A Study on the Factors affecting Mutual Fund Performance

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ABSTRACT: *Mutual funds are in vogue for the past many years, The mutual fund investor must look at the capability and consistency of the fund house, the longevity of the fund manager, the good internal investment mechanism, the track record, the reputation of a house of the mutual fund, The mutual fund investor must also exert due diligence to pick the correct mutual fund by analysing the various factors that affect Mutual Fund Performance. The study attempts to analyse a few of the factors affecting Mutual fund performance.*

KEYWORDS: *Mutual funds, Mutual fund performance*

INTRODUCTION:

Mutual Funds provide an excellent way for institutional investors to engage in capital markets and profit from the uptrend. Although investing in Mutual Funds can be beneficial, it can be challenging to pick the right Fund. Therefore, investors should do the Fund's proper due diligence, take the risk-return trade-off and time horizon into account, or consult a professional investment advisor. Furthermore, investors must diversify across various funds such as Equity, debt, and gold to reap maximum benefit from Mutual Fund investments. While investors of all levels can invest in the securities market on their own, a Mutual Fund is a better alternative for the only reason that all benefits come in a package. Analysis of the Mutual funds based on the factors that affect their performance is the need of the Hour.

LITERATURE REVIEW:

Miglani(2006) conducted a study on the subject "Performance Appraisal of Mutual Funds in India: Empirical Evaluation of Risk and Timing Performance." The report provided insight into the mutual fund industry. The study aimed to analyse the Indian mutual fund industry's growth and development and assess selected mutual fund schemes' performance. He picked a list of 98 mutual fund schemes that have specific investment goals. For evaluating the performance of the mutual fund scheme, he considered modules like yield rate, Sharpe ratio, Treynor ratio, Jensen differential return, and Sharpe differential return.

Chetna.T.Parmar(2010) conducted doctoral research on "An Empirical Investigation on Performance of Mutual Fund Industry in India. "The study's goals were to analyse mutual fund growth, review returns from selected Mutual funds and record the mutual fund asset allocation trends. Here the researcher selected a list of 19 equity diversified mutual fund schemes,15 balanced schemes, and ten long-term and short-term schemes from different public and private sector mutual funds. The study also used various analytical tools for measuring averages, standard deviation, Beta, R-square, Sharpe ratio,earnings per share, and price-to-book ratio.

Meenakshi Garg(2014) researched "A Study on Performance Evaluations of Selected Mutual funds in India. "Here an attempt was made to analyse trends in terms of growth, size, volume, etc., of mutual funds in India and evaluate the financial performance of selected mutual funds in India. The researcher took the period from April 2002 to March 2013 to assess designated mutual funds' financial performance. Tax-saving schemes, ETF, Growth (Equity Diversified),and Index/Sector and Contra Fund got chosen for the study. Tax saving schemes out performed in different years of research. However,such strategies and market returns did not offer a sufficient return to offset the risk-free return and the system's overall risk.

The performance of a fund is inversely proportional to the fund's size,as identified by Ferreira, Keswani, Migues, and Ramos(2012)and Low(2012), which implied drawbacks of volume—indicating that more considerable funds face substantial and vulnerable investment problems because of their increased size,which in the end hampers the selectivity of managers.

Pastoretal.(2015) also have a negative relationship between the fund's size and Performance, which reduces themutual fund's returns to scale.

Yan(2008) and Low(2010)report, t h a t more significant growth does not necessarily have to lead to higher fund performance,

(Ciccotello&Grant,1996;Ferreiraetal.,2012).Zabiulla(2014)documents a positive connection between the fund's size and performance in substantiating these facts. Ban and Choe(2013) find that small funds are worse than large funds for Korean mutual funds since managerstend to ignore very small funds and keep the cash.

Belgacem and Hellara(2011), however, demonstrate that growth does not affect performance. Based on the literature, mixed evidence of fund size's relationship with the fund's performance gets suggested.

RESEARCH METHODOLOGY

The analysis was based on Secondary data collected from a Sample size of 269 mutual fund schemes which were open-ended in nature, the Type of schemes were Direct - Indian Equity related mutual funds. The No of mutual fund houses considered were 41 and the Years of existence were 5 years or more. The Period of study: 25-11-2015 to 25-11-2020.

OBJECTIVE OF THE STUDY : To identify the relationship between the factors of mutual fund performance and mutual fund returns.

In order to quantify the objective, the following hypothesis was developed;

H0: There is no relationship between mutual fund Asset under management & mutual fund returns.

H1: There is a relationship between mutual fund Asset under management & mutual fund returns.

H0: There is no relationship between mutual fund beta & mutual fund returns.

H1: There is a relationship between mutual fund beta & mutual fund returns.

H0: There is no relationship between mutual fund standard deviation & mutual fund returns.

H1: There is a relationship between mutual fund standard deviation & mutual fund returns.

H0: There is no relationship between mutual fund alpha & mutual fund returns.

H1: There is a relationship between mutual fund alpha & mutual fund returns.

H0: There is no relationship between mutual fund expense ratio & mutual fund returns.

H1: There is a relationship between mutual fund expense ratio & mutual fund returns.

Data Analysis using Correlation & Regression

1) Asset Under Management, Correlation & Regression analysis

In this subsection, an analysis of the relationship between the mutual performance determinant, Asset Under Management and the 5-year mutual fund performance is done based on the statistical tools of correlation & regression.

Table 1 Model Summary of AUM

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.366ᵃ	.133	.130	3.54935	1.921

a. Predictors: (Constant), normalaum

b. Dependent Variable: normal5yr

The output table 1 shows the model summary and overall fit statistics. The value of R is 0.366, suggesting a moderate positive correlation between the mutual funds' Asset Under Management and the mutual fund performance. The R^2 of the model is 0.133, and Adjusted R^2 is 0.130. The value of

adjusted R^2 signified that the linear regression explained 13 % of the variance in the data. The Durbin-Watson, d = 1.921, is between the two critical values of 1.5 < d < 2.5, it is assumed that there is no first-order linear auto-correlation in the data.

Table 2 ANOVA Summary of AUM

ANOVA

Model		Sum of Squares	Df	Mean Square	F	Significance
1	Regression	115.152	1	115.152	9.141	.003[b]
	Residual	3338.435	268	12.598		
	Total	3453.587	269			

Table 2, depicting the Analysis of Variance (ANOVA), shows the sum of squares, degrees of freedom, F-ratio, and the corresponding significance.

The F-ratio represents an improvement in the prediction of the variable by fitting a model that considers the inaccuracies. A value greater than 1 for F-ratio yields an efficient model. In table 1, the value is 9.141, which is acceptable.

The p-value or significance value at 95% confidence interval or 5% level of the significance level is chosen for the study. Thus the p-value should be less than 0.05. In the above table, it is .003. Therefore, the result is significant.

Table 3 Summary of coefficients of AUM

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Significance
1	(Constant)	8.331	.336		24.795	.000
	normalaum	6.817E-6	.000	.366	3.023	.003

Table 3 shows the regression coefficients, the intercept, the significance of all coefficients, and the model's intercept. The beta weights denote that a change of 1 standard deviation in Asset under management is associated with a change of 0.366 standard deviations of the mutual fund returns**.** The linear regression analysis estimates the linear regression function to be $y = 8.331 + 6.817 * 10^{-6}x$. The value that is essential in interpretation is the significance value. The value should be below the tolerable level of significance for the study, i.e., below 0.05 for a 95% confidence interval in this study. Based on the significance value, the null hypothesis is either rejected or not rejected. If the significance is < = 0.05, the null hypothesis is rejected, and the alternative hypothesis is accepted. If the significance is > 0.05, then the null hypothesis is accepted, and the alternative hypothesis is rejected. It implies that if the null hypothesis is rejected, there is an impact of the independent variable on the dependent variable. If the alternative hypothesis is rejected, there is no impact of the independent variable on the dependent variable. In this case, since the significance value is 0.003, we can conclude that the null hypothesis is rejected, and there is a relationship between the Asset under management and the returns of a mutual fund.

2. Standard Deviation, Correlation & Regression analysis

Table 4 Model Summary of standard deviation

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.319a	.101	.100	3.47823	1.920

a. Predictors: (Constant), normalsd

b. Dependent Variable: normal5yr

The output table 4 shows the model summary and overall fit statistics. R-value is 0.319, suggesting a moderate positive correlation between the mutual funds' standard deviation and the mutual fund performance. The R^2 of the model is 0.101, and the adjusted R^2 is 0.100. The value of R^2 signified that the linear regression explained only 10% of the variance in the data. The Durbin-Watson, d = 1.920, is between the two critical values of $1.5 < d < 2.5$, it is assumed that there is no first-order linear auto-correlation in the data.

Table 5 ANOVA Summary of standard deviation

ANOVAa

Model		Sum of Squares	Df	Mean Square	F	Significance
1	Regression	177.291	1	177.291	14.654	.000b
	Residual	3205.990	268	12.098		
	Total	3383.281	269			

Table 5, depicting the Analysis of Variance (ANOVA), shows the sum of squares, degrees of freedom, F-ratio, and the corresponding significance.

The F-ratio represents an improvement in the prediction of the variable by fitting a model that considers the inaccuracies. A value greater than 1 for F-ratio yields an efficient model. In table 5, the value is 14.654, which is acceptable.

The p-value or significance value at 95% confidence interval or 5% level of the significance level is chosen for the study. Thus the p-value should be less than 0.05. In the above table, it is .000. Therefore, the result is significant.

Table 6 Summary of coefficients of standard deviation

Coefficientsa

Model		Unstandardized Coefficients		Standardized Coefficients	t	Significance
		B	Std. Error	Beta		
1	(Constant)	14.588	1.436		10.158	.000
	normalsd	-.244	.064	-.319	-3.828	.000

a. Dependent Variable: normal5yr

Table 6 shows the regression coefficients, the intercept, the significance of all coefficients, and the model's intercept. The beta weights denote that **a** change of 1 standard deviation in mutual fund standard deviation is associated with a change of - 0.319 standard deviations of the mutual fund returns**.** The linear regression analysis estimates the linear regression function to be y = 14.588 –

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0.244 x. The value that is essential in interpretation is the significance value. The value should be below the tolerable level of significance for the study, i.e., below 0.05 for a 95% confidence interval in this study. Based on the significance value, the null hypothesis is either rejected or not rejected. If the significance is < = 0.05, the null hypothesis is rejected, and the alternative hypothesis is accepted. If the significance is > 0.05, then the null hypothesis is accepted, and the alternative hypothesis is rejected. It implies that if the null hypothesis is rejected, the independent variable is impacted on the dependent variable. If the alternative hypothesis is rejected, the independent variable has no impact on the dependent variable. In this case, since the significance value is 0.000, we can conclude that the null hypothesis is rejected, and there is a relationship between the standard deviation and the returns of a mutual fund.

3. Beta Correlation & Regression analysis

Table 7 Model Summary of Beta

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.322[a]	.103	.101	3.56497	1.978

a. Predictors: (Constant), normalbeta

b. Dependent Variable: normal5yr

The output table 7 shows the model summary and overall fit statistics. R-value is 0.322, suggesting a moderate positive correlation between the mutual funds' Beta and the mutual fund performance. The R^2 of the model is 0.103, and adjusted R^2 is 0.101. The value of R^2 signified that the linear regression explained only 10.1 % of the variance in the data. The Durbin-Watson, d = 1.978, is between the two critical values of 1.5 < d < 2.5, it is assumed that there is no first-order linear auto-correlation in the data.

Table 8 ANOVA Summary of Beta

ANOVA

Model		Sum of Squares	df	Mean Square	F	Significance
1	Regression	90.180	1	90.180	7.096	.008[b]
	Residual	3367.891	268	12.709		
	Total	3458.071	269			

Table 8, depicting the Analysis of Variance (ANOVA), shows the sum of squares, degrees of freedom, F-ratio, and the corresponding significance.

The F-ratio represents an improvement in the prediction of the variable by fitting a model that considers the inaccuracies. A value greater than 1 for F-ratio yields an efficient model. In table 8, the value is 7.096, which is acceptable.

The p-value or significance value at 95% confidence interval or 5% level of the significance level is chosen for the study. Thus the p-value should be less than 0.05. In the above table, it is .008. Therefore, the result is significant.

Table 9 Summary of coefficients of Beta

Model		Unstandardized Coefficients		Standardized Coefficients		Significance
		B	Std. Error	Beta	t	ce
1	(Constant)	14.326	1.964		7.293	.000
	normalbeta	-5.548	2.083	-.322	-2.664	.008

a. Dependent Variable: normal5yr

Table 9 shows the regression coefficients, the intercept, the significance of all coefficients, and the model's intercept. The beta weights denote that a change of 1 standard deviation in Beta is associated with a change of - 0.322 standard deviations of the mutual fund returns. The linear regression analysis estimates the linear regression function to be y = 14.326 – 5.548 x. The value that is essential in interpretation is the significance value. The value should be below the tolerable level of significance for the study, i.e., below 0.05 for a 95% confidence interval in this study. Based on the significance value, the null hypothesis is either rejected or not rejected. If the significance is <= 0.05, the null hypothesis is rejected, and the alternative hypothesis is accepted. If the significance is > 0.05, then the null hypothesis is accepted, and the alternative hypothesis is rejected. It implies that if the null hypothesis is rejected, the independent variable is impacted on the dependent variable. If the alternative hypothesis is rejected, the independent variable has no impact on the dependent variable. In this case, since the significance value is 0.008, we can conclude that the null hypothesis is rejected, and there is a relationship between the beta and the returns of a mutual fund.

4. Alpha Correlation & Regression analysis

Table 10 Model Summary of Alpha

The output table 10 shows the model summary and overall fit statistics. R value is 0.395, suggesting

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.395a	.156	.150	3.36463	1.976

a. Predictors: (Constant), normalalpha

b. Dependent Variable: normal5yr

a moderate positive correlation between the mutual funds' Beta and the mutual fund performance. The R^2 of the model is 0.156, and adjusted R^2 is 0.150. The value of R^2 signified that the linear regression explained only 15 % of the variance in the data. The Durbin-Watson, d = 1.976, is between the two critical values of 1.5 < d < 2.5, it is assumed that there is no first-order linear auto-correlation in the data.

Table 11 ANOVA Summary of Alpha

ANOVAa

Model		Sum of Squares	df	Mean Square	F	Significance
1	Regression	462.251	1	462.251	40.832	.000b
	Residual	2999.997	268	11.321		
	Total	3462.248	269			

a. Dependent Variable: normal5yr

b. Predictors: (Constant), normalalpha

Table 11, depicting the Analysis of Variance (ANOVA), shows the sum of squares, degrees of freedom, F-ratio, and the corresponding significance.

The F-ratio represents an improvement in the prediction of the variable by fitting a model that considers the inaccuracies. A value greater than 1 for F-ratio yields an efficient model. In table 11, the value is 40.832, which is acceptable.

The p-value or significance value at 95% confidence interval or 5% level of the significance level is chosen for the study. Thus the p-value should be less than 0.05. In the above table, it is .000. Therefore, the result is significant.

Table 12 Summary of coefficients of Alpha

Model		Unstandardized Coefficients		Standardized Coefficients	t	Significance
		B	Std. Error	Beta		
1	(Constant)	9.361	.209		44.725	.000
	normalalpha	.250	.039	.395	6.390	.000

a. Dependent Variable: normal5yr

Table 12 shows the regression coefficients, the intercept, the significance of all coefficients, and the model's intercept. The beta weights denote that a change of 1 standard deviation in Alpha is associated with a change of 0.395 standard deviations of the mutual fund returns. The linear regression analysis estimates the linear regression function to be y = 9.361 + 0.250 x. The value that is essential in interpretation is the significance value. The value should be below the tolerable level of significance for the study, i.e., below 0.05 for a 95% confidence interval in this study. Based on the significance value, the null hypothesis is either rejected or not rejected. If the significance is <= 0.05, the null hypothesis is rejected, and the alternative hypothesis is accepted. If the significance is > 0.05, then the null hypothesis is accepted, and the alternative hypothesis is rejected. It implies that if the null hypothesis is rejected, the independent variable is impacted on the dependent variable. If the alternative hypothesis is rejected, the independent variable has no impact on the dependent variable. In this case, since the significance value is 0.000, we can conclude that the null hypothesis is rejected, and there is a relationship between the alpha and the returns of a mutual fund.

5. Expense Ratio Correlation & Regression analysis

Table 13 Model Summary of Expense ratio

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	-.172[a]	.030	.026	3.55988	1.963

a. Predictors: (Constant), normal expense ratio

b. Dependent Variable: normal5yr

The output table 13 shows the model summary and overall fit statistics. The value of R is -0.172 suggests a low negative correlation between the mutual funds' Expense Ratio and the mutual fund performance. The R^2 of the model is 0.030, and the adjusted R^2 is 0.026. The value of R^2 signified that the linear regression explained 2.6 % of the variance in the data. The Durbin-Watson, d = 1.963, is between the two critical values of 1.5 < d < 2.5, it is assumed that there is no first-order linear auto-correlation in the data.

Table 14 ANOVA Summary of Expense ratio

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Significance
1	Regression	102.316	1	102.316	8.074	.005[b]
	Residual	3358.281	268	12.673		
	Total	3460.597	269			

a. Dependent Variable: normal5yr

b. Predictors: (Constant), normalexpenseratio

Table 14, depicting the Analysis of Variance (ANOVA), shows the sum of squares, degrees of freedom, F-ratio, and the corresponding significance.

The F-ratio represents an improvement in the prediction of the variable by fitting a model that considers the inaccuracies. A value greater than 1 for F-ratio yields an efficient model. In table 14, the value is 8.074, which is acceptable.

The p-value or significance value at 95% confidence interval or 5% level of the significance level is chosen for the study. Thus the p-value should be less than 0.05. In the above table, it is .005. Therefore, the result is significant.

Table 15 Summary of coefficients of Expense ratio

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Significance.
		B	Std. Error	Beta		
1	(Constant)	10.674	.588		18.165	.000
	Normal expense ratio	-.810	.285	-.172	-2.841	.005

a. Dependent Variable: normal5yr

Table 15 shows the regression coefficients, the intercept, the significance of all coefficients, and the model's intercept. The beta weights denote that a change of 1 standard deviation in the Expense ratio is associated with a change of -0.172 standard deviations of the mutual fund returns**.** The linear regression analysis estimates the linear regression function to be y = 10.674 – 0.810 x. The value that is essential in interpretation is the significance value. The value should be below the tolerable level of significance for the study, i.e., below 0.05 for a 95% confidence interval in this study. Based on the significance value, the null hypothesis is either rejected or not rejected. If the significance is <= 0.05, the null hypothesis is rejected, and the alternative hypothesis is accepted. If the significance is > 0.05, then the null hypothesis is accepted, and the alternative hypothesis is rejected. It implies that if the null hypothesis is rejected, the independent variable is impacted on the dependent variable. If the alternative hypothesis is rejected, the independent variable has no impact on the dependent variable. In this case, since the significance value is 0.05, we can conclude that the null hypothesis is rejected, and there is a relationship between the expense ratio and the returns of a mutual fund.

CONCLUSION

As stated in the analysis in the preceding subunits, it is clear that all the factors of mutual fund performance have a relationship with the returns of the mutual fund; the relationship was determined based on the correlation analysis, and the regression analysis was statistically significant. Also, based on the regression analysis, the regression line equations were determined. Asset under Management, Standard deviation, Alpha, Beta, and R-square had a moderate positive correlation statistically significant at a 5% significance level. The expense ratio had a low negative correlation statistically significant at a 5% significance level.

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