CONSTRUCTION OF EQUITY MUTUAL FUND OPTIMAL PORTFOLIO

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Abstract- Fixed deposits can be replaced with mutual funds since they are excellent investment product that yields higher returns. A portfolio is beneficial for investors since it minimizes risk and increases return on investment. However, building a portfolio is a challenging task. To solve this complicated task optimal portfolio construction process is developed. The present study has selected a total of 30 equity mutual fund schemes from a variety of equity schemes based on their return performance from December 2017- December 2022 (five years). Out of these 30 selected equity funds, Invesco India Large-Cap Fund, PGIM India Mid-cap Opportunities Fund, Kotak Small Cap Fund, Quant Active Fund, Parag Parikh Flexi Cap Fund, IIFL Focused Fund, Templeton India Equity Income Fund, SBI Contra Fund, and PGIM India Long Term Equity Fund were chosen for future investments that will provide the best return. For the investor, this portfolio of chosen schemes will be ideal. Investors can select from the aforementioned range of schemes to create the ideal portfolio based on their level of risk tolerance and asset allocation.

Keywords: Mutual fund, optimal portfolio, annualized rate of return, standard deviation, beta, and Sharpe rate, alpha.

INTRODUCTION

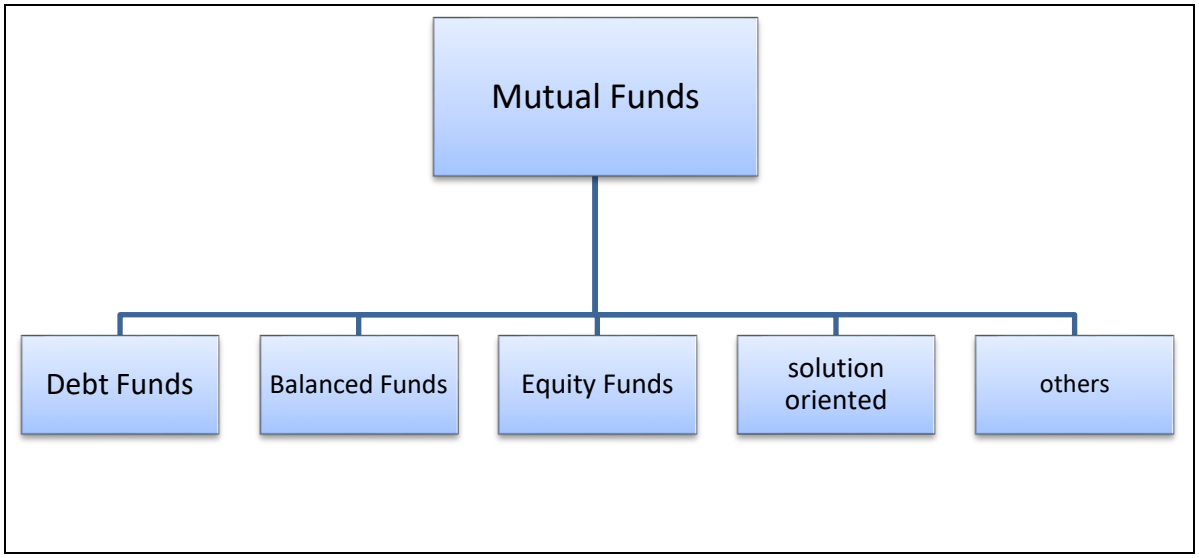
Mutual fund investments are always exposed to market risk, which can significantly affect investors' wealth. By building a portfolio, an investor can reduce or manage risk to a certain extent. A portfolio may consist of debt, equity, or balanced investments. An ideal portfolio is made up of a selection of mutual fund kinds that are successfully helping the investor to meet their financial goals. This form of a portfolio is designed to include investments that the investor is already familiar with and that have a level of risk which fits with the person's general approach to investing. To ascertain if a portfolio is genuinely efficient, the preferences and goals of the investor must be taken into account. This typically includes evaluating the investor's underlying mindset toward money in general. A person on a tight budget could experience considerable

anxiety while considering investing in mutual funds with a high rate of risk. The best plan of action for creating the ideal portfolio, in this case, will be to invest in assets that carry less risk yet offer the highest return for that level of volatility. More risk-tolerant investors would probably not be interested in a collection of relatively conservative and lower-yielding funds. The optimum portfolio in this scenario would focus on purchasing a variety of equity mutual fund schemes that offer the potential for a higher rate of return. Despite the possibility of higher returns, the investments' greater volatility increases the risk that some losses may be incurred along the way. A portfolio made up of a variety of investments is what most investors think would be most profitable. According to the theory, diversifying the investments in the portfolio increases the probability that a loss won't occur.

Types of mutual funds

A wide range of mutual funds is available in India across several industries. Asset type, fund structure, and financial objective are the main categories used to classify mutual funds. Each one of them carries a distinct risk and return potential. A pool of money that multiple investors have put their money into collectively makes up the majority of a mutual fund. Then, this money is put to use in a variety of asset types, such as stocks, bonds, and securities. In this research paper, only equity mutual funds will be considered.

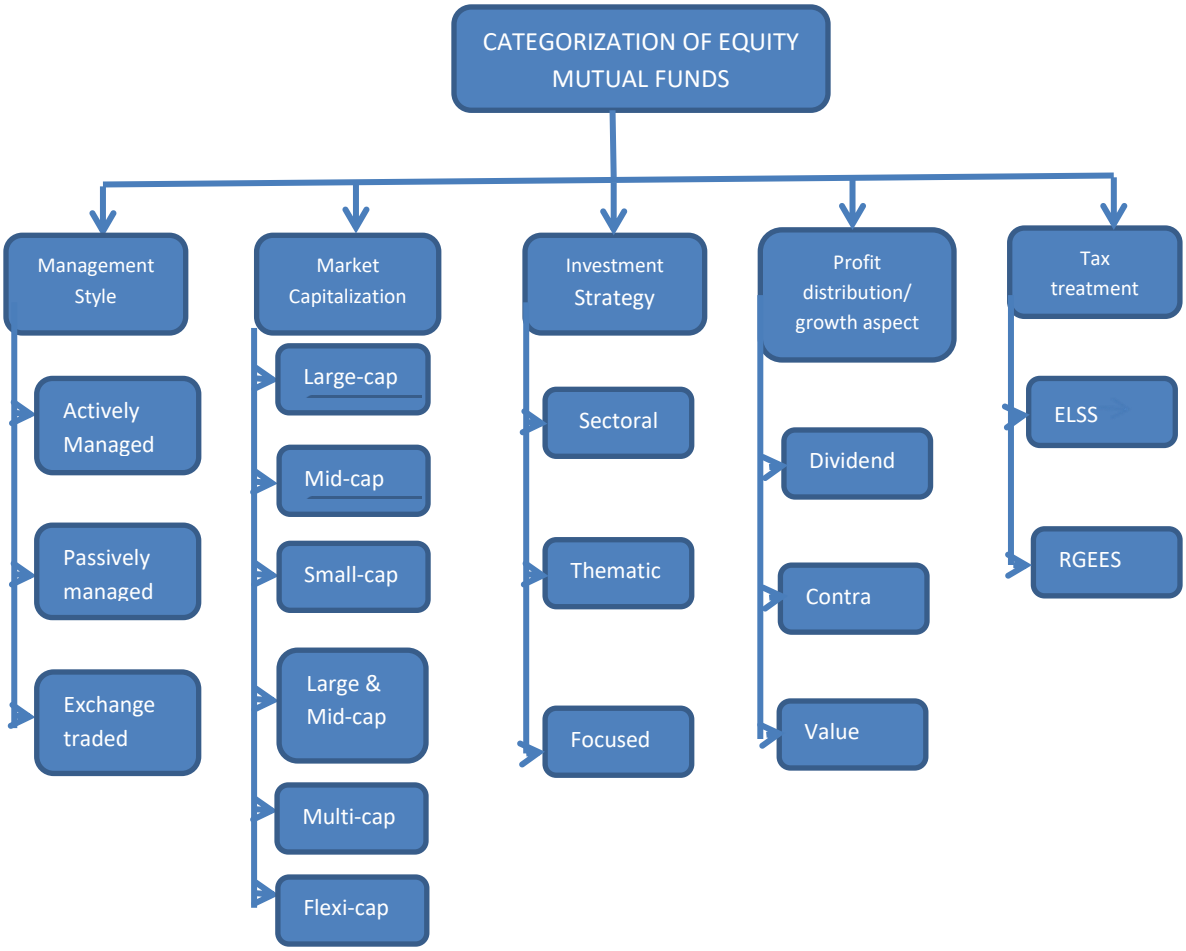
Figure- 1 types of Mutual fund



- **Equity mutual fund-** To achieve high returns, equity mutual funds invests their whole corpus in equities and equity-related instruments. The equity mutual fund is the riskiest form

of mutual fund. Because they are known for producing larger returns than debt or hybrid funds. Equity mutual funds are further categorized into various types of schemes.

Figure 2: Categorization of Equity Mutual funds



- **Debt mutual funds-** A significant portion of debt funds corpus—roughly 65%—is invested in fixed income assets including bonds, government securities, corporate debentures, and money market instruments. Debt mutual funds, also known as fixed income funds. These investments provide the investor with a low-risk, regular but low income compared to equity funds.
- **Hybrid mutual funds**- Hybrid mutual funds are a particular kind of mutual fund strategy that makes investments in both debt and equity securities. These funds balance the risk and rewards of both equities and debt funds through asset class diversification.

Review of Literature

- Research Studies based on Equity Mutual Fund Schemes

  Raju, Manjunath, and Nithya (2018) examined the top 10 Indian large-cap equity mutual funds, selected based on CRISIL performance, The five-year time span for the study was chosen, spanning January 2013 to December 2017. The analysis included a variety of statistical and financial methods, including Treynor's, beta, alpha, correlation, Sharpe and standard deviation. It was found that a risk and return framework was used to evaluate their core performance. Investors interested in low risk chose a higher rank in Treynor's criteria, and the SBI blue-chip fund had performed well based on the performance of these funds. If an investor was looking to diversify their portfolio and increase rate of return, Invesco India dynamic equity fund was ranked number 10. If an investor bases their investment choices on both the fund manager's and the fund's performance, DSP Blackrock focuses on the 25 funds that are ranked better.

  Sharma and Adhana (2020) analyzed the risk and return of equity shares as well as the risk and return of mutual fund schemes. 10 companies were selected from among those with BSE 500 listings in five cases, and from mutual fund companies with BSE 500 listings in the other five cases. Different statistical techniques were used to compare the beta, rate of return, standard deviation, Sharpe, ANOVA, and alpha of chosen schemes. These two equity shares, however riskier, had greater returns. Throughout the designated time period, the mutual fund schemes offered good returns while taking on less risk. This implied that the variables impacting the risk and return of equities and mutual funds weren't very different from one another.

- Research Studies based on risk return measures of equity mutual fund schemes

  Shruthi and Manjunatha (2019) compared eight equity mutual fund schemes from January 2014 to December 2018 by three measures were used to compare eight equity mutual fund schemes are Jensen, Sharpe, and Treynor's. The investigation revealed that benchmark of schemes produced better outcomes. During that period, the Jensen, Sharpe, and Treynor's measures performed well, with a 13 percent positive outcome for each.

  Gautam (2020) evaluated the performance of ELSS funds to benchmark indices over the course of five economic cycles. The study's findings revealed that, with the exception of sample scheme A5, the beta coefficient was higher than 1, suggesting an aggressive investment approach. Benchmark indexes and mutual funds were shown to be strongly

correlated. The results showed that the majority of the sample mutual fund schemes exceeded market benchmark indices in terms of Treynor's and Sharpe ratios based on historical annual returns. The performance of a few prominent Indian mutual funds was examined by Choksi and Bhatt in 2021. For this research, 15 large cap equity mutual funds from the 2015–2019 timeframe were considered. The DSP Top 100 Equity Fund, ICICI Prudential Blue Chip Fund, and LIC Large Cap Mutual Fund were found to have produced the best and highest returns during the study period based on a variety of metrics and techniques, including the Sharpe ratio, average return, beta, standard deviation, Jensen ratio, and Treynor's ratio.

Research gap

The review of the literature makes clear that several researchers have compared and analyzed the performance of numerous random mutual fund schemes using various risk-return metrics. Randomly selecting mutual fund schemes runs the risk of failing to deliver a respectable return on investment and losing the invested cash. As a result, the performance measures of the portfolio and the performance of mutual funds in comparison to their benchmark index constitute the basis for this study. Few researchers have compared equities mutual fund schemes and identified potential investing possibilities while concentrating on risk-return aspects. The purpose of this research is to bridge the gap between selecting various investment strategies based on various building procedures for an equity mutual fund portfolio.

Scope of the Study

The economy of India is one of the largest developing in the world. The mutual fund market is actively populated by a significant number of people and institutional investors, including local and international investors. All economic participants are investing in mutual funds in the hopes of receiving a respectable return. Every investor faces a dilemma when choosing the percentage of investment in any security. The study could assist investors in identifying the best portfolio for their requirements. Investors might use the study as a reference or to help them design their own optimal portfolio. The study examines 22 different types of equity mutual fund schemes that are selected based on annualized returns over the last five years.

Objectives of the Study

1. To evaluate the performance of selected equity mutual funds and compare their performance with their benchmark return.
2. To analyze the risk associated with schemes and measuring performance of funds using tools like Annualized Return, Sharpe Ratio, Standard Deviation, alpha and Beta.
3. To construct an optimal portfolio with selected equity mutual fund schemes.

Research Methodology

1. Nature of research- The present research is comprehensive, exploratory and quantitative type of research.
2. Data Source: This study is based on secondary data that is available in publications and factsheets on the relevant websites. These schemes are designed to last for five years, from April December 2016 to December 2021. Websites for the NSE (www.nseindia.com) and BSE (www.bseindia.com) exchanges have been used for benchmark data. Numerous research articles from the International Journal of Scientific & Research Publishing and the NMIMS Journal of Economics are taken into consideration.
3. Justification for choosing the mutual fund schemes: For this research, 30 schemes were chosen because they represent the most significant and efficient equity schemes from 2016 to 2021 in terms of returns. Therefore, these plans have been picked for the comparative research.
4. Tools for analyzing data- Various statistical approaches have been employed to evaluate the effectiveness and risk of the schemes. Sharpe ratio and annualized return have both been used to gauge how well these equity plans have performed. Standard deviation and beta are utilized to analyze the scheme's risk.
   - ❖ Annualized rate of return: - It is the procedure for calculating the scheme's yearly returns. The scheme's annual performance varies from year to year. The premium investment amount and the profits or losses in that year are used to calculate the annualized rate of return. The equation for this is:

$$\textbf{Annualized rate of return} = \{(\boldsymbol{P} + \boldsymbol{G})/\boldsymbol{P}\}\ \mathbf{1}/\boldsymbol{n} - \mathbf{1}$$

P= Principal value,

G= Gains or Losses,

n= holding time period

- ❖ Sharpe Ratio: - The reward to variability ratio is another name for the Sharpe ratio. The return on investment over the risk-free rate of return is represented by this ratio. This indicates that a greater Sharpe ratio value results in superior risk-adjusted return. The Sharpe ratio is used to determine previous performance and anticipated portfolio performance in the future.

$$\text{Sharpe ratio} = (\boldsymbol{Rp} - \boldsymbol{Rf})/\boldsymbol{\sigma}_p$$

Rp=Returns of the portfolio,

Rf= Risk free rate of Return and

σp= Standard deviation of the portfolio returns.

Sharpe ratio as risk adjusted returns can be calculated as-

- *By subtracting the risk-free return from return of the investment or portfolio.*
- *Dividing the subtracted return by standard deviation of portfolio return.*

- ❖ Standard deviation: The standard deviation calculates the performance range of a fund. It is a technique for calculating the rate of return's deviation from the expected return over time. High volatility corresponds to a high standard deviation.

$$\boldsymbol{\sigma} = \sqrt{\{\mathbf{1}/\boldsymbol{n} - \mathbf{1}\ (\sum (\boldsymbol{R}i - \boldsymbol{R})\ 2)\}}$$

Here, σ= standard deviation of a fund,

n= number of periods,

R_i = return of investment of i period

$\bar{R}$= average total return

- ❖ Beta: - Market volatility involves some level of risk. The systematic risk of a fund relative to its index is measured by beta. Each benchmark's beta value is 1, therefore if the scheme's beta value is 1; it will duplicate the benchmarks' performance. The strategy is more volatile and risky if the beta value exceeds 1. Similar to this, a scheme is less volatile and risky if its beta value is smaller than 1. Beta is expressed as –

β= Covariance (X, Y)/Variance(Y)

Where, $\text{Cov}(x,y) = \sum\{(\boldsymbol{xi} - \bar{\boldsymbol{x}})(\boldsymbol{yi} - \bar{\boldsymbol{y}})\}/\boldsymbol{n} - \mathbf{1}$

Here, X_i= return of fund for the period,

$\bar{x}$= average return

Y_i= return of benchmark index

$\bar{y}$= average return

- ❖ Alpha: - The excess return of a fund over its benchmark index is known as alpha. A positive alpha of 15% indicates that a fund has outperformed its benchmark during a certain time period by 15%. In a similar vein, if a fund's negative alpha is 10%, it indicates a 10% underperformance. Alpha simply refers to a fund manager's performance.

Alpha = (End Price – Start Price + DPS) / Start Price

(DPS = Distribution per Share)

Analysis of Data: - The performance of each scheme has been evaluated on the basis of two factors that are risk and return.

Analysis based on return performance- With the data of each scheme being assessed based on their annualized performance in comparison with benchmark indexes. The data on the annualized rate of return over a five-year period for the various research schemes is provided in Table 1 below.

S.no	Name of scheme	Annualized returns		
	Large cap mutual fund	1 year	3 years	5 years
1.	Invesco India Large cap Fund	40.09	19.21	17.36
	Benchmark Nifty 50 TRI	32.19	17.38	17.04
2.	Nippon India Large Cap Fund	41.49	13.99	14.76
	Benchmark S&P BSE 100 TRI	33.95	17.36	16.84
3.	Quant Focused Fund	48.76	19.31	16.01
	Benchmark Nifty 100 TRI	33.15	17.22	17.08
	Mid-cap mutual fund			
4.	PGIM India Mid-cap Opportunities Fund	68.88	36.20	23.62
	Benchmark Nifty mid-cap 100 TRI	51.90	20.36	15.95
5.	Quant Mid-cap Fund	66.21	27.09	21.18
	Benchmark mid-cap 150 TRI	51.95	23.03	19.15
6.	SBI Magnum Mid-cap Fund	60.87	26.72	16.62
	Benchmark mid-cap 150 TRI	51.95	23.03	19.15
	Small-cap mutual fund			
7.	Kotak Small Cap Fund	77.49	34.24	22.12
	Benchmark Nifty Small cap 100 TRI	62.98	20.90	13.90
8.	L&T Emerging Businesses Fund	77.67	22.96	20.93
	Benchmark S&P BSE Small cap TRI	66.21	25.83	18.81
9.	Quant Small Cap Fund	94.16	34.96	20.94
	Benchmark Nifty small cap 250 TRI	68.03	23.37	15.72
	Large and Mid-cap mutual fund			
10.	HDFC Large and Mid-Cap Fund	51.85	20.14	16.17
	Benchmark Nifty large &Mid-cap 250 TRI	42.16	20.16	18.06
11.	ICICI Prudential Large &Mid-cap fund	49.71	18.90	14.62
	Benchmark Nifty large &Mid-cap 250 TRI	42.16	20.16	18.06
12.	Quant Large and Mid-Cap Fund	50.88	21.69	16.57
	Benchmark Nifty large &Mid-cap 250 TRI	42.16	20.16	18.06
	Multi-cap mutual fund			
13.	Baroda Multi Cap Fund	55.32	22.62	16.37
	Benchmark Nifty 500 Multi cap	45.94	20.38	17.30
14.	Nippon India Multi Cap Fund	56.77	15.27	14.97
	Benchmark Nifty 500 Multi cap	45.94	20.38	17.30
15.	Quant Active Fund	70.29	31.81	25.18

	Benchmark Nifty 500 Multi cap	45.94	20.38	17.30
	Flexi –cap mutual fund			
16.	Parag Parikh Flexi Cap Fund	48.07	28.89	22.55
	Benchmark Nifty 500 TRI	37.73	18.44	17
17.	PGIM India Flexi Cap Fund	51.68	29.83	22.69
	Benchmark Nifty 500 TRI	37.73	18.44	17
18.	UTI Flexi Cap Fund	43.42	25.34	20.53
	Benchmark Nifty 500 TRI	37.73	18.44	17
	Focused fund			
19.	Franklin India Focused Equity Fund	49.55	20.12	15.55
	Benchmark Nifty 500 TRI	37.73	18.44	17
20.	IIFL Focused Equity Fund	42.05	30.23	21.27
	Benchmark S&P BSE 500 TRI	38.13	18.70	17.18
21.	SBI Focused Equity Fund	53.44	26.70	21.65
	Benchmark S&P BSE 200	35.95	18.29	17.17
	Dividend yield fund			
22.	ICICI Prudential Dividend Yield Equity Fund	54.20	16.96	13.70
	Nifty Dividend Yield opportunities 50	38.52	15.46	14.29
23.	Templeton India Equity Income Fund	53.12	21.98	16.93
	Nifty Dividend Yield opportunities 50	38.52	15.46	14.29
24.	UTI Dividend Yield Fund	43.83	18.65	15.90
	Nifty Dividend Yield opportunities 50	38.52	15.46	14.29
	Value/Contra fund			
25.	SBI Contra Fund	63.39	24.82	17.38
	Benchmark S&P BSE 500 TRI	38.13	18.70	17.18
26.	IDFC Sterling Value Fund	62.89	18.93	17.44
	Benchmark S&P BSE 400 Mid & small cap	55.77	23.34	17.86
27.	Templeton India Value Fund	53.75	17.38	13.0
	Benchmark S&P BSE 500 TRI	38.13	20.09	18.31
	ELSS mutual fund			
28.	IDFC Tax Advantage (ELSS) Fund	52.64	20.06	18.44
	Benchmark S&P BSE 200 TRI	35.95	18.29	17.17
29.	PGIM India Long Term Equity Fund	46.67	20.71	18.39
	Benchmark S&P BSE 200 TRI	35.95	18.29	17.17
30.	Quant Tax Plan	74.87	33.27	24.77
	Add. Benchmark Nifty 50 TRI	32.19	17.38	17.04

Table no. 1 Selected schemes from various categories of mutual fund and their annualized return performance
Source: From their relative factsheets

Conclusion of return based performance: - Aforementioned table no 1 had shown return of 30 equity mutual fund schemes. These schemes are selected based on the top three return based performing schemes during last one, three and five year. Out of these selected schemes only those scheme will be considered which had outperformed their benchmark return. The benchmark details of each selected schemes is mentioned in above table no 1. Out of the above

mentioned schemes here is the list of selected schemes which had outperformed their benchmark return. From the category of large cap only Invesco India large cap mutual fund had outperformed during last one, three and five year of time frame. From mid-cap category of mutual fund PGIM India mid-cap opportunity fund and Quant mid-cap fund are selected. From Small-cap category kotak small-cap, quant small-cap fund outperformed their benchmark index return. Quant Active fund from multi-cap fund, Parag Parikh flexi-cap, PGIM India flexi cap and UTI flexi-cap fund from Flexi cap fund category, IIFL Focused equity fund and SBI focused equity fund from Focused fund category, Templeton India equity income fund and UTI Dividend yield from Dividend yield fund category, SBI contra fund from value/contra fund and IDFC tax advantage ELSS fund, PGIM India long term equity fund and Quant tax fund from ELSS fund category outperformed their benchmark index.

Analysis based on risk ratios- Another factor on the basis of which performance of mutual fund can be measured is risk ratios. Various risk ratios are being used in this study are standard deviation, alpha, beta, Sharpe ratio. Table no 2 represents risk ratios of selected mutual fund schemes.

S.no	Name of scheme	Risk ratios			
	Large cap mutual fund	**Standard Deviation**	**Sharpe Ratio**	**Beta**	**Alpha**
1.	Invesco India Large cap Fund	20.31	0.76	0.92	1.34
	Mid-cap mutual fund				
2.	PGIM India Mid-cap Opportunities Fund	18.11	0.69	0.87	10.48
3.	Quant Mid-cap Fund	22.97	1.00	0.99	6.4
	Small-cap mutual fund				
4.	Kotak Small Cap Fund	27.42	1.11	0.84	11.79
9.	Quant Small Cap Fund	31.97	0.96	1.18	12.39
	Multi-cap mutual fund				
15.	Quant Active Fund	23.47	1.18	1.11	11.41
	Flexi –cap mutual fund				
16.	Parag Parikh Flexi Cap Fund	17.75	1.35	0.72	11.84
17.	PGIM India Flexi Cap Fund	17.25	0.67	0.95	9.08
18.	UTI Flexi Cap Fund	18.71	1.27	0.87	6.24
	Focused fund				
20.	IIFL Focused Equity Fund	14.37	0.58	0.94	10.00
21.	SBI Focused Equity Fund	20.47	1.06	0.87	6.73
	Dividend yield fund				
23.	Templeton India Equity Income Fund	19.54	1.01	0.85	5.79
24.	UTI Dividend Yield Fund	17.93	0.85	0.93	3.45

	Value/Contra fund				
25.	SBI Contra Fund	23.46	0.90	1.02	6.34
	ELSS mutual fund				
28.	IDFC Tax Advantage (ELSS) Fund	26.09	0.64	1.16	0.94
29.	PGIM India Long Term Equity Fund	16.65	0.69	0.91	2.19
30.	Quant Tax Plan	23.91	1.21	1.15	14.46

Table no 2: risk ratio analysis of selected schemes

Source: From their Relative Factsheets

Conclusion of risk ratio analysis: - based on aforementioned table no 2 the risk ratio analysis of the selected schemes will be concluded. **Invesco India Large-Cap Fund** is less volatile when compared to other large-cap funds. **PGIM India Mid-cap Opportunities plan** has shown strong returns for one, three, and five years, beating their benchmark return over the chosen time. **Kotak Small Cap Fund** had provided a comparably higher return with less risk incurred when compared to other small-cap funds**. Quant active fund** is a significant investment in the multi-cap fund category. The Parag Parikh Flexi cap fund had a greater Sharpe ratio and higher alpha. The **IIFL-focused fund** was less volatile and offered a greater additional return than the SBI-focused fund. **Templeton India Equity Income Fund** had the lowest volatility and provided the highest excess return. **The SBI contra fund** has the lowest standard deviation and beta, which indicates reduced volatility, according to table. With the risk taken, this fund has provided a fair additional return. The preceding table makes it evident that **PGIM India's long-term equity fund** offers additional return with reduced risk when risk analysis is taken into account.

Process to construct an optimal portfolio-

To build an optimal portfolio, there are a number of processes that can help us choose investment strategies that offer the best returns at the lowest risk. The investor can attain a greater return with the minimum amount of risk by performing the following procedures while taking into account their risk-taking preferences and investment goals. Out of variety of so many equity mutual fund schemes, it is nearly hard to choose 3-5 equity schemes for investing. However, it is simpler to choose schemes with the support of a procedure. These steps are-

- **Setting up Financial Goal/ Purpose of Investing-** Whether you are a guy looking to purchase a house, a teenager looking for a bike, or an eight-year-old desiring a video game. Setting up a financial objective entails continuously balancing a portfolio's risk and return for higher returns. This entails either maintaining the same level of return while lowering the risk or obtaining a higher return without increasing the risk.
- **Risk acceptance/ risk tolerance-** A mutual fund makes investments in a range of financial products, including debt, bonds, and equities. The fluctuation in prices of these instruments depends upon market movements. The risk associated with investing in mutual funds is the discrepancy between the projected return and the potential for returns as determined by the market. Risk is characterized by this return volatility. Risk tolerance is determined by how much loss an investor is willing to accept. When an investor accepts risk, they may look forward to comparable returns. The risk tolerance of the investor will determine their portfolio strategy. Risk tolerance of investor depends upon risk levels. Risk levels can be categorized into

three types as high risk, moderate risk and low risk. For example, Investor with high risk tolerance prefers high risk level.

- **Selecting the fund house-** Selecting the fund house based on performance and the fund house's strategy or investing methods should preferably align with your personal investment theories. If not, it could lead to ongoing arguments that force you to prematurely abandon your assets.
- **Fund Manager's Performance-** Selecting the fund house completely depends on the performance of fund manager's. if the fund managers was not performing good, it will automatically lower down the performance of the fund house.
- **Asset allocation-** Asset allocation is the execution of an investment strategy that seeks to balance risk and return by altering the assets in an investment portfolio in accordance with the purpose of the investment, risk tolerance, and time horizon. Asset allocation based on risk tolerance comprises the following 5 labels:
    a. Aggressive asset allocation- In Aggressive asset allocation investors prioritize returns over other factors; therefore they select short-term investing strategies like sectoral and small-cap funds.
    b. Growth asset allocation- Growth-oriented asset allocation prioritizes growth, which includes returns and medium-to-high risk. This investor puts money into focused funds as well as large and mid-cap funds.
    c. Balanced asset allocation- Balance funds maintain the balance between risk and return. An investor invests in Flexi-cap, multi-cap, and mid-cap for balanced asset allocation of funds.
    d. Income asset allocation- Generating consistent income for investors with a moderate to low risk tolerance is a part of asset allocation for income. Value/contra funds, growth equity funds, and ETFs (exchange-traded funds) are popular investment options.
    e. Conservative asset allocation- It takes into account investors' preferences for stable return performance and low-risk investment profiles. This type of asset allocation includes large-cap funds, ELSS finds.
- **Considering other factors-** while investing money in mutual fund an investor should be very careful. Investor should consider other factors which may influence return. For

example, market movements, economic condition of market, expense ratio, tax implications and so on.

- **Monitoring selected schemes-** Keeping track of the investment by keeping an eye on your investments. You may feel confident about your investment with regular updates.

Interpretation and empirical Findings- Below are empirical results for each type of equity mutual fund scheme for the selected period of time based on average yearly return, risk-return analysis, and assessment models.

- According to the first objective of this study that is to evaluate the performance of selected equity mutual funds and compare their performance with their benchmark return, it is clear from table no 1 that Invesco India Large cap Fund from large cap fund, PGIM India Mid-cap Opportunities Fund and Quant Mid-cap Fund from mi cap fund, Kotak Small Cap Fund and Quant Small Cap Fund from small cap funds, Quant Active Fund from multi-cap funds, Parag Parikh Flexi Cap Fund, PGIM India Flexi Cap Fund and UTI Flexi Cap Fund from flexi-cap funds, IIFL Focused Equity Fund and SBI Focused Equity Fund from focused fund, Templeton India Equity Income Fund and UTI Dividend Yield Fund from dividend yield fund, SBI Contra Fund from value/contra fund, IDFC Tax Advantage (ELSS) Fund, PGIM India Long Term Equity Fund and Quant Tax Plan from ELSS mutual funds category has been selected after comparing return performance of funds with their benchmark returns during last one, three and five year of time frame.
- According to the second objective of the study that is to analyze the risk associated with schemes and measuring performance of funds using tools like Annualized Return, Sharpe Ratio, Standard Deviation, alpha and Beta. It is clear from table no 2 that Invesco India Large cap Fund from large cap category, PGIM India Mid-cap Opportunities plan from mid-cap category, Kotak Small Cap Fund from small-cap category, Quant active fund from multi-cap fund, IIFL-focused fund from focused fund, Templeton India Equity Income Fund from dividend yield fund, SBI contra fund from value/contra funds and PGIM India's long-term equity fund from ELSS mutual fund category had performed very well in terms of risk analysis during the last one, three and five year of time frame.
- The third and final objective of this research is to evaluate the effectiveness of particular mutual fund schemes using the portfolio performance measures of alpha, beta, standard

deviation, and Sharpe ratio. Out of these 30 selected equity funds, Invesco India Large-Cap Fund, PGIM India Mid-cap Opportunities Fund, Kotak Small Cap Fund, Quant Active Fund, Parag Parikh Flexi Cap Fund, IIFL Focused Fund, Templeton India Equity Income Fund, SBI Contra Fund, and PGIM India Long Term Equity Fund were chosen for future investments that will provide the best return. For the investor, this portfolio of chosen schemes will be ideal. Depending on their risk appetite and portfolio asset allocation, investors can choose from a variety of schemes.

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