratio for all the sampled schemes is 0.87 which shows that schemes adequately diversified.

Table : Risk and Diversification in Equity Diversified Mutual Fund Schemes

Name of Fund Scheme	Total Risk (σ_p)	Systematic Risk (β)	Unsystematic Risk (σ_{et})	Divers ification	Average Yearly Return	Jensen's Measure	Fama's Measure
Birla Sun Life New Millennium (G)	51.39	0.60	26.18	0.95	3.98	-0.40	-2.48
SBI One India Fund (Growth)	15.29	0.78	2.261	0.66	12	-4.361	-6.859
Goldman Sachs Banking Index Exchange Traded Scheme	54.23	1.02	29.25	0.98	15.84	12.55	9.71
ICICI Prudential Technology Fund (G)	69.17	0.80	47.60	0.94	18.91	15.49	12.72
Reliance Banking Fund (G)	54.66	1.02	29.71	0.96	22.47	19.16	16.36
Reliance Pharma Fund (G)	58.02	1.17	32.42	0.88	27.43	7.21	19.77
Religare Invesco Banking Fund - Regular Plan (G)	54.67	1.03	29.69	0.97	15.51	12.63	9.12
SBI Pharma Fund (G)	49.27	1.05	23.03	0.98	18.46	-0.40	11.11
ING Dividend Yield Fund (Growth)	22.44	1.17	0.69	4.863	13.48	10.3835	6.627
UTI Banking Sector Fund	54.42	1.02	29.37	0.97	17.85	15.52	11.44
ICICI Prudential Dynamic Plan (Growth)	19.54	1.3	3.565	0.69	9.28	7.061	2.436
Correlation Coefficients Between Return and Jensen's Measure						0.470103	
Correlation Coefficients Between Return and Fama's Measure						0.884879	

Stock Selection Skills

So far the performance of managers in terms of Jensen's measure is concerned out of selected sampled schemes three scheme Birla Sun Life New Millennium (G), SBI One India Fund (Growth), SBI Pharma Fund (G) have recorded negative value of alpha. Out of these 9 schemes 7 have reported positive value of Jensen's measure. The top three performers in terms of Fama's measure are; Reliance Pharma Fund (G), Reliance Banking Fund (G), ICICI Prudential Technology Fund (G). which are more or less same with the top performers in terms of Jensen's measure.

CONCLUSION

Out of total, 85% of the schemes have reported higher risk than the risk of benchmark markets. The hypothesis of risk return relationship was also justified by the benchmark markets also. Risk adjusted performance in terms of Sharpe and Treynor ratio showed that 60% of the fund schemes bear positive values.

The findings also revealed that majority of the schemes were adequately diversified. High positive degree of correlation coefficient between Jensen's measure and portfolio return and Fama's measure and portfolio returns also validated. Overall Reliance Pharma Fund (G), Reliance Banking Fund (G), SBI One India Fund (Growth) is among the best performing funds among the sampled schemes, in terms of all the different performance evaluation measures.

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