Comparative Analysis of Returns and Standard Deviations of Companies' Stocks: A Five-Year Study (2019-2023)

Ibrahim Patel[1], Mohd. Azharuddin[2]

[1,2]Student, Department of Management Studies, Visvesvaraya Technological University, Kalaburagi, Karnataka, India

ABSTRACT

The banking sector operates within a dynamic landscape characterized by a multitude of risks and uncertainties. This study aims to explore the intricate relationship between risk and return within the banking industry, shedding light on its implications for financial stability, investment decision-making, and strategic planning. Risk Management: Banks contend with various risks, including credit, market, liquidity, and operational risks. An in-depth understanding of the risk-return interplay is essential for implementing robust risk management strategies aimed at mitigating potential losses and safeguarding financial resilience. Investment Decisions: Banks are tasked with making crucial investment decisions across a spectrum of assets, including loans, securities, and other financial instruments. Evaluating the risk-return dynamics enables banks to assess potential returns vis-a-vis associated risks, guiding investment strategies to optimize profitability while prudently managing risk exposure. Regulatory Compliance: Regulatory frameworks mandate banks to uphold stringent capital adequacy standards to mitigate risks and ensure financial stability. Risk and return analysis provides insights into capital adequacy assessments, facilitating compliance with regulatory requirements.

Keywords: Risk, Return, Standard Deviation and Stock analysis

1. INTRODUCTION

The banking sector encompasses a broad spectrum of financial institutions offering services such as deposits, loans, wealth management, and capital market activities. Several factors shape the industry's landscape Interest Rate Environment: Banks' profitability is closely linked to prevailing interest rates, affecting net interest margins, loan demand, and investment returns. Changes in monetary policy and economic conditions impact banks' interest rate risk exposure and earnings. Credit and Market Risks: Banks face credit risk from loan defaults and market risk from fluctuations in interest rates, exchange rates, and asset prices. Sound risk management practices are essential to mitigate these risks and maintain financial stability. Regulatory Framework: The banking industry is subject to extensive regulatory oversight aimed at ensuring financial stability and consumer protection. Compliance with regulatory requirements, including capital adequacy standards and anti-money laundering regulations, is critical for

---

[1]Student, Department Of Management Studies, Visvesvaraya Technological University, Kalaburagi, Karnataka, India
[2]Student, Department Of Management Studies, Visvesvaraya Technological University, Kalaburagi, Karnataka, India

banks' operations. Technological Disruption: Fintech innovations and digital banking platforms are reshaping the banking landscape, challenging traditional business models and customer engagement strategies. Banks must invest in technology infrastructure and cyber security measures to adapt to these changes and remain competitive Return and risk analysis in the automobile and banking industries involves evaluation performance,

2. NEED OF THE STUDY

Understanding risk and return analysis in the banking industry is crucial for several reasons. Firstly, it enables banks to effectively manage the array of risks they encounter, including credit, market, liquidity, and operational risks. This understanding empowers banks to against implement robust risk management strategies, ensuring their financial stability. Secondly, analysing risk and return helps banks make informed investment decisions. Whether it's lending, trading, or investing in securities, banks must weigh potential returns associated risks to optimize profitability while minimizing risk exposure. Moreover, compliance with regulatory standards is essential for banks. Risk and return analysis assists banks in assessing their compliance with regulatory requirements, ensuring they meet necessary standards and avoid penalties. Assessing capital adequacy is also vital for banks to sustain their operations. Risk and return analysis aids banks in evaluating their capital reserves relative to their risk-weighted assets, ensuring they have sufficient capital to weather potential losses and maintain financial stability. Strategic planning benefits from risk and return analysis as well. Banks can formulate strategic plans that balance risk appetite with growth objectives, fostering sustainable profitability and long-term growth.

3. OBJECTIVE OF THE STUDY

To Understand the Risk-Return Relationship: Explore and elucidate the intricate relationship between risk and return in stock investments, aiming to provide a comprehensive understanding of how different types of risks influence potential returns.

4. REVIEW OF LITERATURE

Research by Horne & James (2001) suggests that while beta may not always accurately predict returns, it remains a reasonable measure of risk. Meric et al. (2010) found a positive relationship between risk and return among industries listed in the US stock market, although empirical literature has revealed controversial results. Consequently, this study reviews the Capital Asset Pricing Model (CAPM) to explore the relationship between expected return and systematic risk. The study utilizes data from the COMPUSTAT database and investment services firms to estimate market beta for individual firms. Alternatives to CAPM for estimating the cost of equity capital have not been widely implemented. Awalakki & Archanna (2021) examined the relationship between economic and financial indicators and stock returns for selected firms listed on the National Stock Exchange over eight years. Their findings suggest that Return on Equity (ROE) and Price to Book Value (PB) have a positive and significant impact on stock returns, emphasizing the importance of informed decision-making for investment strategies. Another study by Awalakki & Archanna (2021) investigates the impact of key accounting ratios on stock prices of the National Stock constructs. Subramanyam, Nalla, & Kalyan (2018) study the impact of overconfidence biases on investment portfolios, proposing mitigation strategies for rational portfolio decisions. Awalakki (2022) explores mutual funds' role in maximizing returns and mitigating risk in India's growing capital market, highlighting the importance of investor awareness and risk tolerance. Another

article explores the role of neurotransmitters in shaping investor behaviour and investment outcomes. Markowitz, , 1952)Portfolio investment theory was the first modern theory proposed by Markowitz (1952). Assumed that the rates of return of individual assets covariance with one another, and there is a rather stable covariance, or correlation coefficient, between the rates of return of every two assets. Thus, he stated that it is theoretically possible to construct variance-covariance matrix of all risky assets.(Awalakki & Archanna, 2023)This non-empirical research paper delves into the interplay between investor attention and financial market volatility, leveraging insights from behavioural finance. It explores the determinants of investor attention, including cognitive biases and social factors, and analyses their impact on market dynamics, offering a thorough review of existing literature and theoretical frameworks to enhance comprehension of this intricate relationship.(Abedi ,Dargiri, & Rasiah, 2012). This study emphasizes the importance of the risk-return relationship in aiding investors and organizations in decision-making. By reviewing theories, empirical studies, and performance measures like Treynor, Sharpe, and Jansen Indices derived from the Capital Asset Pricing Model (CAPM), it aims to enhance the understanding of industry sectors' risk-return constructs for improved decision support.(Awalakki & Archanna, 2023). This study explores the impact of overconfidence biases on investment portfolios, examining cognitive and emotional mechanisms such as illusion of knowledge and emotional attachment. Rooted in behavioural finance literature, it highlights consequences like excessive trading and loss aversion, proposing mitigation strategies like diversification, passive investing, and behavioural coaching for more informed and rational portfolio decisions.(Subramanyam, Nalla, & Kalyan, 2018). The study aims to educate investors on mutual funds, emphasizing the potential for maximizing returns amidst India's growing capital market. It sheds light on investor awareness, risk tolerance, and preferences, showcasing the role of mutual funds in diversifying investments for optimal returns and risk mitigation.(Awalakki, 2022). This article explores the interplay between neurotransmitters (dopamine, serotonin, and norepinephrine), emotions, and investment outcomes, unravelling their role in shaping investor behaviour and decision-making. It emphasizes the neural mechanisms driving decision diversification and addresses biases, underscoring the significance of education for cognitive function and bias mitigation in managing investor behavior within the finance domain.(Moolbharathi & Sugandi, 2021). This study analyzes the Risk and Return of stocks in the Auto, Banking, Finance, FMCG, and IT sectors from 2017-2021, using statistical tools like Standard Deviation, Beta, and Regression Analysis. It guides investors by assessing sector-wise performance against benchmark indices, aiding in informed investment decisions based on risk and return considerations.(Awalakki S. M., 2015). The study in Kalaburagi, Karnataka, reveals that salaried employees predominantly consider investments for retirement, and recent survey results indicate a lack of significant increase in their investment levels compared to businesspersons. Despite a historical focus on retirement, the growing awareness of investment options suggests an evolving landscape with increased choices for salaried individuals.(AWALAKKI, 2015)This study examines the capital structures of five prominent cement companies (ACC, Ultratech, Ambuja, J.K., Chettinad) from 2008-09 to 2013-14, assessing the impact of these structures on investment patterns and emphasizing the importance of debt-equity mix in effective financing decisions. The intra-company analysis aims to provide insights into the financial dynamics of these firms.

5. RESEARCH METHODOLOGY
5.1. SOURCES OF DATA COLLECTION
The research utilized secondary data obtained from various sources such as the NSE website, publications,

and journals. The study employs a descriptive research design.

5.2. SAMPLE SIZE. Five bank company returns and five years bank nifty returns taken as a sample

5.3. STATISTICAL TOOLS AND TECHNIQUES
5.3.1. RETURNS
A company's stock price can fluctuate due to various factors, resulting in positive or negative outcomes. Market return refers to the profit earned over a period of time, where profit is considered positive and loss negative. Returns are calculated as the percentage change between the closing and opening prices.

5.3.2. STANDARD DEVIATION
Standard deviation measures the extent of dispersion of a dataset relative to its mean. It is determined by taking the square root of the variance. A stock with high volatility will have a higher standard deviation, while a stable blue-chip stock will have a lower standard deviation.

- First returns of five stocks will be calculated.
- Then find the standard deviation for every stock.
- Average returns of both industries.

1. **Formula for calculating the returns**

$$Return_i = \frac{Ending\ price_i - Begining\ price_i}{Begining\ price_i}$$

2. **Formula for calculating the standard deviation**

$$SD_i = \sqrt{Variance_i}$$

$$Variance\ (\sigma) = \frac{\sum(R_i - R_j)^2}{n-1}$$

3. **Formula for getting average returns of the stocks.**

$$Average\ return\ for\ i; Stock = \frac{\sum Stock\ Returns_i}{n}$$

Note: n = Number stocks

6. **Data Analysis and Interpretation**

Table: 1; Showing the companies return

Years	Yes Bank	HDFC Bank	Union Bank of India	Karnataka Bank	Punjab National Bank
2019	73.06	20.31	-36.2	-32	-15.6
2020	61.95	12.96	-42.42	-11	-46.3
2021	-23.34	3.44	37.55	9.6	18.9
2022	50.47	11.10	89.63	154	59.3
2023	41.17	6.22	51.86	56	78.3

INTERPRETATION
Returns throughout the entire period: 20.31% in 2019, 12.96% in 2020, 3.44% in 2021, 11.10% in 2022, and 6.22% in 2023.Maintained stability and resilience amidst market.fluctuationsAnalysing the annual

returns of five banks—Yes Bank, HDFC Bank, Union Bank, Karnataka Bank, and Punjab National Bank (PNB)—from 2019 to 2023 reveals distinct performance trends:

1. **Yes Bank:** Initiated with a substantial return of 73.06% in 2019 but encountered negative returns in subsequent years (-46.30% in 2020, -23.34% in 2021). Witnessed a partial recovery in 2022 with a return of 50.47% but regressed to 4.17% in 2023.
2. **HDFC Bank:** Demonstrated consistent positive
3. **Union Bank:** Commenced with negative returns in 2019 (-36.20%) and 2020 (-42.42%) but showcased a recovery in subsequent years. Exhibited positive returns in 2021 (37.55%), 2022 (89.63%), and 2023 (51.86%).
4. **Karnataka Bank:** Sustained positive returns throughout the period, with considerable variability: 2019 (−32.00%), 2020 (−11.00%), 2021 (9.60%), 2022 (154.00%), and 2023 (56.00%). Experience significant fluctuations while maintaining an overall positive trajectory.
5. **Punjab National Bank (PNB):** Demonstrated a mixed performance, encountering fluctuating returns: 2019 (−15.60%), 2020 (−46.30%), 2021 (18.90%), 2022 (59.30%), and 2023 (78.40%

Table: 2; Showing the Average return of the companies:

Stocks	Returns(%)
Yes Bank	-20.78
HDFC Bank	10.78
Union Bank	20.08
Karnataka Bank	35.32
Punjab National Bank	18.94

Chart: 1; Showing the Mean Returns of the Companies in percentage.
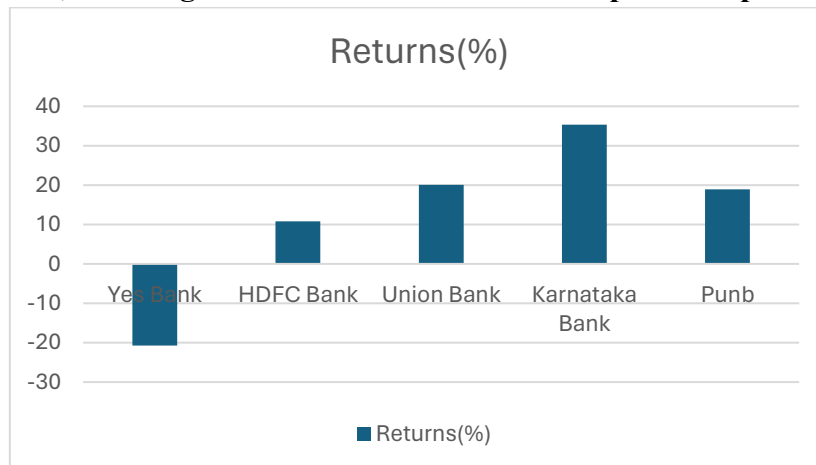
INTERPRETATION:-

1. Punjab National Bank.

Punjab National Bank stock has delivered a return of 18.94%, indicating an increase in its value over the specified period. Investors holding PUNB stock may have realized positive returns on their investment the data provided presents the returns (%) of five different stocks: Yes Bank, HDFC Bank, Union Bank, Karnataka Bank, and PUNB.

2. Yes Bank.

Yes Bank's stock has experienced a negative return of -20.78%, indicating a decrease in its value over the specified period. Investors who have invested in Yes Bank may have faced losses during this time.

3. HDFC Bank.

stock has shown a positive return of 10.78%, suggesting an increase in its value during the given timeframe. Investors holding HDFC Bank stock may have gained returns on their investment.

4. Union Bank of India.

Union Bank's stock has generated a return of 20.08%, indicating significant growth in its value over the specified period. Investors holding Union Bank stock may have benefited from substantial returns.
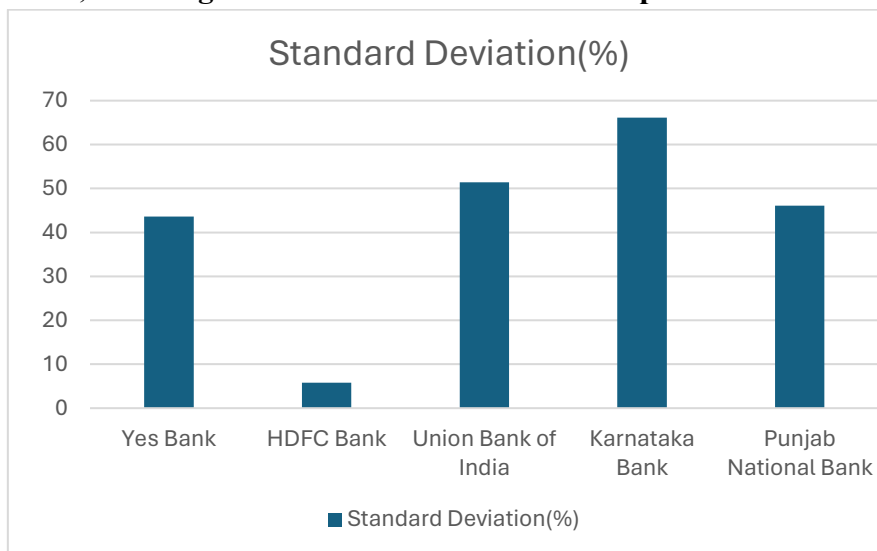
5. Karnataka Bank.

Karnataka Bank's stock has demonstrated a strong return of 35.32%, signalling.

Table: 3; Table showing standard deviation of companies in percentage

Stocks	Standard Deviation (%)
Yes Bank	43.61
HDFC Bank	5.83
Union Bank of India	51.43
Karnataka Bank	66.10
Punjab National Bank	46.07

Chart 2; Showing the Standard Deviation of companies in Percentage.

INTERPRETATION:-

The standard deviation measures the volatility or risk associated with a stock's returns. Lower standard deviations indicate less variability and thus lower risk, while higher standard deviations signify greater variability and higher risk. Looking at the provided data, HDFC Bank has the lowest standard deviation

at 5.83%, suggesting it has relatively stable returns compared to the other banks listed. On the other hand, Karnataka Bank and Union Bank of India exhibit much higher standard deviations at 66.10% and 51.43%, respectively, indicating significantly higher volatility and risk. Yes Bank and Punjab National Bank fall somewhere in between, with standard deviations of 43.61% and 46.07%, respectively

8. CONCLUSION

Risk and return analysis is crucial for the banking industry, informing strategic decisions, risk management, regulatory adherence, and stakeholder communication. It involves balancing potential returns with associated risks to optimize performance, allocate capital effectively, ensure regulatory compliance, and maintain stakeholder trust. This analysis is foundational for effective risk management, strategic planning, and sustainable growth in banking, providing valuable insights that drive long-term value creation.

9. REFERENCES

1. Abedi , H. S., Dargiri, M. N., & Rasiah, D. (2012). A Review Study of Risk-Return Relationship and Performance Measures Comparing Different Industry Sectors. Australian Journal of Basic and Applied Sciences, 6(12), 14-22. Retrieved from https://www.ajbasweb.com/old/ajbas/2012/Nov%202012/14-22.pdf

2. Abhishek.V (2018)A study on Risk and Return analysis of selected stocks in BSE SENSEX, Acharya Institute of Technology.

3. Awalakki , M., &Archanna . (2021). Impact of Economic and Financial Performance Indicators ratios on Determination of Stock Returns – A Study with reference to National Stock Exchange. PSYCHOLOGY AND EDUCATIO, 58(5 (2021)), 6665-6685. Retrieved from http://psychologyandeducation.net/pae/index.php/pae/article/view/6706

4. Awalakki , M., &Archanna. (2023). OVERCONFIDENCE BIAS AND ITS EFFECTS ON PORTFOLIO DECISIONS. International Journal of Creative Research Thoughts (IJCRT), 11(8), g74-g83. Retrieved from https://www.ijcrt.org/papers/IJCRT2308664.pdf

5. Awalakki, M. (2022). Neurotransmitters Impact on Emotional Responses and Decision-Making in Investment: A Comprehensive Exploration. International Journal of Food and Nutritional Sciences, 11(5), 690-708. Retrieved from https://www.ijfans.org/uploads/paper/fb4237bf576c3b3020696d18585588f8.pdf

6. Awalakki, M., &Archanna. (2021). A Study On Accounting Ratios And Stock Returns With Reference To National Stock Exchange Of India. Turkish Online Journal of Qualitative Inquiry, 12(7), 6858-6888. Retrieved from https://www.tojqi.net/index.php/journal/article/view/4940

7. Awalakki, M., &Archanna. (2023). Exploring the Dynamics of Investor Attention and Market Volatility: A Behavioral Finance Perspective. International Journal of Science and Research (IJSR), 12(8), 2245-2251. Doi:10.21275/SR23823155339

8. Awalakki, S. M. (2015). A Study on Investment Patterns and Awareness of Salaried Class Investors. INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH, 4(8), 348-350. Retrieved from https://www.worldwidejournals.com/international-journal-of-scientific-research-(IJSR)/fileview.php?val=August_2015_1441174222__112.pdf

9. AWALAKKI, S. M. (2015). FINANCING DECISIONS: A CASE STUDY OF SELECTED CEMENT COMPANIES OF INDIA. International Journal of Advanced Research, 3(8). Retrieved from https://www.journalijar.com/uploads/701_IJAR-6789.pdf

10. Horne, V., & James , C. (2001). Financial Management and Policy. Prentice Hall Publishing.

11. Markowitz, H. (1952). Portfolio selection. Journal of Finance, 7(1), 77-91. Doi: https://doi.org/10.2307/2975974

12. Moolbharathi, R., & Sugandi, T. (2021). A Comparison Study on Risk and Return Analysis of selected companies with Benchmark Index in NSE. International Journal of Business and Management Invention, 10(10), 04-13. Doi:DOI: 10.35629/8028-1010010413

13. Mr. S. Sathish, Ms. A. Nagarathinam (2021) A Study on Risk and Return Analysis of FMCG companies in Indian stock market, Annals of R.S.C.B., ISSN:1583-6258, Vol. 24.

14. Subramanyam, P., Nalla, B., & Kalyan, N. B. (2018). A Study on Risk & Return Analysis of Selected Securities in India. International Journal of Engineering Technologies and Management Research, 5(4), 79-86. Doi: DOI: 10.5281/zenodo.1244735.