

## Performance Evaluation of Hybrid Mutual Fund Schemes in India

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### Abstract

The present study is focus to evaluate and compare the performance of public and private sector mutual fund schemes and mutual fund managers ability in stock selection and market timing of with the help of Sharpe, Treynor, Jensen Alpha, R-Squared and Information ratio,. The study uses daily observation of NAV and NIFTY 50 index and CRSIL Composite Bond Index over the period of 1<sup>st</sup> April 2013 to 31<sup>st</sup> March 2018. The result of the study suggest that the financial performance of sample mutual fund schemes between private and public sector among the different categories of hybrid mutual fund schemes indicates that overall performance of both public and private sector is same and private sector companies have aggressive behaviour to take higher risk to generate excess return than benchmark.

**Key Words:** Mutual Fund Schemes (MFs), Performance evaluation, Annual Average Return (AAR), Sharpe (SR), Treynor (TR), Jensen Alpha ( $\alpha$ ), R-Squared ( $R^2$ ), Information ratio (IR)

### 1. Introduction:

Saving is the surplus income over expenditure, and when such savings are invested to generate more money, it is called investment. Livestock, land and precious metals are some of the traditional investment options. During the 19th century, a revolution in investment took place through the banking system as it provides many investment options like Fixed deposits (FDs), government bonds, Public Provident Fund (PPF) to investors. With the development of the capital market, investment in stocks became a good option for generating higher returns. However, greater risk and lack of knowledge about the movement of stock prices were also associated with them. Therefore, mutual funds emerged as an ultra-modern method of investment to lessen the risk at low cost with experts' knowledge.

**According to Association of Mutual Funds in India (AMFI)**, a Mutual Fund is a trust that pools the savings of a number of investors who share a common financial goal and invest it in capital market instruments such as shares, debentures and other securities. The income earned and capital appreciation thus realised are shared by its unit holders in proportion to the number of units owned by them. Therefore, it offers to common man an opportunity to invest in a diversified, professionally managed basket of securities at a relatively low cost.

In India, Mutual Fund Industry (MFI) started its journey in 1963 with the formation of Unit Trust of India (UTI) in 1964. The growth of MFI is divided into four phases. In the first phase (1964-1987), UTI enjoy a monopoly. In the **second phase (1987-1993)**, the Government of India

allowed public sector banks and financial institutions to set up mutual funds. **Third phase(1993–2003)**, a new era started in MFI by opening the door of MFI for the private sector, SEBI introduced 1<sup>st</sup> mutual fund regulation in 1993 revised in 1996 and it still regulate present, in 1995 AMFI is established for the growth of MFI in the ethical ground. After all, that growth of MFI increased at immense speeds. In the **fourth phase (since February 2003)** UTI was bifurcated into two separate units UTI-I & UTI-II. As on 31<sup>st</sup> March 2018, there are 44 MFC with 1941 schemes and net AUM is recorded as Rs.22,859 billion with a wide variety of investment avenues open-ended and close-ended in them equity, hybrid, & debt, Exchange-Traded Funds (ETFs) & Fund of Funds (FoFs)etc. that caters to the investors' needs, risk tolerance and return expectations. The mushrooming growth of MFI increase the investment avenues which puzzled the investors to know which sector, which category & which scheme perform best for the investment of their savings

In general, the performance of a mutual fund is measured through its Net Asset Value (NAV) and it is based on risk-return tradeoff [Jensen M.C. (1968), Markowitz H. M. (1952), Sharpe W. F. (1966), Tobin J. (1958), Treynor J. L. (1965)]. Apart from risk, mutual fund schemes possess several characteristics or attributes that might affect their performance [Gorman L. (1991), Dahlquist M. (2000), Ippolito R. A. (1989), Lakonishok J. (1981)]. It is essential to know which attribute results in efficient performance and which deteriorates it.

In India, mutual fund have large investor base but with respect to other developed nation it is still at nascent stage, only 1%

household savings invest in mutual funds (SEBI). Indian mutual fund industry is still lagging far behind in terms of total assets compared to other developed nations As at the end of 2017 in respect of world, U.S. alone has 50% (US \$ 24,880 billion) contribution in world mutual fund asset US \$ 49,297 billion and percentage of India is only 0.62% (US \$ 302 billion). One of the main reasons for poor growth is the lack of awareness and investors' trust on companies and policymakers [Syama Sundar P.V. (1998), Panda T. K. and Tripathy N. P. (2002), Singh J. and Chander S. (2004), Desigan G., Kalaiselvi S. and Anusuya L. (2006), Parihar B. B. S., Sharma R. and Parihar D. S. (2009), Pandey A. (2011)].

From the above discussion, it can be concluded that the Indian mutual fund industry is in its growing phase and possesses a tremendous scope for development. Some crucial issues which are needed to be investigated are to evaluate and compare the performance by several parameters between different sectors among different categories of mutual fund schemes. Further, the study is intending to know investors behavior in terms of investment pattern and the factors which influence the investment decision and the satisfaction level of the investors. The study will answer different questions of various stakeholders of mutual funds. Investors come to know where to invest their saving by getting the answer which sector, which category and which scheme has outperformed and meet their investment objective. On the other hand, mutual fund companies (AMCs) and their fund managers may know the performance of their schemes and the

investor investment behaviour and perception.

The present study has raised five research questions: First, the present study will add to the existing literature by providing a robust result. Secondly, the study has used Sharpe model, Treynor model. Secondly, the study has used Treynor model, Sharpe model to determine the performance of funds and fund managers. Thirdly, the study has used Jensen's alpha measure to determine the selectivity skill of fund managers. Fourthly, the study has used information ratio (IR) to determine the persistence of fund manager's performance. Finally, the study has tried to analyse the best funds in the Indian scenario on the basis of persistence exists in the funds that have been displaying a winning trend. The paper is organised as follows: Section 2 delivers literature review, section 3 & 4 define the objective and hypothesis of the study, section 5 define methodology applied in study section 6 & 7 portrays discussion of empirical result and concluding observation respectively.

## **2. Review of Literature: Literature related to Performance evaluation of mutual fund schemes (Risk & Return relationship):**

During the early years, the rate of return was the only measure of performance. Risk measurement is considered an important tool to judge the performance of mutual funds. Markowitz (1952) & Tobin (1958) suggested risk measure in terms of variability of returns. Treynor (1965), Sharpe (1966) and Jensen (1968) compared the returns of professionally managed portfolios to that of some standard benchmark. Cumby & Glen (1990) and

Lahtitant (1995) found funds underperforming their benchmark. Murthi et al. (1997) proposed problems associated with traditional performance measures as identifying the appropriate benchmark, not accounting for the transactions cost and measures performance in terms of efficiency. It indicates that fund managers are not performing their job in an efficient way. Pui & Jusoh (2012) found the performance of equity fund investing in Malaysian stock market depend on the risk level of the funds and fund size and turnover have no impact on equity fund performance. Vidal-García et al. (2016) found strong evidence of persistence in daily mutual fund return over the quarterly measurement period and confirms that superior performance is a short-lived phenomenon.

In India, Chander (2000) found the funds outperformed while Singh & Singla (2000) found that funds underperformed their benchmark, and Gupta (2001) found mixed results. Galagedera & Silvapulle (2002) found that funds were efficient in the long term. In 2004, Gupta & Gupta and Rao et al. found funds outperforming their benchmark [49], [89]. Lin and Chen (2008) found the number of efficient funds higher in the year 2003 than in 2001 and 2002. Soongswang & Sanohdontree (2011) found varied outcomes. Jitendra & Anindita (2015) found tax saving MFs have outperformed as compared to its market return and the performance of public sector tax saving MFs are not satisfactory, Satish & Shakti (2016), Nala & Gautami (2018) found mutual fund return has direct relationship with benchmark return, and market timing Pathak, Richa (2018) ELSS fund has outperformed than benchmark.

**Research Gap:** On the basis of above literature reviewed, it has been found that many studies are done in India & abroad to measure the financial performance of mutual funds but still growth of mutual fund industry is at nascent stage because it has not gained its expected popularity among the investors. The studies which are done in India to evaluate the performance of MFs few studies make comparison between sector (private & public), category (equity, hybrid & debt) and their sub-category and they examined the performance of MFs (mutual fund) either monthly, quarterly or yearly NAV basis (performance of mutual funds depends upon the stock market which is quite volatile). The present study is an attempt to fill this gap, albeit to some extent.

**3 Objective of the study:**

To analyse and compare the performance of hybrid mutual fund schemes for private and public sector.

**4 Hypothesis:**

**H<sub>0</sub>:** There is no significant difference in the performance of hybrid mutual fund schemes between private and public sector.

**H<sub>1</sub>:** There is significant difference in the performance of hybrid mutual fund between public and private sector.

**5. Methodology**

**Description of Data, Variables & Financial Measures**

**Data:** In the study for measuring the financial performance of equity categories mutual fund schemes, the mutual fund schemes are selected as sample from “CRISIL Mutual Fund Ranking (CMFR)” report for the quarter ended 31<sup>st</sup> March 2018 report. Particular March 2018 quarter is selected for study because CRISIL has introduced and aligned in CMFR March 2018 quarter report new Categorisation & rationalization of mutual fund schemes as per recently prescribed norms issued by SEBI. Usually the penetration of public sector MFs in the market is very low as compared to private. To make a better comparison between the public and private sector and to explore which sector, which category and which MF schemes outperformed, almost all the public sector MF schemes were selected and for private sector, schemes are randomly selected parallel to the same rank as public which is the best performing during the several quarters of study period.

**Table 1**  
**Exergies of Selected Mutual Schemes**

<b>Hybrid Categories Fund</b>							
1.	Aggressive Hybrid Fund	11	3	14	3	3	6
2.	Conservative Hybrid Fund	12	4	16	4	4	8
	<b>Total (B)</b>	23	7	30	7	7	14

**Table 2: Variables Description**

Sr. No.	Variables	Source & Year
1.	Return of portfolio ( $R_p$ )	Daily NAV of selected schemes is drawn CRISIL database from 1 <sup>st</sup> April 2013-31 <sup>st</sup> March 2018. And then
2.	Risk Free return ( $R_f$ )	91 days Treasury bill weekly return is taken from RBI website from 1 <sup>st</sup> April 2013 to 31 <sup>st</sup> March 2018. After that convert weekly data into daily by taking the average of week and divide by 365.
3.	Return of Market ( $R_m$ )	<b>Aggressive Hybrid:</b> 65% of Nifty 50 & 35% of CRISIL Composite Bond Fund Index <b>Conservative Hybrid:</b> 75% of Nifty 50 + 25% of CRISIL Composite Bond Fund Index Nifty Data taken from NSE India website & CRISIL Composite Bond Fund Index are taken from CRISIL database from 1 <sup>st</sup> April 2013-31 <sup>st</sup> March 2018

**Table: 3**

**Description of Financial Measures**

Sr. No	Measures	Description	Interpretation	Formula
i.	Annual Average Return	The average annual return (AAR) is the arithmetic mean of a series of rates of return.	-	$AAR = \frac{\text{Sum of return of different Periods}}{\text{Number of Periods}}$
ii.	Sharpe Ratio	Sharpe ratio indicates excess return over the risk free return. It measures total risk associated with fund	The higher Sharpe indicates higher relative to amount of risk taken	$RVAR_p = \frac{R_p - R_f}{\sigma_p}$
iii.	Treynor Ratio	Treynor ratio is similar to Sharpe ratio. It also measures excess return over the risk free return but it measures only the market(systematic) risk associated with fund through $\beta$	A higher Treynor ratio indicates better fund performance gives higher return with lower market risk of fund.	$RVOL_p = \frac{R_p - R_f}{\beta_p}$

iv.	Jensen Alpha Ratio	Alpha measures the gap between fund's actual return and expected return through measuring $\beta$ . It measures the efficiency of fund manager.	Higher alpha shows better fund performance correlates to the market due to fund manager wise decision through measuring systematic risk.	<b>Alpha = <math>R_p - [R_f + \beta_p (R_m - R_f)]</math></b>
v.	Beta ( $\beta$ )	Beta is fairly used to measure the market risk (systematic risk). It indicates the level of volatility associated with the fund as compared to benchmark or stock market	Beta > 1 = High risky Beta < 1 = Low risky Beta = 1 = Average.	<b>Beta (<math>\beta</math>) =</b>  <b><math>\frac{\text{Covariance of Index \&amp; Stock return}}{\text{Variance of Index return}}</math></b>
vi.	R-Square	R-Squared measures the correlation between fund's movement and benchmark index. It describes the fund's volatility and market risk.	R – squared values ranges between 0 & 1 where as 0 represents no correlation and 1 represents full correlation	<b>Correlation =</b>  <b><math>\frac{\text{Covariance of index \&amp; portfolio return}}{\sigma \text{ of Portfolio return} * \sigma \text{ of Index return}}</math></b>
vii.	Standard Deviation ( $\sigma$ )	$\sigma$ measures the total risk associated with fund. It evaluate the volatility by measuring the degree to which fund fluctuates in relation to its mean return	Higher $\sigma$ shows more volatile fund and vice versa. Hence lower $\sigma$ should be good and safe i.e. $\sigma$ near to its mean return	<b><math>\sigma</math> = Square root of variance</b>
viii.	Information Ratio	Information ratio measures the portfolio return over the benchmark return through tracking error	Higher information is better.	<b>Information Ratio = <math>\frac{\text{Active Return}}{\text{Tracking Error}}</math></b>

**6. Analysis & Discussion of financial performance:**

To examine and compare the financial performance of hybrid categories of mutual fund schemes it is divided into two parts which is described below:

**i. Aggressive Hybrid Fund:** These funds are more risky and more volatile in hybrid category because the investment in equity & equity related activities between 65% - 80% of total assets whereas in debt instruments between 20%-35% of total assets.

**ii. Conservative Hybrid Fund:** These funds should have at least 75% - 90% investment in debt and money market instrument. Asset allocation in equities should be in the range of 10% – 25%. These fund bear relatively bear less risk and low volatile than equity and other hybrid funds because of large portion of debt in the portfolio.

The results are discussed below from table 4 to 6 which are follows:

**i. Aggressive Hybrid Fund:**

**Table: 4 Comparison of Financial Performance of Aggressive Hybrid Fund**

Scheme Name	5 Years AAR	Sharpe Ratio	Treynor Ratio	Jensen Alpha Ratio	R-Squared	Information Ratio	Beta of Portfolio	Standard Deviation
<b>Private</b>								
1.HDFC Balanced Fund - Growth	20.04	0.0825	0.0575	0.0298	0.8025	0.0960	0.9215	0.6421
2.Aditya Birla Sun Life Equity Hybrid 95 Fund - Regular Plan - Growth	18.16	0.0686	0.0462	0.0213	0.8591	0.0843	1.0107	0.6806
3. DSP Equity & Bond Fund - Regular Plan - Growth	17.18	0.0606	0.0421	0.0175	0.8082	0.0584	1.0351	0.7187
<b>Public</b>								
1. Canara Robeco Equity Hybrid Fund - Regular Plan - Growth	17.31	0.0607	0.0421	0.0176	0.8087	0.0589	1.0415	0.7229
2. SBI Equity Hybrid Fund - Regular Plan - Growth	18.41	0.0794	0.0568	0.0264	0.7615	0.0720	0.8349	0.5972
3. UTI Hybrid Equity Fund - Growth	14.94	0.0562	0.0376	0.0120	0.8707	0.0477	0.9659	0.6461

**Table: 5 Comparison of Financial Performance of Conservative Hybrid Fund**

Scheme Name	5 Years AAR	Sharpe Ratio	Treynor Ratio	Jensen Alpha Ratio	R-Squared	Information Ratio	Beta of Portfolio	Standard Deviation
<b><u>Private:</u></b>								
1. IDFC Regular Savings Fund - Regular Plan - Growth	9.51	0.0546	0.0189	0.0008	0.8452	-0.0127	0.8661	0.3005
2. Aditya Birla Sun Life Regular Savings Fund- Regular Plan - Growth	13.54	0.0235	0.0582	0.0354	0.0166	0.0154	0.8797	2.1768
3. DSP Regular Savings Fund - Regular Plan - Growth	10.04	0.0666	0.0251	0.0052	0.7187	0.0027	0.7358	0.2768
4. HDFC Hybrid Debt Fund - Growth	10.64	0.0579	0.0206	0.0026	0.8062	0.0164	0.9994	0.3550
<b><u>Public:</u></b>								
1. UTI Regular Savings Fund - Growth	11.22	0.0868	0.0298	0.0090	0.8616	0.0388	0.7634	0.2623
2. BOI AXA Conservative Hybrid - Regular Plan - Growth	10.12	0.0185	0.1196	0.0458	0.0024	0.0123	0.4505	2.9193
3. SBI Debt Hybrid Fund - Growth	9.95	0.0604	0.0254	0.0053	0.5781	0.0009	0.7169	0.3008
4. Canara Robeco Conservative Hybrid Fund - Regular Plan - Growth	9.36	0.0577	0.0219	0.0028	0.7065	-0.0130	0.7187	0.2727

Source: computed from secondary data



In selected aggressive hybrid category fund under private sector HDFC Balanced Fund (AAR 20.04%, Sharpe .0825, Treynor .0575, Alpha .0298,  $R^2$  .8025, IR .0960,  $\beta$  .9215) outshine in all parameters whereas in public sector SBI Equity Hybrid fund (AAR 18.41%, Sharpe .0794, Treynor .0421, Alpha .0264,  $R^2$  .7615, IR .072,  $\beta$  .8349) outshine in all financial performance parameters. Hence through the outlook of different measures of financial performance of selected fund in both the sector it can be evident to say that the private sector HDFC balanced is out performed by providing highest return in both the situation of total risk and systematic risk and portfolio diversification on the basis of market timing is more competent than other selected fund along with this it is more positively correlates with benchmark return and

relatively less volatile fund but except this other selected fund in the private sector is more volatile than public but they didn't generate return parallel to risk taken.

**ii. Conservative Hybrid Fund:**

Source: Computed

In selected conservative hybrid category fund under private sector DSP regular saving fund (AAR 10.04%, Sharpe .0666, Alpha .0052,  $\beta$  .7358,  $\sigma$  .2768) is outperformed by providing relatively high return with less risk premium taken in its own sector. Whereas in public sector UTI regular saving fund (AAR 11.22%, Sharpe .0868, Alpha .0090,  $\beta$  .7634,  $\sigma$  .2623) is performing best by providing slightly high return with relative less risk premium taken not only in public sector but also in private sector.

**Table 6**

**Overall Comparison of Hybrid Mutual Fund Schemes**

<b>H0: There is no significant difference in mean</b>				
<b>Financial Measures</b>	<b>Mean</b>		<b>t-test</b>	<b>P- Value</b>
	Public	Private		
<b>Annual Average Return</b>	13.0462	14.1585	-1.6055	0.0798
<b>Sharpe</b>	0.0600	0.0592	0.1201	0.4542
<b>Treynor</b>	0.0476	0.0384	0.9889	0.1804
<b>Jensen</b>	0.0170	0.0161	0.3069	0.3846
<b>R-Square</b>	0.6557	0.6938	-1.3506	0.1128
<b>Information Ratio</b>	0.0311	0.0372	-0.5667	0.2957

Source: Computed

For different categories of hybrid mutual funds, performance measures - Sharpe ratio, Treynor etc. has been calculated. To compare the overall performance of mutual funds of private and public sectors, mean value for all selected schemes under public and private sectors has been calculated

separately. To check the difference between public and private t-test has been applied.

P-value of test statistic for evaluation of difference in mean value of each measure of financial performance for all categories is greater than 0.05 (at 95% confidence level). Therefore null hypothesis has not been

rejected. It is apparent to say that there is no significant difference in the performance of open-ended mutual fund schemes between the private and public sector.

### **7. Conclusion:**

This study analyses the performance of 14 mutual fund schemes by using Sharpe & Treynor measure to know the total risk and systematic risk associated with the fund returns, Jensen Alpha is used to examine the portfolio diversification fund managers' efficiency as per market trend,  $R^2$  is used to measure the correlation of funds return with benchmark index return, Information ratio is used to measure the portfolio return over the benchmark return and beta & standard deviation is used to measure volatility and deviation in funds return. In the study the hybrid category funds are divided into two sub categories i.e. Aggressive Hybrid Fund and Conservative Hybrid Fund. In Aggressive Hybrid Fund private sector, HDFC Balanced Fund – Growth is outperformed and in Conservative Hybrid Fund. UTI Regular Savings Fund – Growth. But in the context of overall performance

of hybrid category fund there is no significant difference in the performance of public and private sector under hybrid category funds. From the analysis the study was also finds that performance persistence of mutual fund schemes are evident in the market and the private sector mutual funds are slightly more volatile fund than public sector.

This study has multiple implications. Investors is required to consider some statistical measures Sharpe, Treynor, Alpha,  $R^2$ , Information ratio, beta and standard deviation while taking investment decision in MFs to minimize their risk and maximize return. Secondly on the basis of study the moderate risk appetite investors make investment in aggressive hybrid fund (HDFC Balanced Fund) and low risk appetite investors may invest in conservative hybrid fund (UTI regular saving fund) Finally the study was provide insights to the MFs fund managers to focus on those schemes which are not performing and to formulate efficient portfolio allocation strategies in a better way to manage fund in broad market movements.

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