

Risk and Return Analysis of Pharmaceutical Industry in Capital Markets

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ABSTRACT

The aim of investors is getting investment opportunities with minimum risk and maximum returns. Risk and returns are important variables that investors are looking for, at the time of investment decision making. Naturally rational investors would expect a high return for bearing high risk. If there is no tradeoff between risk and return, there is no need of considering about the risk. The rate of return on equities should commensurate with its riskiness. Estimating the required return on investment to be made in the stock market is a challenging job before an ordinary investor. Different market models and techniques are being used for taking suitable investment decisions. The past behavior of the price of a security and the share price index play a very important role in security analysis. In fact, investors' perception of variability of ex-ante return contributes to their decision to buy or hold or to sell a security. A number of studies relating to the efficacy of the stock market have been conducted by the researchers. An enquiry into the various facets of risk-return relationship on equity shares in India is relatively less explored area. Therefore, the present attempt is to make empirically to gauge the relation between various risk variables on the average rate of return on equities in India. In this regard, the study tries to establish the possible risk-return relation in Indian capital market by analyzing the influence of risk variables on security return. In addition this study also analyses the tendency of beta values in measuring the return. The scope of the present study is limited to the constituents of KARVY STOCK BROKING LTD.

Key words:

- Capital market.
- Risk
- Return
- Investors protection
- Variability of returns
- Capital market efficiency

INDIAN CAPITAL MARKETS :

Indian capital markets have been receiving global attention, especially from sound investors, due to the improving macroeconomic fundamentals. The presence of a great pool of skilled labor and the rapid integration with the world economy increased India's global competitiveness. No wonder, the global ratings agencies Moody's and Fitch have awarded India with investment grade ratings, indicating comparatively lower sovereign risks

The Securities and Exchange Board of India (SEBI), the regulatory authority for Indian securities market, was established in 1992 to protect investors and improve the microstructure of capital markets. In the same year, Controller of Capital Issues (CCI) was abolished, removing its administrative controls over the pricing of new equity issues.

In less than a decade later, the Indian financial markets acknowledged the use of technology (National Stock Exchange started online trading in 2000), increasing the trading volumes by many folds and leading to the emergence of new financial instruments. With this, market activity experienced a sharp surge and rapid progress was made in further strengthening and streamlining risk management, market regulation and supervision.



NSE:

The National Stock Exchange (NSE) is the leading stock exchange in India and the fourth largest in the world by equity trading volume in 2015, according to World Federation of Exchanges (WFE). It began operations in 1994 and is ranked as the largest stock exchange in India in terms of total and average daily turnover for equity shares every year since 1995, based on annual reports of SEBI.

NSE launched electronic screen-based trading in 1994, derivatives trading (in the form of index futures) and internet trading in 2000, which were each the first of its kind in India.

NSE has a fully-integrated business model comprising our exchange listings, trading services, clearing and settlement services, indices, market data feeds, technology solutions and financial education offerings. NSE also oversees compliance by trading and clearing members and listed companies with the rules and regulations of the exchange.

NSE is a pioneer in technology and ensures the reliability and performance of its systems through a culture of innovation and investment in technology. NSE believes that the scale and breadth of its products and services, sustained leadership positions across multiple asset classes in India and globally enable it to be highly reactive to market demands and changes and deliver innovation in both trading and non-trading businesses to provide high-quality data and services to market participants and clients.

Nifty 50

The NIFTY 50 is a diversified 50 stock index accounting for 12 sectors of the economy. It is used for a variety of purposes such as benchmarking fund portfolios, index-based derivatives and index funds. Nifty 50 is owned and managed by Indian Index Services and Products Limited (IISL). It is India's specialized company focused upon the index as a core product. Nifty 50 is ideal for derivative trading.

The **pharmaceutical industry in India** ranks 3rd in the world terms of volume and 14th in terms of value. According to Department of Pharmaceuticals, Ministry of Chemicals and Fertilizers, the total turnover of India's pharmaceuticals industry between 2008 and September 2009 was US\$21.04 billion. Hyderabad, Mumbai, Bangalore and Ahmedabad are the major pharmaceutical hubs of India. The domestic market was worth US\$13.8 billion in 2013.

The government started to encourage the growth of drug manufacturing by Indian companies in the early 1960s, and with the Patents Act in 1970. However, economic liberalization in 90s by the former Prime Minister P.V. Narasimha Rao and the then Finance Minister, Dr. Manmohan Singh enabled the industry to become what it is today. This patent act removed composition patents from food and drugs, and though it kept process patents, these were shortened to a period of five to seven years.

The Lack of patent protection made the Indian market undesirable to the multinational companies that had dominated the market. Whilst the multinationals streamed out, Indian companies carved a niche in both the Indian and world markets with their expertise in reverse-engineering new processes for manufacturing drugs at low costs. Although some of the larger companies have taken baby steps towards drug innovation, the industry as a whole has been following this business model until the present.

India's biopharmaceutical industry clocked a 17 percent growth with revenues of Rs.137 billion (\$3 billion) in the 2009-10 financial year over the previous fiscal. Bio-pharma was the biggest contributor generating 60 percent of the industry's growth at Rs8,829 crore, followed by bio-services at Rs.2,639 crore and bio-agriculture at Rs.1,936 crore.

The number of purely Indian pharma companies is fairly low. Indian pharma industry is mainly operated as well as controlled by dominant foreign companies having subsidiaries in India due to availability of cheap labor in India at low cost. In 2002, over 20,000 registered drug manufacturers in India sold \$9 billion worth of formulations and bulk drugs. 85% of these formulations were sold in India while over 60% of the bulk drugs were exported, mostly to the United States and Russia. Most of the players in the market are small-to-medium enterprises; 250 of the largest companies control 70% of the Indian market. Thanks to the 1970 Patent Act, multinationals represent only 35% of the market, down from 70% thirty years ago.

Most pharma companies operating in India, even the multinationals, employ Indians almost exclusively from the lowest ranks to high level management Homegrown pharmaceuticals, like many other businesses in India, are often a mix of public and private enterprise.

OBJECTIVES OF THE STUDY

The study at KARVY STOCK BROKING LTD. has been carried out with following broad objectives:

- To analyze the risk and return of the companies using the correlation tools.
- To study the volatility of companies in comparison with the market.
- To guide the investors of various investment opportunities.

METHODOLOGY

To fulfill the study on the topic, relevant data has to be collected. The collected data has to be analyzed by using various statistical tools and with the help of Microsoft office as a toolkit. The data can be collected from two sources. Since this study is purely based on the stock prices which is a secondary data. Hence primary data is a limitation for this type of study

Primary Data:

The primary data is that data which is collected fresh or first hand, and for the first time which is original in nature. Primary data can be collected through personal interview, questionnaire etc., to support the secondary data.

Secondary data:

The secondary data are those which are already collected and stored. Secondary data could be easily collected from records, journals, annual reports of the company etc. It will save the time, money and efforts to collect the data.

Since the study is based on the stock prices and returns obtained. Therefore, the majority of the information will be obtained from secondary sources only. For analysis the data has been collected through the website of NSE and using a software application Prowess IQ database

Statistical tools and software application:

For this analysis of the study, various statistical tools have been used in order to know the relationship between two variables. Tools like correlation and regression have been used in MS-EXCEL as a toolkit. This helps to study the relationship and variance between the variables. This involves risk and return associated with the specified company stock

LIMITATIONS

- The area of study is limited to only pharmaceutical sector.
- Risk cannot be measured accurately as the market condition is always fluctuating and uncertain
- The study is mainly based on secondary data

RISK AND RETURN ANALYSIS OF SELECTED PHARMACEUTICALS

In this chapter, the collected data is analyzed to know the risk and return involved in each company with respect to the pharmaceutical sector. In this analysis, the share prices are compared with the NIFTY to know the frequency of returns raised from each industry.

In this analysis, there are three phases where the monthly average closing prices are compared with monthly average indices of the pharma sector. Data was collected for past five financial years and was compared with the indices. This type of research is carried out in three stages.

ANALYSIS 1:

In this phase, Industry closing prices are compared with the SENSEX closing price for the selected period. And collected data is analyzed by using the statistical tool like Correlation to know the perfect relationship between the variables. Further, this research is carried at the macro level where other industry index returns were also been compared. This results in estimating the risk and future growth of the industry with respect to Sensex.

ANALYSIS 2:

This phase is done by analyzing the performance of the specific industry with respect to the NIFTY. In this analysis share prices of each selected pharma is compared with industry index. A statistical measure, Correlation is applied in order to correlate the relationship between these two variables. The obtained result will help the investor to take the investment decision by knowing the extent of risk involved in the selected pharma.

ANALYSIS 3:

In this phase, each specified pharma company is taken and compared with NIFTY with the help of returns obtained. Here a graphical tool has been used to compare the movement of industry returns and company returns. Further, a trend line is obtained along with regression equation to estimate the relationship between these two variables.

Therefore, from the above analysis, one can know the return associated with the stock that he/she wants to invest in pharmaceutical sector. Further risk for the specific two variables is calculated to safeguard the investor funds. This helps him in minimizing risk by maximizing returns.

PARTICULARS	NIFTY 50	NIFTY PHARMA	NIFTY ENERGY	NIFTY INFRA	NIFTY METAL	NIFTY IT	NIFTY BANK
NIFTY 50	1						
NIFTY PHARMA	0.36181	1					
NIFTY ENERGY	0.66911	0.09805383	1				
NIFTY INFRA	-0.0825	0.37168965	-0.20257677	1			
NIFTY METAL	0.62277	0.10280551	0.699643998	-0.1805559	1		
NIFTY IT	0.4134	0.10220254	0.036364274	-0.0475412	0.11052464	1	
NIFTY BANK	0.91518	0.19246425	0.58523897	-0.0465692	0.59686625	0.242457	1

ANALYSIS 1: NIFTY WITH OTHER DIFFERENT SECTORS:

Table 4.1 CORRELATION MATRIX OF NIFTY INDEX AND DIFFERENT INDUSTRY INDICIES

INTERPRETATION:

- Here correlation coefficient is used to make predictions about how a stock will move based on past performance.
- From the above table, some sectors are positively correlated i.e., the variables are moving in the same direction .so it is better to invest in those sectors when nifty index is moving upwards.
- We can observe that Banking sector is strongly correlated with nifty index i.e., when the market moves upward there is a chance for Banking sector to move upwards.
- On the other hand, Pharmaceutical sector is less correlated with nifty index i.e., there may be a chance for Pharma to move upwards or downwards.
- Infrastructure sector is inversely correlated with nifty index i.e., when there is a downfall in the market / market moves downwards then the infrastructure sector has a chance to move upwards.

ANALYSIS 2: NIFTY PHARMA INDEX WITH PHARMA COMPANIES RETURNS

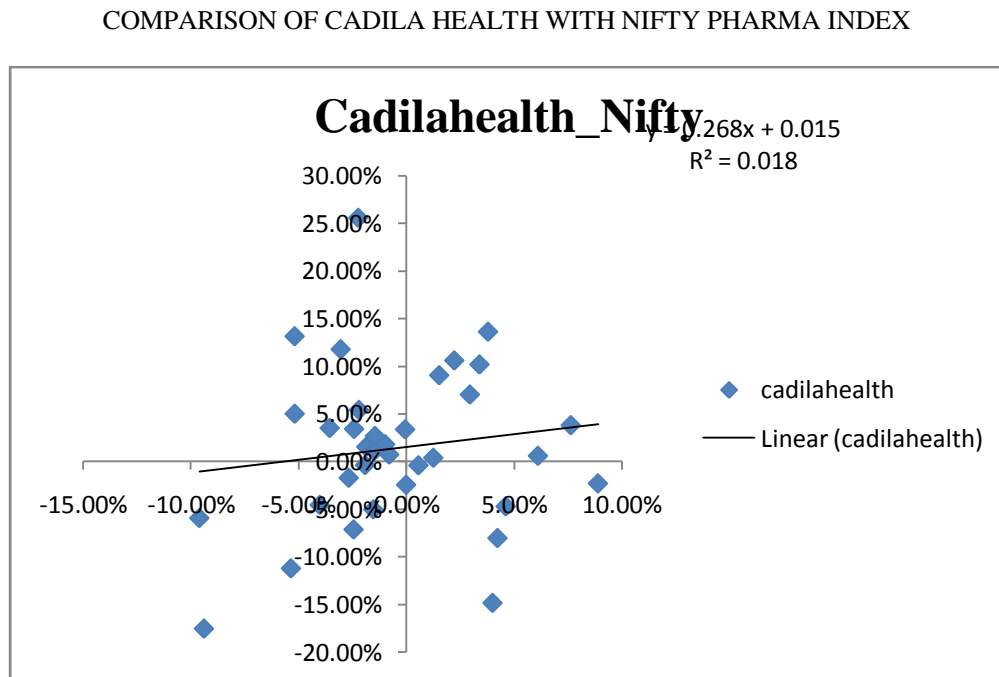
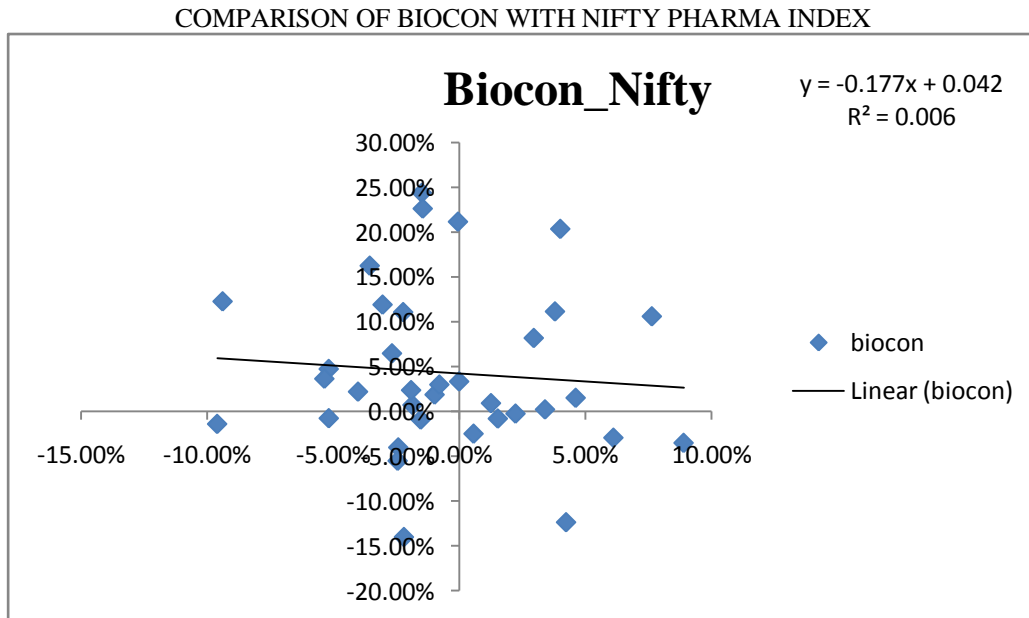
PARTICULARS	NIFTYPH	AURO	BIOCON	CIPLA	CADILA	DIVIS	DRREDDY	GLENMARK	LUPIN	SUNPH	TORRENT
NIFTY PH	1										
AURO	0.0985002	1									
BIOCON	-0.0823139	0.2246885	1								
CIPLA	-0.1698124	0.3502385	0.2026886	1							
CADILA	0.1343863	0.339432	0.080563	0.2474907	1						
DIVIS	0.1042984	0.27739	0.277687	0.25026189	0.162287	1					
DRREDDYS	-0.2452561	-0.024023	0.0570367	0.37303796	0.174066	0.305074	1				
GLENMARK	0.0816753	0.3074481	0.3677019	0.10416085	0.176711	0.230322	0.099589	1			
LUPIN	-0.1216353	0.0482838	0.1423016	0.16626989	0.261377	0.027216	0.15152	0.292933	1		
SUN PH	-0.1642272	0.2333694	0.3435777	0.37972258	0.277917	0.378551	0.414671	0.203384	0.54005	1	
TORRENT	0.4944793	-0.03493	-0.004175	-0.1542464	0.019889	0.076857	-0.10231	0.310077	0.022081	-0.16118	1

Table 4.2 CORRELATION MATRIX OF NIFTY PHARMA WITH DIFFERENT PHARMA INDUSTRIES.

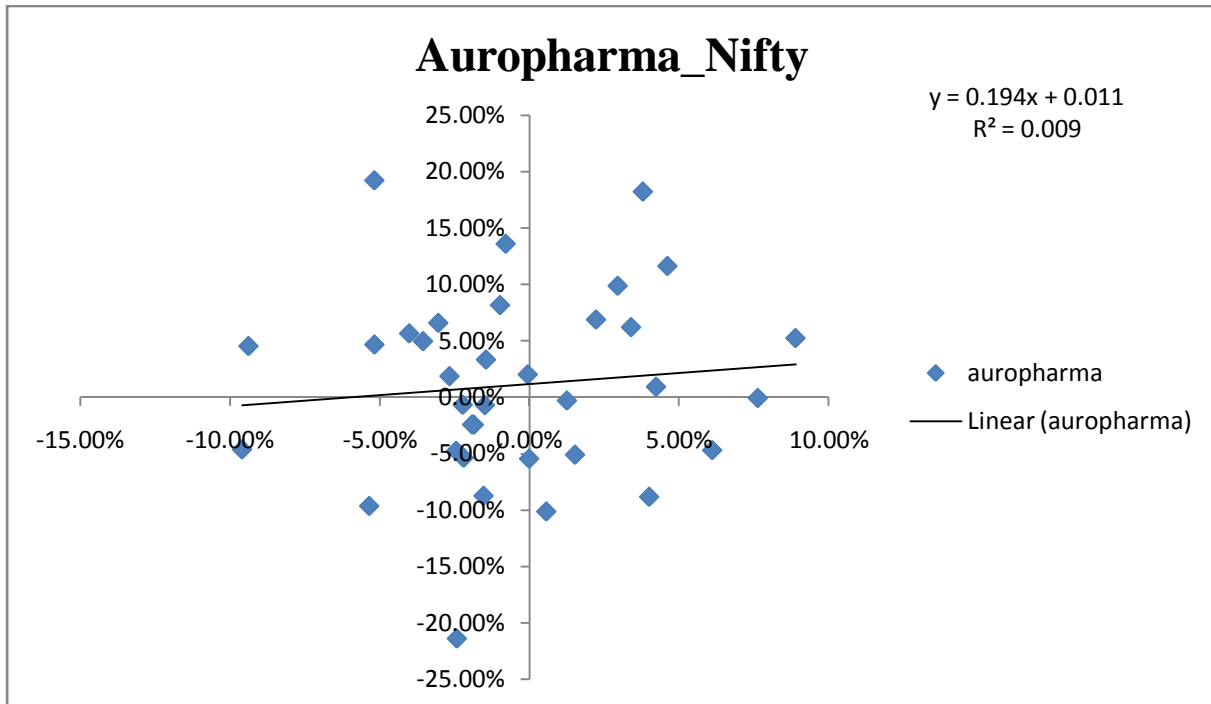
INTERPRETATION:

- The above table shows us how different companies in PHARMACEUTICAL SECTOR are correlated with NIFTY PHARMA INDEX.
- In this some of the companies in the sector are moving along the direction of index. However TORRENT is strongly correlated to index i.e., when the market move upwards it is more evident for TORRENT to move upwards.
- If the company performs better it would get a better return which in turn shows impact on market. On the other hand some companies are inversely correlated with NIFTY PHARMA INDEX.

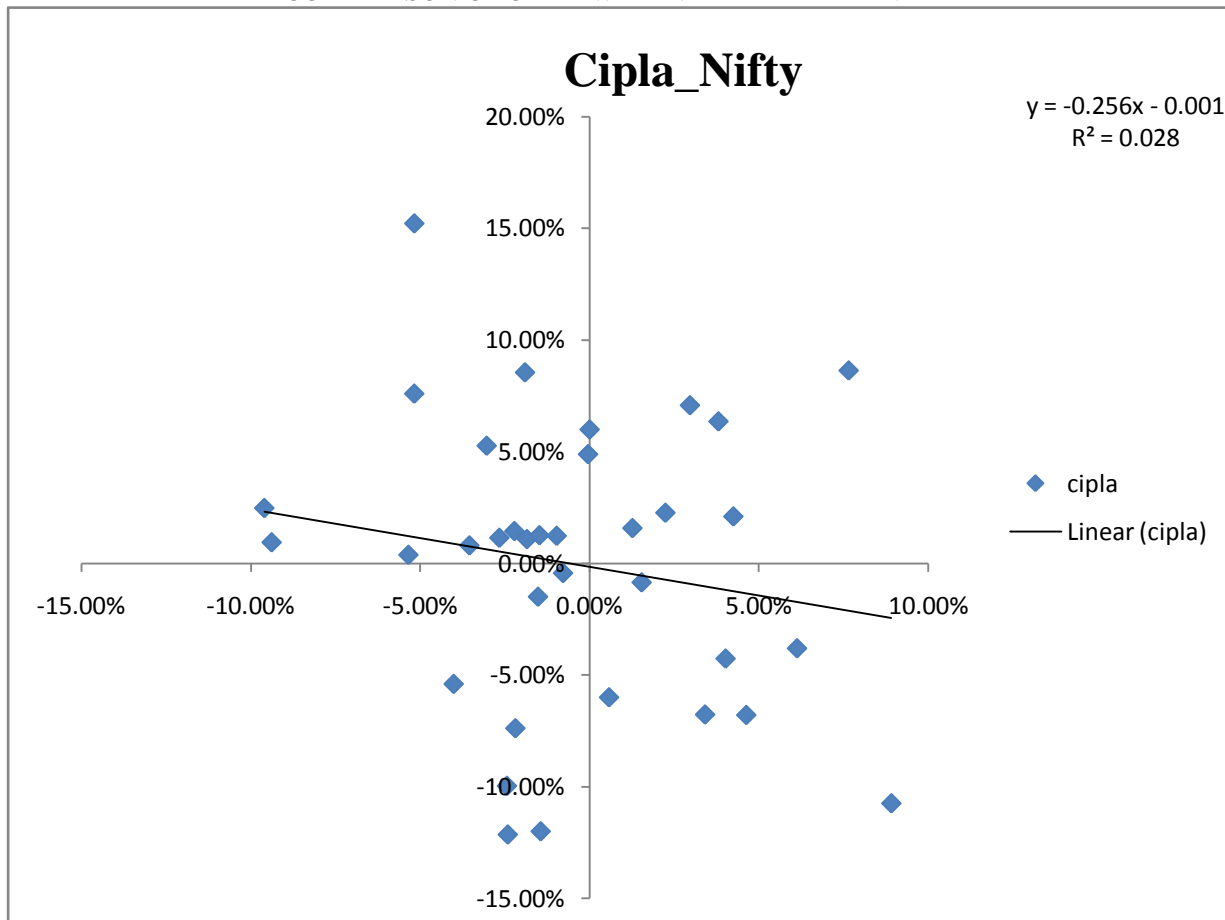
Analysis 3:



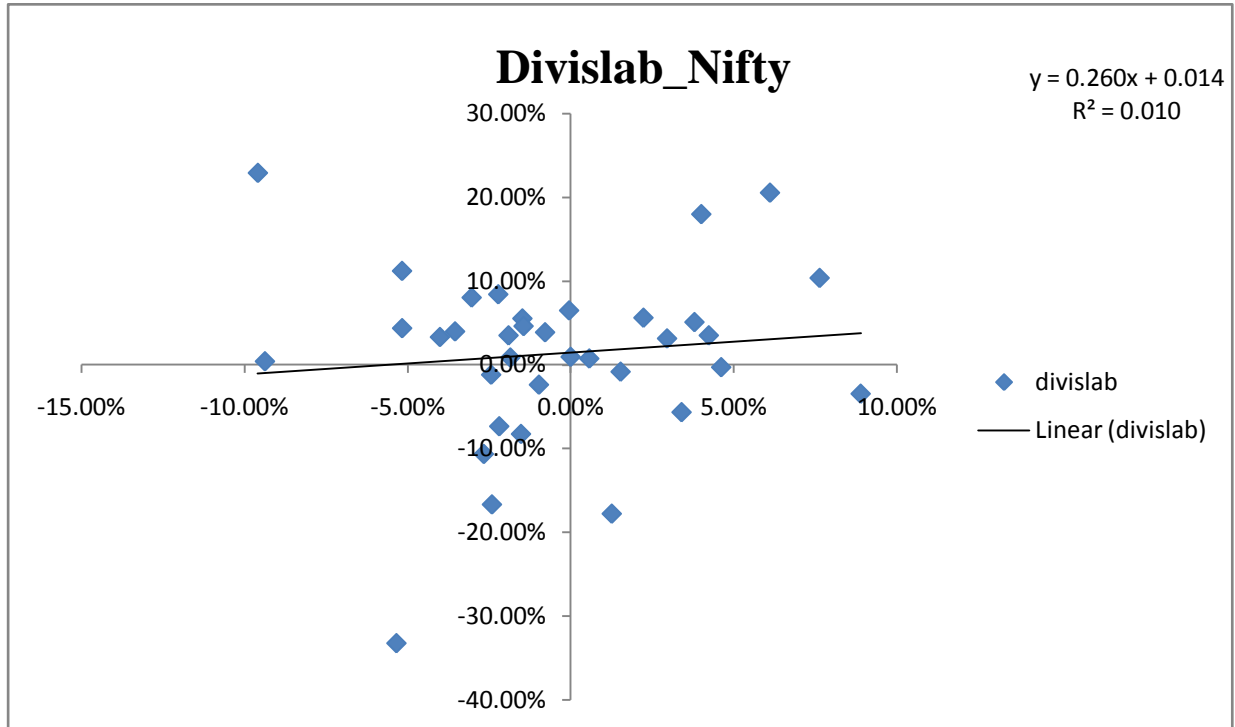
COMPARISON OF AUROBINDO WITH NIFTY PHARMA INDEX



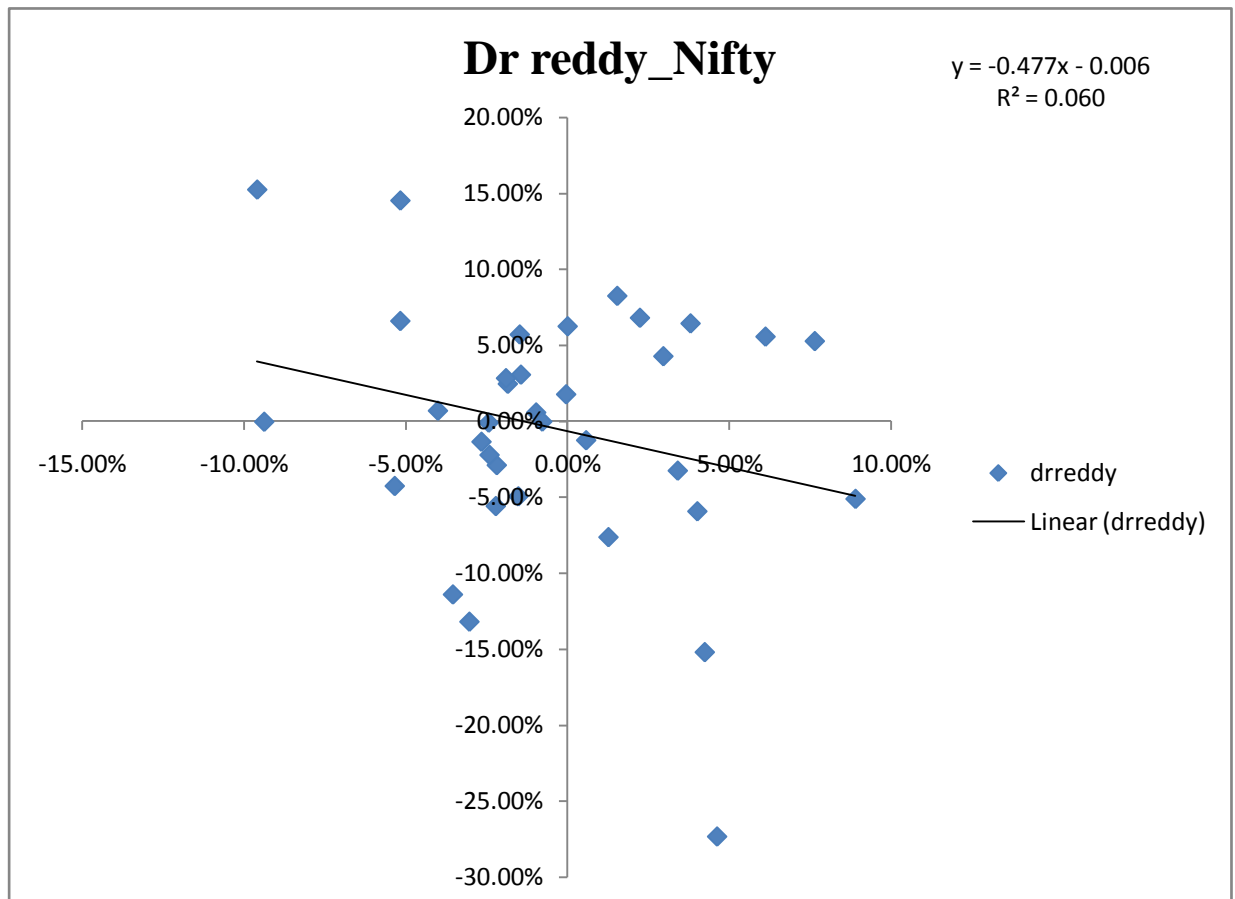
COMPARISON OF CIPLA WITH NIFTY PHARMA INDEX



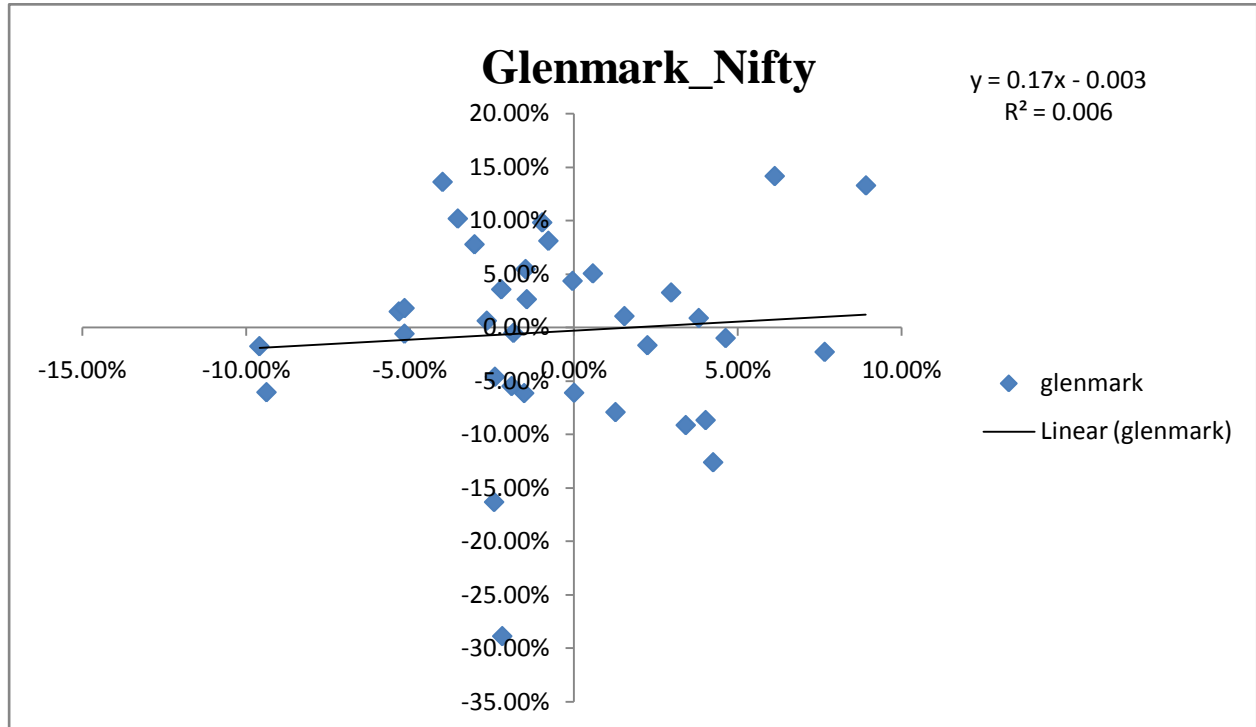
COMPARISON OF DIVISLAB WITH NIFTY PHARMA INDEX



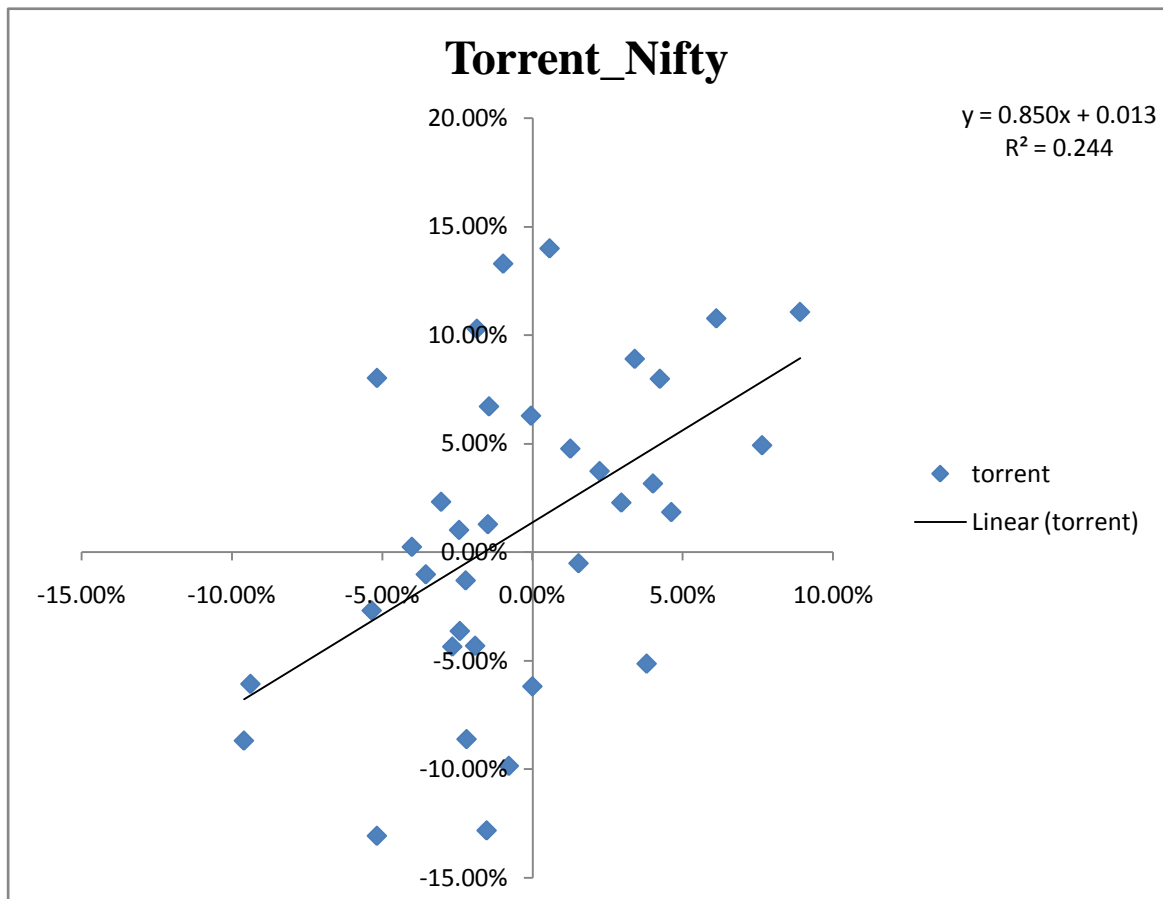
COMPARISON OF DRREDDY WITH NIFTY PHARMA INDEX



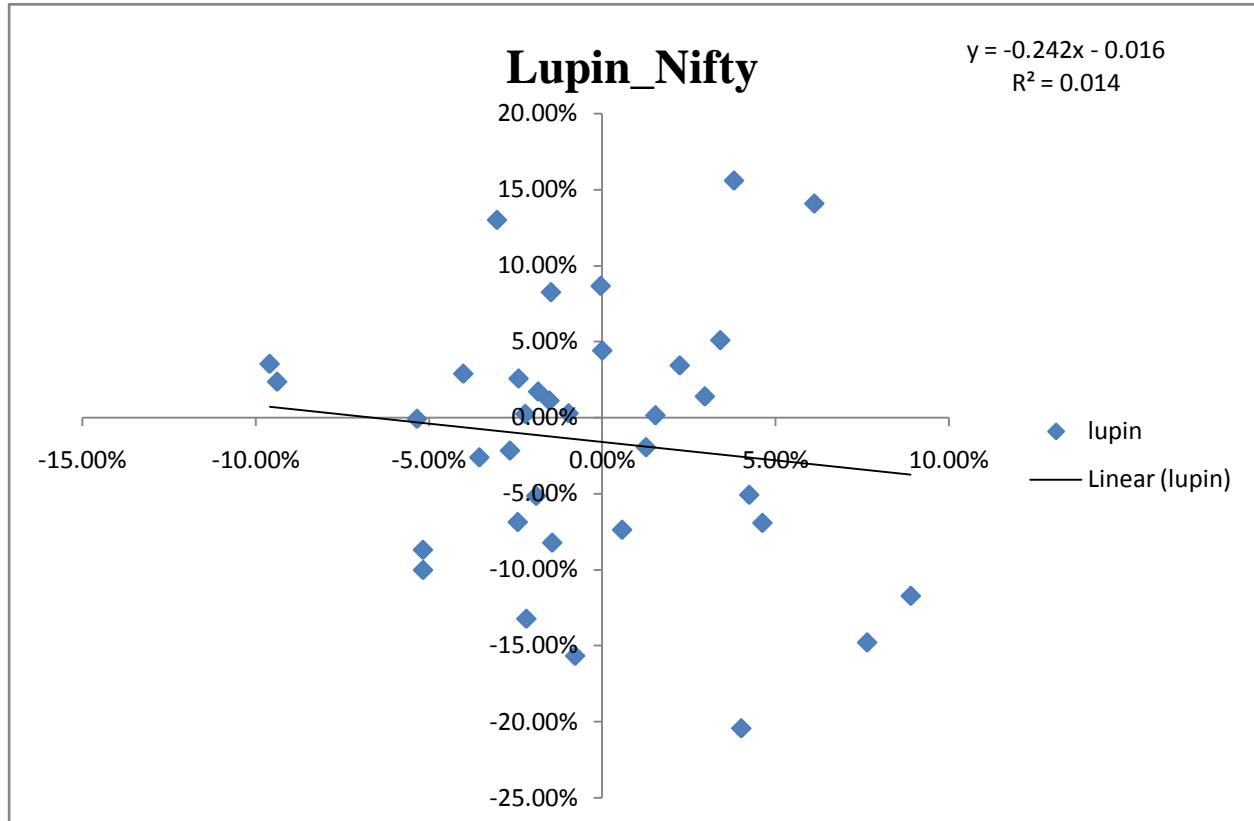
COMPARISON OF GLENMARK WITH NIFTY PHARMA INDEX



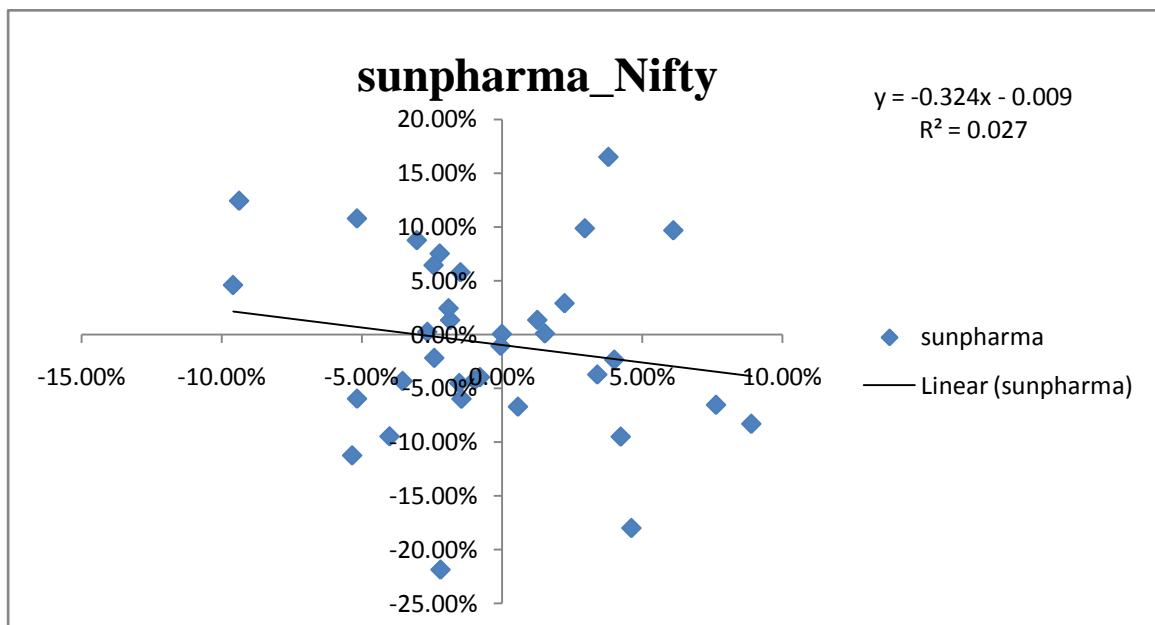
COMPARISON OF TORRENT GRAPH WITH NIFTY PHARMA INDEX



COMPARISON OF LUPIN WITH NIFTY PHARMA INDEX



COMPARISON OF SUNPHARMA WITH NIFTY PHARMA INDEX



Interpretation:

AUROBINDO PHARMA:

From the chart, we can get a regression line which tells us how AUROBINDO PHARMA returns varies along Y- axis with a variation in NIFTY PHARMA along X-axis. Since the Regression line is sloping upwards that is if NIFTY PHARMA moves upward along X-axis then AUROBINDO PHARMA also moves upward along Y-axis. Here we can observe almost

all the points are closer to regression line that there is no much variation between NIFTY PHARMA returns and AUROBINDO PHARMA returns.

From the equation, we can say for every 1% increase of NIFTY PHARMA returns(X), there will be 0.19 % increase in AUROBINDO PHARMA returns(Y). If NIFTY PHARMA returns (X-axis) is zero i.e. the returns of NIFTY PHARMA are completely flat for any 2 months, then AUROBINDO PHARMA (Y-axis) returns decline by 0.011% about 97% of variations in AUROBINDO PHARMA stock are explained by NIFTY PHARMA.

BIOCON PHARMA:

From the chart, we can get a regression line which tells us how BIOCON PHARMA returns varies along Y- axis with a variation in NIFTY PHARMA along X-axis. Since the Regression line is sloping upwards that means if NIFTY PHARMA moves upward along X-axis then BIOCON PHARMA also moves upward along Y-axis. Here we can observe almost all the points are closer to regression line that there is no much variation between NIFTY PHARMA returns and BIOCON PHARMA returns.

From the equation, we can say for every 1% decrease of NIFTY PHARMA returns(X), there will be 0.17 % increase in BIOCON PHARMA returns(Y). If NIFTY PHARMA returns (X-axis) is zero i.e. the returns of NIFTY PHARMA are completely flat for any 2 months, then BIOCON PHARMA (Y-axis) returns decline by 0.042% about 68% of variations in BIOCONPHARMA stock are explained by NIFTY PHARMA.

CONCLUSION

Table 4.3 Table showing ranking based on risk and return

COMPANY NAME	RISK	RANKING	RETURN	RANKING
BIOCON	-0.1772	5	0.0068	9
CADILA HEALTH	0.2685	9	0.0181	5
AUROBINDO	0.1949	7	0.0097	8
CIPLA	-0.2565	3	0.0288	3
DIVISLAB	0.2603	8	0.0109	7
DRREDDY	-0.4772	1	0.0602	2
GLEN MARK	0.17	6	0.0067	10
LUPIN	-0.2425	4	0.0148	6
SUNPHARMA	-0.3248	2	0.027	4
TORRENT	0.8505	10	0.2445	1

Ranking was given to the companies based on the performance. Performance is measured in terms of risk and return. If the company gains high returns then the company will be given first rank and if the company is attaining low returns then the company will be given least rank. If the company is having less risk then the company will be given first rank. If the company is having high risk then the company will be ranked low.

- Within the pharma sector DR.REDDYS and DIVISLAB are highly correlated to nifty .
- From the above analysis we can conclude that torrent has high risk when compared to the other companies.
- Torrent provides the investors with high returns .hence it is allowed with rank 1
- Here from table 4.3 DR.reddy yields better results with low risk component.