AN EMPIRICAL EVALUATION OF SELECT INVESTMENT STYLES THROUGH RELATIVE PERFORMANCE INDEX

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Abstract :

A developed financial market is critical to overall economic development, and mutual funds play an active role in promoting a healthy capital market. Mutual funds are the fastest growing institutions in savings sector. Growing complications and risks in the stock market, rising tax rates and increasing inflation have pushed investors towards investments in mutual funds. A variety of mutual funds have witnessed the Indian market where an investor can form a highly diversified portfolio. So, an attempt is made to evaluate different investment styles through relative performance index which helps the investors to minimize their risk and maximize their return.

Keywords: *Mutual Funds, Performance Evaluation, Risk-Return Analysis, Relative Performance Index.*

Introduction

The mutual fund industry in India began with set ting up of the Unit Trust of India (UTI) in 1964 by the Government of India. During last 36 years, UTI has grown to be a dominant player in the industry with assets of over Rs .52000 crores (Rs.520 billion) as of December 2001. In 1987 public sector banks and two Insurance companies (Life Insurance Company and General insurance company) were allowed to launch mutual funds. Securities and Exchange Board of India (SEBI), regulatory body for Indian capital market, formulated comprehensive regulatory framework for Mutual Funds in 1993 and allowed private corporate bodies to launch mutual fund schemes. Since then several mutual funds have been set up by the private and joint sectors. As on March 2002, there were 35 mutual fund companies with 433 schemes and assets under management were Rs.100594 (Rs.1005 billion). It has been about a decade of competition for Indian mutual fund industry. Indian mutual funds contribute 0.18% to net assets kitty, 0.55% to the number of schemes at global level and we have a long way to catch up with the developed world. The Product Life Cycle of Indian Mutual fund is in growth stage. The performance of mutual funds receives a great deal of attention from both practitioners and academics. With an aggregate investment of over $11 trillion worldwide and over $20 billion in India, the investing public's interest in

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identifying successful fund managers is understandable. From an academic perspective, the goal of identifying superior fund managers is interesting as it encourages development and application of new models and theories. The idea behind performance evaluation is to find the returns provided by the individual schemes and the risk levels at which they are delivered in comparison with the market and the risk free rates. It is also to identify the out-performers.

Review of Literature

Bilal, Amir, Saifullah (2011) evaluated the performance of close and open end mutual funds in Pakistan. It provides guidance to the investors on how risk-adjusted performance evaluation of mutual funds can be done and how they can use performance analysis at the time of investment decision making.

Nanadhagopal, Varadharajan, Ramya, (2012) in their article opined that, in the past few years Mutual Fund has emerged as an effective tool for ensuring one's financial well being. Mutual Funds have not only contributed to India's growth story but have also helped the individual investor tap into the success of the Indian Industry.

Kalpesh, Mahesh (2012) evaluated the performance of Indian mutual funds through relative performance index, risk-return analysis, Treynor's measures, Sharpe's measure, Jensen's measure and Fama's measure. The results of performance measures suggest that most of the mutual fund have given positive return during 2007 to 2011.

Sarita Bahl, Meenakshi Rani (2012) investigates the performance of 29 open ended, growth-oriented equity schemes for the period from April-2005 to March-2011 (six years) of transition economy.The study revealed that 14 out of 29 sample mutual fund schemes had outperformed the benchmark return.The Sharpe ratio was positive for all schemes which showed that funds were providing returns greater than risk free rate.

Sandeep, Sanjeev, Surender (2012) study evaluates the performance of 12 selected mutual fund schemes with the application of Sharpe model and also brings out which scheme is outperforming or underperforming during the study period from May-2005 to April-2009.

Poornima, S., (2013) attempted to analyze about the performance of the growth oriented equity diversified schemes by using Sortino ratio. It also revealed the fact that careful evaluation using appropriate performance measure will lead the investor in selecting the best funds.

Satya Sekhar.G.V. (2013) intended to examine the role of mutual fund organization in financial inclusiveness with reference to performance through public and private sector.

Ashraf SH, Sharma D (2014) made an attempt to analyse the performance of equity mutual funds industry against risk free rate and benchmarks return over the five years samples consisting 10 growths oriented- open ended-equity mutual fund schemes belonging to 5 public and 2 private mutual fund companies. These funds are also observed to have high R^2 values (Coefficient of Determination) indicating the better diversification of the fund portfolio.

G. Brindha(2014) made an attempt to present a theoretical view on performance evaluation of mutual funds as Ultimately, it is important for an investor to study the risk and return involved

in an investment, through which the investor can gain valuable information before investing in any mutual funds.

RESEARCH METHODOLOGY

Research objectives

- To compare the returns provided by the individual Mutual Fund schemes and the risk levels with their market and risk free rates through risk-return analysis.
- To compare the returns of different investment styles through Relative Performance Index.
- To understand how diversification helps to reduce systematic risk through co efficient of variation.

Data and methodology

The required data for the present study was secondary in nature. Samples of 1500 schemes were selected for the present study. The selection of the schemes was made on the basis of the membership in NIFTY from June 2010 to June 2016. Out of them, the schemes which were not in operation and whose NAV is less than zero were eliminated. Finally the researcher was left with 581 schemesbelonging to 17 investment styles. The risk-free rate was 7%, the implied yield on the month-end auction of 91-day Treasury Bills which was collected from RBI website. NIFTY was taken as Benchmark Index.

Return

To compare the returns provided by the individual Mutual Fund schemes and the risk levels with their market and risk free rates through risk-return analysis. For this monthly returns were calculated using daily NAVs for the sampled companies by using the following formula

$$R_{j,t} = \frac{NAV_t - NAV_{t-1}}{NAV_{t-1}} \times 100$$

Where

Rt = Daily return of a mutual fund in the period *t*

NAVt = Daily net asset value per unit of the mutual fund in the period *t*

Return alone should not be considered as the basis of measurement of the performance of a mutual fund scheme, it should also include the risk taken by the fund manager because different funds will have different levels of risk attached to them. Risk associated with a fund, in a general, can be defined as variability or fluctuations in the returns generated by it. The higher the fluctuations in the returns of a fund during a given period, higher will be the risk associated with it. These fluctuations in the returns generated by a fund are resultant of two guiding forces.

Risk

The total risk of the mutual funds under consideration is measured by the standard deviation of the daily returns which was calculated as follows:

Standard Deviation

$$S = \sqrt{\frac{1}{n-1}\sum_{i=1}^{n}(R_i - \bar{R})^2}$$

Where,

S = Standard deviation (total risk) of the mutual fund

n = Number of daily returns

R_t = Daily returns of the mutual fund

$\overline{R}$ = Mean return of the mutual fund

To compare the returns of 17 investment styles selected, Relative Performance Index was used. It is defined as the ratio of the unadjusted percentage NAV growth and the percentage change in NSE NIFTY.

RPI = (Current NAV-Face value)/Face value
(Current NSE NIFTY-NSE NIFTY at issue time)/ NSE NIFTY at issue time

The selected 581 schemes were analysed with the help of Relative performance index.. On the basis of RPI analysis 581 schemes were classified into:

i) Under performers (returns less than 2%)

ii) Schemes with returns of 2%-5%

iii) Schemes with returns 5%-7%

iv) Schemes with returns 7% and above.(being 7% is the risk free rate)

Co-Efficient of Variation

To understand how diversification helps to reduce systematic risk through co efficient of variation.

The potential advantage of mutual fund investment is the diversification of portfolio. Diversification reduces the unique or unsystematic or diversifiable risk and thus improves the performance. The diversification extent can be measured by the value of coefficient of variation (r2). A low r2 value indicates the fund has large scope for diversification.

Results and discussions

Risk and return relation was analysed for all the 260 funds which have more return than risk free rate of return (i .e.,>7%) , Unsystematic risk i.e., Variance (6) was considered.

1. Out of the 260 schemes, 66 were of high risk and 127 were of low risk. 49 funds with Low risk level were offering a return of 8-8.5%, 9 funds with below average risk level were offering a return of 7-7.5% return, 8 funds with average risk were offering 7-7.5% return, 6 funds with above average risk level were offering 8.5-9% return and 21 funds belonging to high risk level were offering 8.5-9% return and only 4 funds even though having high level of risk were offering above 9% rate of return.

2. The selected 581 schemes were analysed with the help of Relative performance index.. 88 schemes were underperformers ie., less than 2 %, 143 schemes have returns of 2 – 5 % ,90 schemes with a return of 5- 7 % and 260 schemes outperformed (with a return of more than 7% which is risk free rate of return).

3. It was observed that risk and return relation was analysed for all the 260 funds which have more return than risk free rate of return (i.e.,>7%) . To explain the Risk-Return relation, Systematic risk i.e., Beta (â) was considered.

4. Out of 581 schemes we have considered only 260 funds which were giving a return more than risk free rate.

5. Out of 260 funds , 211 schemes were of low risk, 3 were of below average risk, 3 were of average risk 2 were in above average risk and 41 schemes belongs to high risk class. 62 funds were of low risk offering a return of 8-8.5%, 3 schemes with below average risk were offering a return of 7.5-9% return,2 schemes with average risk were offering a return of 8.5-9% return,1 scheme with above average risk is offering a return of 8-8.5% return,12 schemes with high risk level were offering above 7-7.5% return only 2 schemes having high risk were offering return of more than 9% return.

6. It was observed that the return, risk and coefficient of variation were calculated for different investment styles. It was observed that average returns for the investment styles range from 4.38% to 7%.Equity technology funds have highest returns followed by gilt long term, equity diversified and equity others. Balanced funds have least average returns.

7. The risk per unit return ranges from 0.10 to 0.96.

8. As far as risk is concerned, Gilt short term funds have high risk 0.03065 and Equity infrastructure funds have low risk 0.3063. The risk per unit return ratio is highest for Gilt long term with 0.96.The average return for the fund is 6.33 and risk is 0.0489.The risk per unit return was lowest for debt short term investment style.

Conclusion

The Indian capital market having a long history spanning over a century has passed through the most radical phases. It has witnessed extraordinary developments and innovations during the nineties. One such development was the improved role of the mutual funds in financial intermediation. Mutual funds in India have fast emerged as an important instrument of household savings. Due to the flexibility and variety available in them they have the potential to rival traditional money saving instruments by attracting household sector or retail investor's savings.There is an urgent need for aggressive campaign to train the investor about different mutual fund schemes.Mutual Funds should published NAVs of their different schemes as frequently as possible.The mutual fund companies should improve the service level to attract more and more investors.

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Annexures

TABLE 1: Comparing the returns of Selected Investment Styles through Relative Performance Index (RPI)

Scheme Type	Under-performers	Annual Returns (%)			
	Below 2	2- 5	5 - 7	7 and above	Total
Balanced	4	9	1	5	19
Debt Long term	33	26	18	98	175
Debt Short term	31	44	14	55	144
Equity diversified	2	8	15	16	41
Equity index	0	1	0	1	2
Equity Institutional	0	0	1	0	1
Equity Speciality	0	1	0	0	1
Equity Others	1	8	8	11	28
Equity Tax savings	0	6	4	6	16
Equity Technology	0	0	2	1	3
Equity Infrastructure	3	0	2	5	10
Equity Largecap	2	11	7	9	29
Equity Small and midcap	0	3	0	3	6
Gilt long term	2	3	5	10	20
gilt short term	0	1	1	1	3
Hybrid	0	11	3	7	21
money market	10	11	9	32	62
Total	88	143	90	260	581

Table 2: Results of Risk (Variance) and Return

Risk→ Annual Return (%) ↓	Low Risk $\sigma^2<0.0009$	Below Avg. Risk $0.0009>\sigma^2<0.0015$	Average Risk $0.0015>\sigma^2<0.0022$	Above Avg. Risk $0.0022>\sigma^2<0.0036$	High Risk $\sigma^2>0.0036$	Total
7 - 7.5	19	9	8	1	17	54
7.5 - 8	42	5	4	1	9	61
8 - 8.5	49	4	3	4	15	75
8.5 - 9	14	4	4	6	21	49
Above 9	3	6	4	4	4	21
Total	127	28	23	16	66	260

Table 3: Results of Risk (â) and Return

Risk→ Annual Return (%) ↓	Low Risk β<0.3	Below Avg. Risk 0.3>β<0.5	Average Risk 0.5>β<0.7	Above Avg. Risk 0.7>β<0.9	High Risk 0.9>β<1.1	Total
7 - 7.5	41	0	0	1	12	54
7.5 – 8	54	1	1	0	5	61
8 - 8.5	62	1	0	1	11	75
8.5 – 9	35	1	2	0	11	49
Above 9	19	0	0	0	2	21
Total	211	3	3	2	41	260

Table 4: Return and Risk Parameters for Different Investment Styles

S. No	Investment Style	Return (%)	Risk	Coefficient of Variation
1	Balanced	4.386322	0.099775	0.30
2	Debt Long term	5.916416	0.041855	0.11
3	Debt Short term	4.988103	0.03274	0.10
4	Equity diversified	6.188128	0.149164	0.28
5	Equity index	4.948226	0.187272	0.52
6	Equity Institutional	5.527519	0.092472	0.16
7	Equity Speciality	4.657607	0.114201	0.24
8	Equity Others	6.028	0.159903	0.30
9	Equity Tax savings	5.913312	0.183604	0.35
10	Equity Technology	7.001258	0.238894	0.34
11	Equity Infrastructure	5.641536	0.306387	0.10
12	Equity Large cap	5.456015	0.131301	0.34
13	Equity Small and midcap	5.540367	0.079218	0.17
14	Gilt long term	6.331868	0.048984	0.96
15	gilt short term	5.726345	0.03065	0.67
16	Hybrid	4.926947	0.051787	0.11
17	money market	5.852041	0.038625	0.12