



# EXAMINING THE RISK AND RETURN OF SELECT STOCKS IN BSE-SENSEX

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## ABSTRACT

This study is an attempt to conduct a risk and return analysis of the selected stocks in the Bombay Stock Exchange. The present paper aims to understand the level of risk and the return generated from the stocks of three sectors Information, Steel, and Pharmaceuticals sectors. The study focuses on segregating the stocks as best, good, and risky based on the analysis.

## Introduction

The securities market in India has been experiencing a tremendous growth phase, and returns to investors have also been increased. The securities market is highly open to risk because of its volatile nature. But hard-earned money of the investors is at risk so the scope of risk and return analysis is required. Information, Steel, and Pharmaceuticals sectors are the engine for employment across the globe with high-paying jobs. Software and IT-enabled services have emerged as a niche sector in India. This was one of the fastest-growing sectors in the last decade with a compound annual growth rate that exceeds 50 percent. India is focusing and fully motivated to try to develop self-sufficiency in computers and electronics largely by national security concerns related to border conflicts with China and Pakistan. The Government of India created an Electronics Committee which devised a strategy for achieving self

sufficiency in electronics within ten years by leapfrogging ahead to absorb the most advanced products and technologies available. The goal of the Indian Government is to achieve indigenization of technology, whereby India would move away from dependence on foreign technology and produce its own. Steel has played an important role in the development of modern human civilization. Steel plays a significant role especially in the development of an economy. The economic growth of India is geared up by the growth of the Indian steel industry. Steel continues to be a crucial element in traditional sectors such as construction, housing, and ground transportation, special steel has been increasingly used in engineering industries such as power generation, petrochemicals, and Fertilisers. Currently, India is the 4th largest producer of crude steel in

the world and the country is expected to become the 2nd largest producer of crude steel soon. The steel sector of India employs over six lakh of people & contributes nearly 2% of the country's GDP currently. Another inevitable sector is the Pharmaceutical sector. India is the largest provider of generic medicines globally. Indian pharmaceutical sector supplies over 50% of the global demand for various vaccines, 40% of generic demand in the US, and 25% of all the medicines in the UK. Globally, India ranks 3rd in pharmaceutical production by volume and 14th by value. The domestic pharmaceutical industry includes a massive network of 3,000 drug companies and ~10,500 manufacturing units. India enjoys a significant position in the global pharmaceuticals sector. The country also has a large pool of scientists and engineers with the potential to take up the industry ahead to greater heights. Presently, over 80% of the antiretroviral drugs used globally to combat AIDS (Acquired Immune Deficiency Syndrome) are supplied by Indian pharmaceutical companies. According to the Indian Economic Survey 2021, the domestic market is expected to grow 3times in the next decade. India's domestic pharmaceutical market is estimated at US\$ 42 billion in 2021 and likely to reach US\$ 65 billion by 2024 and further expand to reach ~US\$ 120-130 billion by 2030. India's biotechnology industry comprises biopharmaceuticals, bio-services, bio-agriculture, bio-industry, and bioinformatics. The Indian biotechnology industry was valued at US\$ 64 billion in 2019 and is expected to reach US\$ 150 billion by 2025. India's medical devices market stood at US\$ 10.36 billion in FY20. The market is expected to increase at a CAGR of 37% from 2020 to 2025 to reach US\$ 50 billion. The Union Cabinet has given the acceptance for the amendment of the existing Foreign Direct Investment (FDI) policy in the pharmaceutical sector to allow FDI up to 100% under the automatic route for manufacturing of medical devices subject to certain conditions. The drugs and pharmaceuticals sector has attracted cumulative FDI inflow worth US\$ 17.75 billion between the period of April 2000 to December 2020 according to the data released by the Department for Promotion of Industry and Internal Trade (DPIIT).

Investment in these sectors would generate a positive rate of return to the investors since all the three sectors taken for the study are the spine of the Indian economy. Hence the study gains its importance by way of analyzing the risk and returns attached with each of the stocks from these sectors.

### **Need for the study**

Investors always search for good-performing stocks. The present study about the analysis of risk and return gains importance in unveiling the stocks that have given a positive rate of return for a low level of risk. The study enables an investor in designing his/her portfolio with a well-diversified class of assets that can be included from the Technology, Steel, and Pharmaceutical sectors.

### **Objectives of the study**

The study focuses on the below listed objectives:

- 1) To find the relationship between the return, volatility, and the Standard
- 2) Deviation.
- 3) To find out the return generated by all the stocks taken for the study.
- 4) To identify the best stocks to invest in each of the sectors.

The analysis has been interpreted to fulfill the objectives.

## REVIEW OF LITERATURE

Shaini & Mallikarjunappa (2016) has used the Beta for comparing the relative systematic risk involved in different stocks. The author had concluded that for a particular level of return, each security has its degree of risk. The author has advised that investors should analyze the market continuously, which in turn would help them to pick the right stocks to invest in.

Amanda Kumar Dubey (2014) has taken efforts in examining the time-scale dependence of systematic risk of stocks for a developing market economy.

He concludes that presumptuous that the risk in holding a firm's stock will be constant over a longer period is rather a preventive hypothesis. Also, the author depicts the fact that the Indian equity market is one of the greatest dynamic equity marketplaces in the world today.

Kolani Pamane1 & Anani Ekoue Vikpossi (2010) in his work examines the Capital Asset Pricing Model (CAPM) and has tested its validity for the WAEMU space stock market called BRVM (BOURSE REGIONALE DES VALEURS MOBILIERES) utilizing monthly stock return from 17 companies listed on the stock exchange for the duration of January 2000 to December 2008. He combines Black, Jensen, and Scholes with Fama and Macbeth's means of testing the CAPM, the whole period was separated into four sub-periods and stock betas used instead of portfolio's betas due to the minor size of the sample. The tests were conducted to inspect the nonlinearity of the relationship among return and betas to support the hypothesis that the probable return-beta relationship is linear. Also, the study examines whether the CAPM sufficiently captures all-important factors of return including the residual variance of stocks. The results have proved that residual risk does not affect the probable returns of stocks for the whole period and the whole sub-periods except for the last period of 2003-2008 which shows that returns are affected by nonsystematic risks. Fei Ren (2005) has conducted an industry-level inspection of IT returns and risk, concentrating on the moderating role of industry competition, regulation, and technological alteration. The study has concluded that a higher rate of technological alteration induces both higher IT to return and more IT risks. The results have brought to light factors that drive the difference in IT performance across several industries and have provided valuable industry-level performance benchmarks of the return and risk influences of IT investments.

Dr. S. GAUTAMIA(2018)has inspected the Risk & Return Analysis of Selected Stocks in India. Risk is definite as the chance of variations in the actual return. Return is considered as an advantage in the value of the investment.

P. Naveen and Mrs. K. Neeraja (2018) in their risk and return analysis done in the banking sector, has concluded that high returns can be associated with high risks and low returns are associated with low return. The analysis has been carried out with the help of statistical tools like mean, variance, beta, standard deviation, and correlation.

## Research Methodology

The study is based on a descriptive research design. Descriptive research is well-defined as a research method that describes the features of the population or phenomenon that is being studied. The sampling technique used for this study is the Judgmental sampling technique. The daily closing prices of the stocks for a period of two years ranging from January 2018 to December 2019 have been used for the present study. The sample has been selected from the index of BSE. BSE-SENSEX has been used as a surrogate for this study. Secondary data has been used for the study purpose. The data has been collected from the BSE website, and then from various thesis, Textbooks, Newspapers, etc.

### For calculations of risk & return:

#### RETURN

$$\text{Returns} = \frac{P_t - P_o}{P_o} \times 100$$

$P_t$  = closing price of script

$P_o$  = opening price of script

#### Beta of Security

The Beta value indicates the measure of systematic risk of the security. Beta describes the relationship between the stock return and the market index return. The beta of security may be positive, negative, or zero.

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

Where;

$N$  = Number of Observations

$X$  = Independent variable

$Y$  = Dependant variable

#### Standard deviation

Standard deviation measures the average amount by which individual data points differ from the mean. In portfolio analysis, the standard deviation is a statistical measurement that sheds light on historical volatility. It is applied to the annual rate of return of an investment to measure the investment's volatility. It is also known as historical volatility and is used by investors as a gauge for the amount of expected volatility.

$$\text{RISK} = \frac{\sqrt{\sum D^2}}{N}$$

Where,  $D$  = Deviation

$N$  = No. of days

The return from BSE-SENSEX for the study period is given below:

Daily average return = 0.046%

Standard deviation = 0.008

### Limitations of the study

- 1) There is no primary data used for this study.
- 2) The study is limited to three different sectors in BSE-SENSEX, namely Technology, Steel and Pharmaceuticals
- 3) Only two years of data have been used for the study.
- 4) The suggestions have been made based on the analysis of the risk and return.

### Analysis

**Table No: 1**

#### RISK AND RETURN ANALYSIS OF TECHNOLOGY SECTOR

S.No	Name of the Company	Average Daily return(%)	Beta	Standard Deviation
1	Tata Consultancy Services Limited	0.1239	0.4049	0.0152
2	Infosys Ltd	0.0978	0.4666	0.0162
3	Wipro Ltd	0.0200	0.3351	0.0139
4	HCL Technologies Ltd	0.0689	0.3915	0.0157
5	Tech Mahindra Ltd	0.1146	0.4547	0.0169

All the companies have generated a positive rate of return. All the stocks have generated high returns except Wipro Ltd. The beta value for all the stocks is less than one and hence it can be concluded that they are low volatile stocks. The table reveals that the stocks are moderately risky.

**Table No: 2****RISK AND RETURN ANALYSIS OF STEEL SECTOR**

<b>S.No</b>	<b>Name of the Company</b>	<b>Average Daily return(%)</b>	<b>Beta</b>	<b>Standard Deviation</b>
1	JSW Steel Ltd	0.0342	1.3554	0.0213
2	Tata Steel Ltd	-0.0432	1.4582	0.0222
3	Hindalco Ltd	-0.0203	1.2385	0.0210
4	NMDC Ltd	0.0287	1.1892	0.0223
5	Jindal Steel Ltd	0.0164	2.1170	0.0345

All the stocks have generated a daily average positive rate of return. All the stocks have generated a return lower than the market. Tata Steel Ltd has generated a negative return for the study period. All the company stocks bear the same level of risk except for the stock of Jindal Steel Ltd which seems to be riskier than its peer stocks. All the stocks in this sector are moderately volatile but the stock of Jindal Steel is more volatile stock than its peer stocks.

**TABLE 3****RISK AND RETURN ANALYSIS OF PHARMACEUTICAL SECTOR**

<b>S.No</b>	<b>Name of the Company</b>	<b>Average Daily return(%)</b>	<b>Beta</b>	<b>Standard Deviation</b>
1	Sun Pharmaceutical Industries Limited	-0.0347	0.6817	0.0213
2	Dr Reddy's Laboratories Ltd	0.0550	0.4316	0.0168
3	Divi's Laboratories Ltd	0.1283	0.7789	0.0186
4	Cipla Ltd	-0.0358	0.6538	0.0156
5	Lupin Ltd	-0.0117	0.6752	0.0169

The stocks of Divi's Laboratories Ltd and Dr. Reddy's Laboratories Ltd have outperformed the market in terms of returns. The stocks of Cipla Ltd, Lupin Ltd, and Sun Pharmaceutical Industries Limited have generated a negative return. The beta value of all the stocks tells us that the stocks are low in terms of volatility. The Standard deviation of these stocks shows that all the stocks are less risky.



## FINDINGS

### Technology sector

- ◆ With regard to the Technology sector, the stocks of Tata Consultancy Services Limited, Infosys Ltd, HCL Technologies Ltd and Tech Mahindra Ltd can be concluded as the best stocks .
- ◆ The stock of Wipro Ltd can be concluded as the poor performer in this sector.

### Steel sector

- ◆ The stocks of JSW Steel Ltd, Jindal Steel Ltd and NMDC Ltd are concluded as the average performers according to the study.
- ◆ The stocks of Tata Steel Ltd and Hindalco Ltd can be concluded as risky stocks.

### Pharmaceutical sector

- ◆ The stock of Divi's Laboratories Ltd emerges as the best stock in this sector.
- ◆ The stock of Dr Reddy's Laboratories Ltd emerges as a good one since the stock has generated a return higher than the market.
- ◆ The stocks of Sun Pharmaceutical Industries Limited , Cipla Ltd and Lupin Ltd are risky stocks since they have generated negative returns.

### Consolidated findings

	High return	Low return	Negative return
<b>High risk</b>	NIL	<ul style="list-style-type: none"> <li>◆ NMDC Ltd</li> <li>◆ Jindal Steels Ltd</li> </ul>	NIL
<b>Low risk</b>	<ul style="list-style-type: none"> <li>◆ Tata Consultancy Services Limited</li> <li>◆ Infosys Ltd</li> <li>◆ HCL Technologies Ltd</li> <li>◆ Tech Mahindra Ltd</li> </ul>	<ul style="list-style-type: none"> <li>◆ Wipro Ltd</li> <li>◆ JSW Ltd</li> </ul>	<ul style="list-style-type: none"> <li>◆ Tata Steels Ltd</li> <li>◆ Hindalco Ltd</li> <li>◆ Sun Pharmaceuticals Ltd</li> <li>◆ Cipla Ltd</li> <li>◆ Lupin Ltd</li> </ul>

### Conclusion

The present study has analyzed the stocks in the light of risk and return and has segregated them as Best, Good, Average performer, and Risky. The Technology, Steel and Pharmaceuticals sectors chosen for the study are driving the Indian economy by registering a significant growth year after year. Timely and right investment decisions in these sectors can garner good returns and these sector stocks are highly liquid. The stock market is challenging, fulfilling, and rewarding to investors who are willing to learn the trading which involves the stocks that bear the minimum risk and maximum return. The project would help the investors to make a good choice and reap a good rate of return.