Analyzing the Risk-Return Profile of Stocks within the BSE Finance Index: A Research Paper

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Abstract

This research paper examines the risk-return attributes of certain financial stocks listed on the Bombay Stock Exchange (BSE) Finance Index. This research intends to fill a gap in our knowledge by analysing the sector's stocks in detail, looking for patterns in their performance related to market trends, volatility, and correlation to the overall finance index. The research employs statistical indicators such as standard deviation and correlation analysis for the four companies: Bajaj Finance, Shriram Finance, CholaFin, and Bajaj Holdings. The standard deviation assesses the level of risk linked to the returns of each stock, whereas correlation coefficients gauge the magnitude and direction of the connection between the returns of the stocks and the BSE Finance Index. The results demonstrate notable disparities in risk profiles across the companies, with Bajaj Holdings exhibiting the strongest correlation and the least amount of volatility, rendering it a more secure investment choice. CholaFin, on the other hand, demonstrates the most volatility and a less strong correlation with the index, suggesting a greater degree of risk. The study emphasises that Bajaj Finance and Shriram Finance exhibit significant positive correlations with the index, but their risk profiles vary marginally. This offers significant insights for investors and portfolio managers who aim to achieve a harmonious equilibrium between risk and return in their investment strategies within the finance industry.

Keywords: *BSE Finance Index, Financial Data Analysis, Investment Opportunities, Market Dynamics, Risk-Return Dynamics, Volatility Assessment*

Introduction

The finance industry is critical to supporting economic growth and development, acting as a fundamental link between savers and borrowers in the economy. Stocks in the financial markets reflect ownership shares in companies, allowing investors to participate in the wealth-generating process. Comprehending the risk and return attributes of stocks is crucial for investors who aim to make knowledgeable investing choices and maximize their portfolios. In this sense, the performance of equities in the Indian stock market's finance sector is assessed using the BSE Finance Index as a benchmark. The finance industry is very vulnerable to changes in the economy and regulations. A wide variety of businesses engaged in banking, insurance, non-banking financial institutions, and other associated industries are included in the BSE Finance Index. Given the sector's sensitivity to economic cycles and regulatory changes, it is essential to assess how individual stocks within this index align with market trends and contribute to overall portfolio risk and return. Investors can discover possible chances for profit and obtain important insights into the risk aspects related to investing in the finance industry by looking at past performance data and evaluating important financial measures.

With this context in mind, this study focuses on information regarding four notable organisations: Bajaj Finance, Shriram Finance, CholaFin, and Bajaj Holdings. The research seeks to reveal significant insights into the risk-return profiles of the subjects by analysing their monthly returns. The analysis utilises standard deviation as a metric for measuring the volatility of returns, offering a quantitative evaluation of risk. It also employs correlation coefficients to ascertain the extent to which the returns of each company correspond with the larger finance index.

Comprehending these dynamics is crucial for investors, financial analysts, and portfolio managers who aim to negotiate the intricacies of the finance sector. The results

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of this study will provide a valuable understanding of how financial equities behave in response to market fluctuations, which will assist in making well-informed investment choices and managing portfolios strategically.

Review of Literature

The risk-return trade-off plays a crucial role in decision-making, with beta and various statistical models being employed to assess the relationship between risk and return. Asthana and Ahmed (2023) compared the sectoral indices with the major index and revealed that there is no significant difference between market returns and monthly returns of the sectoral indices. Studies in this field have sought to determine what variables affect financial stock performance and how to assess the risk-reward ratio of investing in financial companies (Jones & Kumar, 2021). Market volatility, macroeconomic indicators, and company-specific fundamentals are some of the important aspects that have been emphasized in studies that have looked at the risk and return dynamics of financial equities (Brown & Gupta, 2023). To illustrate the inherent hazards of working in the finance industry, Brown and Gupta (2023) discovered that financial stocks are more likely to display higher volatility than stocks in other industries.

Researchers in the field of finance have been able to undertake more complex evaluations of stock performance thanks to recent developments in data analytics and financial research approaches. Investors and portfolio managers can benefit from studies like Gupta *et al.* (2021), which used machine learning algorithms to forecast volatility and stock returns for companies featured in the BSE Finance Index. It has also been demonstrated that financial stock performance is highly sensitive to macroeconomic variables including interest rates, inflation, and economic growth (Singh & Sharma, 2020). To further illuminate the variables influencing stock performance in the financial sector, Sharma and Khan (2022) applied econometric methods to examine the correlation between financial stock risk and return.

Stocks are an important investment tool for both individuals and institutions, and the financial sector is a big part of the world economy. If they want to make smart investing decisions, investors must know how equities included in benchmark indexes like the BSE Finance Index behave in terms of risk and return (Smith & Patel, 2022). The most recent studies with respect to the Stocks listed in the BSE index were conducted by Reddy and Harish (2024). This study employed the CAPM on the portfolio of 30 stocks of various sectors aiming to find that stocks are undervalued or overvalued. The findings of the study revealed that 15 stocks out of 30 are undervalued and can be a potential choice for the investor for long-term investment. The 15 stocks also include a few banking stocks. An examination of the risk-return relationship between selections of assets traded in India's financial services sector is detailed in a recent publication by Lobo and Bhat (2021). Using the tools of risk analysis, regression, beta, and the T-test, the study found that IIFL Finance (India Infoline Finance Ltd.) had the highest monthly returns and the highest beta value. It further demonstrates that the S&P BSE Finance Index and JSW Holdings' are significantly different.

Sengupta (2021) focuses on the growth of the Non-Banking Financial Company (NBFC) sector in India during the last twenty years, particularly its influence on commercial lending. Nonbank financial organizations in India target market sectors that are not served by commercial banks due to their higher risk and poorer profitability. In emerging economies such as India, where a substantial segment of the population and enterprises face challenges in obtaining bank funding, Non-Banking Financial Companies (NBFCs) play a crucial role in assisting. Four significant banking companies—HDFC Bank, ICICI Bank, AXIS Bank, and SBI—have a correlation of one with the BSE Sensex return, according to Patjoshi (2016), who conducted a risk-return study of a selection of banking firms listed in the BSE stock index. In comparison to individual banking stocks, the study found that the Sensex generates larger returns. The analysis makes clear that stock performance and beta have a direct correlation.

A company's future development and risk are two of the fundamentals that the P/E ratio takes into account. An investor's willingness to pay per rupee of earnings is shown by the price-to-earnings ratio (P/E). A price-to-earnings ratio of 18.50 suggests that the stock is being valued by investors at a rate of 18.50 times its earnings. The price-to-earnings ratio is a useful metric for assessing the stock's performance (Ramya, 2024). A study examined the volatility of Indian banking sectoral indices and the general banking index during the Subprime crisis and COVID-19. The shocks that cause these indices' volatility have been compared using symmetric and asymmetric models. This study found that these indexes' volatility behaviour survived the subprime crisis' leverage effect. GARCH and EGARCH models imply that investors may employ diversity to protect their portfolio values from global shocks over time (Bhatia & Gupta, 2020).

Lakshmi (2013) used Autoregressive Conditional Heteroskedasticity to study Indian stock market sectoral indices' volatility patterns. This 2008–2012 analysis includes eleven NSE Sectoral Indices. The researcher concluded that the reality industry was the

most volatile and the banking sector the least volatile. The present study employs the CAPM Model, a widely used measurement tool to illustrate the performance of equity stocks, particularly in the Indian stock markets. Previous research has empirically demonstrated a significant positive relationship between the beta of the security and expected return (Bhunia, 2012). The goal of Murthy's (2018) study is to use the Sharpe single index model to build the best possible portfolio for the Indian stock market. Fourteen metal stocks altogether, which are components of the NSE Nifty metal index, were chosen for this study from the iron and steel sector.

Objectives

- To Assess the Volatility and Risk of Financial Stocks.
- To Examine the Correlation Between Stock Returns and the BSE Finance Index.
- To Compare Risk-Return Profiles to Inform Invest ment Decisions.

Research Methodology

The current study is empirical. The monthly closing price of the Stock Market Index- BSE Finance Index and the monthly closing price of four financial services companies enlisted on the BSE Finance Index are considered for the study. This study is Descriptive. This study depends on secondary sources of information and majorly from the official websites from April 2019 to March 2024. The research is entirely grounded on historical data collected for 5 years obtained from the BSE and Money Control Websites.

Data Analysis and Interpretations

Table 1 shows the market capitalization of four companies selected for the study.

Table 2 displays the descriptive statistics for the monthly returns of four financial companies: Bajaj Finance, Shriram Finance, Cholamandalam Finance (CholaFin), and Bajaj Holdings. The data encompass the highest, lowest, average, variability, asymmetry, and peakedness of the returns, offering valuable information on the return attributes and risk profiles of these companies.

Table 1: Table showing market capitalization

Market Capitalization (Rs. Cr)			
S. No.	**Name of the companies**	**Categories**	**Market capitalization (Rs. Cr)**
1	Bajaj Finance	NBFC - Finance	430,419.09
2	Shriram Finance	NBFC - Finance	1,10,929.25
3	Cholamandalam Investment and Finance Company Ltd. (CholaFin)	NBFC - Finance	107,324.86
4	Bajaj Holdings	NBFC - Finance	89,180.05
Source: Author calculation			

Maximum and Minimum Returns

Bajaj Finance has the most substantial maximum return of ₹7809.4 and a minimum return of ₹1952.7, signifying considerable volatility in its monthly returns. Whereas, Shriram Finance exhibits a narrower range of returns, with a maximum return of ₹2465.05 and a lowest return of ₹572.05, in contrast to Bajaj Finance.

CholaFin has the most modest range of returns among the firms, with a top return of ₹1533.55 and a minimum return of ₹141.70. Bajaj Holdings has the highest maximum return of ₹9127.45 and the lowest return of

Table 2: Descriptive statistics of monthly return of the sample companies

Company	Maximum (Rs)	Minimum (Rs)	Mean (Rs)	Standard Deviation (%)	Skewness	Kurtosis
Bajaj Finance	7809.4	1952.7	5574.24	13.38	-0.53	-1.06
Shriram Finance	2465.05	572.05	1298.99	12.81	0.90	1.13
CholaFin	1533.55	141.70	642.06	16.62	0.59	-0.84
Bajaj Holdings	9127.45	1799.55	4779.71	10.47	0.43	-0.81
Source: Author calculation						

₹1799.55, indicating a combination of significant gains and a certain level of volatility.

Mean Return

Bajaj Finance has the greatest average return of ₹5574.24, suggesting that it consistently delivers the highest returns compared to the other companies in the sample. Bajaj Holdings exhibits a mean return of ₹4779.71, indicating that it too provides robust average returns, albeit slightly lower than Bajaj Finance. But, Shriram Finance exhibits a mean return of ₹1298.99, which is somewhat smaller than that of Bajaj Finance and Bajaj Holdings, nevertheless, it remains noteworthy. CholaFin has the lowest mean return of ₹642.06, showing that it consistently provides the lowest returns compared to the other companies in the sample.

Standard Deviation (Risk)

CholaFin exhibits the highest standard deviation of 16.62%, signifying that it possesses the greatest level of volatility or risk about its returns. Bajaj Finance and Shriram Finance have standard deviations of 13.38% and 12.81%, respectively, suggesting a moderate degree of volatility. Bajaj Holdings exhibits the lowest standard deviation, measuring at 10.47%, indicating that it possesses the least amount of risk compared to other companies.

Skewness (Distribution Shape)

Skewness refers to the measure of asymmetry in a probability distribution. Bajaj Finance exhibits a negative skewness of -0.53, indicating a somewhat left-skewed return distribution with a longer tail on the left side suggesting the occurrence of infrequent extreme negative returns. Whereas Shriram Finance exhibits a positive skewness of 0.90, showing that its returns are skewed towards the right side, with a longer tail on the right that suggests the company experiences more frequent instances of extremely positive returns. CholaFin exhibits a positive skewness of 0.59, suggesting a slight right-skewness in the distribution of its returns. However, Bajaj Holdings exhibits a positive skewness of 0.43, suggesting that its return distribution is slightly biased to the right.

Table 3: Ranking of companies based on the standard deviation

Company	Ave. Monthly Returns (%)	Standard Deviation (%)	Rank
Bajaj Finance	2.24	13.38	3
Shriram Finance	1.62	12.81	2
CholaFin	1.81	16.62	4
Bajaj Holdings	1.85	10.47	1

Source: Author calculation

Kurtosis (Tails of the Distribution)

Kurtosis refers to a statistical measure that quantifies the shape of a probability distribution. It provides information about the tails and the peakness of the distribution. Bajaj Finance exhibits a kurtosis value of -1.06, suggesting a distribution that is flatter than a normal distribution, with less pronounced tails. Shriram Finance exhibits a kurtosis value of 1.13, indicating a distribution that has heavier tails and a sharper peak. This suggests the potential for more extreme returns. CholaFin has a kurtosis value of -0.84, which suggests that its distribution is flatter than the normal distribution. Bajaj Holdings exhibits a kurtosis value of -0.81, suggesting a relatively flatter distribution.

In conclusion, the investigation unveils clear disparities in the return profiles and risk levels of the four companies. Bajaj Finance and Bajaj Holdings exhibit the highest average returns, whereas CholaFin demonstrates the highest level of volatility, as evidenced by its elevated standard deviation. The skewness and kurtosis metrics offer additional information about the distribution properties of returns. Bajaj Finance tends to have more negative extreme values, while Shriram Finance tends to have more positive extreme values. This approach can assist investors in making more informed decisions by considering their risk tolerance and return expectations.

The table 3, displays a ranking of four companies — Bajaj Finance, Shriram Finance, Cholamandalam Finance (CholaFin), and Bajaj Holdings — according to their average monthly returns and standard deviation. Based on their performance (returns) and risk (volatility), the rankings offer a comparative study of the companies. Based on the ranking study, Bajaj Holdings emerges as the most appealing investment option among the four firms, taking into account both the potential return and the level of risk involved. Shriram Finance and Bajaj Finance provide returns that range from moderate to high. However, their increased volatility negatively affects their overall appeal. CholaFin is considered the riskiest choice due to its high standard deviation, resulting in a lower ranking, but delivering a respectable return. Investors seeking a more secure investment may favour Bajaj

Holdings, whereas those ready to assume greater risk for the possibility of larger returns may contemplate Bajaj Finance.

Table 4 presents the correlation coefficients between the S and P BSE Finance Index and the monthly returns of four companies. Bajaj Holdings exhibits the strongest association with the S&P BSE Finance Index, with a correlation coefficient of 0.9345. The significant positive correlation indicates that the returns of Bajaj Holdings closely follow the movements of the larger finance index. Bajaj Finance demonstrates a robust positive link with the index, with a correlation coefficient of 0.9051. The strong correlation suggests that the returns of Bajaj Finance are greatly affected by fluctuations in the S&P BSE Finance Index, although to a lesser extent than Bajaj Holdings. Shriram Finance exhibits a marginally weaker correlation (0.8925) with the index in comparison to Bajaj Finance and Bajaj Holdings. However, it still demonstrates a robust positive association. This implies that although Shriram Finance's returns have a positive correlation with the index, the strength of this association is slightly weaker compared to Bajaj Finance and Bajaj Holdings. CholaFin exhibits the most minimal correlation (0.7695) with the index compared to other firms. While there is still a positive association, the correlation with the S&P BSE Finance Index is weaker for this company compared to the others. This diminished correlation suggests that CholaFin's returns are less susceptible to the general market trends in the finance industry.

In conclusion, the Correlation study indicates that Bajaj Holdings exhibits the strongest correlation with the S and P BSE Finance Index, indicating that it is highly responsive to market fluctuations in the finance industry. Bajaj Finance and Shriram Finance likewise demonstrate robust positive correlations, suggesting a notable responsiveness to market fluctuations, albeit significantly lower than that of Bajaj Holdings. CholaFin exhibits the least strong correlation with the index, suggesting a certain level of independence from overall sector swings. Gaining insight into these correlations is essential for investors as it enables them to evaluate the degree to which a company's returns are influenced by the general market performance of the financial sector. This knowledge is valuable for diversifying investment portfolios and implementing effective risk management measures.

Summary of Findings

In the present study, there is a considerable amount of variation in the risk profiles of the chosen financial stocks, as indicated by the standard deviation analysis. CholaFin demonstrates the highest standard deviation (16.62%), which suggests a significant level of volatility and risk compared to the other companies analysed. On the other hand, Bajaj Holdings exhibits the lowest standard deviation (10.47%), indicating minimal volatility and a consistently stable risk profile. Bajaj Finance and Shriram Finance demonstrate moderate risk levels, with standard deviations of 13.38% and 12.81%, respectively. This places them in a middle ground between the more extreme risk levels of CholaFin and Bajaj Holdings.

The correlation analysis reveals the different levels of alignment between the stocks' returns and the BSE Finance Index. Bajaj Holdings demonstrates a strong correlation (0.9345) with the index, indicating that its performance closely aligns with the broader finance sector trends. Bajaj Finance and Shriram Finance also show significant positive correlations (0.9051 and 0.8925, respectively), suggesting a strong sensitivity to market movements. CholaFin correlates 0.7695, indicating a slightly weaker but still positive relationship with the index. This suggests that it is somewhat less sensitive to overall sector trends.

Table 4: Correlation between S and P BSE finance index and monthly returns of companies

	BSE Fin	Bajaj Finance	Shriram Finance	CholaFin	Bajaj Holdings
BSE Fin	1.0000				
Bajaj Finance	0.9051	1.0000			
Shriram Finance	0.8925	0.7093	1.0000		
CholaFin	0.7695	0.6074	0.7582	1.0000	
Bajaj Holdings	0.9345 0.8087 0.8539			0.7763	1.0000

Source: Author calculation

Based on the analysis of risk and return profiles, it appears that Bajaj Holdings may be a more secure investment option within the sector, offering stable returns with lower associated risk. Both Bajaj Finance and Shriram Finance offer a well-balanced risk-return profile, closely aligned with the index but with slightly higher volatility compared to Bajaj Holdings. CholaFin offers the potential for higher returns, but it also comes with an increased risk that may discourage cautious investors.

Conclusion

This research paper offers a comprehensive examination of the risk-return profile of securities included in the BSE Finance Index. As a result of a thorough examination, which encompassed the assessment of correlation coefficients, average monthly returns and volatility, several critical insights have been identified. CholaFin has the highest standard deviation volatility, indicating the highest risk among the companies examined. Bajaj Holdings has the lowest volatility and a strong connection with the BSE Finance Index, indicating stability and sector alignment. The index correlations and modest risk of Bajaj Finance and Shriram Finance make them balanced investment possibilities. These statistics show how risk and return vary across financial stocks. Bajaj Holdings is safer and more reliable than CholaFin, which has larger returns but higher volatility. Shriram Finance and Bajaj Finance offer high sector alignment with minimal risk.

In conclusion, this analysis helps investors, portfolio managers, and financial analysts understand BSE Finance Index stock behaviour. Understanding these dynamics helps stakeholders match their portfolios to their risk tolerance and return expectations. This research improves financial stock performance understanding and strategic investment strategy. These results aid in the comprehension of the risk-return dynamics within the BSE Finance Index, providing investors with valuable insights for portfolio optimisation. The study's scope is restricted to a specific timeframe and a specific set of companies, indicating the necessity of additional research that encompasses a broader range of stocks and protracted periods. Finally, this investigation emphasises the significance of conducting a thorough risk-return analysis to make well-informed investment decisions within the finance industry. Future research must continue to investigate the changing dynamics of the market to offer more sophisticated and practical investment strategies. As a result, investors can more effectively navigate the intricacies of the financial market and attain their investment objectives.

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