PERFORMANCE APPRAISAL OF SELECTED MUTUAL FUNDS: A RISK-RETURN ANALYSIS

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ABSTRACT:
Analysing the investment performance of mutual funds is a complex task as it involves several factors, including multidimensional concepts. Returns can be total returns, inflation-adjusted returns, risk-adjusted returns and so on. They can be related to various time horizons and can be compared with various benchmarks. Further, the risk-related return for various schemes needs to be seen in terms of market performance. The failure to consider some of the parameters may mislead the investor about the real return he will get out of his investment. The market is a dynamic entity, cyclically changing its face, and mutual funds' performance is coloured by the market environment. Therefore, the returns of a mutual fund have to be patiently understood in the context of the overall performance of the economy and market. However, a small investor cannot be expected to do it himself and hence has to depend on various agencies to determine actual performance of the scheme he has investedin.

Keywords: Mutual Funds, total returns, inflation-adjusted returns, risk-adjusted returns, performance.

INTRODUCTION

Evaluating historical performance of mutual funds is important both for investors as well as portfolio managers. It enables an investor to assess as to how much return has been generated by the portfolio manager and what risk level has been assumed in generating such returns. Further, an investor can also appraise the comparative performance of different fund managers. Similarly, fund managers would also be able to know their performance over time and also vis-a-vis that of other competitors in the industry. The evaluation also provides a mechanism for identifying strengths and weaknesses of fund managers in the investment process, which helps them to take corrective actions.

OBJECTIVE OF RESEARCH

With the above background in view, the research paper attempts to:

1. Calculate and evaluate the performance of select mutual funds through calculation of time tested parameters and models of performance.
2. To draw meaningful conclusions that can be effectively used by investors as well as mutual fund portfolio managers for construction of their portfolios.

DATABASE AND RESEARCH METHODOLOGY

Sample Schemes: The study uses a sample of 50 mutual fund growth schemes out of which 14 schemes are covered from the public sector while 36 schemes are from private sector. All of the schemes are open-ended in nature. The aim-wise classification of sample schemes is 16 equity-large cap schemes, 16 equity-large and mid-cap schemes, 8 equity-multi cap schemes and 10 tax planning schemes.

Data and Period of Study: The study uses weekly NAV data of the schemes for three year period from January 1, 2011 to December 31, 2013. Further, appropriate adjustments have been made for dividend, bonus and right issues for each of the sample schemes to make the data comparable overtime.

The Risk-Free Proxy: The study uses the weekly yields on 91-day Treasury Bills (T-bills) as a surrogate for risk-free rate of return. It has been marked at 4.5%p.a. as this was the average rate on T-bills during the study period.

Benchmark Index: For evaluating the performance of mutual funds, the study has used the Bombay Stock Exchange (BSE) National Index (1983-84=100) as a surrogate for market portfolio as it is a broad based index.

For the purpose of measuring performance of selected mutual funds, following **parameters** has been used:

1.Return: Return could be calculatedby:

$$R_{pt} = [NAV_{(t)} - NAV_{(t-1)}] / NAV_{(t-1)}$$

Where,

R_{pt} = Return on the managed funds for time t NAV_t =
Net asset value att.
NAV_{t-1} = the corresponding value at t - 1.

Return for the market index can be calculated by

$$R_{mt} = [MI_{(t)} - MI_{(t-1)}] / MI_{(t-1)}$$

Where,

R_{mt} = Return on the market index for time tMI_t =
Market index att
    MI_{t-1} = Market index at t - 1

2. **Risk:** Broadly, there are three popular measures of risk that are used in performance evaluation.

(a) **Standard deviation (σ)**: Total risk can be measured by standard deviation of the returns distribution. It is a statistic to measure the variation in individual returns from the average expected return over a certain period of time.

(b) **Beta (β)**: Systematic or non-diversifiable risk can be measured by beta. Betacoefficientcomparesthevariabilityofafund'sreturntothemarketasa whole. By convention, market will have beta 1.0.

(c) **Coefficient of Determination (R^2)**: Coefficient of determination shows the extent of variation in the fund return that has been explained by the market factors, signifying the diversification level of the fund. A high R^2 indicates that the fund is welldiversified.

3. **Risk-adjustedreturn:** The evaluation of performance based on gross return suffers from one serious limitation. It does not take into account the risk of the concerned portfolio. The higher return earned by a fund manager could be due to difference in risk exposure. Thus, it is vital that ex-post returns must be adjusted for risk. Broadly, there are three major risk-adjusted measures for performance evaluation. These are:

(a) SharpeIndex: It is reward to variability ratio given by W.F. Sharpe in 1966. It is expressed as the excess return per unit of risk, where risk is measured by the standard deviation of the rate of return. The ratio is defined as:

$$S_p = (R_p - R_f)/\sigma_p \qquad \text{Where,}$$

$S_p=$ Sharpe's ratio for fund p,

$R_p=$ Average return on fundp,

$\sigma_p=$ Standard deviation of return on fund p, and

$R_f=$ Return on risk freeasset.

(b) TreynorRatio: It is reward to volatility ratio given by Jack Treynor in 1965 and is expressed as a ratio of returns to systematic risk (Beta). The ratio is:

$$T_p = (R_p - R_f)/\beta_p$$

Where,

$T_p=$ Treynor's ratio for fundp,

$\beta_p=$ Sensitivity of fund return to market return,

$R_p=$ Average return on fund p,and

$R_f=$ Return on risk freeasset.

(c) Jensen DifferentialMeasure: It is a regression of excess fund return with excess market return given by M.C. Jensen in 1968. It is expressed as:

$$R_p - R_f = \alpha + \beta(R_m - R_f) + e_i$$

Where,

$\alpha=$ Theintercept,

$\beta =$ Systematic risk,

$R_m=$ Return on market portfolio

$R_p=$ Average return on fund p

$R_f=$ Return on risk freeasset.

I.   DATA ANALYSIS ANDINTERPRETATION

Return, Risk and Risk adjusted Return measures has been presentedin Table 1.1

Table 1.1
Return-Risk statistics of Mutual Fund Schemes

Fund	Sharpe Index	Treynor Ratio	Jensen Measue	Fund Return	Fund risk	Beta	R^2
Equity: Large Cap							
BNP Paribas Equity	0.2232	0.0452	0.0434	0.0821	0.1662	0.82	0.92
DSPBR Top 100 Equity	0.1384	0.0275	0.0299	0.0687	0.1691	0.85	0.95
DWS Alpha Equity Reg	0.1598	0.0324	0.0205	0.0181	0.1683	0.83	0.93
Franklin India Bluechip	0.2468	0.0460	0.0456	0.0841	0.1584	0.85	0.96
HSBC Equity	0.0288	0.0057	0.0017	0.0402	0.1664	0.84	0.91
ICICI Prudential Focussed Bluechip Equity	0.3493	0.0649	0.0661	0.1041	0.1692	0.91	0.98
ICICI Prudential Top 100	0.1668	0.0330	0.0375	0.0754	0.1823	0.92	0.97
JM Equity	0.1978	0.0380	0.0333	0.0032	0.2113	1.1	0.53
LIC Nomura MF Growth	0.0645	0.0121	0.0042	0.0333	0.1815	0.97	0.67
LIC Nomura MF Opportunities	0.1384	0.0184	0.0150	0.0192	0.1864	1.4	0.89
LIC Nomura MF Equity	0.0913	-0.0178	0.0096	0.0281	0.1852	0.95	0.79
LIC Nomura MF Top 100	0.1968	0.0313	0.0284	0.0074	0.1911	1.2	0.81
SBI Magnum Equity	0.1665	0.0331	0.0339	0.0725	0.1652	0.83	0.95
UTI Leadership Equity	0.0156	0.0028	0.0046	0.0423	0.1726	0.95	0.82
UTI Mastershare	0.0890	0.0175	0.0209	0.0595	0.1629	0.83	0.97
UTI Nifty Index	0.0082	0.0012	0.0084	0.0434	0.1948	1.3	0.95
Equity: Large & Mid Cap							
Birla Sun Life Advantage	0.1200	-0.0236	0.0153	0.0223	0.1892	0.96	0.91
DWS Investment Opportunity R	0.2102	-0.0395	0.0302	0.0075	0.1784	0.95	0.72
HDFC Top 200	0.1740	0.0346	0.0406	0.0782	0.1908	0.96	0.94
ICICI Prudential Dynamic	0.2270	0.0461	0.0414	0.0805	0.1564	0.77	0.95
ING Optimix MM Equity Opt A	0.1932	-0.0387	0.0285	0.0094	0.1843	0.92	0.71
LIC Nomura MF India Vision	0.1453	0.0258	0.0199	0.0166	0.1955	1.1	0.82
Morgan Stanley A.C.E.	0.0958	0.0193	0.0232	0.0616	0.1733	0.86	0.92

Quantum Long Term Equity	0.3722	0.0746	0.0666	0.1054	0.1623	0.81	0.93
Reliance Equity Opportunity	0.2429	0.0502	0.0408	0.0032	0.1984	0.96	0.86
Reliance Vision	0.1085	0.0223	0.0144	0.0231	0.2018	0.98	0.87
SBI Contra	0.1484	0.0286	0.0194	0.0184	0.1792	0.93	0.91
Sundaram Growth Reg	0.0574	0.0111	0.0033	0.0343	0.1863	0.96	0.92
Tata Pure Equity	0.1202	0.0243	0.0246	0.0637	0.1556	0.77	0.92
UTI Contra	0.2547	0.0409	0.0432	0.0082	0.2089	1.3	0.91
UTI Dividend Yield	0.2131	0.0432	0.0392	0.0783	0.1563	0.77	0.92
UTI Opportunities	0.3754	0.0770	0.0618	0.1012	0.1497	0.73	0.89
Equity: Multi Cap						
Birla Sun Life Equity	0.0676	0.0134	0.0054	0.0324	0.1864	0.94	0.89
BNP Paribas Dividend Yield	0.3846	0.0857	0.0635	0.1033	0.1516	0.68	0.76
DSPBR Equity	0.1229	0.0257	0.0287	0.0671	0.1798	0.86	0.87
HDFC Equity	0.1971	0.0403	0.0451	0.0829	0.1923	0.94	0.88
ING Dividend Yield	0.3517	0.0754	0.0590	0.0985	0.1521	0.71	0.82
Reliance Regular Savings Equity	0.1232	0.0259	0.0315	0.0693	0.1972	0.94	0.88
Tata Equity PE	0.0214	0.0044	0.0105	0.0488	0.1779	0.87	0.89
Templeton India Equity Income	0.2541	0.0549	0.0495	0.0884	0.1708	0.79	0.81
Equity: Tax Planning						
Canara Robeco Equity Tax Saver Reg	0.4256	0.0879	0.0679	0.1074	0.1466	0.71	0.86
DSPBR Tax Saver	0.2091	0.0428	0.0429	0.0814	0.1741	0.85	0.91
Franklin India Taxshield	0.4024	0.0808	0.0673	0.1064	0.1526	0.76	0.94
HDFC Taxsaver	0.1788	0.0369	0.0348	0.0738	0.1611	0.78	0.89
ICICI Prudential Tax Plan	0.2634	0.0532	0.0530	0.0913	0.1758	0.87	0.92
LIC Nomura MF Tax Plan	0.1021	0.0196	0.0114	0.0262	0.1842	0.96	0.69
Quantum Tax Saving	0.3450	0.0685	0.0625	0.1012	0.1629	0.82	0.94
Religare Tax Plan	0.2852	0.0581	0.0494	0.0886	0.1529	0.75	0.89
Sundaram Taxsaver	0.0090	0.0017	0.0055	0.0434	0.1785	0.92	0.92
Tauras Tax Shield	0.0895	0.0185	0.0207	0.0596	0.1632	0.79	0.88
AVERAGE				**0.0568**	**0.1751**	**0.9044**	**0.8748**
MARKET (BSE 100)				**3.73**	**19.07**		

Table 1.2 presents the performance of sample schemes in summarised form as per return generated by schemes.

Table 1.2

Top Five Mutual Funds

(On the basis of Returns)

Fund	Category	AUM (`Cr.)	Investment Strategy	Returns (%)	Category Average
Canara Robeco Equity Tax Saver Reg.	Equity : Tax Planning	506.77	The fund adopts a blend of large and mid-cap style with growth orientation.	10.74	5.84
Franklin India Taxshield	Equity : Tax Planning	905.21	The fund maintains a diversified portfolio of equities across sectors and market capitalisation and follows a blend of value and growth style of investing.	10.64	5.84
Quantum Long Term Equity	Equity : Large and Mid Cap	140.04	The fund adopts a value driven and process oriented policy that follows a bottom-up stock picking approach with an eye on the daily average trading volume of the stock. It also takes substantial cash calls, especially during volatile markets to mitigate risk.	10.54	5.57
ICICI Prudential Focussed Bluechip Equity	Equity : Large Cap	4231	The fund focuses on large-cap stocks in which the fund manager has high conviction. It has 'buy and hold' approach and emphasis is more on 'stock selection' than 'sector selection'. It is top performing fund in Equity: Large cap segment in its history of almost 7 years, except for the year2012.	10.41	4.80
BNP Paribas Dividend Yield Fund	Equity : Multi Cap	17.08	The fund invests in stocks with high dividend yield across market capitalisation. It is the top-most performing fund in Equity: Multi-Cap segment. Its portfolio is well-diversified with high-equity allocation.	10.33	5.93

BSE 100 return (for the sample period) = 3.73%

Table 1.3 presents the performance of sample schemes in summarised form as per risk adjusted return analysis.

Table 1.3

Top 5 Mutual Fund Performers
(As per Risk-Adjusted Return Measures)

Measure	Rank	Value	Fund Name
Sharpe Index	1	0.4256	Canara Robeco Equity Tax Saver Reg
	2	0.4024	Franklin India Taxshield
	3	0.3846	BNP Paribas Dividend Yield
	4	0.3754	UTI Opportunities
	5	0.3722	Quantum Long-term Equity
Treynor Ratio	1	0.0879	Canara Robeco Equity Tax Saver Reg
	2	0.0857	BNP Paribas Dividend Yield
	3	0.0808	Franklin India Taxshield
	4	0.0770	UTI Opportunities
	5	0.0754	ING Dividend Yield Fund
Jensen's Measure	1	0.0679	Canara Robeco Equity Tax Saver Reg
	2	0.0673	Franklin India Taxshield
	3	0.0666	Quantum Long-term Equity
	4	0.0661	ICICI Prudential Focussed Bluechip Equity
	5	0.0635	BNP Paribas Dividend Yield

II. FINDINGS OF THE STUDY

1. **Return of Sample Schemes**: A majority (66%) of the sample schemes have earned higher return in comparison to market (BSE 100) return for the sample period.

2. **Risk Results of Sample Schemes**

(a) **Standard deviation (σ)**: It measures the variation in scheme returns over the risk free return.It is highest in case of JM Equity Fund. Analysis reveals that the portfolio of majority of sample schemes is less risky as compared to portfolio of the market.

(b) **Beta (β)**: High value of beta indicates a high sensitivity of scheme returns against market returns and vice-versa. The funds with high beta in that order are LIC Nomura MF opportunities, UTI Nifty Index, UTI Contra andLIC Nomura MF Top 100. It explains the disappointment and disillusionment of mutual fund investors towards UTI and LIC mutual funds. The private mutual funds, on the other hand, have posted much better returns.

(c) **Coefficient of Determination (R^2)**: Coefficient of Determination reflects the extent of diversification of mutual fund portfolio against market portfolio. Research reveals that the fund with maximum value of R^2 is ICICI Prudential Focussed Bluechip Equity. Funds with lowest value of R^2 are JM Equity, LIC Nomura MF Growth andLIC Nomura MF Tax Plan. Presence of two schemes of LIC further indicates its state of affairs.

3. **Risk-Adjusted Return Measures**

(a) **Sharpe Index**: Itis an excess return earned over risk free return per unit of risk involved. Negative value of the index shows poor performance. It is interesting to note that out of 50 schemes, 21 schemes have posted negative values. This shows that adequate return as against the level of risk has not been provided on these schemes.

(b) **Treynor ratio**: It shows the excess return earned over risk free return per unit of systematic risk, beta. The top performers are Canara Robeco Equity Taxsaver, BNP Paribas Dividend Yield Fund and Franklin India Taxshield. All of these funds fall in high return / low risk category.

(c) **Jensen's measure**: It is the regression of excess return of a scheme with excess return of the market. The intercept, alpha is Jensen's measure. Out of 50 schemes, 17 schemes have recorded negative alpha. It shows that fund managers of these schemes have not been able to forecast future security prices in time so as to take appropriate investment decisions, which resulted in low performance of these schemes.

In nutshell, it can be said that the top five funds as per both risk-adjusted return analysis as well as gross return analysis are:

Top five Mutual Funds

Fund	Fund Type
Canara Robeco Equity Tax Saver Reg	Equity : Tax Planning
Franklin India Taxshield	Equity : Tax Planning
BNP Paribas Dividend Yield	Equity : Multi Cap
Quantum Long-term Equity	Equity : Large and Mid Cap
UTI Opportunities	Equity : Large and Mid Cap
ICICI Prudential Focussed Bluechip Equity	Equity : Large Cap

It is interesting to note that out of top five performing funds, four are from private sector. Public sector mutual funds have posted poor performance in all aspects of appraisal, be it return on investment, excess return earning per unit of risk, excess return per unit of systematic risk, extent of beta, and diversification of scheme portfolios and market timing ability of fund managers.

III.   CONCLUSION

Mutual funds invest their hinds in stock markets, which in turn depend upon the economic

performance and political stability of that economy on one hand and fund's professional management on the other. Hence, with flourishing business of mutual funds in India, conducive environment for capital markets expected to be provided by the government and positive initiatives being taken by SEBI to streamline mutual funds business, all now rests upon the professional fund managers that how they sharpen their market timing skills and diversify product range so to make funds tailor made to the needs of every investor to provide handsome returns to them

REFERENCES:
1. Adhikari, Umesh and Bhosle, Meenal (1994),"Risk-return analysis of mutual fund growth schemes", Indian Management, pp. 48-58.
2. Arumugan, S. (1998), "Assets Returns and Risk in the Long Run : Indian Evidence", ICFAI Journal of Applied Finance. Vol. 5, No. 2, July, pp. 24-40.
3. Balakrishan, Paiapre (1994), "Waiting for Private Investment", Economic and Political Weekly, 29 (16, 17), pp. 979-81.
4. Barua, S.K., V. Raghunathan and J.R. Verma (1996), Portfolio Management, Tata McGraw Hill, New Delhi.
5. Blume, Marshall E. (1971) "On the Assessment of Risk," The Journal of Finance, 26, March, pp. 1-11.
6. Bogle, John C. (1970) "Mutual Funds Performance Evaluation", Financial Analysts Journal, Vol. 26, No. 6 (November-December).
7. Broca, Dilbagh S. (1994), "Volatility Shifts in Stock Market Returns: A Look at Emerging Markets," Vikalpa, 19(1), pp.47-53.