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A Pharmaceutical Sector Study on Beta-Listed Companies in the NSE

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Abstract
The beta coefficient for securities listed on the NSE to gauge the expected returns. Due to a growing inclination towards saving and the need for extra earnings, investors are increasingly opting for securities as an investment vehicle. Notwithstanding this interest, the inherent unpredictability in the stock market presents a substantial obstacle for prospective investors. An obstacle that investors often encounter is their limited understanding of how to build a successful investing portfolio. The beta coefficient, a fundamental measure in this research, is used to quantify the volatility of stocks, offering valuable information about the corresponding amount of risk. The beta values are estimated by collecting data from the Nifty Pharma index over a period of six years, namely from 2017 to 2022. The objective of this research is to assess and prioritise securities by analysing their beta values within the chosen time period.

Keywords: NSE, Pharmaceutical Sector, Market Volatility, Pharma Index, Co-variance, Beta

Introduction

The Beta (β) of a security is used to quantify its volatility. Using the beta coefficient is one method that may be used to evaluate the volatility of a stock to the systematic risk that the market has. Beta is a phrase that is often used in statistics to refer to the slope of the line that is derived from data point regression analysis. Every data point in the finance field represents the comparative performance of a certain stock in relation to the whole market. The beta of a security offers a comprehensive picture of how the security responds to changes in the direction of the market. The beta of a securities may be determined by multiplying the covariance of its returns with the returns of the market for a certain time period by the variance of the market's returns. This calculation can be done many times. Investors use a beta test to determine the degree to which a stock adds to the overall risk of a portfolio. A stock with low market volatility does not add risk to a portfolio, but it also does not provide an opportunity for higher returns.

The beta of a stock serves as a proxy to measure its level of risk or volatility in comparison to the broader market. Therefore, the appropriateness of a beta value will depend on your particular goals and willingness to take risks. A beta value of 1.0 is considered optimal since it enables your portfolio to closely mirror the performance of the overall market, such as via an index exchange-traded fund (ETF). If you are a prudent investor seeking to safeguard your wealth, a

smaller beta may be more appropriate. A beta value greater than 1.0 often leads to higher than average profits in a bullish market, but it also results in larger losses during a market downturn. Many experts agree that beta, while providing some risk information, is inadequate as a standalone risk indicator. Beta only examines the past performance of a stock. The beta of a stock is only used to evaluate its past performance in comparison to the NSE; it does not give any projections about the company's future performance. Moreover, stock neglects to take into account a company's profitability, potential for expansion, or underlying financial factors.

The beta coefficient hypothesis assumes that stock returns follow a normal distribution, based on statistical analysis. However, significant unexpected events might occur in the financial markets. In fact, the distribution of returns is not always normal. Hence, it is not always reliable to determine the future trajectory of a stock based just on its beta. Despite exhibiting little price volatility, a company with a low beta might nonetheless be caught in a prolonged downward trajectory. The beta of a stock is only used to evaluate its past performance in comparison to the NSE; it does not give any projections about the company's future performance. Likewise, the risk of a portfolio will grow when it contains a high beta stock that is mostly marked by upward volatility, but this may also result in potential profits. Prior to making any assumptions about the impact of a company on a portfolio's risk, investors should take into account other elements, such as fundamental or technical research, in addition to using beta.

What methods should financial professionals use to assess the risk associated with the equities they acquire or trade? The quantitative measure referred to as beta is widely used as an indicator, despite the inherent challenge of incorporating risk into stock research and pricing. Investigators often use it as a technique to determine the risk profile of equities. Financial experts may use beta's threshold values to detect substantial risk variables, despite its provision of insights about value likelihood. Beta is determined with the use of relapse investigation. The numerical expression quantifies the probability that the profits of an asset will respond to changes in the market. Beta is determined by dividing the connection between the occurrence of a particular benefit and the occurrence of the overall market.

Beta Formula

The formula to calculate beta is $\beta = Cov(X,Y)/Var(Y)$.

The dependent variable Y represents the returns on your stock or portfolio, while the independent variable X represents the market returns or index.

The square of the standard deviation equals variance.

Two variables' covariance is measured by a statistic called covariance, which can be obtained by:

1/(N-1) = Cov(x,y)

∑_(t=1)^N▒□[Xt-X^-]

[Yt-Y^-]

N represents the total number of observations in this case.

Review of Literature

Saravanan et al. (2020) study was to ascertain the assessment of firms that are listed on the NSE. The beta coefficient of a stock quantifies the degree of risk associated with the investment and assesses its level of volatility. The user's text is empty. The beta coefficient is used to assess the performance of securities over a certain time frame.

According to Nalini (2014), the process of constructing an optimal portfolio is a challenging challenge for both individual investors and established financial institutions. This research was

conducted with the intention of educating investors about the significance of Sharpe's single index model in the process of portfolio development.

Titled "Portfolio Construction and Risk Management Theory versus Practice," the 2017 study by Stefan Colza Lee et. al. aims to uncover any discrepancies between the theoretical framework of academic research and the actual practices of Brazilian investment managers. A thorough investigation, including a literature review and field observations, was conducted to achieve this objective. Only 78 out of 274 asset management firms took part by filling out the survey online. When it comes to Brazil, this work may be a game-changer for portfolio construction, performance assessment, and risk management. According to the results of the tests, eight of the hypotheses were partially or completely disproven, and the nation's execution was different from the theoretical expectations in one. It is worth mentioning that only a small fraction of Brazilian academic studies account for transaction costs like brokerage fees. Vevek et al. (2021) studied the volatility in Indian stock and its behavioural changes Vevek et al. (2017) using the Econometrics GARCH(1,1) model and found the existence of volatility in the market Vevek et al. (2022)

The research done by Hui, Shan Leel, and Fan, Fah Chang Chon (2016) investigated whether speculators can effectively use the CAPM to evaluate the risk and behaviour of Malaysian stocks prior to trading in the Kuala Lumpur stock market. This approach may serve as a tactic to mitigate potential losses by comprehending the stock trends of the company and then making an impartial contribution. In addition, diversifying the portfolio may enhance stability in the financial speculative market and bolster speculators' confidence in the chosen enterprise. This, in turn, would aid Malaysia in achieving its strategic objective of becoming a developed country by 2020.

Johan (2012),study aimed to create an investing approach for active portfolio management that would achieve better performance than the MSCI Denmark index between 1992 and 2011. Therefore, he believes that engaging in active portfolio management is advantageous for the investor.

Need for the Study

This study comprehends why the beta value statistic is significant for pharmaceutical company stocks. A secondary goal of the research is to identify which pharmaceutical stock in the target market is most affected by beta value.

Objective of the Study

- To examine Beta value and rank the selected pharmaceutical companies' stocks.
- To identify and suggest the better performing Pharma stock to the investors.

Data

The researcher used a descriptive study strategy in this instance, enabling the pursuit of precise goals and explicit data prerequisites. Over the course of six years, starting on January 1, 2017, and ending on December 31, 2022, information was collected on nineteen different pharmaceutical stocks on a daily basis. The secondary data was obtained from the website of the NSE.

Estimation of Beta

The following formula is used to determine each security's beta value:

Where, $\beta = cov(x,y) \div var(x)$

- One dependent variable that is taken into consideration is the return on securities, or Y.
- X, which is the market or index returns, is regarded as an independent variable.

The square of the standard deviation equals variance.

Covariance is a statistical measure that measures the extent to which two variables fluctuate together.

Table 1 Exhibits the Beta Value of Listed Pharma Stocks and Ranked

S. NO	SYMBOL	β(BETA)	RANK
1	ALKEM	0.293	11
2	ABBOTINDIA	0.195	11
3	AUROPHARMA	0.411	5
4	BIOCON	0.025	15
5	CIPLA	0.610	1
6	DIVISLAB	0.347	5
7	DRREDDY	0.156	11
8	GLAND	0.177	8
9	GLAXO	0.090	10
10	GLENMARK	0.396	4
11	IPCALAB	0.153	7
12	LAURUSLABS	0.009	8
13	LUPIN	0.484	2
14	NATCOPHARM	0.320	4
15	PFIZER	0.323	3
16	SANOFI	0.198	3
17	SUNPHARMA	0.490	1
18	TORNTPHARM	0.135	2
19	ZYDUSLIFE	0.340	1

Interpretation

Investors may use these rankings to synchronise their investing plans with their risk tolerance and market expectations. High beta equities exhibit more potential for profits but also carry heightened volatility, whilst low beta stocks provide stability although possibly lesser returns.

High Beta Stocks (More Volatile)

- Cipla (0.610) and Sun Pharma (0.490) have the highest beta values, ranking 1.
- Lupin (0.484) and Zydus Life (0.340) also show relatively high beta, ranking 2.

Moderate Beta Stocks

Glenmark (0.396), Natco Pharma (0.320), Pfizer (0.323), and Divis Lab (0.347) exhibit moderate beta, ranking 4.

Low Beta Stocks (Less Volatile)

- Auro Pharma (0.411) and TornTPharm (0.135) have moderate beta, ranking 5.
- Alkem (0.293), Abbott India (0.195), Dr. Reddy's (0.156), Gland (0.177), Glaxo (0.090), and IPCA Lab (0.153) also have low beta values, ranking 8 to 11.

Extremely Low Beta Stocks

Biocon (0.025) and Laurus Labs (0.009) have extremely low beta values, ranking 15.

Conclusion

The significance of beta levels in evaluating the level of risk associated with pharmaceutical stocks. The beta coefficient is an essential metric for investors to assess the volatility and possible returns of certain equities relative to the overall market. Nevertheless, the study underscores the limitations of beta as an independent measure of risk, recommending investors to take into account other aspects such as fundamental and technical research.

The literature review highlights the real-world difficulties and discrepancies from predicted outcomes in portfolio creation and risk management, emphasising the need for a thorough strategy that goes beyond beta analysis. The methodology section offers a lucid understanding of the process of gathering data and calculating beta values for 19 pharmaceutical companies. These stocks are then rated according to their beta coefficients.

The beta rankings aid investors in matching their strategy with their risk tolerance and market expectations. High beta companies, such as Cipla and Sun Pharma, have more potential for gains but also entail heightened volatility. Conversely, low beta equities offer stability but may yield comparatively lesser returns. The equities with the very low beta, namely Biocon and Laurus Labs, highlight the fact that low volatility does not always protect against extended periods of decline.

Ultimately, while beta serves as a helpful quantitative metric, investors should adopt a comprehensive strategy, taking into account many elements and undertaking extensive research to make well-informed choices in the ever-changing pharmaceutical industry.

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