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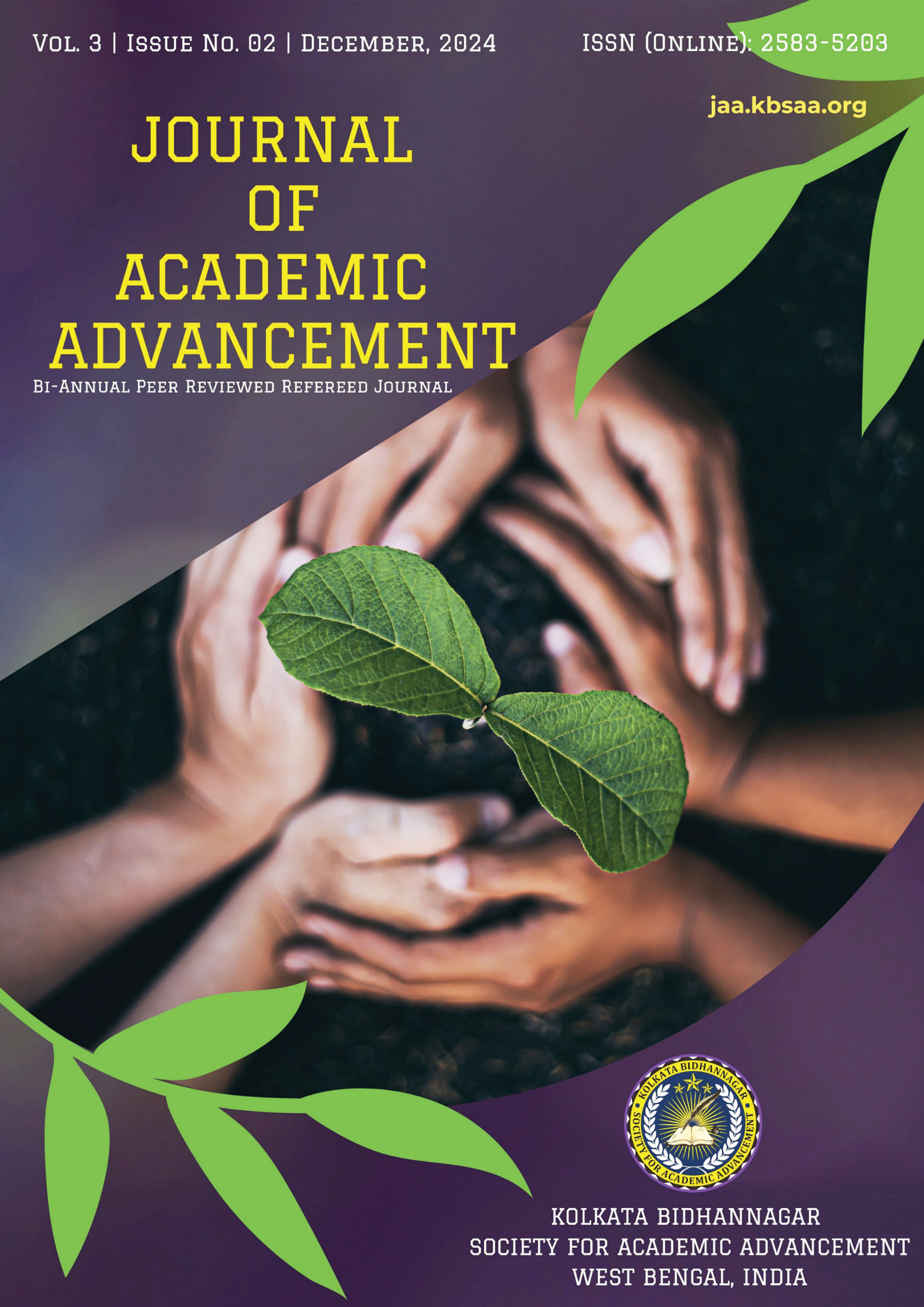

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EDITORIAL

We feel honoured and privileged to present the Bi-Annual Peer Reviewed Refereed Journal, ISSN (Online): 2583-5203, Volume 3, No. 02, December, 2024 among our esteemed readers and academic fraternity.

This Journal is the outcome of the contributions of insightful research-oriented papers/articles by various eminent academicians, and research scholars in a highly organized and lucid manner with a clear and detailed analysis related to the emerging areas in the fields of Social Sciences and Allied Areas.

The views expressed in the research-oriented papers/articles solely belong to the paper contributor(s). Neither the Publisher nor the Editor(s) in any way can be held responsible for any comments, views and opinions expressed by **paper contributors.** While editing, we put in a reasonable effort to ensure that no infringement of any intellectual property right is tolerated.

We also express our sincere thanks and gratitude to all the contributors to research papers/ articles who have taken pain in preparing manuscripts, incorporating reviewer(s) valuable suggestions and cooperating with us in every possible way.

We also express our heartfelt gratitude to all the esteemed members of the Editorial Board, Esteemed Reviewer(s) who despite their busy schedules have given their valuable time, suggestions and comments to enrich the quality of the contributory resears paper(s) in bringing to light this December issue.

Last, but not least, we revere the patronage and moral support extended by our parents and family members whose constant encouragement and cooperation made it possible for us to complete on time.

We would highly appreciate and look forward to your valuable suggestions, comments and feedback at **editorbr2022@gmail.com**

December 31, 2024
West Bengal, India

PEMA LAMA
Editor-in-Chief

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RESEARCH ARTICLE

Evaluation of Operating Efficiency of Designated Indian Mutual Funds: A Performance Review

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ABSTRACT

In the recent competitive environment, that is after liberalization, privatization and globalization various investment avenues are available for an investor to invest their money and to get a sufficient return to make a comparison of risk-return measurement. In comparison to traditional schemes like bank FD or various types of deposit schemes opened in a bank or any other financial instruments traded in the money market, the capital market is now indulging the fostering growth in this area. Out of the major schemes in the capital market, a mutual fund is best for an apprentice. It can ensure for the beginners to increase return on investment with minimized risk in comparison to traditional investment.

There is a wide scope of operations in mutual fund investment to diversify their analysis of performance according to an investor's discretion of investment. However one can analyse the effectiveness of various funds traded in the Indian capital market before making an investment. In this paper, we have selected some mutual funds schemes traded in the Indian capital market according to the CRISIL ranking and also made an attempt to evaluate their performance based on some parameters like AUM, NAV & risk analysis (by using different portfolio performance indexes). We have taken some specified categories of fund options, of which the risk-return analysis has been statistically tested with the Single Factor ANOVA test. The result obtained from such a test may be very effective for an investor to consider the investment alternatives.

1. INTRODUCTION

At the present time value of money is decreasing constantly. So each and every earning people want to save their money or income in such a way that its value keep increases and there be an opportunity of some flow of income to them. For this reason people search for different investment schemes. There are various schemes which keep the money value of investment intact and also create income opportunity for the investors from their investments. Besides for every scheme there are some benefits and disadvantages also. When we think for a large mass of Risk averse population the most popular investment schemes that provide fixed and steady return are Bank FD, post office fixed deposit etc. These options are in the prime choice of investors because of most of them think there is no risk factor involved and they also assume a fixed return from such investment on the maturity period. In general, the logic is true. But there are some capital market investment schemes which provide higher returns than those under the traditional schemes or options of the money market. Some of these are mutual funds, stocks, bonds etc. Out of which mutual fund investment provides the balance of return risk and liquidity to the prospective investors. Despite this higher return people hesitate for such investment due to risk factors. Though capital market investment is risky but among them, mutual

fund investments are less risky as these are managed by professional fund managers. Again, if proper selection of funds is made then we can get a steady return with minimized risk from such investments. In this paper, we have shown the risk-return calculation of different categories of mutual funds.

As we know there are many categories of mutual funds, we have taken three categories viz. small cap, mid cap and large cap. The uncertainty factor is also decreasing as we move in ascending order fund but the return is increasing as we move in descending order. In this paper by use of statistical tools, we will verify the significant difference of risk and also the return for each category of mutual funds selected as above. From such calculation, investors will get some insights about the performance of such funds and also can decide about the shift of their investment from traditional modes to these options according to their risk preferences. The basic motive of the paper is to aware people of the advantages of these schemes of investments despite their risk factors, in comparison to contemporary investment schemes like bank or post office fixed deposits.

2. LITERATURE REVIEW

Ahmed & Nomani, (2015) in their study, a comparative analysis was shown between the income and risk potential of different fund schemes. Different techniques of risk measurement were used and return was analysed based on a certain period. The main focus was given to equity-based funds which are risky also in nature. In the case of risk assessment, no information is found and hence no statistical test has been used. So with a return, what will be the risk factor for an investor, no association can be derived from the study. (Krishnamoorthi & Murugesan, 2018). Virparia (2022) take a glance at the analysis of the activity of some fund schemes from different period basis. Here different measurement tools were used specifying the risk and return of the selected funds. The data were collected on a 1-year, 3-year and 5-year basis. So, a comparative picture can be available. Chauhan, Kataria, & Dhand, (2020) gives us a clear but precise view of the result of investments in some selected domains. The author here selected physical and financial modes of investment. Then a comparison between these modes has been made about the return yearly. But in that case, some domains of investment need a lumpsum amount whereas some can allow us to invest on a flexible monthly basis. Kalyan & Gautami, (2018) in their study, shows the perspective of risk and return calculation of some selected funds. All the selected funds are contra funds in the category which has some disadvantages for beginners in the mutual fund market. In the case of fund selection an investor initially looks for the rate of average return from such fund.

3. RESEARCH GAP

From the review of existing literature, we can see that in many papers a performance of efficiency of schemes of mutual funds has been carried out. Some of which are focused on the risk aspect, and some from the return point of view. The classification of mutual funds was done from various perspectives. However, it is seen that there was no such work on risk-return trade-offs among small to large capitalisation mutual funds. Also, the comparison among the performance index (Sharpe, Treynor & Jensen) in between the different category of selected mutual funds are not done. But this comparison will be helpful to the investors for taking a glance at the risk exposure in relation to the return from their investment in mutual funds. In this aspect, we will show the comparison of risk exposure by measuring the performance index between these three classes of mutual funds and also compare the return among such categories. And then verify the significant difference among the selected variables by using appropriate statistical tools.

4. OBJECTIVES OF THE STUDY

The objectives of the study are as follows –

- To measure the variability of the rate of income among various mutual fund schemes in respect to small capitalization to large capitalisation categories.
- To compare the risk-return trade-off among different mutual funds in accordance with investors' risk perspective.

- To compare different portfolio performance indices based on measures of Sharpe, Treynor and Jenson's.
- To examine the significant difference in risk as well as return by using appropriate statistical tools with respect to various pairs of different categories of mutual funds.

5. RESEARCH METHODOLOGY

In the present study, we have done Secondary Data Analysis. For this analysis, we have selected different Mutual Funds based on their Size and Volume (mentioned in the table below). We have selected Four Mutual Funds from Each of the categories. The total number of Mutual Funds we have selected is 12. These Mutual funds have been taken based on their CRISIL Ranking basis. We have taken into consideration the 5 to 3 CRISIL Ranking.

TABLE 1: DIFFERENT TYPES OF MUTUAL FUNDS

(in each category size in accordance to CRISIL Ranking in Capital Market)

Size and Category	Details	CRISIL Ranking
Large Capitalisation Category	ICICI Prud. Blue Chip Fund	4
	Bandhan Large Cap Fund	4
	SBI Blue Chip Fund	3
	Invesco India Large Cap Fund	4
Small Cap	Franklin India Smaller Co.'s Fund	5
	Kotak Small Capitalisation	3
	SBI Small Cap Fund	3
	Sundaram Small Capitalisation	3
Mid-Cap Category	ICICI Prudential Mid Cap Growth Fund	4
	HDFC Mid Cap Opportunities Growth Fund	4
	Nippon India Growth Fund	4
	Edelweiss Mid Cap Fund	4

Regarding our data analysis part, we have done different comparison based on their portfolio performance index. We have done different statical tests (ANOVA Test: Single Factor) to compare their variability of performance based on their Return Index.

We have done three different variability combinations based on their Return Index. We have considered Annual Return.

- Combination 1: Large and Small Cap
- Combination 2: Mid vs Small Capitalisation
- Combination 3: Large and Mid-Cap

On the Other side, Risk Factors are also significant to an Investor to compare the Performance Index of the portfolio. In this connection, we have taken the Three Popular Portfolio Performance Index (i.e. Sharpe Ratio, Treynor Ratio, Jension's Alpha). The performance of the efficient portfolio selected by Capital Market Line (CML) by Optimizing the Beta Coefficient, needs to be evaluated regularly. It will be revised under the Investor's perception based on the Portfolio Performance Index and Revised if needed.

TABLE 2: PORTFOLIO PERFORMANCE INDEXES

Portfolio Performance Indexes	Portfolio	Market Index Return	Performance Measurement
Sharpe Ratio Index	(Sp) = ($\bar{R}$p - Rf) / p Where, $\bar{R}$p = Average Rate of Income from Portfolio, Rf = Risk-free rate p = Standard Deviation of Portfolio Return / Unsystematic Risk	(Sm) = ($\bar{R}$m - Rf) / m Where $\bar{R}$p = Average Market Return, p = Std. Dev. of Market Return / Market Risk	If Sp > Sm = Portfolio is Outperformed Sp < Sm = Portfolio is Underperformed, Sp = Sm = Portfolio is Invariable.
Treynor Index	(Tp) = ($\bar{R}$p - Rf) / p Denotes $\bar{R}$p = ARR earned from the Portfolio, Rf = Rate of Risk-Free Return = Beta value coefficient of portfolio measuring systematic risk	(Tm) = ($\bar{R}$m - Rf) / m Where, $\bar{R}$p = Avg. Return from the Market Index = Beta coefficient of portfolio measuring Market risk	If Tp > Tm = Portfolio is Outperformed. Tp < Tm = Portfolio is Underperformed. Tp = Tm = Portfolio is Invariable.
Jension's Alpha	$\alpha p = \bar{R}p - [Rf + \beta (Rm - Rf)]$ It denotes the difference between the Actual return of the Portfolio and the Return as per CAPM.		$\alpha p > 0$ = Portfolio is Outperformed. $\alpha p < 0$ = Portfolio is Underperformed.

Sharpe and Treynor Index are Relative Performance Measurement whereas Jension's Alpha is an Absolute Performance Measurement. In the Sharpe Ratio and Treynor Ratio, the Sharpe Ratio is free from Systematic Risk and Treynor Index is free from Unsystematic Risk. Investor may select any kind of portfolio based on their Risk-Return Trade-off, for ranking the relative performance of the portfolio. In this paper, we have made Three Pairs of variability in each category of mutual fund (i.e. Large Cap, Small Cap and Mid-Cap). We have done with Anova (Single Factor) and to find out the significant difference between three pairs of funds among the three categories.

6. DATA ANALYSIS AND FINDINGS

TABLE 3: ANNUAL RETURNS - MID CAP FUND PERFORMANCE

Scheme Name	Crisil Rank	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013	Avg. Return
ICICI Prudential Mid Cap Fund - Growth	4	31%	3%	41%	19%	-1%	-11%	43%	4%	5%	84%	6%	**20%**
HDFC Growth Fund	4	43%	12%	37%	21%	0%	-11%	42%	11%	5%	76%	9%	**22%**
Nippon India Growth Fund - Growth	4	49%	6%	43%	21%	7%	-11%	44%	3%	6%	54%	-3%	**20%**
Edelweiss Regular Plan	4	38%	2%	47%	26%	5%	-16%	52%	2%	9%	83%	6%	**23%**

Source: Moneycontrol.Com

TABLE 4: AVERAGE RETURN OF DIFFERENT MUTUAL FUNDS

(Over the years 2013 to 2023 of Mid-Cap)

Scheme Name	Avg. Return
ICICI Prudential Mid-Cap	20%
HDFC Mid-Cap Schemes	22%
Nippon India Growth Plan	20%
Edelweiss Mid Capitalisation Plan	23%

TABLE 5: ANNUAL RETURNS - LARGE CAP FUND PERFORMANCE

Scheme Name	Crisil Rank	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013	Avg. Return
ICICI Prudential Bluechip Fund -Growth	4	27%	7%	28%	13%	10%	0%	33%	7%	0%	41%	9%	**16%**
Bandhan Large Cap Growth Plan	4	26%	-2%	25%	17%	11%	-4%	34%	5%	-6%	30%	7%	**13%**
SBI Blue Chip Fund Scheme	3	22%	4%	24%	16%	12%	-4%	30%	4%	8%	47%	7%	**16%**
Invesco India Growth Scheme	4	28%	-3%	31%	14%	11%	0%	28%	3%	5%	40%	8%	**15%**

Source: Moneycontrol.Com

TABLE 6: AVERAGE RETURN OF DIFFERENT MUTUAL FUNDS

(Over the year 2013 to 2023 of Large Cap funds)

Scheme Name	Avg. Return
ICICI Prudential Bluechip Fund - Growth	16%
Bandhan Large Cap Fund - Regular Plan-Growth	13%
State Bank of India Blue Chip Fund - Regular Plan-Growth	16%
Invesco India Large cap Fund - Growth	15%

TABLE 7: ANNUAL RETURNS - SMALL CAP FUND PERFORMANCE

Scheme Name	Crisil Rank	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013	Avg. Return
Franklin India Smaller Companies Fund - Growth	5	52%	4%	54%	17%	-6%	-17%	43%	10%	9%	89%	12%	24%
Kotak Small Cap Fund - Growth	3	34%	-3%	67%	34%	4%	-17%	44%	8%	7%	74%	-6%	22%
SBI Regular Plan (Small Cap)	3	24%	8%	44%	33%	6%	-20%	79%	0%	20%	110%	7%	28%
Sundaram Small Cap Fund - Growth	3	44%	-2%	57%	25%	-7%	-29%	56%	-1%	7%	108%	-6%	23%

Source: Moneycontrol.Com

TABLE 8: AVERAGE RETURN OF DIFFERENT MUTUAL FUNDS

(Over the years 2013 to 2023 of Small Capital Category)

Scheme Details	Avg. Return
Franklin Ind Growth Plan	24%
Kotak Small Cap	22%
SBI Regular Growth Plan	28%
Sundaram Growth Scheme	23%

TABLE 9: MID-CAP MUTUAL FUND RISK IN ACCORDANCE TO PORTFOLIO PERFORMANCE INDEX

Scheme Name	Crisil Rank	Standard Deviation	Beta	Sharpe Ratio	Jension's Alpha	Treynor's Ratio
ICICI Prudential Mid Cap Fund - Growth	4	15.55	0.90	1.06	-1.53	0.18
HDFC Mid-Cap Opportunities Fund - Growth	4	15.35	0.90	1.38	3.31	0.24
Nippon India Growth Fund - Growth	4	15.77	0.93	1.28	1.55	0.22
Edelweiss Mid Cap Fund - Regular Plan-Growth	4	16.16	0.95	1.13	-0.66	0.19

Interpretation: Table 7 shows Cap Mutual Fund Risk under the Portfolio Performance Index with compare to the Beta Coefficient factor. Beta Coefficient varies from 0.90 to 0.95 among the Four Mutual funds in this category. The highest risk factor is 3.31 times which belongs to the HDFC Opportunities Growth fund and the lowest risk factor -1.53 times belongs to ICICI Prudential Mid Cap Fund Growth. In this Midcap fund, an Investor may invest their money in accordance with their risk perception.

TABLE 10: LARGE CAP MUTUAL FUND RISK IN ACCORDANCE TO PORTFOLIO PERFORMANCE INDEX

Name	Crisil Rank	S. D		Sharpe Ratio	Jension's Alpha	Treynor's Ratio
Bandhan Large Cap	4	13.78	0.95	0.83	-0.28	0.12
Invesco India Large Cap Fund - Growth	4	13.92	0.95	0.83	0.51	0.12
ICICI Prudential Bluechip Fund	4	12.76	0.88	1.14	4.26	0.16
SBI Blue Chip Fund	3	12.85	0.89	0.81	-0.57	0.12

Interpretation: Table 8 shows Large Cap Mutual Fund Risk under the Portfolio Performance Index with comparison to the Beta Coefficient factor. Beta Coefficient varies from 0.88 to 0.95 among the Four Mutual funds in this category. The highest risk factor is 4.26 times which belongs to the ICICI Prudential Blue Chip fund and the lowest risk factor -0.58 times belongs to SBI Blue Chip Fund Regular Plan Growth. In this Large-cap fund, an Investor may Invest its money in harmony to its risk observation.

TABLE 11: SMALL CAP MUTUAL FUND RISK IN ACCORDANCE TO PORTFOLIO PERFORMANCE INDEX

Scheme Name	Crisil Rank	Standard Deviation	Beta	Sharpe Ratio	Jension's Alpha	Treynor's Ratio
Franklin India Smaller Companies Fund - Growth	5	15.27	0.79	1.39	7.27	0.27
Kotak Small Cap Fund - Growth	3	13.03	0.67	1.14	2.56	0.22
SBI Small Cap Fund - Regular Plan-Growth	3	13.08	0.68	1.22	3.64	0.23
Sundaram Small Cap Fund - Growth	3	14.71	0.77	1.05	1.40	0.20

Interpretation: Table 9 shows Small Cap Mutual Fund Risk under the Portfolio Performance Index with compare to the Beta Coefficient factor. Beta Coefficient varies from 0.67 to 0.79 among the Four Mutual funds in this category. The highest risk factor is 7.27 times which belongs to Franklin India Smaller Companies Growth fund and the lowest risk factor 0.20 times belongs to Sundaram Small Cap Fund Growth. In this Small-cap fund, an Investor may Invest its money in harmony to its risk observation with the highest return trade-off.

Combination 1: Large Cap and Small Cap

TABLE 12: PAIR OF VARIABILITY OF AVERAGE RETURN BETWEEN LARGE CAP AND SMALL CAP FUNDS (2013 - 2023)

Year	Large Cap Mutual Fund	Small Cap Mutual Fund
2023	26	39
2022	1	2
2021	27	56
2020	15	27
2019	11	-1
2018	-2	-21
2017	31	55
2016	5	5
2015	2	11
2014	40	95
2013	8	2

H_0: There will be no significant difference of variability of Avg. Return in between Large Cap and Small cap Mutual Fund and its bearing on Investor's Portfolio Return.

H_1: There will be significant difference of variability of Avg. Return in between Large Cap and Small cap Mutual Fund and its bearing on Investor's Portfolio Return.

Anova: Single Factor						
Groups	Count	Sum	Average	Variance		
Col. 1	11	164	14.90909	196.4909		
Col. 2	11	270	24.54545	1140.473		
Source of Variation	SS	df	MS	F	P-value	F crit
Bet. Grp	510.7273	1	510.7273	0.764011	0.392451	4.351243
Within Groups	13369.64	20	668.4818			
Total	13880.36	21				

Interpretation: As per the above table, F calculated value 0.7640 which is lesser than F tabularized value 4.3512, which may indicate that it may not be significant as Null Hypothesis (i.e. H0 is Accepted). Simultaneously P Val. 0.39 > 0.05 (5 % Significance Level) that is there is an observed difference in between Large cap & Small cap fund. It means that there will be a noteworthy difference of inconsistency of Avg. Return in between Large cap and Small cap Mutual Funds and its bearing on Investor's Portfolio Return to the P value factor. Here Investors may select any categories of Mutual Funds conferring to its Risk Observation Strategy.

Combination 2: Mid-Cap and Small Cap

TABLE 13: PAIR OF VARIABILITY OF AVG. RETURN IN BETWEEN MID CAP AND SMALL CAP FUNDS (2013 – 2023)

Year	Mid-Cap Mutual Fund	Small Cap Mutual Fund
2023	40	39
2022	6	2
2021	42	56
2020	22	27
2019	3	-1
2018	-12	-21
2017	45	55
2016	5	5
2015	6	11
2014	74	95
2013	4	2

H_0: There will be no significant difference in variability of Avg. Return in between Mid Cap and Small Cap Mutual Funds and it's bearing on Investor's Portfolio Return.

H_1: There will be a significant difference in variability of Avg. Return in between Mid Cap and Small Cap Mutual Funds and its bearing on Investor's Portfolio Return.

Anova: Single Factor						
Groups	Count	Sum	Average	Variance		
Pillar 1	11	235	21.36364	659.4545		
Pillar 2	11	270	24.54545	1140.473		
Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	55.68181818	1	55.68182	0.061871	0.806099	4.351243
Within Groups	17999.27273	20	899.9636			
Total	18054.95455	21				

Interpretation: As per the above table, the F calculated value is 0.0618 which is lesser than the F tabulated value of 4.3512, which may signify that the Null Hypothesis (i.e. H0 is Accepted). Simultaneously P Value is 0.806099 which is greater than 0.05 (5 % Significance Level) which means there is an observed difference between Mid-cap and Small-Cap Funds. It means that there will be a noteworthy difference of inconsistency of Avg. Return in between Mid & Small Cap Mutual Fund and its bearing on Investor's Portfolio Return to P value factor. It means that there will be no significant difference in variability of Avg. Return in between Mid Cap and Small-Cap Mutual Funds and its bearing on Investor's Portfolio Return. Here Investors may select any kind of Mutual Funds according to its Risk Perception Strategy.

Combination 3: Large Cap and Mid Cap

TABLE 14: PAIR OF VARIABILITY OF AVERAGE RETURN BETWEEN LARGE CAP AND MID CAP FUNDS (2013 TO 2023)

Year	Large Cap Mutual Fund	Mid-Cap Mutual Fund
2023	26	40
2022	1	6
2021	27	42
2020	15	22
2019	11	3
2018	-2	-12
2017	31	45
2016	5	5
2015	2	6
2014	40	74
2013	8	4

H_0: There will be no substantial alteration of the variability of Avg. Return in between Large Cap and Mid-Cap Mutual Fund and its bearing on Investor's Portfolio Return.

H_1: There will be a substantial modification of the changeability of Avg. Return in between Large Cap and Mid-Cap Mutual Fund and its bearing on Investor's Portfolio Return.

Anova: Single Factor						
Groups	**Count**	**Sum**	**Average**	**Variance**		
Post 1	11	235	21.36364	659.4545		
Post 2	11	164	14.90909	196.4909		
Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	229.1364	1	229.1364	0.535399	0.472833	4.351243
Within Groups	8559.455	20	427.9727			
Total	8788.591	21				

Interpretation: As per the above table, F calculated value 0.5354 which is lesser than F tabularized value of 4.3512, which may indicate that the Null Hypothesis (i.e. H0 is Accepted). Simultaneously, P Value that is 0.47 > 0.05 (5 % Significance Level) that there is an observed difference between Large Cap and Mid Cap funds. It means that there will be a noteworthy difference of inconsistency of Avg. Return in between Large cap & mid cap Mutual Funds and its bearing on Investor's Portfolio Return to P value factor. It means that there will be no noteworthy difference of inconsistency of Avg. Return in between Large Cap and Mid-Cap Mutual Fund and its bearing on Investor's Portfolio Return. At this point, Investors may select any categories of Mutual Funds conferring to its Risk Observation Strategy.

Combination of Risk Factors Among Three Categories of Funds

In this paper, we have considered three portfolio performance index factors in three categories of funds. Under Each of the categories of fund, we have done different pairs of combinations which are below and we have done Descriptive Statistics (i.e. Anova Single Factor)

Large Cap Fund

TABLE 15: RISK FACTOR REGARDING SHARPE RATIO AND JENSON ALPHA

Scheme Name	Sharpe Ratio	Jension's Alpha
Bandhan Large Cap Fund - Regular Plan-Growth	0.83	-0.28
Invesco India Large cap Fund - Growth	0.83	0.51
ICICI Prudential Blue Chip Fund - Growth	1.14	4.26
SBI Blue Chip Fund - Regular Plan-Growth	0.81	-0.57

H_0: There will be no substantial modification regarding the variability of Risk between Sharpe Ratio and Jenson's Alpha in Mutual Funds and its bearing on the Investor's Portfolio Return.

H_1: There will be considerable adjustment regarding the variability of Risk between Sharpe Ratio & Jension's Alpha Mutual Fund and its bearing on the Investor's Portfolio Return.

Anova: Single Factor						
Collections	Total	Totality	Middling	Devn.		
Co. 1	4	3.61	0.9025	0.025158		
Co. 2	4	3.92	0.98	4.9898		
Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	0.0120125	1	0.012012	0.004791	0.947068	5.987378
Within Groups	15.044875	6	2.507479			
Total	15.0568875	7				

Interpretation: As per the above table, F calculated value 0.004791 which is lesser than F tabularized value 5.987378, which may indicate that the Null Hypothesis (i.e. H0 is Accepted). This may not be significant as per the Investor's risk analysis perception model. P Value 0.9470 which is higher than 0.05 that is Null hypothesis is accepted. That is there will be no signifying difference between risk perception factors as consideration of an Investor's Risk return appetite. It means that there will be no noteworthy difference of contradiction of Risk factor between Sharpe Ratio and Jension's Alpha and its behaviour on the Investor's Portfolio Return. At this point, Investors may select any Large cap Mutual Funds conferring to its Risk Opinion Strategy.

TABLE 16: RISK FACTORS REGARDING SHARPE RATIO AND TREYNOR RATIO

Scheme Name	Sharpe Ratio	Treynor Ratio
Bandhan Large Cap Fund - Regular Plan-Growth	0.83	0.12
Invesco India Large cap Fund - Growth	0.83	0.12
ICICI Prudential Bluechip Fund - Growth	1.14	0.16
SBI Blue Chip Fund - Regular Plan-Growth	0.81	0.12

H_0:There will be no substantial modification regarding variability of Risk between Sharpe Ratio and Treynor's Ratio in Mutual Fund and its bearing on Investor's Portfolio Return.

H_1: There will be considerable adjustment regarding variability of Risk in between Sharpe Ratio and Treynor's Ratio in Mutual Fund and its bearing on Investor's Portfolio Return.

Anova: Single Factor						
Groups	Count	Sum	Average	Variance		
Column 1	4	3.61	0.9025	0.025158		
Column 2	4	0.52	0.13	0.0004		

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	1.1935125	1	1.193513	93.39517	7.04	5.987378
Within Groups	0.076675	6	0.012779			
Total	1.2701875	7				

Interpretation: As per the above table, F calculated value 93.39517 which is higher than F tabularized value 5.987378, which may indicate that the Null Hypothesis (i.e. H0 is Rejected). This may not be significant as per the Investor's risk analysis perception model. P Value 7.04 which is higher than 0.05 that is Null hypothesis is accepted. That is there will be no signifying difference between risk perception factors as consideration of an Investor's Risk return appetite. It means that there will be a notable difference in contradiction of Risk factors between Sharpe's Ratio and Treynor's Ratio and its impact on the Investor's Portfolio Return. At this point, the Investor may select any Large cap Mutual Funds conferring to its Risk Trade-off Approach.

TABLE 17: RISK FACTORS REGARDING JENSION'S ALPHA AND TREYNOR'S RATIO

Scheme Name	Jension's α	Treynor
Bandhan Large Cap Fund - Regular Plan-Growth	-0.28	0.12
Invesco India Large cap Fund - Growth	0.51	0.12
ICICI Prudential Bluechip Fund - Growth	4.26	0.16
SBI Blue Chip Fund - Regular Plan-Growth	-0.57	0.12

H_0: There will be no extensive modification regarding the variability of Risk between Jension's Alpha and Treynor's Ratio in Mutual Fund and its bearing on the Investor's Portfolio Return.

H_1: There will be significant modification regarding the variability of Risk between Jension's Alpha & Treynor's Ratio in Mutual Fund and its bearing on the Investor's Portfolio Return.

Anova: Single Factor						
Groups	Count	Sum	Average	Variance		
Column 1	4	3.92	0.98	4.9898		
Column 2	4	0.52	0.13	0.0004		
Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	1.445	1	1.445	0.579135	0.475487	5.987378
Within Groups	14.9706	6	2.4951			
Total	16.4156	7				

Interpretation: As per the above table, F calculated value 0.475487 which is smaller than F tabularized value 5.987378, which may indicate that the Null Hypothesis (i.e. H0 is Accepted). This may not be significant as per the Investor's risk analysis perception model. P Value 0.475 which is higher than 0.05 that is A.H is rejected. That is there will be no signifying difference between risk perception factors as consideration of an Investor's Risk return appetite. It means that there will be no distinguished difference in the inconsistency of Risk factors between Jension's Alpha and Treynor's Ratio and its impact on the Investor's Portfolio Return. At this point, the Investor may select any Large cap Mutual Funds conferring to its Risk Trade-off Approach.

Mid Cap Fund

TABLE 18: RISK FACTORS REGARDING SHARPE RATIO AND JENSION'S ALPHA

Scheme Name	Sharpe Ratio	Jension's Alpha
ICICI Prudential Mid-Cap Fund - Growth	1.06	-1.53
HDFC Mid-Cap Opportunities Fund - Growth	1.38	3.31
Nippon India Growth Fund - Growth	1.28	1.55
Edelweiss Mid Cap Fund - Regular Plan-Growth	1.13	-0.66

H_0: There will be no substantial modification regarding the variability of Risk between Sharpe Ratio and Jension's Alpha in a Mid-Cap Mutual Fund and its bearing on the Investor's Portfolio Return.

H_1: There will be considerable adjustment regarding the variability of Risk between Sharpe Ratio and Jension's Alpha in Mid-Cap Mutual Funds and its bearing on Investor's Portfolio Return.

Anova: Single Factor						
Groups	Count	Sum	Average	Variance		
Column 1	4	4.85	1.2125	0.020892		
Column 2	4	2.67	0.6675	4.784292		
Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	0.59405	1	0.59405	0.247254	0.636709	5.987378
Within Groups	14.41555	6	2.402592			
Total	15.0096	7				

Interpretation: As per the above table, F calculated value 0.247254 which is lesser than F tabularized value 5.987378, which may indicate that the Null Hypothesis (i.e. H0 is Accepted). This may not be significant as per the Investor's risk analysis perception model. P Value 0.6367 which is higher than 0.05 that is N.H is accepted. That is there will be no signifying difference between risk perception factors as consideration of an Investor's Risk return appetite. It means that there will be no noteworthy difference in contradiction of Risk factor between Sharpe Ratio & Jension's Alpha and its behaviour on the Investor's Portfolio Return. At this point, the Investor may select any Mid-cap Mutual Funds conferring to its Risk Opinion Strategy.

TABLE 19: RISK FACTOR REGARDING SHARPE AND TREYNOR

Scheme Name	Sharpe Ratio	Treynor's Ratio
ICICI Prudential Mid-Cap Fund - Growth	1.06	0.18
HDFC Mid-Cap Opportunities Fund - Growth	1.38	0.24
Nippon India Growth Fund - Growth	1.28	0.22
Edelweiss Mid Cap Fund - Regular Plan-Growth	1.13	0.19

H_0: There will be no substantial modification regarding the variability of Risk between Sharpe and Treynor in a Mid-Cap Mutual Fund and its bearing on the Investor's Portfolio Return.

H_1: There will be considerable adjustment regarding the variability of Risk between Sharpe's Ratio & Treynor's Ratio in Mid-Cap Mutual Funds and its bearing on the Investor's Portfolio Return.

Anova: Single Factor						
Groups	Count	Sum	Average	Variance		
Column 1	4	4.85	1.2125	0.020892		
Column 2	4	0.83	0.2075	0.000758		
Source of Variation	SS	df	MS	F	P-value	F crit

Between Groups	2.02005	1	2.02005	186.6097	9.56	5.987378
Within Groups	0.06495	6	0.010825			
Total	2.085	7				

Interpretation: As per the above table, F calculated value 186.6097 which is higher than F tabularized value 5.987378, which may be indicates that Null Hypothesis (i.e. H0 is Rejected). This may not be significant as per Investor's risk analysis perception model. P Value 9.56 which is higher than 0.05 that is Null hypothesis is accepted. That is there will be signifying difference in between risk perception factors as consideration to the Investor's Risk return appetite. It means that there will be a distinguished difference in contradiction of Risk factors between Sharpe's Ratio and Treynor's Ratio and its impact on the Investor's Portfolio Return. At this point, the Investor may select any Mid-Cap Mutual Funds conferring to its Risk Trade-off Approach.

TABLE 20: RISK FACTOR REGARDING JENSION'S ALPHA AND TREYNOR'S RATIO

Scheme Name	Jension's Alpha	Treynor's Ratio
ICICI Prudential Mid-Cap Fund - Growth	-1.53	0.18
HDFC Mid-Cap Opportunities Fund - Growth	3.31	0.24
Nippon India Growth Fund - Growth	1.55	0.22
Edelweiss Mid Cap Fund - Regular Plan-Growth	-0.66	0.19

H_0: There will be no widespread alteration regarding variability of Risk between Jension's Alpha and Treynor's Ratio in Mutual Fund and it's bearing on Investor's Portfolio Return.

H_1: There will be noteworthy alteration regarding variability of Risk in between Jension's Alpha and Treynor's Ratio in Mutual Fund and it's bearing on Investor's Portfolio Return.

Anova: Single Factor						
Groups	**Count**	**Sum**	Average	Variance		
Column 1	4	2.67	0.6675	4.784292		
Column 2	4	0.83	0.2075	0.000758		
Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	0.4232	1	0.4232	0.176884	0.688712	5.987378
Within Groups	14.35515	6	2.392525			
Total	14.77835	7				

Interpretation: As per the above table, F calculated value 0.176884 which is smaller than F tabularized value 5.987378, which may be indicates that Null Hypothesis (i.e. H0 is Accepted). This may not be significant as per Investor's risk analysis perception model. P Value 0.688712 which is higher than 0.05 that is Null hypothesis is accepted. That is there will be no signifying difference in between risk perception factors as consideration to Investor's Risk return appetite. It means that there will be no distinguished difference of inconsistency of Risk factor in between Jension's Alpha and Treynor's Ratio and its impact on Investor's Portfolio Return. At this point Investor may select any Mid cap Mutual Funds deliberating to its Risk Trade-off Approach.

Small Cap Fund

TABLE 21: RISK FACTOR REGARDING SHARPE RATIO AND JENSION'S ALPHA

Scheme Name	Sharpe Ratio	Jension's Alpha
Franklin India Smaller Companies Fund - Growth	1.39	7.27
Kotak Small Cap Fund - Growth	1.14	2.56
SBI Small Cap Fund - Regular Plan - Growth	1.22	3.64
Sundaram Small Cap Fund - Growth	1.05	1.40

H_0: There will be no substantial modification regarding variability of Risk between Sharpe Ratio and Jension's Alpha in Small Cap Mutual Fund and its attitude on Investor's Portfolio Return.

H_1: There will be considerable adjustment regarding variability of Risk in between Sharpe Ratio and Jension's Alpha in Small Cap Mutual Fund and its attitude on Investor's Portfolio Return.

Anova: Single Factor						
Groups	Count	Sum	Average	Variance		
Column 1	4	4.8	1.2	0.020867		
Column 2	4	14.87	3.7175	6.445625		
Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	12.6756125	1	12.67561	3.920399	0.095024	5.987378
Within Groups	19.399475	6	3.233246			
Total	32.0750875	7				

Interpretation: As per the above table, F calculated value 3.920399 which is lesser than F tabularized value 5.987378, which may be indicates that Null Hypothesis (i.e. H0 is Accepted). This may not be significant as per Investor's risk analysis perception model. P Value 0.095024 which is higher than 0.05 that is Null hypothesis is accepted. That is there will be no signifying difference in between risk perception factors as consideration to Investor's Risk return appetite. It means that there will be no noteworthy difference of contradiction of Risk factor between Sharpe Ratio and Jension's Alpha and its behaviour on Investor's Portfolio Return. At this point Investor may select any Small cap Mutual Funds conversing to its Risk Estimation Strategy.

TABLE 22: RISK FACTOR REGARDING SHARPE RATIO AND TREYNOR'S RATIO

Scheme Name	Sharpe Ratio	Treynor's Ratio
Franklin India Smaller Companies Fund - Growth	1.39	0.27
Kotak Small Cap Fund - Growth	1.14	0.22
SBI Small Cap Fund - Regular Plan - Growth	1.22	0.23
Sundaram Small Cap Fund - Growth	1.05	0.20

H_0: There will be no substantial modification regarding variability of Risk between Sharpe Ratio and Treynor's Ratio in Small Cap Mutual Fund and it's bearing on Investor's Portfolio Return.

H_1: There will be considerable adjustment regarding variability of Risk in between Sharpe Ratio and Treynor's Ratio in Small Cap Mutual Fund and it's bearing on Investor's Portfolio Return.

Anova: Single Factor						
Groups	Count	Sum	Average	Variance		
Column 1	4	4.8	1.2	0.020867		
Column 2	4	0.92	0.23	0.000867		

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	1.8818	1	1.8818	173.1718	1.19	5.987378
Within Groups	0.0652	6	0.010867			
Total	1.947	7				

Interpretation: As per the above table, F calculated value 173.1718 which is higher than F tabularized value 5.987378, which may be indicates that Null Hypothesis (i.e. H0 is Rejected). This may not be significant as per Investor's risk analysis perception model. P Value 1.19 which is higher than 0.05 that is Null hypothesis is accepted. That is there will be signifying difference in between risk perception factors as consideration to Investor's Risk return appetite. It means that there will be notable difference of contradiction of Risk factor in between Sharpe Ratio and Treynor's Ratio and its impact on Investor's Portfolio Return. At this point Investor may select any Small Cap Mutual Funds conferring to its Risk Trade-off Approach.

TABLE 23: RISK FACTOR REGARDING JENSION AND TREYNOR'S MEASURE

Scheme Name	Jension's Alpha	Treynor's Ratio
Franklin India Smaller Companies Fund - Growth	7.27	0.27
Kotak Small Cap Fund - Growth	2.56	0.22
SBI Small Cap Fund - Regular Plan - Growth	3.64	0.23
Sundaram Small Cap Fund - Growth	1.40	0.20

H_0: There will be no widespread alteration regarding variability of Risk between Jension's Alpha and Treynor's Ratio in Small cap Mutual Fund and its bearing on Investor's Portfolio Return.

H_1: There will be noteworthy alteration regarding variability of Risk in between Jension's Alpha and Treynor's Ratio in Small cap Mutual Fund and its bearing on Investor's Portfolio Return.

Anova: Single Factor						
Groups	Count	Sum	Average	Variance		
Column 1	4	14.87	3.7175	6.445625		
Column 2	4	0.92	0.23	0.000867		
Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	24.3253125	1	24.32531	7.546837	0.033418	5.987378
Within Groups	19.339475	6	3.223246			
Total	43.6647875	7				

Interpretation: As per the above table, F calculated value 7.546837 which is higher than F tabularized value 5.987378, which may be indicates that Null Hypothesis (i.e. H0 is Rejected). This may not be significant as per Investor's risk analysis perception model. P Value 0.033418 which is lower than 0.05 that is Null hypothesis is rejected. That is there will be signifying difference in between risk perception factors as consideration to Investor's Risk return appetite. It means that there will be eminent difference of contradiction of Risk factor in between Jension's Alpha and Treynor's Ratio and its impact on Investor's Portfolio Return. At this point Investor may select any Small cap Mutual Funds reflecting to its Risk Trade-off Approach.

7. FINDINGS

From the above analysis part the main findings are listed below:

- Among mid cap funds, Edelweiss fund witnessed highest average return (23%) over the selected time period.
- Among large cap funds, both ICICI Pruden. Blue-chip fund and St. Bank of India Blue chip fund has same average return (16%) that is highest among the alternatives.
- Under Small Capitals. Category, SBI Regular Plan scheme shown highest average return (28%)

followed by Franklin India Smaller companies fund (24%).

- As per statistical analysis it can be seen that the difference is not significant.
- If we compare the average annual return, it is showing a decreasing trend when we move from small to large cate.
- From the test of risk exposure, a significant difference has been noticed between the Sharpe Index (conveying unsystematic risk) and Treynor ratio (conveying systematic risk) among all the three categories of mutual fund selected.
- The average unsystematic risk (Standard Deviation) is lower (13.33%) for large cap funds, moderate (14.07%) for small cap funds and high (15.7%) for mid cap funds.
- In case of systematic risk (Beta) it is lower for small cap funds (0.727) and near about same (0.91-0.92) for Large and Mid-Cap both categories.

8. LIMITATIONS OF THE STUDY

- The limitations of the present study are as follows -
- We have only selected three broad classification of funds in our study.
- In this paper, our study is restricted to twelve mutual funds.
- Our study is restricted to eleven years return performance index (i.e. 2013 to 2023) and one year risk trade off as per Investor's Perception.
- Our study is done with Descriptive Statistical Analysis (i.e. Single factor Anova Test).

9. CONCLUDING OBSERVATIONS

From the analysis and findings different perspective of the study can be seen. As it is seen from the calculation that in case of small cap fund both the measurement of risk showed moderate values whereas the average return is much higher than other funds selected. So if one is ready to take risk then they will have much higher return in comparison to bank fixed deposits. Besides when an investor thinks about capital growth then they can choose for large cap funds in which the risk is also low. However the return under this category is low but there is less chance of huge fluctuation in the return, since the unsystematic risk is lower in comparison to another category. Again, mid cap funds provide a balance of risk and return and also provide capital growth opportunity.

Further when we go for a fixed deposit scheme opened with any Bank or Financial Institutions, we generally prefer the tenure of 3-5 years as here the rate of interest is highest (7-7.5%) approximately. But for the same time period the Avg. % return of any category of mutual fund is at least twice the rate as in case of Fixed Deposit. So, we may conclude that according to the risk perception of an investor, there is significant higher return in case of schemes of mutual funds to the investors as our calculations also provided the evidences. Finally, our suggestion for the investors may be, initially they can diversify their investment with Smaller amount for mutual funds and if they are satisfied with the performance over time they can carry on with increasing amount of investment.

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