

A Study on Beta Analysis of Selected Pharmaequity Stock with Special Reference to National Stock Exchange

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Abstract

Capital developments across the world have influenced Indian capital market also in the last 15 years. Capital markets in India have witnessed the change and have attained remarkable degree of growth. With the opening up of the economy for multinationals and liberated economic policies, Indian economy is achieving newer-horizon every day. But these new horizon has also brought new challenges along with them. The biggest challenge faced by Indian corporate is to protect their operating profit from these risks. Hence risk management has become very essential for corporate house in order to survive. The study on beta analysis of selected Pharmacy equity with special reference to National Stock exchange' finds out how beta will affect the market. This study helps to understand the market conditions and their movement. Meanwhile it helps to understand the percentage of risk happened in selected Pharmacy shares and also how it will get affect the economy of the country. The main scope of the study explains how the selected pharmacy is associated with NSE.

Keywords: Capital, Indian Economy, Pharmacy, NSE

Introduction

Capital markets serves as an ideal arena for raising long term funds needed for trade and history. It contributes to the development and growth of industry, its role is significant in a developing country like India where funds are raised by issuing various types of securities such as equity, bond etc. A well developed capital market channelizes savings of the people towards profitable investments. It has been observed that countries where capital markets are not developed a large position of funds remain idle and reason proper funneling of investments. It is primarily because of this fact that an efficient capital market is an indispensable requirement for economic development of a country.

Beta

Beta is a statistical measure that compares volatility of a particular stock's price movements to the overall market. In simple terms, it indicates how much the price of a specific security will move in relation to market movements. A beta of 1.0 indicates that the security's price will move with the market. A beta less than 1.0 suggests the security will be less volatile than the market, while a beta greater than 1.0 indicates the security will be more volatile.

The beta of an asset, β_i , is a measure of the variability of that asset relative to the variability of the market as a whole. Beta is an index of the systematic risk of an asset. As beta measures the volatility of the volatility of a security's returns relative to the market, the larger the beta, the more volatile the security. As beta 1 indicates a security of average risk. A stock with beta greater than has above the average risk. Its returns would be more volatile than the market returns. A stock with beta less than 1 would have below average risk. Variability in its returns would be comparatively lesser than the market variability. Beta can also be negative, implying that the stock returns move in a direction opposite to that of the market returns. It is a historical measure of systematic risk. In using this beta for investment decision –making, the investor is assuming that the relationship between the security variability and market variability will continue to remain the same in future also.

Objective of the Study

- To study the beta analysis of selected pharma equity stock in national stock exchange
- To calculate the beta value of selected pharmacy company to measures the risk arising from market movement.
- To analyze the beta value of each pharmacy company individually year wise.

Review of Literature

Capital market instruments forces investors to depend strongly on fundamental factors in their investment decisions. These fundamental factors relate to the overall economy or a specific industry or a company. However, as companies are a part of industrial and business sector, which in turn are a part of overall economy, so even the economic and industry factors can affect the investment decision. The selection of an investment will start with fundamental analysis. Fundamental analysis examines the economic environment, industry performance and company performance before making an investment decision (Suresh).

(Kashyap) study represents the brief idea about the Indian banking sector and fundamental analysis of public sector banks. Fundamental analysis helps

to analyze the strength of basics of banking sector. It provides the information on the long term stability of banking sector and future growth prospects in banking sector. Investors can find out the past performance of banking sector and future prospects of higher return and stability in this sector.

Variables and Measurement

- Sun Pharma
- Lupin
- Cipla
- Dr. Reddy's Lab
- Cadila Health

Tools Used for Analysis

- Beta Analysis
- Correlation

Beta Analysis

Table 1 Beta Analysis of Sun Pharma & Nifty Pharma

S. No	X	Y	XY	X ²
1	12546	918	11517228	157402116
2	1186	879	1042494	1406596
3	11698	1024	11978752	136843204
4	11589	939	10882071	134304921
5	11478	967	11099226	131744484
7	11236	875	9831500	126247696
8	11756	823	9675188	138203536
-	-	-	-	-
59	8208	450	3693600	67371264
60	8051	432	3478032	64818601
Total	$\sum x =$ 585329	$\sum y =$ 38554	$\sum XY =$ 387565666	$\sum X^2 =$ 5980140589

Beta analysis of Sun Pharma (X=Nifty Pharma; Y=Sun Pharma)

$$(\sum x)^2 = 342610038241$$

$$\beta = \{60 \times (387565666) - (38554)(585329)\} / \{60 \times (5980140589) - (342610038241)\}$$

$$\beta = 0.04$$

Interpretation: The above table shows closing price of Sun Pharma and Pharma nifty index from January 2020 to December 2023. From each month any one day's closing price has taken. A beta of

greater than 1 indicates the above average risk than bank nifty index of same year .In this research, the beta value of Sun Pharma during 2020 to 2023. is 0.04 which shows that Sun Pharma has below the average risk than the selected Pharma nifty. So if the investor willing to take less risk than the index, this stock can be chosen.

Figure 1 Beta Analysis of Sun Pharma relating to Nifty Pharma

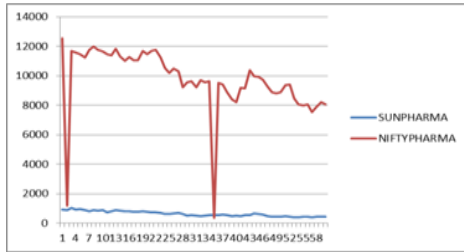


Table 2 Beta Analysis of Lupin & Nifty Pharma

S. No	X	Y	XY	X ²
1	12546	1585	19885410	157402116
2	1186	1737	2060082	1406596
3	11698	2009	23501282	136843204
4	11589	1771	20524119	134304921
5	11478	1833	21039174	131744484
-	-	-	-	-
59	8208	801	6574608	67371264
60	8051	764	6150964	64818601
Total	Σx= 585329	Σy= 74052	ΣXY= 752017978	ΣX ² = 5980140589

Beta Analysis of Lupin (X=Nifty Pharma; Y=Lupin)

$$(\sum x)^2 = 342610038241$$

$$\beta = \{60 \times (752017978) - (74052)(585329)\} / \{60 \times (5980140589) - (342610038241)\}$$

$$\beta = 0.10$$

Interpretation: The above table shows closing price of Lupin and Pharma nifty index from January 2020 to December 2023. From each month any one day's closing price has taken. A beta of greater than 1 indicates the above average risk than bank nifty index of same year. In this research, the beta value of Lupin during 2020 to 2023 is 0.10 which shows that Lupin has below the average risk than the selected Pharma nifty. So if the investor willing to take less risk than the index, this stock can be chosen.

Figure 2 Beta Analysis of Lupin relating to Nifty Pharma

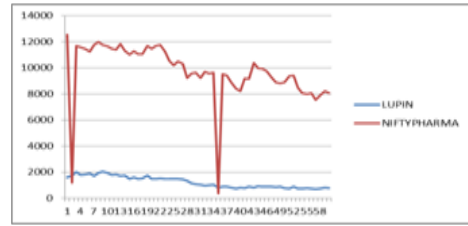


Table 3 Beta Analysis of Cipla & Nifty Pharma

S. No	X	Y	XY	X ²
1	12546	696	8732016	157402116
2	1186	670	794620	1406596
3	11698	712	8328976	136843204
4	11589	636	7370604	134304921
5	11478	650	7460700	131744484
-	-	-	-	-
59	8208	465	3816720	67371264
60	8051	478	3848378	64818601
Total	Σx= 585329	Σy= 34668	Σxy= 340042235	ΣX ² = 5980140589

Beta Analysis of Cipla (X=Nifty Pharma Y=Cipla)

$$(\sum x)^2 = 342610038241$$

$$\beta = \{60 \times (340042235) - (34668)(585329)\} / \{60 \times (5980140589) - (342610038241)\}$$

$$\beta = 0.006$$

Interpretation: The above table shows closing price of Cipla and Pharma nifty index from January 2020 to December 2023. From each month any one day's closing price has taken. In this research, the beta value of Cipla during 2020 to 2023 is 0.006 which shows that Cipla has below the average risk than the selected Pharma nifty. So if the investors willing to take less risk than the index, this stock can be chosen.

Figure 3 Beta Analysis of Cipla relating to Nifty Pharma

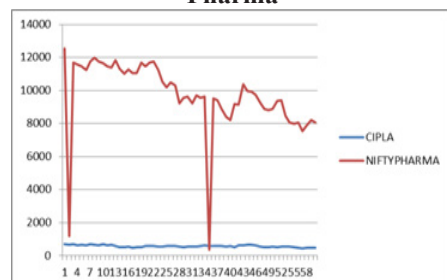


Table 4 Beta Analysis of Dr.Reddy’s Lab & Nifty Pharma

S.No	X	Y	XY	X ²
1	12546	3233	40561218	157402116
2	1186	3281	3891266	1406596
3	11698	3490	40826020	136843204
4	11589	3316	38429124	134304921
5	11478	3538	40609164	131744484
-	-	-	-	-
59	8208	2914	23918112	67371264
60	8051	2880	23186880	64818601
Total	Σx= 585329	Σy= 171815	Σxy= 1706790545	ΣX ² = 5980140589

Beta Analysis of Dr.Reddy’s lab (X=Nifty Pharma;
Y=Dr.Reddy’s lab)

$$(\sum x)^2=342610038241$$

$$\beta = \{60 \times (1706790545) - (171815) (585329)\} / \{60 \times (5980140589) - (342610038241)\}$$

$$\beta = 0.12$$

Interpretation: The above table shows closing price of Dr. Reddy lab and Pharma nifty index from January 2020 to December 2023. From each month any one day’s closing price has taken. A beta of greater than 1 indicates the above average risk than bank nifty index of same year. In this research, the beta value of Dr Reddy’s lab during 2020 to 2023 is 0.006 which shows that Dr. Reddy lab has below the average risk than the selected Pharma nifty. So if the investor willing to take less risk than the index, this stock can be chosen.

Figure 4 Beta Analysis of Dr. Reddy’s Lab relating to Nifty Pharma

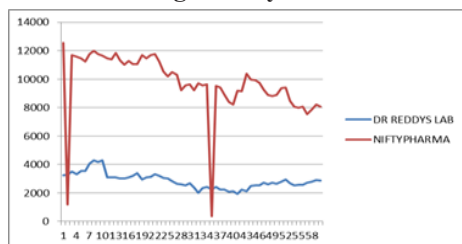


Table 5 Beta Analysis of Cadila Health & Nifty Pharma

S. No	X	Y	XY	X ²
1	12546	327	4102542	157402116
2	1186	307	364102	1406596
3	11698	349	4082602	136843204
4	11589	340	3940260	134304921
5	11478	376	4315728	131744484
-	-	-	-	-
59	8208	254	2084832	67371264
60	8051	255	2053005	64818601
Total	Σx= 585329	ΣY= 22010	ΣXY= 216097645	ΣX ² = 5980140589

Beta Analysis of Cadila Health (X=Nifty Pharma;
Y=Cadila Health)

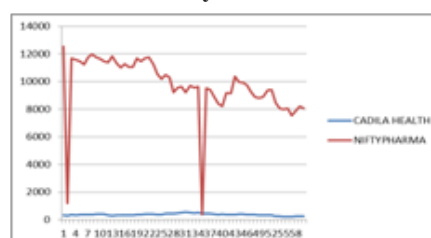
$$(\sum x)^2=342610038241$$

$$\beta = \{60 \times (216097645) - (22010) (585329)\} / \{60 \times (5980140589) - (342610038241)\}$$

$$\beta = 0.006$$

Interpretation: The above table shows closing price of Cadila Health and Pharma nifty index from January 2020 to December 2023. From each month any one day’s closing price has taken. A beta of greater than 1 indicates the above average risk than nifty index of same year. In this research, the beta value of Cadila Health during 2020 to 2023 is 0.006 which shows that Cadila Health has below the average risk than the selected Pharma nifty. So if the investor willing to take less risk than the index, this stock can be chosen.

Figure 5 Beta Analysis of Cadila Health relating to Nifty Pharma



Correlation Matrix

	Sun Pharma	Lupin	Cipla	Dr. Reddy's Lab	Cadila Health	Nifty Pharma
SunPharma	1					
Lupin	0.93777557	1				
Cipla	0.579462963	0.48264719	1			
Dr.Reddy's Lab	0.730619774	0.808047189	0.353221447	1		
Cadila Health	0.118829182	0.133812013	0.382484568	-0.149065295	1	
Nifty Pharma	0.512916446	0.540890134	0.221962	0.451010857	0.150371851	1

Interpretation

- The stock Sun pharma is highly correlated with Lupin (correlation value above 0.70), where the price movement of both stock are relatively same. Sun pharma has no correlation with the stock Cadila health (with correlation values less than 0.30)
- The stock Lupin is highly correlated with Sun pharma (correlation value above 0.70), where the price movement of both stock are relatively same. Lupin has no correlation with the stock Cadila Health (with correlation values less than 0.30)
- The stock Cipla is highly correlated with Sun pharma (correlation value above 0.70), where the price movement of both stock are relatively same. Cipla has less correlation with the stock Cadila health (with correlation value greater than 0.30)
- The stock Dr. Reddy's lab is highly correlated with Lupin (correlation value above 0.70), where the price movement of both stock are relatively same. Dr Reddy's lab has no correlation with the stock Cadila health (with correlation values less than 0.30)
- The stock Cadila health is highly correlated with Cipla (correlation value above 0.70), where the price movement of both stock are relatively same. Cadila Health has no correlation with all other stocks excluding Cipla as value ranges between -0.30 to 0.30.

Findings

- Cadila Health and Cipla stocks are less risky comparing other leading Pharmaceutical stocks.
- Dr.Reddy's lab has the highest risk comparing

with the set of five leading pharma stocks with B value of 0.12.

- Sun pharma and Lupin contain below average risk than Dr. Reddy's lab stock.
- No Pharma stock is on the riskier side.

Conclusion

The investors should keen about the market fluctuations because always it is not same, it may be differ from time to time. If the risk is high, the beta value is also high. If the risk is less; the beta value is also less. Moreover the beta value is not always same. It may be differ according to the market fluctuation. So investor must keen about the market conditions. So if the investor becomes rational & willing to take less risk, they would like to invest in such kind of banking shares only. A part from beta analysis there are some other tools available to measure the systematic risk of a security like variance, correlation & standard deviation etc. Due to time constraint this research has taken only beta for measuring the systematic risk. In conclusion the researcher can come to the final statement that if the investors are willing to take less risk, they can select & prefer to invest in this kind of Pharma shares. On contrarily if the investors are willing to take more risk, they will select some risky securities like IT, Steel & Automobile sector equity shares

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