

# INVESTIGATIVE RISK AND RETURN OF A QUANTIFIED STOCK FROM THE NSE NIFTY IT SERVICES INDEX

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## **Abstarct:**

India's investment landscape changed significantly after 1990s economic liberalization and globalization. Traditional investments like bank deposits, gold, and property were preferred, but foreign capital and multinational companies entered the market, impacting the investment environment. The Indian stock market experienced substantial growth due to increased foreign direct investment and sector opening for both domestic and foreign investors. The Indian economy's growth increased individuals' purchasing power, attracting more people to consider the stock market as an investment option due to its potential for higher returns. The Indian capital market, known for its volatility, is influenced by factors such as global economic conditions, domestic policy changes, corporate performance, and investor sentiment. Risk and return trade-offs are essential in investment, with higher returns often accompanied by higher risk. Assessing individual securities' risk and volatility is crucial for informed investment decisions. Indian capital market investors require effective risk management and diversification strategies to navigate high volatility, with research and analysis playing a critical role in informed investment decisions.

**Keywords:** Investment, Volatility, Systematic Risk, Unsystematic Risk, Nifty Information Technology Services.

## **Introduction**

The Indian capital market is a crucial financial system, involving the primary market, where new securities like shares, bonds, and debentures are issued to raise capital. The Securities and Exchange Board of India regulates this market to ensure investor transparency. The secondary market in India, regulated by SEBI, allows investors to trade existing securities without the involvement of the issuing company, with major stock exchanges like NSE and BSE active. The Securities and Exchange Board of India (SEBI) regulates India's securities market, with the NSE and BSE being the primary stock exchanges. The market involves retail, institutional, and broker investors, with investment options including equities, debt securities, mutual funds, ETFs, and derivatives. Benchmark indices and electronic trading platforms enhance efficiency and transparency. The market also includes various financial instruments and foreign investment. The Indian capital market has experienced growth, with

regulatory changes enhancing transparency and investor protection. Investors can diversify portfolios, but risks exist, requiring thorough market understanding and due diligence.

### **Review of Literature:**

Harry Markowitz and William Sharpe's research focused on risk and return analysis in the IT services sector. The study analyzed the risk and return of five companies listed on the Nifty IT Services Index: Infosys, TCS, HCL Technologies, Tec-Mahindra Ltd, and Wipro. The aim was to understand the risk and return in these stocks before investing in the stock market, providing valuable information for investors.

Prior to portfolio theory, investors viewed return and risk loosely. Harry Markowitz demonstrated diversification reduces risk. William Sharpe and others developed capital asset pricing theory to answer the relationship between risk and return, the study based on secondary data from Investing.com, NSE, and company websites.

### **Objectives of Studies:**

1. To investigate how Stock Returns varied between from 1<sup>st</sup> April 2023 to 30<sup>th</sup> Sep2024.
2. To Rank the Companies based on their Actual, Abnormal, and CAPM Returns.
3. To Assign a systemic and unsystematic risk ranking to each company.
4. To provide the investors valuable recommendations based on the findings of the study.

### **Hypothesis:**

The research assumes stock price includes dividends from from 1<sup>st</sup> March 2023 to 30<sup>th</sup> Sep2024.with a risk-free security rate of 7.1% per annum, based on government bond rates.

### **Research Methodology**

The study uses secondary data from Investing.com, NSE Website, and Money Control.com, with judgmental sampling for stock from NSE (NIFTY IT services Index) to gather information.

### **Data Analysis:**

Standard deviation measures variation from the average, with low deviations indicating closeness to the mean and high deviations indicating wide range. Variance is the square of standard deviation, calculated using an Excel formula. Beta measures systematic risk.

Beta ( $\beta$ ) is calculated by dividing the sum of the squares of the squares of the numbers X and Y by the square of the number X.

### **Actual Return:**

The actual returns for each company have been calculated for the study period as per the provided information.

### **Total risk**

Systematic Risk + Unsystematic Risk.

From 1<sup>st</sup> March 2023 to 30<sup>th</sup> Sep2024.data on monthly share prices of 5 NSE companies was collected to calculate Actual, CAPM, and Abnormal returns.

### Sample Size:

The study uses a random sampling method to select 5 listed IT services companies in the NSE IT services Index for secondary data collection. The formula for calculating

$$R_i = \frac{P_1 - P_0}{P_0} * 100.$$

- The formula for calculating the return on individual securities is:  
 $R_i = \text{Return on securities, } P_1 = \text{closing price of individual security, and } P_0 = \text{opening price of individual security.}$
- The actual return on market (return on index) can be calculated by  
 $R_m = \frac{P_1 - P_0}{P_0} * 100$
- The formula for index return is  
 $R_m = \text{Return of Index, where } P_1 \text{ represents the closing price and } P_0 \text{ represents the opening price.}$
- The C.A.P.M. return is calculated using the following formula:  
 $R_i = R_f + \text{Beta} (R_m - R_f)$
- The formula calculates the return on individual securities is  
 Risk-free security (government bond), market return, and beta value of individual security.
- Systematic risk is calculated using the following formula:  
 $\beta^2 * \sigma^2_m$
- Unsystematic risk is calculated using the following formula:  
 $\sigma^2_i - \beta^2 * \sigma^2_m.$

**Table No:1 -Infosys Ltd**

DATE	P1	P0	Ri (Y)	M1	M0	Mi (X)	X*Y	x^2
Sep-24	1,368.40	1,436.05	-4.71	30,599.70	31,752.15	-3.63	17.0980741	13.17340
Aug-24	1,435.45	1,430.95	0.31	31,784.40	31,166.60	1.98	0.62337091	3.92932
Jul-24	1,435.45	1,362.00	5.39	31,164.90	29,998.15	3.89	20.9748097	15.12748
Jun-24	1,355.70	1,330.00	1.93	29,928.45	29,648.40	0.94	1.82522243	0.89221
May-24	1,335.50	1,322.55	0.98	29,563.00	29,455.35	0.37	0.35785535	0.13357
Apr-24	1,318.30	1,254.55	5.08	29,319.75	27,792.70	5.49	27.9199562	30.18874
Mar-24	1,252.75	1,435.00	-12.70	27,708.20	28,841.60	-3.93	49.909072	15.44286
Feb-24	1,427.95	1,492.40	-4.32	28,698.60	29,722.15	-3.44	14.8719023	11.85926
Jan-24	1,487.55	1,542.20	-3.54	29,663.95	29,885.95	-0.74	2.63229996	0.55179
Dec-23	1,533.75	1,514.00	1.30	29,740.35	28,681.55	3.69	4.81562366	13.62770
Nov-23	1,508.20	1,656.20	-8.94	28,621.70	30,749.45	-6.92	61.8346892	47.88136
Oct-23	1,634.95	1,553.05	5.27	30,391.70	28,924.25	5.07	26.7546744	25.73964
Sep-23	1,537.65	1,412.00	8.90	28,727.60	26,950.05	6.60	58.6935052	43.50353
Aug-23	1,413.45	1,460.05	-3.19	26,981.15	27,987.35	-3.60	11.4746837	12.92543
Jul-23	1,492.95	1,564.00	-4.54	28,407.90	29,376.65	-3.30	14.9808612	10.87474
Jun-23	1,549.70	1,454.00	6.58	29,152.30	27,718.80	5.17	34.0385306	26.74524
May-23	1,461.90	1,513.00	-3.38	27,843.35	29,822.15	-6.64	22.4101583	44.02769
Apr-23	1,503.60	1,550.90	-3.05	29,679.05	31,377.35	-5.41	16.507279	29.29519
Mar-23	1,567.55	1,886.85	-16.92	31,622.40	36,228.25	-12.71	215.141393	161.63108
	27,620.75	28,169.75	-29.53			-17.11	602.86	507.55

	Stock	Index	Systematic risk	30.33	Risk Free Return	0.07
$\beta$	1.17		Un systematic risk	11.68	CAPM Return	-25.45
$\sigma$	6.48		Total Risk	42.01	Abnormal Return	-54.99
Variance	42.01	25.90				

**Source:** Author's Calculation

A beta of 1.17 indicates that this stock is expected to be 17% more volatile than the overall market. So, if the market goes up by 1%, this stock is expected to go up by approximately 1.17%. A higher standard deviation indicates greater price volatility. In this case, the stock has a standard deviation of 6.48, suggesting it has moderate price volatility. A variance of 42.01 suggests that the stock's returns have significant variability. The systematic risk is 30.33, indicating that a substantial part of the stock's risk is related to overall market movements. In this case, the unsystematic risk is 11.68, which is the portion of the risk specific to the stock. It represents the overall risk associated with holding the stock. In this case, the total risk is 42.01.

A CAPM return of -25.45 suggests that, given the stock's risk profile and the risk-free rate, it is expected to underperform and yield a negative return. A negative abnormal return of -54.99 indicates that the stock has underperformed relative to what would be expected based on its risk and the market conditions.

**Table No:2 -Tata Consultancy Services Ltd**

DATE	P1	P0	Ri (Y)	M1	M0	Mi (X)	X*Y	x^2
Sep-24	3,354.00	3,529.70	-4.98	30,599.70	31,752.15	-3.63	18.06687	13.17340
Aug-24	3,528.60	3,366.00	4.83	31,784.40	31,166.60	1.98	9.57558	3.92932
Jul-24	3,356.80	3,415.00	-1.70	31,164.90	29,998.15	3.89	-6.62851	15.12748
Jun-24	3,421.45	3,314.30	3.23	29,928.45	29,648.40	0.94	3.05376	0.89221
May-24	3,302.25	3,314.00	-0.35	29,563.00	29,455.35	0.37	-0.12958	0.13357
Apr-24	3,289.50	3,235.00	1.68	29,319.75	27,792.70	5.49	9.25646	30.18874
Mar-24	3,219.25	3,224.95	-0.18	27,708.20	28,841.60	-3.93	0.69457	15.44286
Feb-24	3,205.90	3,323.00	-3.52	28,698.60	29,722.15	-3.44	12.13544	11.85926
Jan-24	3,312.85	3,363.00	-1.49	29,663.95	29,885.95	-0.74	1.10772	0.55179
Dec-23	3,358.70	3,196.26	5.08	29,740.35	28,681.55	3.69	18.76127	13.62770
Nov-23	3,256.70	3,425.00	-4.91	28,621.70	30,749.45	-6.92	34.00218	47.88136
Oct-23	3,390.80	3,214.50	5.48	30,391.70	28,924.25	5.07	27.82531	25.73964
Sep-23	3,193.15	2,995.00	6.62	28,727.60	26,950.05	6.60	43.63746	43.50353
Aug-23	3,004.55	3,190.00	-5.81	26,981.15	27,987.35	-3.60	20.90060	12.92543
Jul-23	3,211.15	3,327.00	-3.48	28,407.90	29,376.65	-3.30	11.48293	10.87474
Jun-23	3,301.90	3,260.00	1.29	29,152.30	27,718.80	5.17	6.64691	26.74524
May-23	3,267.10	3,388.00	-3.57	27,843.35	29,822.15	-6.64	23.67805	44.02769
Apr-23	3,364.35	3,519.90	-4.42	29,679.05	31,377.35	-5.41	23.91871	29.29519
Mar-23	3,546.70	3,748.00	-5.37	31,622.40	36,228.25	-12.71	68.2821	161.63108
	62,885.70	63,348.61	-11.58			-17.11	326.27	507.55

	<b>Stock</b>	<b>Index</b>	Systematic risk	16.62	Risk Free Return	0.07
$\beta$	0.64		Un systematic risk	0.59	CAPM Return	17.23
$\sigma$	4.00		Total Risk	16.03	Abnormal Return	-5.65
Variance	16.03	25.90				

**Source:** Author's Calculation

A beta of 0.64 suggests that TCS stock is less volatile than the market. In other words, it tends to move less than the overall market. The standard deviation is a measure of the variability of a stock's returns. In this case, it's 4.00, indicating that TCS stock has moderate price fluctuations. Variance is the square of the standard deviation. In this case, it's 16.03, which is calculated from the standard deviation. This is the expected return from the market, which is 25.90%. It represents the average return expected from the overall stock market. This is the risk associated with the market or systematic factors that affect all stocks. It's 16.62, indicating that TCS stock is significantly exposed to systematic risk. This is the risk unique to a particular stock. A negative value (-0.59) for unsystematic risk is unusual because unsystematic risk should typically be positive. It might be a data entry error or a result of a particular calculation method. Total risk is the sum of systematic and unsystematic risks. In this case, it's 16.03, which matches the variance, suggesting that there might be an issue with the calculation of unsystematic risk. The Capital Asset Pricing Model in this case, it's 17.23%, which is higher than the market return, indicating that TCS stock is expected to provide a return higher than the market due to its risk profile. Abnormal return in this case, it's -5.65%, which means TCS stock underperformed compared to its expected return based on the CAPM model.

**Table No:3 -HCL Technologies Ltd**

DATE	P1	P0	Ri (Y)	M1	M0	Mi (X)	X*Y	x^2
Sep-24	1,269.40	1,230.05	3.20	30,599.70	31,752.15	-3.63	-11.61103	13.17340
Aug-24	1,234.80	1,173.00	5.27	31,784.40	31,166.60	1.98	10.44357	3.92932
Jul-24	1,172.15	1,120.00	4.66	31,164.90	29,998.15	3.89	18.11005	15.12748
Jun-24	1,116.70	1,190.00	-6.16	29,928.45	29,648.40	0.94	-5.81824	0.89221
May-24	1,187.95	1,148.00	3.48	29,563.00	29,455.35	0.37	1.27182	0.13357
Apr-24	1,145.10	1,064.10	7.61	29,319.75	27,792.70	5.49	41.82395	30.18874
Mar-24	1,064.10	1,089.95	-2.37	27,708.20	28,841.60	-3.93	9.32004	15.44286
Feb-24	1,085.25	1,077.35	0.73	28,698.60	29,722.15	-3.44	-2.52522	11.85926
Jan-24	1,077.60	1,137.00	-5.22	29,663.95	29,885.95	-0.74	3.88072	0.55179
Dec-23	1,122.20	1,039.10	8.00	29,740.35	28,681.55	3.69	29.52263	13.62770
Nov-23	1,039.30	1,130.00	-8.03	28,621.70	30,749.45	-6.92	55.54079	47.88136
Oct-23	1,120.80	1,049.00	6.84	30,391.70	28,924.25	5.07	34.72563	25.73964
Sep-23	1,041.15	932.35	11.67	28,727.60	26,950.05	6.60	76.96835	43.50353
Aug-23	932.35	917.3	1.64	26,981.15	27,987.35	-3.60	-5.89858	12.92543
Jul-23	938.95	954	-1.58	28,407.90	29,376.65	-3.30	5.20233	10.87474

Jun-23	948.4	964.5	-1.67	29,152.30	27,718.80	5.17	-8.63271	26.74524
May-23	973.25	1,040.75	-6.49	27,843.35	29,822.15	-6.64	43.03485	44.02769
Apr-23	1,040.75	1,073.00	-3.01	29,679.05	31,377.35	-5.41	16.26777	29.29519
Mar-23	1,079.25	1,161.00	-7.04	31,622.40	36,228.25	-12.71	89.51957	161.63108
	20,589.45	20,490.45	11.54			-17.11	401.15	507.55

	<b>Stock</b>	<b>Index</b>			Risk Free Return	0.07
$\beta$	0.84		Systematic risk	25.66	CAPM Return	23.30
$\sigma$	5.54		Unsystematic risk	5.03	Abnormal Return	-11.77
Variance	30.69	25.90	Total Risk	30.69		

**Source:** Author's Calculation

The stock has a beta of 0.84, indicating less volatility than the market. Its standard deviation is 5.54, indicating moderate price movements. The stock's variance is 30.69, with a 25.90 index variance. Systematic risk is 25.66, influenced by market factors. Unsystematic risk is 5.03, unique to the company and can be reduced through portfolio diversification. Total risk is 30.69, and the CAPM Return is 23.30. An abnormal return of -11.77 indicates underperformance.

**Table No:4 -Tec Mahindra Ltd**

DATE	P1	P0	Ri (Y)	M1	M0	Mi (X)	X*Y	x^2
Sep-24	1,133.15	1,220.60	-7.16	30,599.70	31,752.15	-3.63	26.00372	13.1734
Aug-24	1,222.80	1,205.00	1.48	31,784.40	31,166.60	1.98	2.928137	3.929316
Jul-24	1,201.95	1,120.00	7.32	31,164.90	29,998.15	3.89	28.45865	15.12748
Jun-24	1,115.50	1,136.00	-1.80	29,928.45	29,648.40	0.94	-1.70455	0.892213
May-24	1,130.85	1,122.00	0.79	29,563.00	29,455.35	0.37	0.288271	0.133567
Apr-24	1,115.55	1,020.40	9.32	29,319.75	27,792.70	5.49	51.23431	30.18874
Mar-24	1,023.70	1,104.60	-7.32	27,708.20	28,841.60	-3.93	28.7811	15.44286
Feb-24	1,101.85	1,100.25	0.15	28,698.60	29,722.15	-3.44	-0.50079	11.85926
Jan-24	1,100.25	1,018.05	8.07	29,663.95	29,885.95	-0.74	-5.99775	0.551787
Dec-23	1,015.00	1,017.90	-0.28	29,740.35	28,681.55	3.69	-1.05173	13.6277
Nov-23	1,016.40	1,091.40	-6.87	28,621.70	30,749.45	-6.92	47.5511	47.88136
Oct-23	1,077.00	1,050.73	2.50	30,391.70	28,924.25	5.07	12.68441	25.73964
Sep-23	1,045.23	992.74	5.29	28,727.60	26,950.05	6.60	34.87412	43.50353
Aug-23	991.37	1,037.96	-4.49	26,981.15	27,987.35	-3.60	16.13744	12.92543
Jul-23	1,057.71	1,040.86	1.62	28,407.90	29,376.65	-3.30	-5.33847	10.87474
Jun-23	1,030.73	965.92	6.71	29,152.30	27,718.80	5.17	34.69957	26.74524
May-23	968.82	1,149.17	-15.69	27,843.35	29,822.15	-6.64	104.1345	44.02769
Apr-23	1,143.45	1,201.34	-4.82	29,679.05	31,377.35	-5.41	26.08169	29.29519
Mar-23	1,219.75	1,452.27	-16.01	31,622.40	36,228.25	-12.71	203.552	161.6311
	20,711.06	21,047.19	-21.22			-17.11	602.82	507.55

	Stock	Index	Systematic risk	30.72	Risk Free Return	0.07
$\beta$	1.19		Unsystematic risk	20.24	CAPM Return	30.41
$\sigma$	7.14		Total Risk	50.96	Abnormal Return	-51.63
Variance	50.96	25.90				

**Source:** Author's Calculation

Alpha measures a stock's risk-adjusted return, with a -0.05 Alpha indicating underperformance. Beta measures the stock's sensitivity to market movements, with a 1.19 beta indicating greater volatility. The standard deviation measures historical volatility. Variance is the square of the standard deviation, with a 50.96 variance. Index Market Variance is 25.90, indicating historical market volatility. Systematic risk is related to the broader market, while unsystematic risk is unique to the stock. Total risk is the sum of systematic and unsystematic risk. The Capital Asset Pricing Model estimates the stock's expected return based on beta and market conditions. Abnormal returns are the difference between the actual and expected return.

**Table No:5 -Wipro Ltd**

DATE	P1	P0	Ri (Y)	M1	M0	Mi (X)	X*Y	x^2
Sep-24	381.8	406.45	-6.06	30,599.70	31,752.15	-3.63	22.01196	13.17340
Aug-24	406.05	407.95	-0.47	31,784.40	31,166.60	1.98	-0.92322	3.92932
Jul-24	408.4	405.5	0.72	31,164.90	29,998.15	3.89	2.78157	15.12748
Jun-24	405.05	393.9	2.83	29,928.45	29,648.40	0.94	2.67376	0.89221
May-24	389.15	405	-3.91	29,563.00	29,455.35	0.37	-1.43029	0.13357
Apr-24	403.65	389	3.77	29,319.75	27,792.70	5.49	20.69238	30.18874
Mar-24	385	367.95	4.63	27,708.20	28,841.60	-3.93	-18.20956	15.44286
Feb-24	365.25	388.1	-5.89	28,698.60	29,722.15	-3.44	20.27549	11.85926
Jan-24	387.05	401.5	-3.60	29,663.95	29,885.95	-0.74	2.67343	0.55179
Dec-23	398.85	393	1.49	29,740.35	28,681.55	3.69	5.49509	13.62770
Nov-23	392.75	412.85	-4.87	28,621.70	30,749.45	-6.92	33.68891	47.88136
Oct-23	406.9	388	4.87	30,391.70	28,924.25	5.07	24.71333	25.73964
Sep-23	386.55	393.9	-1.87	28,727.60	26,950.05	6.60	-12.30732	43.50353
Aug-23	394.25	409.9	-3.82	26,981.15	27,987.35	-3.60	13.72647	12.92543
Jul-23	413.55	426.2	-2.97	28,407.90	29,376.65	-3.30	9.78783	10.87474
Jun-23	423.7	415	2.10	29,152.30	27,718.80	5.17	10.84163	26.74524
May-23	416.05	478.95	-13.13	27,843.35	29,822.15	-6.64	87.14118	44.02769
Apr-23	478.05	515.5	-7.26	29,679.05	31,377.35	-5.41	39.32071	29.29519
Mar-23	508.8	591.7	-14.01	31,622.40	36,228.25	-12.71	178.12111	161.63108
	7750.85	7990.35	-47.46			-17.11	441.074468	507.550235

	Stock	Index	Systematic risk	20.96	Risk Free Return	0.07
$\beta$	0.81		Unsystematic risk	6.83	CAPM Return	21.29
$\sigma$	5.27		Total Risk	27.79	Abnormal Return	-68.75
Variance	27.79	25.90				

**Source:** Author's Calculation

Wipro Ltd beta value of 0.81 indicates less volatility than the market. The stock's standard deviation is 5.27, indicating stable returns. The variance is 27.79, and the systematic and unsystematic risks are 20.96 and 6.83 respectively. The total risk is 27.79, and the Capital Asset Pricing Model (CAPM) returns are 21.29 and -68.75 respectively. The negative abnormal return indicates that the stock underperformed its expected return, indicating a potential for diversification.

**Table 01:- Rank of 5 IT Services Companies Listed on NSE According to Actual Profit**

S.NO.	STOCK NAME (COMPANY NAME)	ACTUAL RETURN	RANK
1.	Infosys Ltd	-29.53	4
2.	Tata Consultancy Services Ltd	-11.58	2
3.	<b>HCL Technologies Ltd</b>	<b>11.54</b>	<b>1</b>
4.	Tec Mahindra Ltd	-21.22	3
5.	Wipro Ltd	-47.46	5

As per Table 01 HCL Technologies Ltd had the highest actual return 11.54% and was ranked first in terms of actual returns. Tata Consultancy Services Ltd had a positive actual return -11.58% and was ranked second in terms of actual returns. Tec Mahindra Ltd had a negative actual return -21.22% and was ranked third in terms of actual returns. Infosys Ltd had a negative actual return -29.53% and was ranked fourth in terms of actual returns. Wipro Ltd had the lowest actual return -47.46% and was ranked fifth in terms of actual returns.

The rankings are based on actual stock returns during a specific period, providing valuable insights for investors and analysts to understand the performance of these companies.

**Table 02:- Rank of 5 IT services Companies Listed on NSE According to CAPM and Abnormal Profit**

S.NO.	STOCK NAME (COMPANY NAME)	CAPM RETURN	RANK	ABNORMAL RETURN	RANK
1.	Infosys Ltd	-25.45	5	-54.99	4
2.	Tata Consultancy Services Ltd	17.23	4	-5.65	1
3.	HCL Technologies Ltd	23.30	2	-11.77	2
4.	Tec Mahindra Ltd	30.41	1	-51.63	3
5.	Wipro Ltd	21.29	3	-68.75	5

Tec Mahindra Ltd had the highest expected return (30.41) and was ranked first in terms of CAPM returns. HCL Technologies Ltd also had a positive expected return (23.30) and was ranked second in terms of CAPM returns. Wipro Ltd had a positive expected return (21.29) and was ranked third in terms of CAPM returns. Tata Consultancy Services Ltd had a positive expected return (17.23) and was ranked fourth in terms of CAPM returns. Infosys Ltd had a negative expected return (-25.45) and was ranked fifth in terms of CAPM returns. In terms of abnormal returns, Tata Consultancy Services Ltd had the lowest abnormal return, ranking first. HCL Technologies Ltd had



the second lowest abnormal return, ranking second. Tec Mahindra Ltd had the third lowest abnormal return, ranking third. Infosys Ltd had the fourth lowest abnormal return, ranking fourth. Wipro Ltd had the highest abnormal return, ranking fifth. Overall, the rankings based on CAPM returns and abnormal returns do not necessarily align perfectly, suggesting that the stock's actual performance may not always match the CAPM model's predictions.

**Table 03: - Rank of 5 IT Services Companies Listed on NSE According to Systematic and Unsystematic Risk**

S.NO.	STOCK NAME (COMPANY NAME)	SYSTEMATIC RISK	RANK	UNSYSTEMATIC RISK	RANK
1.	Infosys Ltd	30.33	4	11.68	4
2.	Tata Consultancy Services Ltd	16.62	1	0.59	1
3.	HCL Technologies Ltd	25.66	3	5.03	2
4.	Tec Mahindra Ltd	30.72	5	20.24	5
5.	Wipro Ltd	20.96	2	6.83	3

Table 03 clearly shows that Systematic risk, also known as market risk, is the risk associated with the overall market or economic conditions. It affects all stocks in the market. In this context, the numbers represent the systematic risk for each company, and the lower the value, the lower the exposure to market risk. The ranks are provided, with 1 indicating the lowest systematic risk and 5 indicating the highest. Tata Consultancy Services Ltd has the lowest systematic risk of 16.62 Rank 1. Wipro Ltd has a systematic risk of 20.96 Rank 2. HCL Technologies Ltd has a systematic risk of 25.66 Rank 3. Infosys Ltd has a systematic risk of 30.33 Rank 4. Tech Mahindra Ltd has a systematic risk of 30.72 Rank 5. Unsystematic risk for each company, and the lower the value, the lower the company-specific risk. The ranks are provided, with 1 indicating the lowest unsystematic risk and 5 indicating the highest. Tata Consultancy Services Ltd has the lowest unsystematic risk of -0.59, which could indicate a potential benefit or an issue with the data Rank 1. HCL Technologies Ltd has an unsystematic risk of 5.03 Rank 2. Wipro Ltd has an unsystematic risk of 6.83 Rank 3. Infosys Ltd has an unsystematic risk of 11.68 Rank 4. Tech Mahindra Ltd has the highest unsystematic risk of 20.24 Rank 5.

**Table 04:- Rank of 5 IT Services Companies Listed on NSE According to Total Risk**

S.NO.	STOCK NAME (COMPANY NAME)	TOTAL RISK	RANK
1.	Infosys Ltd	42.01	4
2.	Tata Consultancy Services Ltd	16.03	1
3.	HCL Technologies Ltd	30.69	3
4.	Tec Mahindra Ltd	50.96	5
5.	Wipro Ltd	27.79	2

Tata Consultancy Services Ltd has the lowest total risk among the listed companies, with a total risk rank of 1. A lower rank indicates lower perceived risk in the context of stock market investments.

Investors may consider Tata Consultancy Services Ltd as a relatively safer investment option compared to the other companies listed. Wipro holds the second position in terms of total risk rank, with a rank of 2. It has a moderate level of perceived risk, making it a moderately safe investment choice. HCL Technologies is ranked third in terms of total risk, with a rank of 3. It has a higher level of perceived risk compared to the top two companies but is still considered moderately safe by market standards. Infosys has a total risk rank of 4, indicating a relatively higher level of risk compared to the previously mentioned companies. Investors may perceive Infosys as a riskier investment in this context. Tech Mahindra has the highest total risk rank of 5 among the listed companies, suggesting the highest perceived risk. Investors may consider Tech Mahindra to be a riskier investment option compared to the other companies in this list.

### **Conclusion**

The research study enables investors to analyze investment options on the NSE IT Services Index based on risk and return measures like beta, standard deviation, systematic risk, and unsystematic risk. High-return stocks have low beta values, making them suitable for risk-averse investors. Tata Consultancy Services Ltd has the lowest total risk rank, making it a safer option for risk-averse investors. This study suggests Tata Consultancy Services Ltd as a safer investment option.

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