IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

RISK AND RETURN ANALYSIS ON EQUITY STOCKS OF SELECTED "IT" COMPANIES

Eshwari and Ramlingayya

Final Year Student, department of management studies, Visvesvaraya Technological University Kalaburagi, Karnataka

Abstract:

This study delves into the risk and return profiles of prominent companies within the IT sector over the period 2019-2023. Amidst the dynamic landscape of the IT industry characterized by rapid technological advancements and intense competition, understanding the performance dynamics of companies is crucial for investors. Through a comparative analysis of companies including Redington, LTI Mindtree, Persistent, Oracle Finance Service, Coforge Ltd, HCL Tech, Sun Pharma, Larsen & Turbo, Infosys, and Wipro, this research aims to assess the variability of returns, identify contributing factors to stock price fluctuations, and evaluate the risk-return relationship in IT sector investments. Findings reveal diverse performance trends across the companies, with some demonstrating consistent growth while others exhibiting fluctuations. Insights drawn from these study aid stakeholders in comprehending the relative performance and volatility within the IT sector, facilitating informed investment decisions.

Key words: Risk, Returns, Standard Deviations

1. Introduction:

This study aims to analyze the risk and return profiles of various companies in the IT sector over the years 2019 to 2023. By examining the financial performance of these companies, we can gain insights into the volatility of their stock prices and the returns they generate for investors. The IT sector is renowned for its dynamism and rapid evolution, characterized by continuous innovation and technological advancements. Within this sector, companies often operate in highly competitive environments, facing diverse challenges ranging from technological disruption to geopolitical uncertainties. In such an environment, understanding the risk and return profiles of IT companies is crucial for investors to make informed decisions. The comparative study aims to analyze the risk and return dynamics of prominent IT companies across multiple years, spanning from 2019 to 2023. By examining the historical performance of companies like Redington, LTI Mindtree, Persistent, Oracle Finance Service, Coforge Ltd, HCL Tech, Sun Pharma, Larsen & Turbo, Infosys, and Wipro, insights into the sector's volatility and profitability can be gleaned.

2. Review of Literature

(Horne & James. 2001) argued that although beta may not be a good indicator of the realized returns, it remains a reasonable measure of risk (Horne & James, 2001). Study of the Meric et al (2010) in the stock market of US shows a positive risk-return relationship between Industries listed in US stock market. There are many controversial results have been revealed in empirical literature; therefore, this study reviews Capital Asset Pricing Model (CAPM) to explore the relationship between expected return and systematic risk. The COMPUSTAT database, a major corporate financial data base widely used in both academia and businesses, provides market beta estimates for individual firms. Investment services firms also provide beta estimates as "risk attributes" or "volatility measures" of their bond and stock funds. No other theoretically well-founded model alternative to the CAPM has been implemented for the estimation of the cost of equity capital (Kaplan & Peterson, 1998). (Awalakki M. & Archanna,(2021) The study examines the relationship between economic and financial indicators and stock returns for 28 selected firms listed on the National Stock Exchange over an eight-year period (2010-2017). Utilizing panel data regression, the results indicate that Return on Equity (ROE) and Price to Book Value (PB) exert a positive and significant impact on stock returns. The findings suggest that managers can enhance stock valuation by understanding and effectively utilizing key resources, emphasizing the importance of informed decision-making for investment strategies and market predictions. (Awalakki M. & Archanna, 2021). The research paper investigates the impact of key accounting ratios, including ROE, ROA, P/E, P/B, P/S, and P/C, on stock prices of the National Stock Exchange over a 15-year period (2005-2020). The study aims to analyze how these financial indicators influence stock returns, emphasizing their importance for investors, creditors, and stakeholders in evaluating the financial condition and profitability of companies listed on the exchange. (Markowitz,1952) Portfolio investment theory was the first modern theory proposed by Markowitz (1952). assumed that the rates of return of individual assets covariance with one another, and there is a rather stable covariance, or correlation coefficient, between the rates of return of every two assets. Thus, he stated that it is theoretically possible to construct a variance-covariance matrix of all risky assets. (Awalakki M. & Archanna, 2023) This non-empirical research paper delves into the interplay between investor attention and financial market volatility, leveraging insights from behavioral finance. It explores the determinants of investor attention, including cognitive biases and social factors, and analyses their impact on market dynamics, offering a thorough review of existing literature and theoretical frameworks to enhance comprehension of this intricate relationship. (Abedi, Dargiri, & Rasiah, 2012). This study emphasizes the importance of the risk-return relationship in aiding investors and organizations in decision-making. By reviewing theories, empirical studies, and performance measures like Treynor, Sharpe, and Jansen Indices derived from the Capital Asset Pricing Model (CAPM), it aims to enhance the understanding of industry sectors' risk-return constructs for improved decision support. (Awalakki M. & Archanna, 2023). This study explores the impact of overconfidence biases on investment portfolios, examining cognitive and emotional mechanisms such as illusion of knowledge and emotional attachment. Rooted in behavioral finance literature, it highlights consequences like excessive trading and loss aversion, proposing mitigation strategies like diversification, passive investing, and behavioral coaching for more informed and rational portfolio decisions. (Subramanyam, Nalla, & Kalyan, 2018). The study aims to educate

investors on mutual funds, emphasizing the potential for maximizing returns amidst India's growing capital market. It sheds light on investor awareness, risk tolerance, and preferences, showcasing the role of mutual funds in diversifying investments for optimal returns and risk mitigation. (Awalakki M.,2022). This article explores the interplay between neurotransmitters (dopamine, serotonin, and norepinephrine), emotions, and investment outcomes, unraveling their role in shaping investor behavior and decision-making. It emphasizes the neural mechanisms driving decision diversification and addresses biases, underscoring the significance of education for cognitive function and bias mitigation in managing investor behavior within the finance domain. (Moolbharathi & Sugandi, 2021). This study analyzes the Risk and Return of stocks in the Auto, Banking, Finance, FMCG, and IT sectors from 2017-2021, using statistical tools like Standard Deviation, Beta, and Regression Analysis. It guides investors by assessing sector-wise performance against benchmark indices, aiding in informed investment decisions based on risk and return considerations. (Awalakki S. M., 2015). The study in Kalaburagi, Karnataka, reveals that salaried employees predominantly consider investments for retirement, and recent survey results indicate a lack of significant increase in their investment levels compared to businesspersons. Despite a historical focus on retirement, the growing awareness of investment options suggests an evolving landscape with increased choices for salaried individuals. (AWALAKKI, 2015)This study examines the capital structures of five prominent cement companies (ACC, Ultratech, Ambuja, J.K., Chettinad) from 2008-09 to 2013-14, assessing the impact of these structures on investment patterns and emphasizing the importance of debt-equity mix in effective financing decisions. The intra-company analysis aims to provide insights into the financial dynamics of these firms. Mr. Pandya and Mr. Bhargav (2017), "Total Shareholder Return and Excess Return: An Analysis of Nifty Pharma Index Companies." The paper examines the total shareholder return (TSR) and excess return of pharmaceutical companies in the NIFTY pharma index from 2010 to 2016. Using financial data from the CMIE PROWESS database and risk-free rates from the Reserve Bank of India website, the study finds statistically significant positive TSR and excess return, indicating wealth creation for shareholders. Additionally, there is a positive association between return on net worth (RONW) and both TSR and excess return, suggesting that increasing RONW can enhance TSR and excess return, offering implications for managerial decision-making. Abhishek. V (2018) "A Study on Risk and Return Analysis of Selected Stocks in Bse Sensex". The aim of this study is to assess the risk and return associated with specific stocks and determine the optimal investment options. Standard deviation and beta values are utilized to gauge the risk of the chosen stocks within the Sensex index. Additionally, the research proposes that opting for short-term securities over long-term investments can help mitigate risk. The Sharpe's index model, developed by William Sharpe, is highlighted as an effective investment strategy. Consequently, investors can diversify their risk by investing in a portfolio of securities. Rahul Moolbharathi and Tukaram Sugandi (2021b) "A Comparison Study on Risk and Return Analysis of Selected Companies with Benchmark Index in Nse". The research provides investors with insights into various statistical methods for assessing stock risk and return, with a focus on comparing index performance to benchmark indices. Additionally, it aims to determine the most favorable sector for risk and return investments. The primary goal is to analyze the statistical variation of stocks and indices using regression analysis. Findings reveal that HDFC Bank exhibits higher risk and returns compared to other stocks. Notably, all equities in the portfolio have a beta of

one, indicating efficiency in terms of risk and return among the selected market stocks. Mr. S. Sathish, Ms. A. Nagarathinam (2021) "A Study on Risk and Return Analysis of FMCG Companies in Indian Stock Market". This article was undertaken to analyses the risk and return of the selected NIFTY FMCG sectors. This research examines the optimal security for an investor seeking a high return with minimal risk. Descriptive research is been adopted and based on this it is highlighted that ITC Ltd. Has the lowest return among FMCG companies. They suggest that if an investor expects high returns, then he has to face high risk. A stock with a higher beta value is not suggested since it has a significant market risk that cannot be diversified.

3. Objectives:

- To assess the variability of returns exhibited by IT sector companies.
- To evaluate the relationship between risk and return in IT sector investments.

4. Statement of the Problem:

The IT sector is known for its dynamic nature, characterized by rapid technological advancements and shifting market demands. However, this dynamism also brings inherent risks, such as regulatory changes, competition, and market volatility. Understanding the risk and return dynamics within the IT sector is crucial for investors and stakeholders to make informed decisions regarding investment strategies and portfolio management. This study seeks to address these concerns by examining the historical financial performance of select IT companies and analyzing the associated risks and returns.

5. Research Methodology

5.1. Data Collection:

The study will rely on a combination of primary and secondary data sources. Primary data will be gathered through surveys and interviews with industry experts, financial analysts, and investors to gather qualitative insights into the risk and return factors specific to IT companies. Secondary data will be collected from publicly available sources such as financial reports, company websites, and academic journals.

5.2. Selection of Companies: A carefully curated sample of IT companies will be selected for the comparative analysis based on criteria such as market capitalization, geographical presence, diversity of services/products, and historical financial performance.

5.3. Risk Assessment: Various metrics will be employed to assess the risk profiles of selected IT companies, including but not limited to beta coefficients, volatility measures, debt-to-equity ratios, and liquidity ratios. Additionally, qualitative factors such as industry regulations, technological disruptions, and competitive landscape will be considered.

5.4. Return Analysis: Return on Investment (ROI), Return on Equity (ROE), and other relevant financial metrics will be utilized to analyze the return potential of the selected IT companies. Long- term historical performance, growth prospects, and market expectations will be taken into account to assess the attractiveness of investing in these firms.

6. Research Design

6.1.Comparative Analysis: The research design will employ a comparative approach to evaluate the risk and return profiles of multiple IT companies simultaneously. This comparative framework will allow for a comprehensive understanding of how different firms within the same industry segment vary in terms of risk exposure and return potential.

6.2. Quantitative Analysis: Statistical techniques such as regression analysis, correlation analysis, and variance analysis will be utilized to quantify the relationship between risk and return variables. This quantitative analysis will provide empirical evidence to support the findings of the study.

6.3. Qualitative Insights: In addition to quantitative analysis, qualitative insights from industry experts and stakeholders will be integrated to provide a holistic view of the risk-return dynamics within the IT sector. These qualitative inputs will enrich the analysis by capturing nuanced factors that may not be captured solely through quantitative methods.

6.4. Time Horizon: The research design will encompass both historical analysis of past performance as well as forward-looking projections to assess future risk and return expectations. This longitudinal approach will enable a comprehensive evaluation of the evolving nature of risk and return within the IT industry.

6.5. Sources of data collection: The study was conducted using secondary data. The information was gathered from a number of sources, including the NSE website, publications, and journals, among others. This study's research design is a descriptive one.

6.6. Sample size. The study consists of NIFTY IT companies which are listed on NSE. Statistical tools and techniques

6.7. Statistical tools and techniques

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

$$R_i = \frac{\text{Ending price of the stock}_i - \textit{Beginning price of the stock}_i}{\textit{Beginning price of the stock}_i} \times 100$$

- **Standard Deviation**: Standard deviation measures the extent of dispersion of a dataset relative to its mean. It is determined by taking the square root of the variance. A stock with high volatility will have a higher standard deviation, while a stable blue-chip stock will have a lower standard deviation. The standard deviation is a fundamental statistical measure that quantifies the amount of variation or dispersion in a set of values. It is a measure of the average distance of each data point from the mean (average) of the dataset. A low standard deviation indicates that the data points are very close to the mean, suggesting a tightly clustered dataset. Conversely, a high standard deviation indicates that the data points are spread out over a wider range, reflecting a more dispersed dataset. The standard deviation is expressed in the same units as the data, making it a directly interpretable measure of variability. For populations, the standard deviation is calculated using the formula (\sigma = \sqrt{\frac{1}{N}\sum_{i=1}^{N}(X_i-\mu)^2}), where (\sigma)

represents the population standard deviation, (N) is the number of values in the population, (X_i) denotes each value in the population, and (\mu) is the population mean. This formula is derived from the definition of variance, which is the average of the squared differences from the mean. When dealing with samples rather than the entire population, the formula for calculating the standard deviation is slightly adjusted to account for the estimation of the population standard deviation with a sample. The adjusted formula is (\sigma = \sqrt{\frac{1}{n-1}\sum_{i=1}^{n}(x_i-\overline{x})^2}), where (n) is the number of values in the sample, (x_i) represents each value in the sample, and (\overline{x}) is the sample mean. This adjustment, dividing by (n-1) instead of (n), corrects for the bias in the estimation of the population standard deviation. The standard deviation is a crucial measure in statistics because it provides insight into the spread of data points around the mean. It is particularly useful for understanding the variability of data in normal distributions, where data is symmetrically distributed with no skew. The standard deviation tells you how spread out from the center of the distribution your data is on average, making it a valuable tool for comparing the distributions of different samples and making inferences about the larger populations they came from.

$$\sigma = \sqrt{\frac{\sum_{i=1}^{n} x_{i-\bar{x}}}{n-1}}$$

σ=standard deviation

x_i= i the value

$\bar{X}$= mean of values

n= number of data value

$\sum_{i=1}^{n} x_i - \bar{x}$

√=Square root

- **Average return:** The average stock typically refers to the mean value of a group of stocks within a specific market index or sector. It's calculated by summing up the values of individual stocks and dividing by the total number of stocks in the group. This metric is used to gauge the overall performance or valuation of the stocks within the group. It provides a general indication of how the stocks are performing collectively, which can be useful for investors in making decisions about their portfolios.

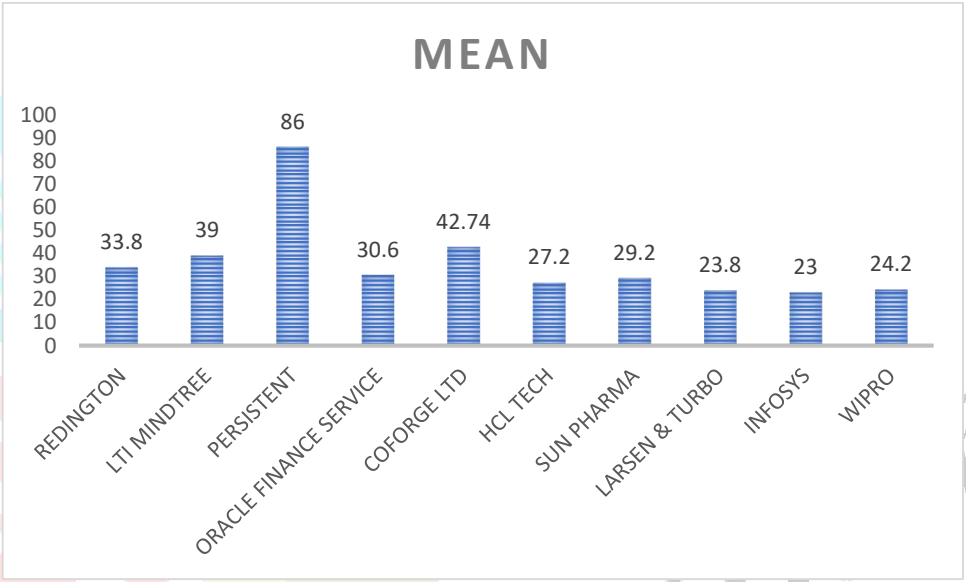
Average return for i; stock= $\frac{\sum Stock\ Returns_i}{n}$

7. Data Analysis and Interpretations

TABLE NO: 1 – THE TABLE SHOWING MEAN RETURNS OF "IT" COMPANIES

Company	Mean Returns (%)
REDINGTON	33.8
LTI MINDTREE	39
PERSISTENT	86
ORACLE FINANCE SERVICE	30.6
COFORGE LTD	42.74
HCL TECH	27.2
SUN PHARMA	29.2
LARSEN & TURBO	23.8
INFOSYS	23
WIPRO	24.2

CHART: 1 CHART SHOWING MEAN RETURNS OF "IT" COMPANIES



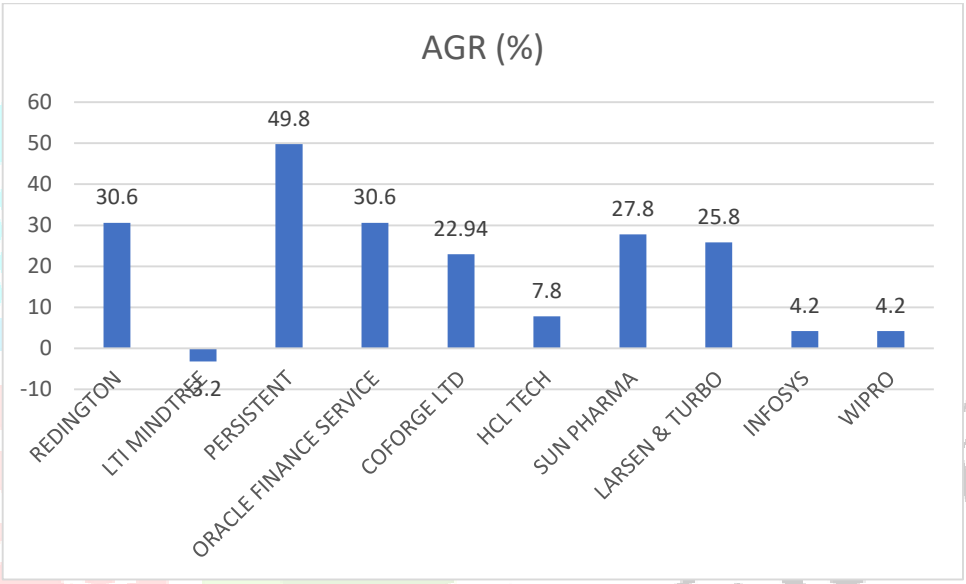
INTERPRETATION:

The mean values provide insights into the average performance of each company from 2019 to 2023. Companies like PERSISTENT and COFORGE LTD exhibit strong average performances, suggesting consistent growth. Others, such as REDINGTON and LTI MINDTREE, demonstrate moderate levels of stability with minor fluctuations. Overall, the analysis indicates a mix of steady and fluctuating performance trends across the companies, aiding stakeholders in understanding their relative performance over the analyzed period.

TABLE NO: 2-THE TABLE SHWOING AVERAGE RETURNS OF "IT" COMPANIES

Company	AVERAGE RETURN (%)
REDINGTON	30.6
LTI MINDTREE	-3.2
PERSISTENT	49.8
ORACLE FINANCE SERVICE	30.6
COFORGE LTD	22.94
HCL TECH	7.8
SUN PHARMA	27.8
LARSEN & TURBO	25.8
INFOSYS	4.2
WIPRO	4.2

CHART: 2 CHART SHOWING AVERAGE RETURNS OF "IT" COMPANIES



INTERPRETATION:

The average returns of IT companies exhibit significant variance, ranging from a decline of -3.2% to a substantial increase of 49.8%. While some firms like Persistent and Oracle Finance Services show remarkable gains, others like LTI Mindtree display negative returns. Overall, the IT sector appears dynamic with varying degrees of performance, suggesting diverse market conditions and strategies among companies.

TABLE NO: 3; THE COMPANY SHOWING STANDARD DEVIATION OF COMAPNIES

Company	STANDARD DEVIATION(%)
PERSISTENT	96.29
COFORGE LTD	59.86
WIPRO	49.97
REDINGTON	48.55
INFOSYS	37.56
LTI MINDTREE	67.33
ORACLE FINANCE SERVICE	43.58
HCL TECH	33.24
LARSEN & TURBO	32.69
SUN PHARMA	10.47

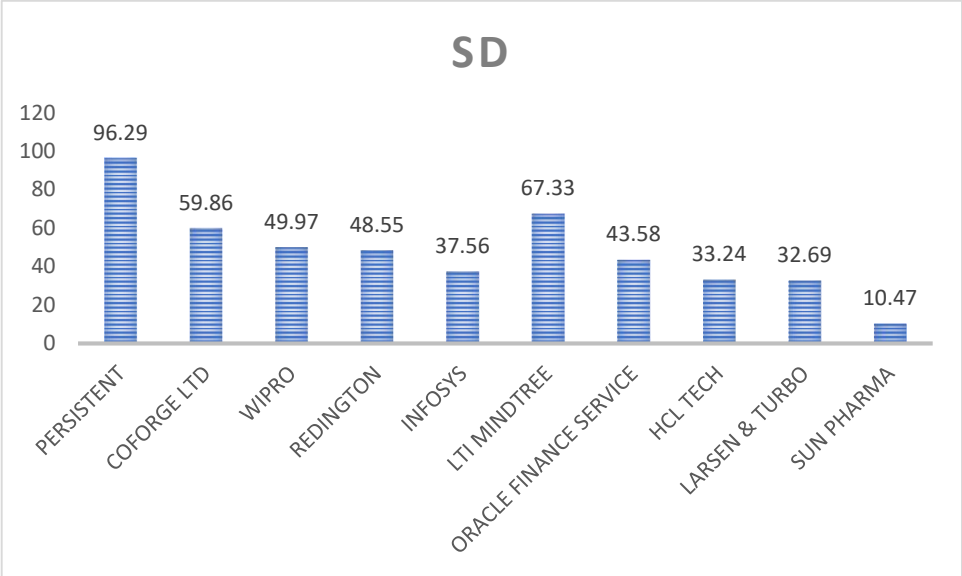


CHART NO: 3; THE COMPANY SHOWING STANDARD DEVIATION OF "IT" COMAPNIES

INTERPRETATION:

The table ranks companies based on their standard deviation (SD), indicating the variability in their performance over 2019-2023. PERSISTENT has the highest SD, suggesting the greatest volatility, followed by COFORGE LTD and LTI MINDTREE. SUN PHARMA exhibits the lowest SD, indicating relatively stable performance. This ranking assists in understanding the degree of fluctuations in each company's performance over the analyzed period.

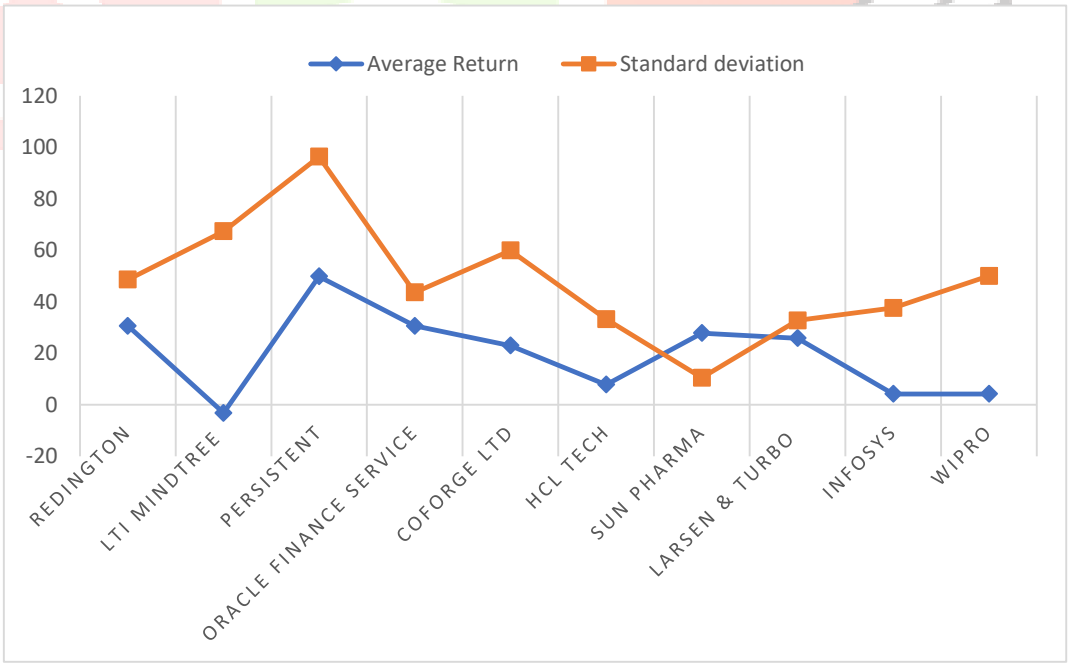


CHART: 4 – COMPARISON OF AVERAGE RETURNS AND STANDARD DEVIATIONS

INTERPRETATION:

The comparison between average return and standard deviation provides insights into the risk and return profile of each company. Companies with higher average returns, like Persistent and Redington, might seem attractive, but their higher standard deviations indicate greater volatility. On the other hand, Sun Pharma exhibits a relatively low standard deviation, suggesting lower risk despite a strong average return. LTI Mindtree's negative return alongside a high standard deviation indicates significant risk. Investors seeking stability might favor companies like Larsen & Turbo and HCL Tech, which offer moderate returns with lower volatility. Ultimately, investors should carefully weigh both metrics to align with their risk tolerance and investment objectives.

8. FINDINGS:

The analysis of IT sector companies' performance over the period 2019-2023 reveals a landscape characterized by significant variability in returns and performance stability. Notably, firms like Persistent and Oracle Finance Services demonstrate remarkable gains, while others exhibit negative returns, underscoring the dynamic nature of the sector. Companies such as Persistent and Coforge Ltd display strong average performances, suggesting consistent growth, while others demonstrate moderate stability with minor fluctuations. Ranking companies based on standard deviation highlights varying degrees of performance volatility, with some companies showing greater fluctuation than others. To navigate this dynamic environment, investors are advised to adopt a diversified investment strategy, continuously monitor performance, implement effective risk management measures, and maintain a long-term perspective to capitalize on growth opportunities within the IT sector while mitigating short-term volatility.

9 . CONCLUSION:

In conclusion, the analysis of risk and return profiles of IT sector companies spanning from 2019 to 2023 reveals a dynamic and heterogeneous landscape. The variability in returns and performance stability among companies underscores the importance of thorough assessment and strategic decision-making for investors. While some companies exhibit consistent growth and strong performance, others face fluctuations and challenges. Despite the inherent volatility, opportunities for growth persist within the sector, particularly for investors who adopt diversified strategies, continuously monitor their investments, implement effective risk management measures, and maintain a long-term perspective. By leveraging these insights, investors can navigate the complexities of the IT sector, optimize portfolio performance, and capitalize on emerging opportunities in the ever-evolving technological landscape.

10. REFERENSE:

- Abedi , H. S., Dargiri, M. N., &Rasiah, D. (2012). A Review Study of Risk-Return Relationship and Performance Measures Comparing Different Industry Sectors. Australian Journal of Basic and Applied Sciences, 6(12), 14-22. Retrieved from https://www.ajbasweb.com/old/ajbas/2012/Nov%202012/14-22.pdf
- Abhishek.V (2018)A study on Risk and Return analysis of selected stocks in BSE SENSEX, Acharya Institute of Technology.
- Awalakki, M., &Archanna. (2021). Impact of Economic and Financial Performance Indicators ratios on Determination of Stock Returns – A Study with reference to National Stock Exchange. PSYCHOLOGY AND EDUCATIO, 58(5 (2021)), 6665-6685. Retrieved from http://psychologyandeducation.net/pae/index.php/pae/article/view/6706
- Awalakki, M., &Archanna. (2023). OVERCONFIDENCE BIAS AND ITS EFFECTS ON PORTFOLIO DECISIONS. International Journal of Creative Research Thoughts (IJCRT), 11(8), g74-g83. Retrieved from https://www.ijcrt.org/papers/IJCRT2308664.pdf
- Awalakki, M. (2022). Neurotransmitters Impact on Emotional Responses and Decision-Making in Investment: A Comprehensive Exploration. International Journal of Food and Nutritional Sciences, 11(5), 690-708. Retrieved from https://www.ijfans.org/uploads/paper/fb4237bf576c3b3020696d18585588f8.pdf
- Awalakki, M., &Archanna. (2021). A Study on Accounting Ratios and Stock Returns with Reference to National Stock Exchange of India. Turkish Online Journal of Qualitative Inquiry, 12(7), 6858-6888. Retrieved from https://www.tojqi.net/index.php/journal/article/view/4940
- Awalakki, M., &Archanna. (2023). Exploring the Dynamics of Investor Attention and Market Volatility: A Behavioral Finance Perspective. International Journal of Science and Research (IJSR), 12(8), 2245-2251. Doi:10.21275/SR23823155339
- Awalakki, S. M. (2015). A Study on Investment Patterns and Awareness of Salaried Class Investors. INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH, 4(8), 348-350. Retrieved from https://www.worldwidejournals.com/international-journal-of-scientific-research-(IJSR)/fileview.php?val=August_2015_1441174222__112.pdf
- AWALAKKI, S. M. (2015). FINANCING DECISIONS: A CASE STUDY OF SELECTED CEMENT COMPANIES OF INDIA. International Journal of Advanced Research, 3(8). Retrieved from https://www.journalijar.com/uploads/701_IJAR-6789.pdf
- Horne, V., & James, C. (2001). Financial Management and Policy. Prentice Hall Publishing.
- Markowitz, H. (1952). Portfolio selection. Journal of Finance, 7(1), 77-91. Doi: https://doi.org/10.2307/2975974
- Moolbharathi, R., &Sugandi, T. (2021). A Comparison Study on Risk and Return Analysis of selected companies with Benchmark Index in NSE. International Journal of Business and Management Invention, 10(10), 04-13. Doi: 10.35629/8028-1010010413
- Mr. S. Sathish, Ms. A. Nagarathinam (2021) A Study on Risk and Return Analysis of FMCG companies in Indian stock market, Annals of R.S.C.B., ISSN:1583-6258, Vol. 24.
- Subramanyam, P., Nalla, B., &Kalyan, N. B. (2018). A Study on Risk & Return Analysis of Selected Securities in India. International Journal of Engineering Technologies and Management Research, 5(4), 79-86. Doi:DOI: 10.5281/zenodo.1244735