

Comparative Analysis of Risk and Return of Manufacturing Companies: A Five-Year Study- (2019-2023)

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ABSTRACT

The study employs both quantitative and qualitative research approaches to assess the historical performance of a selected group of Manufacturing companies in terms of risk-adjusted returns. In order to evaluate the risk and return profiles of Manufacturing companies, a number of financial measures are looked at, such as ROI, beta coefficients, and stock price volatility. To further assist investors, financial experts, and policymakers, the study also investigates the connection between economic and financial variables and stock returns. The research process includes gathering information from primary and secondary sources, choosing Manufacturing firms according to predetermined standards, and using statistical analysis tools like regression and correlation analysis. The results underscore the variation in the financial performance and risk profiles of Manufacturing firms, underscoring the significance of making well-informed investment decisions tactics and market forecasts in the ever-changing manufacturing industry. For investors looking to maximise their investment returns inside the Manufacturing Companies, the findings provide practical insights.

Keywords: Risk and Return, Manufacturing Sector, Beta

INTRODUCTION

Understanding the complexities of risk and return is critical for educated decision-making and long-term growth in the manufacturing industry. Manufacturers encounter a wide range of issues, including market volatility, supply chain interruptions, technology improvements, and regulatory changes. As a result, detailed analysis of the risk-return relationship is required to ensure long-term viability and profitability. This study seeks to delve deeply into the subtleties of risk and return in the manufacturing industry. By examining multiple aspects that influence both risk and return, we hope to provide insights that will help manufacturers optimise their strategy, mitigate potential dangers and improve overall performance. Manufacturing firms operate in an uncertain climate. External influences like as market swings, geopolitical conflicts, and economic instability can all have a substantial impact on operations and financial results. Internally, manufacturing efficiency, innovation, and supply chain management are critical variables in determining a company's capacity to earn returns. Risk in manufacturing involves a wide range of parameters. It encompasses financial risk linked with capital investments, operational risk involved with manufacturing processes and logistics, and strategic risk resulting from competitive

pressures and market dynamics. Understanding the interplay of these risks and their impact on returns is critical for effective risk management and value generation.

1. 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 Jensen 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. (Awalacki 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. (Awalacki 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.

2. OBJECTIVE OF THE STUDY:

The primary objective of this comparative study is to analyze the risk and return profiles of Manufacturing company within the broader financial market context.

3. SCOPE OF THE STUDY:

This comparative study will focus on manufacturing companies operating in various regions, including but not limited to North America, Europe, Asia-Pacific, and Latin America. The study will encompass a diverse range of manufacturing sectors, such as automotive, aerospace, consumer goods, electronics, pharmaceuticals, and machinery. Both publicly traded and privately held manufacturing companies will be included in the analysis. The study will utilize a combination of quantitative and qualitative research methods to analyze the risk and return profiles of manufacturing companies. Quantitative analysis will involve the examination of financial performance metrics, stock market data, and other relevant quantitative indicators. Qualitative analysis will involve interviews with industry experts, case studies, and literature reviews to gain insights into the qualitative factors influencing risk and return in the manufacturing industry.

4. RESEARCH METHODOLOGY:

4.1. Data collection: The study will use both primary and secondary sources. Primary data will be acquired through surveys and interviews with industry experts, financial analysts, and investors to gain qualitative insights into the risk and return elements unique to IT firms. Secondary data will be

gathered from publically available sources, including financial records, company websites, and academic journals.

4.2. Selecting Companies: A carefully curated sample of IT companies will be chosen for the comparative analysis based on characteristics such as market capitalization, geographical presence, diversity of services/products, and past financial performance.

4.3. Risk Assessment: Selected Manufacturing companies' risk profiles will be assessed using several metrics, such as beta coefficients, volatility measures, debt-to-equity ratios, and liquidity ratios. Additionally, qualitative issues such as industry laws, technological changes, and the competitive landscape will be taken into consideration.

4.4. Return Analysis: The selected manufacturing companies' return potential will be analysed using financial indicators such as ROI and ROE. Long-term historical performance, growth potential, and market expectations will be used to determine the attractiveness of investing in these companies.

5. STATISTICAL TOOLS AND TECHNIQUES:

5.1. Returns

The share price of a corporation might rise or fall depending on a number of variables. The profit made over the course of time is known as a market return. Both positive and negative results are possible for the returns. It is possible to view profit as positive and loss as negative.

$$\text{Stock Return}_i = \frac{(\text{Closing price}_i - \text{Opening price}_i)}{\text{Opening price}_i} \times 100$$

Where,

- Stock Return: This represents the return of the stock for a specific period i . It's expressed as a percentage.
- Closing Price: This represents the price at which the share was sold.
- Opening Price: This represents the price at which the share was purchased.

6.2 Beta

The beta is a metric that expresses how, on average, a single asset moves in response to overall stock market increases or decreases. When a small amount of an asset is included, beta becomes a helpful measure of the asset's contribution to the risk of a market portfolio.

$$\beta_i = \frac{\sum xy - \frac{(\sum x)(\sum y)}{N}}{\sum x^2 - \frac{(\sum x)^2}{N}}$$

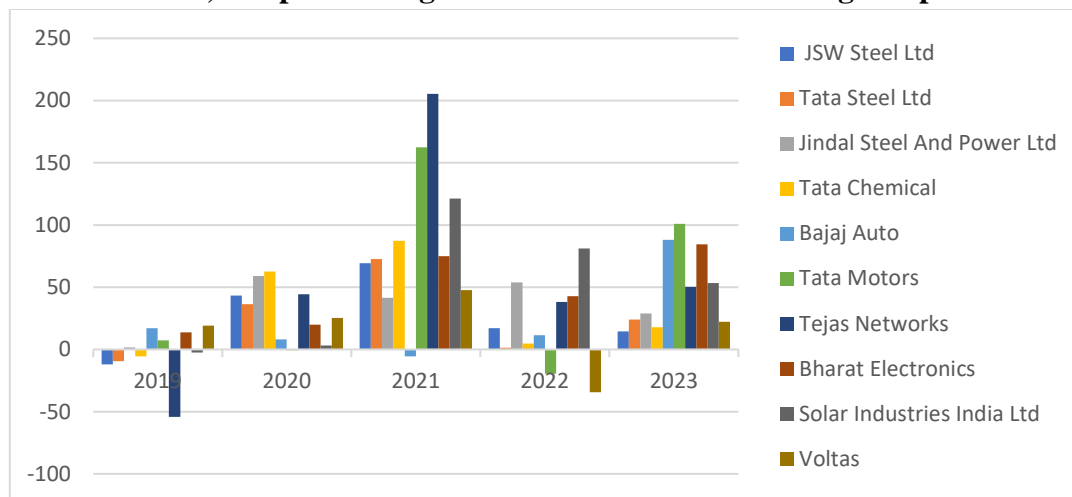
- β_i : This stands for the stock i 's beta.
- $\sum xy$: The product of the corresponding values of two variables, x and y , is represented by this term. In the world of finance, the returns of the market index are represented by x , and the returns of the stock by y .
- The terms $\sum x$ and $\sum y$ denote the total of all values of the variables x and y , respectively.
- N : The number of observations, or data points, in the dataset is indicated by this.
- $\sum x^2$: This expression is the total square of all the values of the variable x .

Data Analysis and Interpretation

Table: 1; Table showing the Returns of Manufacturing companies

Companies	2019	2020	2021	2022	2023
Jsw Steel Ltd	-11.9641	43.3808	69.4086	17.0897	14.6084
Tata Steel Ltd	-9.4032	36.3482	72.6736	1.3495	23.9236
Jindal Steel And Power Ltd	1.6980	58.8849	41.5838	53.9032	28.8495
Tata Chemicals	-5.6054	62.6465	87.3062	4.8032	17.8146
Bajaj Auto	17.0891	8.1334	-5.6561	11.2887	87.9744
Tata Motors	7.2090	-0.7021	162.3878	-19.5792	101.0434
Tejas Networks	-54.1817	44.2925	205.4685	38.0475	50.3761
Bharat Electronics	13.7449	19.8801	75.0375	42.7551	84.3848
Solar Industries India Ltd	-2.5861	3.1688	121.3584	81.0638	53.4365
Voltas	19.1147	25.2313	47.6594	-34.3928	22.3167

Chart: 1; Graph showing the Returns of Manufacturing companies



INTERPRETATION:

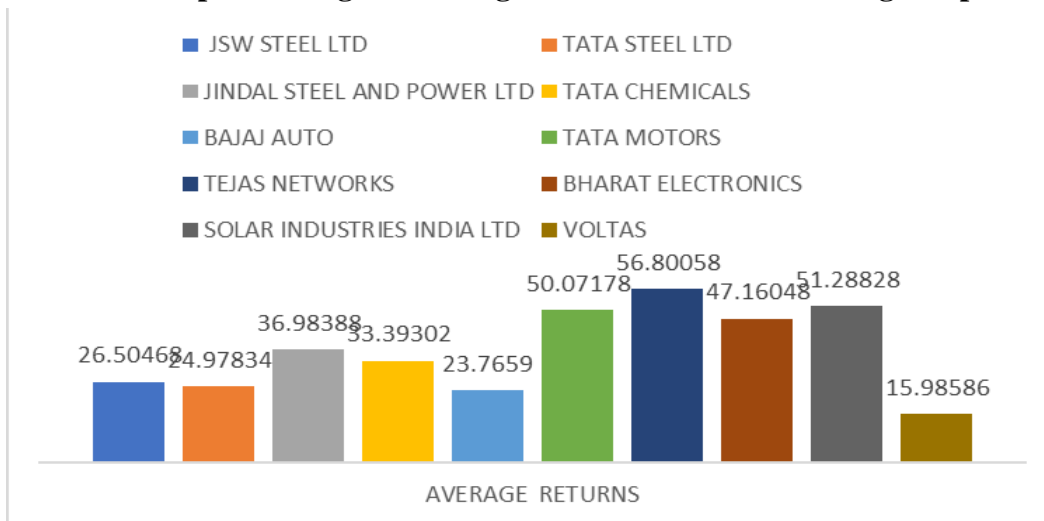
The annual returns of several manufacturing enterprises from 2019 to 2023 are shown in the table. Companies and historical periods exhibit a wide range of returns, with some displaying positive returns and others negative returns. For instance, in 2022 and 2023, Tejas Networks and Bharat Electronics saw very strong returns, however in some years, Voltas and Tata Chemical saw negative returns. Overall, the data's financial performance throughout the given time period illustrates the manufacturing sector's diversity and volatility.

Table:2 Table showing the Average Returns of Manufacturing companies

COMPANIES	AVERAGE RETURNS
Jsw Steel Ltd	26.50468
Tata Steel Ltd	24.97834
Jindal Steel And Power Ltd	36.98388
Tata Chemicals	33.39302

Bajaj Auto	23.7659
Tata Motors	50.07178
Tejas Networks	56.80058
Bharat Electronics	47.16048
Solar Industries India Ltd	51.28828
Voltas	15.98586

Chart 2: Graph showing the Average Returns of Manufacturing companies



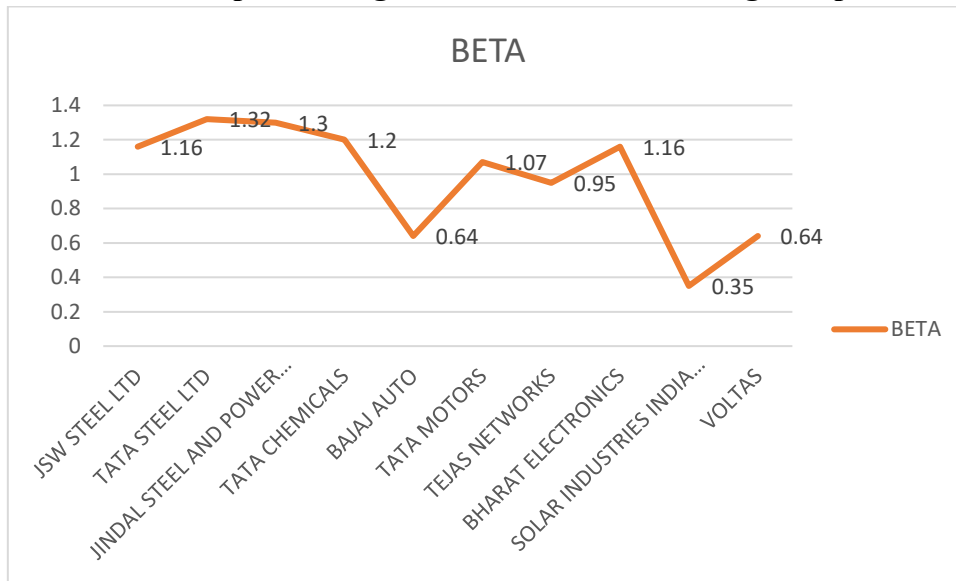
INTERPRETATION:

The average returns of several Manufacturing companies are shown in the table. The average returns of companies such as Tejas Networks and solar Industries India limited are notably high, at 56.80058% and 51.28828%, respectively. However, with an average return of 15.9858%, Voltas has the lowest return. Overall, the data shows that manufacturing enterprises have a wide range of average returns, which reflects the variability of their financial performance.

Table: 3 Table showing the Beta of Manufacturing Companies

COMPANY	BETA
Jsw Steel Ltd	1.16
Tata Steel Ltd	1.32
Jindal Steel and Power Ltd	1.30
Tata Chemicals	1.20
Bajaj Auto	0.64
Tata Motors	1.07
Tejas Networks	0.95
Bharat Electronics	1.16
Solar Industries India Ltd	0.35
Voltas	0.64

Chart: 3 Graph showing the Beta of Manufacturing Companies



INTERPRETATION:

The beta values of several manufacturing companies are listed in the table, illustrating how volatile they are in comparison to the market. Businesses with high beta values—1.32 and 1.30, respectively—such as Tata Steel and Jindal Steel and Power Limited, indicate a higher degree of sensitivity to changes in the market. On the other hand, with a beta score of 0.35, Solar Industries India Ltd. has the lowest volatility. Overall, the data shows how different manufacturing organisations have different risk profiles, with some being more susceptible to changes in the market than others.

7. FINDINGS:

A varied and unstable environment exists within the manufacturing sector, according to a review of yearly returns, average returns, and beta values across several manufacturing enterprises from 2019 to 2023. Different companies had different financial performances; some had good returns in a given year, while others had bad returns. Notably, Voltas showed the lowest average return, whereas Tejas Networks and Solar Industries India Limited showed noticeably high average returns. Furthermore, beta values demonstrated how different companies' levels of volatility in relation to the market vary, with some demonstrating a greater sensitivity to fluctuations in the market than others. All things considered, these results highlight how crucial it is to comprehend the complex risk profiles and financial results of the manufacturing industry in order to properly guide investment decisions.

8. CONCLUSION:

The analysis shows how the financial performance of the manufacturing sector was both varied and unstable between 2019 and 2023. While Voltas displays lower returns, companies like Tejas Networks and Solar Industries India Limited exhibit strong average returns. Furthermore, different beta levels show how sensitive different companies are to the market; Tata Steel and Jindal Steel and Power Limited are more volatile. In order to navigate investment opportunities within the manufacturing business, stakeholders must have a thorough understanding of these dynamics.

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