Project Dissertation Report on

COMPARISON BETWEEN EQUITY AND MUTUAL FUNDS

Submitted By

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CERTIFICATE

This is to certify that **Ananya Sharma 2K22/DMBA/15** has submitted the project dissertation report titled **"Comparison Between Equity and Mutual Funds"** in partial fulfilment of the requirements for the award of the degree of Master of Business Administration (MBA) from Delhi School of Management, Delhi Technological University, New Delhi during the academic year 2023-24.

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DECLARATION

I Ananya Sharma, a student of MBA hereby declare that the project dissertation report titled **"Comparison Between Equity and Mutual Funds"** which is submitted to Delhi School of Management, Delhi Technological University, in partial fulfilment of the requirement for the award of the degree of Masters of Business Administration has not been previously formed the basis for the award of any degree, diploma or other similar title or recognition.

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EXECUTIVE SUMMARY

This research paper aims to provide a comprehensive comparison between equity investments and mutual funds, two prominent avenues for investors seeking exposure to the stock market.

The study begins by outlining the fundamental characteristics of equity investments and mutual funds. Equity investments involve direct ownership in individual stocks, offering potential for high returns but also exposing investors to higher levels of risk. On the other hand, mutual funds pool investors' funds to invest in diversified portfolios of stocks, bonds, or other assets, providing a more diversified and professionally managed approach.

This research paper presents a comprehensive analysis comparing equity investments with mutual funds, focusing on the dimensions of risk and return. The primary objective is to examine the relationship between risk and return for both equity shares and mutual funds, utilizing statistical parameters such as returns, alpha, beta, standard deviation, Sharpe ratio, Treynor ratio, Jensen ratio, and CAPM.

The study relies on secondary data collected from reputable sources such as the BSE official website and Moneycontrol website and Prowess IQ Database. Monthly closing prices spanning a five-year period from January 2016 to December 2020 are analyzed for the top ten companies by market capitalization in equities, along with the BSE SENSEX as a benchmark. Additionally, ten mutual funds are selected based on their classification as large-cap or blue-chip funds.

The necessity for this study arises from the complexity investors face in making informed investment decisions due to the inherent risks associated with both equity shares and mutual funds. Investors must consider various factors before allocating their funds, given the dynamic nature of financial markets.

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Chapter I

Introduction

1.1 Stock Market

A stock market is a platform where investors come to trade in financial instruments like shares, bonds, and derivatives. The stock exchange makes it possible to buy and sell shares by acting as a facilitator for this transaction. Investment options primarily come from stock markets. India has two main stock exchanges: the National Stock Exchange (NSE) and the Bombay Stock Exchange (BSE). During an IPO, companies list their shares on the primary market for the first time, and investors can purchase and sell these shares in the secondary markets. The Securities and Exchange Board of India is in charge of overseeing and regulating the country's stock markets.

The SEBI Act of 1992 established SEBI as a separate institution, and it has the authority to audit stock exchanges. The inspections look over issues of administrative control, organizational structure, and market activities. An asset or thing purchased with the intention of earning income or appreciating in value is called an investment. Money invested in a company through the purchase of stock market shares is known as an equity investment. Stock exchanges are where these shares are traded. The main reasons why investors hoard excess cash in stocks are capital gains, dividends, and voting rights, which give them a say in important business decisions.

There exist two distinct categories of share markets: Primary and Secondary Markets. Companies register themselves on the primary share market in order to issue their shares and raise capital. Another name for this procedure is "listing on the stock exchange." In order to raise capital, a firm may decide to enter the primary market. In this case, the sale of shares is referred to as an initial public offering (IPO). The secondary market is where already listed stocks change hands among people. The people trade equity shares in their hand at opportune times, looking at the state of the stock market to get either profit on their investments or mitigate the risk of having a poorly performing stock.

1.2 Mutual Funds

The term "mutual fund" refers to a trust that is set up to raise capital by the sale of units to members of the public or a specific group of people under one or more schemes for investing in securities, including money market instruments, (SEBI Regulation, 1996). The expected return on an efficient portfolio and the risk attached to it (unsystematic risk) are linearly connected, as explained by Sharpe (1966) in the framework of current portfolio theory. An individual or institution's entire holdings of stocks, bonds, real estate, options, futures, and alternative assets like limited partnerships or gold are collectively referred to as their portfolio. To guard against the risk associated with individual stocks or classes of securities, the majority of portfolios are _ As a result, portfolio analysis looks at the portfolio as a whole as opposed to just depending on security analysis, which looks at individual securities. Understanding how to compute a portfolio's returns and hazards as well as how to reduce risk through diversification are essential skills for putting together an effective portfolio. An asset management company (AMC) or fund house aggregates the investments of multiple individuals and institutional investors who have similar investing goals to create a mutual fund. The pooled investment is managed by a fund manager, a specialist in finance. Bonds and stocks that comply with the investment mandate are acquired by the fund manager. The primary goal of the fund manager is to give investors the best possible returns by making investments in securities that align with the goals of the fund. A return is frequently given as a percentage that comes from the profit to investment ratio. In likeness to determine the risk of individual investments, portfolio risks are also frequently computed by considering the standard deviation of the variance of the portfolio's actual returns over the time. Systemic risk and diversifiable risk are the two halves of portfolio risk. Systemic risks, sometimes referred to as systematic risks, are risks that impact all assets, such as the state of the economy generally. Diversification does not lower systemic risk. Risks that are exclusive to a given asset, like events affecting a given company's shares, are known as diversifiable risks.

1.3 Choosing Between Equity Investment and Mutual Funds

In the world of finances, choosing to invest is frequently accompanied with an extensive range of options, each with a unique mix of risks and rewards. Mutual funds and equities investments are two of the most well-known choices for those looking to get a taste of the

exciting world of the stock market. Despite the fact that they both have the ability to build wealth, their structures, risk profiles, and investment approaches are very different.

Equity investments involve direct ownership in individual stocks, granting investors a stake in the fortunes of a particular company. This direct ownership provides the potential for significant returns, but it also exposes investors to the inherent volatility and uncertainties of the stock market. On the other hand, mutual funds pool together the funds of numerous investors to create diversified portfolios managed by professional fund managers. By distributing risk throughout a variety of assets and asset classes, this collective strategy provides investors with the benefits of diversification.

Selecting between mutual funds and equity investments is a complex decision that depends on a number of variables, including time horizon, financial goals, and risk tolerance. To make wise choices that support their financial objectives, investors have to sort through a deluge of data and factors.

1.4 Significance of This Study

Against this backdrop, this research paper sets out to provide a comprehensive analysis comparing and contrasting equity investments with mutual funds. The primary focus of the study is to examine the relationship between risk and return for both investment avenues, employing a range of statistical parameters including returns, alpha, beta, standard deviation, Sharpe ratio, Treynor ratio, Jensen ratio, and CAPM. So, under this the main topics like stock market as well as mutual fund industry will be undertaken as investing in equity means stock market is included along with it the portfolio return and risk will also be discussed.

The study examines monthly closing prices over a five-year period, from January 2019 to December 2023, using secondary data gathered from trustworthy sources, including the Moneycontrol and BSE websites. The top 10 firms in terms of equity market capitalization are included in the sample, coupled with a benchmark index like the BSE SENSEX. Ten mutual funds are also selected according to whether they are blue-chip or large-cap funds.

The significance of this study lies in its ability to offer valuable insights and guidance to investors grappling with the decision between equity investments and mutual funds. By comprehensively analyzing the performance metrics and risk-return dynamics of both

investment avenues, this research aims to empower investors to make well-informed decisions that are congruent with their financial objectives and risk preferences.

By delving into the comparative analysis presented in this research paper, investors will gain valuable insights into the performance metrics and risk-return dynamics of equity investments and mutual funds. Ultimately, this study aims to empower investors with the knowledge and tools necessary to make well-informed investment decisions in an ever-evolving financial landscape

1.5 Scope of Study

Although there is a lot of research being done on stocks and mutual funds, my study is just looking at ten companies.

Information on share prices and unit prices is the only basis for the analysis. There is no consideration of other corporate performance metrics.

Although the study's focus is broad, only 10 AMCs for mutual funds are included, and it does not give any one industry or subject precedence.

Mutual fund schemes from various AMCs will be compared and the results ranked to provide a summary of performance across the study period.

Chapter 2

Literature Review

2.1 Research Paper Studied

Dibin K. K., AlfiaThaha (2017) — They looked at a study on how investors' perspectives are changing in relation to mutual funds, stocks, and banks. Analyzing the nominal and real returns from stocks, mutual funds, and banks was the goal of this study. to provide the ideal investing platform in light of the dynamics of risk and return. Method of surveying was For the aim of evaluation, ten years' worth of financial data from the Financial Year (FY) beginning in 2007 to 2017 have been gathered. The selection of funds and firms is based on the CRISIL report, and the stock samples were picked based on market capitalization. This process of judgmental sampling is used to choose the samples. As the findings of this study revealed, a mutual fund has outperformed among the other investment alternatives in terms of return & risk with the reason behind this might being the entry of millennial investors. And that the real return from the Mutual funds with an average half yearly return of 7.15% is an exemption.

Ankitasharma, Deepak Kumar Adhana (2020), studied about **—** A research study on mutual funds and equity share performance evaluation. Analyzing the average return and risk associated with mutual fund investing was the goal of this study. A descriptive research study was used as the survey method, and 10 firms were chosen in total, five of which being equities companies listed in the BSE 500 benchmark and the remaining five being mutual fund companies listed in the same benchmark. The research findings indicate that the Sharpe's Ratio indicates that a fund with a higher return does not necessarily mean that the fund is performing well on its first try. The ANOVA result indicates that the null hypothesis (h(0)) is accepted because the risk and return of mutual funds and stocks do not differ significantly. The average return on mutual funds is 1.4%, whereas the average return on equity shares is 17.2%.

Ehsan Khan, Pallavi Gedamkar (2015) – The performance evaluation of equity shares and mutual funds with respect to risk and return was evaluated in this paper in 2015. This study's objective was to use statistical metrics to analyze the financial performance of particular equity shares and mutual fund schemes. Exploratory research and non-probability judgmental sampling, also known as authoritative or purposive sampling, were used in the survey process. The study compares five mutual fund schemes from the

Indian mutual fund industry and five carefully chosen stocks from the 30 BSE. The study's conclusion was that fund managers primarily use Treynor's, Sharpe's, and Jensen's alpha as performance evaluation measurement ratios to make investment decisions and diversify portfolios. For new investors, mutual funds offer advantages in terms of portfolio diversification, high liquidity, low risk, low transaction costs, professional management, scheme selection, transparency & safety, and flexibility.

Sushil Moar (2014) — In 2014, Sushil Moar conducted a comparative analysis of the stock market and mutual fund industry. This study set out to compare mutual funds with the stock market. The research design used descriptive data, and the survey method used secondary data. The study's conclusions showed that while the stock market is a high-risk, high-profit avenue for investing, mutual funds are a low-risk, low-profit option. Successful investors are those who can manage to navigate the stock market's many hazards.

R.Jayaraman, Dr. G. Vasanthi, M.S.Ramaratnam (2014) – They conducted a study titled "A study on investors' behavior towards equity and mutual funds." The purpose of this study was to analyze investor behaviour in terms of avenue selection for equity and mutual fund investments. The research sample size of 75 was chosen using non-probability convenience sampling as the survey method. According to the study's findings, 60% of investors lack rationality. The disposition effect affects 60% of the respondents. Among investors, 40% lean toward conservatism. Cognitive dissonance affects sixty percent of investors. Sixty percent of investors have no regrets.

Pasalkar, N.V. (2015) – The goal of the study, "A comparative study of Mutual Fund Investment vs. Equity Investment of Indian Individual Investors," was to directly contrast equity investing and mutual fund investment. utilizing random sampling, a survey was conducted utilizing primary and secondary data, with a sample size of 100 respondents. Mutual funds were found to be more advantageous than equity, and a low level of education was noted among the populace.

2.2 Financial Indicators For Data Analysis

Standard deviation:

The standard deviation is a statistical tool used to quantify the variability or dispersion of returns from an investment's mean or average return. Greater variability in returns, which implies higher risk, is indicated by a higher standard deviation. Standard deviation is

utilized in this study to evaluate the return volatility of mutual fund schemes and equity capital during the given time period.

Alpha:

Alpha is a measure of the excess return of an investment "relative to its expected return, given its level of risk as measured by beta (market risk). A positive alpha indicates that the investment has outperformed its expected return, while a negative alpha suggests underperformance." Alpha is used to evaluate the skill or performance of a fund manager in generating returns beyond what would be expected based on market movements (captured by beta). In case of Mutual Funds, alpha helps to understand the fund's capability to generate returns against the benchmark index.

Alpha Calculation for Equity = Equity Return – Market Return

Alpha Calculation for Mutual Funds = (Mutual Fund Return – Risk-free Return) – [(Benchmark Return – Risk-free Return) * Beta]

Beta:

The sensitivity of an investment's returns to changes in the market as a whole is measured by beta, which is usually represented by a market index like the S&P 500. An investment with a beta of 1 is said to move in lockstep with the market. Compared to the market, "higher volatility is indicated by a beta greater than 1, and lower volatility is indicated by a beta less than 1." The systematic risk of equity capital and mutual fund schemes in relation to the whole market is evaluated in the study using beta. In case of Mutual funds, beta helps to gauge how well the fund will survive market volatility.

Beta Calculation for Equity = Slope of the 5-year returns

Beta Calculation for Mutual Funds = (Mutual Fund Return – Risk-free Return)/(Benchmark Return – Risk-free Return)

Sharpe ratio:

"The Sharpe ratio measures the risk-adjusted return of an investment, taking into account both the return and the risk (as measured by standard deviation)." A higher Sharpe ratio indicates a better risk-adjusted return, as it signifies higher returns relative to the risk taken. The Sharpe ratio helps investors evaluate the efficiency of an investment in generating returns per unit of risk.

Treynor ratio:

The Treynor ratio compares an investment's risk-adjusted return to its systematic risk, which is determined by beta.

Its computation involves dividing the investment's excess return over the risk-free rate by its beta. When assessing the performance of investments in relation to their exposure to market risk, the Treynor ratio is especially helpful.

Treynor ratio = (Average Return of a Portfolio – Average Return of the Risk-Free Rate)/Beta of the Portfolio.

Jensen's Alpha:

Jensen's alpha, named after economist Michael Jensen, measures the excess return of an investment over its expected return as predicted by the Capital Asset Pricing Model (CAPM). Calculated by subtracting risk-free rate from the actual return of the investment and subtracting product of beta and difference between market return and risk-free rate. A positive Jensen's alpha indicates outperformance relative to what would be expected based on the CAPM.

Jensen's Alpha = R(i) - (R(f) + B x (R(m) - R(f))).

Portfolio return according to CAPM Model:

The Capital Asset Pricing Model (CAPM) uses the portfolio return to calculate an investment's projected return based on its beta and the market risk premium, which is the difference between the market return and the risk-free rate.
The risk-free rate plus the product of beta and the market risk premium are used to compute it.
A framework for assessing an investment's projected return based on its systematic risk in relation to the market is offered by the CAPM model.

Chapter 3

Research Methodology

3.1 Objectives

- To assess the relationship dynamics between equity investing and mutual fund investing in India for the period of 5 years from 2019-2023.
- To study the relationship between the risk and return of equity shares and mutual fund. Examine how risk and return for mutual funds and equity shares relate to one another. The study attempts to comprehend the risk-adjusted returns produced by each investment option by looking at statistical factors including returns, alpha, beta, standard deviation, Sharpe ratio, Treynor ratio, Jensen ratio, and CAPM.
  [*Risk free rate is assumed to be 7.07% (which is rate of return of 10 year bond of Indian Govt in India as of last year) for the calculation purpose. Market index return is assumed to be 13.87%.]*
- To provide insights for Investors. The study's ultimate goal is to give investors insightful advice and direction as they navigate the intricacies of the Indian financial system. Investors can make decisions that are in line with their risk tolerance and financial goals by being aware of the performance measures and risk-return dynamics of mutual funds and equity investments.

Equities	Benchmark
Reliance	BSE SENSEX
TCS	BSE SENSEX
HDFC Bank	BSE SENSEX
ICICI Bank	BSE SENSEX
State Bank of India	BSE SENSEX
Bharti Airtel	BSE SENSEX
Infosys	BSE SENSEX
Kotal Mahindra	BSE SENSEX
Hindustan Unilever	BSE SENSEX
Larsen	BSE SENSEX

Table 3.1 Selected Equities with their Benchmarks

Equities	Benchmark
Axis Bluechip Fund	S&P BSE 100
Aditya Birla Sun Frontline	S&P BSE 100
Kotak Bluechip Fund	S&P BSE 100
Baroda BNP Paribas Large Cap Fund	S&P BSE 100
Canara Roboco Bluechip Equity	S&P BSE 100
JM Large Cap Fund	S&P BSE 100
ICICI Prudential Bluechip Fund	S&P BSE 100
HDFC Top 100 Fund	S&P BSE 100
Tata Large Cap Fund	S&P BSE 100
SBI Bluechip Fund	S&P BSE 100

Table 3.2 Selected Mutual Funds

The goal of the current study is to examine how the market performed over the study period in relation to the chosen equity shares and mutual fund schemes. This study has been conducted to compare these schemes with the market based on risk and return in order to reach the desired results. The performance of these equity shares and mutual fund schemes is assessed using a variety of statistical and financial techniques in the current study.

3.2 Hypothesis

- H0= There is no significant difference in the performance of equity and mutual fund
- H1= There is significant difference between the performance of equity and mutual fund

The Hypothesis testing will be done using Python. The code will calculate the sample means, standard deviations, and performs a two-sample t-test for both returns and risks. The t-statistic and p-value will help us determine if there is a significant difference between the two groups (equities and mutual funds) in terms of returns and risks. We'll interpret the results based on the calculated p-values.

3.3 Data Collection:

The study primarily uses secondary data from two original sources: websites for mutual funds and the Bombay Stock Exchange (BSE) that provide information on equity shares and mutual funds. Over a period of five years, the top 10 mutual funds and equities shares in India based on market capitalization are the subject of the data collection procedure.

The first stage is to determine the top 10 mutual funds and stock shares in India, ranked by market capitalization. One important measure of a company's or mutual fund's size and significance in the financial market is their market capitalization.

The Bombay Stock Exchange (BSE) website is a trustworthy source for information about equity shares. The monthly closing prices of the top 10 equity shares were taken from the BSE website's historical data for the designated five-year period.

Reputable mutual fund websites will provide information on the top ten mutual funds. These websites usually include a wealth of information on the performance of the funds, including historical data on NAV (Net Asset Value), which will be useful for research.

Monthly closing prices from January 2019 to December 2023 are covered under the five-year data gathering period. This period of time enables a thorough examination of long-term patterns and performance dynamics in mutual funds and equity shares.

3.4 Research Design:

The present study employs an exploratory research approach with the objective of examining the risk, return, and liquidity characteristics of equity capital and mutual fund schemes. Because it is an exploratory study, the research methodology permits a thorough investigation of the relationships and dynamics involved while allowing for an in-depth analysis of the issue without the need for predetermined hypotheses.

3.5 Sampling Method

Relative population-30 BSE sensitivity index firms and the Indian mutual fund sector

Sample size- For stocks, ten of the highest market capitalization businesses across several industries are chosen, and for mutual funds, ten AMC open-ended equity diversified direct funds are chosen, with no preference for any one industry or theme over another.

Sampling Technique: The samples are chosen using the Non-Probability Sampling Method—Judgmental Sampling—which comprises selecting mutual funds and equity shares according to their market capitalization.

3.6 Limitations of the study

- The study relies on historical data, which may not capture real-time market conditions and events.
- The analysis is based on secondary data sources, which are subject to potential errors or discrepancies.
- The research design does not involve experimentation or manipulation of variables, limiting the ability to establish causality.

Chapter 4

Data Analysis

4.1 Analysis of Equity Shares

Security Name	Return	Risk	Alpha	Beta	Sharpe	Treynor	Jensen
Reliance	16.29%	8.17%	2.42%	1.020942	0.85	0.090	2.28%
TCS	13.50%	6.10%	-0.37%	0.552378	0.62	0.12	2.68%
HDFC Bank	10.44%	7.13%	-3.43%	1.130137	1.08	0.03	-4.31%
ICICI Bank	22.30%	8.74%	8.43%	1.315819	1.02	0.12	6.28%
SBI	16.96%	11.46%	3.09%	1.437177	0.85	0.069	0.11%
Bharti Airtel	30.13%	6.93%	16.26%	0.602275	0.59	0.38	18.97%
Infosys	15.53%	7.76%	1.66%	0.690589	0.61	0.12252	3.77%
Kotak Mahindra	8.77%	7.83%	-5.10%	0.94665	0.82	0.017967	-4.74%
HUL	8.61%	6.15%	-5.26%	0.172319	0.19	0.089403	0.37%
Larsen	21.84%	8.34%	7.97%	1.164801	0.95	0.126834	6.85%

Table 4.1 Various measurements for the Top 10 companies by market capitalization for 2019-2023 period

The selected companies' summary statistics through equity share returns data is displayed in table no. 1 above.

4.1.1 Analysis of Return-Risk Matrix of Equities

Following is the interpretation of the data for each security:

1. **Reliance:** Shows a moderate return with relatively low risk. It has a positive alpha, indicating that the share has outperformed compared to expectations, and a beta of slightly higher than 1, implies higher volatility relative to the market.
2. **TCS:** Displays a lower return with relatively low risk. It has a negative alpha, suggesting that the share is underperforming compared to the market, and a beta of less than 1, indicates lower volatility compared to the market.
3. **HDFC Bank:** Exhibits a moderate return with higher risk. It has a negative alpha, indicating underperformance compared to expectations, and a beta of slightly higher than 1, implying higher volatility relative to the market.

4. **ICICI Bank:** Demonstrates a higher return with moderate risk. It has a positive alpha, suggesting that the share has outperformed the market, and a beta of greater than 1, indicating higher volatility compared to the market.
5. **SBI:** Shows a moderate return with higher risk. It has a positive alpha, indicating that the share is outperforming compared to expectations, and a beta which is significantly higher than 1, implies a higher volatility relative to the market.
6. **Bharti Airtel:** Displays a higher return with relatively low risk. It has a positive alpha, suggesting outperformance of share compared to expectations, and a beta of less than 1, indicating lower volatility compared to the market.
7. **Infosys:** Shows a moderate return with relatively low risk. It has a positive alpha, indicating outperformance of the share, and a beta less than 1, indicating lower volatility compared to the market.
8. **Kotak Mahindra:** Exhibits a lower return with higher risk. It has a negative alpha, suggesting underperformance of the share, and a beta which is slightly higher than 1, implying higher volatility relative to the market.
9. **HUL:** Demonstrates a lower return with relatively low risk. It has a negative alpha, indicating underperformance of the share compared to expectations, and a beta significantly less than 1, indicating much lower volatility compared to the market.
10. **Larsen:** Shows a higher return with moderate risk. It has a positive alpha, suggesting outperformance of the share, and a beta of slightly higher than 1, implying higher volatility relative to the market.

Overall, this detailed analysis provides insights into the risk-return characteristics and performance metrics of each security, which will aid the investors in making informed investment decisions. The analysis can be summarized thus – Since individual equities in the market are so diverse, investing in equity carries a wide range of risks and returns. To make well-informed investing decisions that are in line with their risk tolerance and investment objectives, investors should carefully evaluate the risk-return profiles of stocks and take into account variables like volatility, alpha, beta, and Sharpe ratio.

Thus, the table illustrates the disparate performance of various stocks and emphasizes the significance of careful research and portfolio diversification for equity investments. The risk and return characteristics of equities allow investors to customize their investing strategies according to their return goals and risk tolerance.

Rank	Sharpe	Rank	Treynor	Rank	Jenson
1	HDFC Bank	**1**	Bharti Airtel	**1**	Bharti Airtel
2	ICICI Bank	**2**	Larsen	**2**	Larsen
3	Larsen	**3**	Infosys	**3**	ICICI Bank
4	SBI	**4**	TCS	**4**	Infosys
5	Reliance	**5**	ICICI Bank	**5**	TCS
6	Kotak Mahindra	**6**	Reliance	**6**	Reliance
7	TCS	**7**	HUL	**7**	HUL
8	Infosys	**8**	SBI	**8**	SBI
9	Bharti Airtel	**9**	HDFC Bank	**9**	HDFC Bank
10	HUL	**10**	Kotak Mahindra	**10**	Kotak Mahindra

Table 4.2 Ranking of the Top 10 equities in 2019-2023 period through Sharpe, Treynor and Jensen

4.2.2 Analysis of Equity Ranking

Each ranking is based on a different performance metric:

Sharpe Ratio Ranking: This ranking assesses the risk-adjusted return of each security. HDFC Bank tops the list, indicating that it has the best risk-adjusted return among the securities analysed and HUL has worst risk-adjusted return among them.

Treynor Ratio Ranking: This ranking evaluates the risk-adjusted return relative to systematic risk (beta). Bharti Airtel secures the first position, indicating the highest return per unit of systematic risk, despite Bharti Airtel having the second worst risk-adjusted return among the securities analysed. It indicates that

Jensen's Alpha Ranking: This ranking measures the excess return of each security compared to its expected return based on the CAPM. Bharti Airtel emerges as the leader, indicating that it has outperformed its expected return the most.

Some other learnings:

HDFC Bank stands out for its strong risk-adjusted returns, as indicated by its top rank in the Sharpe ratio. This suggests that HDFC Bank provides attractive returns while effectively managing risk.

Bharti Airtel emerges as a top performer across multiple metrics, securing top ranks for both Sharpe ratio and Jensen's alpha. This indicates exceptional risk-adjusted returns and outperformance relative to market expectations.

Larsen and ICICI Bank also demonstrate strong performance, securing high ranks in multiple metrics, including Treynor ratio and Jensen's alpha.

Investors seeking investments with superior risk-adjusted returns may consider securities such as HDFC Bank, Bharti Airtel, Larsen, and ICICI Bank based on their rankings in these metrics.

By comparing these rankings, investors can gain insights into which securities are delivering superior risk-adjusted returns and outperforming expectations. This information can aid investors in making informed decisions when constructing their investment portfolios.

4.2 Analysis of Mutual Funds

Mutual Fund Name	**Year/Scheme**		
	5y return pa (2019)	3y return pa (2020)	1y return pa (2023)
Axis bluechip	16.12%	15.33%	35.11%
Aditya birla sun frontline	20.08%	19.32%	33.43%
Kotak Bluechip	20.51%	19.23%	33.70%
Baroda BNP Paribas LCF	22.22%	23.62%	45.61%
ICICI Prudential Bluechip fund	23.71%	24.71%	44.46%
Canara Roboco Bluechip Equity	20.44%	19.15%	34.84%
JM large cap fund	22.44%	25.54%	49.66%
HDFC top 100 fund	22.98%	24.31%	39.04%
Tata Large Cap Fund	20.86%	20.61%	36.78%
SBI Blue Chip Fund	19.35%	17.68%	26.66%

Table 4.3: SIP absolute returns for the Top 10 Mutual Funds during 2019-2023 period

The absolute returns of a few chosen mutual funds for the years 2019–2023 are shown in the table.

4.2.1 Analysis of SIP Absolute Returns

1. 1-Year Return (2023):

ICICI Prudential Bluechip Fund (44.46%) and Baroda BNP Paribas LCF (45.61%) are the two funds that have the best returns.

This implies that these funds have outperformed the others in the list and have produced good returns over the last year.

2. 3-Year Return (2020):

The highest return, 25.54%, is shown by the JM Large Cap Fund, followed by the HDFC Top 100 Fund (24.31%).

Over the past three years, these funds have consistently outperformed others, yielding comparatively strong returns.

3. 5-Year Return (2019):

ICICI Prudential Bluechip Fund came in second with 24.71%, and JM Large Cap Fund is still in the lead with an amazing 49.66% return.

This suggests that over the previous five years, JM Large Cap Fund has outperformed the competition and produced substantial returns for investors.

4. Comparative Analysis:

Of the chosen funds, JM Large Cap Fund consistently performs at the top over all time periods, indicating its solid return-generating history.

Notable success is also seen by Baroda BNP Paribas LCF and ICICI Prudential Bluechip Fund, especially over the one- and three-year periods.

SBI Blue Chip Fund looks to have performed worse than other funds throughout the course of all time periods, as seen by its comparatively lower returns.

5. Trend Analysis:

Overall, there is a trend of declining returns over longer time horizons, with returns after a year often being larger than those after three and five years.

This pattern is anticipated given the cyclical nature of the market and the evolving economic landscape.

6. Investor Considerations:

When making investing decisions, investors ought to take into account the past performance of mutual funds across various time periods.

Investment strategies aimed at long-term gains might benefit more from funds that have demonstrated robust and consistent performance over an extended period of time.

Before making an investment, however, investors should do a lot of research and take other aspects like risk, expense ratios, and investing goals into account.

Mutual Fund Name	Return	Risk	Alpha	Beta	Sharpe	Treynor	Jensen
Axis bluechip	16.12%	15.36%	0.00	1.17	0.59	0.077	0.00%
Aditya birla sun frontline	20.08%	24.27%	0.00	1.69	0.54	0.077	0.00%
Kotak Bluechip	20.51%	24.86%	0.00	1.74	0.54	0.077	0.00%
Baroda BNP Paribas LCF	22.22%	19.75%	0.00	1.96	0.77	0.077	0.00%
ICICI Prudential Bluechip fund	23.71%	23.04%	0.00	2.16	0.72	0.077	0.00%
Canara Roboco Bluechip Equity	20.44%	19.54%	0.00	1.73	0.68	0.077	0.00%
JM large cap fund	22.44%	24.78%	0.00	1.99	0.62	0.077	0.00%
HDFC top 100 fund	22.98%	22.63%	0.00	2.06	0.70	0.077	0.00%
Tata Large Cap Fund	20.86%	21.62%	0.00	1.79	0.64	0.077	0.00%
SBI Blue Chip Fund	19.35%	25.46%	0.00	1.59	0.48	0.077	0.00%

Table 4.4: Various Measurements of Mutual Funds during 2019-2023 period

The selected funds' summary statistics through portfolio returns data is displayed above in the table number 4.4.

4.2.2 Analysis of Mutual Funds Risk-Return Matrix

Each mutual fund is separately analysed, considering various performance metrics and additional relevant interpretations:

1. Axis Bluechip:

Axis Bluechip has provided a return of 16.12%, indicating moderate performance. With a risk (standard deviation) of 15.36%, Axis Bluechip exhibits relatively low volatility compared to other funds. With a beta of 1.17, Axis Bluechip's returns are moderately sensitive to market movements. The Sharpe ratio of 0.59 indicates a decent risk-adjusted return. It looks that the Axis Bluechip Fund offers a risk-return profile that is balanced, making it appropriate for investors looking for stability and modest returns.

2. Aditya Birla Sun Frontline:

Aditya Birla Sun Frontline has a higher return of 20.08% but also higher risk (24.27%), resulting in a comparable Sharpe ratio of 0.54. The Treynor ratio of 0.077 implies a satisfactory return per unit of systematic risk. A beta of 1.69 the returns a sensitive to market movements. Strong returns are provided by Aditya Birla Sun Frontline Fund, but it also has more volatility, making it appropriate for investors who can take on more risk.

3. Kotak Bluechip:

Kotak Bluechip exhibits a slightly higher return of 20.51% with a similar risk profile of 24.86% and performance metrics. Investors prepared to take on more risk in exchange for possibly better profits can choose the Kotak Bluechip Fund, which offers strong returns with increased volatility.

4. Baroda BNP Paribas LCF:

Baroda BNP Paribas LCF shows the highest return of 22.22%. With a standard deviation of 19.75%, it appears to be less volatile than other top-performing funds. The Sharpe ratio is 0.77, indicating a strong risk-adjusted return.. Investors looking for good performance with moderate risk may find Baroda BNP Paribas LCF to be an appealing option because to its notable high returns and comparatively low volatility.

5. ICICI Prudential Bluechip Fund:

ICICI Prudential Bluechip Fund demonstrates a high return of 23.71% with a higher risk profile, leading to a Sharpe ratio of 0.72. With a standard deviation of 23.04%, it indicates a moderate level of volatility. ICICI Prudential Bluechip Fund is a good option for those looking for a performance-risk balance since it provides robust returns with minimal volatility.

6. Canara Roboco Bluechip Equity:

Canara Roboco Bluechip Equity offers a return of 20.44% with relatively lower risk compared to other funds in the list. With comparatively little risk, Canara Roboco Bluechip Equity shows a moderate return. The fund's beta indicates a moderate level of market vulnerability. A strong risk-adjusted return is shown by the Sharpe ratio of 0.68. Average performance in relation to systematic risk and market expectations is indicated by the Treynor ratio and Jensen's alpha, respectively.

7. JM Large Cap Fund:

JM Large Cap Fund showcases a return of 22.44% with a higher risk profile, resulting in a slightly lower Sharpe ratio 0.62. The fund's beta indicates a greater degree of market sensitivity. The Treynor ratio and Jensen's alpha, on the other hand, indicate average performance in relation to systematic risk and market expectations, respectively, whereas the Sharpe ratio is lower.

8. HDFC Top 100 Fund:

HDFC Top 100 Fund provides a return of 22.98% with a comparable risk profile and performance metrics. The HDFC Top 100 Fund exhibits a better rate of return at a comparatively low risk. The fund's beta 2.06 indicates a greater degree of market sensitivity. A strong risk-adjusted return is shown by the Sharpe ratio. Average performance in relation to systematic risk and market expectations is indicated by the Treynor ratio and Jensen's alpha, respectively.

9. Tata Large Cap Fund:

Tata Large Cap Fund offers a return of 20.86% with a risk profile and performance metrics similar to other funds in the list. With comparatively minimal risk, the Tata Large Cap Fund shows a decent return. The fund's beta 1.79 indicates a moderate level of market vulnerability. The Sharpe ratio shows a respectable return after adjusting for risk. Average performance in relation to systematic risk and market expectations is indicated by the Treynor ratio and Jensen's alpha, respectively.

10. SBI Blue Chip Fund:

SBI Blue Chip Fund displays a return of 19.35% with relatively higher risk, resulting in a lower Sharpe ratio compared to other funds. SBI Blue Chip Fund exhibits a higher risk and lower return. The fund's beta 1.59 indicates a moderate level of market vulnerability. A lower risk-adjusted return relative to other funds on the list is shown by the Sharpe

ratio. Average performance in relation to systematic risk and market expectations is indicated by the Treynor ratio and Jensen's alpha, respectively.

Overall, while some funds may exhibit higher returns, investors should carefully consider their risk tolerance and investment objectives when selecting mutual funds. With an alpha of 0.00%, every mutual fund in the table has not excelled or underperformed its predicted returns given their respective risk profiles. This implies that the funds' performance has been consistent with what the market has anticipated. The Treynor ratio compares a mutual fund's systematic risk (beta) to its risk-adjusted return. The Treynor ratio of 0.077 shared by all mutual funds in the table indicates comparable levels of return per unit of systematic risk. Jensen's alpha calculates a mutual fund's excess return over its predicted return using the Capital Asset Pricing Model (CAPM). Jensen's alpha for each mutual fund in the table is 0.00%, meaning that none of them has outperformed or underperformed in comparison.

Several important considerations are suggested by the mutual fund analysis for investor perspective:

1. Consistent Performance: As seen by their alpha values of 0.00%, the mutual funds under analysis have consistently produced returns and risk metrics that are in accordance with market expectations. This implies that, generally speaking, the funds have been able to deliver the expected returns in relation to the risk they have taken.

2. Variability in Risk: The standard deviation of the mutual funds shows variability in risk levels even when they produce returns that are comparable. Certain funds, like SBI Blue Chip Fund, have a higher level of risk than others, like Axis Bluechip. Investors can select funds according to their goals for their investments and level of risk tolerance.

3. Diversification: Investing in a mix of mutual funds with varying risk profiles can help investors achieve diversification in their portfolios. Funds like Baroda BNP Paribas LCF offer higher returns with relatively lower risk, providing opportunities for diversification and potentially higher risk-adjusted returns.

4. Performance Metrics: While the funds' returns are comparable, their beta, Treynor, Sharpe, and Jensen's alpha values differ. When assessing mutual funds, investors ought to take these indicators into account in addition to return and risk, in order to evaluate the funds' risk-adjusted performance and potential for outperformance.

5. Investor Considerations: When choosing mutual funds, investors should evaluate their time horizon, investing goals, and risk tolerance. Although higher risk funds have

bigger potential returns, they also have more volatility. Investors must make sure that the investments they make fit their risk tolerance and financial goals.

Rank	Sharpe
1	Baroda BNP Paribas LCF
2	ICICI Prudential Bluechip fund
3	HDFC top 100 fund
4	Canara Roboco Bluechip Equity
5	Tata Large Cap Fund
6	JM large cap fund
7	Axis bluechip
8	Kotak Bluechip
9	Aditya birla sun frontline
10	SBI Blue Chip Fund

Table 4.5: Sharpe Ratio Ranking for Mutual Funds

4.2.3 Analysis of Mutual Fund Ranking

1. Baroda BNP Paribas LCF: This fund tops the ranking in terms of Sharpe ratio, indicating the highest risk-adjusted return among the listed mutual funds. Investors may perceive it as offering the best balance between risk and return.

2. ICICI Prudential Bluechip Fund: Securing the second position in the ranking, this fund also demonstrates a strong risk-adjusted return. Investors may view it as another attractive option for achieving favorable risk-adjusted performance.

3. HDFC Top 100 Fund: Positioned third, this fund offers a competitive risk-adjusted return, although slightly lower than the top two funds. It remains an appealing choice for investors seeking stability and consistent performance.

4. Canara Robeco Bluechip Equity: This fund ranks fourth in the Sharpe ratio, indicating a good risk-return profile. Investors may consider it as a solid option for achieving decent returns while managing risk effectively.

5. Tata Large Cap Fund: Positioned fifth, this fund offers a respectable risk-adjusted return, although slightly lower than the top-performing funds. Investors may see it as a reliable choice for stable returns with moderate risk exposure.

6. JM Large Cap Fund: Ranked sixth, this fund provides a reasonable risk-adjusted return, making it a viable option for investors seeking moderate risk levels while aiming for satisfactory returns.

7. Axis Bluechip: This fund occupies the seventh position in the ranking, offering a decent risk-adjusted return. While not leading the list, it still provides investors with a reliable option for achieving favorable risk-adjusted performance.

8. Kotak Bluechip: Positioned eighth, this fund offers a moderate risk-adjusted return, although slightly lower compared to higher-ranked funds. Investors may still find it as a suitable choice for balanced risk-return characteristics.

9. Aditya Birla Sun Frontline: Ranked ninth, this fund provides a lower risk-adjusted return compared to higher-ranked funds. Investors may perceive it as offering relatively less favorable risk-return characteristics compared to other options.

10. SBI Blue Chip Fund: Occupying the tenth position, this fund demonstrates the lowest risk-adjusted return among the listed mutual funds. Investors may consider it as offering a less attractive risk-return profile compared to higher-ranked alternatives.

The Sharpe ratio ranking offers important information about the listed mutual funds' risk-adjusted performance. With the use of this data, investors can choose funds that meet their risk tolerance levels and investing goals while providing attractive risk-return trade-offs. Before making an investment, investors should do a lot of research and take into account a number of aspects other than only the Sharpe ratio, like fund strategy, past performance, fee ratios, and investment goals.

4.3 Comparative Analysis Overall:

- Compared to mutual funds, equities typically carry a higher risk profile but also greater potential profits.
- Because of their portfolio diversification, mutual funds offer a wider range of investment possibilities and potentially lower risk than individual securities.
- There are differences in the risk-adjusted returns of mutual funds and stocks, with certain funds and securities performing better than others.
- When deciding between mutual funds and stocks, investors should take their time horizon, risk tolerance, and investing objectives into account.

4.4 Hypothesis Testing

To conduct a hypothesis test for the returns and risks of mutual funds and equities, a two-sample t-test was performed for the means of the returns and risks of the two groups (equities and mutual funds).

Null Hypothesis (H0): There is no significant difference in the performance of equity and mutual funds.

Alternative Hypothesis (H1): There is a significant difference between the performance of equity and mutual funds.

The following hypothesis tests were done using Python:

Returns:

Null Hypothesis (H0): $\mu1 = \mu2$ (where $\mu1$ is the mean return of equities and $\mu2$ is the mean return of mutual funds)

Alternative Hypothesis (H1): $\mu1 \neq \mu2$ (two-tailed test)

Risk:

Null Hypothesis (H0): $\mu1 = \mu2$ (where $\mu1$ is the mean risk of equities and $\mu2$ is the mean risk of mutual funds)

Alternative Hypothesis (H1): $\mu1 \neq \mu2$ (two-tailed test)

A significance level (α) of 0.05 was used for this test.

**The code used for the test is attached in the appendix*

4.4.1 Results

- **Returns:**
  Equity Mean Return: 16.437000000000005
  Mutual Fund Mean Return: 20.871000000000002
  T-statistic for Returns: -1.962479129573886
  P-value for Returns: 0.06535408567886869

Returns have a p-value of 0.0654, above the significance level ($\alpha = 0.05$). Consequently, we are unable to reject the null hypothesis (H0), which states that the returns from mutual funds and stocks are not significantly different from one another. This implies that there may not be sufficient data to draw the conclusion that the returns on the two investment options differ significantly.

- **Risk:**

  Equity Mean Risk: 7.8610000000000015

  Mutual Fund Mean Risk: 22.131

  T-statistic for Risk: -12.839090963490468

  P-value for Risk: 1.687327964804843e-10

In comparison to the significance level ($\alpha = 0.05$), the p-value for risk is incredibly small (almost zero). We therefore come to the conclusion that there is a substantial difference in risk between mutual funds and stocks and reject the null hypothesis (H0). This implies that there is a substantial difference between the risk involved with mutual funds and the risk involved with stocks.

Chapter 5

Conclusion and Discussion

5.1 Conclusion

The comparative analysis of equity investments and mutual funds reveals significant insights into the risk-return dynamics of these two prominent investment avenues. To sum up, this research study has conducted a comprehensive analysis and comparison of mutual funds and equity investments, two well-known financial options. By means of a comprehensive examination of several performance indicators and risk-return dynamics, the research has illuminated the unique attributes and investment methodologies of these two investment instruments.

According to this research, direct ownership of individual stocks is made possible by equity investments. While this can result in substantial gains for investors, it also exposes them to the market's inherent volatility. Contrarily, mutual funds combine the assets of several investors to form professionally managed, diversified portfolios that reduce risk by being spread across a variety of assets and asset classes.

Through the examination of several metrics including returns, alpha, beta, standard deviation, Sharpe ratio, Treynor ratio, Jensen ratio, and CAPM, this paper has provided investors with significant understanding regarding the performance and risk characteristics of mutual funds and equities investments. The validity of the findings has also been reinforced by the analysis performed of monthly closing prices over a five-year period (2019-2023), which was bolstered by secondary data from reliable sources.

According to the data, mutual funds often yield larger returns than individual stocks. This is mostly because mutual funds are diversified, which reduces unsystematic risk and offers more consistent returns over time. The performance of mutual funds is largely attributed to their diversified portfolios and expert management.

However, individual stocks provide investors the chance to make large capital gains, especially in well-performing stocks like ICICI Bank and Bharti Airtel. The high alpha values of these stocks suggest that they have outperformed the market. But as their beta numbers indicate, stocks also expose investors to larger amounts of systematic risk, which increases their vulnerability to market volatility.

This study is important because it can provide investors with the information and resources they need to make wise investment decisions. Investors may confidently navigate the financial markets and match their investment decisions with their risk tolerance and financial goals by having a deeper awareness of the nuances of mutual funds and equity investments.

It is critical for investors to keep an eye on market trends, review their investment plans, and stay up to date on changes in the financial system as we move to the future. Investors that are alert and flexible will be able to see opportunities, overcome obstacles, and eventually achieve their financial goals.

This study paper basically acts as a lighthouse for investors, providing direction in the confusing world of financial markets and clearing the path for wise and well-informed investment choices.

5.2 Discussion

This study underscores the importance of understanding the risk-return trade-off when choosing between equities and mutual funds. Because of their expert management and diversified portfolios, mutual funds might be a better choice for investors who are risk averse and looking for steady returns. The standard deviation suggests that mutual funds carry a larger risk, although this can be mitigated with careful fund selection and ongoing oversight.

Individual stocks, on the other hand, can appeal to investors who have a larger risk tolerance and a desire for potentially large profits. High profits are possible with stocks like ICICI Bank and Bharti Airtel, but investors need to be aware of the market dangers and volatility that come with owning equity.

The research's conclusions are in particular applicable to portfolio management since they highlight the necessity of a well-rounded strategy that takes mutual funds and stocks into account. Effective risk management and return optimization can be achieved by spreading investments across these two asset groups. The study's findings can be used by financial advisors and individual investors to help them make well-informed decisions that fit their investment objectives and risk tolerance.

In conclusion, an investor's risk tolerance, financial goals, and market forecast all play a role in the decision between equity investments and mutual funds. Investors can make smart decisions to get their desired financial results by thoroughly evaluating the performance measures and comprehending the dynamics of risk-return.

This study offers a framework for assessing the performance of mutual funds and stocks, as well as a contribution to the body of knowledge already available on investment techniques. This analysis could be expanded in the future by examining a wider variety of financial instruments and the effects of economic cycles on the performance of different investment options.

This study gives investors the information they need to better manage their investment portfolios and navigate the intricacies of the financial markets by comparing the performance of mutual funds and stocks.

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Websites

www.bseindia.com

www.moneycontrol.com

www.amfiindia.com

wallstreetprep.com)

Database

Prowess IQ

Appendix

```
import numpy as np
from scipy import stats

# Data for equities (returns and risks)
equity_returns = np.array([16.29, 13.50, 10.44, 22.30, 16.96, 30.13, 15.53, 8.77, 8.61, 21.84])
equity_risks = np.array([8.17, 6.10, 7.13, 8.74, 11.46, 6.93, 7.76, 7.83, 6.15, 8.34])

# Data for mutual funds (returns and risks)
mutual_fund_returns = np.array([16.12, 20.08, 20.51, 22.22, 23.71, 20.44, 22.44, 22.98,
20.86, 19.35])
mutual_fund_risks = np.array([15.36, 24.27, 24.86, 19.75, 23.04, 19.54, 24.78, 22.63, 21.62,
25.46])

# Calculate sample means
mean_equity_returns = np.mean(equity_returns)
mean_mutual_fund_returns = np.mean(mutual_fund_returns)

mean_equity_risks = np.mean(equity_risks)
mean_mutual_fund_risks = np.mean(mutual_fund_risks)

# Calculate sample standard deviations
std_equity_returns = np.std(equity_returns, ddof=1)  # ddof=1 for sample standard deviation
std_mutual_fund_returns = np.std(mutual_fund_returns, ddof=1)

std_equity_risks = np.std(equity_risks, ddof=1)
std_mutual_fund_risks = np.std(mutual_fund_risks, ddof=1)

# Perform two-sample t-test for returns
t_stat_returns, p_value_returns = stats.ttest_ind(equity_returns, mutual_fund_returns)

# Perform two-sample t-test for risks
```

```
t_stat_risks, p_value_risks = stats.ttest_ind(equity_risks, mutual_fund_risks)

# Print results
print("Returns:")
print("Equity Mean Return:", mean_equity_returns)
print("Mutual Fund Mean Return:", mean_mutual_fund_returns)
print("T-statistic for Returns:", t_stat_returns)
print("P-value for Returns:", p_value_returns)

print("\nRisk:")
print("Equity Mean Risk:", mean_equity_risks)
print("Mutual Fund Mean Risk:", mean_mutual_fund_risks)
print("T-statistic for Risk:", t_stat_risks)
print("P-value for Risk:", p_value_risks)
```

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Summary