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A STUDY ON THE PERFORMANCE OF LARGE CAP MUTUAL FUNDS IN INDIA

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Abstract: The paper aims to determine the various factors which affect the performance of the large cap mutual funds in India. The paper establishes relationships between performance and other factors, the factors affecting expense ratio and the comparative analysis of funds with benchmark performance. The major focus area of the study is to help investors by making them know about the factors affecting the mutual funds returns and another investment alternative novice investor i.e., benchmark investing as a lot of active mutual funds are unable to beat the benchmarks. The mutual funds data is taken from varied secondary sources like Money control, Morningstar, Paytm money, AMFI website and many more. Statistical analysis on the data is done by using varied tools like correlation, regression, t test and descriptive statistics. The risk and the expense ratio have significant impact on funds' performance. It is also found that expense ratios are affected by the size and age of fund. Lastly, it is found that the active mutual funds didn't beat the benchmark returns on average.

Index Terms – fund return, Sharpe, Alpha, expense ratio, Assets under management, benchmark, fund manager

I. INTRODUCTION

Mutual fund is a type of collective investment scheme in which the investors pool in their money to diversify their portfolio risk and minimize the unsystematic risk involved in the shares. The mutual funds can be a collective scheme for various investment options like shares, bonds, derivatives, etc.

Mutual funds investors in the Indian market are increasing every day but many of them are facing losses or getting inferior returns as compared to the benchmark as only 1/3rd of the active mutual funds are able to beat the benchmark returns. Thus, it's very important for the investors to understand the factors affecting the performance of the mutual funds so as to choose best mutual funds and maximize their returns.

For the study, all the 29 large cap mutual funds data is taken from varied secondary sources like Money control, Morningstar, Paytm money, AMFI website and many more. Then we did statistical analysis on the data by using varied tools like correlation, regression, t test and descriptive statistics. The major focus area of the study is to help investors by making them know about the factors affecting the mutual funds returns and another investment alternative novice investor i.e., benchmark investing as a lot of active mutual funds are unable to beat the benchmarks.

The investors must only put their hard-earned money into funds after thorough evaluation that which scheme is best for them to invest so that their objective is fulfilled and also match with their risk appetite. They must also consider the factors affecting the performance of the funds before investing and just not invest after seeing the past returns because not always the fund which has performed in past also outshines in the future.

II. REVIEW OF LITERATURE

Dr. R. Narayanasamy and V. Rathnamani (2013) examined the performance of five selected large cap mutual funds during a specific study period. The independent variables studied were sharp ratio, beta and Alpha. The dependent variables were NAV returns of the mutual funds. Standard deviation and regression analysis were used as the tools for the analysis. From the study, they discovered that the decline in the CNX NIFTY during the year 2011 had an effect on the returns of all of the selected large cap mutual funds at the time. In the end, they found that all of the funds, with the exception of Reliance Vision, performed well in the high-volatility market setting. The researchers also advised investors to consider statistical parameters such as Alpha, beta, and standard deviation before investing in any mutual funds, rather than focusing solely on NAV and total returns, in order to ensure that the mutual fund's output is consistent.

Haslem John, Baker Kent, Smith David (2008) performed a study on the link between the fund performance and the attributes of the fund. The independent and the dependent variables for the study were expense ratio and the performance respectively. The research methodology included measuring expense ratios, classifying mutual funds according to standard deviations, hypothesis and univariant testing. The study founded that the larger equity funds yielded higher returns than the smaller ones due to the reduction in the costs due to economies of scale. Also, there exists a negative relationship between performance of mutual fund and loads attached, turnover and beta. In this study the regression model was used to highlight the fact that the investors must consider these factors like expense ratios before choosing to invest in a mutual fund.

Parvez Ahmed, Kristine Beck (2010) have performed a Comparative Evaluation of micro mutual funds' performance on basis of CAP and RAP. In the study, the mutual funds were ranked based on the CAP measurement and then the comparative study was done by comparing the returns and the RAP measure. The CAP, Alpha and RAP were the independent variables of the study and the dependent variable of the study were returns of the mutual fund. After the study it was found out that half of the micro-cap funds in the sample beats the benchmark on the basis of raw monthly returns, but the risk-adjusted returns of the funds do not outperform the benchmark. Also, it was found that as per the RAP and CAP, only 33% of the mutual funds outperformed the market benchmark. So, it is not advisable for the investors to buy actively managed micro-cap mutual funds instead of simply investing in the micro-cap index as the actively micro-cap funds didn't provide much of the marginal benefit as per the study.

Lorne Nelson Switzer, Yanfen Huang (2007) studied the effect on the performance of mutual funds due to the human characteristics of the fund manager like gender, qualification, etc. The independent variables for the study were Education, gender of fund manager and experience and the dependent variable was the performance of the mutual fund. As far as the research methodology is concerned, the three stage least square model for regression analysis was used for the study. After the study it was found that Tenure and experience of the mutual fund manager do not have significant impacts on the performance of the mutual fund and on the other hand during the study period it was found that the mutual funds managed by male managers outperformed the returns of those mutual funds which were managed by female managers. It was also found out that the mutual funds with low AUM(Asset under management) generated better alpha returns and hence better performance as compared to those funds which had large AUM values. Thus, at the end of the research the authors suggested the investors to consider the fund manager characteristics also before choosing the investible mutual funds as these human characteristics also have significant impact on the returns of the mutual funds.

Muhammad Arshad (2013) studied the factors affecting the expense ratio measure of the mutual funds in Pakistan. The expense ratio is impacted by factors like size, experience of fund, etc. The independent variables for the study were size of the mutual fund and experience of the mutual fund. The dependent variable in the study was the expense ratio of the mutual fund which measures the proportion in the value of fund constituting the expenses incurred in the fund management and administration. Hypothesis testing and empirical analysis were done as a part of research methodology for the study. After the study, it was found that all variables: age, size, nature except sponsors of fund had a notable and significant impact on the expense ratio of open-end mutual funds of Pakistan. The author has suggested that while investing in a mutual fund it is important to understand the factors affecting its cost measured by expense ratio.

David K. Musto (2011) has done a qualitative study about the concepts around mutual funds industry. The author discusses the performance of mutual funds, incentives associated with it, tax efficiency concept for those who invest in mutual funds, transaction and index costs associated and the operational functioning of the mutual funds. The author concludes that although the open-ended mutual fund industry is developing over centuries, the current century is making it safer for long term investments. Over the next few years, we can expect that the generation will spend their shares down and their experience would matter.

C. Hoff Stauffer Jr. and Robert C. Vogel (1971) measured the performance of mutual funds and the influence of factors like age, size, turnover ratio, etc. In the study the authors focused on the risk adjusted returns of the mutual funds for which the standard deviation and the annual average returns were used as the variable for the regression equation. Also, a direct relationship between risk and return on the mutual fund was established. The study also proved that the age of the fund was an insignificant variable for the returns. The loading charge on the mutual fund was a significant variable affecting the returns. The authors justified the high expense ratio by arguing that high expense ratios would mean better fund management but there was no use for loading charge as it's is simply an indirect penalty imposed on the returns. The investors are suggested to consider these factors before investing in any mutual fund as these affect the performance of mutual funds.

Mishra, Ankita & Mishra, Vinod & Smyth, Russell. (2014) studied the track of the Indian stock market that whether it follows a random walk process with efficient market or not which means that all the market information is adjusted to the share prices in advance and news-based earning from trade stands very difficult. The stock index means and returns were used as the variables for the study. Q-statistic & Dickey-Fuller test were used for doing the research and later variance ratio using homoscedastic and heteroscedastic test estimates were analyzed for results. From the study it was found that the mean reverting behavior of stock indices in India and overreaction of stock prices move in unitary direction in Indian capital market. This research paper also highlighted that the inefficiencies in the market can give opportunities to the traders in market to predict future prices and earn abnormal returns.

 Daniel, Christine Jiang, Michael Hu, and Wayne Lee (1999) used descriptive statistics and regression analysis for their purpose fulfilment in the study. From the study it was found that efficiency of active fund management strategy depends on the AUM (Assets under management) size. There is a certain minimum level of asset size which is to be there in the fund so as to cover the costs associated and achieve some gains.

Diminishing marginal returns to information acts are there and also if the fund exceeds its optimal size the marginal returns fall so the authors suggest the investors to consider the AUM factor so as to ensure adequate returns from the investment fund. Also it was found that blend and value funds yields higher average gains to information acts as compared to the growth philosophy funds.

Y Gerald C. Fischer and Lawrence J. Minet (1964) studied how the expense ratio is constituted and its effect on the performance of the mutual fund. It was found that there exists a positive correlation between the fund growth and the sales charge. The authors suggests that the investors use load funds to fulfil their long term goals like child education, retirement, etc. so they should be made aware of the presence of the no load funds as these perform no less than or sometimes better than the load funds in the market. So, the performance returns will be enhanced if no load funds are used.

III RESEARCH OBJECTIVES

- To determine the factors affecting large cap mutual fund returns.
- To ascertain the factors affecting risk adjusted returns of large cap mutual funds.
- To establish the relationship of expense ratios with fund size and age of large cap funds.
- To analyse the performance of active large cap mutual funds with benchmark performance.

IV STATAEMENT OF PROBLEM

In India the size of mutual fund industry is growing everyday but the most of the retail investors still don't know what factors they must consider before choosing a fund which would affect their returns. So this paper would solve this problem and help them to take a decision. Also there has been a conflict that on an average are active mutual funds really able to beat the index and justify their expense ratio. So, this problem is also analyzed in the paper with respect to large cap funds in India.

V SCOPE OF THE STUDY

The study revolves around the 29 growth schemes of large cap mutual funds currently present in the Indian market. The mutual funds in the study includes both top performing and worst performing ones so that unbiased results can be achieved from our research. The study takes into account data values for 1 year like annual returns, etc. The dynamic values like AUM, expense ratio, standard deviation, etc. are taken as on 20th March, 2021so as to give an updated view of the results. The data collected was from secondary sources mainly from AMFI website, money control, Morningstar and fund house sites.

VI VARIABLES

The variables according to our study have been identified from the previous done literature reviews. The variables used for the study of factors affecting fund returns are: -
Dependent Variables:
- 1 year return- This performance measurement variable measured the 1 year returns of the mutual fund upto 20th March, 2021.
- Alpha – This is a measure of the risk adjusted returns, it takes risk and compares its risk adjusted returns with benchmark.
- Sharpe- It is another measure of risk adjusted returns. It tells how much extra return the investor would get on holding a risky asset.

Independent Variables:
- Assets Under Management- This is a measure of the fund size of different mutual funds. In our study we have taken this in Crore rupees.
- Gender - This is the gender of the mutual fund manager, for our study we gave dummy variable 0 for female and 1 for male. In this way dichotomous data was formed.
- Qualification- This is the qualification of the mutual fund manager, for our study we gave dummy variable 0 for those who don't possess any professional degree like CFA and 1 if they possess. In this way dichotomous data was formed.
- Standard deviation of the fund- It is the risk of the mutual fund measured from the deviations in returns.
- Expense ratio of the fund- It is the cost of management and administration incuured to hold a mutual fund.

The variables used for the study of factors affecting the expense ratio are: -

Dependent Variable:
Expense ratio- It is the cost of management and administration incurred to hold a mutual fund.

Independent Variables:
- Assets under management- This is a measure of the fund size of different mutual funds. In our study we have taken this in Crore rupees.
- Age of the fund- It is the time period (measured in days for our study) from inception date till the date of research.

The variable used in the study for comparative analysis of active mutual fund and benchmark returns is the Negative abnormal returns calculated as the difference between the one-year return of mutual fund and the benchmark.

VII HYPOTHESIS

For the first two objectives for determining the factors affecting the returns and risk adjusted returns, no hypothesis is created and the results would be directly based on the regression output table analysis.

For the third objective of factors affecting expense ratio the hypothesis is as follows: -
Ho: There is no impact of fund size (Assets under management) and age of the fund on Expense ratio.
H1: There is impact of fund size (Assets under management) and age of the fund on Expense ratio.

For the last objective for comparing the mutual funds' performance the hypothesis is formulated as follows: -
Ho: There are no abnormal negative returns generated by large cap mutual funds
H1: There are abnormal negative returns generated by large cap mutual funds

VIII METHOD OF DATA COLLECTION

The study is wholly based on secondary data and the data is collected from varied sources as per the requirement. The 29 growth schemes along with their AUMs and annual returns were taken from official site of AMFI. For the detail about the fund managers of the funds we have searched them on LinkedIn and Paytm money. The other required data about the 29-growth scheme mutual funds are retrieved from Money control and Morning star.

IX SAMPLING SIZE AND STATISTICAL DESIGN

For the study we have taken all the 29 large cap mutual funds (growth scheme) available in Indian market so as to come with relevant and generalized results for our research objectives. The mutual funds data collected is with respect to direct investing so that there is uniformity in results. For study after the data is collected from varied legitimate sources and structured in tables, the statistical analysis is done. The tools used for the study are Ms. Excel and SPSS by IBM. The data analysis techniques used for the study are correlation analysis, regression analysis and one sample T test.

X LIMITATIONS OF THE STUDY

- The study is conducted for only 1 year of time which is not sufficient to cover a broad topic of mutual funds.
- The study is done specific to Indian context thus a general conclusion of worldwide can't be given.
- The dynamic data used for the study is for a specific date i.e., 20th March, 2021. So, further study must be conducted using wide range of dates.
- The research is limited to certain factors only whereas more factors affecting returns can be there.

XI ANALYSIS AND INTERPRETATION

Correlation and Regression Analysis for Determining the Factors Affecting Performance of Large Cap Mutual Funds (Direct -Growth Scheme)

Dependent Variable – Annual returns (last 1 year)
Independent Variables- Assets under management (AUM), Gender of mutual fund manager, Qualification of fund manager, Standard deviation and Expense ratio

Table 1: Correlation analysis of dependent and Independent variables

	Return 1 Year (%) Direct	Daily AUM (Cr.)	Gender	Qualification	SD	Expense ratio
Return 1 Year (%) Direct – DEPENDENT VARIABLE	1					
Daily AUM (Cr.)	0.258533228	1				
Gender	-0.166383136	-0.044308005	1			
Qualification	0.16228575	0.01135863	0.053121619	1		
SD	0.71063982	0.185398026	-0.076690307	0.019820411	1	
Expense ratio	-0.384596679	-0.363243888	0.168800481	0.032225769	-0.322677437	1

Table 2: Regression statistics

Regression Summary Statistics	
Multiple R	0.755846255
R Sq.	0.571303561
Adjusted R Sq.	0.478108683
Standard Error	6.120689801
Number of Observations	29

Table 3: Regression coefficients when dependent variable is 1year annual return

	Coefficient Value	Standard Error	t-Statistics	Probability value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept value	26.06588	11.91256	2.18810	0.0391	1.42287	50.70890	1.4229	50.709
Daily AUM (Cr.)	0.00008	0.00013	0.57343	0.57192	-0.00020	0.00035	-0.00020	0.00035
Gender	-2.03528	2.85146	-0.71377	0.48255	-7.93399	3.86342	-7.93399	3.86342
Qualification	2.64938	2.29108	1.15639	0.25939	-2.09008	7.38885	-2.09008	7.38885
SD	2.15518	0.48720	4.42358	0.00020	1.14732	3.16303	1.14732	3.16303
Expense ratio	-2.34581	2.67066	-0.87836	0.38883	-7.87049	3.17887	-7.87049	3.17887

Regression equation: -

26.06588 + 0.00008(AUM) – 2.03528(Gender) + 2.64938(Qualification) + 2.15518(SD) – 2.34581(Expense ratio)

Interpretation: -

- Among the independent variables taken for the analysis there exists very little or no correlation. AUM has little negative correlation with gender of fund manager and weak correlation with expense ratio. AUM has positive correlation with qualification and standard deviation of the fund.
- Gender of the fund manager has a very little positive correlation with qualification of fund manager and expense ratio. It has negative correlation with standard deviation.
- The qualification of the fund manager has a very little positive correlation with standard deviation and expense ratio of the fund.
- The standard deviation is little negatively correlated with the expense ratio of the fund.
- The applied Regression model is a decent fit as the R square and the Adjusted R square value is a decent figure.
- For an independent variable to be significant, the probability (significance) value must be less than 0.05 and here from the table of regression analysis above we can infer that only standard deviation has a significant impact on the annual returns of the large cap mutual funds and all the other independent variables are insignificant due to the significance value of more than 0.05.
- Here we can also observe that a 2.15518% change in the standard deviation would cause 1% change in the Annual return of the mutual fund in the same direction.
- The gender of the mutual fund manager and expense ratio have negative relationship with the annual returns of the fund.
- AUM, qualification and standard deviation have a positive relationship with the fund annual returns as its coefficients are positive.
- The result can further be interpreted as higher the risk the investor is willing to take(standard deviation), the higher returns he can expect from the mutual funds.

Regression Analysis for determining the factors affecting the Risk Adjusted performance of large cap mutual funds (Direct -growth scheme)

Based on Alpha (Risk Adjusted Returns)

Dependent Variable – Alpha generated by mutual funds
Independent Variables- Assets under management (AUM), Gender of mutual fund manager, Qualification of fund manager, Standard deviation and Expense ratio

Table 4: Correlation analysis among dependent and independent variables

	Alpha
Alpha- DEPENDENT VARIABLE	1
Daily AUM (Cr.)	0.17582788
Gender	-0.0878636
Qualification	0.00343982
SD	-0.4514462
Expense ratio	-0.5262981

Table 5: Regression statistics

Regression Summary Statistics	
Multiple R	0.8431851
R Sq.	0.7109611
Adjusted R Sq.	0.64812651
Standard Error	1.18750299
Number of Observations	29

Table.6: Regression coefficients when dependent variable is Alpha of funds.

	Coefficient Value	*Standard Error*	*t-Statistics*	*Probability value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	14.877	2.311	6.437	0.000	10.096	19.658	10.096	19.658
Daily AUM	0.000	0.000	0.301	0.766	0.000	0.000	0.000	0.000
Gender	-0.086	0.553	-0.155	0.878	-1.230	1.059	-1.230	1.059
Qualification	0.164	0.445	0.370	0.715	-0.755	1.084	-0.755	1.084
SD	-0.555	0.095	-5.872	0.000	-0.751	-0.359	-0.751	-0.359
Expense ratio	-3.010	0.518	-5.808	0.000	-4.081	-1.938	-4.081	-1.938

Regression Equation: -
Alpha(Y)= 14.877 + 0.0000078(AUM) – 0.086(Gender) + 0.164(Qualification) – 0.555(Standard deviation) – 3.010(Expense ratio)

Interpretation: -

- The applied model is a good fit as the R square and the Adjusted R square value is a significant figure. So, the model is good to use for our study.
- For an independent variable to be significant, the probability (significance) value must be less than 0.05 and here from the table of regression analysis above we can infer that only standard deviation and expense ratio have a significant impact on the risk adjusted returns(Alpha) of the large cap mutual funds and all the other independent variables are insignificant due to the significance value of more than 0.05.
- Here we can also observe that a 55.5% change in the standard deviation would cause 100% change in the alpha of the mutual fund in the opposite direction. Therefore inverse relationship exists between the two variables.
- Here we can also observe that a 3.010% change in the expense ratio would cause 1% change in the alpha of the mutual fund in the opposite direction. Therefore inverse relationship exists between the two variables.
- The gender of the mutual fund manager, standard deviation and expense ratio have negative relationship with the alphas generated by the fund.
- AUM and qualification have a positive relationship with the fund alphas as its coefficients are positive.
- The result can further be interpreted that the risk adjusted returns alpha has inverse relationship with risk and the expenses incurred in the management of fund measured by expense ratio.

Based on Sharpe ratio

Dependent Variable – Sharpe ratio generated by mutual funds
Independent Variables- Assets under management (AUM), Gender of mutual fund manager, Qualification of fund manager, Standard deviation and Expense ratio

Table.7: Correlation analysis among dependent and independent variables

	Sharpe
Sharpe- DEPENDENT VARIABLE	1
Daily AUM (Cr.)	0.14404156
Gender	-0.1287251
Qualification	-0.0113485
SD	-0.4456524
Expense ratio	-0.5353305

Table.8: Regression Statistics

Regression Summary Statistics	
Multiple R	0.8469246
R Sq.	0.71728128
Adjusted R Sq.	0.65582069
Standard Error	0.05786293
Number of Observations	29

Table 9: Regression coefficients when dependent variable is Sharpe ratio of funds.

	Coefficient Value	Standard Error	t- Statistics	Probability-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept values	1.13463	0.11262	10.0751	0.00000	0.90167	1.3676	0.90167	1.3676
Daily AUM	0.00000004	0.00000	-0.02816	0.97778	0.00000	0.00000	0.00000	0.00000
Gender	-0.01357	0.02696	-0.50340	0.61947	-0.06933	0.04219	-0.06933	0.04219
Qualification	0.00578	0.02166	0.26668	0.79209	-0.03903	0.05058	-0.03903	0.05058
SD	-0.02712	0.00461	-5.88872	0.00001	-0.03665	-0.01759	-0.03665	-0.01759
Expense ratio	-0.15123	0.02525	-5.98970	0.00000	-0.20345	-0.09900	-0.20345	-0.09900

Regression Equation: -
Sharpe(Y)= 1.13463 + 0.00000004(AUM) – 0.01357(Gender) + 0.00578(Qualification) – 0.02712(Standard deviation) – 0.15123(Expense ratio)

Interpretation: -
- The applied model is a good fit as the R square and the Adjusted R square value is a significant figure. So, the model is good to use for our study.
- For an independent variable to be significant, the probability (significance) value must be less than 0.05 and here from the table of regression analysis above we can infer that only standard deviation and expense ratio have a significant impact on the risk adjusted returns (Beta) of the large cap mutual funds and all the other independent variables are insignificant due to the significance value of more than 0.05.
- Here we can also observe that a 2.71% change in the standard deviation would cause 100% change in the Beta of the mutual fund in the opposite direction. Therefore, inverse relationship exists between the two variables.
- Here we can also observe that a 15.123% change in the expense ratio would cause 100% change in the Beta of the mutual fund in the opposite direction. Therefore, inverse relationship exists between the two variables.
- The gender of the mutual fund manager, standard deviation and expense ratio have negative relationship with the sharpe ratio generated by the fund.
- AUM and qualification have a positive relationship with the fund beta ratios as its coefficients are positive.
- The result can further be interpreted that the risk adjusted returns Beta has inverse relationship with risk and the expenses incurred in the management of fund measured by expense ratio.

Regression Analysis for determining the impact of various factors on the Expense ratios of large cap mutual funds (Direct -growth scheme)

Dependent Variable – Expense ratio of mutual funds
Independent Variables- Assets under management (AUM), Age of the fund (Days since inception)

Ho: There is no impact of fund size (Assets under management) and age of the fund on Expense ratio.
H1: There is impact of fund size (Assets under management) and age of the fund on Expense ratio.

Table 10: Correlation analysis among dependent and independent variables

	Expense ratio	Daily AUM (Cr.)	Days since inception
Expense ratio	1		
Daily AUM (Cr.)	-0.371446408	1	
Days since inception	0.373183057	-0.0420483	1

Table.11: Regression Statistics

Regression Statistics	
Multiple R	0.515801468
R Sq.	0.266051155
Adjusted R Sq.	0.209593551
Standard Error	0.411628745
Number of Observations	29

Table 12: Regression coefficients when dependent variable is Expense ratio of funds.

	Coefficient Values	Standard Error	t Statistics	Probability values	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	1.03099	0.17054	6.0455	0.00000	0.68044	1.38153	0.6804	1.3815
Daily AUM (Cr.)	-0.00002	0.00001	-2.11928	0.04378	-0.00003	0.00000	-0.00003	0.00000
Age	0.00006	0.00003	2.13006	0.04279	0.00000	0.00011	0.00000	0.00011

Regression Equation: - Expense ratio(Y)= 1.03099 – 0.00002(AUM) + 0.00006(Age)

Interpretation: -
From the above done regression analysis we can clearly observe that for both of the independent variables the probability value (significance level) is 0.04378 and 0.04279 which are both lesser than 0.05 so we reject the formed null hypothesis and hence accept the formed alternate hypothesis that there stands a significant impact of Assets under management and Age of fund on the expense ratio of the mutual funds investment schemes.

It can be interpreted that if there is 0.00002% change in AUM would cause a 1% change in the expense ratio of the fund in the opposite direction i.e., if the AUM increases by 0.00002% then the expense ratio would fall by 1% keeping other factors same and if AUM is decreased by 0.00002% then the expense ratio would rise by 1%.

Also, it can be interpreted that if there is 0.00006% change in the age of the fund then there would be 1% change in the expense ratio in the same direction i.e., if the age of the fund increases by 0.00006% then the expense ratio would also rise by 1% keeping other factors same and if the age of the fund decreases by 0.0006% then the expense ratio would also fall by 1%.

T test for comparing the mutual fund returns and benchmark index returns

Table 13: Calculation of Extra returns from fund returns and its benchmark

Scheme Name	Return 1 Year (%) of funds	Return 1 Year (%) Benchmark Index	Extra returns(fund – benchmark)
Axis Bluechip Fund	56.10	80.34	-24.23
Canara Robeco Bluechip Equity Fund	71.67	80.63	-8.97
Mirae Asset Large Cap Fund	74.36	78.80	-4.44
IDFC Large Cap Fund	68.87	80.63	-11.76
HSBC Large Cap Equity Fund	71.49	80.34	-8.85
Invesco India Largecap Fund	65.99	80.34	-14.35
Edelweiss Large Cap Fund	73.05	80.34	-7.29
Kotak Bluechip Fund	78.65	80.34	-1.69
ICICI Prudential Bluechip Fund	76.09	78.80	-2.71
BNP Paribas Large Cap Fund	64.05	80.34	-16.29
Indiabulls Bluechip	59.50	80.34	-20.84
PGIM India Large Cap Fund	72.78	80.34	-7.55
SBI Bluechip	78.38	80.63	-2.25
Essel Large Cap Equity Fund	75.48	80.34	-4.85
LIC MF Large Cap Fund	55.09	78.80	-23.71
Aditya Birla Sun Life Frontline Equity	73.97	80.34	-6.37
IDBI India Top 100 Equity	70.20	78.80	-8.60
L&T India Large Cap	67.61	80.63	-13.02
JM Large Cap Fund	41.04	78.34	-37.30
Tata Large Cap Fund	71.77	78.34	-6.57
DSP Top 100 Equity	64.84	80.63	-15.79
Baroda Large Cap	66.92	78.80	-11.88
Nippon India Large Cap Fund	69.07	80.63	-11.56
HDFC Top 100 Fund	76.11	78.80	-2.69
Franklin India Bluechip	80.42	78.80	1.63
Taurus Largecap Equity Fund	58.99	80.63	-21.64
Union Largecap Fund	72.58	73.65	-1.07
UTI Mastershare Fund	70.56	72.22	-1.65
Mahindra Manulife Large Cap Pragati Yojana	75.69	80.34	-4.65

Table 14: t statistics table on extra returns as variable

Extra returns	Frequency	Percent	Valid Percent	Cumulative Percent
-37.3	1	3.4	3.4	3.4
-24.23	1	3.4	3.4	6.9
-23.71	1	3.4	3.4	10.3
-21.64	1	3.4	3.4	13.8
-20.84	1	3.4	3.4	17.2
-16.29	1	3.4	3.4	20.7
-15.79	1	3.4	3.4	24.1
-14.35	1	3.4	3.4	27.6
-13.02	1	3.4	3.4	31
-11.88	1	3.4	3.4	34.5
-11.76	1	3.4	3.4	37.9
-11.56	1	3.4	3.4	41.4
-8.97	1	3.4	3.4	44.8
-8.85	1	3.4	3.4	48.3
-8.6	1	3.4	3.4	51.7
-7.55	1	3.4	3.4	55.2
-7.29	1	3.4	3.4	58.6
-6.57	1	3.4	3.4	62.1
-6.37	1	3.4	3.4	65.5
-4.85	1	3.4	3.4	69
-4.65	1	3.4	3.4	72.4
-4.44	1	3.4	3.4	75.9
-2.71	1	3.4	3.4	79.3
-2.69	1	3.4	3.4	82.8
-2.25	1	3.4	3.4	86.2
-1.69	1	3.4	3.4	89.7
-1.65	1	3.4	3.4	93.1
-1.07	1	3.4	3.4	96.6
1.63	1	3.4	3.4	100
Total	29	100	100	

Table 15: One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Extra_returns	29	-10,37724138	8,750357910	1,624900671

Table 16: One-Sample Test

	Test Value = 0				95% Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Extra_returns	-6.386	28	.00000065123857907185	-10.377241379	-13.70569952	-7.04878324

H0: There are no abnormal negative returns generated by large cap mutual funds
H1: There are abnormal negative returns generated by large cap mutual funds

Interpretation: -

Here the value of t statistics is -6.386 which is lesser than the critical value derived from the t-table at 5% significance -2.048. Further I also tested it at 2% and 1% significance and then also our t statistics value proved to be lesser than the critical table value. Also, the significance level is coming less than 0.05 thus we accept the formed alternate hypothesis that there are negative abnormal returns in active mutual funds and reject the null hypothesis. So, there are negative abnormal returns in case of active mutual funds. Therefore, its recommended to invest into benchmark instead of active mutual funds as the active mutual funds only beats the benchmark in 30% cases (Langlois Hugues and Lussier Jacques (2017).
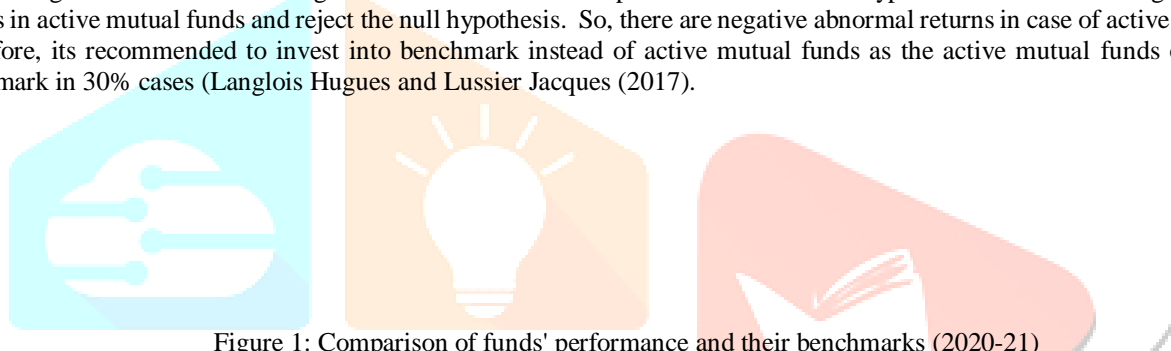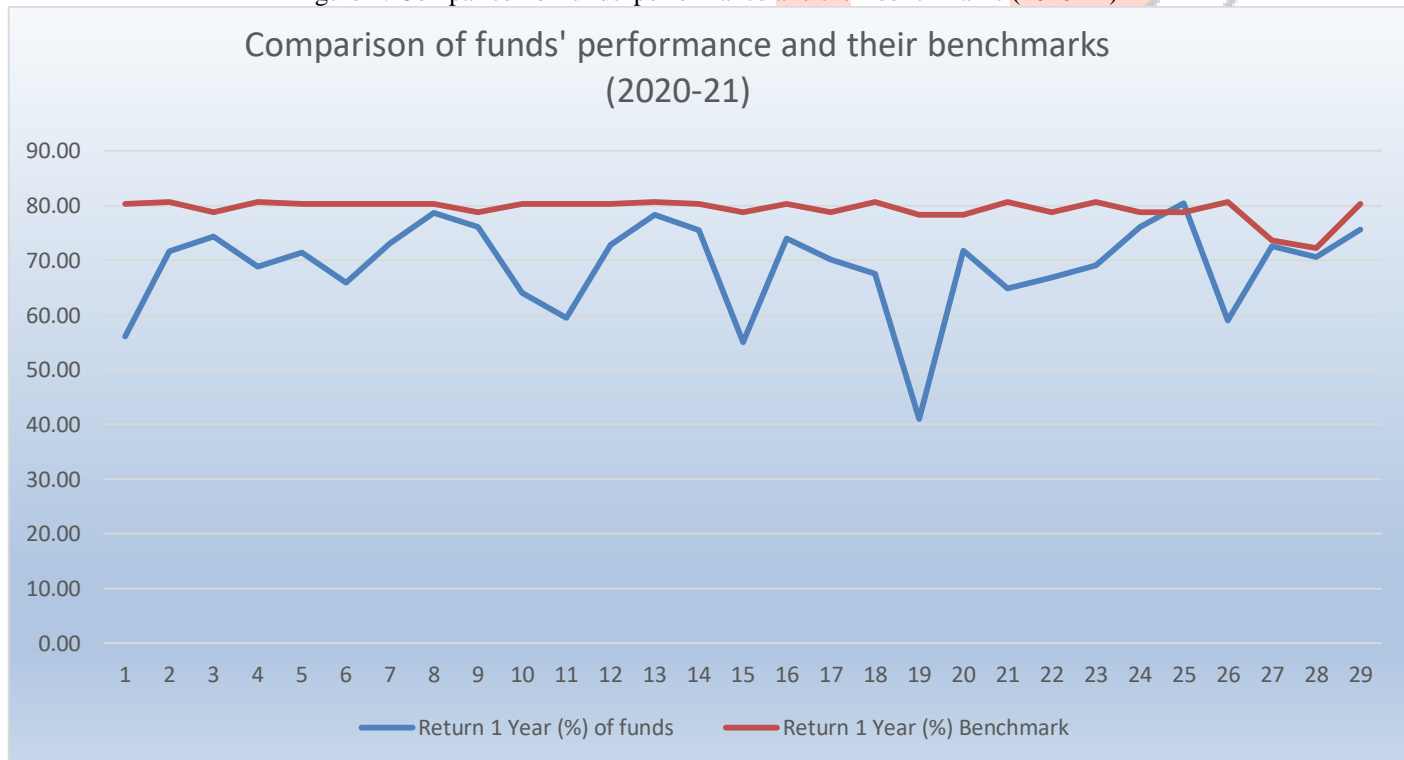
Figure 1: Comparison of funds' performance and their benchmarks (2020-21)

Comparison of funds' performance and their benchmarks (2020-21)

XII SUMMARY OF FINDINGS

Through the study, It is found that the investors must consider evaluation of the factors affecting mutual fund performance in order to get good returns and beat the benchmark as on an average benchmark returns are proved to be higher in 2020-21 so a thorough evaluation of mutual funds is essential before investing. Given below is the summary of findings of this research project:-

Firstly, it is found that standard deviation(risk) of the fund has a significant positive impact on the annual returns of the large cap mutual funds. The other factors AUM, gender of fund manager, qualification of fund manager and standard deviation do not have significant impact on the annual returns.Next, it is also found that there is significant negative impact of expense ratio and standard deviation on the risk adjusted returns measured by alpha and Sharpe ratio. The other factors AUM, gender of fund manager and qualification does not have a significant impact on the risk adjusted returns.

Another significant finding of the study is that the fund size (AUM) has a significant negative impact on the funds' expense ratio whereas the age of the fund(duration since inception) has a positive impact on the expense ratio of mutual funds. Thus, a mutual fund with higher fund size and lesser age since inception would have lower expense ratio and if the fund size decreases and the age of the fund is high then it would have a high expense ratio. Lastly through the t test of the abnormal negative returns generated by mutual funds it was found that the active mutual funds perform lower and yield negative abnormal returns as compared to benchmark.

XIII CONCLUSION AND RECOMMENDATION

Mutual funds investors in the Indian market are increasing every day but many of them are facing losses or getting inferior returns as compared to the benchmark as only 1/3rd of the active mutual funds are able to beat the benchmark returns. Thus, it's very important for the investors to understand the factors affecting the performance of the mutual funds so as to choose best mutual funds and maximize their returns.

There are several research papers which focused a lot on the fund size affecting the returns but through this study, it can be said that in 2020-21 year the fund size didn't have a significant impact on the performance of the large cap mutual funds in India.

The investors must invest in benchmark index if they don't want to take the risk of underperformed returns and don't desire abnormal gains but if an investor is investing their money through large cap mutual funds and their aim is to get maximum gains then they must invest into those large cap mutual funds which has maximum standard deviation as greater the risk higher the returns but is the investor has to maximize the risk adjusted returns and risk is a concern for him then he should invest in that large cap mutual fund which has low standard deviation and expense ratio.

At the end it is advised that this topic about the factors affecting large cap mutual funds is a very wide topic and due efforts are made to justify the potential of this topic with this research but certainly there is a scope of more research in this field using more data over a wider course of time.

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