Risk-Adjusted Performance Analysis of Nifty 50 Stocks

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Abstract: This study analyzes the performance and risk characteristics of all 50 Nifty 50 stocks over the five-year period from April 2020 to March 2025. Using historical prices and Nifty 50 benchmark returns, the research evaluates each stock through key measures such as annual returns, volatility, Sharpe ratio, Treynor ratio, and Jensen's alpha. The results show clear differences across sectors: Industrials, Infrastructure, Pharma, and Telecom delivered stronger risk-adjusted returns, while FMCG and Cement lagged behind the index. Adani Group companies posted the highest overall returns and alpha, though with higher volatility. Financials and IT showed mixed outcomes, with several stocks trailing the benchmark. Overall, the findings highlight how cyclical, high-beta sectors generated higher alpha, whereas defensive sectors provided stability but lower returns—offering useful insights for investors and portfolio managers studying large-cap equity performance.

Keywords: Sharpe Ratio, Treynor Ratio, Jensen's Alpha, Risk-Adjusted Returns, Nifty 50, Portfolio Performance, Systematic Risk, Beta, Financial Metrics, Sector Analysis, Indian Stock Market, Mutual Fund Analysis, Benchmark Comparison, CAPM, Volatility, Return Analysis, Equity Research, Investment Strategy, Performance Evaluation, Financial Modeling

I. INTRODUCTION

This study examines the performance of all 50 Nifty 50 stocks over the five-year period from April 2020 to March 2025, a phase marked by the post-COVID rebound, inflation concerns, and shifts in monetary policy. By analysing historical stock prices and benchmark index returns, the research evaluates each company using key measures such as returns, volatility, Sharpe ratio, Treynor ratio, and Jensen's alpha. The goal is to understand how different sectors behaved, which stocks delivered strong risk-adjusted returns, and how total risk compares with systematic risk across the index. The insights from this analysis aim to help investors, portfolio managers, and researchers make more informed decisions about stock selection and sector allocation within India's large-cap equity market.

II. REVIEW OF LITERATURE

The seminal work of Sharpe (1966) introduced the Sharpe Ratio as a measure of excess return per unit of total risk, revolutionizing portfolio evaluation by integrating both return and volatility. Treynor (1965) expanded this framework by proposing the Treynor Ratio, which measures excess return relative to systematic risk (beta), emphasizing market-related volatility over total risk. Jensen (1968) further advanced performance measurement through Jensen's Alpha, which evaluates a security's excess return over its expected return based on the Capital Asset Pricing Model (CAPM). Together, these metrics provide a multidimensional view of performance that remains central to contemporary equity analysis.

Studies such as those by Sehgal and Tripathi (2005) and Sahu and Sharma (2014) have applied these ratios to Indian equities, highlighting the distinct risk-return profiles of sectors like banking, IT, and infrastructure. Research indicates that in high-growth, high-volatility markets like India, risk-adjusted metrics often reveal significant alpha generation in cyclical sectors, while defensive sectors may underperform on a risk-adjusted basis despite lower volatility.

Literature on sector rotation, including works by Fabozzi and Francis (1979) and more recently Narang and Singh (2020), underscores how economic cycles influence sectoral returns. In India, sectors such as metals, industrials, and automobiles have shown higher beta and alpha during expansionary phases, whereas FMCG and pharmaceuticals exhibit resilience during downturns but may lag in bull markets—a pattern consistent with findings in this study.

The importance of benchmark-relative evaluation is emphasized in studies by Roll (1978) and Grinold and Kahn (2000), who argue that outperforming a market index is a key indicator of active management success. In the Indian context, comparisons with the Nifty 50 or sectoral indices like NIFTYFIN help contextualize stock performance within the broader market movement, as explored by Patel and Bhatt (2018).

Recent advancements in computational finance, including the use of rolling windows, bootstrap simulations, and panel data models, have refined performance measurement. Studies such as Bodie, Kane, and Marcus (2021) stress the importance of consistent risk-free rate proxies and robust beta estimation—especially in volatile markets where parameter instability can skew results.

While extensive research exists on U.S. and European markets, fewer studies provide a holistic, stock-by-stock, multi-metric analysis of all Nifty 50 constituents over a defined mid-term horizon. This study aims to fill that gap by integrating Sharpe, Treynor, and Jensen's measures with sectoral breakdowns and benchmarking against Nifty 50 returns, thereby offering a comprehensive performance dashboard for India's premier equity index.

III.   STATEMENT OF THE PROBLEM

Although the Nifty 50 is widely used to track India's large-cap market, there is still no single study that evaluates all 50 stocks together using a broad set of performance and risk measures. Most existing research focuses on only a few stocks or uses limited metrics, leaving a gap in understanding how each company performs on both absolute and risk-adjusted scales. This study aims to fill that gap by analysing five years of data to compare returns, volatility, Sharpe and Treynor ratios, Jensen's alpha, and sector-level trends. The goal is to identify which stocks truly outperform the market, which sectors show consistent strength or weakness, and how risk and return vary across the index—providing clearer guidance for investors and portfolio managers.

IV.   RESEARCH GAP

Although many studies examine stock performance in India, there is still a lack of research that evaluates all 50 Nifty 50 companies together using a wide range of performance and risk metrics. Most past work focuses on selective sectors, uses only one or two ratios, or does not cover the recent post-COVID period. There is also limited sector-wise comparison, little analysis of both total and systematic risk, and very few studies that compare each stock directly with the Nifty 50 benchmark. Newer index entrants and detailed statistical profiling of returns are also largely overlooked. This study aims to fill these gaps by offering a complete, five-year, multi-metric assessment of the entire Nifty 50 universe.

V.   OBJECTIVES OF THE STUDY

1.   To evaluate the five-year return performance of all Nifty 50 stocks.
2.   To measure and compare risk-adjusted performance using Sharpe, Treynor, and Jensen's Alpha.
3.   To analyse sector-wise performance and identify consistent outperforming and underperforming sectors.
4.   To benchmark each stock's performance against the Nifty 50 index.
5.   To provide practical insights for portfolio construction and informed investment decisions.

VI.   RESEARCH DESIGN

1. Research Approach
This study follows a quantitative and analytical approach, using real historical data to evaluate how Nifty 50 stocks performed over five years. It uses an ex-post facto design, meaning the analysis is based entirely on past data without changing or influencing any variables.

2. Data Collection
The research relies on secondary data taken from two Excel files containing annual closing prices of all 50 Nifty 50 stocks, benchmark index values, and risk-free rates. The period of study covers five financial years, giving a total of 250 stock-return observations along with the required benchmark data.

3. Variables and Metrics
The study uses dependent variables such as stock returns and performance ratios, while market returns, risk-free rates, and beta act as independent variables. Additional descriptive statistics like volatility, skewness, kurtosis, and sector classification help in understanding each stock's overall risk profile.

4. Analytical Framework
The analysis includes calculating annual returns, descriptive statistics, and risk-adjusted metrics such as Sharpe ratio, Treynor ratio, and Jensen's alpha. Stocks are grouped by sector and compared with the Nifty 50 benchmark to identify outperformers, underperformers, and risk-efficient stocks.

5. Tools and Software
Microsoft Excel is the main tool used for data handling, metric calculation, and generating tables and charts. Built-in functions like AVERAGE, STDEV, SLOPE, SKEW, and KURT support accurate computation of all financial statistics and ratios.

6. Validity and Reliability

The study ensures validity by using consistent formulas, uniform time periods, and the same risk-free rate for all calculations. Reliability is maintained through standardized data sources and methods that can be easily repeated or cross-checked.

Table 1: Annual Stock Returns (%)

Stocks	2020-21	2021-22	2022-23	2023-24	2024-25
RELIANCE	87.11	30.3	-12.23	40.4	-14.16
HDFCBANK	79.98	-1.12	6.88	-10.09	24.32
BHARTIARTL	22.77	47.68	-1.25	61.55	42.4
ICICIBANK	87.07	22.86	19.16	19.23	22.63
SBIN	95.33	33.15	2.97	43.65	1.74
INFY	126.98	37.66	-25.56	4.92	5.62
BAJFINANCE	132.05	37.78	-24.14	29.01	23.37
LT	83.22	22.35	20.65	74.18	-9.06
HINDUNILVR	11.56	-14.58	24.28	-11.57	-0.79
MARUTI	61.48	9.21	7.69	51.92	-8.33
ITC	31.31	13.87	42.33	12.4	1.51
TCS	86.01	18.15	-15.11	21.57	-7.94
M&M	191.56	-0.13	40.2	65.04	39.11
HCLTECH	134.99	17.34	-7.21	41.7	2.3
SUNPHARMA	74	49.8	8.19	65.46	6.52
KOTAKBANK	48.33	-2.81	-1.2	2.28	21.26
AXISBANK	94.47	6.76	10.99	21.97	4.64
ULTRACEMCO	114.54	-4.27	28.4	15.61	-90.43
BAJAJFINSV	114.84	74.33	-25.77	29.82	21.96
ADANIPORTS	186.93	5.15	-19.58	113.11	-14.04
NTPC	31.54	25.06	22.49	91.82	4.46
ONGC	55.36	57.08	-10.06	75.72	-8.71
HAL	86.57	43.38	83.63	147.97	22.75
BEL	81.23	67.19	36.07	106.58	42.75
ASIANPAINT	58.23	20.59	-11.32	2.51	-18.47
ADANIENT	669.75	82	-14.41	82.53	-28.79
JSWSTEEL	227.59	43.94	-6.01	20.67	21.93
ADANIPOWER	217.35	107.38	-5.84	178.58	-9.12
WIPRO	118.54	42.21	-39.29	31.41	8.15
DMART	37.26	37.29	-14.85	27.41	-8.93
BAJAJAUTO	78.95	-2.38	6.36	135.46	-12.88
POWERGRID	39.49	34.1	0.28	64.4	3.64
IOC	16.36	27.7	-4.31	115.53	-24.55
COALINDIA	-6.53	38.54	14.77	103.22	-9.91
INDIGO	63.36	24.56	-4.42	85.96	44.15
TATASTEEL	204.73	51.47	-20.65	49.32	-5.46
VEDL	265.04	74.42	-32.35	-3.72	61.18
SBILIFE	38.67	26.94	-1.06	36.22	3.89
LTIM	190.54	50.05	-22.72	3.82	-8.01
NESTLEIND	9.66	1.73	13.26	33.1	-12.94
HINDZINC	70.12	10.69	-8.52	-2.62	50.89
EICHERMOT	100.26	-6.43	18.79	36.33	35.52

GRASIM	202.91	14.74	-2.33	40.79	13.9
HINDALCO	256.62	62.86	-28.94	40.89	20.02
DLF	116.57	30.39	-7.54	151.49	-28.22
BRITANNIA	40.79	-11.11	33.81	13.62	0.85
TATAMOTORS	344.21	40.87	-4.6	135.97	-31.82
TECHM	83.63	54.67	-23.55	13.22	13.95
TITAN	66.45	62.65	-0.84	49.73	-18.06
DIVISLAB	93.04	21.71	-35.56	22.56	61.9

Source: Authors calculation

Table 2: Descriptive Statistics of Nifty 50 Stocks (Annual Returns in %)

Stocks	Min Return	Max Return	Mean Return	Std Dev	Skewness	Std Error (Skewness)	Kurtosis	Std Error (Kurtosis)
RELIANCE	-14.16	87.11	26.48	43.43	0.27	0.913	-2.08	2
HDFCBANK	-10.09	79.98	19.99	35.6	1.15	0.913	-0.25	2
BHARTIARTL	-1.25	61.55	34.43	24.39	-0.04	0.913	-1.83	2
ICICIBANK	19.16	87.07	34.19	28	0.85	0.913	-1.22	2
SBIN	1.74	95.33	35.37	36.44	0.79	0.913	-1.19	2
INFY	-25.56	126.98	29.93	58.39	0.71	0.913	-0.94	2
BAJFINANCE	-24.14	132.05	39.61	60.58	0.9	0.913	-0.71	2
LT	-9.06	83.22	38.27	34.43	0.27	0.913	-2.21	2
HINDUNILVR	-14.58	24.28	1.78	17.05	-0.51	0.913	-2.14	2
MARUTI	-8.33	61.48	24.19	25.98	0.06	0.913	-2.44	2
ITC	1.51	42.33	20.28	16.38	0.52	0.913	-1.63	2
TCS	-15.11	86.01	20.54	40.24	0.68	0.913	-2.17	2
M&M	-0.13	191.56	67.16	77.26	0.75	0.913	-1.43	2
HCLTECH	-7.21	134.99	37.82	54.49	1.21	0.913	-0.18	2
SUNPHARMA	6.52	74	40.79	29.09	0.45	0.913	-1.66	2
KOTAKBANK	-2.81	48.33	13.37	21.03	0.83	0.913	-1.53	2
AXISBANK	4.64	94.47	27.77	36.43	1	0.913	-0.61	2
ULTRACEMCO	-90.43	114.54	12.77	79.66	-0.99	0.913	-0.09	2
BAJAJFINSV	-25.77	114.84	43.04	57.01	0.04	0.913	-2.07	2
ADANIPORTS	-19.58	186.93	54.31	80.08	0.87	0.913	-0.73	2
NTPC	4.46	91.82	35.07	34.88	0.65	0.913	-1.84	2
ONGC	-10.06	75.72	33.88	36.7	0.3	0.913	-2.19	2
HAL	22.75	147.97	76.86	54.73	0.1	0.913	-2.43	2
BEL	36.07	106.58	66.76	28.78	-0.02	0.913	-2.19	2
ASIANPAINT	-18.47	58.23	10.31	30.87	-0.26	0.913	-2.01	2
ADANIENT	-28.79	669.75	160.02	305.46	1.17	0.913	-0.74	2
JSWSTEEL	-6.01	227.59	61.44	92.17	1.31	0.913	0.13	2
ADANIPOWER	-9.12	217.35	97.67	102.28	0.26	0.913	-2.25	2
WIPRO	-39.29	118.54	32.2	63.44	0.59	0.913	-1.54	2
DMART	-14.85	37.29	15.64	22.93	-0.52	0.913	-1.92	2
BAJAJAUTO	-12.88	135.46	41.18	61.95	0.66	0.913	-1.52	2
POWERGRID	0.28	64.4	28.38	26.43	0.45	0.913	-2.06	2
IOC	-24.55	115.53	26.15	55.86	0.97	0.913	-0.77	2
COALINDIA	-9.91	103.22	28.02	54.21	0.86	0.913	-1.14	2

INDIGO	-4.42	85.96	42.72	38.06	0.03	0.913	-2.38	2
TATASTEEL	-20.65	204.73	55.88	86.73	1.02	0.913	-0.81	2
VEDL	-32.35	265.04	72.91	115.83	0.77	0.913	-1.23	2
SBILIFE	-1.06	38.67	20.93	17.52	0	0.913	-2.5	2
LTIM	-22.72	190.54	42.74	80.38	1.11	0.913	-0.47	2
NESTLEIND	-12.94	33.1	8.96	18.74	0.16	0.913	-2.33	2
HINDZINC	-8.52	70.12	24.11	33.65	0.91	0.913	-1.39	2
EICHERMOT	-6.43	100.26	28.89	43.17	0.95	0.913	-1.51	2
GRASIM	-2.33	202.91	54	81.69	1.2	0.913	-0.25	2
HINDALCO	-28.94	256.62	70.49	114.4	0.84	0.913	-1.04	2
DLF	-28.22	151.49	52.54	77.16	0.79	0.913	-1.31	2
BRITANNIA	-11.11	40.79	15.59	21.06	-0.18	0.913	-2.32	2
TATAMOTORS	-31.82	344.21	96.93	159.9	1.06	0.913	-0.81	2
TECHM	-23.55	83.63	28.38	40.52	0.46	0.913	-2.18	2
TITAN	-18.06	66.45	32.19	36.68	-0.17	0.913	-2.26	2
DIVISLAB	-35.56	93.04	32.73	53.68	0.68	0.913	-1.53	2

Source: Authors calculation

Table 3: Sharpe Ratio Analysis of Nifty 50 Stocks

Stocks	Mean Return (%)	Std Dev (%)	Risk-Free Rate (%)	Sharpe Ratio	Rank
HAL	76.86	54.73	6.727	1.281	1
BEL	66.76	28.78	6.727	2.085	2
M&M	67.16	77.26	6.727	0.782	3
ADANIPOWER	97.67	102.28	6.727	0.889	4
ADANIENT	160.02	305.46	6.727	0.502	5
BHARTIARTL	34.43	24.39	6.727	1.137	6
SUNPHARMA	40.79	29.09	6.727	1.17	7
ADANIPORTS	54.31	80.08	6.727	0.594	8
ICICIBANK	34.19	28	6.727	0.981	9
SBIN	35.37	36.44	6.727	0.786	10
INDIGO	42.72	38.06	6.727	0.945	11
BAJFINANCE	39.61	60.58	6.727	0.543	12
LT	38.27	34.43	6.727	0.917	13
BAJAJFINSV	43.04	57.01	6.727	0.637	14
HCLTECH	37.82	54.49	6.727	0.571	15
JSWSTEEL	61.44	92.17	6.727	0.594	16
TATASTEEL	55.88	86.73	6.727	0.567	17
GRASIM	54	81.69	6.727	0.578	18
HINDALCO	70.49	114.4	6.727	0.557	19
VEDL	72.91	115.83	6.727	0.572	20
DLF	52.54	77.16	6.727	0.594	21
TATAMOTORS	96.93	159.9	6.727	0.564	22
BAJAJAUTO	41.18	61.95	6.727	0.556	23
NTPC	35.07	34.88	6.727	0.812	24
ONGC	33.88	36.7	6.727	0.739	25
INFY	29.93	58.39	6.727	0.397	26

WIPRO	32.2	63.44	6.727	0.402	27
RELIANCE	26.48	43.43	6.727	0.455	28
HDFCBANK	19.99	35.6	6.727	0.372	29
MARUTI	24.19	25.98	6.727	0.672	30
ITC	20.28	16.38	6.727	0.827	31
AXISBANK	27.77	36.43	6.727	0.577	32
POWERGRID	28.38	26.43	6.727	0.819	33
COALINDIA	28.02	54.21	6.727	0.393	34
IOC	26.15	55.86	6.727	0.347	35
LTIM	42.74	80.38	6.727	0.448	36
EICHERMOT	28.89	43.17	6.727	0.514	37
TECHM	28.38	40.52	6.727	0.535	38
DIVISLAB	32.73	53.68	6.727	0.485	39
HINDZINC	24.11	33.65	6.727	0.516	40
KOTAKBANK	13.37	21.03	6.727	0.316	41
SBILIFE	20.93	17.52	6.727	0.811	42
TITAN	32.19	36.68	6.727	0.694	43
TCS	20.54	40.24	6.727	0.343	44
ULTRACEMCO	12.77	79.66	6.727	0.076	45
ASIANPAINT	10.31	30.87	6.727	0.116	46
DMART	15.64	22.93	6.727	0.389	47
BRITANNIA	15.59	21.06	6.727	0.421	48
NESTLEIND	8.96	18.74	6.727	0.119	49
HINDUNILVR	1.78	17.05	6.727	-0.29	50

Source: Authors calculation

Table 4: Jensen's Alpha Analysis of Nifty 50 Stocks

Stocks	Mean Return (%)	Std Dev (%)	Risk-Free Rate (%)	Beta	Jensen's Alpha (%)	Rank
HAL	76.86	54.73	6.727	0.6	61.29	1
BEL	66.76	28.78	6.727	0.55	50.41	2
M&M	67.16	77.26	6.727	1.2	38.21	3
ADANIPOWER	97.67	102.28	6.727	1.05	71.14	4
ADANIENT	160.02	305.46	6.727	1.4	126.96	5
BHARTIARTL	34.43	24.39	6.727	0.45	19.5	6
SUNPHARMA	40.79	29.09	6.727	0.9	17.95	7
ADANIPORTS	54.31	80.08	6.727	1.3	22.73	8
ICICIBANK	34.19	28	6.727	0.85	11.62	9
SBIN	35.37	36.44	6.727	1.1	9.31	10
INDIGO	42.72	38.06	6.727	0.75	22.56	11
BAJFINANCE	39.61	60.58	6.727	1.3	7.92	12
LT	38.27	34.43	6.727	1.15	10.3	13
BAJAJFINSV	43.04	57.01	6.727	1.1	16.94	14
HCLTECH	37.82	54.49	6.727	1.1	11.69	15
JSWSTEEL	61.44	92.17	6.727	1.25	31.6	16
TATASTEEL	55.88	86.73	6.727	1.2	27.47	17

GRASIM	54	81.69	6.727	1.1	27.99	18
HINDALCO	70.49	114.4	6.727	1.25	41.48	19
VEDL	72.91	115.83	6.727	1.25	43.91	20
DLF	52.54	77.16	6.727	1.15	24.2	21
TATAMOTORS	96.93	159.9	6.727	1.35	67.44	22
BAJAJAUTO	41.18	61.95	6.727	1.05	14.66	23
NTPC	35.07	34.88	6.727	0.5	19.12	24
ONGC	33.88	36.7	6.727	0.7	13.76	25
INFY	29.93	58.39	6.727	1.25	1.82	26
WIPRO	32.2	63.44	6.727	1.1	5.78	27
RELIANCE	26.48	43.43	6.727	0.78	5.17	28
HDFCBANK	19.99	35.6	6.727	0.65	3.69	29
MARUTI	24.19	25.98	6.727	0.6	8.33	30
ITC	20.28	16.38	6.727	0.55	7.23	31
AXISBANK	27.77	36.43	6.727	0.95	4.13	32
POWERGRID	28.38	26.43	6.727	0.6	12.53	33
COALINDIA	28.02	54.21	6.727	-0.3	34.62	34
IOC	26.15	55.86	6.727	0.7	6.41	35
LTIM	42.74	80.38	6.727	1.15	15.12	36
EICHERMOT	28.89	43.17	6.727	1.05	2.36	37
TECHM	28.38	40.52	6.727	1.1	1.78	38
DIVISLAB	32.73	53.68	6.727	1.05	6.08	39
HINDZINC	24.11	33.65	6.727	0.65	7.81	40
KOTAKBANK	13.37	21.03	6.727	0.5	-0.12	41
SBILIFE	20.93	17.52	6.727	0.65	4.53	42
TITAN	32.19	36.68	6.727	0.7	12.43	43
TCS	20.54	40.24	6.727	1.05	-5.39	44
ULTRACEMCO	12.77	79.66	6.727	1.25	-12.7	45
ASIANPAINT	10.31	30.87	6.727	0.85	-6.22	46
DMART	15.64	22.93	6.727	0.65	1.16	47
BRITANNIA	15.59	21.06	6.727	0.6	1.22	48
NESTLEIND	8.96	18.74	6.727	0.5	-4.38	49
HINDUNILVR	1.78	17.05	6.727	0.35	-11.45	50

Source: Authors calculation

Table 5: Treynor Ratio Analysis of Nifty 50 Stocks

Stocks	Mean Return (%)	Std Dev (%)	Risk-Free Rate (%)	Beta	Treynor Ratio	Rank
HAL	76.86	54.73	6.727	0.6	116.888	1
BEL	66.76	28.78	6.727	0.55	109.151	2
M&M	67.16	77.26	6.727	1.2	50.361	3
ADANIPOWER	97.67	102.28	6.727	1.05	86.612	4
ADANIENT	160.02	305.46	6.727	1.4	109.495	5
BHARTIARTL	34.43	24.39	6.727	0.45	61.562	6
SUNPHARMA	40.79	29.09	6.727	0.9	37.848	7
ADANIPORTS	54.31	80.08	6.727	1.3	36.603	8

ICICIBANK	34.19	28	6.727	0.85	32.309	9
SBIN	35.37	36.44	6.727	1.1	26.039	10
INDIGO	42.72	38.06	6.727	0.75	47.991	11
BAJFINANCE	39.61	60.58	6.727	1.3	25.295	12
LT	38.27	34.43	6.727	1.15	27.429	13
BAJAJFINSV	43.04	57.01	6.727	1.1	33.011	14
HCLTECH	37.82	54.49	6.727	1.1	28.266	15
JSWSTEEL	61.44	92.17	6.727	1.25	43.77	16
TATASTEEL	55.88	86.73	6.727	1.2	40.961	17
GRASIM	54	81.69	6.727	1.1	42.975	18
HINDALCO	70.49	114.4	6.727	1.25	51.01	19
VEDL	72.91	115.83	6.727	1.25	52.946	20
DLF	52.54	77.16	6.727	1.15	39.837	21
TATAMOTORS	96.93	159.9	6.727	1.35	66.817	22
BAJAJAUTO	41.18	61.95	6.727	1.05	32.813	23
NTPC	35.07	34.88	6.727	0.5	56.686	24
ONGC	33.88	36.7	6.727	0.7	38.79	25
INFY	29.93	58.39	6.727	1.25	18.562	26
WIPRO	32.2	63.44	6.727	1.1	23.157	27
RELIANCE	26.48	43.43	6.727	0.78	25.324	28
HDFCBANK	19.99	35.6	6.727	0.65	20.404	29
MARUTI	24.19	25.98	6.727	0.6	29.105	30
ITC	20.28	16.38	6.727	0.55	24.641	31
AXISBANK	27.77	36.43	6.727	0.95	22.151	32
POWERGRID	28.38	26.43	6.727	0.6	36.088	33
COALINDIA	28.02	54.21	6.727	-0.3	-70.977	34
IOC	26.15	55.86	6.727	0.7	27.747	35
LTIM	42.74	80.38	6.727	1.15	31.316	36
EICHERMOT	28.89	43.17	6.727	1.05	21.108	37
TECHM	28.38	40.52	6.727	1.1	19.685	38
DIVISLAB	32.73	53.68	6.727	1.05	24.765	39
HINDZINC	24.11	33.65	6.727	0.65	26.743	40
KOTAKBANK	13.37	21.03	6.727	0.5	13.286	41
SBILIFE	20.93	17.52	6.727	0.65	21.851	42
TITAN	32.19	36.68	6.727	0.7	36.376	43
TCS	20.54	40.24	6.727	1.05	13.155	44
ULTRACEMCO	12.77	79.66	6.727	1.25	4.834	45
ASIANPAINT	10.31	30.87	6.727	0.85	4.216	46
DMART	15.64	22.93	6.727	0.65	13.712	47
BRITANNIA	15.59	21.06	6.727	0.6	14.772	48
NESTLEIND	8.96	18.74	6.727	0.5	4.466	49
HINDUNILVR	1.78	17.05	6.727	0.35	-14.134	50

Source: Authors calculation

Table 6: Comparative Analysis - Stocks vs. Nifty 50 Benchmark

Rank	Stocks	Mean Return (%)	Std Dev (%)	Risk-Free Rate (%)	Sharpe Ratio	Benchmark Index	Benchmark Return (%)	Compared to Benchmark
1	HAL	76.86	54.73	6.727	1.281	Nifty 50	25.35	Outperformed
2	BEL	66.76	28.78	6.727	2.085	Nifty 50	25.35	Outperformed
3	M&M	67.16	77.26	6.727	0.782	Nifty 50	25.35	Outperformed
4	ADANIPOWER	97.67	102.28	6.727	0.889	Nifty 50	25.35	Outperformed
5	ADANIENT	160.02	305.46	6.727	0.502	Nifty 50	25.35	Outperformed
6	BHARTIARTL	34.43	24.39	6.727	1.137	Nifty 50	25.35	Outperformed
7	SUNPHARMA	40.79	29.09	6.727	1.17	Nifty 50	25.35	Outperformed
8	ADANIPORTS	54.31	80.08	6.727	0.594	Nifty 50	25.35	Outperformed
9	ICICIBANK	34.19	28	6.727	0.981	Nifty 50	25.35	Outperformed
10	SBIN	35.37	36.44	6.727	0.786	Nifty 50	25.35	Outperformed
11	INDIGO	42.72	38.06	6.727	0.945	Nifty 50	25.35	Outperformed
12	BAJFINANCE	39.61	60.58	6.727	0.543	Nifty 50	25.35	Outperformed
13	LT	38.27	34.43	6.727	0.917	Nifty 50	25.35	Outperformed
14	BAJAJFINSV	43.04	57.01	6.727	0.637	Nifty 50	25.35	Outperformed
15	HCLTECH	37.82	54.49	6.727	0.571	Nifty 50	25.35	Outperformed
16	JSWSTEEL	61.44	92.17	6.727	0.594	Nifty 50	25.35	Outperformed
17	TATASTEEL	55.88	86.73	6.727	0.567	Nifty 50	25.35	Outperformed
18	GRASIM	54	81.69	6.727	0.578	Nifty 50	25.35	Outperformed
19	HINDALCO	70.49	114.4	6.727	0.557	Nifty 50	25.35	Outperformed
20	VEDL	72.91	115.83	6.727	0.572	Nifty 50	25.35	Outperformed
21	DLF	52.54	77.16	6.727	0.594	Nifty 50	25.35	Outperformed
22	TATAMOTORS	96.93	159.9	6.727	0.564	Nifty 50	25.35	Outperformed
23	BAJAJAUTO	41.18	61.95	6.727	0.556	Nifty 50	25.35	Outperformed
24	NTPC	35.07	34.88	6.727	0.812	Nifty 50	25.35	Outperformed
25	ONGC	33.88	36.7	6.727	0.739	Nifty 50	25.35	Outperformed
26	INFY	29.93	58.39	6.727	0.397	Nifty 50	25.35	Outperformed
27	WIPRO	32.2	63.44	6.727	0.402	Nifty 50	25.35	Outperformed
28	RELIANCE	26.48	43.43	6.727	0.455	Nifty 50	25.35	Outperformed
29	HDFCBANK	19.99	35.6	6.727	0.372	Nifty 50	25.35	Underperformed
30	MARUTI	24.19	25.98	6.727	0.672	Nifty 50	25.35	Underperformed
31	ITC	20.28	16.38	6.727	0.827	Nifty 50	25.35	Underperformed
32	AXISBANK	27.77	36.43	6.727	0.577	Nifty 50	25.35	Outperformed
33	POWERGRID	28.38	26.43	6.727	0.819	Nifty 50	25.35	Outperformed
34	COALINDIA	28.02	54.21	6.727	0.393	Nifty 50	25.35	Outperformed
35	IOC	26.15	55.86	6.727	0.347	Nifty 50	25.35	Outperfromed
36	LTIM	42.74	80.38	6.727	0.448	Nifty 50	25.35	Outperformed
37	EICHERMOT	28.89	43.17	6.727	0.514	Nifty 50	25.35	Outperformed

38	TECHM	28.38	40.52	6.727	0.535	Nifty 50	25.35	Outperformed
39	DIVISLAB	32.73	53.68	6.727	0.485	Nifty 50	25.35	Outperformed
40	HINDZINC	24.11	33.65	6.727	0.516	Nifty 50	25.35	Underperformed
41	KOTAKBANK	13.37	21.03	6.727	0.316	Nifty 50	25.35	Underperformed
42	SBILIFE	20.93	17.52	6.727	0.811	Nifty 50	25.35	Underperformed
43	TITAN	32.19	36.68	6.727	0.694	Nifty 50	25.35	Outperformed
44	TCS	20.54	40.24	6.727	0.343	Nifty 50	25.35	Underperformed
45	ULTRACEMCO	12.77	79.66	6.727	0.076	Nifty 50	25.35	Underperformed
46	ASIANPAINT	10.31	30.87	6.727	0.116	Nifty 50	25.35	Underperformed
47	DMART	15.64	22.93	6.727	0.389	Nifty 50	25.35	Underperformed
48	BRITANNIA	15.59	21.06	6.727	0.421	Nifty 50	25.35	Underperformed
49	NESTLEIND	8.96	18.74	6.727	0.119	Nifty 50	25.35	Underperformed
50	HINDUNILVR	1.78	17.05	6.727	-0.29	Nifty 50	25.35	Underperformed

Source: Authors calculation

Table 7: Sector-wise Ratio Comparison of Nifty 50 Stocks

Sector	No. of Funds	Avg. Sharpe Ratio	Avg. Jensen's Alpha (%)	Avg. Treynor Ratio	Comparison with NIFTYFIN (0.46)
BFSI	8	0.511	8.99	26.58	Higher Sharpe
IT & Tech	6	0.443	3.62	22.01	Slightly Lower Sharpe
Auto & Auto Ancillaries	5	0.615	28.19	47.67	Higher Sharpe
Oil, Gas & Energy	3	0.514	15.4	29.99	Higher Sharpe
Pharma & Healthcare	2	0.828	42.48	62.21	Higher Sharpe
FMCG & Consumer	6	0.159	-4.62	8.53	Lower Sharpe
Industrials & Infrastructure	7	0.965	28.34	57	Higher Sharpe
Metals & Mining	5	0.537	35.37	45.29	Higher Sharpe
Cement & Construction	3	0.349	4.39	27.09	Lower Sharpe
Telecom	1	1.137	19.5	61.56	Higher Sharpe
Conglomerates (Adani)	3	0.662	73.61	77.9	Higher Sharpe
Retail & Aviation	2	0.667	11.86	30.85	Higher Sharpe

Source: Authors calculation

VII. INTERPRETATION

Table 1 shows how Nifty 50 stocks performed each year over the 2020–2025 period, highlighting both strong rallies and sharp corrections. Some stocks delivered exceptional gains during recovery phases, while others saw steep declines in volatile years. Sector behavior varied, with cyclicals showing big swings and defensives offering stability but lower returns. Overall, the table reflects a mix of high-growth opportunities, periods of correction, and stock-specific movements that set the stage for deeper risk-adjusted analysis.

Table 2 gives a quick statistical view of how Nifty 50 stocks behaved over five years, showing their average returns, highest and lowest yearly performance, and overall volatility. The data highlights which stocks were stable and which showed big ups and downs, along with how their returns were distributed through skewness and kurtosis. Overall, the table helps compare risk levels across stocks and shows which sectors are more volatile, which are more stable, and how these patterns can guide investment decisions.

Table 3 highlights how efficiently each Nifty 50 stock delivered returns for the level of risk taken, using the Sharpe Ratio as the key measure. A few stocks—mainly from defense, pharma, and telecom—show strong risk-adjusted performance with Sharpe values above 1, while several FMCG and cement stocks show very weak efficiency. Many mid-range stocks offer stable but moderate returns, whereas a few even have negative Sharpe ratios, indicating poor compensation for risk. Overall, the table helps identify which stocks provided steady, well-balanced performance and which failed to reward investors despite their volatility.

Table 4 highlights how much each Nifty 50 stock outperformed or underperformed the market after adjusting for risk using Jensen's Alpha. A few stocks—mainly from defense, metals, auto, and the Adani group—delivered very strong positive alpha, showing they earned far more than what their market risk would predict. Many blue-chip names showed moderate but steady outperformance, while several defensive stocks like HUL, Nestle, and Asian Paints posted negative alpha, meaning they lagged behind the market during a high-growth phase. Overall, the table helps identify which stocks genuinely beat the market and which ones stayed below expectations.

Table 5 explains how each Nifty 50 stock performed when judged only on market-related risk using the Treynor Ratio. Stocks like HAL, BEL, Adani Enterprises, and Bharti Airtel delivered very high excess returns compared to their Beta, showing they rewarded investors well for the market risk taken. Many mid-range stocks showed stable but moderate performance, while FMCG, cement, and a few large-cap names recorded low Treynor values, indicating weak compensation for systematic risk. A few stocks even showed negative ratios, reflecting returns below the risk-free rate or distorted results due to negative Beta. Overall, the table highlights which companies truly generate strong returns for the level of market risk they carry.

Table 6 compares the performance of each Nifty 50 stock with the index to show which companies beat the benchmark and which fell short. Most stocks outperformed the Nifty 50, led by names like Adani Enterprises, Adani Power, Tata Motors, and HAL, while FMCG, cement, and some banking stocks lagged behind. When combined with Sharpe Ratios, the table also highlights that not all outperformers are low-risk—some delivered high returns with high volatility. Overall, this comparison helps investors easily identify strong performers, weak sectors, and the risk-adjusted quality of returns relative to the market.

Table 7 gives a quick sector-wise view of how Nifty 50 industries performed on a risk-adjusted basis using Sharpe, Jensen's Alpha, and Treynor ratios. Sectors like Industrials, Telecom, Pharma, and parts of the Adani group showed strong, efficient returns, beating the NIFTYFIN benchmark. BFSI, Oil & Gas, and Metals performed moderately, while FMCG, Cement, and IT lagged with weak risk-adjusted outcomes. Overall, the table helps identify which sectors offered the best balance of return and risk, and which ones investors should avoid or treat cautiously during the period.

VIII.   CONCLUSION

This study provides a clear view of how Nifty 50 stocks performed between April 2020 and March 2025 by looking at returns, risk-adjusted metrics, and sector trends. The results show that sectors like Industrials, Pharma, and Telecom consistently delivered strong and efficient performance, while FMCG, Cement, and IT lagged behind the index. Some stocks, especially from the Adani Group, Metals, and Auto sectors, gave very high returns but also carried high volatility. Overall, the findings highlight that looking beyond raw returns and considering tools like the Sharpe Ratio, Treynor Ratio, and Jensen's Alpha helps investors build smarter, more balanced portfolios. The study also reinforces the importance of sector rotation, risk management, and thoughtful stock selection in navigating India's evolving market environment.

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