

Performance Evaluation of select Mutual Funds in India: With special reference to private and public sector mutual funds

Mr. Vignesh S Gaonkar, Research Scholar SDMIMD Mysore

Abstract

As per AMFI, (Association of mutual funds of India) report, AUM (Asset under management) across all AMC (Asset management companies) is increased by approximately 376 % from 2010 (from 613979 Cr. INR) to 2018 (2309596 Cr. INR). In last two decades Indian mutual fund industry has gained speed in terms of growth. The industry has emerged as dominant financial instrument with reference to Indian Capital Market. The growth of the industry has led foundation to domestic and international players. With the participation of foreign AMCs the industry has evolved within since last one decade.

In this study, an attempt has been made to know the performance of selected mutual funds considering the risk and return relationship factor. Treynor and Sharpe model is considered to evaluate the risk return relationship factor with market return.

Keywords: Capital Market, AMC, Risk-Return measurement, Portfolio Management.

1. Introduction

Mutual fund acts as a platform to pool the funds from people sharing common financial goal. This pooled money is invested in share market based on pre determined portfolio. Mutual fund has become one of the choices of investment over the past decade. Today, mutual fund is one of the most preferred investment options in Indian market. Having advantages like diversification, professional experts handling the portfolio, variety of funds etc, makes it still standard. According to SEBI's report Indian mutual fund has seen consistent increase in terms of AUM. With rapid growth in AMC and types of funds, the performance evaluation of such funds takes the priority from the point of view of investor.

2. Objectives of the study

1. To evaluate the performance of selected mutual funds considering risk return analysis
2. To evaluate the performance of selected mutual funds considering market return.
3. To find out the excess return per unit of risk evidence by private and public mutual funds in the sample framework.

3. Literature review

R. Udhayasankar and K. Maran (2018) studies related to perception of mutual fund investors in India. MF is a financial intermediaries where they pool money from various investors with

predetermined investor's objective. MF in India tremendously growing in terms of quality and quantity. The investors are more keen about risk management though diversification.

Dr. V Chitra and Dr. T Hemalatha (2018) evaluated risk and return analysis of selected growth oriented mutual funds schemes in India. BSE-Sensex and monthly yield on 91 day treasury bills taken in to consideration for comparison. They selected 6 open ended equity scheme with growth option being launched by UTI MF. The performance were analyzed by using Sharpe, Jensen, and Treynor's ratio. From the study it indicates that UTI Dividend Yield fund has lower beta and standard deviation so this fund gives higher return for a given unit of risk taken.

Dhanraj Sharma and Dr. Syed Husain (2014) also evaluated the performance of selected mutual funds considering risk return relationship. The sample of the study included 10 private and 10 public companies. The study used Sharpe, Treynor and Jensen Ratios to evaluate the performance of selected mutual funds. Author concluded saying that public sector mutual fund outperform over private sector mutual funds for the selected period.

Poonam M Lohana (2013) has evaluated 5 funds in public and private sector by considering Sharpe, Treynor and Jensen's measure of risk return evaluation and the study found out that Only Kotak Gold Fund and IDBI Fixed maturity fund has outperformed the market and all remaining funds within the sample framework has underperformed than the market.

Dr. Jain (2012) studied performance of Indian equity mutual funds considering Capital Asset Pricing Model Author in this study considered private and public sector oriented selected mutual funds to evaluate the performance. Study witnessed that both public and private sector oriented selected mutual funds did perform well in long and in short run. Study reported that from the sample framework UTI and SBI were low performers in public sector on the other hand Reliance and Kotak mutual funds performed well. The study concluded saying that private sector oriented mutual funds did perform well over public sector mutual funds.

Dr M. Daniel Rajkumar and Dr. S.S. Rau (2010) considered equity based Indian Mutual Fund schemes to evaluate the performance of selected mutual funds. The intention of the study was to evaluate the performance of selected 23 mutual funds for the period of 13 years from 1996 to 2009. Author has considered Sharpe, Jensen and Treynor ration to evaluate the performance of selected mutual funds. Study found out that Franklin Templeton and UTI mutual funds performance best in the sample framework over HDFC; LIC and Birla Sun Life funds when considered risk relationship analysis.

4. Research Methodology

The study is entirely based on secondary source. The details of research methodology are defined below:

Scope of the study: For the purpose of the study, 10 Indian mutual fund schemes were considered. The study was conducted for the period of 5 years from 2014 to 2019.

4.1 Research tools

4.1.1 Database Reference: The data is collected from CapitalNAV database to collect the NAV details of the selected mutual funds and CapitalLine database to collect the monthly closing price movement for the timeframe as described in the scope of the study section.

4.1.2 Risk Free Return: 91 Days Treasury bill as defined by RBI for the defined timeframe is considered as R_f for the study.

4.1.3 Market Proxy: Sensex index is considered as market proxy as the index is widely accepted in Indian financial market.

4.1.4 Daily return: Daily return of the fund is calculated by using below formula

$$(P1-P0)/P0$$

Where, P1= Current day NAV

P0= Previous day NAV

4.1.5 Return Relative: This framework is defined in cumulative wealth index which is also referred as geometric mean. Return Relative is defined as $1 + \text{Total Return in Decimals}$.

The GM R_j is the total cumulative return for the described period and N is the total number of time period. GM R_j is computed in order to arrive at mean monthly return from the market. The absolute return arrived is referred across the study. The expression described below has been referred to calculate monthly compounded ROR, R, for fund 'j'.

$$R = (R_{j1} \times R_{j2} \times R_{j3} \times \dots \times R_{jn})^{1/n}$$

Where,

R= Compounded monthly rate of return on fund 'j'

R_{jn} = Monthly rate of return on fund 'j' for n^{th} month

n = Number of months

4.1.6 Risk: Standard deviation is considered in the study in order to consider total risk (Treynor Ratio). The square root of the variance which is standard deviation is also considered (Sharpe Ratio). The SD and Variance both are equally acceptable and also equivalent quantitative measure of the assets total risk. In this study Variance and SD are calculated from the average monthly return generated by the funds.

4.1.7 Beta: Beta is considered to measure systematic risk. Beta measure's the sensitivity of the fund with reference to a broad based market index.

$$\beta = \sigma_j / \sigma_m * \text{COR}_{jm}$$

4.1.8 Coefficient of Variation (CV): Coefficient of Variation refers to the risk per unit of return. Standard deviation/mean measures the degree of variation relative to mean as a %.

4.1.9 Co-efficient of Determination (R²): Co-efficient of Determination measures the extent to which the movement within the fund can be explained by corresponding benchmark index, in this study index is Sensex.

4.2 Technique of analysis:

4.2.1 Sharpe Ratio: In performance evaluation of mutual funds Sharpe (1966) contribution is still considered as one of the best tool to evaluate a selected mutual fund. Risk and Return analysis is considered to build the formula. In this study the Sharpe devised an index of portfolio performance measure, referred to as reward to variability ratio. Sharpe assumes that small investor invests fully in the mutual fund and does not hold any portfolio to eliminate unsystematic risk and hence demands a premium for the total risk. Sharpe developed below formula:

$$\text{Sharpe} = R_p - R_f / \sigma_p$$

Where,

R_p = Return on portfolio

R_f = Risk free rate of return

σ_p = Standard deviation

4.2.2 Treynor Ratio: Treynor (1965) conceived an index of portfolio performance measure called as reward to volatility ratio, based on systematic risk. He assumes that the investor can eliminate unsystematic risk by holding a diversified portfolio. Hence his performance measure denoted as 'T' is the excess return over the risk free rate per unit of systematic risk, in other words it indicates risk premium per unit of systematic risk.

$$\text{Treynor Ratio} = (R_p - R_f) \div \beta_p$$

Where,

R_p = Portfolio return over a period

R_f = Risk free rate of return

β_p = Sensitivity of fund return compared to market return

5. Analysis and Results

Table 5.1 Market Proxy:

Financial Year	Opening Return	Closing Return	Yearly Return	Geo mean
2014	21,222.19	27,499.42	0.2957	1.2957
2015	27,485.77	26,117.54	-0.04977	0.95023
2016	26,101.50	26,626.46	0.02013	1.02013

2017	26,711.15	34,056.83	0.27497	1.27497
2018	34,059.99	36,068.33	0.05896	1.05896
Average Market Yearly Return			0.05528	1.11998
Standard Deviation				0.06014

Source: Compelled by the researcher

Table 5.2 Selected Mutual funds:

SI No	AMC	Mutual Fund Name
1	Aditya Birla	Aditya Birla equity fund-G
2	Axis	Axis long term equity fund-G
3	ICICI	ICICI equity fund-G
4	Franklin Templeton	Franklin Templeton India equity fund – G
5	HDFC	HDFC equity fund-G
6	SBI	SBI magnum equity fund-G
7	LIC	LIC large cap equity fund-G
8	IDBI	IDBI equity saving fund-G
9	Canara	CanaraRobeco equity tax fund-G
10	UTI	UTI equity fund-G

Source: Capital NAV Database

Table 5.2 Showing Return on portfolio, Geomean Return, Return from the market, Risk freerate of return, Standard deviation, Beta and Co-efficient of determination:

SI No	Mutual Fund Name	R _p	G _r	R _m	R _f	STD.	B	(R ²)
1	Aditya Birla equity fund-G	0.08551	1.0048	0.11998	0.065	0.07546	0.72448	0.71329
2	Axis long term equity fund-G	0.05309	0.99533	0.11998	0.065	0.05338	0.90284	0.8812
3	ICICI equity fund-G	0.07734	1.0073	0.11998	0.065	0.07268	0.00982	0.15348
4	Franklin Templeton India equity fund – G	0.06792	1.00489	0.11998	0.065	0.04484	0.24304	0.34179
5	HDFC equity fund-G	0.05407	1.00267	0.11998	0.065	0.06484	0.76079	0.89656
6	SBI magnum equity fund	0.06223	0.99962	0.11998	0.065	0.0667	0.78619	0.9581
7	LIC large cap equity fund-G	0.06423	0.99723	0.11998	0.065	0.08644	0.89203	0.89875
8	IDBI equity saving fund	0.05138	0.99984	0.11998	0.065	0.06633	0.79203	0.9877
9	CanaraRobeco equity tax	0.05196	1.020	0.11998	0.065	0.0703	0.1704	0.4736

	fund		12	98	5	2	5	5
10	UTI equity fund	0.09513	0.986 22	0.119 98	0.06 5	0.0807 5	0.9087 5	0.9181 9

Source: Compelled by the researcher

Hypothesis testing

The following statistical tests were conducted to ascertain whether Public Growth funds outperformed the Private funds. Student's t-test (1 – tailed test)

μ = Mean returns of the population of Public funds 1

μ = Mean returns of the population of Private funds 2

$H_0: \mu_1 = \mu_2$ (Null Hypothesis): There is no difference in the mean returns of Public funds and Private funds.

$H_1: \mu_1 > \mu_2$ (Alternate Hypothesis): The Mean returns of Public funds are greater than the Mean returns of Private funds.

N_1 = sample size of Public Growth Plans = 05

N_2 = sample size of Private Growth Plans = 05

Degrees of Freedom = $N_1 + N_2 - 2 = 08$

S_1 = Standard deviation of selected Public Growth funds = 1
0.00459

S_2 = Standard deviation selected Private Growth funds = 2
0.01225

\bar{X}_1 = Mean of selected Public Growth funds = 1.0030

\bar{X}_2 = Mean of selected Private Growth funds

Private Sector Performance:

Mutual Fund Name	Sharpe Ratio	Teynor's Ratio
Aditya Birla equity fund-G	0.2720	0.0283
Axis long term equity fund-G	-0.2231	-0.0131
ICICI equity fund-G	0.1699	1.2591
Franklin Templeton India equity fund – G	-0.0659	0.0120
HDFC equity fund-G	-0.2439	0.0449
Average	0.1053	0.2626

Source: Compelled by the researcher

Public Sector Performance:

Mutual Fund Name	Sharpe Ratio	Treynor's Ratio
SBI magnum equity fund	-0.04152	-0.0036
LIC large cap equity fund-G	-0.0089	-0.8475
IDBI equity saving fund	-0.2054	-0.01719

CanaraRobeco equity tax fund	-0.16158	-0.07652
UTI equity fund	0.3733	0.0332
Average	-0.0108	-0.1823

Source: Compelled by the researcher

Sharpe and Treynor model were used to evaluate the sample size of the study. Whereas, in terms Sharpe model average of private sector for five years (2014-2019) was **0.1053** and **0.2626** respectively, public sector **-0.0108** and **-0.1823** respectively. On an average Private sector mutual funds perform better than that of public sector mutual funds for the selected study period. Aditya Birla equity fund-G has given maximum return for each unit of risk taken by the investor in Sharpe framework with SR of 0.2720. On the other hand ICICI equity fund-G has generated maximum return for each unit of risk taken with the TR of 1.2591. When it comes to public sector mutual funds, the study could see that there is a negative growth in the performance of sample framework. According to Sharpe and Treynor frame work fund has given negative return of **-0.0108** and **-0.1823** respectively. Considering the performance of private and public sector mutual funds, it is observed that private sector mutual funds have performed better than that of public sector mutual funds.

Table showing performance analysis by using Sharpe, Teynor's model.

Mutual Fund Name	Sharpe Ratio	Teynor's Ratio
Aditya Birla equity fund-G	0.2720	0.0283
Axis long term equity fund-G	-0.2231	-0.0131
ICICI equity fund-G	0.1699	1.2591
Franklin Templeton India equity fund – G	-0.0659	0.0120
HDFC equity fund-G	-0.2439	0.0449
SBI magnum equity fund	-0.0415	-0.0036
LIC large cap equity fund-G	-0.0089	-0.8475
IDBI equity saving fund	-0.2054	-0.0171
Canara Robeco equity tax fund	-0.1615	-0.0765
UTI equity fund	0.3733	0.0332
Average Return of Public Sector	0.1053	0.2626
Average Return of Private Sector	-0.0108	-0.1823
Average Market Yearly Return	0.05528	

Source: Compelled by the researcher

Table showing average portfolio return and average market return.

SI No	Public Mutual Fund	Rp	Private Mutual Fund	Rp
1	SBI magnum equity fund	0.062229	Aditya Birla equity fund-G	0.085514
2	LIC large cap equity	0.064226	Axis long term equity fund-	0.053089

	fund-G		G	
3	IDBI equity saving fund	0.051375	ICICI equity fund-G	0.077344
4	Canara Robeco equity tax fund	0.051963	Franklin Templeton India equity fund – G	0.067924
5	UTI equity fund	0.095128	HDFC equity fund-G	0.054069
Average Return		0.064984		0.067588
Average Market Return		0.05528		

Source: *Compelled by the researcher*

With reference to the above index comparison table, it can be stated that both public and private sector fund performed better than the index return. Index return was **0.05528** and average return from the public sector is **0.064984** and the average return from the private sector is **0.067588**. Sample size of mutual fund has performed better than that of market proxy. Thus the study concludes with the following observation.

Based on Objective number **1** and **3**: Sharpe and Treynor ratios were considered to evaluate risk and return analysis. Study finds that private sectors mutual funds outperform than the public sectors mutual funds. Current study recorded SR of **0.1053** and TR of **0.2626** for private sector funds and SR of **-0.0108** and TR of **-0.1823** for public sector mutual funds. Thus the on an average for five years, return generated for each unit of risk taken by the private sector mutual fund is better than the per unit risk generated by the public sector mutual funds.

Based on Objective number **2**: “Sensex” is considered or referred as market proxy to compare the relationship between market return and the fund return in terms of rate of return. Study finds out that average return from the public sector is **0.064984** and the average return from the private sector is **0.067588**. On the other hand Average Index return is **0.05528**. This concludes that both private and public sector mutual fund outperformed market return for the given time frame.

Scope for further Research:

With reference to the limitation of the study, Current Study focused on limited sample size of 5 public and 5 private mutual funds. There is a scope for considering large sample framework. Current study considers the time frame of 5 years from 2014-2019, this can be either enhanced for further more years or within 5 years one can analyze the performance of selected funds from short, medium and long term perspective. Sharpe ratio and Treynor ratio is considered to evaluate the risk return relationship of the selected fund, further the tools for the study can be enhanced to Sortino ratio or Jensen ratio etc.

Reference:

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