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A study on relationship between risk and return analysis of selected stocks on NSE using capital asset pricing model

Dr. S Poornima and Swathiga P

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 stocks 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 automobile sector and IT sector. Five stocks in each sector have been taken for the sample. Automobile industry 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 technology sector requires utmost caution and understanding. By analyzing the stocks from two different sectors, investors will find beneficial in which sectors to invest. The risk and return analysis linked with any industry reveals the intricacies involved with the particular industry. A study revealed that automobile sector showing positive return and low risk and IT sector showing negative return and high risk during the study period.

Keywords: NSE, Risk, Return, CAPM, Investment, Expected return, Beta

Introduction
The portfolio theory provides a normative approach to investors to make decisions to invest their wealth in assets or securities under risk. It is based after the assumption that investors are risk-averse. This implies that investors hold well diversified portfolio instead of investing their entire wealth in a single or few assets. In the era of information technology, the economy and capital markets of all countries are integrated at an unprecedented pace. With rapid globalization in the last decades, more and more stocks are listed in stock exchange. With the evolvement of the capital and equity markets, the traditional asset pricing models encounter problems as they were initially developed as standard form of CAPM. Capital asset pricing model (CAPM)) was originally developed by and then enhanced by. The CAPM is a model that provides a framework to determine the required rate of return on an asset and indicates the relationship between return and risk of the asset. The required rate of return specified by CAPM help in valuing an asset. Once can also can compare the expected return and determine whether the asset is fairly valued.

Review of Literature
Investigated the validity of CAPM and APT models for determining price/return of the 17 fertilizers and the oil and gas sector companies listed on the Karachi stock exchange during the period January 2004 to December 2009. Their findings revealed weak correlation between realized excess returns(i.e. actual returns over and above the risk free rate) and the expected return based on CAPM and with respect to APT model, the study reflected that macroeconomic factors viz. changes in GDP, Inflation, Exchange rates and the market return did not serve as valid determinants of returns on oil, gas and fertilizers stocks.
Undertook a study of 110 companies listed in Nigeria Stock Exchange (NSE) from January 2007 to February 2010. While CAPM asserts that the higher the risk (beta) the higher the return, the findings from this study does not support this CAPM assertion. Specifically, Oke's findings show that although there is no exact negative relationship, some portfolios with higher returns have lower betas.

For example, the portfolio with the highest returns (portfolio A) has the second lowest beta while the portfolio with the lowest returns (portfolio G) has the highest beta. Similarly, Oke's portfolio J, which is the second lowest in terms of returns (9th out of 10), has the second highest beta.

Have conducted a study of CAPM in China's Stock markets. Stocks data and combined data of Shanghai Stock Exchange were selected as research subjects in this paper. Empirical analysis of these data has been carried out by way of t-statistics and joint test to verify whether CAPM model would be true of China's stock market. Conclusion was reached that CAPM model is essential in China's stock market. Thus, CAPM model can be applied in empirical analysis and theoretical study on the market as to promote the development of China's stock market.

Have conducted an equilibrium Capital Asset Pricing Model (CAPM) of asserts that stock returns are explained by their betas. Other study by Fama and French (1992) [4] shows that the stock returns can be explained by not only their betas but also their sizes and growth. In this research-based article regressions and hypothesis testing are carried out. With a sample of 50 United Kingdom (UK) stocks, covering the period from 1980-2005, the hypothesis that stock returns are explained only by their betas is rejected. The results from this study also show that stock returns are not related to market returns and there is no linear relationship between actual stock returns and their respective betas. The hypotheses that size and growth have no power to explain the stock returns are also rejected in some cases and accepted in other cases.

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.
- The analysis mainly studies the risk and return relationship of selected stocks from different sectors on NSE.
- Investors will find beneficial based on the risk and return analysis.

Objectives of the study

- To study on relationship between risk and return analysis of selected stocks on NSE
- To compare average return with standard expected return using CAPM
- To rank the companies on the basis of risk and return

Sampling Design: From this study all information has collected from secondary sources like Internet, Money control, NSE and from books. The various information about analysis Historical data was collected from website.

Tools used in this research to find out objectives:

- Average Return
- Return = (closing Price-Opening Price)/ (opening Price)*100

Average return=(Return/ N)

- Standard Deviation is calculated as per excel formulae
- Capital Asset Pricing Model to find out Expected return

$Ri = Rf + \beta (Rm – Rf)$

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

Limitations of the study

Every research has its own limitations. The following are the limitations of this study:

- The study covers only 10 listed companies of NSE
- This study is limited to the analysis of risk and return of 10 stocks.
- Three years data has been considered for the calculation of risk and return analysis using CAPM
- In the study, two sectors have been chosen. The study covers two sectors based on NSE capitalization from each sectors five companies have been taken.

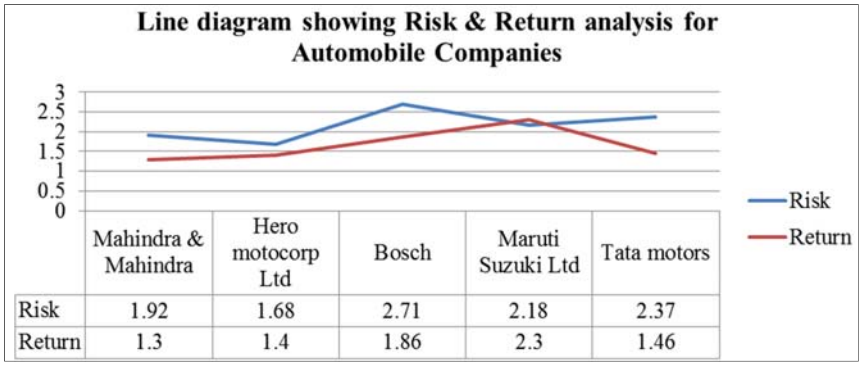
Analysis and Interpretation

Table Showing for Automobile Sector-Evaluation on the basis of Risk

S. No	Name of the Automobile Companies	Average Return	Standard Deviation	Beta	CAPM (Expected Return)	Rankings
1.	M & M	1.69	3.69	0.90	27.1	4
2	Hero Moto	1.77	2.78	0.85	25.7	5
3.	Bosch	3.48	7.36	1.42	42.3	1
4.	Maruti	5.31	4.76	1.03	30.7	3
5.	TataMotors	1.96	5.62	2	57.8	2

Interpretation

In the above table it should be noted that all the companies has positive beta value. Risk lover investors can select the more volatile securities it means higher beta valued securities such as Bosch and Maruti Suzuki Ltd. Bosch has high volatile in the market is 7.36% because of better growth and good performance for past three years and Hero Motocorp Ltd has less volatile in the market is 2.78%.In the case of automobile companies here, Bosch and Tata Motors have 7.36 and 5.62 have percentage of variation in their expected return respectively. Therefore an investor with risk sensitiveness can select these securities without much variation.



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4.	Maruti Suzuki	5.31	1.03	30.7	1
5.	Tata motors	1.96	2	57.8	3

Interpretation

In the above table, it clearly shows that investors can select the securities such as Maruti Suzuki Ltd which has highest return is 5.31%. Risk neutral investors can select those securities having beta value nearing to 1 such as Bosch.

Table showing for IT Sector-Evaluation on the basis of Risk

S. No	Name of the IT Companies	Average Return	Standard Deviation	Beta	CAPM (Expected Return)	Rankings
1.	TCS	0.19	2.12	0.83	25.1	4
2.	Mphasis Ltd	0.69	4.19	0.44	14.2	1
3.	Oracle	-0.19	1.35	0.81	24.3	5
4.	HCL Technologies	1.02	3.52	1.76	51.1	2
5.	Wipro	-0.37	2.88	1.23	36.3	3

Interpretation

In the above table shows that all the companies have positive beta value. Investors with less risk tolerance can select those securities which has low beta that indicates less response to the market and are less risky such as Mphasis Ltd. The above IT companies here, HCL technologies 4.19% and 3.52% have percentage of variation in their expected return respectively. Therefore an investor with risk sensitiveness can select these securities without much variation. Risk neutral investors can select those securities having beta value nearing to 1 such as HCL Technologies.

Table showing for IT Sector-Evaluation on the basis of Return

S. No	Name of the IT Companies	Average Return	Beta	CAPM (Expected Return)	Rankings
1.	TCS	0.19	0.83	25.1	3
2.	Mphasis Ltd	0.69	0.44	14.2	2
3.	Oracle	-0.19	0.81	24.3	4
4.	HCL Technologies	1.02	1.76	51.1	1
5.	Wipro	-0.37	1.23	36.3	5

Interpretation

In the above table, it clearly shows that investors can select the securities which has highest average return is 1.02 such as HCL technologies. Risk averse investors can select the securities which has lowest return is 0.19 such as TCS.

Conclusion

The study of relationship risk and return analysis helps the investor to pick up the securities based on his choice. 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. The study measures the relationship between risk and return analysis of selected companies in two sectors listed in NSE. In the case of automobile companies here, investors can select Maruti Suzuki Ltd (5.31%) and Bosch (3.48%). In the case of IT companies here, he can select HCL Technologies (1.02%) respectively. Since the researcher has selected only two sectors such as automobile and IT Sectors, where the automobile companies has performed better and has increased growth in the market when compared to IT Sector has negative average returns.

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