An Empirical Analysis of Mutual Fund Performance

Dr. Arvind A. Dhond
Associate Professor & Head, Department of Commerce,
St. Xavier's College (Autonomous), Mumbai 400 001.
Mobile: 98925 96707 ◆ arvinddhond@gmail.com

Abstract

A mutual fund is a professionally-managed investment scheme, usually run by an Asset Management Company (AMC) that brings together a group of people and invests their money in stocks, bonds and other securities. Mutual Funds in India have to be registered with SEBI. The biggest advantage of investing through a mutual fund is that it gives small investors access to professionally-managed, diversified portfolios of equities, bonds and other securities, which would be quite difficult to create with a small amount of capital. An investor can buy mutual fund 'units', which is basically the share of holdings in a particular scheme. These units can be purchased or redeemed as needed at the fund's current Net Asset Value (NAV). NAV is the value of a fund's asset less the value of its liabilities per unit. These NAVs keep fluctuating, according to the fund's holdings.

This research is one such attempt to know and find out how much rewarding and risky an investment in mutual fund is. The present study has analysed 31 different mutual fund schemes with the probable risk and return parameter, with the help of the popular measures of performance which are Sharpe Ratio, Treynor Ratio, and Jensen Alpha Ratio. The researcher is opinioned that though mutual fund investment is risky but if investor does proper study, it can give better returns to the investor and can also became one of the best investment option even to the middle class investor.

Keywords: *Investor, Investment, Risk, Return, Volatility, Portfolio, Mutual Fund, Net Asset Value.*

Paper Type: *Empirical Research*

Ellipsis: *Net Asset Value (NAV), Securities and Exchange Board of India (SEBI), Bombay Stock Exchange (BSE), National Stock Exchange (NSE), Asset Management Company (AMC), Public Sector Undertaking (PSU), Financial Year Ending (FYE).*

Prologue

Investment is the matter of pride but needs to be done with proper market research and analysis. Wrong decision may involve huge loss as regards to financial resources as well as mental peace. For selecting a right portfolio investor needs to concern expert, use published data and other research publication of BSE and NSE. Selecting appropriate portfolio will enable the investor to balance the risk.

Statement of the Problem

Several times individual investors are not able to select appropriate investment option either because they lack market knowledge or are unaware about the working of the stock market. If the decision is made in a haphazard manner investor may lose his hard earned money as the decision is not supported by proper market research. Investors may end up losing their money due to incorrect decision of selecting

an inappropriate investment option. Thereafter investors may never come forward again to invest their hardcore money in the market. This in turn will affect working of the financial market. To guide investors properly and to build their confidence on the money market is the need of the hour. This paper, intending to study the role of mutual fund in attracting, inducing investor to invest in mutual fund as one of the investment option, has been undertaken for the purpose of providing such needed guidance to the potential investors in mutual funds so that they can take timely well informed investment decisions. Hence the title of this research paper is "An Empirical Analysis of Mutual Fund Performance".

Review of Literature

Markowitz (1991) noted that typical investor wants "higher returns" and "returns to be as certain as possible", i.e., investor seeking both to "maximise expected returns" and "minimise uncertainty" (i.e., risk) has two conflicting objectives that must be balanced against each other when investing at time t=0. In other words, fund managers are expected to trade-off between the risk and return.

Adhikari and Bhosale (1994) evaluated the relative performance of eleven growth schemes in terms of various performance measures (Sharpe, Treynor, Jensen and Fama's measures) for February 1992 to May 1994 utilising monthly NAV data. They reported that some of the sample schemes outperformed the relevant benchmark portfolio.

Kaura and Jayadev (1995) evaluated the performance of growth-oriented scheme by using Jensen, Treynor and Sharpe measures and found that the schemes have not performed well.

Biswadeep (1996) evaluated 14 close-ended schemes over the period of April 1992 to March 1995 with BSE National Index as benchmark. Their analysis indicated that, 57 percent of sample schemes had a mean return higher than that of the market, higher Sharpe Index and lower Treynor index.

Mishra (2001) evaluated performance over a period, April 1992 to December 1996. The sample size was 24 public sector sponsored mutual funds. The performance was evaluated in terms of rate of return, Treynor, Sharpe and Jensen's measures of performance. The study also addressed beta's instability issues. The study concluded dismal performance of PSU mutual funds in India, in general, during the period, 1992-96.

Deepthi Fernando et al. (2011), in a World Bank Policy research working paper observed that, higher market returns and liquidity and lower volatility have also contributed to mutual fund growth.

Sharpe (2011) who developed a composite measure that considers return and risk evaluated the performance of 34 open-ended mutual funds during the period 1944-63 by the measures developed by him. He concluded that the average mutual fund performance was distinctly inferior to an investment in the Dow Jones Industrial Average (DJIA).

Treynor (2012) developed a methodology for evaluating mutual fund performance that is popularly referred to as reward to volatility ratio. This measure has been frequently used both by researchers and practitioners for performance evaluation of mutual funds.

Jensen (2012) developed a composite portfolio evaluation technique concerning risk-adjusted returns. He evaluated the ability of 115 fund managers in selecting securities during the period 1945-66. The analysis of net returns indicated that, 39 funds had above average returns, while 76 funds yielded

abnormally poor returns. Using gross returns, 48 funds showed above average results and 67 funds below average results. Jensen concluded that, there was very little evidence that funds were able to perform significantly better than expected as fund managers were not able to forecast securities price movements.

Significance of the Study

A large number of investment avenues are available for investors in India. Mutual funds offer different schemes for different investment objectives. There are so many mutual fund schemes available in India. Investors are not clear, which scheme is good and which is not good for them. Risk and return are the major issues which an investor faces in order to maximise his returns while choosing investment avenues depending on his objectives, preferences and needs. This study is a guide and an answer to the problems faced by the investors on how to select mutual funds according to their suitability.

Parameters for Selection of Mutual Fund

Best mutual fund scheme does not mean the best in returns, but the one best suited to investors risk profile and goals and the one that is good in its peer group.

Performance Ranking

The biggest mistake that mutual fund investors make is selecting mutual funds only on the basis of performance and that too just the recent performance. There are some investors who consider only the star ratings given by various research agencies. These star ratings can be one of the factors to look at, but there are many other parameters that one should look into before finalising a mutual fund portfolio. More than the recent or long term performance of any scheme, its ranking among peers should be looked at. So intending investor may select the scheme which has remained in top most of the time. If at all investor finds his scheme going down it hints that time has come to exit the scheme. Investors can find these rankings from the factsheets of various AMCs and also on some mutual funds research websites.

Portfolio Performance by Measuring Returns

Many investors mistakenly base the success of their portfolios on returns alone. Few consider the risk that they took to achieve those returns. Since the 1960's, investors have known how to quantify and measure risk with the variability of returns, but no single measure actually looked at both risk and return together. Now-a-days, there are three sets of performance measurement tools to assist investors with their portfolio evaluations. The Treynor, Sharpe and Jensen ratios combine risk and return performance into a single value, but each is slightly different.

Objectives of the Study

- An effort has been made to focus on the following objectives:
- To investigate the financial performance of the mutual funds on the basis of the Sharpe, Treynor, and Jensen's performance measurement ratios.
- To evaluate the selected mutual funds assessment on the basis of various performance ratios (Sharpe, Treynor, Jensen).

To compare mutual funds and to suggest suitable mutual fund schemes for investment by their outstanding performance.

Research Methodology

Type of the Research

The type of the research is Empirical Research.

Scope of the Study

The scope of the study includes attribute evaluation by considering all the attributes like, objective of fund, portfolio composition, total risk, total return, funds past performance, fund size, etc. The scope of the study is confined to seven mutual fund types and thirty-one mutual funds scheme during the 11 financial years period from March 2008 to February 2018.

Sample Size

The 7 types of mutual funds and 31 mutual funds scheme are selected for the purpose of this study. The period of the study is 11 financial years duration from 3rd March, 2008 to 28th February, 2018.

Data Sources

The secondary data is collected from NSE and Advisory Khoj for the 11 financial years period from FYE 2008 to FYE 2018 for the selected 31 Mutual Funds.

Measures for Performance Evaluation

The data analysed and presented in the following Tables uses 3 major techniques of ratio analysis which are used as popular measures of performance i.e. Sharpe Ratio, Treynor Ratio and Jensen's Alpha. The higher the ratio better is the investment. The measures of performance and the respective formula used in this study for performance evaluation of mutual funds are enlisted as follows:

a. Sharpe Ratio = (Portfolio Return – Risk-Free Rate) ÷ Standard Deviation

b. Treynor Measure = (Portfolio Return – Risk-Free Rate) ÷ Beta

c. Jensen's Alpha = Portfolio Return – Benchmark Portfolio Return

where;

Benchmark Return (CAPM) = Risk-Free Rate of Return + Beta (Return of Market – Risk-Free Rate of Return)

The interest rate on a three-month Treasury bill is often used as the risk-free rate of return.

Limitations of the Study

This study is limited to 11 financial years from FYE 2008 to FYE 2018, 7 types of mutual funds and to select 31 mutual fund schemes only.

Analysis of Data

The analysis of mutual funds scheme-wise for each of the 11 Financial Year period commencing from F.Y. 2007-08 to F.Y.2017-18 carried out by the researcher for each measure of performance is presented in a tabular form in Table No. 2, 3 and 4 below, and the summary of such final results are presented in Table No. 5 below.

Table No. 1 : Assigned Code for Fund Type and Name of Fund Scheme

Type of Fund	Code for Fund Type	Name of Fund Scheme	Code for Fund Scheme
Capital Protection Fund	FT-1	Aditya Birla Sun Life Capital Protection Oriented Fund - Series 22 - Direct Plan - Growth	NS-1
		Axis Capital Protection Oriented Fund - Series 5 - Dividend option	NS-2
		HDFC CPO - III - 1207D December 2014 - Regular Option - Growth Option	NS-3
		Kotak Capital Protection Oriented Scheme - Series 1 - Direct Growth	NS-4
Fixed Maturity Fund	FT-2	Aditya Birla Sun Life Fixed Term Plan - Series IY (1598 days) - Direct Plan-Growth	NS-5
		Axis Fixed Income Opportunities Fund - Direct Plan - Growth	NS-6
		Franklin India Fixed Maturity Plans - Series 1- Plan A (1108 days) - Growth	NS-7
		ICICI Prudential Fixed Maturity Plan	NS-8
Growth Fund	FT-3	DSP BlackRock Equity Opportunities Fund - Direct Plan - Growth	NS-9
		HDFC Balanced Fund - Growth Option	NS-10
		Kotak Select Focus Fund - Growth	NS-11
		L&T India Value Fund-Direct Plan-Growth	NS-12
		SBI Blue Chip Fund-Regular Plan Growth	NS-13
Income Funds	FT-4	Axis Fixed Income opportunities Fund - Direct Plan - Monthly Dividend	NS-14
		HDFC Floating Rate Income Fund - Direct Plan - Normal Dividend Option	NS-15
		ICICI Prudential Advisor Series Long Term Saving Plan - Direct Plan - Dividend	NS-16
		Kotak Corporate Bond Fund- Direct Plan- Growth Option	NS-17
Liquid Mutual Fund	FT-5	Aditya Birla Sun Life Cash Plus- Institutional - Weekly Dividend	NS-18
		Axis Liquid Fund - Direct Plan - Weekly Dividend Option	NS-19
		HDFC Liquid Fund - Dividend - Weekly	NS-20
		ICICI Prudential Liquid- Quarterly Dividend	NS-21
		Reliance Liquid Fund - Treasury Plan - Direct Plan Weekly Dividend Reinvestment Option	NS-22
Pension Fund	FT-6	Franklin India Pension Plan - Direct - Dividend	NS-23
		Franklin India Pension Plan - Direct - Growth	NS-24
		Tata Gilt Retirement Plan 28-2-25 Growth Option	NS-25
		UTI - Retirement Benefit Pension Fund	NS-26
Tax-Saving Fund (Equity Linked Savings Scheme - ELSS)	FT-7	Axis Long Term Equity Fund	NS-27
		DSP BlackRock Tax Saver Fund - Direct Plan – Growth	NS-28
		Franklin India Taxshield - Direct - Growth	NS-29
		ICICI Prudential Long Term Equity Fund (Tax Saving) - Direct Plan - Growth	NS-30
		Reliance Tax Saver Fund - Direct Plan Growth Plan - Growth Option	NS-31

Source: Compiled by Researcher after analysing Secondary Data

Interpretation of Codes

Throughout this study for the simplification purpose for the Type of Fund and Name of the Fund Scheme the researcher has assigned Alpha-numeric Codes as indicated in Table No. 1. For instance, in case of 1st Fund Type (FT), researcher has used the code FT-1 and for 1st Name of the Fund Scheme (NS), researcher has used the code NS-1.

Table No. 2 : Analysis of Fund Performance of Select Mutual Funds for 11 Financial Years using Sharpe Rat

Fund Type	Fund Scheme	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	Frequency of Highest Ratio
FT-1	NS-1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	0.17	0.33	0.22	0.37	NIL
FT-1	NS-2	N.A.	N.A.	N.A.	N.A.	N.A.	0.21	0.17	0.10	0.17	0.29	0.19	NIL
FT-1	NS-3	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	0.61	0.47	0.25	0.31	NIL
FT-1	NS-4	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	0.59	0.18	0.26	NIL
FT-2	NS-5	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	0.46	0.19	0.22	0.18	0.32	NIL
FT-2	NS-6	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	0.18	0.19	0.21	0.30	NIL
FT-2	NS-7	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	0.18	0.27	NIL
FT-2	NS-8	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	0.36	0.18	6.25	0.26	NIL
FT-3	NS-9	N.A.	N.A.	N.A.	N.A.	N.A.	0.26	0.19	0.10	0.23	0.18	0.16	NIL
FT-3	NS-10	0.25	0.04	0.08	0.16	0.25	0.21	0.15	0.10	0.30	0.14	0.23	NIL
FT-3	NS-11	N.A.	N.A.	0.16	0.06	0.09	0.07	0.12	0.06	0.17	0.19	0.20	NIL
FT-3	NS-12	N.A.	N.A.	N.A.	N.A.	N.A.	0.16	0.11	0.06	0.17	0.13	0.16	NIL
FT-3	NS-13	0.12	0.01	0.05	0.09	0.10	0.08	0.14	0.08	0.23	0.11	0.20	NIL
FT-4	NS-14	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	0.82	1.07	0.18	1.04	NIL
FT-4	NS-15	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	0.21	0.74	0.34	NIL
FT-4	NS-16	N.A.	N.A.	N.A.	N.A.	N.A.	0.40	0.23	0.14	0.40	0.18	0.28	NIL
FT-4	NS-17	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	3.13	0.47	0.19	0.60	NIL
FT-5	NS-18	14.15	19.45	37.77	19.12	18.35	18.68	15.84	18.20	20.41	0.38	25.08	NIL
FT-5	NS-19	N.A.	N.A.	N.A.	N.A.	N.A.	18.38	**21.45**	**27.65**	**31.90**	23.22	**39.08**	4
FT-5	NS-20	**18.17**	**20.37**	**37.97**	**26.66**	**19.07**	18.78	16.02	18.73	21.49	**36.05**	26.98	**6**
FT-5	NS-21	5.21	1.56	3.34	2.24	1.57	1.54	1.42	1.48	1.67	1.79	2.14	NIL
FT-5	NS-22	N.A.	N.A.	N.A.	N.A.	N.A.	**20.24**	16.25	19.57	21.44	24.40	26.37	1
FT-6	NS-23	N.A.	N.A.	N.A.	N.A.	N.A.	0.57	0.21	0.09	0.20	0.20	0.22	NIL
FT-6	NS-24	N.A.	N.A.	N.A.	N.A.	N.A.	0.94	0.34	0.12	0.61	0.29	0.40	NIL
FT-6	NS-25	1.25	0.09	0.53	0.44	0.23	0.20	0.30	0.13	0.42	0.19	0.37	NIL
FT-6	NS-26	0.49	0.15	0.17	0.27	0.19	0.20	0.16	0.22	0.43	0.19	0.25	NIL
FT-7	NS-27	N.A.	N.A.	N.A.	N.A.	N.A.	0.27	0.10	0.06	0.21	0.19	0.15	NIL
FT-7	NS-28	N.A.	N.A.	N.A.	N.A.	N.A.	0.18	0.14	0.08	0.20	0.13	0.16	NIL
FT-7	NS-29	N.A.	N.A.	N.A.	N.A.	N.A.	0.38	0.20	0.09	0.26	0.22	0.23	NIL
FT-7	NS-30	N.A.	N.A.	N.A.	N.A.	N.A.	0.25	0.14	0.10	0.27	0.18	0.22	NIL
FT-7	NS-31	N.A.	N.A.	N.A.	N.A.	N.A.	0.14	0.12	0.07	0.14	0.15	0.13	NIL

Source: Compiled by Researcher after analysing Secondary Data

Interpretation of Results obtained using Sharpe Ratio

As per the analysis presented in Table No. 2 above according to the Sharpe Ratio it indicates that out of 31 investment avenues NS-20 is the best performance scheme, as out of 11 financial years NS-20 has performed well in 6 financial years. Hence on the basis of the highest frequency, NS-20 being reasonably good therefore it is suitable for investment.

Table No. 3 : Analysis of Fund Performance of Select Mutual Funds for 11 Financial Years using Treynor Ratio

Fund Type	Fund Scheme	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	Frequency of Highest Ratio
FT-1	NS-1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	0.32	0.40	0.51	1.90	NIL
FT-1	NS-2	N.A.	N.A.	N.A.	N.A.	N.A.	0.04	0.08	0.09	0.12	0.18	0.13	NIL
FT-1	NS-3	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	0.29	0.33	0.44	0.40	NIL
FT-1	NS-4	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	0.22	0.38	0.38	NIL
FT-2	NS-5	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	4.71	8.50	5.69	-259.22	33.82	NIL
FT-2	NS-6	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	1.95	2.64	-20.43	7.99	NIL
FT-2	NS-7	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	0.44	4.46	NIL
FT-2	NS-8	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	2.20	2.06	244.54	22.22	NIL
FT-3	NS-9	N.A.	N.A.	N.A.	N.A.	N.A.	0.72	1.18	1.41	1.39	1.78	2.06	NIL
FT-3	NS-10	0.48	0.38	0.78	1.06	**0.99**	0.94	1.39	1.51	1.46	1.86	1.94	1
FT-3	NS-11	N.A.	N.A.	0.06	0.07	0.07	0.07	0.11	0.17	0.18	0.24	0.28	NIL
FT-3	NS-12	N.A.	N.A.	N.A.	N.A.	N.A.	0.06	0.10	0.16	0.18	0.25	0.30	NIL
FT-3	NS-13	0.07	0.02	0.09	0.09	0.10	0.13	0.15	0.26	0.25	0.31	0.33	NIL
FT-4	NS-14	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	0.94	1.11	-3.41	-3.79	NIL
FT-4	NS-15	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	3.11	-15.22	5.03	NIL
FT-4	NS-16	N.A.	N.A.	N.A.	N.A.	N.A.	0.56	0.58	1.13	1.29	0.96	0.93	NIL
FT-4	NS-17	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	-12,349.77	1,453.99	-30,471.53	4,906.94	NIL
FT-5	NS-18	-127.78	**671.32**	-1,305.86	240.40	-877.52	1,331.48	-252.67	333.33	-177.94	277.97	368.82	1
FT-5	NS-19	N.A.	N.A.	N.A.	N.A.	N.A.	**5,287.30**	**5,600.06**	-2,196.23	**4,108.04**	-3,275.63	-1,203.70	**3**
FT-5	NS-20	-916.57	-49,640.29	**42,035.04**	**1,779.47**	-1,697.22	-2,371.41	978.77	1,595.63	1,391.27	**4,668.65**	1,103.65	**3**
FT-5	NS-21	-394.02	-542.01	-387.13	420.77	-32.29	-28.11	-148.64	-78.76	-70.24	-39.07	1,061.50	NIL
FT-5	NS-22	N.A.	N.A.	N.A.	N.A.	N.A.	-1,620.98	-3,486.76	**5,533.69**	-2,772.04	4,021.77	**5,399.40**	2
FT-6	NS-23	N.A.	N.A.	N.A.	N.A.	N.A.	0.22	0.21	0.32	0.25	0.34	0.25	NIL
FT-6	NS-24	N.A.	N.A.	N.A.	N.A.	N.A.	1.76	1.79	2.43	2.37	3.09	3.08	NIL
FT-6	NS-25	**7.06**	2.31	13.91	-6.30	-2.40	9.42	0.67	1.72	2.62	-50.67	4.73	1
FT-6	NS-26	0.45	0.55	0.52	0.40	0.38	0.44	0.28	0.40	0.36	0.47	0.52	NIL
FT-7	NS-27	N.A.	N.A.	N.A.	N.A.	N.A.	0.10	0.18	0.31	0.29	0.35	0.43	NIL
FT-7	NS-28	N.A.	N.A.	N.A.	N.A.	N.A.	0.11	0.19	0.26	0.27	0.36	0.39	NIL
FT-7	NS-29	N.A.	N.A.	N.A.	N.A.	N.A.	3.15	3.66	5.06	4.68	5.76	6.38	NIL
FT-7	NS-30	N.A.	N.A.	N.A.	N.A.	N.A.	1.48	2.49	2.94	2.95	4.49	4.18	NIL
FT-7	NS-31	N.A.	N.A.	N.A.	N.A.	N.A.	0.15	0.30	0.43	0.34	0.49	0.56	NIL

Source: Compiled by Researcher after analysing Secondary Data

Interpretation of Results obtained using Treynor Ratio

As per the analysis presented in Table No. 3 above it indicates that according to the Treynor Ratio, on the basis of the highest frequency, out of 31 investment avenues both NS-19 and NS-20 are the best schemes as both NS-19 and NS-20 has showed good performance in 3 financial years each. Hence as per Jensen's ratio both NS-19 and NS-20 being reasonably good therefore they are suitable for investment.

Table No. 4 : Analysis of Fund Performance of Select Mutual Funds for 11 Financial Years using Jensen's Alpha

Fund Type	Fund Scheme	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	Frequency of Highest Ratio
FT-1	NS-1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	-1.33	1.43	-2.16	-0.42	NIL
FT-1	NS-2	N.A.	N.A.	N.A.	N.A.	N.A.	-0.23	-10.54	-21.35	6.00	-7.66	-9.73	NIL
FT-1	NS-3	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	-0.32	1.43	-2.08	-1.87	NIL
FT-1	NS-4	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	0.53	-2.28	-1.89	NIL
FT-2	NS-5	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	-0.04	-0.10	0.16	0.07	0.05	NIL
FT-2	NS-6	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	-0.20	0.29	0.13	-0.05	NIL
FT-2	NS-7	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	-0.08	-0.09	NIL
FT-2	NS-8	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	0.06	0.31	0.06	0.03	NIL
FT-3	NS-9	N.A.	N.A.	N.A.	N.A.	N.A.	5.71	-13.22	-25.48	11.52	-18.21	-12.28	NIL
FT-3	NS-10	2.91	18.80	-37.16	-4.19	5.37	-3.40	-7.82	-16.59	7.84	-11.40	-8.54	NIL
FT-3	NS-11	N.A.	N.A.	-6.42	-8.11	6.98	-5.99	-14.20	-25.08	9.19	-17.43	-12.67	NIL
FT-3	NS-12	N.A.	N.A.	N.A.	N.A.	N.A.	4.35	-13.66	-29.03	10.09	-19.79	-14.66	NIL
FT-3	NS-13	4.21	**29.05**	-62.58	-7.58	8.34	-4.60	-14.66	-21.99	8.85	-16.65	-12.82	1
FT-4	NS-14	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	-0.39	0.41	0.24	0.17	NIL
FT-4	NS-15	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	0.11	0.12	-0.10	NIL
FT-4	NS-16	N.A.	N.A.	N.A.	N.A.	N.A.	2.54	-9.58	-9.30	3.57	-9.54	-7.63	NIL
FT-4	NS-17	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	**18.28**	**19.96**	**21.68**	**22.94**	**4**
FT-5	NS-18	0.98	1.07	1.07	0.98	1.01	1.01	1.09	0.94	0.96	0.95	0.98	NIL
FT-5	NS-19	N.A.	N.A.	N.A.	N.A.	N.A.	9.98	9.95	10.08	10.00	10.02	10.07	NIL
FT-5	NS-20	**10.22**	10.24	**10.23**	**10.21**	**10.20**	10.29	10.09	10.08	10.34	10.22	10.13	**4**
FT-5	NS-21	1.02	0.88	1.11	0.92	0.67	1.17	1.05	1.26	0.80	1.38	0.94	NIL
FT-5	NS-22	N.A.	N.A.	N.A.	N.A.	N.A.	**15.22**	**15.32**	15.19	15.20	15.17	15.22	2
FT-6	NS-23	N.A.	N.A.	N.A.	N.A.	N.A.	1.66	-6.75	-9.62	4.56	-6.70	-6.32	NIL
FT-6	NS-24	N.A.	N.A.	N.A.	N.A.	N.A.	2.20	-6.00	-9.13	5.01	-5.61	-3.98	NIL
FT-6	NS-25	0.08	0.98	-0.21	0.16	-0.25	0.03	-2.27	-1.76	0.69	0.21	-0.29	NIL
FT-6	NS-26	1.47	8.27	-21.88	-3.27	3.00	-1.67	-7.14	-8.74	4.00	-6.87	-4.97	NIL
FT-7	NS-27	N.A.	N.A.	N.A.	N.A.	N.A.	3.70	-12.54	-21.46	8.56	15.99	-11.42	NIL
FT-7	NS-28	N.A.	N.A.	N.A.	N.A.	N.A.	4.66	-13.62	-25.79	9.67	-18.35	-13.84	NIL
FT-7	NS-29	N.A.	N.A.	N.A.	N.A.	N.A.	5.46	-10.34	-17.80	13.00	-11.41	-6.31	NIL
FT-7	NS-30	N.A.	N.A.	N.A.	N.A.	N.A.	5.69	-10.95	-21.41	11.19	-10.61	-8.19	NIL
FT-7	NS-31	N.A.	N.A.	N.A.	N.A.	N.A.	4.66	-13.13	-25.78	11.35	-19.06	-13.88	NIL

(Source: Compiled by Researcher after analysing Secondary Data)

Interpretation of Results obtained using Jensen's Alpha

As per the analysis presented in Table No. 4 above it indicates that according to the Jensen's Alpha, on the basis of the highest frequency, out of 31 investment avenues both NS-17 and NS-20 are the best schemes as both NS-17 and NS-20 has showed good performance in 4 financial years each. Hence as per Jensen's ratio both NS-17 and NS-20 being reasonably good therefore they are suitable for investment.

Table No. 5 : Summary of Analysis of Best Fund from F.Y. 2007-08 to F.Y. 2017-18

Year	Sharpe Ratio	Treynor Ratio	Jensen's Alpha
2007-08	NS-20	NS-25	NS-20
2008-09	NS-20	NS-18	NS-13
2009-10	NS-20	NS-20	NS-20
2010-11	NS-20	NS-20	NS-20
2011-12	NS-20	NS-10	NS-20
2012-13	NS-22	NS-19	NS-22
2013-14	NS-19	NS-19	NS-22
2014-15	NS-19	NS-22	NS-17
2015-16	NS-19	NS-19	NS-17
2016-17	NS-20	NS-20	NS-17
2017-18	NS-19	NS-22	NS-17
Mode	**NS-20** (f=6)	NS-19 & **NS-20** (f=3 for both)	NS-17 & **NS-20** (f=4 for both)
Frequency of NS-20	**6**	**3**	**4**

Source: Compiled by Researcher after analysing Secondary Data

Interpretation of Overall Results obtained using Sharpe, Treynor and Jensen's Performance Measures

The analysis in Table No. 5 above shows the 'Best Fund' from 2007 to 2018 according to Sharpe, Treynor and Jensen's Ratio on the basis of mode is NS-20 i.e. "HDFC Liquid Fund-Dividend - Weekly" which was judged as the 'Best Mutual Fund Scheme'.

Epilogue

Mutual fund is one of the most viable investment options for the small investor as it offers an opportunity to invest in a diversified, professionally managed basket of securities at a relatively low cost. Since the advent of the mutual funds it helped in garnering the investible funds of investors in a significant way. The performance of mutual funds in the recent years shows very volatile behavior and the trends have their impact on the total returns. Hence the selection of superior performing funds is an essential issue that becomes a focal point at all times. Using the computed value of the Sharpe, Treynor and Jensen's Ratio as the measures of performance it enables the investors to decide on an appropriate selection of portfolio which will give them better return with the calculated risk. Thus the purpose of data analysis using measures of performance is to guide the investors in their decision making process.

Utility of the Research

This research though carried on a small sample size of select 31 schemes of mutual funds can be useful to the researchers, academicians, potential investors, investment manager, financial consultant and fund managers as guiding tool for investment decision in mutual funds.

Scope for Future Research

There is huge scope to conduct further research on this topic. The study can be carried out on the different mutual funds scheme and also for different time periods.

References

Books

Association of Mutual Funds in India (AMFI) Publications

Bombay Stock Exchange (BSE) Publications

CRISIL Mutual Fund Year Book, 2010

Data of select sample mutual funds FYE 2008 to FYE 2018.

Ingle D.V., "Mutual Funds in India", New Century Publications, pp. 114-121.

Mishra B. "A Study of Mutual Funds in India", Unpublished Seminar Research Paper under the aegis of Faculty of Management Studies, University of Delhi, 2001.

Pozen, Robert; Hamacher, Theresa. "The Fund Industry: How Your Money is Managed?", John Wiley and Sons, 2011, pp. 5-7.

Sadhak, H.: "Mutual Funds in India, Marketing Strategies and Investment Practices", (2nd Edition), pp. 13-17.

SEBI (Mutual Fund) Regulations, 1996

Sundar Sankaran, "Indian Mutual Funds Handbook, A Guide for Industry Professionals and Intelligent Investors", 2nd Edition and 3rd Revised Edition, p. 41.

Journals

Adhikari, Umesh and Bhosale, Meenal, 1994. "Risk Return Analysis of Mutual Fund Growth Schemes". Indian Management, August 1994.

BSE Brokers' Forum, Forum Views, Mumbai, Issue Vol. year 2011 to 2018.

Fink, Matthew P., 2008. "The Rise of Mutual Funds", Oxford University Press, p. 9.

Fernando, Deepthi; Klapper, Leora; Sulla, Victor; Vittas, Dimitri, 2003. "The Global Growth of Mutual Funds", Policy, Research Working Paper Vol. 1, (a) Finance, Report Number WPS3055.

Jaydev M., 1996. "Mutual Funds Performance: An Analysis of Monthly Returns", Finance India, Vol. 10, Issue 1, pp.73-84

Jensen Michael C., 1968. "The Performance of Mutual Funds in the Period 1945-1964", Journal of Finance, Vol. 23, pp.389-416.

Kaura, M.N. and Jayadev, M., 1995. "Performance of Growth-oriented Mutual Funds: An Evaluation", The ICFAI Journal of Applied Finance, Vol. 1, No. 1, pp. 1-14.

Markowitz, H. M., 1991. "Foundations of Portfolio Theory," Journal of Finance, Vol. 46, No. 2, pp. 469-477.

Priya Mahajan and Gagan Singh, 2013. "Bank Exchange Traded Funds: A Relative Performance Evaluation", The Indian Journal of Commerce, Vol. 66, No. 4, October-December, 2013, pp. 86-96.

Rouwenhorst, K. Geert, 2004. "The Origins of Mutual Funds," Yale ICF Working Paper No. 04-48, December 12, 2004, p. 5.

Sharpe, William F., 1966. "Mutual Fund Performance", The Journal of Business, Vol. 39(1), pp. 119-138.

Treynor, Jack L., 2003. "The Treynor Capital Asset Pricing Model". Journal of Investment Management, Vol. 1, No. 2, pp. 60-72.

Wermers, R., 2000. "Mutual Fund Performance: An Empirical Decomposition into Stock Picking, Talent, Style, Transaction Costs and Expenses", The Journal of Finance, Vol. 4, No. 4.

Yadav R. A. and Mishra, Biswadeep, 1996. "Performance Evaluation of Mutual Funds: An Empirical Analysis", MDI Management Journal, Vol. 9(2), July 1996, pp. 117-125.

Webliography

www.bseindia.com

www.moneycontrol.com

www.nseindia.com