

Comparison of Financial Performance of Selected Mutual Funds of Private Sector Sponsored Bank AMCs and Public Sector Sponsored AMCs

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ABSTRACT

Mutual fund is a type of investment in which several people who have same investment goal come together collectively to invest their money. Investors invest in various mutual funds according to their risk appetites. In the current project, Net Asset Values (NAVs) of mutual funds have been collected for the purpose of analysis from <https://www.amfiindia.com/>. The monthly opening and closing value of NAVs have been taken to calculate monthly returns. In a similar way yearly returns are calculated. The returns calculated have then been used for analysis using statistical tools such as t-test and z-test. Hypotheses testing have been done to find out whether or not there is significant difference between these categories of returns. The comparative analysis of funds have been made. Graphical analysis of Standard deviation, Beta, Treynor ratio, Jensen ratio and Sharpe ratio have also been done for the selected mutual funds. The study is basically on the 3 broad categories of Equity mutual funds which are small cap mutual funds, mid cap mutual funds, and large cap mutual funds. For each type 2 private and 2 public mutual funds have been taken. The comparative analysis have been done to state whether there is significant difference between returns of private and public sector mutual funds for the period of 5 years. Comparison of long-term performance of mutual funds of private sector sponsored bank AMCs and public sector sponsored bank AMCs have been done on the secondary data using statistical and graphical tools.

INTRODUCTION

Mutual fund is defined as “a fund in the form of a trust by a sponsor, to raise money by the trustees through the sale of units to the public, under one or more schemes, for investing in securities in accordance with these regulations” according to regulations made by SEBI in 1993. The mutual fund industry in India is regulated by a regulatory body namely Association of Mutual Funds in India (AMFI). Mutual funds could be dealt with ease i.e. could be easily bought and sold. The investor could buy MFs from the fund company directly or with the help of third party. There are various types of mutual funds. They can be classified as on the basis of Structure, on the basis of Nature, on the basis of Investment objective, etc.

TYPES OF MUTUAL FUNDS

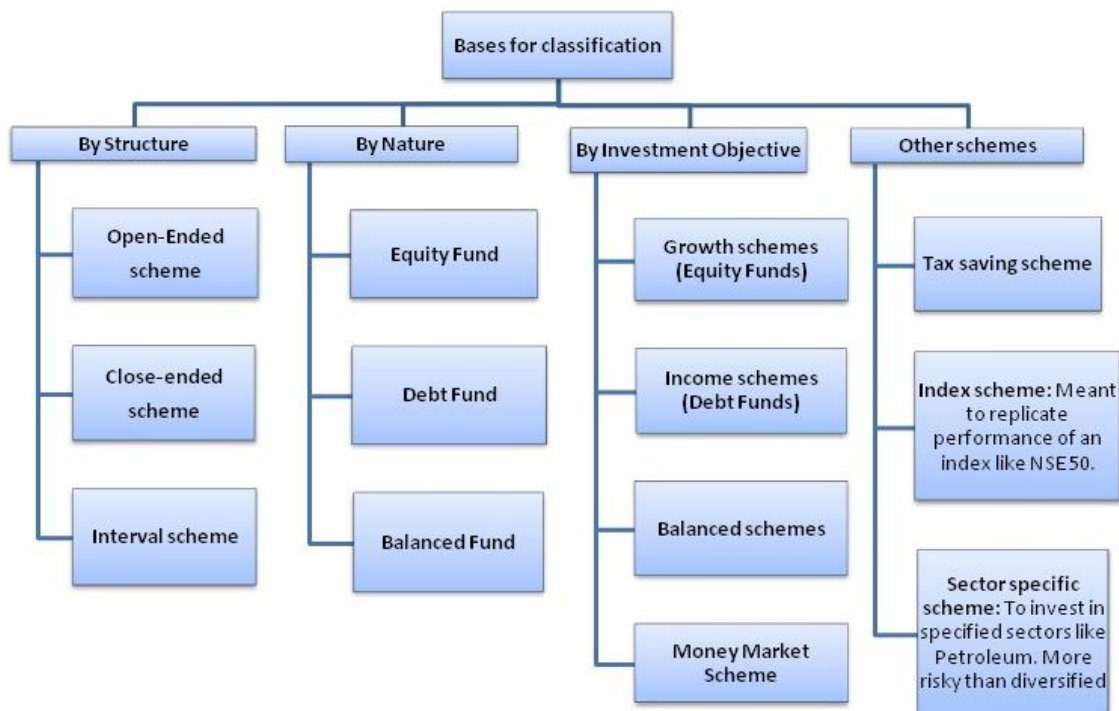


Table 1: Types of Mutual Funds

Source: <https://www.klaggarwal.com/direct-tax/types-of-mutual-funds/>

MEASURING THE PERFORMANCE OF MUTUAL FUNDS

Standard Deviation:-The riskiness of the mutual fund is represented by the standard deviation. It is a percentage. Higher the standard Deviation means higher volatility of the Fund and more volatility of the fund implies higher risk is associated with the fund.

Beta:-The beta measures the relative risk of a mutual fund. Beta can have any value above or below zero. Beta tells us how risky a mutual fund is compared to the benchmark. Beta value of value higher than unity implies that portfolio risk of schemes is higher than the market risk and vice versa.

Sharpe Ratio:-Sharpe ratio is the excess returns of a mutual fund over the risk-free returns divided by the standard deviation. The excess returns are calculated by subtraction of portfolio returns and risk-free returns The greater Sharpe ratio of a fund implies better its risk-adjusted performance of Mutual Fund.

Sharpe ratio = [Fund Return – Risk-Free Return]/Standard Deviation of the fund

Jenson Ratio:-Jenson ratio is the performance ratio in which the returns of the fund over its index are calculated. It uses CAPM model. The ratio is calculated by subtracting beta of the fund from difference between return of fund and risk-free return and multiplying the result by difference of index return and risk free return. The higher the ratio, the better the risk-adjusted returns.

Jensen's Alpha= [(Fund return-Risk free return)-(funds beta)*(Index return-risk free return)]

A positive alpha represents better fund vice versa negative alpha fund returns are less than market returns.

Treynor ratio:- Treynor's ratio measures performance regardless of personal preferences of risk of individuals. Treynor uses beta which is relationship between portfolio returns and market rates of returns. The beta coefficient is measure of volatility of a mutual fund's portfolio to the market. The greater the line's slope, the better the risk-return tradeoff.

Treynor Ratio= (P- R)/ β
where, P=return of portfolio
β=beta
R=risk-free rate

LITERATURE REVIEW

Kumar, N. L., & Devi, V. R. (2010)-paper evaluates performance of 261 mutual funds private and public by using Average Ratio of returns, Standard deviation, Risk/Return for five years(2003-2007) to find out if there is difference in returns of public and private Mutual Funds.

Brar, S., & Bawa, S.K. (2011) - mutual fund schemes of 3 private and 2 public sectors have been studied in period 2000-2010 in terms of their growth and dividend options and concluded growth options are good. Open ended schemes are more adopted in both growth and dividend options. Sharpe's Ratio of schemes showed that public sector is better at dealing total risk while private sector gives more returns.

Kavidayal, P.C. & Kandpal, V. (2011) - analysis has been done on 3 private and 3 public sector companies on 9 schemes of each sector. Beta, Treynor, Sharpe and Jensen has been calculated of the secondary data. Private sector has performed better than public sector according to calculations. It also stated that investment for a longer period of time gives better returns.

Alekhyia, P. (2012). evaluated equity scheme of 3 years. The study found market sensitivity of funds using Beta and ranked funds using Jensen, Sharpe, and Treynor Ratio. It analysed trends in return and also the performance of public and private mutual funds.

Tarini, & Gautam, J. (2013) - monthly closing NAV values between April 2010 to March 2012 of 2 private and 2 public sector companies have been analysed by Sharpe Ratio, Treynor Ratio, Jensen ratio and Standard deviation and it showed they were growing in same direction as market but market and companies didn't yield adequate returns. Private sector performed better.

Sharma, R.G. (2013) - studies performance of top 5 growth fund and 10 Index fund schemes relative to SENSEX and NIFTY. It showed that mutual fund schemes performed better than stock market. Mutual funds give higher returns at moderate risks. Longer the time of investment, higher the returns given by it. Naik, R. M., & Senapathy, M. R. (2013). - this paper assessed performance of various mutual funds and their schemes like equity, income, balance funds and their returns. Performance is compared with SBI fund. It is performing very well and stated companies should not focus only on high net worth investors but also on investors

Bansal, D., Goyal, S. (2013)- studied fall and rise in the journey of mutual funds. It was conducted to study the performance of different types of mutual funds in India and concluded that equity funds overperform income funds.

Objectives of Study

- Comparison of long-term performance of mutual funds of private sector sponsored bank AMCs and public sector sponsored bank AMCs.

RESEARCH METHODOLOGY

Research Problem:- Comparison of performance of mutual funds of private sector sponsored bank AMCs and public sector sponsored bank AMCs.

Universe Of Study:- All the mutual funds of India.

Population Of Study:- Selected mutual fund schemes of private sector sponsored AMCs and public sector sponsored AMCs.

Hypothesis For The Study

Hypothesis Testing 1

Null:- There is no significant difference between yearly returns of all Private Sector and Public Sector Mutual funds.

Alternate:- There is significant difference between yearly returns of all Private Sector and Public Sector Mutual funds. t-test has been used for the comparison of both the funds.

Hypothesis Testing 2

Null:- There is no significant difference between 5 yearly returns of all Private Sector and Public Sector Mutual funds.

Alternate:- There is significant difference between 5 yearly returns of all Private Sector and Public Sector Mutual funds. t-test has been used for the comparison of both the funds.

Data Sources:-Secondary data has been used for current research work and all the Net Asset Value (NAV) information has been taken from the secondary sources of data such as <https://www.amfiindia.com>, [moneycontrol.com](https://www.moneycontrol.com) and other mutual fund bank websites.

Period Of Study:-The timeline for the current research study is of 5 Years that is from 1st January 2017 to 31st December 2021.

Sample And Sampling Techniques:-The data of various mutual fund schemes of public sector bank sponsored AMC's and private sector bank sponsored AMC's was taken. 2 private and 2 public sector mutual fund schemes has been used from each category of equity funds which are small cap, mid cap and large cap funds. A total of 12 funds have taken for analysis. The data would be analyzed by using most suitable statistical methods.

Statistical Tools Used

t-test, z-test and Bar Graphs have been used. Bar graphs has been used to depict the differences between fund ratios and the benchmark returns that is for period of 3 years.

Parametric t-tests and z-tests are tests which are used for the comparison of the means of two samples. The tests are used to test the null hypothesis which is there is no difference between two samples' means i.e for equality of the means of two groups (samples). The calculation method differs as the samples varies.T-test is used for testing the hypothesis of the sample that has size less than 30. z-test is used for testing the hypothesis of the sample that has size more than 30.

Paired z-test and t-test

Paired samples means the samples are of same size i.e $n_1=n_2$. The mean of n observations is studied.

$$t = \frac{(x - \mu)}{(s/\sqrt{n})}$$

s=standard deviation of sample.

x=population mean

μ =sample mean

The t statistic follows a Student distribution with n-1 degrees of freedom.

For the z test, the statistic is as follows where σ^2 is the variance

$$z = \frac{(x - \mu)}{(\sigma/\sqrt{n})}$$

σ =standard deviation of sample.

x=population mean

μ =sample mean

The z statistic follows a normal distribution.

ANALYSIS AND INTERPRETATION

Hypothesis testing

Testing of hypothesis 1

Comparison of Yearly returns

Table: Comparison of yearly returns of all private sector and public sector mutual funds

z-Test: Two Sample for Means		
	<i>Yearly Returns Private Sector</i>	<i>Yearly Returns Public Sector</i>
Mean	21.16852	21.95274
Known Variance	615.9014	639.7866
Observations	30	30
Hypothesized Mean Difference	0	
Z	-0.12121	
P(Z<=z) one-tail	0.451761	
z Critical one-tail	1.644854	
P(Z<=z) two-tail	0.903521	
z Critical two-tail	1.959964	

Mean: Private Mutual Funds Mean:21.16852

Public Mutual Funds Mean:21.95274

Variance: Private Mutual Funds variance: 615.9014

Public Mutual Funds variance: 639.7866

Hypothesized mean difference: 0

Z Stat : -.12121

P(Z<=z) two-tail: The p-value using Z=-.12121. Here, p = .903521. This is larger than 0.05, so Null hypothesis is accepted.

z Critical two-tail: z Critical value at 95% confidence is 1.959964. test statistic z is less than critical value of z, null hypothesis cannot be rejected. We cannot claim that the two population means are different.

Hypothesis testing 2

Comparison of 5 Yearly returns

Table: Comparison of 5 yearly returns of all private sector and public sector mutual funds

t-Test: Paired Two Sample for Means		
	<i>5 Yearly Returns Private Sector</i>	<i>5 Yearly Returns Public Sector</i>
Mean	141.0229	143.7073
Variance	3538.134	1307.525
Observations	6	6
Pearson Correlation	0.063718	
Hypothesized Mean Difference	0	
Df	5	
t Stat	-0.09725	
P(T<=t) one-tail	0.463153	
t Critical one-tail	2.015048	
P(T<=t) two-tail	0.926305	
t Critical two-tail	2.570582	

Mean: Private Mutual Funds Mean:141.0229

Public Mutual Funds Mean: 143.7073

Variance: Private Mutual Funds variance: 3538.134

Public Mutual Funds variance:1307.525

Degrees of Freedom: df=n-1=5

Hypothesized mean difference: 0

T Stat :-0.09725

P(T<=t) two-tail: The p-value using t = -0.09725 with 5 degrees of freedom. Here, p = .926305. This is larger than 0.05, therefore Null hypothesis is not rejected. It cannot be claimed that that the two population means are different.

t Critical two-tail: t Critical value Calculator for 9 degrees of freedom at 95% confidence level is 2.262157. test statistic t is less than critical value of t , null hypothesis s accepted. It cannot be claimed that the two population means are different.

PERFORMANCE ANALYSIS

Performance Analysis of Small Cap Funds

SBI Small Cap Fund-Direct plan-Growth has the highest standard deviation means highest risk followed by ICICI Prudential Small Cap Fund- Direct Plan-Growth and Kotak Small Cap Fund- Direct Plan-Growth has the lowest Standard deviation almost less than category average and lowest risk.

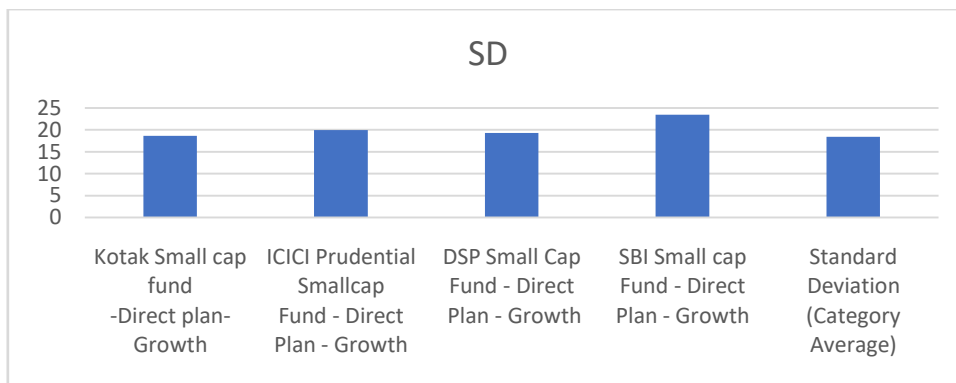


Figure 1: Standard deviation of selected small cap funds and category average

Beta value of value higher than unity implies that portfolio risk of schemes is higher than the market risk and vice versa. All the chosen funds have Beta values less than 1 it means they have less risk than market.

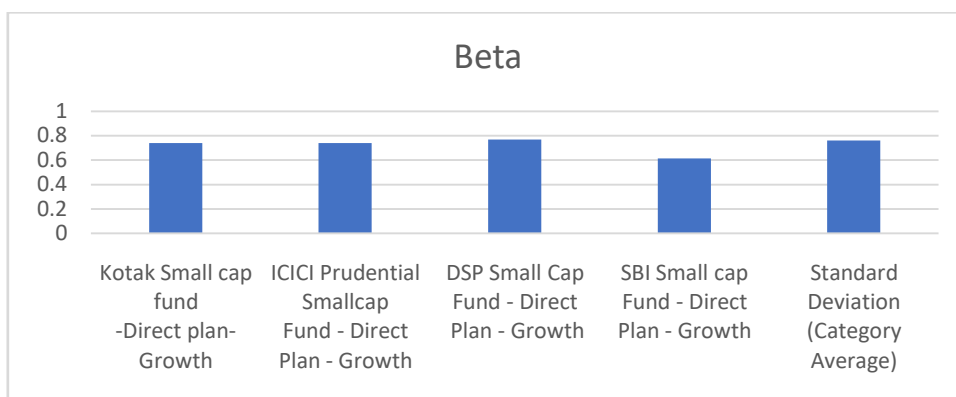


Figure 2: Beta of selected small cap funds and category average

Higher positive values of Sharpe Ratio are found in Kotak small cap Fund-Direct plan-Growth and ICICI Prudential Small cap fund-Direct plan-Growth. Private Mutual Funds have higher values of Sharpe ratio.

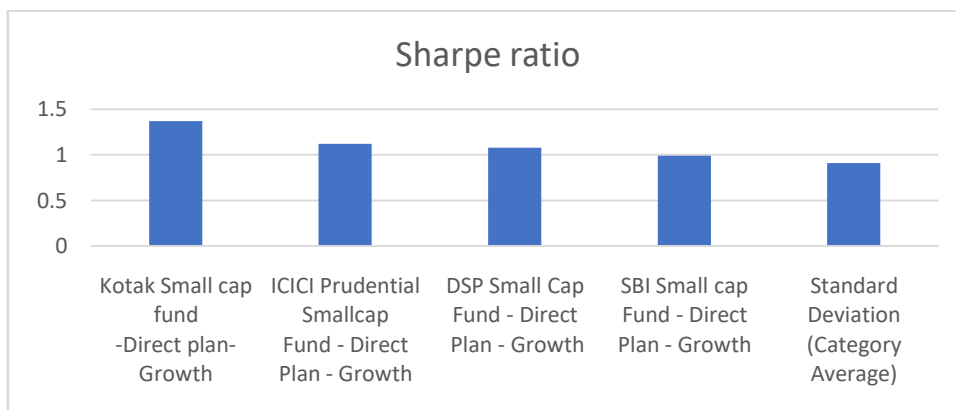


Figure 3: Sharpe Ratio of selected small cap funds and category average

Here the observations were similar to that of Sharpe ratio with Private Sector Mutual Fund schemes outperforming Public Sector Mutual Fund Schemes except SBI Small cap Fund-Direct plan-Growth. SBI Small cap Fund has highest treynor ratio. A Mutual fund with higher Treynor ratio result means a portfolio is a more suitable for investment.

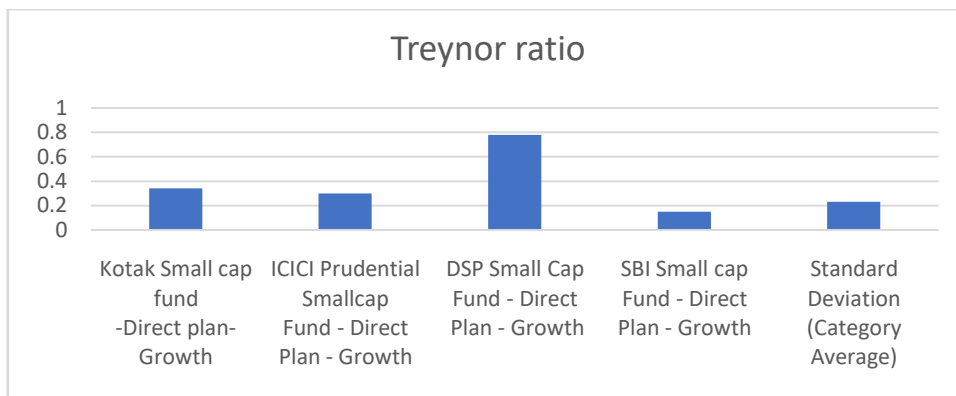


Figure 4: Treynor Ratio of selected small cap funds and category average

Kotak Small Cap Fund-Direct plan-Growth and ICICI Prudential Smallcap Fund-direct plan-Growth has highest Jensen ratio. Private sector mutual fund schemes showed better performance in comparison to Public sector mutual fund schemes as per the results shown by Jensen measure. The higher the ratio, the better the risk-adjusted returns and better the fund.

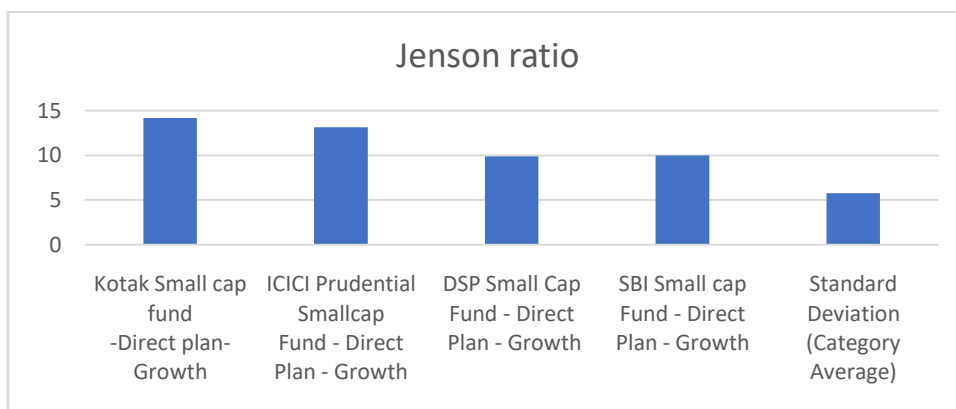


Figure 5: Jenson Ratio of selected small cap funds and category average

MID CAP FUNDS

ICICI Prudential Mid Cap Fund-Direct plan-Growth has the highest standard deviation means highest risk followed by UTI Mid Cap Fund- Direct Plan-Growth and Axis Mid Cap Fund- Direct Plan-Growth has the lowest Standard deviation and lowest risk.

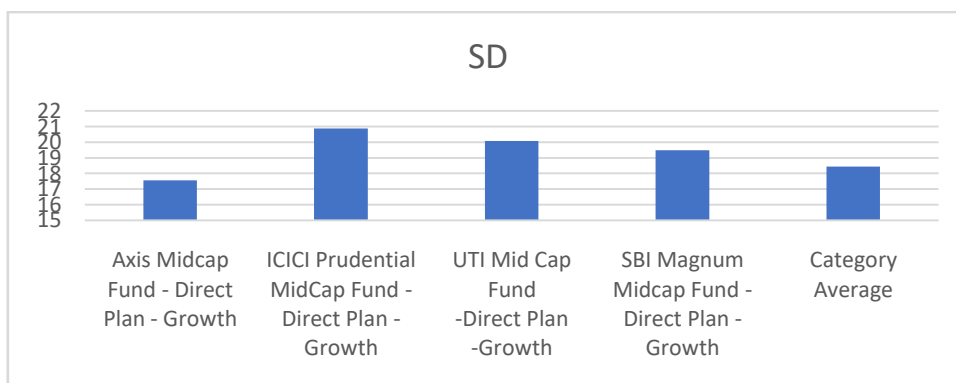


Figure 6: Standard deviation of selected mid cap funds and category average

Beta value of value higher than unity implies that portfolio risk of schemes is higher than the market risk and vice versa. All the chosen funds have Beta values less than 1 it means they have less risk than market but amongst all UTI Mid Cap Fund-Direct Plan-Growth has highest beta value.

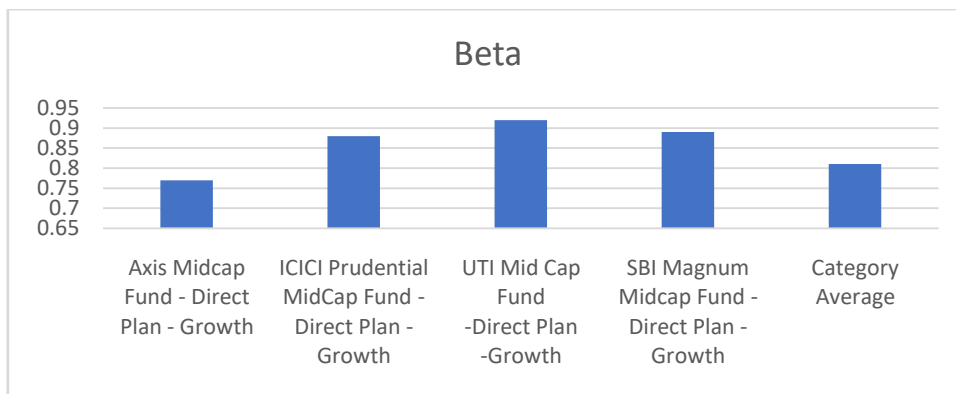


Figure 7: Beta of selected mid cap funds and category average

Higher positive values of Sharpe Ratio are found in Axis mid cap Fund-Direct plan-Growth and ICICI Prudential Small cap fund-Direct plan-Growth. Private Mutual Funds have higher values of Sharpe ratio.

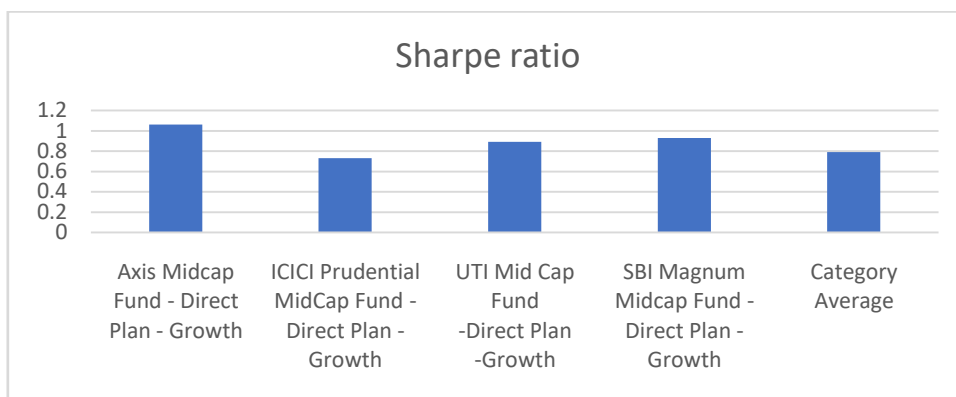


Figure 8: Sharpe Ratio of selected mid cap funds and category average

Here the observations were similar to that of Sharpe ratio with Private Sector Mutual Fund schemes outperforming Public Sector Mutual Fund Schemes. Axis Midcap Fund-Direct plan-Growth has highest treynor ratio. A Mutual fund with higher Treynor ratio result means a portfolio is a more suitable for investment.

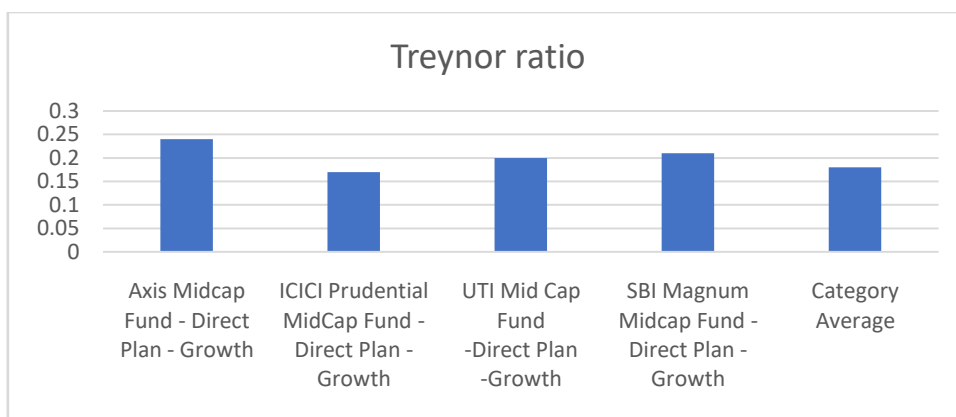


Figure 9: Treynor Ratio of selected small cap funds and category average

Axis Mid Cap Fund-Direct plan-Growth and SBI Magnum Midcap Fund-direct plan-Growth has highest Jensen ratio. Private sector mutual fund schemes showed better performance in comparison to Public sector mutual fund schemes as per the results shown by Jensen measure. The higher the ratio, the better the risk-adjusted returns and better the fund.

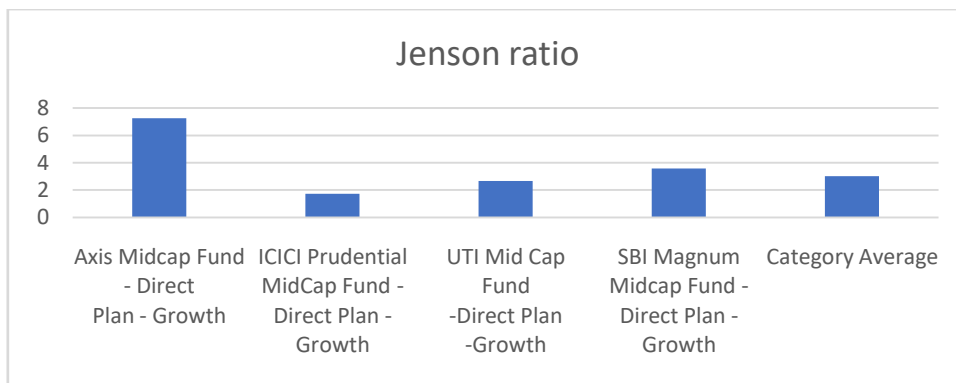


Figure 10: Jenson Ratio of selected small cap funds and category average

LARGE CAP FUNDS

SBI Bluechip Fund-Direct plan-Growth has the highest standard deviation means highest risk followed by KotakBluechip Fund- Direct Plan-Growth and Axis Bluechip Fund- Direct Plan-Growth has the lowest Standard deviation and lowest risk.

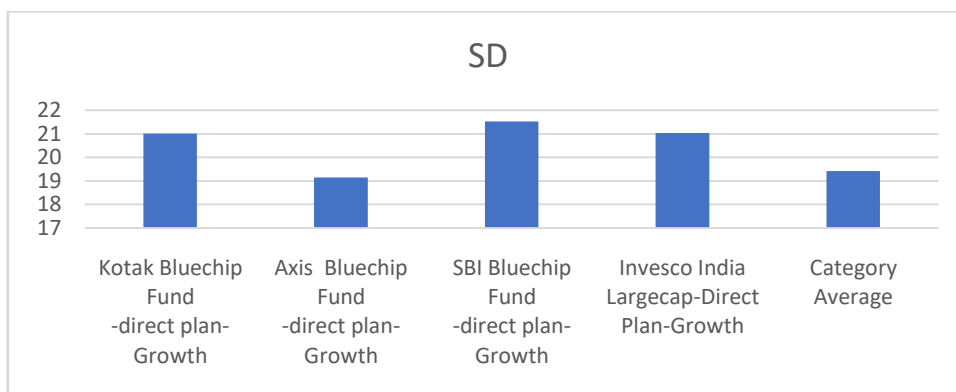


Figure 11: Standard deviation of selected large cap funds and category average

Beta value of value higher than unity implies that portfolio risk of schemes is higher than the market risk and vice versa. All the chosen funds have Beta values less than 1 it means they have less risk than market but amongst all SBI Bluechip Fund-Direct Plan-Growth has highest beta value.

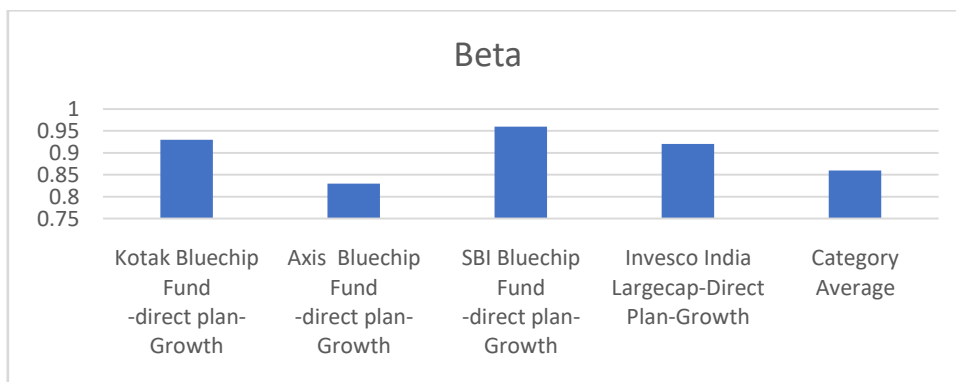


Figure 12: Beta of selected large cap funds and category average

Higher positive values of Sharpe Ratio are found in KotakBluechip Fund-Direct plan-Growth and Axis Bluechipfund-Direct plan-Growth. Private Mutual Funds have higher values of Sharpe ratio.

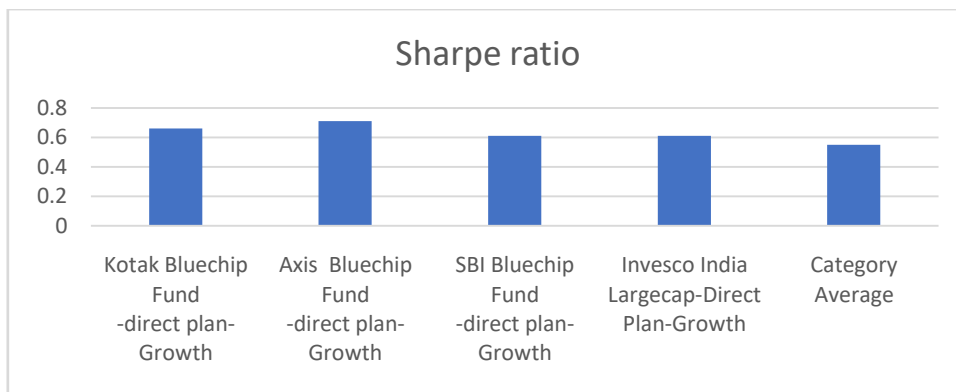


Figure 13: Sharpe ratio of selected large cap funds and category average

Here the observations were similar to that of Sharpe ratio with Private Sector Mutual Fund schemes outperforming Public Sector Mutual Fund Schemes except SBI Bluechip Fund-Direct plan-Growth. SBI Bluechip Fund has highest treynor ratio. A Mutual fund with higher Treynor ratio result means a portfolio is a more suitable for investment.

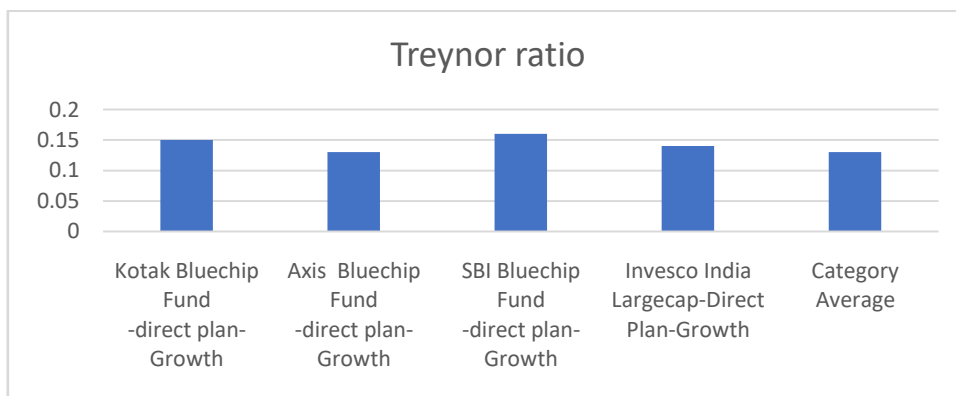


Figure 14: Treynor ratio of selected large cap funds and category average

SBI Bluechip Fund-Direct plan-Growth and Invesco India Large cap Fund-direct plan-Growth has highest Jensen ratio. Public sector mutual fund schemes showed better performance in comparison to Private sector mutual fund schemes as per the results shown by Jensen measure. The higher the ratio, the better the risk-adjusted returns and better the fund.

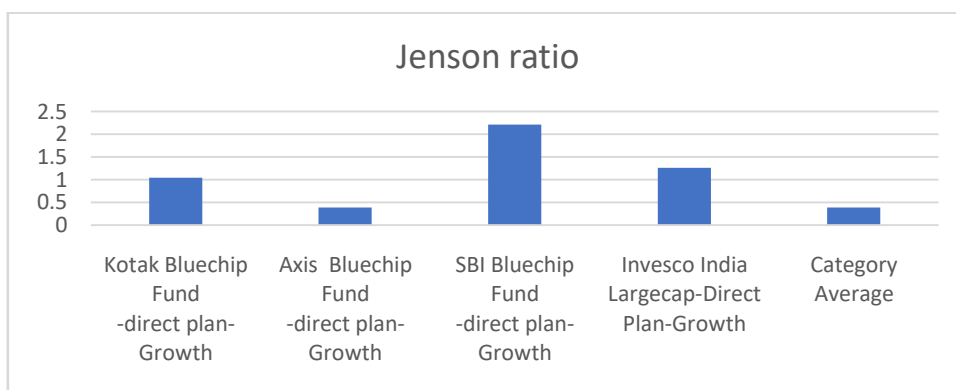


Figure 15: Jenson ratio of selected large cap funds and category average

FINDINGS, LIMITATIONS AND FUTURE SCOPE

Findings

- ❖ 1st hypotheses is between all public and private small cap, mid cap, and large cap mutual funds combined on yearly basis. In the results of three hypotheses null hypotheses has been accepted which stated that there is no significant difference between combined results of all private and public sector mutual funds.

- ❖ 2nd hypotheses is between all public and private small cap, mid cap, and large cap mutual funds combined on 5 yearly basis. In the results of three hypotheses null hypotheses has been accepted which stated that there is no significant difference between combined results of all private and public sector mutual funds.
- ❖ Standard deviation, Jensen ratio, Treynor ratio, beta, and Sharpe ratio of small cap, mid cap and large cap mutual funds has defined that the combined of private and public sector mutual funds have very similar type of returns.

Limitations

- ❖ The study has been done on the selected funds i.e. only on the broad categories of equity mutual funds so we cannot tell the results for the behavior for other types of mutual funds.
- ❖ The study of the selected mutual funds has only been done for the limited period of time that is for the period of 5 years so it cannot be concluded how these funds would behave outside the range of these 5 years.
- ❖ The study is based on secondary sources of data that from the website www.amfiindia.com so there could be errors in data during its collection.
- ❖ Statistical tools have been used for the analysis of mutual funds which deal with average and could be easily misinterpreted.
- ❖ Testing of hypothesis has been used for the analysis in research which are based on probability whose results cannot be expressed with full certainty.

Future Scope

- ❖ A topic for the research could have been chosen for the study of various categories of Private sector mutual funds which is between Indian Mutual funds, Foreign Mutual funds and Joint Venture funds.
- ❖ Study could have been carried out within various private sector mutual funds performance.
- ❖ Study could have been carried out within various public sector mutual funds performance.
- ❖ Comparison could be been done for a longer period of time.
- ❖ There could be comparison between various sub categories of debt funds.

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