"Comparative Analysis of the Stock Market Performance of Two Selected Stocks"

RESEARCH METHODOLOGY
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Abstract:

This research paper aims to compare the stock market performance of two leading Indian companies, Reliance and Adani Enterprises, over a period of 12 years. To evaluate the performance of the two companies, a range of analytical tools, including risk-return analysis, market trend analysis, and technical analysis, are employed. The study reveals that both Reliance and Adani Enterprises stocks have higher average daily returns than the benchmark index. However, Adani Enterprises stock is riskier and more volatile than Reliance stock, with a higher standard deviation, yearly volatility, and beta. The findings of the analysis provide valuable insights for investors and analysts interested in the stock market, indicating the importance of conducting comparative analysis to evaluate stock performance and consider the associated risks. Overall, the study contributes to the existing literature on stock market analysis by providing a framework for conducting comparative analysis of stocks, integrating different models, techniques, and theories.

Key words:

- Stock market volatility
- GARCH models
- News and stock market volatility
- Asymmetric volatility
- Nordic stock markets
- Financial crisis
- Market efficiency
- Gaussian distribution
- Trading volume
- Risk and return analysis
- Fundamental analysis
- Technical analysis
- Bombay Stock Exchange
- National Stock Exchange

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Introduction:

The stock market is a dynamic and ever-changing field that plays a crucial role in the economy of any country. As investors, it is essential to make informed decisions by analyzing the performance of different stocks. This research paper aims to conduct a comparative analysis of the stock market performance of two selected stocks. The study will evaluate the financial performance of the selected companies and provide insights into the factors that may impact their stock prices. The analysis will be based on the historical data of the two companies, which will be obtained from secondary sources. The paper will employ various analytical tools to evaluate the performance of the selected stocks, including risk-return analysis, market trend analysis, and technical analysis. By comparing the stock market performance of the selected companies, this study aims to provide valuable insights for investors and analysts interested in the stock market. Ultimately, the research paper will contribute to the existing literature on stock market analysis and provide a framework for conducting comparative analysis of stocks.

Objective:

Research paper conduct a comparative analysis of the stock market performance of two selected stocks, including risk-return analysis, market trend analysis, and technical analysis. Moreover, the research paper will contribute to the existing literature on stock market analysis and provide a framework for conducting comparative analysis of stocks.

Literature Review:

- Fama (1970) provides an early, definitive statement of this position. Historically, the'random walk' theory of stock prices was preceded by theories relating movements in the financial markets to the business cycle. There are about Skidelsky (1992) Keynes initiated what was called an 'Active Investment Policy' which combined investing in real assets. There are relation switching between short-dated and long-dated securities, based on predictions of changes in the interest rate.

- ENGLE & NG (1993) assessed the literature and concentrated on how news affected stock market volatility. The scope of the study was restricted to the interest in financial market volatility for the period of (1980-1992). The authors used the asymmetric or leverage volatility models and provided new diagnostic tests and a partially nonparametric model. The study found that good and bad news had different predictability for future volatility and emphasized the importance of understanding the predictability of volatility for portfolio selection, asset management, and pricing of assets

- Amihud (2002) examined the relationship between stock return and trading volume data on NYSE stocks from 1964-1997. The study used the ILLIQ measure as a rough measure of price impact and found a positive and significant effect on expected return. Time-series tests revealed that expected market illiquidity had a positive effect on ex ante stock excess return, and unexpected illiquidity decreased contemporaneous stock prices. The study also found that the effects of illiquidity were stronger for small firms' stocks, and other variables such as bonds' term and default yield premiums were analyzed.

- Bekaert & Harvey (2002) discusses the challenges that finance faces in emerging markets due to the specific circumstances arising in these markets from 1990 to 2001 and it covers a range of topics, including market integration and segmentation, the effects of market liberalization and integration on financial and real economies, contagion, corporate finance, market microstructure, and stock selection. The authors also provide new results on political risk and liberalization, the volatility of capital flows, and the performance of emerging market investments. '

- Acharya and Pedersen (2003) examine the relationship between individually stocks and fact is that liquidity risk affect asset prices in equilibrium for the time period1998 to 2002 and check the deriving explicitly a liquidity adjusted capital assets pricing model (CAPM). There are main relation between liquidity risk and illiquidity risk. As a result it develops a simple pricing formula that shows that investors should worry about a security performance and tradability for both market up and down.

- This paper by Walter (2003) explores the concept of market efficiency, specifically the Gaussian form, and its implications for the investment management industry. Drawing on literature and theory from finance and economics, the author argues that a precise understanding of the probabilistic assumptions underlying market efficiency is necessary for addressing challenges in the industry such as fat tails and concentration of performance. The review finds that probability theory has become integral to contemporary finance, with tools such as option pricing and risk management relying heavily on theoretical models. The efficiency of financial markets has led to the transfer of elements from physics and mathematics, but non-Gaussian efficiency frameworks may be more appropriate for managing financial risk in erratic markets. The review concludes that the informational efficiency concept, based on Gaussian distribution, can still be relevant even in a non-Gaussian framework.

- Harvey & Lundblad (2006)) the researchers focused on liquidity measures and turnover as variables, and analyzed their cross-sectional and temporal variations on the period from 1985 to 2005.The study also revealed that local market liquidity played a crucial role in driving expected returns in emerging markets, and the impact of liquidity was not fully eliminated even after the liberalization process. The research found that liquidity measures and turnover played a crucial role in predicting future returns in emerging equity markets, and local market liquidity was an important driver of expected returns

- Alexander (2006) conducted a study on Risk management practices in financial institutions on the period of 2000 to 2006. This study is discussion about the risk measure and pricing model and its risk factors and particularly covariance matrices that are used in value risk models. The study is based on the use of a generalized autoregressive conditional heteroskedastic (GARCH) with mean-reverting term structures.The paper highlights the need for vertically and horizontally integrated risk systems in financial institutions to manage risk effectively and set traders limits as well as levels of capital reserves.

- This research review about the luis bachelier's 1900 phd which introduce theory of speculation and this discussion about in the recent Davis and Etheridge (2006) This literature review focuses on the development of mathematical finance, with a particular emphasis on the role of probability theory and stochastic analysis in financial modeling. The review draws on various sources, including historical records, academic papers, and textbooks on finance and mathematics. The review covers a time period from the early 1900s to the present day, with a particular focus on the contributions of Louis Bachelier and Paul Samuelson to the field. The findings of the review highlight the significant impact of mathematical models on the field of finance, particularly with the development of the Black-Scholes formula, which has been widely used in options pricing.

- Gautami and Kalyan's (2007)comparative study on risk and return analysis of selected stocks in India, fundamental and technical analysis were utilized to analyze four companies' risk and return profiles. The study found that investing in companies with lower coefficients of variation, such as Asian Paints and Dabur India, may be less risky. The paper emphasizes the importance of using both fundamental and technical analyses to interpret stock price trends, as well as credible references for additional information. In another study, sentiment analysis and machine learning were used to predict short-term stock price movements, demonstrating the potential of big data tools in stock market analysis. The variable of data source, time, tetchiness, findings, and results were all explored in these papers.

- Bogdan & Aurora (2009) conducted a study analyzing data from 2007-2008 to examine the shift in volatility during the financial crisis in major European markets. The study used two measures of volatility and structural change tests to find evidence of actual shifting in volatility. The results suggested that volatility played a significant role in explaining the extended financial crisis

- Sofla & Lions (2010) conducted a study that examined data from the period of 2007-2009, which focused on the stock market of Nordic countries. The variable of interest was the correlation of returns in daily, weekly, and monthly data. The authors used asymmetric or leverage volatility models and provided new diagnostic tests and a partially nonparametric modeThe study suggested that a weak version of the efficient market hypothesis could not be rejected for Nordic stock markets as returns did not have significant correlations in weekly and monthly data. The findings were inconsistent with some prior research but consistent with others, and it indicated that the possibility of earning abnormal returns during the studied period was low.

  {AR- Autoregressive (AR)}

- Maniya and Mangnusson (2010) examined the relationship between financial market & Equity market for a time period of 1999 to 2009 using simple correlation analysis. They examined the correlation change over time across different indices in Financial markets and specifically equity markets by using statistical analysis. The study showed that time-varying correlation increased during bearish periods, and this could lead to a magnification of risk, reducing the effectiveness of diversification, bullish periods did not have a significant impact on correlation.

- Tehranchian, Behravesh & Hadinia (2014) examined the relationship between stock returns and trading volume in the Tehran Stock Exchange from 1996 to 2009, using 220 member companies and the vector error correction model. They found a bidirectional causal relationship between stock returns and trading volume, with stock returns having a stronger effect. The study suggests that mass behavior does not significantly impact the stock market, and the adjustment towards equilibrium is slow.

The data source is the Tehran Stock Exchange, the main stock exchange in Iran, during a period of significant economic and political changes. The study contributes to the literature on the relationship between stock returns and trading volume in emerging markets and provides insights into the dynamics of the Tehran Stock Exchange.

- In 2017, Sekrete provided an overview of the theories developed for stock returns, discussing some of the most important researches in the field. The article discussed various theories and models used to predict stock returns, including Markowitz's portfolio theory, the capital asset pricing model (CAPM), the arbitrage pricing theory (APT), the intertemporal capital asset pricing model (ICAPM), and the consumption-oriented capital asset pricing model (CCAPM). The theories discussed provided useful tools for evaluating investment portfolios and understanding fluctuations in stock prices. The article highlighted the importance of continuing research in this field to refine and improve our understanding of stock returns.

- GAUTAMI & KALYAN (2018) conducted a study that focused on the Indian stock market, with particular attention given to the Bombay Stock Exchange from the period of 2010 -2015. The study was based on secondary data obtained from the Bombay Stock Exchange (BSE) website and annual reports of selected companies in India (Bharati Airtel, Dabur India Panyam, Asian Pain). The analysis helped to evaluate the financial performance of investment portfolios by considering the chance of variations in actual return. It provided free transferability of shares and continuous evaluation of securities traded in the market. The study focused on risk-return analysis to examine fluctuations in the share prices of selected companies in India.

- Gupta and Panchal (2018) conducted a study on the Indian stock market with a focus on the period from 1972 to 2006. The main data sources used were stock prices, market returns, and risk-free rate data. The study examined the validity of the Asset Pricing Model (APM) and Equity Risk Premium (ERP) theories in the Indian market, as well as the risk and return characteristics of different industries and market indices. The research found that ERP varied with industry risk and market conditions and could be influenced by a variety of factors such as market and macroeconomic conditions. Additionally, identifying high-return industries and optimal holding periods could provide valuable insights for investors in the Indian stock market.

- Bhowmik & Wang (2020) investigated the relationship between stock market volatility and return for time period of 12 years (2008-2019) using simple correlation analysis. The study is based on the use of a generalized autoregressive conditional heteroskedastic (GARCH) family-based model for analysis. The study found that there had been significant changes in research work over the past decade, with most researchers focusing on developing stock markets. The primary objective of the review was to identify effective GARCH models for analyzing market returns and volatilities, while the secondary objective was to conduct a content analysis of return and volatility literature reviews.

- Muthuvel and Velvadivu (2021) utilized a dataset of 1000 stocks from the NYSE and news articles for sentiment analysis to predict short-term stock price movements. The analysis employed a range of techniques, including Stock Volatility Analysis, machine learning, neural networks, and sentiment analysis. The study identified the top 10 minimum and maximum stocks in terms of volatility, and recommended investing in Apple based on positive sentiment analysis and prediction results. The findings demonstrated the importance of using a variety of techniques and data sources for stock market analysis, including sentiment analysis and machine learning. The study highlighted the need for domain-specific expertise in developing sentiment analysis models and emphasized the potential of ML and big data tools to improve stock market analysis. The timeframe of the study was not explicitly stated

Research Gap:

The major research gap that emerges from all 20 research paper is the need for more comprehensive and integrated frameworks that combine different models, techniques, and theories to provide a more complete understanding of stock market dynamics. While the points highlight specific gaps such as the lack of focus on specific markets or sectors, insufficient consideration of alternative theories, and limited attention to practical implications, these gaps all point to the broader need for more comprehensive approaches to stock market research. By integrating different models, techniques, and theories, researchers can better capture the various factors that influence stock prices and provide more accurate predictions and practical recommendations for investors and policymakers. This research gap represents a significant opportunity for scholars to advance the field of stock market analysis and improve our understanding of the complex dynamics that drive financial markets.

Data Collection:

Stock exchanges: The two primary stock exchanges in India are the Bombay Stock Exchange (BSE) and the National Stock Exchange (NSE). These exchanges provide real-time and historical data on stocks listed on their respective exchanges.
The dataset for this research paper is based on the stock prices of two Indian companies, Reliance and Adani Enterprises, and the benchmark index of the Bombay Stock Exchange (BSE), Sensex. The time period for the data is April 2011 to April 2023.
The data for this study was collected from multiple sources. The stock prices for Reliance and Adani Enterprises were obtained from the Bombay Stock Exchange (BSE), which is the primary stock exchange in India. The Sensex data was also obtained from the BSE. The data on risk-free rate was obtained from the Reserve Bank of India (RBI).
In order to fulfill the objective, the study intends to conduct a comparative analysis of the two stocks based on the following variables:

1. **Stock price**: The daily closing stock price for Reliance and Adani Enterprises will be compared.

2. **Log return price**: The log return price of both stocks will be compared to understand the rate of return over the study period.

3. **Sensex close price**: The daily closing price of the BSE Sensex will be used as a benchmark for the analysis.

The proxy variable used in this study is the BSE Sensex index, which will be used to compare the performance of the two stocks against the broader market.
The statistical tool that will be used to analyze the data is a descriptive statistical analysis, which will include measures such as average daily return, standard deviation, yearly and monthly volatility, and beta.
Overall, the study will provide an analysis of the performance of Reliance and Adani Enterprises stocks over the study period, with a focus on understanding how they compare to each other and the broader market. The data used in this was collected from reliable sources, including the BSE and RBI.
here is a numerical description of the statistical information provided for Reliance and Adani Enterprises stocks over the study period (April 2011 to April 2023):

Data Analysis:

The data shows that both stocks have had similar average log returns of 1% over the study period. However, Adani Enterprises stock has been much more volatile and risky, with a standard deviation of 25% and yearly volatility of 299%, compared to Reliance stock, which has a standard deviation of 10% and yearly volatility of 117%. Adani Enterprises also has a higher beta of 1, indicating that it has been more sensitive to market movements compared to Reliance, which has a beta of 0.096.

When compared to the benchmark index of BSE Sensex, both stocks have had higher average daily returns over the study period, with Reliance and Adani Enterprises having average daily returns of **0.007899886** and **0.007151839**, respectively. The correlation between the two stocks has been low, with a correlation coefficient of 0.164.

Overall, these statistics suggest that Adani Enterprises stock has been more volatile and risky compared to Reliance stock over the study period, and both stocks have had higher average daily returns compared to the benchmark index. Additionally, the two stocks have not moved in tandem, with a low correlation between them.

Based on the statistical information provided, there are some notable differences between the performance of Reliance and Adani Enterprises stocks over the study period.

Firstly, in terms of average log return, both stocks have performed similarly, with an average log return of 1%. However, Adani Enterprises has a higher standard deviation and volatility compared to Reliance, indicating that Adani Enterprises stock has been more volatile and riskier than Reliance stock over the study period. This is also reflected in the yearly and monthly volatility figures, which are much higher for Adani Enterprises compared to Reliance.

Secondly, when compared to the benchmark index of BSE Sensex, the average daily return for both stocks is higher than the benchmark return. However, Reliance has a lower beta (0.096) compared to Adani Enterprises (1), indicating that Reliance stock has been less volatile than the market as a whole, while Adani Enterprises stock has been more volatile than the market.

Lastly, the correlation between the two stocks is low, with a correlation coefficient of 0.164. This suggests that the two stocks have not moved in tandem over the study period.

Overall, while both Reliance and Adani Enterprises have performed similarly in terms of average log return, Adani Enterprises stock has been more volatile and riskier than Reliance stock over the study period. Additionally, the two stocks have not moved in tandem, indicating that they are influenced by different factors.

Result:

	Reliance	Adani Enterprises
Average Log Return	1%	1%
Standard Deviation	10%	25%
Yearly Volatility	117%	299%
Monthly Volatility	10%	25%
Risk-Free Rate	0.583%	0.583%
Average Daily Return of Benchmark	0.007899886	0.007151839
Beta	0.096756245	1

Conclusion:

In conclusion, this research paper aimed to conduct a comparative analysis of the stock market performance of two selected Indian companies, Reliance and Adani Enterprises, over the period of April 2011 to April 2023. The study employed various analytical tools, including risk-return analysis, market trend analysis, and technical analysis, to evaluate the performance of the two companies.

The results of the analysis showed that both Reliance and Adani Enterprises stocks had higher average daily returns compared to the benchmark index of BSE Sensex. However, Adani Enterprises stock was found to be more volatile and risky, with a higher standard deviation, yearly volatility, and beta compared to Reliance stock. Additionally, the two stocks had a low correlation, indicating that they did not move in tandem.

The study provides valuable insights for investors and analysts interested in the stock market. The research findings suggest that while both companies have performed well in terms of average daily returns, investors should consider the higher risk associated with Adani Enterprises stock. The study also highlights the importance of conducting comparative analysis to evaluate the performance of stocks in relation to each other and the broader market.

Furthermore, this research paper contributes to the existing literature on stock market analysis by providing a framework for conducting comparative analysis of stocks. By integrating different models, techniques, and theories, researchers can better capture the various factors that influence stock prices and provide more accurate predictions and practical recommendations for investors and policymakers.

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