

A STUDY ON RISK RETURN RELATIONSHIP OF IT AND PHARMACEUTICAL STOCKS LISTED IN NSE USING CAPITAL ASSET PRICING MODEL

Mrs. S. Rekha

Assistant Professor, Department of Management Studies
P.S.R.Engineering College, Sivakasi

Dr. V. Vasanth

Assistant Professor, Department of Management Studies
P.S.R.Engineering College, Sivakasi

Ms. P. Sivakami

II MBA, Department of Management Studies
P.S.R. Engineering College, Sivakasi

Abstract: The research entitled “A Study on Risk Return Relationship of IT and Pharmaceutical Stocks listed in NSE using Capital Asset Pricing Model”, which focuses to understand the relationship between risk and return of selected stocks from two different sectors on NSE with the help of Capital Asset Pricing Model (CAPM). This empirical paper has been done covering from 2011 to 2018 till February by analyzing the selected stocks of NSE sectors such as IT and Pharmaceutical which are the fastest growing sectors in a country, moreover five stocks in each sector has been taken for the analysis. Capital asset pricing model suggests that there exists a linear relationship between stock beta and profit and Beta, in this relationship, measures the level of systematic risk to which an asset is exposed. Probably, every investor wants to avoid risk and maximize return but in general, if an investor wishes to earn higher returns than the investor must appreciate that this will only be achieved by accepting a commensurate increase in risk. From the research it is found that, for long term investors, IT Sector, low risk gives low return and Pharmaceutical Sector high risk gives low return. For short term Investors, Pharmaceutical Sector high risk gives high return and IT Sector low risk gives high return.

Keywords: NSE, Return, Risk, Beta, CAPM, Standard Deviation

INTRODUCTION

Stock exchange or stock market is a market where old securities that have been already issued by the companies and other organizations to the public are bought and sold through authorized agents according to certain rules and regulations. It is a mechanism through which the holder of securities may find a buyer for his holdings at a fair price. Similarly, buyer of securities may find an immediate seller who is willing to sell his holdings at a fair price. The securities are bought and

sold continuously among the investors in these stock exchanges without the involvement of companies. Stock exchanges facilitate the free trade of only the securities that are listed.

Leading Stock Exchanges

There are two leading stock exchanges in India which help us trade are:

- National Stock Exchange
- Bombay Stock Exchange

Risk Return Relationships

Investment in stock market is characterized by return and risk i.e.) Income received on an investment plus any change in market price, usually expressed as a percent of the beginning market price of the investment.

The return may be in the form of yield or capital appreciation whereas risk is the uncertainty of a future outcome. The greater the risk, the greater the return expected is the fact in markets.

Risk

The variability of returns from those that are expected and risk consists of two components,

- Systematic risk and
- Unsystematic risk.

Return

The return to be generated in future period is known as the expected return. The actual return over some past period is known as the realized return. The realized return on an asset may vary from expected return. Volatility may be described as the range of movement from the expected level of return. The more a stock fluctuates, the more volatile the stock is. This is because of the fact that the wide price variations create more uncertainty of an eventual outcome.

The Capital Asset Pricing Model

The capital asset pricing model(CAPM) is a model that describes the relationship between systematic risk and expected return for assets, particularly stocks. CAPM is widely used throughout finance for the pricing of risky securities, generating expected returns for assets given the risk of those assets and calculating costs of capital. One tool that finance professionals use to calculate the return that an investment should bring is the Capital Asset Pricing Model which we will refer to as CAPM.

Assumptions

1. All the investors are risk averse.
2. All investors plan to invest over the same time horizon.
3. No Transaction costs and taxes.
4. All investors can borrow/ lend at same risk – free rate.

5. Market portfolio that determines Beta consists of all publicly traded assets.
6. All the investors are price takers.
7. Security markets are perfectly competitive.
8. All the investors are rational.

REVIEW OF LITERATURE

Krishnaprabhaet .al. (2015) study stated that risk and return analysis plays a key role in most individual decision making process. Every investor wants to avoid risk and maximize return. Poornimaet.al. (2017) investigates the study on relationship between risk and return of selected stocks from two different sectors on NSE with the help of Capital Asset Pricing Model (CAPM). MuthuGopalakrishnanet.al. (2017) stated that every individual attempts to park his/her hard earned savings in various investment avenues depending upon his/her objectives. Among the various investment alternatives, stock market is considered to be one of the most rewarding avenues of investment. This study helps the potential investors to make informed and rational investment decision. Sunil Rashinkaret.al.(2014) , found that banking sector is the backbone of country's economy. This sector has given very good return to the investors in the past. But the recent financial crisis, has proved, that the Banking stocks tend to be more volatile than other stocks.

NEED FOR THE STUDY

Investing money in the assets where the risk is less has always been difficult to decide, that means the investor would like to see risk and return before investing. When the expected return is high then the risk associated with such return is also high. So, one who intends to invest in such companies in particular sectors needs to be aware of return and risk involved in the investment. This analysis mainly studies the risk and return relationship of selected stocks from different sectors on NSE to make the investors get beneficial based on the risk and return relationships in a particular period of time.

SCOPE OF THE STUDY

The aim of the investors is in getting investment opportunities with minimum risk and maximum returns and therefore 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 and if there is no trade-off between risk and return, there is no need of considering about the risk. Estimating the required return on investment to be made in the stock market is a challenging job before an ordinary investor and hence different market models and techniques are being used for taking suitable investment decisions. This study tries to establish the possible risk-return relation in capital market by analyzing the influence of risk variables on stocks return for selected industries and the respective companies using Capital Asset Pricing Model.

OBJECTIVES OF THE STUDY

- To study on relationship between risk return analysis of selected stock on NSE
- To compare average return with standard expected return using Capital Asset Pricing Model
- To rank the companies on the basis of risk and return

RESEARCH METHODOLOGY

Sources of data

Data can be defined as the quantitative or qualitative values of a variable. Data sources are broadly classified into two types.

- Primary data
- Secondary data

Secondary Data

Secondary data is an information that is already available somewhere, whether it be in journals, on the internet, in a company's records or, on a larger scale, in corporate or governmental archives and Published data will be available in Newspapers, Websites, Journals, books, Reports by management, scholars, researchers, brokers.

Sample Size

The sample size for the number of stocks is taken as 10 for analysis of stocks as very exhaustive and requires detailed study.

Data Collection Method

The sample of the stocks for the purpose of collecting secondary data has been selected on the basis of Random Sampling. The stocks are chosen based on top market capitalization in NSE.

Information Technology Sector

- Tata Consultancy Service Ltd.
- Wipro Ltd.
- Infosys Ltd.
- Mahindra.
- HCL Technologies Ltd.

Pharmaceutical Sector

- AurobindoPharma
- Cipla Ltd.
- Dr. Reddy's Laboratories Ltd.
- Lupin Ltd.
- Sun Pharmaceutical Industries Ltd.

Tools Used for Data Analysis

The collected data have properly been analysed with the help of Microsoft Excel by applying various statistical tools. The researcher has mainly used the following techniques for analyzing the collected data.

- Average Return
- Standard deviation
- Variance
- Capital Asset Pricing Model
- Beta

AVERAGE RETURN

The return can be calculated over a single period or where there is more than one time period, the return and rate of return over the overall period can be calculated, based upon return within each sub period.

Formula

1. Return = (Closing Price-Opening Price) / (Opening Price)*100
2. Average return=(Return/ N)

STANDARD DEVIATION

Standard deviation is measure of the values of the variables around its mean or it is the squared deviation from the variance divided by the number of observances.

Formula

$$SD = \sigma = \sqrt{\sigma^2} = (\sigma^2)^{1/2}$$

VARIANCE

The variance is a parameter that describes, in part, either the actual probability distribution of an observed population of numbers or sample of numbers has been drawn.

Formula

N

$$\text{Var} (R = \sigma^2 = \sum_{i=1}^N p_i (R_i - E [R])^2$$

RISK (BETA)

Investment is a measure of the risk arising from exposure to general market movements.

Beta

The degree, to which different portfolios are affected by these systematic risks as compared to the effect on the market as a whole, is different and is measured by Beta. The Beta factor describes the movement in a stock's return in relation to that of the market returns.

Formula

$$= \text{Cov} (X, Y) / \text{Var} (X)$$

Covariance is a statistic that measures how two variables co-vary, and is given by:

$$\text{Cov} (x,y) = [1/(N-1)] \sum_{t=1}^N [x_t - \bar{x}] [y_t - \bar{y}]$$

EXPECTED RETURN

The expected return is a long-term assumption about how an investment will play out over its entire life using Capital Asset Pricing Model.

Formula

$$R_i = R_f + \beta (R_m - R_f)$$

LIMITATIONS OF THE STUDY

- This study is limited to the analysis of risk and return of two sectors and 10 companies based on NSE capitalization.
- Seven years data has been considered for the calculation of risk and return analysis using CAPM from 1st January 2011 to February 2018.
- This study is restricted to analyse the historical data of the stocks and prospect data may vary from time to time.

DATA ANALYSIS AND INTERPRETATION

Evaluation for Long Term Investors

Table showing the Growth of Information Technology Sector for Long Term Invest

S.No	Name of the IT Sector	Average Return	Beta	CAPM	Standard Deviations	Rank
1	HCL	0.01	-0.01	7.85	1.63	1
2	Infosys	-0.04	0.92	0.26	1.90	2
3	TCS	0.01	0.92	0.26	1.90	1
4	Tech Mahindra	-0.07	0.64	2.81	1.93	3
5	Wipro	-0.07	0.56	3.42	1.38	3

Source: SecondaryData

The above table expound that some companies has positive beta value, Risk averse investors can select HCL securities has low beta value which is less risky. Return seeking investors can select HCL and TCS securities which has highest return of 0.01 and Risk Sensitive investors can select the securities of Wipro without much variation in return compared to expectedreturn.

Chart showing the Risk and Return analysis of Information Technology Sector for Long Term Investors

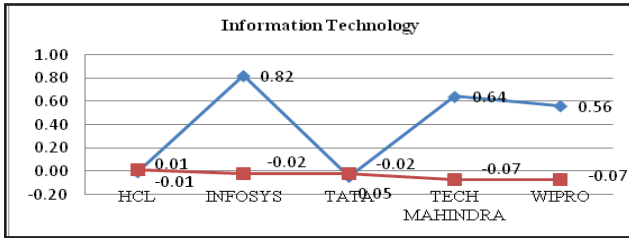


Chart showing the Risk and Return analysis of Pharmaceutical Sector for Long Term Investors

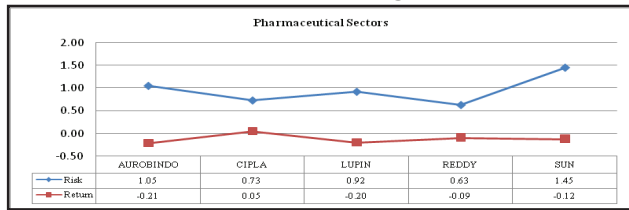


Table showing the Intensification of Information Technology Sector for Short Term Investors

S. No	Name of the IT Sector	Average Return	Beta	CAPM	Standard Deviations	Rank
1	HCL	1.92	0.80	2.20	7.18	1
2	Infosys	0.67	1.22	-0.72	7.84	4
3	Tata	1.32	0.84	1.92	6.21	3
4	Tech Mahindra	1.82	0.78	2.30	8.38	2
5	Wipro	0.59	0.89	1.55	6.92	5

Source: Secondary Data

The above table upshots that all the companies has positive beta value, Neutral risk takers can select those securities having beta value nearer to 1 such as Infosys whereas less risky investors can select Tech Mahindra securities has low beta value which is less risky. Return seeking investors can select HCL securities which has highest return of 1.92 and Risk Sensitive investors can select the securities of Tata much variation in return.

Chart showing for Risk and Return analysis of Information Technology Sector for Short Term Investors

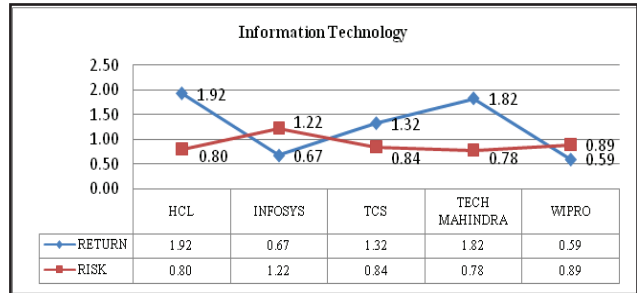


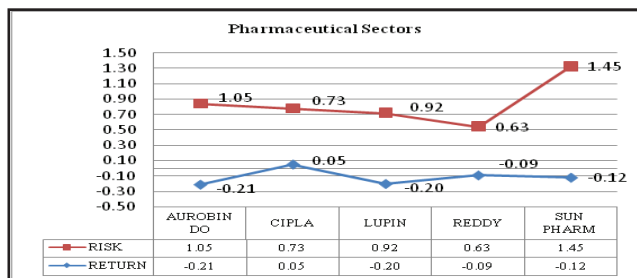
Table showing the Growth of Pharmaceutical Sector for Short Term Investors

S. No	Name of the Pharmaceuticals	Average Return	Beta	CAPM	Standard Deviations	Rank
1	Aurobindo	2.73	1.20	-0.47	12.67	1
2	Cipla	0.90	0.82	2.15	6.82	4
3	Lupin	1.07	1.13	-0.05	7.56	3
4	Dr.Reddy's Laboratory	0.63	0.97	1.06	7.01	5
5	Sun Pharmaceuticals	1.33	1.31	-1.26	7.51	2

Source: Secondary Data

The above table upshots that all the companies has positive beta value, Neutral risk takers can select those securities having beta value nearer to 1 such as Aurobindo, Lupin, Sun Pharmaceuticals whereas less risky investors can select Cipla securities has low beta value which is less risky. Return seeking investors can select an Aurobindo security which has highest return of 2.73 and Risk Sensitive investors can select the securities of Dr.Reddy's lab without much variation in return compared to expected return.

Chart showing the Risk and Return analysis of Pharmaceutical Sector for Short term Investors



RECOMMENDATION

Based on the findings of the study, the researcher provides the following valuable suggestions

- Risk Sensitive investors and Return seekers can invest in securities with lower risks and positive returns; it is suggested to invest in securities whose Beta is less than 1.00, stocks which would be considered as more conservative investments such as Tata IT company, Cipla and Lupin Pharmaceutical companies for Long term investors and for short term investors such as Cipla and Dr. Reddy's lab Pharmaceutical companies.
- High risk takers can select the securities whose beta value is greater than 1.00 with good returns are ITC company, Infosys IT company, Aurobindo, Lupin, Sun Pharmaceutical companies for short term investors and all the companies beta value are less than 1.00 in long term investment.
- It is suggested that the Risk averse investors can prefer the securities which are deviated to a lesser extent when compared to expected return that would be feasible.

CONCLUSION

The paper entitled "A Study on Risk Return Relationship of IT and Pharmaceutical Stocks listed in NSE using Capital Asset Pricing Model" shows that information

about the performance of various stocks in the market in terms of risk return with the help of CAPM. An investor should be in a position to analysis both risk factor and return potential of various companies in order to achieve the objective of maximizing the return that will be differing from companies to companies from time to time. Based on the research, the long term investors are able to predict about when the share will raise hence majority of Information technology, Fast Moving Consumer Goods, Pharmaceutical Sectors confer more return while compared to Banking and Automobile sector and for Short term Investors Automobile Sectors, Fast Moving Consumer Goods, Information Technology Sectors bestow more return while compared to Banking and Pharmaceutical Sectors.

REFERENCES

- Krishnaprabhaet .al. "A Study on Risk and Return Analysis of Selected Stocks in India", *International Journal of scientific research and management (IJSRM)*, Volume (3), April 2015.
- Poornimaet. al. "A study on relationship between risk and return analysis of selected stocks on NSE using capital asset pricing model", ISSN: 2394-7500, IJAR March 2017.
- MuthuGopalakrishnanet. al. "A Study on Risk Return Analysis of Pharmaceutical Industries in Indian Stock Market", *Imperial Journal of Interdisciplinary Research (IJIR)*, Vol (3), ISSN: 2454-1362, May 2017.
- Sunil Rashinkaret. al. "A Study on Market Risk Analyses of selected Banking Stocks (Nationalized Banks) in Indian Context", *Reforms through Research, Volume (7)*, ISSN 2320 – 2939, July 2014