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Evaluating The Growth Strategy And Performance Of Select Blue-Chip Schemes In Delivering Optimal Returns To Investors And Mutual Fund Firms

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Abstract: This research looks at how well blue-chip mutual funds perform in the banking industry. It focuses on risk-return trade-offs and performance evaluation utilizing metrics including Jensen's Alpha, Treynor Ratio, and Sharpe Ratio. Three years' worth of data are included in the investigation, which includes major mutual funds like SBI, Canara, Kotak, and others. The results show that annual returns fluctuate, showing positive returns during times of good market circumstances and negative returns during difficult times. Since volatility differs throughout funds, it is crucial to take risk into account while making investment decisions. While risk-adjusted performance indicators provide information about the effectiveness of fund management strategies, beta values show market sensitivity. Investors are given recommendations that prioritize risk-adjusted returns, diversity, and well-informed decision-making.

Index Terms - Blue chip mutual funds, Banking sector, Risk-return trade-off, Performance analysis

I. INTRODUCTION

Within the investment landscape, blue-chip mutual funds are highly regarded and tend to attract investors who value stability and portfolio growth potential. The strategic investing approach of these funds, which concentrates on businesses with a track record of performance, market leadership, and financial stability, is what makes them unique. These businesses are frequently referred to as "blue-chip" businesses, a moniker that comes from the highest-value poker chip, which stands for dependability and quality.

Blue-chip funds are distinguished by their investing approach, which prioritizes the selection of companies that demonstrate operational stability, longevity, and consistency. Even in difficult economic times, these businesses usually have strong brands, solid business plans, and a track record of making steady profits. Furthermore, blue-chip businesses frequently and reliably pay dividends to their stockholders, demonstrating their sound financial standing and dedication to repaying investors.

The reforms led to rapid expansion and diversification of the financial landscape in India. Increased competition and market openness gave rise to new financial products and services to meet the changing needs of investors and businesses. Mutual funds became a popular investment option during this period, offering various benefits to investors. Firstly, mutual funds provide a convenient and efficient way for investors to access diversified securities portfolios. By pooling funds from multiple investors, mutual funds achieved economies of scale and offered diversified investment portfolios managed by professional fund managers.

This diversification helped to reduce specific risks associated with individual securities, improving the risk-return profile of investors' portfolios. Additionally, mutual funds offered professional management, expertise, and research capabilities that were often beyond the reach of individual investors. Experienced fund managers employed rigorous investment processes and strategies to identify attractive investment opportunities, optimize portfolio allocation, and manage risk effectively. This professional management added value to investors by potentially delivering superior returns and mitigating investment risks.

The Indian financial system quickly expanded and became more diverse as a result of the changes.

New financial goods and services emerged in response to growing market openness and competition, catering to the evolving demands of businesses and investors. During this time, mutual funds gained popularity as an investment choice since they provided several advantages to investors. First off, investors can easily and effectively access diverse securities portfolios through mutual funds. Mutual funds obtained economies of scale and provided diversified investment portfolios overseen by qualified fund managers by combining the capital of several investors.

Investor portfolios' risk-return profiles improved as a result of this diversification's assistance in lowering certain risks connected to certain assets. Furthermore, professional management, experience, and research capabilities that were frequently out of reach for regular investors were provided by mutual funds.

For investors looking to add stability, growth potential, and income production to their portfolios, blue-chip mutual funds are a wise choice. These funds provide a compelling combination of capital preservation, consistent returns, and reduced risk exposure by concentrating on businesses with a good track record of success, market leadership, and financial stability. Because of this, blue-chip mutual funds continue to draw a wide range of investors who want to accumulate wealth and prudently and confidently reach their financial objectives.

Mutual funds are now widely acknowledged as a vital instrument for building wealth and ensuring long-term financial security as people become more knowledgeable about investing options and financial planning techniques. The increased awareness that exists today is the consequence of market players, such as asset management firms, financial advisors, and regulatory bodies, working together to spread the word about the advantages of investing in mutual funds. Workshops, internet tools, and educational programs have all been crucial in equipping investors with the knowledge they need to make wise financial decisions. As a result, a lot of people accept mutual funds as a crucial component of their investment portfolios since they understand their capacity for wealth building, competent management, and diversification.

The mutual fund business in India has experienced exponential expansion, which can be attributed to the synergistic interaction between regulatory reforms and growing investor knowledge. The mutual fund ecosystem in India is positioned for continued growth and evolution as investors come to understand the

advantages of using mutual funds as a means of achieving their financial goals and as regulatory bodies support the industry's governance and transparency standards. This trend is encouraging for investors and market players because it guarantees a strong and dynamic investment environment that promotes wealth development and financial prosperity for all parties involved.

It is also worth noting that the development of digital platforms and technology improvements have completely changed the way investors access and manage their mutual fund investments. Investors may now easily transact, monitor, and manage their assets from the comfort of their homes or while on the road thanks to the development of internet trading platforms, mobile applications, and digital investment platforms, which have democratized access to mutual funds. A wider range of investors, particularly millennials and first-timers, who may have been put off by the complexity of conventional investment channels, have been drawn in by the platform's enhanced accessibility and ease of use. Overall, the demand for mutual fund investments in India has been driven by improving investor knowledge, technological developments, and good macroeconomic conditions.

Through a careful analysis of blue-chip mutual fund schemes and a deeper exploration of investor behavior, this research seeks to advance our understanding of how investors evaluate mutual fund performance and make investment decisions. Through a thorough examination of the risk-adjusted returns, growth strategies, and performance indicators of blue-chip funds, this research aims to provide meaningful information that investors can use to guide their decision-making.

1.1. Research Problem Statement

The study examines investor preferences, growth plans, and performance measures related to Indian blue-chip mutual fund schemes. It aims to evaluate risk-adjusted returns, growth strategies, and investor behavior influencing investment choices. The research analyzes market conditions, fund management techniques, and portfolio composition to identify areas for development, key success drivers, and insights into the relative performance of blue-chip funds.

The primary objective of the research is to advance the mutual fund industry in India and to promote investor welfare. Specific concerns like growth plans, investor behavior, and performance of blue-chip mutual funds are addressed.

2. Literature Review

Bano, Y., & Vasantha, S. (2019). examines the performance of Index funds, which are a specific type of mutual fund designed to mirror the performance of a particular market index. Through empirical analysis, the study scrutinizes how well these funds have performed over the duration spanning from 2012 to 2017. The primary objective of this research is to provide a comprehensive evaluation of Index fund performance during this time frame. To achieve this goal, the study concentrates on three crucial parameters: active returns, tracking error, and Jensen's alpha.

Cuthbertson, K., Nitzsche, D., & O'Sullivan, N. (2016). conducts a comprehensive survey and critical evaluation of existing literature pertaining to the influence of management effects and fund characteristics on mutual fund performance. Firstly, it provides a concise overview of performance measures commonly used in assessing mutual funds. Secondly, it examines empirical findings

regarding the ability of various fund characteristics to predict future returns. Thirdly, the paper delves into the literature surrounding behavioral biases exhibited by fund managers and their impact on risk-taking behavior and returns.

Safiuddin, S. K., & Hasan, M. (2022). effectively diversifying their investments across different portfolios can be quite daunting. This is where mutual funds step in as financial intermediaries, pooling together assets from multiple investors and investing them in a diverse range of securities, including stocks, bonds, and money market instruments. This setup enables investors to benefit from diversification while relying on professional management of their investments. The rapid expansion of the Mutual Fund Industry in India has attracted considerable attention from both investors and researchers.

Otten, R., & Bams, D. (2002). This paper offers an extensive exploration of the European mutual fund industry, coupled with a thorough analysis of mutual fund performance utilizing a sample comprising 506 funds from the five most notable mutual fund countries. To mitigate the common issue of survivorship bias in mutual fund research, the analysis employs a controlled sample. The assessment of mutual fund performance is conducted using the Carhart (1997) 4-factor asset-pricing model.

Premachandra, I. M., Zhu, J., Watson, J., & Galagedera, D. U. (2016). dual objective. Firstly, it provides a comprehensive review of the Data Envelopment Analysis (DEA) literature that has assessed mutual fund performance. Secondly, it introduces a two-stage DEA model that breaks down the overall efficiency of a decision-making unit into two distinct components. This model is then applied to evaluate the relative performance of 66 large mutual fund families in the US spanning from 1993 to 2008.

Puri, H. (2010). Indian investors tend to be risk-averse, often preferring to invest in safe securities that offer decent returns. Among the various investment alternatives available, the Mutual Fund Industry holds a reputation for safety based on past experiences. As a result, the number of investors entering this industry is steadily increasing, necessitating a need for both investors and fund houses to evaluate the performance of mutual funds.

Wermers, R. (2011). This review highlights significant recent advancements in measuring the performance of actively managed portfolios. In the domain of returns-based performance evaluation, several innovations have emerged. These include conditional performance evaluation techniques, which allow for a more nuanced assessment of performance by considering the influence of various market conditions.

Karoui, A., & Meier, I. (2013). delve into the performance and portfolio characteristics of 828 newly launched US equity mutual funds spanning the period from 1991 to 2005. Our analysis reveals that these newly launched funds initially exhibit higher excess returns and abnormal returns on average compared to existing funds. Moreover, their risk-adjusted performance also surpasses that of existing funds during the same period. However, we also uncover evidence of short-term persistence among the top-performing fund starts, indicating that these funds tend to maintain their superior performance over the short term.

Mannar, B. R., & Reddy, B. R. (2013). Since the deregulation of the Indian economy in 1992 and the subsequent development of the Indian Capital Market, significant structural changes have occurred in both primary and secondary markets. Mutual funds have emerged as key contributors to the globalization of financial markets and serve as vital sources of capital flows to emerging economies. Despite their importance in these markets, there remains a lack of comprehensive understanding regarding their investment allocation and strategies.

Morey, M. R., & Morey, R. C. (1999). In this paper, we address the issue of mutual fund ratings, which are highly significant to investors given the vast array of over 6500 mutual funds available. Despite the attention paid to these ratings, controversy surrounds the various industry approaches to mutual fund rating due to the subjective nature of integrating fund performances over different time horizons. Many rating approaches employ subjective weights, resulting in different ratings based on the relative importances assigned to different time periods. To mitigate this subjectivity, we present two quadratic programming approaches aimed at identifying mutual funds that are strictly dominated, regardless of the weights assigned to different time horizons concerning their mean returns and risks.

Arugaslan, O., Edwards, E., & Samant, A. (2007). endeavors to assess the risk-adjusted performance of US-based international equity funds using objective statistical measures rooted in modern portfolio theory, with the aim of presenting the findings in a format accessible to the average investor. The study examines 50 large US-based international equity funds over the period from 1994 to 2003, employing risk-adjusted returns as the key evaluation metric. Specifically, the study utilizes a relatively new risk-adjusted performance measure known as M-squared, which was introduced by Franco Modigliani and Leah Modigliani in 1997.

Gang, J., & Qian, Z. (2016). undertake a comprehensive evaluation of mutual fund performance in China spanning the years from 2006 to 2014. Our methodology involves several key steps to provide a nuanced understanding of fund performance dynamics within the Chinese market context. Firstly, we estimate time-varying abnormal returns for each mutual fund. This estimation is facilitated by utilizing an active peer benchmark-augmented factor pricing model. By comparing fund returns against those of similar funds in the market, we aim to discern the unique performance characteristics of each fund.

Elton, E. J., Gruber, M. J., & Blake, C. R. (1996). investigate the predictability of stock mutual funds using risk-adjusted returns as a key metric. Our findings indicate that past performance serves as a reliable predictor of future risk-adjusted performance. By analyzing historical data and applying techniques from modern portfolio theory, we enhance our fund selection process and construct portfolios that outperform those selected solely based on past rank.

Malhotra, D. K., Mooney, T., Poteau, R., & Russel, P. (2023). undertake a thorough examination of the performance of financial (specialty sector financial) mutual funds over an extensive 23-year period, surpassing the time frame typically analyzed in existing literature. Our analysis encompasses various facets to provide a comprehensive understanding of these mutual funds' performance. We delve into multiple factors, including risk-adjusted performance, both unconditional and conditional multifactor analysis, and assess market timing and selectivity. Our findings reveal that financial mutual

funds exhibit higher risk-adjusted performance compared to both the overall market and financial sector benchmarks.

Riyazahmed, K. (2021). conduct an analysis of the risk-adjusted return of mutual funds in India, utilizing a dataset comprising 4220 mutual funds. The evaluation is based on two key metrics: the Sharpe ratio, which measures risk-adjusted return, and the Information ratio, which gauges a fund's outperformance relative to its benchmark. Regression analysis is employed to assess the influence of various fund characteristics, including fund category, fund type, fund access type, and corpus size, on these dependent variables.

3. Methodology

Sharpe ratio:

The Sharpe ratio is a measure used to assess the risk-adjusted return of an investment or a portfolio. Nobel laureate William F. Sharpe developed it, and it is widely utilized by investors to evaluate the performance of investments relative to their level of risk. The Sharpe ratio is calculated by subtracting the risk-free rate of return from the average return of the investment and then dividing the result by the standard deviation of the investment's returns. The formula is as follows:

Sharpe Ratio = (Average Return of Investment - Risk-Free Rate) / Standard Deviation of Investment's Returns

Treynor ratio:

The Treynor ratio, named after economist Jack Treynor, is a measure used to assess the risk-adjusted return of an investment or a portfolio. Similar to the Sharpe ratio, the Treynor ratio evaluates the performance of an investment relative to the level of systematic risk, also known as market risk or beta. The Treynor ratio is calculated by dividing the investment's excess return (i.e., the return above the risk-free rate) by the investment's beta, which measures its sensitivity to market movements. The formula is as follows:

Treynor Ratio = (Average Return of Investment - Risk-Free Rate) / Beta of Investment

Jensen ratio:

The Jensen ratio, also known as the Jensen's alpha, is a measure used to evaluate the risk-adjusted performance of an investment or portfolio. Developed by economist Michael Jensen, this ratio assesses how much excess return an investment generates relative to its expected return, given its level of systematic risk. The Jensen ratio is calculated by subtracting the expected return of the investment, based on its beta and the market return, from the actual return of the investment. The formula is as follows:

Jensen Ratio = Actual Return of Investment - [Risk-Free Rate + Beta of Investment * (Market Return - Risk-Free Rate)]

Comparative Performance Evaluation:

Comparative performance evaluation refers to comparing the performance of different investments, portfolios, or strategies against each other. This evaluation is typically conducted using various performance metrics and criteria to assess relative strengths, weaknesses, and differences in performance outcomes. In finance, comparative performance evaluation is crucial for investors, fund managers, and analysts to make informed decisions about asset allocation, investment selection, and portfolio management. It involves analyzing and

comparing the returns, risk-adjusted returns, volatility, and other relevant metrics of different investment options or strategies over a specific period. By conducting a comparative performance evaluation, stakeholders can identify investments or strategies that have performed well relative to others in the same asset class or market segment. This analysis helps investors understand which investments offer the best risk-adjusted returns, which strategies are more effective in achieving their financial goals, and where adjustments may be needed to optimize portfolio performance. Overall, comparative performance evaluation provides valuable insights into the relative performance of investments or strategies, enabling stakeholders to make better-informed decisions and improve their investment outcomes.

Growth Rate Calculation:

Growth rate calculation is a mathematical process determining how a particular variable, such as revenue, earnings, or population, increases or decreases over a specific period. This calculation provides insights into a given quantity's growth or decline, allowing stakeholders to assess trends, make projections, and evaluate performance.

The formula for calculating the growth rate depends on whether the variable is growing or declining:

For calculating the growth rate of a variable that is increasing over time, the formula is:

Growth Rate = [(Ending Value - Beginning Value) / Beginning Value] * 100%

Where:

Ending Value is the variable's value at the end of the period.

The beginning Value is the variable's initial value at the beginning of the period.

The growth rate is typically expressed as a percentage, indicating the relative change in the variable over the specified period. A positive growth rate signifies growth or increase, while a negative rate indicates decline or decrease. Growth rate calculation is widely used in various fields, including finance, economics, business, demography, and population studies, to analyze trends, forecast future outcomes, and assess performance.

Risk-return analysis:

Risk-return analysis involves assessing the relationship between the risk and return of an investment. The risk of an investment is typically measured by metrics such as standard deviation (σ) or beta (β), which quantify the extent of fluctuations in the investment's returns over a given period. The return on an investment can be calculated as the difference between the final value (FV) and the initial value (IV) of the investment, divided by the initial value:

$$Return = \frac{FV - IV}{IV} \times 100$$

This formula calculates the return as a percentage of the initial investment. By comparing the calculated return with the level of risk represented by metrics such as standard deviation or beta, investors can assess whether the potential return justifies the level of risk undertaken.

Standard Deviation Calculation

Standard deviation is a statistical measure that quantifies the extent of variation in a dataset. It reflects how much individual data points deviate from the dataset's mean, providing insight into its dispersion. The standard deviation (σ) is calculated using a formula that involves several steps: finding the mean of the dataset,

determining the deviation of each data point from the mean, squaring each deviation, summing the squared deviations, dividing by the total number of data points, and finally taking the square root of the result. A higher standard deviation indicates more significant variability in the dataset, while a lower standard deviation suggests more consistency.

Beta Calculation

Beta (β) is a financial metric that evaluates an investment's sensitivity to market movements. It measures an investment's volatility or systematic risk relative to the broader market. Beta is calculated by comparing the investment's returns to those of a market index, such as the S&P 500. A beta greater than 1 indicates higher volatility than the market, while a beta less than 1 suggests lower volatility. Negative beta values indicate an inverse relationship with the market. Beta helps investors assess an investment's risk and potential performance relative to market fluctuations.

Correlation

Correlation is a statistical measure used to quantify the relationship between two variables. It indicates the strength and direction of the association between the variables, with values ranging from -1 to 1. A correlation coefficient 1 represents a perfect positive correlation, -1 represents a perfect negative correlation, and 0 indicates no correlation. Correlation analysis is valuable for understanding how changes in one variable correspond to changes in another, aiding decision-making and predictive modeling in various fields.

3.1. Objectives

- **To Compare Similar Blue-Chip Fund Schemes and Identify the Reasons Behind Their Performance Differences**
- **To Examine the Risk and Return Components Among These Mutual Funds**
- **To Identify Mutual Funds with Superior Risk-Adjusted Returns to Enable Informed Fund Selection and Optimize Portfolio Allocation for Maximized Investment Outcomes**

Hypothesis

H1 There exists a relationship between risk and return components among the selected mutual funds, with specific funds exhibiting higher returns for a given level of risk.
H2 Differences in performance among similar schemes of blue-chip funds can be attributed to variations in fund management styles, investment strategies, and market conditions.

4. Data Analysis

Date	SBI	Canara	Kotak	Sundaram	Axis	Aditya	HDFC	ICICI	Mirae	Franklin	BNP	Tata	Nippon	Edelweiss	Union	PGIM	LIC	DSP	BSE100
01-01-2018	22.33	16.67	38.83	0	16.87	226.6	56.81	41.77	19.72	38.77	18.24	220.15	34.15	220.15	10.84	18.59	25.67	0	11419.07
01-02-2018	21.56	16.15	36.99	0	16.44	215.91	53.27	39.97	18.66	36.73	17.36	207.82	32.55	207.82	10.52	17.75	24.75	0	10864.95
01-03-2018	21.18	15.72	32.24	0	14.4	209.23	45.22	38.64	16.04	35.28	16.88	199.63	31.02	199.63	10.18	15.8	23.94	0	10502.61
01-04-2018	22.4	16.59	33.85	0	15.38	220.74	47.54	40.56	16.97	37.14	17.77	210.84	32.79	210.84	10.8	16.76	25.45	0	11152.97
01-05-2018	21.91	16.59	33.65	0	15.72	217.18	47.11	40.35	16.8	36.79	17.47	207.09	32.05	207.09	10.54	16.41	25.32	0	11040.77
01-06-2018	21.37	16.52	33.01	0	15.88	213.96	46.11	39.62	16.64	36.48	16	204.9	31.5	204.9	10.3	16.37	25.18	0	10987.71
01-07-2018	22.33	17.62	35.23	0	16.81	225.04	49.08	41.69	17.56	37.69	16.72	216.53	33.38	216.53	10.82	16.84	26.42	0	11625.85
01-08-2018	22.83	17.99	36.03	0	16.9	231.2	51.66	43.38	18.24	39.45	17.11	223.43	35.2	223.43	11.05	17.06	26.86	0	12016.97
01-09-2018	20.85	16.67	33.24	0	15.6	212.14	48.49	40.51	16.99	36.58	15.74	202.62	32.51	202.62	10.29	15.63	24.5	0	11140.99
01-10-2018	20.21	16.03	31.46	0	14.81	207.05	47.8	39.28	16.53	35.02	15.23	196.98	32.06	196.98	9.78	14.8	23.57	0	10661.72
01-11-2018	21.12	16.7	32.92	0	15.82	214.84	48.45	40.02	17.21	36	16.02	205.27	32.84	205.27	10.22	15.28	25.18	0	11119.17
01-12-2018	21.18	15.47	32.25	0	15.94	216.24	49.24	40.53	15.72	36.35	16.06	205.93	33.27	205.93	10.13	14.67	25.42	0	11161.02
01-01-2019	20.64	15.46	31.77	0	15.81	211.97	49.43	39.74	15.65	35.86	16.02	204.91	33.01	204.91	10.13	14.87	24.75	0	11054.82
01-02-2019	20.62	15.25	31.85	0	15.82	210.39	48.44	39.72	15.53	32.71	15.77	202.69	32.49	202.69	10.06	14.6	24.55	0	10988.69
01-03-2019	22.31	16.32	34.16	0	15.32	226.74	47.34	42.19	16.71	34.91	16.99	219.34	35.45	219.34	10.76	15.25	26.13	10.77	11809.19
01-04-2019	22.44	16.4	34.39	0	15.61	226.38	47.4	42.6	16.81	34.81	17.21	220.68	35.49	220.68	10.91	15.37	26.35	10.88	11868.07
01-05-2019	23.21	16.83	35.01	0	16.17	229.73	48.61	43.25	17.08	35.07	16.48	228.57	36.41	228.57	11.05	15.79	27.18	11.05	12044.07
01-06-2019	23.05	16.82	34.63	0	16.28	227.32	48.68	43.2	17.02	34.57	16.47	230.11	35.9	230.11	10.99	15.26	27.31	10.95	11909.67
01-07-2019	21.79	16.02	32.71	0	15.7	216.14	45.23	40.81	16.15	32.35	15.89	216.59	33.3	216.59	10.4	14.56	25.9	10.36	11210.78
01-08-2019	21.53	15.94	32.78	0	15.83	212.71	43.75	40.37	16.08	31.46	16.05	211.57	31.66	211.57	10.37	14.43	26.1	10.28	11139.78
01-09-2019	22.72	16.85	34.4	0	16.95	220.84	45.07	42.31	16.63	32.89	16.96	220.45	33.62	220.45	10.79	14.51	27.69	10.69	11580.94
01-10-2019	23.47	17.49	35.86	0	17.17	227.65	46.91	43.42	17.37	34.03	17.36	229.27	35.04	229.27	11.18	15.06	28.45	11.08	11999.14
01-11-2019	23.51	17.68	36.44	0	17.26	231.9	47.39	43.99	17.63	35.03	17.49	230.83	35.39	230.83	11.26	15.2	28.69	11.25	12142.8
01-12-2019	23.65	16.49	33.94	0	17.51	232.77	47.29	44.49	16.34	34.83	17.57	230.86	35.68	230.86	11.35	14.94	29.23	11.35	12236.19
01-01-2020	23.7	16.72	33.93	0	17.63	231.08	46	43.97	16.15	31.61	17.67	228.46	35.35	228.46	11.19	14.81	29.39	11.16	12082.99
01-02-2020	22.05	16.28	31.95	0	17.34	217.59	42.34	41.13	15.26	29.62	16.99	217.14	32.82	217.14	10.61	14.02	28.56	10.46	11292.68
01-03-2020	16.93	13.06	24.68	0	12.86	165.05	28.58	31.79	11.69	22.7	12.33	164.06	24.17	164.06	8.26	10.92	22.52	8.06	8668.98
01-04-2020	19.31	14.74	27.88	0	13.96	188.2	32.42	36.23	13.34	25.81	13.78	183.69	27.24	183.69	9.45	12.29	24.4	9.2	9951.25
01-05-2020	18.96	14.38	27.26	0	13.43	184.32	31.35	35.92	12.91	25.76	13.47	177.43	26.04	177.43	9.18	11.88	23.53	8.93	9697.9
01-06-2020	20.17	15.29	29.4	0	14.24	197.12	33.49	38.07	13.93	27.44	14.22	190.31	27.84	190.31	9.81	12.65	25.12	9.61	10410.76
01-07-2020	21.44	16.22	31.54	0	15.02	210.44	35.32	40.39	14.98	28.15	15.13	203.47	29.35	203.47	10.48	13.53	26.34	10.34	11158.96
01-08-2020	22.19	16.66	32.39	0	15.28	217.6	36.72	41.8	15.58	29.35	15.38	208.79	31.4	208.79	10.74	13.87	26.9	10.64	11480.92
01-09-2020	21.81	16.57	32.51	0	15.29	213.87	35.09	40.83	15.49	27.92	15.21	203.99	29.59	203.99	10.57	13.68	26.55	10.51	11391.75
01-10-2020	22.5	17.1	33.41	0	15.93	220.25	36.01	41.9	15.8	29.53	15.75	210.29	30.3	210.29	10.96	14.06	27.54	10.9	11720.76
01-11-2020	25.65	18.84	36.85	10.5	17.67	246.46	40.77	46.65	17.36	33.55	17.32	231.69	34.29	231.69	12.11	15.51	30.8	12.14	13050.61
01-12-2020	27.51	18.7	37.95	11.26	19.16	265.87	44.11	50.49	18.58	36.03	18.67	250.1	37.43	250.1	13.06	16.61	33.27	13.08	14100.47
01-01-2021	26.95	18.32	37.37	11.05	18.23	261.54	44.09	49.97	18.35	33.41	18.29	248.3	37.18	248.3	12.77	16.09	31.95	12.76	13797.78
01-02-2021	29.43	19.41	39.9	11.83	19.13	280.08	48.69	53.66	19.64	37.14	19.37	272.15	41.06	272.15	13.6	16.94	33.46	13.61	14723.98
01-03-2021	29.46	19.68	40.56	11.96	18.45	280.89	43.49	53.63	18.19	36.76	18.32	273.68	40.52	273.68	13.64	16.68	33.79	13.76	14863.54
01-04-2021	29.12	19.62	40.32	11.95	18.48	280.3	43.26	53.77	18.1	36.97	18.36	274.84	40.3	274.84	13.57	16.85	33.8	13.7	14833.77
01-05-2021	30.91	20.75	42.92	12.76	19.56	298.64	46.92	57.08	19.23	40	19.49	293.5	43.55	293.5	14.5	17.97	35.79	14.61	15822.33
01-06-2021	31.3	21.25	44.06	13.05	20.03	304.67	47.38	57.88	19.79	40.19	19.72	298.55	44.2	298.55	14.8	17.97	36.64	14.77	16009.72
01-07-2021	32.01	21.54	44.63	13.41	20.29	312.82	47.53	59.02	20.09	40.88	20.08	304.73	45.1	304.73	15.01	18.01	37.13	14.84	16108.48
01-08-2021	33.91	23.13	47.76	14.48	22.17	335.06	50.22	63	21.44	42.63	21.56	324.7	48.26	324.7	16.21	19.25	40.41	16.13	17375.21
01-09-2021	35.04	23.45	48.99	14.7	22.46	342.92	52.58	64.85	22.04	43.87	21.97	333.36	50.22	333.36	16.68	19.59	41.25	16.59	17880.57
01-10-2021	35.22	23.65	49.17	14.25	22.65	345.95	52.96	65.95	22.15	44.64	22.33	337.17	50.48	337.17	17.1	18.91	41.8	16.66	17921.27
01-11-2021	34.02	20.79	47.47	13.82	21.94	333.6	50.68	63.74	21.33	43.04	21.45	324.79	48.66	324.79	16.49	18.2	40.39	16.02	17319.15
01-12-2021	34.69	21.28	48.47	14.13	22.27	340.06	51.8	65.22	21.89	43.76	21.81	331.81	49.55	331.81	16.79	18.65	41.18	16.37	17625.51

II. Test of Hypothesis:

III. The chi-square test conducted as part of the factor analysis assesses the model's goodness of fit to the observed data. In this case, the null hypothesis is that the model with ten factors adequately explains the underlying structure of the data. However, the extremely low probability (<1.5e-14) associated with the chi-square value of 842.36 suggests that the observed data significantly deviates from what would be expected if the null hypothesis were true.

IV. The results strongly indicate that the model with ten factors does not adequately capture the complexity or variability present in the data. This means that the chosen number of factors cannot fully explain the patterns observed in the data.

It's important to note that while the chi-square test provides valuable information about model fit, it is sensitive to sample size and may be overly sensitive in large datasets, leading to rejection of the null hypothesis even when the differences between the observed and expected data are small. Therefore, it's essential to interpret the results in conjunction with other fit indices and consider the practical implications of model complexity. In this case, additional exploration or refinement of the factor analysis model may be warranted to understand the underlying structure of the data better.

4.1.1. Performance Evaluation of Blue-chip Fund Schemes

- **FY 2017-18 Q4**

During the fourth quarter of FY 2017-18, investment funds experienced varying degrees of performance, with some notable trends emerging:

- Sundaram: This fund recorded the lowest return among its peers, posting a substantial -17.58% return. Additionally, it demonstrated the highest level of risk at 5.73%. The combination of poor

returns and elevated risk resulted in a Sharpe ratio of -3.07, signaling suboptimal risk-adjusted performance. Moreover, its beta of -533.90% indicates an extreme sensitivity to market movements, suggesting high volatility and potential downside risk.

- Axis: With a return of -14.96%, Axis also struggled during the quarter. Its risk level, quantified by a standard deviation of 6.97%, contributed to a negative Sharpe ratio of -2.15. The notably negative beta of -649.68% implies an inverse relationship with the market, indicating a potential hedge against broader market downturns but also highlighting significant market risk.
- ICICI and Tata: These funds exhibited negative Sharpe ratios of -11.00 and -8.13 respectively, indicating poor risk-adjusted returns compared to the risk-free rate. Furthermore, their negative Jensen's alphas suggest underperformance relative to their expected returns given their respective betas.
- Franklin and LIC: Franklin displayed an alarmingly low Sharpe ratio of -870.47, indicating extremely poor risk-adjusted performance. Similarly, LIC's Sharpe ratio of -31.24 raises concerns about its ability to generate returns commensurate with its risk. Both funds may need to reassess their investment strategies to improve risk management and enhance returns.

In summary, the fourth quarter of 2017 was challenging for many investment funds. Sundaram and Axis faced significant headwinds, characterized by low returns and high risk. Meanwhile, ICICI, Tata, Franklin, and LIC struggled with poor risk-adjusted performance, highlighting the importance of diligent risk management and strategic portfolio adjustments in volatile market conditions.

- **FY 2018-19**
  - Axis had the highest return among the listed funds for 2018, with a solid 7.33%. It also displayed a respectable Sharpe ratio of 1.62, indicating relatively good risk-adjusted performance. Additionally, its Treynor ratio of 0.11 suggests that it generated excess returns relative to its beta, reflecting efficient portfolio management.
  - Aditya and Tata also performed well, with returns of 9.14% and 10.71% respectively. They exhibited high Sharpe ratios of 2.07 and 3.12, indicating superior risk-adjusted returns compared to the risk-free rate. Their positive Treynor ratios further reinforce their ability to generate excess returns relative to market risk.
  - ICICI and Franklin had decent returns of 5.34% and 5.53% respectively. While their Sharpe ratios were positive, indicating positive risk-adjusted performance, they lagged behind some other funds in terms of return and risk-adjusted metrics.
  - SBI, Canara, and Kotak also posted positive returns ranging from 5.10% to 7.02%. Their Sharpe ratios were positive, suggesting positive risk-adjusted performance, albeit not as strong as some of the other funds.
  - LIC had the lowest return among the listed funds, with a negative return of -2.52%. Its negative Sharpe ratio (-0.59) indicates poor risk-adjusted performance compared to the risk-free rate. Similarly, its negative Treynor and Jensen ratios suggest underperformance relative to its beta and expected returns.

In summary, 2018 saw generally positive returns for most of the listed funds, with Axis, Aditya, and Tata standing out as top performers. These funds exhibited not only high returns but also strong risk-adjusted performance, as indicated by their positive Sharpe and Treynor ratios. However, LIC struggled, delivering negative returns and poor risk-adjusted performance, highlighting the importance of thorough portfolio analysis and risk management in investment decision-making.

- **FY 2019-20**
  - Axis performed relatively better compared to other funds, with a return of -13.02%. Although it was negative, it was comparatively less negative than many other funds. Additionally, Axis displayed a Sharpe ratio of -1.59, which suggests better risk-adjusted performance compared to some other funds. Its positive Jensen's alpha indicates that it outperformed its expected returns based on its beta.
  - SBI, Canara, and Kotak faced significant challenges during 2019, with returns of -23.71%, -19.36%, and -28.62% respectively. These negative returns were accompanied by negative Sharpe ratios, indicating poor risk-adjusted performance. Their negative Treynor ratios further underline their underperformance relative to market risk.
  - Aditya and ICICI also experienced substantial negative returns of -27.80% and -24.69% respectively. Both funds displayed negative Sharpe ratios and Treynor ratios, indicating poor risk-adjusted performance and underperformance relative to market risk.
  - Tata and Franklin performed similarly poorly, with returns of -26.99% and -24.88% respectively. These funds exhibited negative Sharpe ratios and Treynor ratios, indicating poor risk-adjusted performance and underperformance relative to market risk.
  - LIC had a relatively better performance compared to some other funds, with a return of -11.78%. However, it still displayed a negative Sharpe ratio and Treynor ratio, indicating suboptimal risk-adjusted performance and underperformance relative to market risk.

In summary, 2019 was a challenging year for most of the listed funds, with negative returns across the board. Axis performed relatively better in terms of both return and risk-adjusted performance, while SBI, Canara, and Kotak faced significant difficulties. Overall, the year underscores the importance of robust risk management strategies in navigating volatile market conditions.

5.1 Findings

In FY 2017-18 Q4, Sundaram recorded the lowest return among its peers, posting a substantial -17.58%. Additionally, it exhibited the highest risk level at 5.73%. The combination of poor returns and elevated risk resulted in a Sharpe ratio of -3.07, indicating suboptimal risk-adjusted performance. Moreover, its beta of -533.90% suggests extreme sensitivity to market movements, indicating high volatility and potential downside risk.

During FY 2017-18 Q4, Axis also faced challenges, reporting a return of -14.96%. Its risk level, quantified by a standard deviation of 6.97%, contributed to a negative Sharpe ratio of -2.15. The notably negative beta of -649.68% implies an inverse relationship with the market, indicating a potential hedge against broader market downturns but also highlighting significant market risk.

In FY 2017-18 Q4, both ICICI and Tata funds exhibited negative Sharpe ratios of -11.00 and -8.13 respectively, indicating poor risk-adjusted returns compared to the risk-free rate. Furthermore, their negative Jensen's alphas suggest underperformance relative to their expected returns given their respective betas.

During FY 2017-18 Q4, Franklin and LIC displayed alarmingly low Sharpe ratios of -870.47 and -31.24, respectively, raising concerns about their ability to generate returns commensurate with their risk levels. These findings suggest a need for reassessment of investment strategies to improve risk management and enhance returns for these funds.

During FY 2018-19, Axis stood out with the highest return among the listed funds, boasting a solid 7.33%. Its respectable Sharpe ratio of 1.62 indicates relatively good risk-adjusted performance. Furthermore, its Treynor ratio of 0.11 suggests efficient portfolio management, generating excess returns relative to its beta.

Aditya and Tata also demonstrated strong performance in FY 2018-19, with returns of 9.14% and 10.71% respectively. Their high Sharpe ratios of 2.07 and 3.12 indicate superior risk-adjusted returns compared to the risk-free rate. Additionally, their positive Treynor ratios reinforce their ability to generate excess returns relative to market risk.

During FY 2018-19, ICICI and Franklin achieved decent returns of 5.34% and 5.53% respectively. While their Sharpe ratios were positive, indicating positive risk-adjusted performance, they trailed behind some other funds in terms of return and risk-adjusted metrics.

SBI, Canara, and Kotak also posted positive returns ranging from 5.10% to 7.02% during FY 2018-19. Although their Sharpe ratios were positive, suggesting positive risk-adjusted performance, they were not as strong as some of the other funds.

LIC reported the lowest return among the listed funds in FY 2018-19, with a negative return of -2.52%. Its negative Sharpe ratio (-0.59) indicates poor risk-adjusted performance compared to the risk-free rate. Similarly, its negative Treynor and Jensen ratios suggest underperformance relative to its beta and expected returns.

During FY 2019-20, Axis exhibited relatively better performance compared to other funds, despite a negative return of -13.02%. However, its return was less negative than many other funds, and it displayed a Sharpe ratio of -1.59, suggesting better risk-adjusted performance compared to some peers. Additionally, its optimistic Jensen's alpha indicates that it outperformed its expected returns based on its beta.

SBI, Canara, and Kotak faced significant challenges during FY 2019-20, with returns of -23.71%, -19.36%, and -28.62%, respectively. Negative Sharpe ratios accompanied these negative returns, indicating poor risk-adjusted performance. Furthermore, their negative Treynor ratios underline their underperformance relative to market risk.

Aditya and ICICI also experienced substantial negative returns of -27.80% and -24.69%, respectively, during FY 2019-20. Both funds displayed negative Sharpe and Treynor ratios, indicating poor risk-adjusted performance and underperformance relative to market risk.

Similarly, Tata and Franklin performed poorly during FY 2019-20, with returns of -26.99% and -24.88% respectively. These funds exhibited negative Sharpe and Treynor ratios, indicating poor risk-adjusted performance and underperformance relative to market risk.

Despite a relatively better performance than some other funds, LIC faced challenges during FY 2019-20, with a return of -11.78%. However, it displayed a negative Sharpe and Treynor ratios, indicating suboptimal risk-adjusted performance and underperformance relative to market risk.

During FY 2020-21, Axis, Aditya, and Tata emerged as top performers with impressive returns of 38.13%, 55.86%, and 53.71% respectively. These funds exhibited high Sharpe ratios, indicating excellent risk-adjusted performance. Additionally, their positive Treynor ratios signify their ability to generate excess returns relative to market risk.

SBI, Canara, and Kotak also delivered strong returns of 58.39%, 42.94%, and 51.88%, respectively, during FY 2020-21. These funds displayed high Sharpe ratios, suggesting robust risk-adjusted performance and efficient portfolio management.

Mirae and ICICI performed well during FY 2020-21, with 54.85% and 47.07% returns, respectively. They exhibited positive Sharpe and Treynor ratios, indicating favorable risk-adjusted performance and efficient utilization of market risk.

HDFC, Franklin, Nippon, Edelweiss, Union, PGIM, DSP, and BSE 100 also posted positive returns ranging from 44.59% to 56.68% during FY 2020-21. These funds demonstrated positive Sharpe ratios, suggesting satisfactory risk-adjusted performance relative to the risk-free rate.

Sundaram was the weakest performer in terms of return, with a modest 13.53% during FY 2020-21. However, it still displayed a positive Sharpe ratio, indicating reasonable risk-adjusted performance.

5.1. Conclusion

The analyses revealed correlations between factors and quantified their impacts, providing valuable data for fund managers and investors. ANOVA tests emphasized the relevance of certain factors in influencing fund performance variability. This knowledge is essential for guiding financial decisions and refining portfolio management techniques. Ultimately, these insights help fund managers and investors navigate the market and achieve financial goals. With a better understanding of factors influencing fund performance, investors can make more informed decisions, and fund managers can adjust their strategies to optimize returns.

The detailed analyses effectively addressed the study's objectives, including assessing risk appetite, and investment goals, measuring risk-adjusted returns, evaluating growth strategies, comparing fund performances, and examining risk-return components. This provided a comprehensive understanding of the investment landscape and mutual fund performance.

The study offers a thorough analysis of mutual fund performance and investor behavior, providing valuable insights for fund managers, investors, and market participants.

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