

# **Risk And Return Analysis of Selected Securities of BSE India Ltd**

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## **ABSTRACT**

*The study focuses on analysis risk and return associated with selected securities from different sectors like Banking, Information Technology, Automobiles, and Energy sector thus facilitating a decision regarding selecting the stocks in portfolio. The study is analytical in nature and used beta and standard deviation as tool to measure risk and absolute return and holding period return to measure return. The result showed that Adani Green energy, Tata Motors Ltd and Mahindra and Mahindra Ltd are the most performing stocks with outstanding returns. Adani Green Energy, the outperforming firm in selected time period is weekly correlated with the market index but have high beta value. Although other stocks of banking sector with high beta and high positive correlation has not performed well during study period*

**KEYWORDS:** Risk and return, standard deviation, beta.

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## **I. INTRODUCTION**

Stock market conditions are inherently dynamic, making prediction a key component of successful investing. Every investment carries a certain level of risk and the potential for return—both of which are fundamentally interconnected. To maximize returns, it is essential to have a clear understanding of the risks involved. Analysing both risk and return significantly influences an individual's investment decisions. While all investments involve some degree of risk, the most favorable ones are those that provide the best possible returns with minimal risk exposure. Accurate risk evaluation requires a solid grasp of market trends, enabling investors to make informed decisions and take precautionary steps when necessary. Risk is typically assessed by examining volatility and the gap between expected and actual returns.

The relationship between risk and return helps investors gauge the risk level of a particular investment relative to its expected earnings. Diversification is a widely used strategy to lower overall portfolio risk, though it may also limit potential gains. Concentrating investments in a single sector can yield higher returns if that sector outperforms the market, but it also increases vulnerability if the sector underperforms. The effectiveness of diversification diminishes when the returns of different assets are closely correlated.

So Analysing risk and return associated with security and correlation between their market price helps investor to make a worthy choice at time of their portfolio construction. Risk that can be of two types basically systematic and unsystematic affects the portfolio performance especially systematic risk that remains beyond control of investor too. So measuring the impact of risk with return may help investor to take worthy investment decision.

## **II. Literature Review**

Bantawa A and Ansari F U (2019) in their study relating risk return analysis of selected IT companies highlighted that the risk adjusted return was highest in case of Mindtree and Tech Mahindra. Stocks prices of Infosys, HCL technologies and Tech Mahindra are highly sensitive to market movement indicating the highest degree of systematic risk. Except HCL Technologies, Wipro and Oracle Fin Serv, remaining seven IT companies have offered higher rate of return than the minimum required rate of return.

Kavya (2018) analyzed the performance of nationalized banks from NSE with return, risk and beta from 1st Jan to 31st Dec 2017. This study considered Bank Nifty Index as benchmark. Risk and return of banking stocks as well as Data Envelopment analysis method is used for analyzing the efficiency of banks. The findings of the study showed that Bank of India and Punjab National Bank carry high risk & return & Axis Bank stock is less risky.

Gopalakrishnan (2017) undertaken a study to analyses the risk return relationship of selected companies in pharmaceutical industry of Indian stock market. This study use data from 2012 to 2017. The study finds the risk return characteristics of selected 10 pharmaceutical co., & concluded that Sun Pharmaceutical Industries Ltd carry high return high risk & Divi's Laboratories Ltd gives high return and the risk associated with those shares less

As shown in literature review, majority of studies as revolved around either of the sector or are sector specific study. Notion of diversification has emphasized on diversified investment into various securities across various sectors. So to measure the best performing stocks based on their risk and return, four vibrant sectors has been taken for evaluating risk and return of top performing companies therein

### NEED OF THE STUDY

This study analysis a subset of Indian stock market equities using the BSE as a reference, giving investors information on which assets would be the best investments. Risk analysis of particular Indian assets is thought to be very important in the current environment. To be an effective investor, one must properly analysis risk and return. As a result, the study's objective is to do a risk and return analysis of particular BSE securities after the outburst of covid.

### III. OBJECTIVE OF THE STUDY

1. To analyse the risk and return associated with selected securities using Beta analysis.
2. To measure the correlation amongst selected securities and Sensex.

### IV. SCOPE OF THE STUDY

The Study is analytical in nature. Data has been collected from secondary sources especially from website of BSEINDIA.COM. Apart from bseindia, reports of IBEF, research papers/journals and news articles have been referred to for extracting the related information

The study has covered a period starting from covid era so data from Jan, 2020 to March 2024 on monthly basis has been collected. For study, closing price of individual selected security and Sensex (Index of BSE) has been taken for 51 months.

Top four performing sectors i.e Banking sector, IT Sector, Energy Sector and Automobile Sector has been selected for the study based on the data extracted from money control website and report of IBEF 2023.

Further four top performing shared in selected sectors has been selected for study during the specified time period. For measuring the risk associated with security in relation to SENSEX, Beta analysis has been done, as a tool of sensitivity analysis. Further to measure the relation between selected security and given Index, Karl Pearson Correlation has been used.

Computation of Beta:  $\beta = \frac{N \sum XY - (\sum X)(\sum Y)}{N(\sum X^2) - (\sum X)^2}$

Standard Deviation =  $\sqrt{\frac{\sum (X - \bar{X})^2}{N}}$

Correlation R =  $\frac{N \sum XY - (\sum X)(\sum Y)}{\sqrt{[N \sum X^2 - (\sum X)^2][N \sum Y^2 - (\sum Y)^2]}}$

Return =  $\frac{\text{Closing price} - \text{Opening price}}{\text{Opening price}} \times 100$

### Sector Wise Risk Return Analysis of Securities

#### Banking Sector

Table 1- Risk Return status of Companies in Banking Sector

| Banks | $\beta$ | Absolute Return |
|-------|---------|-----------------|
| HDFC  | 1.124   | 16.415          |
| AXIS  | 1.525   | 26.022          |
| KOTAK | 0.951   | 5.603           |
| ICICI | 1.297   | 106.270         |

Amongst all banks, ICICI and AXIS is almost at same level of risk with Beta at 1.297 & 1.525 respectively, but ICICI bank has generated absolute return of 106.27% as compared to 26% return offered by AXIS bank, so this indicates the ICICI BANK out performed all the stocks in banking sector.

## IT Sector

Table 2- Risk Return status of Companies in IT Sector

| IT Companies  | B     | Absolute Return |
|---------------|-------|-----------------|
| INFOSYS       | 0.797 | 93.057          |
| TECH MAHINDRA | 0.914 | 57.204          |
| TCS           | 0.584 | 86.772          |
| WIPRO         | 0.598 | 102.724         |

Amongst all companies, TCS and WIPRO is almost at same level of risk with Beta at 0.584 & 0.598 respectively, but WIPRO has generated absolute return of 102% as compared to TCS return offered by 86%, so this indicates the WIPRO company is out performed all the stocks in IT sector.

## ENERGY SECTOR

Table 3- Risk Return status of Companies in Energy Sector

| Energy Sector Companies | B     | Absolute Return |
|-------------------------|-------|-----------------|
| Ntpc                    | 0.840 | 197.828         |
| Reliance Industries     | 0.972 | 110.866         |
| Adani Green Energy      | 1.295 | 868.039         |
| Indian Oil Corporation  | 0.990 | -11.454         |

Amongst all companies, RELIANCE and INDIAN OIL CORPORATION is almost at same level of risk with Beta at 0.972 & 0.990 respectively, but RELAINCE has generated absolute return of 110% as compared to INDIAN OIL CORPORATION return offered by -11%, so this indicates the RELIANCE company outperformed all the stocks in energy sector.

## AUTOMOBILE SECTOR

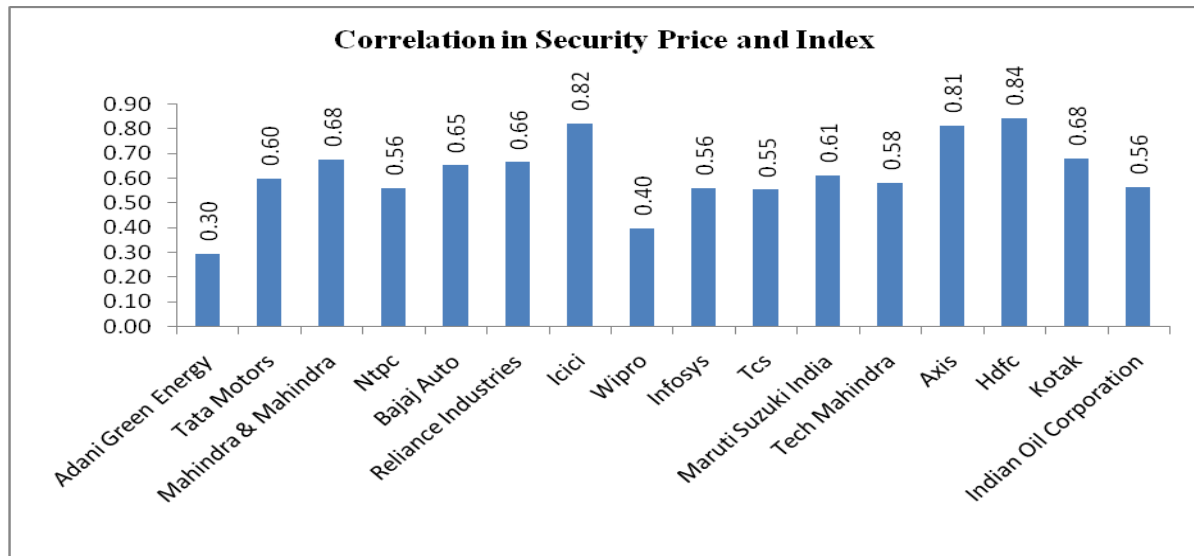
Table 4- Risk Return status of Companies in Automobile Sector

| Automobile Companies | B     | Absolute Return |
|----------------------|-------|-----------------|
| Mahindra & Mahindra  | 1.280 | 238.653         |
| Tata Motors          | 1.677 | 462.288         |
| Maruti Suzuki India  | 0.870 | 82.489          |
| Bajaj Auto           | 1.035 | 187.670         |

Amongst all companies, MAHINDRA & MAHINDRA and BAJAJ AUTO is almost at same level of risk with Beta at 1.280 & 1.035 respectively, but MAHINDRA & MAHINDRA has generated absolute return of 238% as compared to BAJAJ AUTO return offered by 187%, so this indicates the MAHINDRA & MAHINDRA company outperformed all the stocks in AUTOMOBILE sector.

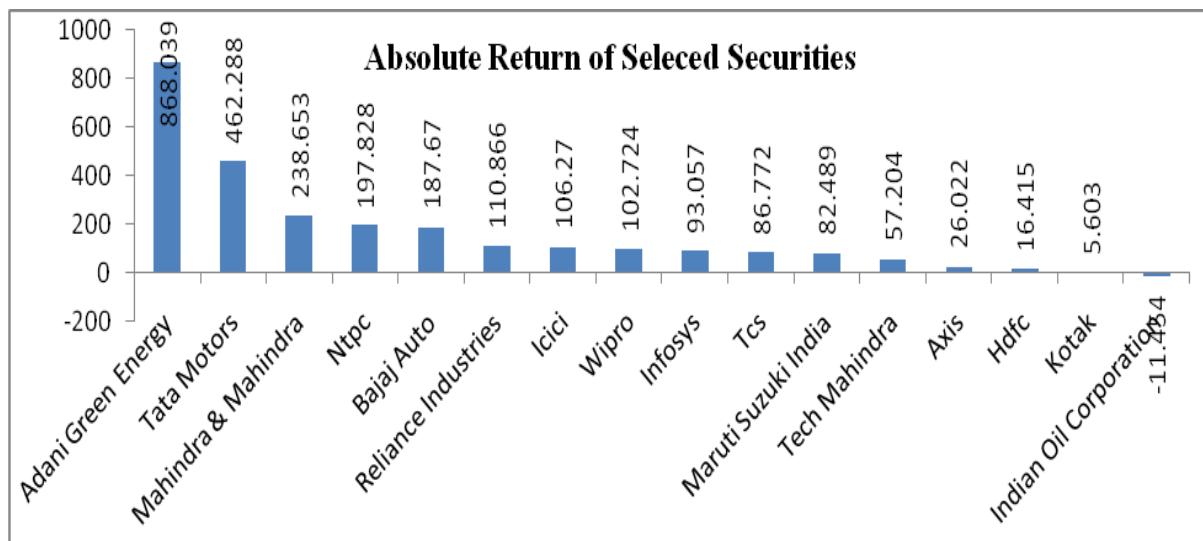
## Correlation and Absolute Return of Selected Securities with Index

Absolute Changeover in Index (SENSEX)= 77.957 %



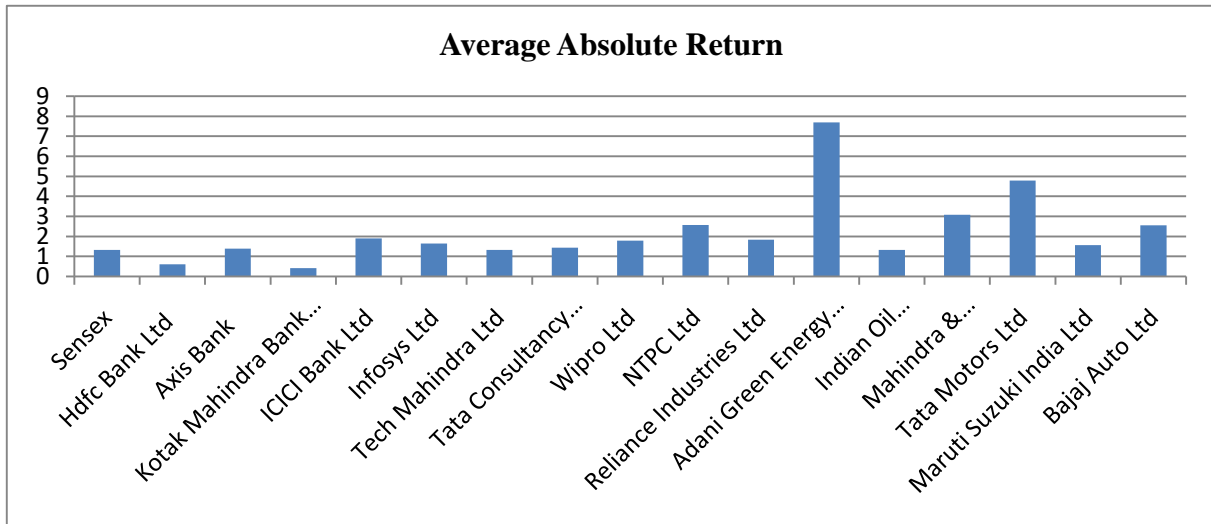
The above table and graph shown that all the stock having correlation above 0.70 are considered as highly correlated, one which is below 0.3 are weakly correlated with Index. Further, wherein  $0.3 < r < 0.7$ , the stock is termed as moderate correlated to the index.

During the selected period Rm has shown absolute changeover of 77.957 % amongst all selected securities, HDFC, AXIS and ICICI bank were Highly Positively Correlated securities with index. Adani green energy and Wipro companies were Weakly Correlated securities with index and the remaining securities like Tata Motors, Mahindra & Mahindra, Reliance industries, Infosys etc. are moderate correlated securities with index.



The return analysis shows that Adani Green Energy delivered the highest return (868.039), followed by Tata Motors (462.288) and Mahindra & Mahindra (238.653), indicating strong performance in the green energy and automobile sectors. NTPC, Bajaj Auto, and Reliance Industries also showed solid returns above 100. In the banking sector, ICICI Bank led with a return of 106.27, while in the IT sector, Wipro, Infosys, and TCS performed well.

Moderate returns were seen from Maruti Suzuki, Tech Mahindra, Axis, and HDFC, while Kotak Mahindra recorded a marginal return (5.603). Indian Oil Corporation was the only company to post a negative return (-11.454), indicating underperformance. Overall, the data highlights strong returns in green energy, automobiles, and IT, with mixed results in banking and energy.



From the above figure, the average return of selected securities is analysis. The highest average return earned during the year 2020-2024 is by Adani green energy ltd and the lowest returns is by Kotak Mahindra. Among these, the companies that comes under top 4 companies to gain more average return are Adani green energy, Tata Motors, Mahindra & Mahindra and NTPC and the rest of the companies earns lowest returns for the year 2020- 2024.

## V. Findings

The analysis reveals significant growth and performance trends across the selected sectors and companies. Since 2021, the banking sector's market size has expanded by 18.79%, with total deposits increasing by 86.97% as of 2023. The IT and Business Services industry is projected to grow substantially, from USD 6.96 billion to USD 19.93 billion, marking a growth of 186.35%. The energy sector has shown a market size increase of 17.66%, while the automobile sector recorded a modest growth of 3.08% during the same period. Among individual companies, ICICI Bank outperformed all other banking stocks with an absolute return of 106.27%, while WIPRO led the IT sector with a return of 102%. In the energy sector, Reliance Industries delivered the highest return at 110.87%, and Mahindra & Mahindra significantly outperformed all automobile stocks with an exceptional return of 238%. Correlation analysis indicated that HDFC Bank, Axis Bank, and ICICI Bank were highly positively correlated with the market index, suggesting a strong alignment with overall market movements. In contrast, Adani Green Energy and WIPRO showed weak correlation with the index, indicating more independent performance trends. Over the period from 2020 to 2024, Adani Green Energy Ltd. achieved the highest average return among all selected securities, whereas Kotak Mahindra Bank recorded the lowest average return.

## VI. Conclusion

The study has analyzed risk associated with securities using beta analysis and relation of script with index during 2020-24 (Since the outburst of Covid).The risk and return is directly proportional .Higher risks give higher returns and vice versa. In this study we will select those securities which will give higher return at same level of risk. The four major sectors studied in this study are Banking, IT ,Energy and Automobile sector. More specifically, to examine the correlation of four major sector stock market indexes & returns during the period January 2020 to march 2024. The results have indicated that amongst all the selected securities, HDFC, AXIS, ICICI Bank were highly positively correlated securities and Adani green energy and Wipro companies were Weakly Correlated securities with Index .on the other hand ,The research has shown that the highest average return earned during the year 2020-2024 is by Adani green energy ltd and the lowest returns is by Kotak Mahindra.

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