

A Comparative Study on Risk and Return Analysis of Selected Stock in Indian Market - Using Beta Capital Asset Pricing Model

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Abstract: Risk and return analysis plays a key role in most individual decision making process. The present paper investigates the study on relationship between risk and return of selected stock from two different sectors on NSE with the help of Capital Asset Pricing Model (CAPM). This empirical paper has been done by analyzing in selected stocks from sectors such as Information Technology and Pharmaceutical sector. Five stocks in each sector have been taken for the sample. Information Technology sector is considered to be one of the fastest growing sectors in any developing and even in a developed country. As global economies are getting integrated, technology companies are finding it an over task to align to the changing realities. In such a scenario, analyzing stocks from the Pharmaceutical sector requires utmost caution and understanding. By analyzing the stocks from two different sectors, investors will find beneficial in which sector to invest. The risk and return analysis linked with any industry reveals the intricacies involved with the particular industry. A study revealed that Information Technology sector showing the positive return and low risk and Pharmaceutical sector showing negative return and high risk during the study period.

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

I. INTRODUCTION

The portfolio that contains all assets in the economy is called market portfolio. The portfolio theory shows a normative approach to investors to make decision to invest their fund in assets or securities under risk. It is based after the assumption that investors are risk-averse. So this paper tests whether Capital Asset Pricing Model (CAPM) holds in the Indian stock market by applying the test for the slope for the standard form of CAPM. The CAPM is an important area of financial management. The main objective of CAPM is not only non-diversifiable risk but also want to know that it gives expected return on asset or not. The CAPM is determined the required rate of return on asset and indicates the relationship between risk and return of the asset. So investor also compared the expected rate of return and determine whether their asset is treated fairly valued or not. CAPM can be stated in the following equation.

Cost of Equity (Expected rate of return) = Risk free rate + Beta * Risk premium

Or

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

II. REVIEW OF LITERATURE

Dr. S Poornima and Swathiga P (2017) had conducted a research on “A study on relationship between risks and return analysis of selected stocks from two different sectors on NSE with the help of CAPM”. The objective was to identify risk

and return analysis and to compare average return with standard expected return using CAPM. Sample they had been collected was five companies from two different sectors Information Technology and Automobile sectors. This study concluded that automobile sector showed positive return and low risk and whereas IT sector showed negative return and high risk during the study period.

Dr. Iqbal (2017) had conducted a research on “Relevance of Capital Asset Pricing Model-A Review”. Their objective was that Capital markets are perfect in the sense that all assets are infinitely divisible, there are transaction costs or taxes, borrowing and lending rates are equal to each other. Tool used was Asset Pricing Model, Beta, CAPM and Diversification risk. He concluded that CAPM was expected to dominate the capital market as a measure to ascertain expected returns of risky securities.

Pratik Gohel, Radhika Parmar, Dr. Chetna Parmar (2015) had conducted a research on “A Comparative analysis of selective companies-Using CAPM”. The objective was that know expected return, Diversification through efficient frontier of lending and borrowing curve, how to reduce level of risk. Sample they had used was listed on BSE, which had under SENSEX of 8 Companies which are from different sector. They concluded that investor are required to take extra care in estimating stock return to construct the portfolio of securities and CAPM selected companies was in upward trend in the Indian stock market.

Jianhua Dai, Jian Hu and Songmin LAN (2014) had conducted a research on “Research on CAPM Empirical in China Market”. The objective was to analyze the relationship between system risk and benefits. The sample they had been collected from Shanghai Stock market. The study concluded that CAPM model was not appropriate to concluded that the CAPM model found in the Chinese market because small number of individual stocks and overall amount of data that did not last long. Thus they can't get the conclusion that CAPM found in the Chinese market by statistical results.

Muthucattu Thomas Paul and Fosuhene Akua Asarebea (2014) had conducted a research on “Validity of the CAPM: Evidence from the Indian Companies-the NSE India. The objective was to find out that are actual return are greater than the required return. Sample they had been collected from NSE listed companies from different sectors. Thus study concluded that three securities-State Bank Of India, Reliance Group, HDFC Bank delivered better return of similar betas they proved that average of the actual returns are much higher for at least of the securities in their same that there was excess equity premium in their same.

III. NEED FOR THE STUDY

- Investing money in the asset where the risk is less has always been difficult to decide, that means the investor would like to see risk and return before investing.
- The analysis mainly studies the risks and return relationship of selected stock from different sector on NSE with the help of CAPM Model.
- Investor will find beneficial based on the risk and return analysis.

IV. OBJECTIVES OF THE STUDY

- To study on relationship between risk and return analysis of selected stock on NSE from two different sectors Information Technology and Pharmaceutical Sector, select five companies from each sector.
- To know the expected rate of return with level of risk.
- Test whether CAPM holds in the Indian stock market and applying the test for the intercept, the slope for the standard form of CAPM.

V. SAMPLING DESIGN

Here companies would be selected by high market capitalization rate and this study followed non-probability sampling. Data had been collected from secondary sources, the stock price and market price had been collected from National Stock Exchange official websites (www.nseindia.com).

VI. TOOLS USED IN THIS RESEARCH TO FIND OUT OBJECTIVES:

1. Return on the market (Rm).
2. Daily Return = (Present year closing Price-Past year Closing Price)/ (Past year Closing Price)*100, Average return=(Return/ N).
3. Beta (β) is calculated as per excel formulae.
4. Risk free rate of return (Rf).
5. Standard Deviation as per excel Formulae.
6. Capital Asset Pricing Model to find out Expected return

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

Note: Where Rf means risk free rate of return i.e. return given by government T- bills.

VII. LIMITATIONS OF THE STUDY

1. The study covers only 10 listed companies of NSE from each two different sectors (Information Technology and Pharmaceutical).
2. This study is limited to the analysis of risk and return of 10 listed stocks.
3. Five years data has been considered for the calculation of risk and return analysis using CAPM.
4. The study covers two sectors (Information Technology and Pharmaceutical) based on NSE capitalization from each sectors five companies had been taken.

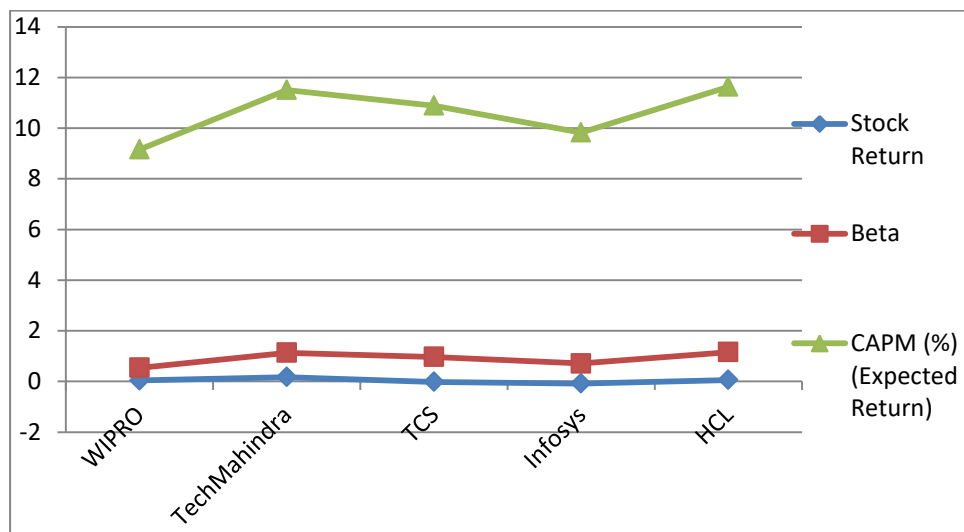
VIII. DATA ANALYSIS AND INTERPRETATION

Table showing for Information Technology Sector -Evaluation on the basis of CAPM Model

| Sr.no | IT Sector | Stock Return | Rm | Rf | β | (Rm-Rf) | CAPM | Ranking |
|-------|--------------|--------------|----|----|---------|---------|-------|---------|
| 1 | HCL TECH | 0.06 | 11 | 7 | 1.16 | 4 | 11.64 | 1 |
| 2 | TECHMAHINDRA | 0.17 | 11 | 7 | 1.13 | 4 | 11.51 | 2 |
| 3 | TCS | -0.02 | 11 | 7 | 0.97 | 4 | 10.89 | 3 |
| 4 | INFOSYS | -0.08 | 11 | 7 | 0.71 | 4 | 9.83 | 4 |
| 5 | WIPRO | 0.04 | 11 | 7 | 0.54 | 4 | 9.61 | 5 |

Interpretation:

In the above table shows that all the securities have positive beta value and Expected rate of return (CAPM) would also be positive and market return (Rm) is high than risk free (Rf) $R_m > R_f$. Investors with less risk tolerance can select those securities which have low beta value that indicates less response to the market & are less risky such as WIPRO its beta value is 0.54 and expected rate of return (CAPM) is 9.16 which would be low because risk can be measured by stock return price volatility. As compared to other securities beta value of HCL is 1.16 which is higher than all other securities and expected rate of return (CAPM) is 11.64 which would be higher than all other securities. Here it depends on Investors preference which securities they have selected if they are high risk takers than they should go through high beta value and they also got high expected rate of return (CAPM) value than all other securities or Vice Versa. Here Ranking criteria shows that securities are performing well in the market or not. If investors are high risk takers than they select HCL because it got 1rank in risk assumption and high expected rate of return (CAPM), TechMahindra got 2 rank because it is less risky than HCL, TCS got 3 rank because it is less risky than TechMahindra, Infosys got 4 rank in risk assumption and expected rate of return (CAPM) because this securities is in between this investors are not high risk takers or not go through low risk takers they prefer to remain in equal position and WIPRO got 5 rank which is low risk takers and also got low level of expected rate of return (CAPM)



Risk and Return Analysis: Figure 1

Interpretation:

Here graph indicates that all Information Technologies companies performing positively in stock return they are in flatter or we can say straight line pattern and if we talk about beta TechMahindra is increasing way after Wipro. After it goes down or show less risk in TCS and Infosys and again start rising after Infosys in continuously trend. Expected return shows that higher the beta higher the return investors get from the market. So here graph shows that return should be measured by risk if investors had more risk capacity they get more return on the market as compared to other companies.

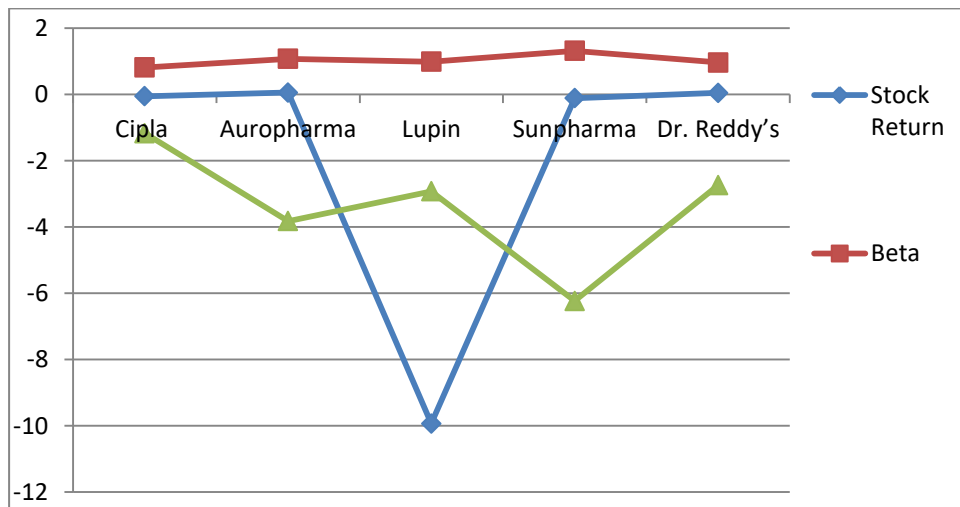
Table showing for Pharmaceutical Sector - Evaluation on the basis of CAPM Model.

| Sr.no | Pharmaceutical Sector | Stock Return | Rm | Rf | β | (Rm-Rf) | CAPM | Ranking |
|-------|-----------------------|--------------|----|----|---------|---------|-------|---------|
| 1 | Sunpharma | -0.11 | -3 | 7 | 1.32 | -10 | -6.23 | 1 |
| 2 | Auropharma | 0.06 | -3 | 7 | 1.08 | -10 | -3.82 | 2 |
| 3 | Lupin | -9.93 | -3 | 7 | 0.99 | -10 | -2.92 | 3 |
| 4 | Dr.Reddy's | 0.05 | -3 | 7 | 0.97 | -10 | -2.74 | 4 |
| 5 | Cipla | -0.05 | -3 | 7 | 0.82 | -10 | -1.17 | 5 |

Interpretation:

In the above table shows that all the securities have positive beta value and Expected rate of return would be negative because here market return (Rm) would be less than risk free (Rf) $R_m < R_f$ investors think that if market is in negative than no one could interested to invest in securities to occur loss. Investors with less risk tolerance can select those securities which have low beta value that indicates less response to the market & are less risky such as Cipla its beta value is 0.82 and expected rate of return is -1.17 which would be low because risk can be measured by stock return price volatility. As compared to other securities beta value of Sun Pharma is 1.32 which is higher than all other securities and expected rate of return is 6.23 which would be higher than all other securities. Here it depends on Investors preference which securities they have selected if they are high risk takers than they should go through high beta value and they also got high expected rate of return value than all other securities or Vice Versa. Here Ranking criteria shows that securities are performing well in the market or not. If investors are high risk takers than they select Cipla because it got 1 rank in risk assumption and high expected rate of return (CAPM), Auropharma got 2 rank because it is less risky than HCL, Lupin got 3 rank because it is less risky than Auropharma, Dr.Reddy's got 4 rank in risk assumption and expected rate of return (CAPM) because

this securities is in between this investors are not high risk takers or not go through low risk takers they prefer to remain in equal position and Sunpharma got 5 rank which is low risk takers and also got low level of expected rate of return (CAPM).



Risk and Return Analysis: Figure 1.2

Interpretation:

Here graph indicates that some Pharmaceutical companies performing negatively in stock return and stock return are in increasing or decreasing trend. Here a beta is in slightly upper or downward trend and after some days it goes in downward trend. Expected return performed negatively because return on the stock is in negative way so expectation through market is also in negative way so investors not try to invest in pharmaceutical companies because they get less return as compared to what they spend.

IX. CONCLUSION

As a whole the stock market is sometimes highly volatile it depends upon the investors how he can make use of this in order to get the money which he has put in the market an investor should be in a position to analyze the various investment options available to him and thus minimize the risk and maximize the return with the help of Beta value, Stock return and expected rate of return. The study of this kind provides information about the performance of various stocks in the market in terms of risk and return with the help of CAPM Model.

The study measures the relationship between risk and return analysis of selected companies in two sectors listed in NSE market. In the case of Information technology Sector here, investors can select HCL Technologies because they get high expected rate of return. In the case of Pharmaceutical Sector here, he can select Sunpharma companies respectively. Since the researcher has selected only two sectors such as Information Technology and Pharmaceutical Sector, Where the Information Technology Sector has performed better and increased growth in the market when compared to Pharmaceutical sector has negative market returns and it is in decreasing trend. So investors would definitely go through IT sector to invest their money in the market.

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