Airo International Research Journal
Volume XV, ISSN: 2320-3714
April, 2018
Impact Factor 0.75 to 3.19
UGC Approval Number 63012

A STUDY ON PERFORMANCE EVALUATION OF MUTUAL FUND SCHEMES

Dr. Mahammadrafique Meman
Associate Professor & Head of the Department
The Mandvi Education Society Institute of Business Management & Computer Studies,
Mandvi, Dist-Surat, Gujarat

ABSTRACT

Mutual funds industry in India has emerged as one of the major constituents of Indian financial system. For mutual fund investors, a fund's past track record plays a critical role when it comes to deciding on investing in it or continuing with a particular scheme. It shows whether the fund manager has been consistent in executing a particular strategy with good results. But what if the funds' earlier return profile is no longer relevant to its mandate? With many funds currently undergoing a transition to comply with the regulator's categorisation norms, this is likely to be a widespread issue in upcoming time. Mutual funds are the greatest innovation for mobilising the savings of the society and channelizing them into productive assets. The trend in India is looking much the same with many mutual fund schemes gaining the confidence of investing populace so much that the public sector banks and financial institutions have started their own mutual funds owing to the fear of global trend. But, this does not mean that mutual funds are full of benefits or virtues. They have their own set of problems regarding costs, services, regulations, performance, profitability, decline of Net Asset Values (NAVs) below the issue prices, financial instability and others, which have been causing big concern to investors. This study focused on the performance of Indian mutual fund schemes through various evaluation measures such as Sharpe measures, Treynor measures and Jensen measures. This study investigated the performance of selected Debt mutual fund schemes under growth schemes during a year. In order to measure the performance daily closing NAV of selected schemed have been used to calculate the fund returns. Nifty 50 has used for comparing benchmarking and the T-bill of 364day rate has been used as risk free rate. To evaluate the performance of Debt-growth schemes, Sharpe ratio, Treynor ratio and Jensen's performance index are used and that will be useful to the investors for taking better decisions at the time of investment.

Keywords: Sharpe, Treynor, Jensen, Standard deviation, Risk, Mutual Fund, NAV

1. INTRODUCTION

Mutual Fund

A mutual fund is a company that pools money from many investors and invests the money in securities such as stocks, bonds, and short-term debt. The combined

holdings of the mutual fund are known as its portfolio.

Most mutual funds fall into one of four main categories – money market funds, bond funds, stock funds, and target date funds. Each type has different features, risks, and rewards.

- Money market funds have relatively low risks. By law, they can invest only in certain high-quality, short-term investments issued by U.S. corporations, and federal, state and local governments.
- Bond funds have higher risks than money market funds because they typically aim to produce higher returns. Because there are many different types of bonds, the risks and rewards of bond funds can vary dramatically.
- Stock funds invest in corporate stocks. Not all stock funds are the same. Some examples are:
    - Growth funds focus on stocks that may not pay a regular dividend but have potential for above-average financial gains.
    - Income funds invest in stocks that pay regular dividends.
    - Index funds track a particular market index such as the Standard & Poor's 500 Index.
    - Sector funds specialize in a particular industry segment.
- Target date funds hold a mix of stocks, bonds, and other investments. Over time, the mix gradually shifts according to the fund's strategy. Target date funds, sometimes known as lifecycle funds, are designed for individuals with particular retirement dates in mind.

Return Investors always expect a good rate of return from their investments. Rate of return could be defined as the total income the investor receives during the holding period stated as a percentage of the purchasing price at the beginning of the holding period.

Risk Risk of holding securities is related with the probability of actual return becoming less than the expected return. Investor's risk is just as important as measuring is expected rate of return because minimizing risk and maximizing the rate of return are interrelated objectives in the investment management. Every investor likes to reduce the risk of his investment by proper combination of different securities.

2. REVIEW OF LITERATURE

Bansal and Kumar, attempted to study the performance of selected mutual funds schemes based on risk-re-turn relationship models, and return on mutual funds also compared with return on equity shares of different sectors of Indian economy. The

analysis has been made on the basis of mean return, intercept, beta, Sharpe ratio, Trey-nor ratio, and Jensen Alpha. The overall Analysis finds UTI schemes being best performers and others showing below average performance. Bhaskar Biswas, investigated out performance and under performance of diversified funds. It involved studying the performance of some ten best and ten worst per-forming diversified equity mutual funds for the period of three years. In this paper of selected diversified equity funds have been analyzed by analyzing their arithmetic mean return, risk can be analyzed by standard deviation , beta measures market sensitivity, alpha measures the risk return relationship and Sharpe ratio measures the risk premium of portfolio. Dhanda, Batra and Anjum, Attempted to study the performance evaluation of selected open ended schemes in terms of risk and return relationship. For this rate of re-turn method, Beta, Standard Deviation, Sharpe and Trey-nor ratio has been used.BSE-30 has been used as a bench-mark to study the performance of mutual funds in India. The findings of the study reveal that only three schemes have performed better.

3. RESEARCH OBJECTIVES

- To study the performance evaluation of mutual fund schemes.
- To examine the performance of selected mutual fund schemes through Sharpe, Treynor and Jensen measures.
- To rank the portfolio of mutual funds based on different performance evaluation measures.

4. SAMPLING METHOD

In this study convenient sampling method is used. A sample of ten debt growth mutual funds is taken on the basis of their highest annual average return.

5. DATA ANALYSIS & INTERPRETATION

Table-1.1 List of Mutual Fund Schemes studied

Name Of The Debt Growth Schemes Selected
Nippon India Nivesh Lakshya Fund -G
SBI Dynamic Bond Fund Regular Plan – G
ICICI Prudential Long Term Bond Fund -G
SBI Magnum Income Fund Regular Plan -G
Nippon India Income Fund Growth Plan-G
SBI Magnum Medium Duration Fund Regular Plan – G
ICICI Prudential Bond Fund -G
Nippon India Banking & PSU Debt Fund Growth Plan- G
ICICI Prudential All Seasons Bond Fund -G
Aditya Birla Sun Life Income Fund Regular Plan- G

Airo International Research Journal
Volume XV, ISSN: 2320-3714
April, 2018
Impact Factor 0.75 to 3.19
UGC Approval Number 63012

Table-1.2 Average Return and Standard Deviation of Selected Mutual Fund Schemes

SR. NO	SCHEMES	AVERAGE RETURN	STANDARD DEVIATION (RISK)
1	Nippon India Nivesh Lakshya Fund -G	0.051	0.365
2	SBI Dynamic Bond Fund Regular Plan – G	0.050	0.194
3	ICICI Prudential Long Term Bond Fund -G	0.049	0.288
4	SBI Magnum Income Fund Regular Plan -G	0.047	0.181
5	Nippon India Income Fund Growth Plan-G	0.046	0.229
6	SBI Magnum Medium Duration Fund Regular Plan – G	0.044	0.116
7	ICICI Prudential Bond Fund -G	0.043	0.123
8	Nippon India Banking & PSU Debt Fund Growth Plan- G	0.042	0.103
9	ICICI Prudential All Seasons Bond Fund -G	0.041	0.132
10	Aditya Birla Sun Life Income Fund Regular Plan- G	0.038	0.184
	NSE (Nifty 50) Market Index	0.049	0.877

Interpretation (Table-1.2)

Table-1.2 shows the average return earned by the various schemes and risk (standard deviation) involved in it. There are three schemes which outperform the market index in terms of average return. Such schemes are Nippon India Nivesh Lakshya Fund –G (0.051), SBI Dynamic Bond Fund - Regular Plan – Growth (0.050) and ICICI Prudential Long Term Bond Fund – Growth (0.049). Standard Deviation is the mainly universal expression to measure risk of the fund return. Higher the value of standard deviation present high total risk carried by the fund. It is observed that the maximum deviation of funds return is shown by Nippon India Nivesh Lakshya Fund -G (0.365) whereas Nippon India Banking & PSU Debt Fund Growth Plan-G was least risky scheme with lowest standard deviation (0.103) on the other hand Standard Deviation of benchmark Nifty 50 is 0.877. It could be seen here that all selected schemes selected for study shows less standard deviation than Nifty 50.

Sharpe's Measures

It measures total risk by standard deviation. Reward is in the numerator as risk premium. Total risk is in the denominator as standard deviation of its return. We get a measure of portfolio's total risk and variability of returns in relation to the risk premium which is the product of the portfolio Manager's expertise.

$$Sharpe = \frac{Rp - Rf}{\sigma p}$$

R_P is average return on portfolio, R_f is risk free return. σ_P is total risk of the portfolio.

Airo International Research Journal
Volume XV, ISSN: 2320-3714
April, 2018
Impact Factor 0.75 to 3.19
UGC Approval Number 63012

Table-1.3 Calculation of Sharpe's Measure

No	SCHEMES	SHARPE INDEX	RANK
1	Nippon India Nivesh Lakshya Fund -G	0.101	10
2	SBI Dynamic Bond Fund Regular Plan – G	0.187	5
3	ICICI Prudential Long Term Bond Fund -G	0.121	9
4	SBI Magnum Income Fund Regular Plan -G	0.181	6
5	Nippon India Income Fund Growth Plan-G	0.140	7
6	SBI Magnum Medium Duration Fund Regular Plan – G	0.258	2
7	ICICI Prudential Bond Fund -G	0.234	3
8	Nippon India Banking & PSU Debt Fund Growth Plan- G	0.266	1
9	ICICI Prudential All Seasons Bond Fund -G	0.199	4
10	Aditya Birla Sun Life Income Fund Regular Plan- G	0.132	8

Interpretation (Table-1.3)

In this analysis the rank is given on the basis of higher Sharpe's index. Higher Sharpe's index gets 1st rank. It is that Nippon India Banking & PSU Debt Fund-Growth Plan- Growth Option has a return of 0.042 and on the basis of return it stands on eight rank but its standard deviation is 0.103 which is lower as compared to other nine funds. This thing indicates that Nippon India Banking & PSU Debt Fund-Growth Plan- Growth Option Fund stands on first rank because it is providing good return with lower risk. This analysis also represents that though Nippon India Nivesh Lakshya Fund- Growth Option has higher return i.e. 0.051 as compared to other nine funds, it stands on last rank as it is having higher standard deviation i.e. 0.365.

Treynor's Measures

Treynor (1965) was developing a composite measure of portfolio performance. He measures portfolio risk with beta (β), and compute portfolio's market risk premium relative to its beta (β).

$$Treynor = \frac{Rp - Rf}{\beta p}$$

Rp = Portfolio's actual return , Rf = Risk-free rate of return, βp = beta of the portfolio

Table-1.4 Calculation of Treynor's Measure

NO	SCHEMES	BETA	TREYNOR INDEX	RANK
1	Nippon India Nivesh Lakshya Fund -G	-0.053	-0.694	1
2	SBI Dynamic Bond Fund Regular Plan – G	-0.010	-3.485	5
3	ICICI Prudential Long Term Bond Fund -G	-0.010	-3.432	4
4	SBI Magnum Income Fund Regular Plan -G	-0.014	-2.368	3
5	Nippon India Income Fund Growth Plan-G	-0.009	-3.712	6

6	SBI Magnum Medium Duration Fund Regular Plan – G	-0.006	-4.701	7
7	ICICI Prudential Bond Fund -G	-0.004	-6.453	9
8	Nippon India Banking & PSU Debt Fund Growth Plan- G	-0.005	-5.061	8
9	ICICI Prudential All Seasons Bond Fund -G	-0.002	-15.881	10
10	Aditya Birla Sun Life Income Fund Regular Plan- G	-0.011	-2.303	2

Interpretation (Table-1.4)

In this analysis the rank is given on the basis of higher Treyner's index. Higher Treyner's index gets 1st rank. Treyner's performance index measures systematic risk that is Beta of portfolio. In this analysis it is found out that Nippon India Nivesh Lakshya Fund-G has lower beta i.e. -0.053 as compared to other nine funds. Same way ICICI Prudential All Seasons Bond Fund-G has higher beta i.e. -0.002. This analysis represents that Nippon India Nivesh Lakshya Fund-G gets higher Treyner's performance index and it stands on first rank. Same way Birla ICICI Prudential All Seasons Bond Fund -G gets lower Treyner's performance index and it stands on last rank.

Jensen's Measures

Jensen (1968) writes the following formula in terms of realized rates of return, assuming that CAPM is empirically valid. Jensen performance theory, like the Treynor measure, does not assess the capability of portfolio managers to vary, since the risk premiums are calculated in terms of β (Beta). If value for Jensen's alpha is positive means a fund manager has beat the market with his or her stock selection talent.

$$Jensen = \alpha p = Rp - [Rf + \beta p(Rm - Rf)]$$

Table-1.5 Calculation of Jensen's Measure

NO	SCHEMES	JENSEN INDEX	RANK
1	Nippon India Nivesh Lakshya Fund -G	0.039	1
2	SBI Dynamic Bond Fund Regular Plan – G	0.037	2
3	ICICI Prudential Long Term Bond Fund -G	0.035	3
4	SBI Magnum Income Fund-Regular Plan-Growth	0.033	4
5	Nippon India Income Fund Growth Plan-G	0.032	5
6	SBI Magnum Medium Duration Fund Regular Plan – G	0.030	6
7	ICICI Prudential Bond Fund -G	0.029	7
8	Nippon India Banking & PSU Debt Fund Growth Plan- G	0.028	8
9	ICICI Prudential All Seasons Bond Fund -G	0.026	9
10	Aditya Birla Sun Life Income Fund Regular Plan- G	0.025	10

Interpretation (Table-1.5)

In this analysis the rank is given on the basis of higher Jensen's index. Higher Jensen's index gets 1st rank. Jensen's

performance index measures alpha of portfolio. This model indicates that higher the value of alpha, higher is the ability of a fund manager to select good fund. It has been analyzed that alpha of Nippon India Nivesh Lakshya Fund- Growth Option is very high (0.039) as compared to other nine funds and it stands on first rank. This positive value of alpha indicates that fund manager is able to select Nippon India Nivesh Lakshya Fund- Growth Option as a good fund. It has also been analyzed that alpha of Aditya Birla Sun Life Income Fund - Growth - Regular Plan is lower. This may be due to its lower return. Thus though the risk associated with Aditya Birla Sun Life Income Fund - Growth - Regular Plan is lower, its alpha value is lower because of its lower return. Results of Jensen measure revealed that 10 out of 10 schemes were showed positive alpha which indicated superior performance of the schemes.

Comparison of Sharpe's, Treynor's & Jensen's Index

Table-1.6 comparison of all three measures

RANK	TREYNOR INDEX	RANK	SHARPE INDEX	RANK	JENSEN INDEX
1	Nippon India Nivesh Lakshya Fund -G	1	Nippon India Banking & PSU Debt Fund Growth Plan- G	1	Nippon India Nivesh Lakshya Fund -G
2	Aditya Birla Sun Life Income Fund Regular Plan- G	2	SBI Magnum Medium Duration Fund Regular Plan – G	2	SBI Dynamic Bond Fund Regular Plan – G
3	SBI Magnum Income Fund Regular Plan -G	3	ICICI Prudential Bond Fund -G	3	ICICI Prudential Long Term Bond Fund -G
4	ICICI Prudential Long Term Bond Fund -G	4	ICICI Prudential All Seasons Bond Fund -G	4	SBI Magnum Income Fund Regular Plan -G
5	SBI Dynamic Bond Fund Regular Plan – G	5	SBI Dynamic Bond Fund Regular Plan – G	5	Nippon India Income Fund Growth Plan-G
6	Nippon India Income Fund Growth Plan-G	6	SBI Magnum Income Fund Regular Plan -G	6	SBI Magnum Medium Duration Fund Regular Plan – G
7	SBI Magnum Medium Duration Fund Regular Plan – G	7	Nippon India Income Fund Growth Plan-G	7	ICICI Prudential Bond Fund -G
8	Nippon India Banking & PSU Debt Fund Growth Plan- G	8	Aditya Birla Sun Life Income Fund Regular Plan- G	8	Nippon India Banking & PSU Debt Fund Growth Plan- G
9	ICICI Prudential Bond Fund -G	9	ICICI Prudential Long Term Bond Fund -G	9	ICICI Prudential All Seasons Bond

					Fund -G
10	ICICI Prudential All Seasons Bond Fund -G	10	Nippon India Nivesh Lakshya Fund -G	10	Aditya Birla Sun Life Income Fund Regular Plan- G

Interpretation (Table-1.6)

The fact that Sharpe uses Standard deviation as a measurement of risk which is the total risk and Treynor uses Beta or systematic risk, but yet it is claimed that, if we are examining a well-diversified portfolio, the rankings should be similar for all three methods. Nippon India Nivesh Lakshya Fund- Growth Option scheme get 1st rank from Jensen and Trenor method. But it get last rank from Sharpe method.

6. FINDINGS

- 3 out of 10 schemes fall in this High Return and Low Risk category are Nippon India Nivesh Lakshya Fund- Growth Option, SBI Dynamic Bond Fund - Regular Plan – Growth and ICICI Prudential Long Term Bond Fund – Growth.
- Treynor's Index of Nippon India Nivesh Lakshya Fund- Growth Option Mutual fund is higher than the other, so it shows good performance compared to other funds.
- Sharpe ratio was positive for all fund schemes which showed that funds were providing returns greater than risk free rate.
- Sharpe's Index of Nippon India Banking & PSU Debt Fund- Growth Plan- Growth Option Fund stands on first rank because it is providing good return with lower risk compared to other funds.
- Results of Jensen measure revealed that 10 out of 10 schemes were showed positive alpha which indicated superior performance of the schemes.
- Jensen alpha of Nippon India Nivesh Lakshya Fund- Growth Option is very high (0.039) as compared to other nine funds and it stands on first rank.
- Nippon India Nivesh Lakshya Fund- Growth Option scheme get 1st rank from Jensen and Trenor method. But it gets last rank from Sharpe method.

7. CONCLUSION

According to Sharpe's Performance Index, it is not essential that fund with superior return is always well performing fund because we also have to consider risk connected with that fund. According to Treyner's Performance Index, it is not essential that fund with superior return is always well performing fund because we also have to consider risk connected with that fund. According to Jensens's alpha, the value of alpha not only depends on the return of the fund but also on the risk associated with that fund. Value of alpha should be always positive. There is no identical ranking of the three measurements for any funds. This also shows that these schemes are not

completely diversified because we know that completely diversified funds have the similar ranking for the composite performance measurement of Sharpe, Treynor and Jensen.

8. REFERENCES

Journal Papers

[1]. Naliniprava Tripathy, "An Empirical Analysis Performance Evaluation of Mutual Funds in India-A Study on Equity Schemes", www.researchgate.net/publication/265509988.

[2]. Dr. Vinay Kandpal, Performance Evaluation of Mutual Funds in India-A Comparative Study of Public and Private Sector Mutual Funds" www.researchgate.net/publication/270512559.

[3]. Friend, Irwin and Vickers, Douglas, "Portfolio Selection and Investment Performance", The Journal of Finance, Vol.XX, No.3, pp.391-415.

[4]. William F Sharpe, "Mutual Fund Performance", Journal of Business, 39, No.1, pp.119-138.

[5]. James RF Guy, "The Performance of the British Investment Trust Industry", Journal of Finance, Vol.XXX, No.2, pp.443-455.

[6]. Peasnell, Skerratt and Taylor, "An Arbitrage Measurenal for Tests of Mutual Fund Performances", Journal of Business Finance and Accountings.

[7]. Grinblatt Market and Titman Sheridin, "Mutual Fund Performance: An Analysis of Quarterly Portfolio Holdings", Journal of Business, Vol.62, No.3, pp.393-416.

[8]. Richard A Ippolito, "On Studies of Mutual Fund Performance, 1962-1991", Financial Analysis Journal, pp.42-50.

[9]. Peter Oertmann, and Heinz Zimmermann, "U. S. Mutual Fund Characteristics across the Investment Spectrum", The Journal of Investing, pp.56-67.

[10]. Samir K Barua, et.al. "Master Shares: A Bonanza for Large Investors", Vikalpa, Vol.16, No.1, J, pp.29-34.

[11]. Shah, Ajay and Thomas Susan, "Performance in Evaluation of Professional Portfolio Management in India", A paper prepared by CMIE.

[12]. Bhosle, Meenal and Umesh, Adhikary, "Risk-Return Analysis of Mutual Fund Growth Scheme", Indian Management.

[13]. Jaideep, Sarkar and Sudipta Majumdar, "Performance Evaluation of Mutual Funds in India", NMIS Management Review, Vol.VI, No.2, pp.64-78.

[14]. Mohinder N Kaura, and M. Jayadev, "Performance of Growth Oriented Mutual Funds: An Evaluation", The ICFAI Journal of Applied Finance, Vol.1, No.1, pp.1-14.

[15]. Tripathy, Nalini Prava, "Innovative Growth Oriented Mutual Funds", Innovative in Asian Management, Delta Publishing House, pp.384-391.
[16]. Tripathy, Nalini Prava, "Investors Behavior Model in Stock Market – An Empirical Insight on Mutual Funds in India", Management of Development Growth with Equity, Excel Books, 1998.
[17]. Yadav, RA, and Mishra, Biswadeep, "Performance Evaluation of Mutual Funds: An Empirical Analysis", MDI Management Journal, Vol.9, No.2, pp.117-125.
[18]. Thiripalraju, M., and Patil, Prabhakar R., "Micro and Macro Forecasting Abilities of Indian Fund Managers", Indian Capital Markets: Theories and Empirical Evidence, Quest Publication, pp.205-218.
[19]. Rao, KV, and Venkateswarlu, R., "Performance Evaluation of Mutual Funds: A Case Study of Unit Trust of India", Indian Capital Market: Theories and Empirical Evidence, Quest Publications, pp.219-233.
[20]. Ramachandran, G., "Pitfalls in Portfolio Performance Measures and their Implications to Mutual Fund Industry", Indian Capital Markets: Theories and Evidence, Quest Publications, pp.234-274.
[21]. Gupta, Amitabh, "Investment Performance of Indian Mutual Funds: An Empirical Study", Finance India, Vol.XIV, No.3, pp.833-866.

Web References

[1]. www.Mutualfundindia.com
[2]. https://www.amfiindia.com/nav-history-download
[3]. https://www1.nseindia.com/products/content/equities/indices/historical_index_data.htm
[4]. https://www.amfiindia.com/research-information/mf-history
[5]. https://www.mutualfundindia.com/MF/ResearchReportView/Research
[6]. https://www.bankbazaar.com/mutual-fund/list-of-mutual-funds-in-india.html