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EXPLORING THE IMPACT OF RISK AND RETURNS ON LARGE CAP PHARMACEUTICAL COMPANIES: A COMPREHENSIVE ANALYSIS

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ABSTRACT

The entire globe was still, no transactions, no circular flow of money, trading stood still, and the list goes on. It was at that time one industry was more curious and actively engaged in the manufacturing and research activity. It takes us to the year 2019, COVID tenure and the industries we are taking is nothing but pharmaceutical industries. The research article focuses on the large capital pharma industries to identify the risk and return and to establish relationships of the same in the selected companies. For the study descriptive statistics was used to analyze the data. With the help of mean, median, standard deviation, skewness and kurtosis risk was identified for the specified trading days for the period of five years from 2019-2023. The result of the study clarifies that the risk and return have a positive relationship where it proves higher the risk higher the return.

Key Words: *Descriptive Statistics, Large Capital, Pharmaceutical Industries, Risk, Returns.*

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INTRODUCTION

The title "Do risk and returns matter to large cap pharmaceutical industries- An Exploration" aims to analyze the relationship between risk and returns of selected pharmaceutical companies from the Indian stock market. The fundamental scope of investing, the risk-return trade-off is explored in this study. In general, investors expect higher returns when they take on higher risks. Therefore, understanding the risk-return trade-off is essential for investors to make informed investment decisions and to take up calculated risk. The study focuses on the pharmaceutical industry, which is an important sector in the Indian stock market. The Indian pharmaceutical industry is the third-largest in the world in terms of volume and has been growing rapidly in recent years. The study employs an analytical framework to measure risk and return of selected top five pharmaceutical companies from large market capitalization. The framework includes calculation of beta and standard deviation to assess risk, and return on investment. By examining the financial ratios of these companies, the study can identify which companies have a better risk-return profile and which ones are riskier investments. Overall, the study aims to provide insights into the risk and return dynamics of the pharmaceutical companies in the Indian stock market, which can help investors make informed investment decisions.

REVIEW OF LITERATURE

Gao, Y., Zhao, C., Sun, B. et al (2022). The study focuses on the market volatility on the green stocks with the intention of sustainable goals and developments. This research article focuses on 104 green energy companies in the Chinese stock market. The study identifies that there is a significant positive impact on sentiments. The investor's sentiments are positively correlated and information asymmetric was found.

Bhowmik, R., & Wang, S. (2020). The study helps in the systematic way to understand the volatility of market. The study is the systematic review of literature which was taken for the period of twelve years from 2008-2019 reviewed more than fifty research articles. The study identifies that there are significant changes happened in the way of conducting the research in the field of stock market. It talks about the complex workings and calculation advancement, sophisticated tools for research and so on.

Madhusudhanan R and Dr. Jisha V.G. (2019). The research focuses on the stock market volatility identification specific with banking sector. The study has consider only the banking industry and it compare the volatility with the BANK NIFTY. The study identifies that there are some bank stocks over riding the market and some are lagging behind the market.

Murthy, D.Sudarsana & Rajashekar, & Reddy, T. (2018). In the research article, the author identifies the stock market volatility on day, week and monthly basis. The study attempts to understand the trend and patterns followed by the stock price movements to understand the behavioral pattern. The article is also identifying the market efficiency by testing the weak form efficiency.

D. Mamtha K. Sakthi Srinivasan (2016). The study clearly explains the conceptual framework of volatility of share prices. It explains the characteristics of volatility with the supportive literature. The researchers experiment the volatility with different markets across the globe. The study helps to understand the risk-return mechanism through financial pricing. In the conclusion the study emphasis on high volatility if the prices move faster and low volatile if the price moves slower, parallel to which the risk will also moves.

Roni Bhowmik and Shouyang Wang (2003). The article was studied the volatility at the time of the financial crisis, it analyzed the investor behavior and the market volatility. The study establishes the wellness between the uncertainty and investment in association with investor's behavior. The result of the study reveals that there is no possibility of perfect forecasting of the market even with any proven theories. Therefore, the financial analysis always faces the complexity of forecasting the volatility of prices. The different determinants for the volatility are also discussed in the study. The most influencing factor is the information and its reflection in the market.

Ariel, R. A. 1987. In the study the researcher experiments the volatility happening inter-day-volatility and intra-day volatility. The research compares the impact of volatility on the macroeconomic factor. Risk of investment will also be examined with volatility and identified the risky and risk less investments. The study is also establishes the relationship between the stock volatility and consumer spending through which the wealth creation. In the findings the researcher establishes there is a direct relationship of market volatility and business activities and investment which has a direct effect over the macroeconomic factor as well. In the country wise

analysis, the study identifies that the Indian stock market is having the high volatility and chances of growth is also high in the Indian market.

RESEARCH METHODOLOGY

Statement of the Problem

Investors always aim to maximize their returns while minimizing their risks. However, it is important to note that every investment carries some degree of risk. The key is to take calculated risks by carefully analyzing the potential risks and rewards of an investment before making a decision.

Objectives

1. To calculate the returns for the selected stocks
2. To evaluate the security risk.
3. To establish the relationship between risk and return.

Type of Data and Sampling Technique

For the study we considered the secondary data of Large Cap pharmaceutical companies. The daily returns for the selected companies are for the period of five years from 2019-2023. Every year 248 trading days are considered for the calculations. The data are collected from the BSE website.

<https://www.bseindia.com/markets/equity/EQReports/StockPrHistori.html?flag=0>

Tools Used

1. Descriptive Statistics (Using Ms. Office 2021- MS Excel)
2. Chart (Line Chart) using Ms. Excel.

Limitation of the Study

1. The analysis and interpretation are time bound nature.
2. The study considered only top five companies only.
3. The study considered only Pharmaceutical Industry.
4. The tools used have their own limitations.

DATA ANALYSIS AND INTERPRETATION**Table 1: Descriptive Statistics**

| SUN PHARMACEUTICALS LTD | | | | | |
|--------------------------------|--------------|--------------|-------------|-------------|--------------|
| | 2019 | 2020 | 2021 | 2022 | 2023 |
| Mean | -0.092662241 | 0.022684371 | 0.154096948 | 0.156416766 | 0.083541893 |
| Median | -0.224149693 | -0.03440367 | 0.108313639 | 0.056760371 | -0.060145443 |
| Standard Deviation | 2.206684268 | 2.044048127 | 2.425333477 | 1.617917126 | 1.457993154 |
| Kurtosis | 2.097701818 | 2.898806379 | 4.317882807 | 5.483706327 | 2.542037036 |
| Skewness | 0.093458136 | -0.391809013 | 0.204282308 | 1.05144344 | 0.787307919 |
| Confidence Level (95.0%) | 0.277692875 | 0.257226468 | 0.30089738 | 0.202353966 | 0.181982019 |
| CIPLA LTD. | | | | | |
| | 2019 | 2020 | 2021 | 2022 | 2023 |
| Mean | -0.05250957 | -0.0239297 | 0.24431442 | 0.06896848 | 0.09255907 |
| Median | -0.21594684 | -0.05840553 | -0.07746904 | 0.02541991 | -0.03471013 |
| Standard Deviation | 1.6682686 | 1.42274442 | 2.49555316 | 1.55344059 | 1.4814783 |
| Kurtosis | 4.3788778 | 0.75462242 | 4.26203254 | 2.11885683 | 1.30680046 |
| Skewness | 0.56232675 | 0.31808674 | 1.24056941 | 0.38946325 | 0.55353245 |
| Confidence Level (95.0%) | 0.20993774 | 0.17904056 | 0.30960914 | 0.19428984 | 0.20057353 |

| Divi's Laboratories Ltd | | | | | |
|---------------------------------|--------------|--------------|--------------|--------------|--------------|
| | 2019 | 2020 | 2021 | 2022 | 2023 |
| Mean | 0.142508434 | 0.103270853 | 0.318675316 | 0.091933898 | -0.109230194 |
| Median | 0.022995907 | 0.117891602 | 0.277083242 | 0.029708339 | 0.002857409 |
| Standard Deviation | 2.040403898 | 1.643797298 | 2.349236494 | 1.591697144 | 1.879647012 |
| Kurtosis | 10.4855162 | 7.346629367 | 4.856670881 | 2.837629229 | 4.822626419 |
| Skewness | 1.669961374 | -1.092676474 | 0.204511422 | 0.438453495 | -1.079586315 |
| Minimum | -4.687090861 | -9.592033591 | -10.91090858 | -6.323666439 | -9.498212047 |
| Maximum | 14.90549486 | 5.437929786 | 11.95474544 | 8.075350618 | 6.327973385 |
| Confidence Level (95.0%) | 0.256767872 | 0.206858228 | 0.291456458 | 0.199074616 | 0.235088696 |
| DR. REDDY'S LABORATORIES | | | | | |
| | 2019 | 2020 | 2021 | 2022 | 2023 |
| Mean | 0.05216654 | 0.04830818 | 0.25988 | -0.01112637 | -0.04809977 |
| Median | -0.0061197 | -0.04422118 | -0.0105 | 0.06270998 | 0.03009934 |
| Standard Deviation | 1.93906008 | 1.38730113 | 2.24553 | 1.56808881 | 1.51864049 |
| Kurtosis | 3.32894783 | 2.18367445 | 7.8756 | 8.26310725 | 3.62092729 |
| Skewness | -0.1979463 | -0.39812616 | 1.81952 | -1.37979838 | 0.31236502 |
| Minimum | -9.85134523 | -5.82402387 | -4.8273 | -10.4415666 | -5.13912305 |
| Maximum | 6.30295352 | 4.12973567 | 13.9389 | 4.8261372 | 8.10198445 |
| Confidence Level (95.0%) | 0.24401459 | 0.17458032 | 0.27859 | 0.19612191 | 0.18993737 |

| APOLLO HOSPITALS ENTERPRISES LTD | | | | | |
|---|-------------|-------------|-------------|-------------|-------------|
| | 2019 | 2020 | 2021 | 2022 | 2023 |
| Mean | 0.0434 | 0.0755 | 0.24699 | 0.32629 | -0.02477 |
| Median | -0.3035 | -0.0167 | 0.10685 | 0.2104 | -0.1292 |
| Standard Deviation | 2.2504 | 2.01085 | 2.92319 | 2.51746 | 2.03572 |
| Kurtosis | 4.18389 | 5.71593 | 6.43492 | 7.24002 | 0.82889 |
| Skewness | 1.08656 | 0.11978 | -0.0307 | 1.47838 | 0.07181 |
| Minimum | -5.7508 | -10.644 | -15.107 | -8.0277 | -6.7547 |
| Maximum | 12.7885 | 9.71281 | 15.7263 | 13.1946 | 5.90086 |
| Confidence Level (95.0%) | 0.28319 | 0.25305 | 0.36266 | 0.31486 | 0.25461 |

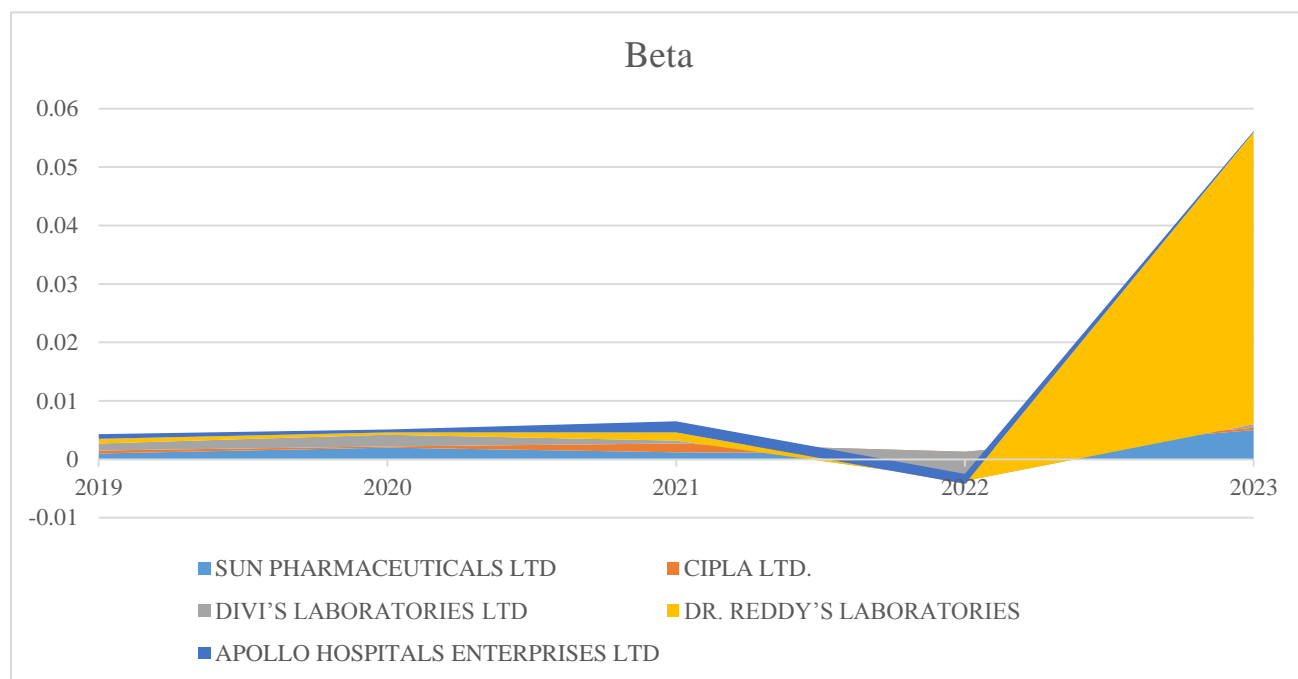
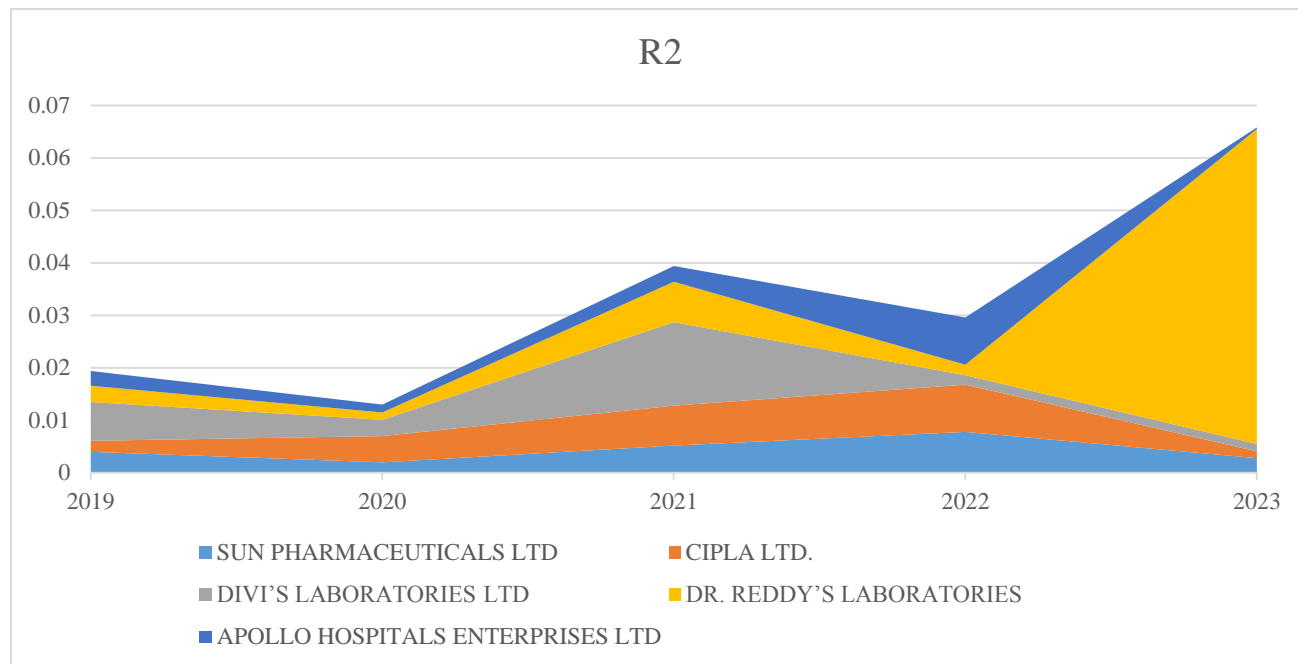
Source: Compiled by Author

Table 1.1: Risk Analysis

| SUN PHARMACEUTICALS LTD | | | | | |
|---|-------------|-------------|-------------|-------------|-------------|
| | 2019 | 2020 | 2021 | 2022 | 2023 |
| R ² | 0.004 | 0.002 | 0.0052 | 0.0078 | 0.0028 |
| Beta | 0.001 | 0.002 | 0.0012 | 0.001 | 0.005 |
| CIPLA LTD. | | | | | |
| R ² | 0.0021 | 0.005 | 0.0076 | 0.009 | 0.0013 |
| Beta | 0.0005 | 0.0002 | 0.0015 | 0.0003 | 0.0004 |
| DIVI'S LABORATORIES LTD | | | | | |
| R ² | 0.0074 | 0.0031 | 0.0159 | 0.0018 | 0.0014 |
| Beta | 0.0012 | 0.002 | 0.0005 | -0.005 | 0.0006 |
| DR. REDDY'S LABORATORIES | | | | | |
| R ² | 0.0031 | 0.0014 | 0.0077 | 0.002 | 0.06 |
| Beta | 0.0008 | 0.0004 | 0.0014 | -0.0005 | 0.05 |
| APOLLO HOSPITALS ENTERPRISES LTD | | | | | |
| R ² | 0.0028 | 0.0015 | 0.003 | 0.009 | 0.0003 |
| Beta | 0.0008 | 0.0005 | 0.0019 | 0.0017 | 0.0002 |

Source: Compiled by Author

Figure 1.1.1



RESULTS AND DISCUSSIONS

Sun Pharmaceuticals Ltd.

The averages of Sun Pharma are positive and steady except 2019 due to COVID. Risk of individual security also ranges from 1.4 to 2.2 approx. which the risk is also constant over the period of time. the peakedness is also mesokurtic which evident of less risk and mostly it is positively skewed. The correlation coefficient is also almost constant and the beta is less than 1 over the period of time.

Cipla Ltd.

The average returns values are positive for majority of the years. The standard deviation ranges from 1.4 to 2.4 which shows the deviation from the mean value is also less. It is clearly evident about the mesokurtic over the period of time, and the skewness shows positive. The correlation coefficient is also almost constant and the beta is less than 1 over the period of time. The correlation coefficient is also almost constant and the beta is less than 1 over the period of time.

Divi's Laboratories Ltd.

The mean average is not having much deviation which shows the stock price is less volatile. The risk of individual security ranges from 1.4 to 2.3 which shows the deviation are less. It is having the leptokurtic, which having the higher peakedness and positively skewed. The correlation coefficient is also almost constant and the beta is less than 1 over the period of time.

Dr. Reddy's Laboratories Ltd.

Mean averages are not having much differences which shows that the the stock are less volatile in nature. The standard deviation ranges from 1.30 to 2.2 which is less deviated from the mean value having less volatile. It is having the leptokurtic, which having the higher peakedness and positively skewed. The correlation coefficient is also almost constant and the beta is less than 1 over the period of time.

Apollo Hospitals Enterprises Ltd.

The mean averages are having less differences which shows the script is less volatile. The standard deviation is also approximately closed values which the certainty of risk is clearly maintained. It is having the leptokurtic, which having the higher peakedness and positively

skewed. The correlation coefficient is also almost constant and the beta is less than 1 over the period of time.

SUGGESTIONS

Companies have to declare dividend to maintain the market capitalization and the shareholder's wealth. Negative beta companies have to improve the financial status to boost confidence of the investors and to attract potential investors. It would also help to overcome the negative beta to beat the market expectation. In general, the market beta would be 1 and the individual security beta will be varying. The companies having less than 1 is less volatile and less risky compared to market beta and is suggested to maintain the same. The chances are more likely to associate between risk and returns it is recommended for the companies and investors to optimize the returns by minimizing risk.

CONCLUSION

Risk and returns always have positive relationship, therefore high risk will be associated with higher returns, and in contrast to that the chances of losses are also higher. Therefore, the systematic risk cannot be avoided but can be transferred, accepted, reduced but cannot be avoided. It was found that irrespective of the market capitalization the risk and returns relationships exists. It is understood that the risk cannot be avoided, it can be treated on either way.

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