A STUDY ON RISK RETURN ANALYSIS OF SELECTED EQUITY STOCKS OF NIFTY 50

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ABSTRACT

The aim of this study is to conduct a comprehensive risk-return analysis of selected equity stocks from the NIFTY 50 index. The study focuses on analyzing the risk and return characteristics of these selected stocks, aiming to provide valuable insights for investors and portfolio managers. Using the last 5 years historical data, the study employs quantitative techniques such as Correlation, Variance, Regression, Beta and Standard Deviation. The study shows that the stocks of ICICI Bank Ltd and Infosys Ltd has given the highest returns during the study period, whereas Maruti Suzuki India Ltd and Tata Motors Ltd has lowest return during the same time period. The beta of all the stocks were less than one, indicating that all the stocks selected for the study carry a lower risk.

Keywords: Risk. Return, NIFTY50, Stocks

I. INTRODUCTION

The stock market allows buyers and sellers of securities to meet, interact, and transact. The markets enable price discovery for corporate stock and act as an economic barometer. Risk- return analysis is an important tool for evaluating the performance of stocks. It involves analyzing the risk and potential returns associated with investing in a particular stock. Risk refers to the degree of uncertainty associated with an investment. Higher-risk investments offer the potential for higher returns, but also carry a greater risk of loss, the lower risk investments offer the potential for lesser returns, but carries a less risk of loss. Risk-return analysis is a method used to evaluate the potential risks and rewards associated with investing in stocks. It helps investors assess the relationship between the level of risk they are willing to take and the potential returns they can expect.

STATEMENT OF THE PROBLEM

Giving investors the knowledge and resources, they need to optimise their investment strategies and strike a balance between risk and return depending on their financial objectives and risk tolerance is the aim.

OBJECTIVE OF THE STUDY

☐ To study the movement of selected stocks with respect to Nifty 50.

☐ To evaluate the performance of individual stocks and index on the basis of Returns andRisks

☐ To evaluate the impact of Selected Stocks on Nifty 50.

☐ To analyze the relationship between selected stocks and NIFTY 50.

II. REVIEW OF LITERATURE

Afreen Tabassum, S. Baskaran (2022) This study aims to identify the risk and return characteristics of the selected equity companies as well as the IT enterprises' greatest returns at the lowest risk. According to the study, a stock with a greater beta value is not advised because it is more susceptible to market risk and cannot be diversified.

Mehta Vani Joghee, Kanagatharani, Gayathri, Yazhini Devi (2021) The information provided by this study helps investors choose the best banking securities investments and the study's objective is to analyse the risk and return of a few banking securities. This study came to the conclusion that some banks have larger returns than others and that some banks have higher risks

Sonia Lobo, Ganesh Bhat S (2021) this study's goal is to highlight the risk-return analysis of a representative sample of securities from the Indian financial services industry. The study will help current and potential investors understand how the firms in the S&P BSE Finance Index's financial services sector balance risk and reward.

Mrs. Rahul Moolbharathi and Mrs.Tukaram Sugandi (2021) A research is being done to compare the risk and return of those stocks to their respective benchmark indices. The study's objective is to quantify the level of risk and return present in particular sectoral indices and analyse stock performance in relation to benchmark indices in order to quantify risk and return.

Dr. Sujatha, Ms. J Meena Maheswari (2021) This study is an attempt to do a risk and return analysis of the chosen stocks listed on the Bombay Stock Exchange with the goal of understanding the degree of risk and the return produced by the stocks of the information, steel, and pharmaceuticals sectors.

Dr. R. Shankar, Dr. L. Nanda Gopal (2021) The current study will analyse the volatility of blue-chip companies listed in the National Stock Exchange's NIFTY 50 against the aforementioned background. Technical analysis is more useful when purchasing securities for long-term investing. The results of this study may be used to forecast stock performance and, more broadly, to finance businesses depending on their financial health.

Dr. V Vanaja, P J Nishok (2020) The study tries to compare the risk and return of the stocks of a few chosen Indian automobile businesses. This study offers a way for evaluating risk and makes use of tools like beta and standard deviations, coefficient of correlation tools, and tools.

Nupur Makkar, Shalu Mittal, Ashu Chugh, Kusum Dhaka (2020) In different areas of life, including the corporate, banking, and automotive industries, the importance of risk and return analysis can be recognised. The study also made clear how crucial it is for investors to evaluate different investment options. The current paper found that Risk and return are stronglyassociated.

Ms. Nikhitha M H, Dr. Satyendra P. Singh (2020) T This study compares and analyses ten well-known stocks from each of the two significant sectors of the Indian economy—automotive and pharmaceuticals—based on their risk and return. The study finds that stocks in the pharmaceutical sector generated a larger average return than those in the automobile industry, which are the two key industries for investment purposes.

Meda Srinivasa Rao, D., Podile, V., & Navvula, D. (2020) This study examines the performance of banking stocks using a risk and return framework. This makes it easier to notice the changes the banks experienced throughout the course of the two research periods. to provide investors with a clear picture of how to invest in the right businesses for better returns.

III. METHODOLOGY

3.1 Type of Research: Descriptive Research

3.1 Period of the Study: April 2018 to March 2023

3.2 Tools and Techniques: Correlation, Variance, Regression, Beta and Standard Deviation.

3.3 Type of Data: Secondary Data

3.4 Hypothesis Testing:

H0: There is no significant relationship between selected stocks returns and NIFTY 50 returns.

H1: There is a significant relationship between selected stocks returns and NIFTY 50 returns.

3.6 Limitations:

➢ Risk-return analysis heavily relies on historical data to make projections and assumptions about future performance.

➢ Stock markets can be highly volatile, this analysis may not fully capture or anticipate these unpredictable market movements.

➢ The study was conducted for only on 5 sectors.

➢ The study is restricted for selected equity stocks only.

4.3   Formulas used in the study:

1. For Estimation of Beta:

$$Q = \frac{(N\Sigma XY) - (\Sigma X\Sigma Y)(N\Sigma X^2) - (\Sigma X)^2}{}$$

Where,

β = Beta X = Index

Y = Individual stock

2. For Estimation of the return on stock

$$R_i = \frac{P1 - P0}{P_0} \times 100$$

Where,

P_1 = current year price

P_0 = previous year price

IV. DATA ANALYSIS AND FINDINGS

Table 4.1 Showing Mean Returns, Standard Deviation, Variance, Beta and Correlation of Selected Stocks for the period of 5 Years (April 2018- March 2019)

Sl.No	Company Name	Mean Returns	Standard Deviation	Variance	Beta	Correlation
1	Hindustan Unilever	6.3%	1.548	2.396	0.388	0.491
2	Nestle India Limited	8.1%	1.523	2.320	0.363	0.453
3	HDFC Bank Limited	1.5%	2.206	4.866	0.335	0.606
4	ICICI Bank Ltd	1.21%	2.187	4.783	0.424	0.761
5	Tata Consultancy Services Ltd	3.7%	2.172	4.718	0.206	0.361
6	Infosys Ltd	4.9%	2.853	8.140	0.237	0.443
7	Sun Pharmaceutical Industries Ltd	7.2%	1.944	3.779	0.256	0.408
8	Dr Reddy's Laboratories Ltd	7.7%	1.738	3.021	0.223	0.318
9	Maruti Suzuki India Ltd	1.4%	2.035	4.141	0.384	0.639
10	Tata Motors Ltd	6.4%	3.098	9.598	0.225	0.571

Interpretation:

From the above table Nestle India Limited has the highest Mean Return of 8.1% and ICICI Bank Ltd has the lowest Mean Return of 1.21% which shows average rate of return given by each company's stock over a certain period of time.

The HDFC Bank Limited has a highest Standard Deviation of 3.098 and Nestle India Limited has the lowest standard deviation of 1.523 which indicates level of volatility in its returns.

The HDFC Bank Limited has a highest Variance of 4.866 and Nestle India Limited has the lowest standard deviation of 2.320 which indicates level of volatility in its returns.

Tata Consultancy Services Ltd has a beta of 0.206, indicating that its stock tends to be less volatile than the market on average. ICICI Bank Ltd stock exhibits a beta of 0.424, implying a slightly higher sensitivity to market movements compared to all other stocks.

ICICI Bank Ltd stock has a higher correlation of 0.761, implying a strong positive relationship with the NIFTY 50 index. The stock's returns are highly influenced by the overall market movements. Dr Reddy's Laboratories Ltd stocks shows a correlation of 0.318, indicating a moderately positive and lowest relationship with the NIFTY 50 index compared other selected stocks.

Table 4.2 Regression Analysis

Regression Statistics

Multiple R	0.505
R Square	0.272
Adjusted R Square	0.272
Standard Error	1.038
Observations	1236

ANOVA

	df	SS	MS	F	SignificanceF
Regression	1	502.970	502.970	543.609	2.845
Residual	1234.2	1345.151	1.090		
Total	1235.2	1848.121			

	Coefficients	Standard Error	t Stat	P-value	Lower95%	Upper95%
Intercept	0.032	0.030	1.058	0.334	-0.026	0.090
Hindustan Unilever	0.388	0.020	19.823	3.898	0.350	0.426
Nestle India Limited	0.364	0.020	17.831	1.876	0.324	0.403
HDFC Bank Limited	0.336	0.013	26.754	9.813	0.311	0.360
ICICI Bank Ltd	0.425	0.010	41.064	4.472	0.405	0.446
Tata Consultancy Services Ltd	0.206	0.015	13.813	1.856	0.177	0.235
Infosys Ltd	0.237	0.014	17.346	1.746	0.210	0.264
Sun Pharmaceutical Industries Ltd	0.256	0.016	15.678	1.182	0.224	0.288
Dr Reddy's Laboratories Ltd	0.224	0.019	11.764	2.328	0.186	0.261
Maruti Suzuki India Ltd	0.384	0.013	29.169	1.064	0.358	0.410
Tata Motors Ltd	0.225	0.009	24.412	1.034	0.207	0.243

Interpretation:

From the above table R Square value is 0.2721 that is 27.21% is which explains 27.21% variation of price in Hindustan Unilever, Nestle India Limited, HDFC Bank Limited, ICICI Bank Ltd, Tata Consultancy Services Ltd, Infosys Ltd, Sun Pharmaceutical Industries Ltd, Dr Reddy's Laboratories Ltd, Maruti Suzuki India Ltd and Tata Motors Ltd

For every 1point change in NIFTY 50, Hindustan Unilever is creating positive change of 38.8%, Nestle India Limited is creating positive change of 36.40%, HDFC Bank Limited is creating positive change of 33.6%, ICICI Bank Ltd is creating positive change of 42.50%, Tata Consultancy Services Ltd is creating positive change of 20.60%, Infosys Ltd is creating positive change of 23.70%, Sun Pharmaceutical Industries Ltd is creating positive change of 25.60%, Dr Reddy's Laboratories Ltd is creating positive change of 22.40%, Maruti Suzuki India Ltd is creating positive change of 38.40% and Tata Motors Ltd is creating positive change of 22.50%.

Table 4.3 Showing Year on Year Return of selected Stocks

Company Name	2018 – 2019(%)	2019 – 2020(%)	2020 – 2021(%)	2021 – 2022(%)	2022 – 2023(%)
Hindustan Unilever	29.79	34.42	6.03	-16.27	24.60
Nestle India Limited	33.67	8.46	5.31	1.25	13.37
HDFC Bank Limited	22.66	-25.70	72.91	-1.94	9.02
ICICI Bank Ltd	46.70	-19.35	82.48	24.30	21.00
Tata Consultancy Services Ltd	40.96	-7.34	74.04	17.20	-14.46
Infosys Ltd	32.14	-13.54	115.66	38.18	-24.32
Sun Pharmaceutical Industries Ltd	-4.40	-26.75	69.35	52.46	7.56
Dr Reddy's Laboratories Ltd	33.67	11.50	44.75	-5.59	7.63
Maruti Suzuki India Ltd	-25.78	-36.29	59.89	8.80	9.48
Tata Motors Ltd	-47.99	-59.71	324.77	41.40	-3.04

Interpretation:

The above table shows the year-on-year returns of all selected companies. The highest returns of the companies can be seen in the year 2020-2021 and Tata Motors Ltd has the highest return in that year. In the past year 2022-2023 the Hindustan Unilever has the highest return and Infosys Ltd has the lowest return.

Findings:

➢ ICICI Bank Ltd has the highest Mean Return of 8.1% and Maruti Suzuki Ltd has the lowest Mean Return of 1.4% for the year of 2018 to 2023 which assess the historical performance of each company's stock and make informed decisions about their investment strategies.

➢ Tata Motors Ltd has the highest standard deviation of 3.098, indicating that the stock carries a higher level of risk. However, investing in riskier stocks also presents the potential for greater returns. Nestle India Ltd has the lowest standard deviation of 1.523, indicating that the stock has less level of risk. To have a less risky investment this stock can be chosen.

➢ The ICICI Bank Ltd has the highest Beta value of 0.424 which indicates that the ICICI Bank Ltd has the highest movement in stock price in relation to that of the market return compared to all other selected stocks and Tata Consultancy Services Ltd has the lowest Beta value of 0.206 which indicates that the Tata Consultancy Services Ltd has the lowest movement in the stock price in relation to that of the market return compared to all other selected stocks.

➢ From the correlation analysis it has been found that all the stocks are positively correlated to the market, which indicates that the stock's price movements are influenced by NIFTY 50. The ICICI Bank Ltd has the highest correlation of 0.761 and the Dr Reddy's Laboratories Ltd has the lowest correlation of 0.318.

➢ The highest impact on NIFTY 50 is by ICICI Bank Ltd that is 57.74% and creating a positive change of 42.52% and lowest impact on NIFTY 50 is by Dr Reddy's Laboratories Ltd that is 10.08% and creating a positive change of 22.35%.

Conclusion:

This study provides valuable insights for investors. By assessing the risk profile and potential returns of these stocks, investors can make more informed investment decisions. It enables investors to make informed decisions, align their investments with their risk tolerance, and optimize their portfolio's risk-return characteristics. If an investor wants to invest in the stocks of NIFTY 50 it helps the investor to select the best among the 10 selected stocks and the study shows the return, risk and movement of the stocks, which helps the investor to select the best stock to invest.

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