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Risk and Return Analysis of Selected Top Three Companies Stocks in Nifty Index – A Study

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Abstract

The research paper, titled "A Study on Risk and Return Analysis on Selected 03 Stocks in Nifty Index" aims to evaluate the risk and return profiles of three leading stocks within the Nifty 50 Index. The primary goal is to provide investors with detailed insights into the performance and volatility of these stocks, enabling them to make informed investment decisions. The scope of the study includes selecting the top 3 stocks based on criteria such as weightage and the key drives to Nifty50 Index. The analysis involves examining the historical performance of these stocks over a two financial year i.e. 2022-23 and 2023-2024, calculating the risks using financial metrics like standard deviation and beta, determining returns through measures opening price and closing price, and determining the correlation. Additionally, the study explores the risk-return trade-off, offering a strategic perspective on portfolio optimization. The methodology employed in this research is a blend of quantitative and qualitative research. Data on stock prices and financial performance are sourced from NSE website and databases analysed using statistical tools. The risk analysis assesses stock volatility and market sensitivity, while the return analysis focuses on growth trends and profitability. This study yields a comprehensive report that details the risk and return characteristics of the three selected stocks. The findings will offer practical recommendations for investors. The research insights will also contribute to the academic understanding of risk and return in the Indian stock market, making it a valuable resource for both investors and scholars. Major outcomes are as follows the return for HDFCBANK was positive at 10.88% in 2022-23, but it saw a sharp declineto -7.98%, RELIANCE had a negative return of -12.15% in 2022-23, which dramatically improvedto 23.38% in 2023-24, in 2023-24. ICICIBANK showed consistent positive returns across both years, with 22.57% in 2022-23 and 21.41% in 2023-24, indicating strong and stable performance. Untimely the study is concluded stating that the selected stocks exhibited a wide range of performances, both in terms of returns and risk (volatility). This diversity shows that different factors, some of industry trends, company performance, and broader economic conditions, had varying impacts on these stocks. The shift in returns and volatility between 2022-23 and 2023-24 suggests that marketconditions, possibly including economic recovery, policy changes, or sectoral shifts, played a significant role in the performance of these stocks.

Key Words: *Nifty Index, NSE, Portfolio Optimization, Stock Volatility, Risk and Return Analysis*

1 Introduction:

At present there are different substitutes that are available to investors in conditions of investment. They are befuddled regarding investment in the one which offers them a comparatively higher return with reduced risk factor. The risky investment can be determined by an investor in the process of investment decision using risk-return analysis.

Such analyses can assist them in choosing the specific securities to invest in built on the risk and return. This is the effort made to pass some understanding to those investors so they can be able to invest in their securities based on the risk and the return.

2. Need of the Study:

Trading in the stock market is always a hit

and trial process. It is the investors' duty to establish where there is either low risk or high risk. Therefore, it has always been challenging to determine that risk level of securities. The objectives of this study are to determine the risk and return of the chosen stocks and then determine the maximum return with minimum risk of the chosen 03 companies. By considering the above importance of the study I have been chosen the topic "**A study on risk and return analysis of selected top three companies stocks in Nifty index"**

3. Objectives of the Study:

- To study the importance of risk and return in the field of investment.
- To evaluate the historical returns of the selected 03 stocks within the Nifty index over a period of April 2022-March 2024.
- To compare the performance of the selected 03 stocks against the overall Nifty index to determine relative performance and measure the risk associated with each of the selected stock using Beta
- To compare the risk levels of the selected 03 stocks to understand their volatility relativeto the Nifty index.
- To investigate the correlation between the selected 03 stocks to understand how they move in relation to each other.

4. Scope of the Study:

The study will focus on 3 stocks selected from the Nifty 50 Index. The 03 companies are selected because they key drivers and they provide more weight for the progress ofnifty index. The analysis will cover a 02-year period from 1st April of 2022, to 31st March of 2024.This period is selected to capture different market cycles, including bullish and bearish trends. Financial data for the selected stocks will be sourced from Money control and NSE (National Stock Exchange).

5. Research Methodology

The research design used in this study is Analytical research. The major purpose of analytical research is analysis of the risk and the return of the selected 03 companies in nifty index.

6. Data Collection

The data for this study is Secondary Data. The data has been collected from secondary sources such as National stock Exchange website (National stock exchange, 2024), journals, newspapers, and some books, etc.

Table No 1: **TABLE SHOWING TOP 03 COMPANIES IN NIFTY 50 INDEX**

Sl.no	Stocks Name	Type	Industry	Weight (%)
1	HDFC Bank Ltd	Public	Banking, Financial Services	11.95%
2	Reliance Industries Ltd	Public	Conglomerate	9.98%
3	ICICI Bank Ltd	Public	Banking, Financial Services	7.95%

Source: National stock exchange. (2024, June 14)

7. Limitation of the Study

- The study relies on historical stock price data to analyze risk and return.
- The study is limited to the 03 companies is listed on the Nifty 50 Index.
- The 03 companies are chosen because they are

  the key drivers and they provide moreweight for the progress of Nifty index.
- The selected time period for the study is 2

years (1/04/2022 to 31/03/2024).

- ❖ The study focuses on the top 3 Companies according to the weights in the nifty 50index

Plan of Analysis

The analysis and projection of data will be done using SPSS software 2.10 statistical tool will be used wherever necessary. Interpretation will be done with the help of charts, Graphs, ext.

The study will calculate risk metrics for each stock, including:

Standard deviation: Is a statistical measure that quantifies the amount of variation or dispersion in asset of values.

$$\textbf{SD } (\sigma) = \sqrt{\frac{n\sum x^2-(\sum x)^2}{n(n-1)}}$$

Beta: To assess each stock's volatility relative to the Nifty Index.

$$\textbf{Beta } (\beta) = \frac{n\sum XY-(\sum x)(\sum y)}{n\sum x^2-(\sum x)^2}$$

Beta Interpretation

Beta (β) is a calculate/measured used in finance to quantify risk of an individual securities or the portfolio in contrast to the overall market. It indicates how much the securities price is expected to move in relation to the market

- ➢ The study will calculate the following return metrics:

Monthly and AnnualReturns:

To understand short-term and long-term Performance

$$\textbf{Return} = \frac{Closing\ price - Opening\ price}{Opening\ price} \times 100$$

- ➢ The correlation between the selected stocks will be analysed to determine the potential benefits of diversification. A diversified portfolio of the selected stocks will be createdto assess its overall risk and return profile.

$$\mathbf{r} = \frac{n\sum xy-(\sum x)(\sum y)}{\sqrt{[n\sum x^2-(\sum x)^2][n\sum y^2-(\sum y)^2]}}$$

- ➢ Each stock's performance will be compared against the Nifty Index to determine relative performance.

The market is often represented bya benchmark index. Beta is a vital component of the CAPM i.e. The Capital Asset Pricing Model, which describes the relationship between systematic (market) risk and expected return for assets.

Table No 1.1: Table explains the interpretation of the beta

Beta Value (β)	Interpretation	Risk form
β<0	The stock moves in the opposite direction to the market. If market goes up by 1%, the stock is expected to go down by the corresponding percentage and vice versa.	Less risk
β=0	The stock's price is not correlated with the market. Movement in the market do not affect the stock.	No risk
β=1	The stock's price is expected to align with market movement.If the market goes up or down by 1%, the stock is expected to do the same.	Average risk
β>1	The stock is more volatile or fluctuating than the market. If the market moves up or down by 1%, the stock is expected tomove by more than 1%.	High risk
β<1	The stock is less volatile or fluctuating than the market. If the market moves up or down by 1%, the stock is expected to move by less than 1%.	Less risk

Source: (shivanagowda, 2021)

R square (R^2) or Coefficient of determination

Interpretation

R^2 or the coefficient of determination is an essential metric in finance for understanding the relationship b/w a stock's returns and the market returns. The R^2 value measures the fraction of the variance in a stock's returns linked to the returns of a benchmark index, such as Nifty 50. It indicates how well the stock's performance is aligned with the market index performance. It ranges start from 0 to 1 i.e. 0% to 100%, where 0 means no explanatory power and 1 means perfect explanatory power.

Table No 2: Table explains the interpretation of the R^2

R square (R^2)	Interpretation	Description
0	No explanatory power	The stock's return is not explained by the market returns.
0 to 0.5	Weak explanatory power	A small portion of the stock's return is explained by the market return.
0.5 to 0.7	Moderate explanatory power	A moderate portion of the stock's return is explained by the market returns.
0.7 to 0.9	Strong explanatory power	A large portion of the stock's returns is explained by the market return.
1	Perfect explanatory power	The stock's return is fully explained by the market return.

Source: (shivanagowda, 2021)

Coefficient of Correlation or R Interpretation

The coefficient of correlation, often denoted as *r*, Correlation in the context of stocks refers to the statistical relationship between the price movement of two securities. It is calculate or measured by the correlation coefficient, which it ranges from -1 to +1

Table No 3: Table explains the interpretation of the correlation coefficient

Correlation Coefficient	Interpretation	Description
r=1	Perfect positive correlation	Every time the index goes up by a certain percentage, thestock goes up by the same percentage. Every time the index goes down by a certain percentage, the stock goes down by the same percentage.
r=0.5 to 0.9	High positive correlation	If a stock has a high (+) positive correlation with anindex, it means that the stock's price movements are close aligned with the overall market trend.
r=0.1 to 0.4	Low positive correlation	A stock with low positive correlation with an index maystill move in the same general direction as the market but with less consistency.
r=0	No correlation	When there is no correlation between a stock and an index, the stock'sprice movements are entirelyindependent of the market's movements.
r=-0.1 to -0.4	Low negative correlation	A stock with low negative correlation to an index tendsto move somewhat in the opposite direction to the market index.
r=-0.5 to -0.9	High negative correlation	A high (-) negative correlation suggests that the stock moves in opposite direction of the market index. Whenthe market rises, the stock tends to fall, and vice versa.
r=-1	Perfect negative correlation	Every time the index goes up by a certain percentage, thestock goes down by the same percentage. Every time theindex goes down by a certain percentage, the stock goes up by the same percentage.

8. ANALYSIS AND INTERPRETATION

HDFC BANK LIMITED

NSE SYMBOL	TYPE	INDUSTRY	WEIGHTAGE TO NIFTY (%)
HDFCBANK	PUBLIC	FINANCIAL SERVICES	11.95%

Table No 4:

A Table showing the Risk & Return Analysis of HDFCBANK Ltd of the year 2022-2023

Month	NIFTY		HDFCBANK		RETURNS				
	Open	Close	Open	Close	X	Y	X^2	Y^2	XY
APR	17436.90	17102.55	1476.40	1384.60	-1.92	-6.22	3.68	38.66	11.92
MAY	16924.45	16584.55	1362.05	1388.95	-2.01	1.97	4.03	3.90	-3.97
JUN	16594.40	15780.25	1380.00	1348.00	-4.91	-2.32	24.07	5.38	11.38
JUL	15703.70	17158.25	1343.95	1434.20	9.26	6.72	85.79	45.09	62.20
AUG	17243.20	17759.30	1439.00	1486.10	2.99	3.27	8.96	10.71	9.80
SEP	17485.70	17094.35	1464.75	1421.35	-2.24	-2.96	5.01	8.78	6.63
OCT	17102.10	18012.20	1409.95	1496.70	5.32	6.15	28.32	37.86	32.74
NOV	18130.70	18758.35	1503.50	1608.45	3.46	6.98	11.98	48.73	24.16
DEC	18871.95	18105.30	1622.00	1628.15	-4.06	0.38	16.50	0.14	-1.54
JAN	18131.70	17662.15	1627.00	1603.50	-2.59	-1.44	6.71	2.09	3.74
FEB	17811.60	17303.95	1624.00	1599.60	-2.85	-1.50	8.12	2.26	4.28
MAR	17360.10	17359.75	1612.00	1609.55	0.00	-0.15	0.00	0.02	0.00
n = 12			**Total**		**0.46**	**10.88**	**203.18**	**203.62**	**161.35**
					∑X	**∑Y**	**$\sum X^2$**	**$\sum Y^2$**	**∑XY**
Average return/ Mean return					**0.04**	**0.91**			

Source: National stock exchange. (2024, June 14)

STANDARD DEVIATION:

NIFTY = $\sqrt{\frac{n\sum x^2-(\sum x)^2}{(n-1)}} = \sqrt{\frac{12(203.18)^2-(0.46)^2}{12(12-1)}}$ **= 4.297559**

HDFC BANK= $\sqrt{\frac{n\sum y^2-(\sum y)^2}{(n-1)}} = \sqrt{\frac{12(203.62)^2-(10.88)^2}{12(12-1)}}$ **= 4.196955**

Beta:

(β)= $\frac{n\sum XY-(\sum x)(\sum y)}{n\sum x^2-(\sum x)^2} = \frac{12(161.35)-(0.46)(10.88)}{12(203.18)-(0.46)^2}$ **= 0.792134**

Correlation:

r = $\frac{n\sum xy-(\sum x)(\sum y)}{\sqrt{[n\sum x^2-(\sum x)^2][n\sum y^2-(\sum y)^2]}}$ **=**

$$= \frac{12(161.35)-(0.46)(10.88)}{\sqrt{[12(203.18)-(0.46)^2][12(203.62)-(10.88)^2]}}$$

$$= \mathbf{0.811122}$$

R square: $r^2 = 0.657918$

Graph No 1
A graph showing Return of HDFC BANK Ltd and NIFTY 50 Index in the year 2022-2023

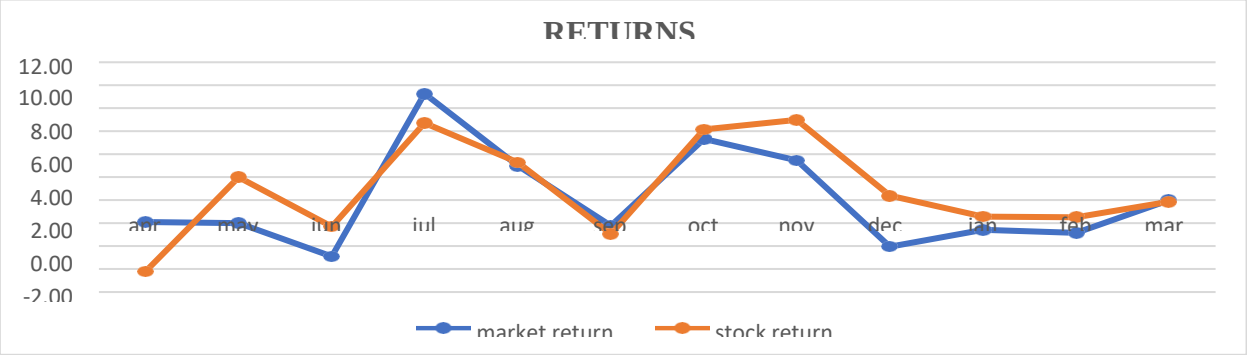


Table No 5:
A Table showing the Risk & Return Analysis of HDFCBANK Ltd of the year 2023-2024

Month	NIFTY		HDFCBANK		RETURNS				
	Open	Close	Open	Close	X	Y	X^2	Y^2	XY
APR	17427.95	18065.00	1607.55	1687.60	3.66	4.98	13.36	24.80	18.20
MAY	18124.80	18534.40	1687.60	1610.85	2.26	-4.55	5.11	20.68	-10.28
JUN	18579.40	19189.05	1619.90	1701.40	3.28	5.03	10.77	25.31	16.51
JUL	19246.50	19753.80	1712.50	1651.20	2.64	-3.58	6.95	12.81	-9.44
AUG	19784.00	19253.80	1654.45	1571.45	-2.68	-5.02	7.18	25.17	13.44
SEP	19258.15	19638.30	1571.00	1526.30	1.97	-2.85	3.90	8.10	-5.62
OCT	19622.40	19079.60	1526.30	1476.50	-2.77	-3.26	7.65	10.65	9.03
NOV	19064.05	20133.15	1462.25	1558.80	5.61	6.60	31.45	43.60	37.03
DEC	20194.10	21731.40	1557.90	1709.25	7.61	9.71	57.95	94.38	73.96
JAN	21727.75	21725.70	1706.00	1462.55	-0.01	-14.27	0.00	203.6	0.13
FEB	21780.65	21982.80	1465.05	1403.40	0.93	-4.21	0.86	17.71	-3.91
MAR	22048.30	22326.90	1400.00	1447.90	1.26	3.42	1.60	11.71	4.32
n = 12			**Total**		**23.76**	**-7.98**	**146.77**	**498.55**	**143.39**
					∑X	**∑Y**	**$\sum X^2$**	**$\sum Y^2$**	**∑XY**
Average return/ Mean return					**1.98**	**-0.67**			

Source: National stock exchange. (2024, June 14)

STANDARD DEVIATION:

NIFTY = $\sqrt{\frac{n\sum x^2-(\sum x)^2}{(n-1)}} = \sqrt{\frac{12(146.77)^{\square}-(23.76)^2}{12(12-1)}}$ = **3.010834**

HDFC BANK= $\sqrt{\frac{n\sum y^2-(\sum y)^2}{(n-1)}} = \sqrt{\frac{12(498.55)^{\square}-(-7.98)^2}{12(12-1)}}$ = **6.696267**

Beta:

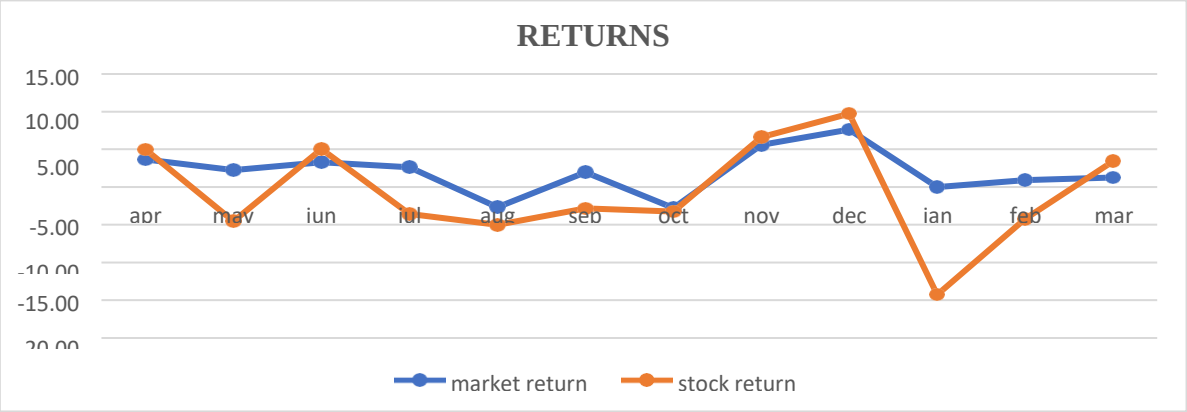
(β)= $\frac{n\sum XY-(\sum x)(\sum y)}{n\sum x^2-(\sum x)^2} = \frac{12(143.39)-(23.76)(-7.98)}{12(146.77)-(23.76)^2}$ = **1.59645**

Correlation:

r = $\frac{n\sum xy-(\sum x)(\sum y)}{\sqrt{[n\sum x^2-(\sum x)^2][n\sum y^2-(\sum y)^2]}} = \frac{12(143.39)-(23.76)(-7.98)}{\sqrt{[12(146.77)-(23.76)^2][12(498.55)-(-7.98)^2]}}$ = **0.717813**

R square: r^2 = **0.515256**

Graph No 2.
A graph showing Return of HDFCBANK Ltd and NIFTY 50 Index of the year 2023-2024



RELIANCE INDUSTRIES LIMITED

NSE SYMBOL	TYPE	INDUSTRY	WEIGHTAGE TO NIFTY (%)
RELIANCE	PUBLIC	CONGLOMERATE	9.98%

Table No 6:

A Table showing the Risk & Return Analysis of Reliance Industries Ltd of the year2022-2023

Month	NIFTY		RELIANCE		RETURNS				
	Open	Close	Open	Close	X	Y	X^2	Y^2	XY
APR	17436.90	17102.55	2636.00	2790.25	-1.92	5.85	3.68	34.24	-11.22
MAY	16924.45	16584.55	2762.00	2632.65	-2.01	-4.68	4.03	21.93	9.41
JUN	16594.40	15780.25	2634.30	2595.65	-4.91	-1.47	24.07	2.15	7.20
JUL	15703.70	17158.25	2574.90	2509.45	9.26	-2.54	85.79	6.46	-23.54
AUG	17243.20	17759.30	2519.15	2637.95	2.99	4.72	8.96	22.24	14.11
SEP	17485.70	17094.35	2582.65	2377.75	-2.24	-7.93	5.01	62.94	17.76
OCT	17102.10	18012.20	2391.50	2549.60	5.32	6.61	28.32	43.70	35.18
NOV	18130.70	18758.35	2600.00	2731.35	3.46	5.05	11.98	25.52	17.49
DEC	18871.95	18105.30	2741.80	2547.20	-4.06	-7.10	16.50	50.37	28.83
JAN	18131.70	17662.15	2550.00	2353.85	-2.59	-7.69	6.71	59.17	19.92
FEB	17811.60	17303.95	2379.95	2322.55	-2.85	-2.41	8.12	5.82	6.87
MAR	17360.10	17359.75	2344.00	2331.05	0.00	-0.55	0.00	0.31	0.00
n = 12			**Total**		**0.46**	**-12.15**	**203.18**	**334.86**	**122.01**
					∑X	**∑Y**	**$\sum X^2$**	**$\sum Y^2$**	**∑XY**
Average return/ Mean return					**0.04**	**-1.01**			

Source: National stock exchange. (2024, June 14)

STANDARD DEVIATION:

$$\text{NIFTY} = \sqrt{\frac{n\sum x^2-(\sum x)^2}{(n-1)}} = \sqrt{\frac{12(203.18)^{\square}-(0.46)^2}{12(12-1)}} = \mathbf{4.297559}$$

$$\text{RELIANCE} = \sqrt{\frac{n\sum y^2-(\sum y)^2}{(n-1)}} = \sqrt{\frac{12(334.86)^{\square}-(-12.15)^2}{12(12-1)}} = \mathbf{5.415153}$$

Beta:

$$(\beta) = \frac{n\sum XY-(\sum x)(\sum y)}{n\sum x^2-(\sum x)^2} = \frac{12(122.01)-(0.46)(-12.15)}{12(203.18)-(0.46)^2} = \mathbf{0.60287}$$

Correlation:

$$r = \frac{n\sum xy-(\sum x)(\sum y)}{\sqrt{[n\sum x^2-(\sum x)^2][n\sum y^2-(\sum y)^2]}} = \frac{12(122.01)-(0.46)(-12.15)}{\sqrt{[12(203.18)-(0.46)^2][12(334.86)-(-12.15)^2]}} = \mathbf{0.478448}$$

R square: r^2= 0.228912

Graph No 1.2.1

A graph showing Return of Reliance Industries Ltd and NIFTY 50 Index in the year 2022-2023

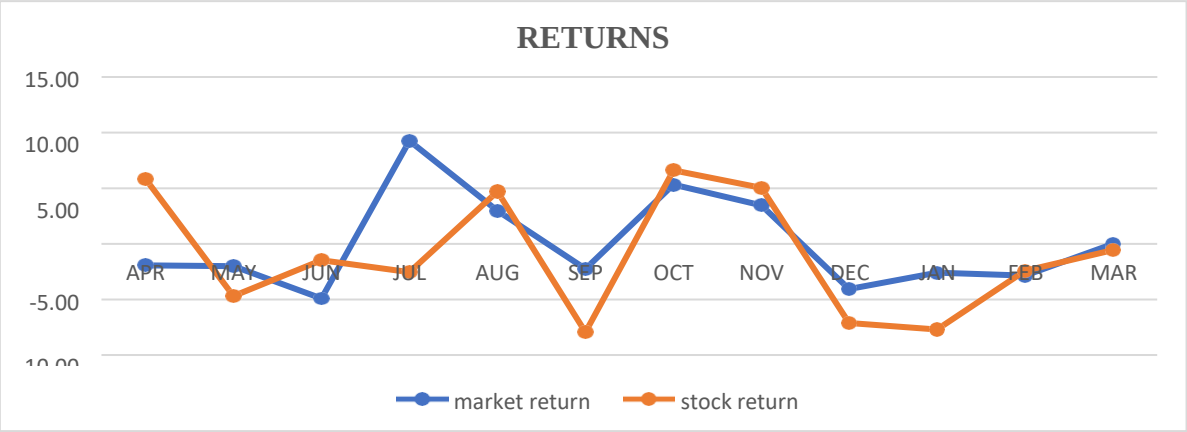


Table No 7:

A Table showing the Risk & Return Analysis of Reliance Industries Ltd of the year2023-2024

Month	NIFTY		RELIANCE		RETURNS				
	Open	Close	Open	Close	X	Y	X^2	Y^2	XY
APR	17427.95	18065.00	2345.00	2420.50	3.66	3.22	13.36	10.37	11.77
MAY	18124.80	18534.40	2436.20	2469.90	2.26	1.38	5.11	1.91	3.13
JUN	18579.40	19189.05	2480.15	2550.25	3.28	2.83	10.77	7.99	9.27
JUL	19246.50	19753.80	2558.05	2549.25	2.64	-0.34	6.95	0.12	-0.91
AUG	19784.00	19253.80	2555.00	2407.00	-2.68	-5.79	7.18	33.55	15.52
SEP	19258.15	19638.30	2406.55	2345.00	1.97	-2.56	3.90	6.54	-5.05
OCT	19622.40	19079.60	2329.95	2287.90	-2.77	-1.80	7.65	3.26	4.99
NOV	19064.05	20133.15	2289.15	2377.45	5.61	3.86	31.45	14.88	21.63
DEC	20194.10	21731.40	2378.00	2584.95	7.61	8.70	57.95	75.74	66.25
JAN	21727.75	21725.70	2580.55	2853.25	-0.01	10.57	0.00	111.67	-0.10
FEB	21780.65	21982.80	2870.00	2921.60	0.93	1.80	0.86	3.23	1.67
MAR	22048.30	22326.90	2927.00	2971.70	1.26	1.53	1.60	2.33	1.93
n = 12			**Total**		**23.76**	**23.38**	**146.77**	**271.59**	**130.11**
					∑X	**∑Y**	**$\sum X^2$**	**$\sum Y^2$**	**∑XY**
Average return/ Mean return					**1.98**	**1.95**			

Source: National stock exchange. (2024, June 14)

STANDARD DEVIATION:

$$\text{NIFTY} = \sqrt{\frac{n\sum x^2-(\sum x)^2}{(n-1)}} = \sqrt{\frac{12(146.77)^{\square}-(23.76)^2}{12(12-1)}} = \mathbf{3.010834}$$

$$\text{RELIANCE} = \sqrt{\frac{n\sum y^2-(\sum y)^2}{(n-1)}} = \sqrt{\frac{12(271.59)^{\square}-(23.38)^2}{12(12-1)}} = \mathbf{4.532989}$$

Beta:

$$(\beta) = \frac{n\sum XY-(\sum x)(\sum y)}{n\sum x^2-(\sum x)^2} = \frac{12(130.11)-(23.76)(23.38)}{12(146.77)-(23.76)^2} = \mathbf{0.840449}$$

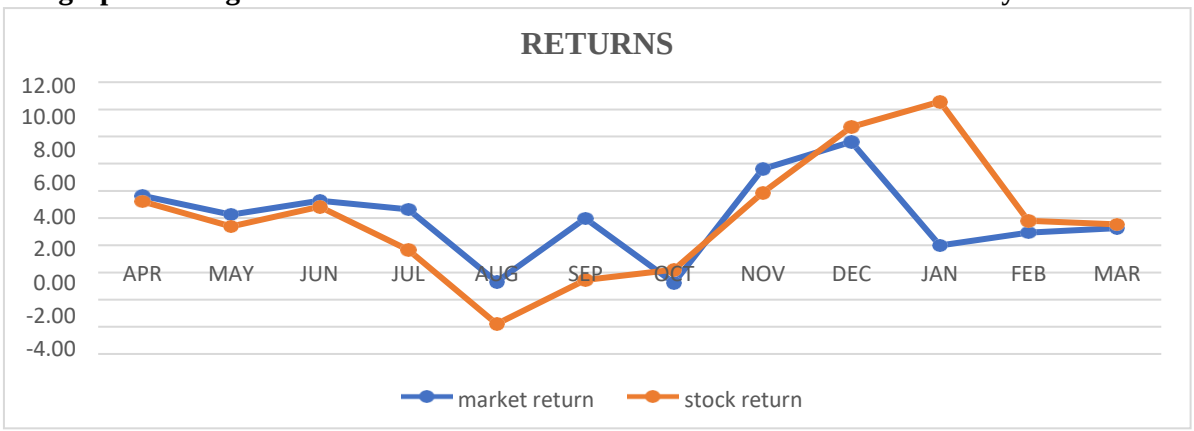
Correlation:

$$r = \frac{n\sum xy-(\sum x)(\sum y)}{\sqrt{[n\sum x^2-(\sum x)^2][n\sum y^2-(\sum y)^2]}} = \frac{12(130.11)-(23.76)(23.38)}{\sqrt{[12(146.77)-(23.76)^2][12(271.59)-(23.38)^2]}} = \mathbf{0.558230}$$

R square: $r^2 = 0.31162$

Graph No 3

A graph showing Return of Reliance Industries Ltd and NIFTY 50 Index in the year 2023-2024



ICICI BANK LIMITED

NSE SYMBOL	TYPE	INDUSTRY	WEIGHTAGE TO NIFTY (%)
ICICIBANK	PUBLIC	FINANCIAL SERVICES	7.95%

Table No 8:
A Table showing the Risk & Return Analysis of ICICI Bank Ltd of the year 2022-2023

Month	NIFTY		ICICIBANK		RETURNS				
	Open	Close	Open	Close	X	Y	X^2	Y^2	XY
APR	17436.90	17102.55	725.00	743.30	-1.92	2.52	3.68	6.37	-4.84
MAY	16924.45	16584.55	732.00	752.85	-2.01	2.85	4.03	8.11	-5.72
JUN	16594.40	15780.25	748.00	707.20	-4.91	-5.45	24.07	29.75	26.76
JUL	15703.70	17158.25	703.45	818.60	9.26	16.37	85.79	267.95	151.62
AUG	17243.20	17759.30	820.70	887.30	2.99	8.12	8.96	65.85	24.29
SEP	17485.70	17094.35	863.00	862.00	-2.24	-0.12	5.01	0.01	0.26
OCT	17102.10	18012.20	859.70	908.70	5.32	5.70	28.32	32.49	30.33
NOV	18130.70	18758.35	921.00	952.90	3.46	3.46	11.98	12.00	11.99
DEC	18871.95	18105.30	956.00	890.85	-4.06	-6.81	16.50	46.44	27.68
JAN	18131.70	17662.15	894.00	831.90	-2.59	-6.95	6.71	48.25	17.99
FEB	17811.60	17303.95	843.45	854.85	-2.85	1.35	8.12	1.83	-3.85
MAR	17360.10	17359.75	864.00	877.25	0.00	1.53	0.00	2.35	0.00
n = 12			Total		0.46	22.57	203.18	521.41	276.51
					∑X	∑Y	$\sum X^2$	$\sum Y^2$	∑XY
Average return/ Mean return					0.04	1.88			

Source: National stock exchange. (2024, June 14)

STANDARD DEVIATION:

NIFTY = $\sqrt{\frac{n\sum x^2-(\sum x)^2}{(n-1)}} = \sqrt{\frac{12(203.18)-(0.46)^2}{12(12-1)}}$ **= 4.297559**

ICICIBANK = $\sqrt{\frac{n\sum y^2-(\sum y)^2}{(n-1)}} = \sqrt{\frac{12(521.41)-(22.57)^2}{12(12-1)}}$ **= 6.598544**

Beta:

(β)= $\frac{n\sum XY-(\sum x)(\sum y)}{n\sum x^2-(\sum x)^2} = \frac{12(276.51)-(0.46)(22.57)}{12(203.18)-(0.46)^2}$ **= 1.35674**

Correlation:

r = $\frac{n\sum xy-(\sum x)(\sum y)}{\sqrt{[n\sum x^2-(\sum x)^2][n\sum y^2-(\sum y)^2]}}$

$$= \frac{12(276.51)-(0.46)(22.57)}{\sqrt{[12(203.18)-(0.46)^2][12(521.41)-(22.57)^2]}} = \mathbf{0.88363}$$

R square: $r^2 = 0.780802$

Graph No 4

A graph showing Return of ICICI Bank Ltd and NIFTY 50 Index in the year 2022-2023

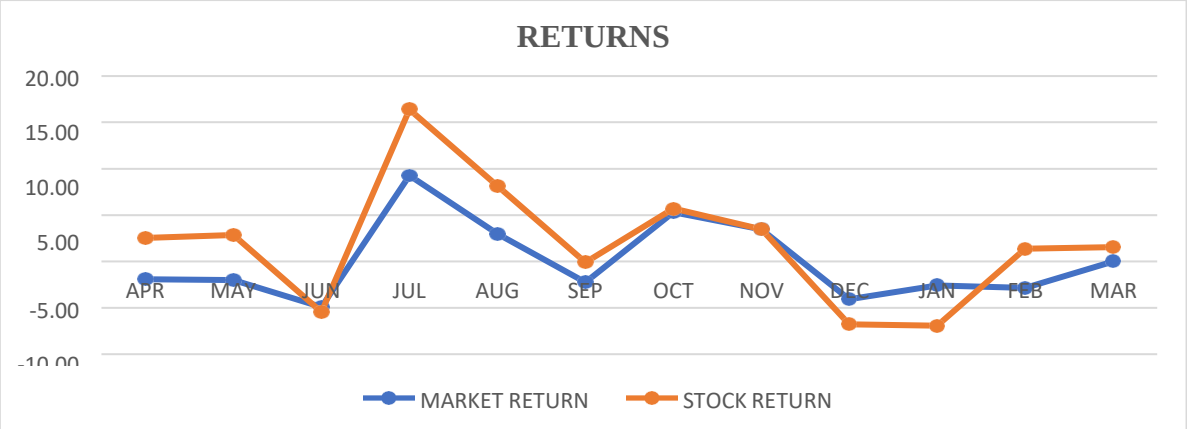


Table No 9:

A Table showing the Risk & Return Analysis of ICICI Bank Ltd of the year 2023-2024

Month	NIFTY		ICICIBANK		RETURNS				
	Open	Close	Open	Close	X	Y	X^2	Y^2	XY
APR	17427.95	18065.00	880.20	917.65	3.66	4.25	13.36	18.10	15.55
MAY	18124.80	18534.40	917.65	949.15	2.26	3.43	5.11	11.78	7.76
JUN	18579.40	19189.05	954.25	934.60	3.28	-2.06	10.77	4.24	-6.76
JUL	19246.50	19753.80	937.00	998.30	2.64	6.54	6.95	42.80	17.24
AUG	19784.00	19253.80	1001.65	958.75	-2.68	-4.28	7.18	18.34	11.48
SEP	19258.15	19638.30	956.90	951.90	1.97	-0.52	3.90	0.27	-1.03
OCT	19622.40	19079.60	951.90	915.35	-2.77	-3.84	7.65	14.74	10.62
NOV	19064.05	20133.15	913.80	934.95	5.61	2.31	31.45	5.36	12.98
DEC	20194.10	21731.40	935.95	996.60	7.61	6.48	57.95	41.99	49.33
JAN	21727.75	21725.70	991.55	1028.15	-0.01	3.69	0.00	13.62	-0.03
FEB	21780.65	21982.80	1033.95	1052.20	0.93	1.77	0.86	3.12	1.64
MAR	22048.30	22326.90	1055.00	1093.30	1.26	3.63	1.60	13.18	4.59
n = 12			**Total**		**23.76**	**21.41**	**146.77**	**187.55**	**123.37**
					∑X	**∑Y**	**$\sum X^2$**	**$\sum Y^2$**	**∑XY**
Average return/ Mean return					**1.98**	**1.78**			

Source: National stock exchange. (2024, June 14)

STANDARD DEVIATION:

$$\text{NIFTY} = \sqrt{\frac{n\sum x^2-(\sum x)^2}{(n-1)}} = \sqrt{\frac{12(146.77)^{\square}-(23.76)^2}{12(12-1)}} = \mathbf{3.010834}$$

$$\text{ICICIBANK} = \sqrt{\frac{n\sum y^2-(\sum y)^2}{(n-1)}} = \sqrt{\frac{12(187.55)^{\square}-(21.41)^2}{12(12-1)}} = \mathbf{3.684952}$$

Beta:

$$(\beta) = \frac{n\sum XY-(\sum x)(\sum y)}{n\sum x^2-(\sum x)^2} = \frac{12(123.37)-(23.76)(21.41)}{12(146.77)-(23.76)^2} = \mathbf{0.812057}$$

Correlation:

$$r = \frac{n\sum xy-(\sum x)(\sum y)}{\sqrt{[n\sum x^2-(\sum x)^2][n\sum y^2-(\sum y)^2]}} = \frac{12(123.37)-(23.76)(21.41)}{\sqrt{[12(146.77)-(23.76)^2][12(187.55)-(21.41)^2]}} = \mathbf{0.663501}$$

R square: r^2 = 0.440233

Graph No 5

A graph showing Return of ICICI Bank Ltd and NIFTY 50 Index in the year 2023-2024

Table No 10:

A Table showing the performance of selected 03 stocks

STOCKS	2022-23					2023-24				
	Returs	Avg returns	σ	β	r	Returns	Avg returns	σ	β	r

HDFC BANK	10.88	0.91	4.197	0.792	0.811	-7.98	-0.67	6.696	1.596	0.717
RELIANCE	-12.15	-1.01	5.415	0.602	0.478	23.38	1.95	4.532	0.840	0.558
ICICIBANK	22.57	1.88	6.598	1.356	0.883	21.41	1.78	3.684	0.812	0.663

Source: Developed By the Researcher

9. FINDINGS:

The return for HDFCBANK was positive at 10.88% in 2022-23, but it saw a sharp decline to -7.98% in 2023-24. This indicates a shift in performance possibly due to market conditions, economic factors, or company-specific events. Beta increased from 0.79 to 1.59, suggesting higher volatility or movement relative to the market index in the later period.

RELIANCE had a negative return of -12.15% in 2022-23, which dramatically improved to 23.38% in 2023-24. This suggests a strong recovery, possibly due to strategic business decisions, market recovery, or favourable external factors. Beta decreased from 1.60 to 0.84, indicating a reduction in volatility.

ICICIBANK showed consistent positive returns across both years, with 22.57% in 2022-23 and 21.41% in 2023-24, indicating strong and stable performance. Stable beta close to 1, indicating it moves in line with the market.

The average returns for the selected stocks varied significantly between 2022-23 and 2023-24. while HDFCBANK had lowest return in 2023-24(-7.98)

ICICIBANK had the highest beta in 2022-23 (1.356) and HDFC Bank had the highest beta in 2023-24 (1.596), indicating it was more volatile than the Nifty 50 index.

The correlation coefficient (r) between individual stocks and the market varied, with some stocks like HDFCBANK (0.811 & 0.717) showing strong correlation in both years.

10. CONCLUSION

The selected stocks exhibited a wide range of performances, both in terms of returns and risk (volatility). This diversity shows that different factors, some of industry trends, company performance, and broader economic conditions, had varying impacts on these stock. The shift in returns and volatility between 2022-23 and 2023-24 suggests that marketconditions, possibly including economic recovery, policy changes, or sectoral shifts, playeda significant role in the performance of these stocks.

Stocks like ICICIBANK, with a high standard deviation and beta, are riskier investments but might offer higher returns. The volatility of the selected stocks relative to the Nifty index varied, with most stocks showing moderate to low volatility, suggesting a relatively stable investment environment.

Given the varied performances and risk profiles, investors need to take a strategic approach when investing in these stocks, balancing between high-risk, high-return options and more stable, lower-risk investments.

11. SUGGESTIONS

- Investors seeking higher returns should consider stocks of ICICI Bank, especially during favourable market conditions, but must also be ready to accept higher risks.
- Investors should consider a mix of high-beta and low-beta stocks to balance risk and return.
- The varying levels of returns, risk, and beta among these stocks suggest that

diversifying investments across these companies can help in managing risk while optimizing returns.

- ❖ Given the differences in performance between the two years, investors should consider market timing and economic conditions when selecting stocks for their portfolios.

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