

Performance Evaluation of Selected Mutual Funds: A Private - Public Sector MF Comparison

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Abstract:

The present study attempts to evaluate the performance of selected Private and Public sector mutual funds against the risk free rate and benchmark index considering portfolio evaluation technique using Sharpe, Treynor and Jensen measure. The study was conducted for a period of 5 years that is from April 2013 to March 2018 (60 months). The sample size consists of 12 growth oriented schemes of 12 AMC in which 6 of them belong to Equity segment of private sector AMC and 6 of them belong to Equity segment of public sector AMC. In order to analyze the performance of the selected 12 equity oriented mutual funds, monthly Net Asset Value data is collected from Capital NAV database and daily closing values of SENSEX is collected as proxy index. Portfolio evaluation tools including Sharpe ratio, Jensen ratio, Treynor ratio is used to evaluate the performance of selected sample scheme. The findings of the study reveals that private sector mutual fund performs relatively better in short, medium and long term over public sector equity funds in terms of rate of return and risk adjusted return.

Key words: Mutual fund, public sector, private sector, performance evaluation

Introduction:

Mutual fund house can be narrated as a professionally managed organization which invests the fund by pooling money from investors who share the common financial goal to purchase securities. These investors may be of two types either the retail investor or an institutional investor in nature. Mutual funds carry few advantages compared to direct investment by individual in securities. The primary advantages of investing in mutual funds are that mutual fund has economies of scale, a higher level of diversifications, liquidity and major advantage is that the fund is managed by professionals. . There are tremendous developments in mutual fund as a product and also as investment tool. Currently mutual fund plays a critical role in the development of capital market.

Initiation of mutual fund in India was witnessed in the year 1964, Government of India took step to set up UTI (Unit trust of India) to operate as Asset Management Company in India. Since 1964 till 1986 UTI continued to be the single AMC in India which was then governed by the finance ministry. Post 1987, with public sector AMC entering into the market mutual fund got its popularity across India and people started accepting mutual fund as an investment. In the year 1993 SEBI formulated stipulated guidelines and regulatory frameworks for mutual fund and private companies along with foreign companies as a joint venture were allowed to launch mutual funds in the Indian mutual fund industry. Thus, the liberalization which marked the opening of Indian mutual fund industry to the private players along with the joint venture of foreign companies marked a beginning of new era in the Indian mutual fund industry. As a result of increased level of competition among the industry it resulted in improved efficiency. Post which number of AMC kept increasing identifying the potential business on the other hand different variety of mutual fund schemes were launched to meet the financial objective of retail and institutional investor in India.

The process of liberalization marked an era of private sector in the industry. The level of competition among the private and public sector companies was intense. Hence necessity of the evaluation of the performance of both the sector arrived, so that investors could make a call on their investment decision and gain fruitful returns to their investment .It would also help fund managers improve the performance of the underperforming assets.

Literature Survey:

The academic literature on evaluation of performance of mutual funds is vast. Some of them have been reviewed and listed in this section.

Sapar and Madava (2009) made a study to evaluate the performance of Indian Mutual Fund industry in a bear market using risk adjusted return analysis. In order to evaluate the performance of selected mutual funds, author selected traditional method of portfolio evaluation like Sharpe ratio, Treynor ratio, Jensen and Fama measures. Monthly closing NAV data was taken from AMFI from September 1998 to April 2002 which is nearly for 4 years. A total sample of 58 open ended schemes taken to evaluate. The studies observed that majority of the samples were able to generate a return which is over expected rate of returns in terms of total as well as systematic risk.

Sakshi Saxena and Himanshu Puri (2011) conducted a research to build a optimal portfolio model of Capital Asset Pricing Model and also analyzed the performance of optimal portfolio by traditional method of portfolio evaluation covering Sharpe-Treynor-Jenson Model. The study was depended on secondary data, and the daily NAV of monthly return of the selected funds were collected from 1st April 2006 to 31st march 2011 (60 months). The study observed that the cut off rate so that majority of the new securities that have an extra return to beta ratio above the cutoff rate can be built-in as optimal portfolio.

Singla and Singh (2000) in the study evaluated the performance of 12 growth oriented mutual funds. Secondary data collection was depended to evaluate the performance of selected mutual funds. Monthly NAV was collected for 12 selected mutual funds from 1992 to 1996 by applying mean return of the fund, and traditional approach o evaluate the portfolio performance like Sharpe, Treynor and Jensen measures. The BSE SENSEX was used as market proxy. The study highlighted that average monthly return for the sample mutual fund schemes was at -.0766 against monthly market return of .0027. The Sharpe index showed average value of 12 mutual funds was -0.142 and the average Sharpe index was -0.926 in case of market index. The study showed lower Treynor ratio which indicates that und did not generate adequate returns for each unit of risk taken. Jensen measure showed average value of alpha which was around -0.002 which indicates that the fund has not earned the expected rate of return and generated negative alpha.

Devi and Kumar (2010) conducted a study on performance of equity mutual funds in India during 2003 to 2007 using average rate of return considering compounded annual growth rate (CAGR) , standard deviation and risk-adjusted rate of return analysis. For the purpose of study author has selected 102 schemes were taken as sample for the study , Out of which 56 funds were equity diversified funds, 21 funds were equity index funds , 18 funds were equity tax saving funds and 7funds were equity technology fund. Author had made a comparative analysis of investment performance of public as well as private sector mutual funds, and the study revealed that there was no significant difference between the two sectors in India.

Anjum , Dhanda and Batra (2012) evaluated investment performance of selected open ended mutual fund schemes. The objective f the study is to evaluate the performance of selected mutual funds in terms of risk-return as well as risk-adjusted returns using rate of return , beta , standard deviation , Treynor and Sharpe ratios. The study was conducted from April 2009 to March 2011. The study concludes that out of twenty selected open ended mutual funds only three schemes including HDFC Top 200 , HDFC Capital Builder Fund, and UTI Opportunities Fund generated higher return than the benchmark.

Goyal (2015) analyzed the performance of top 10 mutual funds and also compared their performance with benchmark index , that is CNX Nifty and S&P, using Sharpe ratio, Treynor ratio and Jensen measure , the study revealed that all the schemes of the sample performed well as well as they generated higher and better market returns when compared to the market index. Among all the schemes Franklin India Opportunities Fund was found to be the best performer as it generated higher average returns at the same time possessed lower risk.

Gowri and Deo (2016) evaluated the performance of funds using risk-adjusted methods of performance evaluation and compared their returns with that of 91 day Treasury Bills risk free rate and market index (BSE 100).The study analyzed the performance of selected samples for 7 financial years that is from April 2007 to March 2014 by using risk adjusted performance measures such as Sharpe ratio , Treynor ratio and Jensen Alpha. The results of the study indicated that most of the sample funds underperformed the market index generating negative return in excess of risk-free rate.

Ahuja (2016) made an attempt to study the performance of Indian Mutual Funds in two separate periods consisting of both bull and bear period. The time period between January 8,2008 to March 9,2009 was taken as bear period where as the time frame from March 9, 2009 to June 30,2014 was taken into study as bull period, Sharpe ratio , Treynor ratio, information ratio, Sortino ratio and M square were the considered to evaluate risk adjusted performance, to study the market-timing and stock selection skills of the fund managers, Jensen measure, Fama net selectivity, Treynor-Mayzu an Henriksson- Merton model were used.The risk-adjusted measures of performance evaluation revealed that the funds performed differently under the two market conditions, the selected samples performed poorly particularly when the market condition was down (bear period).Moreover the risk-adjusted returns of the samples underperformed the market index during the study period , also most of the sample funds showed that fund manager possess stock selectivity skills but failed to be efficient market-timers throughout the study period.

Rathore and Singh (2017) conducted study to evaluate sector wise (public, private and foreign) performance of mutual funds in India for a time frame of 11 financial years ranging from 2003-2014.The entire study was categorized into three sub-periods depending upon the movements of SENSEX namely pre-period, inter-period and post-period. Sharpe ratio, Treynor ratio and Jensen measure was used to analyze the result of the study and it was observed that private sector outperformed the public and foreign sectors in pre, inter as well as post period. Also, it was noted that equity schemes performed better as compared to tax savings and balanced schemes.

Objective of the study:

1. To make a comparative risk and return analysis of Equity and Balanced using risk adjusted portfolio techniques of evaluation in short term
2. To make a comparative risk and return analysis of Equity and Balanced using risk adjusted portfolio techniques of evaluation in medium term
3. To make a comparative risk and return analysis of Equity and Balanced using risk adjusted portfolio techniques of evaluation in long term

Testable Hypothesis:

Short Term	Medium Term	Long Term
H0 : μ (PCAGR i- pCAGR i) = 0 H1 : μ (PCAGR i- pCAGR i) \neq 0	H0 : μ (PCAGR ii- pCAGR ii) = 0 H1 : μ (PCAGR ii- pCAGR ii) \neq 0	H0 : μ (PCAGR iii- pCAGR iii) = 0 H1 : μ (PCAGR iii- pCAGR iii) \neq 0
H0 : μ (PSR i- pSR i) = 0 H1 : μ (PSR i- pSR i) \neq 0	H0 : μ (PSR ii- pSR ii) = 0 H1 : μ (PSR ii- pSR ii) \neq 0	H0 : μ (PSR iii- pSR iii) = 0 H1 : μ (PSR iii- pSR iii) \neq 0
H0 : μ (PTR i- pTR i) = 0 H1 : μ (PTR i- pTR i) \neq 0	H0 : μ (PTR ii- pTR ii) = 0 H1 : μ (PTR ii- pTR ii) \neq 0	H0 : μ (PTR iii- pTR iii) = 0 H1 : μ (PTR iii- pTR iii) \neq 0
H0 : μ (PJR i- pJR i) = 0 H1 : μ (PJR i- pJR i) \neq 0	H0 : μ (PJR ii- pJR ii) = 0 H1 : μ (PJR ii- pJR ii) \neq 0	H0 : μ (PJR iii- pJR iii) = 0 H1 : μ (PJR iii- pJR iii) \neq 0

Where P= Public sector mutual funds, p=Private sector mutual funds, SR= Sharpe Ratio, TR= Treynor Ratio, JR= Jensen Ratio, i= Short run, ii=medium run and iii= long run

Research Methodology and Data Base Reference:

1. Description of the database and Description of sample profile:

Current study is empirical in nature. In order to evaluate the performance of selected mutual fund data is collected for a period of 60 months from April 2013 to March 2018 has been considered for the study. The sample of the study includes 12 growth scheme equity funds in which five of them belong to Equity segment private asset Management Company and five of them belong to Equity segment of public asset Management Company. In order to have uniformity in analysis only large capitalization category schemes were referred for the study. Secondary sources of data were considered from Capital NAV database. In order to land at the performance of the selected mutual funds, monthly NAV data of the sample funds were taken from Capital NAV database for the defined timeframe Short term, medium term and long term accordingly. Daily closing price from SENSEX is considered as proxy; The data for SENSEX same is fetched from Capital Line database. Monthly yield on 91Days Treasury bill is considered as the risk free rate of return.

Table 1 captures the brief detail about the sample selected and certain codes have been tagged against each fund for further proceedings.

Table 1 Profile of Sample Framework

Public Sector			Private Sector		
Fund Name	AMC	Code	Fund Name	AMC	Code
SBI Bluechip Fund (G)	SBI	E1	Aditya Birla SL Equity Fund (G)	Aditya Birla	E7
SBI Focused Equity Fund (G)	SBI	E2	Aditya Birla SL Midcap Fund - (G)	Aditya Birla	E8
SBI Large & Midcap Fund (G)	SBI	E3	Aditya Birla SL Tax Relief '96 (G)	Aditya Birla	E9
UTI-Equity Fund (G)	UTI	E4	AXIS Bluechip Fund (G)	Axis	E10
UTI-Long Term Equity Fund (G)	UTI	E5	AXIS Long Term Equity Fund (G)	Axis	E11
UTI-Mid Cap Fund (G)	UTI	E6	AXIS Midcap Fund (G)	Axis	E12

Source: Compiled by the author from Capital Nav Database and AMFI and the defined codes are assigned by the author for easy reference in further proceedings.

2. Measure used for evaluation of performance of select mutual fund:

A. Return Measures:

In order to evaluate the performance of selected mutual fund daily return of selected mutual fund is considered. Daily NAV of selected mutual fund is selected based on the NAV computation formula given: Daily average return = $\text{NAV } t - \text{NAV } t-1 / \text{NAV } t-1$. In addition to this, SENSEX return is calculated through following formula, Market Return = $\text{Index } t - \text{Index } t-1 / \text{Index } t-1$.

B. Risk Measures

Investments are subjected to market risk; this risk covers systematic risk and unsystematic risk. It is universal proven phenomenon that investor expect higher return for higher risk taken. Thus, the study covers all the factor of risk in considering standard deviation and beta. The study also evaluated the alpha return generated by the fund by meeting expected rate of return.

C. Standard Deviation:

Standard deviation is nothing by measurement of volatility which is expressed in terms of variation with respect to mutual fund return. Standard deviation is used to analyze total risk associated with the schemes. Higher the standard deviation of a fund, higher the risk that fund carry, lower the standard deviation, lower the risk the fund carry.

D. Beta:

The component of total risk is combination of systematic risk and unsystematic risk. Beta represents the systematic risk of the total risk component. Ideal accepted value of Beta is 1, if Beta is more than 1, the fund has more volatile to the market response, on the other hand if beta is less than 1, the fund has less volatile to the market response. Calculation of beta was necessary in current study to calculate Treynor and Jensen ratios.

E. Risk Free Rate:

Risk free interest rate is the return generated by the investment with zero amount of risk associated to the investment. This ideally helps in understanding the extent to which fund has generated return over and above the risk free rate of return. Usual researcher considers government Treasury bill is known for risk free rate securities as it is not riskier security. It has 91 days Treasury bill, 180 days Treasury bill. In this study yield of 91 days treasury bill taken in to account to analyze the difference between selected securities with risk free securities.

F. Sharpe Model:

Traditional approach to evaluate the performance of selected mutual fund, the idea behind the model is to consider risk as whole (Systematic risk and unsystematic risk) , risk free rate, fund return and standard deviation calculation of the fund is calculated to find out the value. The value represents the return generated by the fund for each unit to the investor. Higher the Sharpe ratio higher the return generated by the fund per unit of risk taken. In current study Sharpe ratio is calculated for short, medium and long term by calculating standard deviation for the defined period.

G. Treynor Model:

Traditional approach to evaluate the performance of selected mutual fund, the model is also referred as reward to volatility model as this model defines the return generated against per unit of risk taken. Beta evaluated the tendency of a mutual fund return to change in response to changes in return for the overall market. In current study, Treynor ratio is calculated for short, medium and long term by calculating the Beta. (Value of Beta computed separately for short, medium and long term).

H. Jensen Model:

Jensen model is another traditional approach to evaluate the performance of selected mutual fund, the model defines the expected rate of return that is required to generate by the fund using CAPM model. Once the expected rate of return is generated then the actual return of the fund is subtracted to arrive at Jensen model. In current study, Jensen ratio is calculated for short, medium and long term by calculating the expected rate of return. Expected rate of return is computed separately for short, medium and long term.

Empirical Analysis and Results:

This section describes the discussion of empirical results of the study obtained by using risk and return analysis and risk adjusted performance measure.

Performance evaluation of select mutual fund across tenure as per Sharpe Model

Public Sector Mutual Fund:

Table 2: Table showing results of Sharpe ratio for public sector funds across tenure

Fund Code	CAGR _i	SD _i	SR _i	CAGR _{ii}	SD _{ii}	SR _{ii}	CAGR _{iii}	SD _{iii}	SR _{iii}
E1	10.8733	0.6456	0.0403	9.0768	0.8021	0.0276	18.1598	0.8468	0.0652
E2	21.4342	0.6736	0.0942	12.2065	0.7742	0.0431	19.3285	0.7816	0.0751
E3	12.9746	0.7339	0.0451	9.9059	0.9267	0.0284	20.3696	0.9257	0.0686
E4	12.1174	0.6173	0.0511	7.2884	0.8333	0.0188	16.7817	0.8632	0.0586
E5	9.6685	0.6918	0.0289	7.4049	0.8499	0.0191	15.5995	0.8664	0.0536
E6	13.1083	0.8769	0.0405	10.3753	0.9769	0.0292	27.7839	0.97	0.0911
Average	13.3627	0.70652	0.05002	9.3763	0.86052	0.0277	19.6705	0.87562	0.0687

Private Sector Mutual Fund:**Table 3: Table showing results of Sharpe ratio for private sector funds across tenure**

Fund Code	CAGR _i	SD _i	Sr _i	CAGR _{ii}	SD _{ii}	SR _{ii}	CAGR _{iii}	SD _{iii}	SR _{iii}
E7	9.9103	0.6576	0.0357	11.9344	0.8805	0.0378	22.0394	0.929	0.0745
E8	10.3361	0.7788	0.031	12.3671	0.9465	0.0375	23.1703	0.9316	0.0784
E9	18.1642	0.6184	0.0849	11.618	0.8242	0.0384	22.6303	0.8627	0.0817
E10	18.1253	0.6101	0.0839	7.8716	0.8417	0.0213	15.2915	0.8796	0.0517
E11	16.7892	0.6369	0.0727	8.6799	0.8051	0.0257	23.2816	0.8346	0.0868
E12	20.0288	0.7165	0.0832	9.5763	0.8872	0.0279	22.1204	0.9114	0.076
Average	15.559	0.66972	0.06523	10.3412	0.8642	0.03143	21.4223	0.89148	0.07485

Note: CAGR_i=CAGR for Short term, SD_i=Standard Deviation for short term, SR_i= Sharpe Ratio for Short term, CAGR_{ii}=CAGR for Medium Term, SD_{ii}=Standard Deviation for Medium term, SR_{ii}= Sharpe Ratio for Medium term, CAGR_{iii}=CAGR for long Term, SD_{iii}=Standard Deviation for Long term, SR_{iii}= Sharpe Ratio for Long term.

Performance evaluation of select mutual fund across tenure as per Treynor Model**Public sector mutual funds:****Table 4: Table showing results of Treynor ratio for public sector funds across tenure**

Fund Code	CAGR _i	β_i	TR _{ii}	CAGR _{ii}	β_{ii}	TR _{ii}	CAGR _{iii}	β_{iii}	TR _{iii}
E1	10.8733	0.9247	0.0282	9.0768	0.883	0.025	18.1598	0.8706	0.0634
E2	21.4342	0.6841	0.0927	12.2065	0.6899	0.0484	19.3285	0.611	0.0961
E3	12.9746	0.9671	0.0342	9.9059	0.9682	0.0271	20.3696	0.9088	0.0699
E4	12.1174	0.8219	0.0384	7.2884	0.9118	0.0172	16.7817	0.8895	0.0569
E5	9.6685	0.9711	0.0206	7.4049	0.9408	0.0173	15.5995	0.8982	0.0517
E6	13.1083	0.9616	0.037	10.3753	0.922	0.0309	27.7839	0.8129	0.1087
Average	13.3627	0.88842	0.04185	9.3763	0.88595	0.02765	19.6705	0.83183	0.07445

Private sector mutual funds:**Table 5: Table showing results of Treynor ratio for private sector funds across tenure**

Fund Code	CAGR _i	β_i	TR _{ii}	CAGR _{ii}	β_{ii}	TR _{ii}	CAGR _{iii}	β_{iii}	TR _{iii}
E1	9.9103	0.9055	0.0259	11.9344	0.9424	0.0353	22.0394	0.9211	0.0751
E2	10.3361	0.8588	0.0281	12.3671	0.909	0.039	23.1703	0.787	0.0928
E3	18.1642	0.7463	0.0703	11.618	0.8592	0.0369	22.6303	0.8496	0.083
E4	18.1253	0.8445	0.0606	7.8716	0.9324	0.0192	15.2915	0.9108	0.0499
E5	16.7892	0.8164	0.0567	8.6799	0.8365	0.0247	23.2816	0.8052	0.09
E6	20.0288	0.7316	0.0815	9.5763	0.797	0.031	22.1204	0.7448	0.093
Average	15.559	0.81718	0.05385	10.3412	0.87942	0.03102	21.4223	0.83642	0.08063

Note: CAGR_i=CAGR for Short term, β_i =Beta for short term, TR_i= Treynor Ratio for Short term, CAGR_{ii}=CAGR for Medium Term, β_{ii} =Beta for Medium term, TR_{ii}= Treynor Ratio for Medium term, CAGR_{iii}=CAGR for long Term, β_{iii} =Beta for Long term, TR_{iii}= Treynor Ratio for Long term.

Performance evaluation of select mutual fund across tenure as per Jensen Model

Public sector mutual funds:

Table 6: Table showing results of Jensen ratio for public sector funds across tenure

Fund Code	CAGR _i	β_i	JR _{ii}	CAGR _{ii}	β_{ii}	JR _{ii}	CAGR _{iii}	β_{iii}	TR _{iii}
E1	10.8733	0.9247	0.0005	9.0768	0.883	0.0257	18.1598	0.8706	0.0385
E2	21.4342	0.6841	0.0023	12.2065	0.6899	0.0281	19.3285	0.611	0.0468
E3	12.9746	0.9671	0.0335	9.9059	0.9682	0.0247	20.3696	0.9088	0.0422
E4	12.1174	0.8219	0.0297	7.2884	0.9118	0.0104	16.7817	0.8895	0.0151
E5	9.6685	0.9711	0.0256	7.4049	0.9408	0.0139	15.5995	0.8982	0.0456
E6	13.1083	0.9616	0.041	10.3753	0.922	0.0183	27.7839	0.8129	0.0444
Average	13.3627	0.88842	0.0221	9.3763	0.88595	0.02018	19.6705	0.83183	0.03877

Private sector mutual funds:

Table 7: Table showing results of Jensen ratio for private sector funds across tenure

Fund Code	CAGR _i	β_i	JR _{ii}	CAGR _{ii}	β_{ii}	JR _{ii}	CAGR _{iii}	β_{iii}	JR _{iii}
E1	9.9103	0.9055	0.0025	11.9344	0.9424	0.015	22.0394	0.9211	0.0262
E2	10.3361	0.8588	0.046	12.3671	0.909	0.0278	23.1703	0.787	0.0384
E3	18.1642	0.7463	0.0085	11.618	0.8592	0.0184	22.6303	0.8496	0.0332
E4	18.1253	0.8445	0.0107	7.8716	0.9324	0.0083	15.2915	0.9108	0.0209
E5	16.7892	0.8164	-0.0047	8.6799	0.8365	0.0086	23.2816	0.8052	0.0165
E6	20.0288	0.7316	0.0111	9.5763	0.797	0.021	22.1204	0.7448	0.0612
Average	15.559	0.81718	0.01235	10.3412	0.87942	0.01652	21.4223	0.83642	0.03273

Note: CAGR_i=CAGR for Short term, β_i =Beta for short term, JR_i= Jensen Ratio for Short term, CAGR_{ii}=CAGR for Medium Term, β_{ii} =Beta for Medium term, JR_{ii}= Jensen Ratio for Medium term, CAGR_{iii}=CAGR for long Term, β_{iii} =Beta for Long term, JR_{iii}= Jensen Ratio for Long term.

T test Value for paired sample:

Result of the Hypothesis:

Table 8: Table showing results of tested Null Hypothesis across tenure for the entire model:

CAGR	Sharpe Ratio	Treynor Ratio	Jensen Ratio
P Value of Short Term for the period of 2017-18 & Result of Null Hypothesis			
0.486638 (Accepted)	0.420529(Accepted)	0.505239(Accepted)	0.444433(Accepted)
P Value of Medium Term for the period of 2015-18 & Result of Null Hypothesis			
0.123179(Accepted)	0.210967(Accepted)	0.321632(Accepted)	0.117967(Accepted)
P Value of Long Term for the period of 2013-18 & Result of Null Hypothesis			
0.401892(Accepted)	0.412316(Accepted)	0.466982(Accepted)	0.392357 (Accepted)

Interpretation:

The results in the above table indicates that the sample means of 12 selected equity oriented mutual fund of 2 segment public and private sector funds. The two tailed test observed that with upper & lower critical values from t distribution with 99 degree of freedom and 0.05 level of significance is 1.970 and -1.970 respectively in the critical value region. The results are similar for significance level of 0.01. The average CAGR of public sector mutual fund is 13.36272 over 15.55898 of private sector in short term. The average CAGR of public sector mutual fund is 9.3763 over 10.34122 of private sector in medium term. The average CAGR of public sector mutual fund is 19.6705 over 21.42225 of private sector in short term. Thus the performance of private sector mutual fund is consistent across tenure. With the P value 0.486638, 0.123179 and 0.401892 respectively in short, medium and long term denotes that there is there is no statistical significance in terms of the performance of private and public sector as Null hypothesis across the tenure is being accepted. The two tailed test observed that with upper & lower critical values from t distribution with 99 degree of freedom and 0.05 level of significance is 1.970 and -1.970 respectively in the critical value region. The results are similar for significance level of 0.01.

In terms of Sharpe-Treynor-Jensen model also results are inline in short-medium-long term as the P value is more than the significant level of 0.05. With the P value being less than the significant level in short, medium and long term which indicates that there is there is no statistical significance in terms of the performance of private and public sector as Null hypothesis across the tenure is being accepted The two tailed test observed that with upper & lower critical values from t distribution with 99 degree of freedom and 0.05 level of significance is 1.970 and -1.970 respectively in the critical value region. The results are similar for significance level of 0.01. The performance of Private sector mutual fund and Public sector mutual funds are inline as per the statistical evidence mentioned above. Thus based on P value, T test is not significant to prove the performance of both the sector as the results are consistent across tenure. However, based on risk and return analysis further the summary of findings of the study is being discussed.

Summary of findings:**Table 9: Table showing summary of findings from the current study:**

Average Values	CAGR	Sharpe Ratio	Treynor Ratio	Jensen Ratio	Recommendation Rank				
					CAGR	SR	TR	JR	Overall
Performance Evaluation of selected funds in Short Term- 2017-18									
Public sector	13.36272	0.050017	0.04185	0.01235	2	2	2	2	2
Private sector	15.55898	0.065233	0.05385	0.0221	1	1	1	1	1
Performance Evaluation of selected funds in Medium Term- 2015-18									
Public sector	9.3763	0.0277	0.02765	0.016517	2	2	2	2	2
Private sector	10.34122	0.031433	0.031017	0.020183	1	1	1	1	1
Performance Evaluation of selected funds in Long Term- 2013-18									
Public sector	19.6705	0.0687	0.07445	0.032733	2	2	2	2	2
Private sector	21.42225	0.07485	0.080633	0.038767	1	1	1	1	1

Interpretation: As the objective of the current study is to evaluate the performance of selected mutual fund across tenure, the selected sample size is evaluated by three portfolio evaluation techniques namely Sharpe, Treynor and Jensen. Current study observes consistent behavior in the performance across the tenure. In all the tenure Private sector mutual fund has performed better in terms of compounded annual growth rate, Sharpe-Treynor-Jensen model respectively. Study was made on 12 mutual funds of 4 AMC and based on the results on an average private sector mutual fund generated 21.4% CAGR in long term against 19.6% of CAGR in case of public sector fund. With reference to risk and return analysis private sector mutual funds have generated higher return to the investor for each unit of risk taken in long term with Sharpe ratio of 0.07485 against Sharpe ratio of 0.0687 in public sector fund. Treynor ratio was also recorded at 0.080633 against 0.07445 in public sector. In terms of CAPM and Jensen model, both the segment has generated higher return than the expected rate of return with the positive alpha. Private sector mutual funds Jensen ratio stood at 0.038767 against the Jensen ratio of 0.032733 in public sector.

From the T test statistical evidence it is clear that the performance of private sector and public sector are inline and there was found the statistical evidence in the performance of both private and public sector mutual fund in short, medium and long term. The study concludes that , considering CAGR, Sharpe-Treynor-Jensen model private sector

mutual fund tend to outperform the public sector mutual fund in equity category. The performance is consistent in short- medium-long tenure. The investor are suggested to refer and select private asset management company over public asset management company to generate higher rate of return based on the risk profile of the fund.

Conclusion:

Current study concludes that, on an average in terms of rate of return and risk-return relationship it is observed that private sector asset management company outperform than the public sector asset management company consistently in short-medium-long term. The study also observed that the return generated based on per unit of risk taken by the investor which is expressed in terms of Sharpe-Treynor model, the results are also consistent across tenure, that is mutual fund belonging to private sector asset management company generate higher return per unit of risk taken over the mutual fund belonging to public sector asset management company. Even though past performance do not predict the future performance of the fund, the current study concludes that based on the past historic data, it is expected that mutual fund belonging to private sector asset management company perform better over mutual fund belonging to public sector asset management company.

Research Implications:

Each research focuses on some research implication; this section shall describe the research implications from the current study. Firstly, in terms of rate of return both private and public sector mutual funds have outperformed the market. That means, funds belonging to private sector and funds belonging to public sector generated higher return than market return. However, in terms of relative performance public sector funds are underperformed than the private sector mutual fund in terms of compounded annual growth rate and Risk-Adjusted return. AXIS Long Term Equity Fund, E11-Code has generated higher return for each unit of risk taken in long term with higher Sharpe of 0.0868 and UTI-Mid Cap Fund (G), E6-Code has generated higher risk return for each unit of risk taken in long term with higher Sharpe 0.0911. Below is the list of funds performance and the rank assigned based on the performance in short-medium-long term .

Table 10: Table showing rank list of the selected mutual fund across tenure:

Mutual Fund	Code	Short Term Rank	Medium Term Rank	Long Term Rank
Aditya Birla SL Equity Fund (G)	E1	10	3	7
Aditya Birla SL Midcap Fund - (G)	E2	11	4	4
Aditya Birla SL Tax Relief '96 (G)	E3	2	2	3
AXIS Bluechip Fund (G)	E4	3	10	12
AXIS Long Term Equity Fund (G)	E5	5	9	2
AXIS Midcap Fund (G)	E6	4	7	5
SBI Blue Chip Fund (G)	E7	8	8	9
SBI Focused Equity Fund (G)	E8	1	1	6
SBI Large & Midcap Fund (G)	E9	9	6	8
UTI-Equity Fund (G)	E10	6	12	10
UTI-Long Term Equity Fund (G)	E11	12	11	11
UTI-Mid Cap Fund (G)	E12	7	5	1

Limitation of the Study:

Each research comes with certain limitations within it. Current study also carries some limitations which are discussed here. Current study is dependent on secondary data and the authenticity of the data cannot be assured. The study covers only 4 Asset Management Company and 12 randomly selected mutual funds in equity category, thus the result of the study do not give the exact picture of the performance of the mutual fund as a whole. The study is conducted for 5 year period from 2013 till 2018 which is again restricted to long-medium-short term definition of the research framework.

Scope for further research:

The study suggests few aspects from the point of view of further research, such as

- A study can be conducted to understand the market time and fund's performance
- The time frame of the current study can be altered to 120 months and analyze the performance of the fund in both category.
- A study can be done taking all the equity funds of selected AMC to understand the performance from AMC perspective
- Current study covers only 12 mutual funds, further a study can be conducted having large number of data to give macro picture of the performance of the mutual fund in both the category.

References:

Amir Rehmani (2018) *Performance Evaluation of Select Mutual Funds: A Public - Private Comparison*, Indian Journal of Finance. September 2018 Page 41-54

AMFI.(n.d.b.). *Know about AMFI*. Retrieved from <https://www.amfiindia.com/know-about-amfi>

Vignesh S Gaonkar (2019) "*Performance and Risk Evaluation of selected mutual Fund of Franklin AMC*" IUP publications with ISSN Number 0972-5113, Volume XVI, August-September Issue 2019

Vignesh S Gaonkar (2018) "*Systematic Risk: The impact of the length of estimation interval on Beta Value*" IUP publications with ISSN Number 0972-5113, Volume XV, August 2018

Dr. V Chitra and Dr. T Hemalatha (2018) "Risk & return analysis of performance of mutual fund schemes in India" International Journal of Applied Research with ISSN Online 2394-5869, Volume 4 (1), 2018

Udhayasankar and K. Maran (2018) "*Mutual fund investors perception in India-a study*" International Journal of Engineering & Technology Volume 7 (1.1) 2018

Dhanda, S K Batra (2010) "*Performance evaluation of selected open- ended mutual funds In India*", International Journal of Marketing, Financial service and Management research.

Kumar and Devi (2010) "*Performance evaluation of equity mutual funds*" , The Journal of Indian management and strategy.

Himanshu Puri and Sakshi Saxena (2011) "*Performance evaluation of selected mutual funds*" Ingole, R. P. Gondwana University, Gadchiroli. *System*, 4(4), 80.