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CORRELATION BETWEEN RISK AND RETURN OF STOCKS IN MULTISECTORS

[1]Dr. GEETHA. V , [2]Dr. YAVANARANI. S , [3]Dr. MUTHUKUMAR. N

ABSTRACT --*Risk and return are both relevant to investment decisions. India has been an emerging nation and since liberalization, there have been a number of reforms that have witnessed stock market reactions. This has caused both the risk and return of the different sectors of the Indian market to frequently change and become unpredictable. There is no clear answer to whether the risks and returns of these indices remain stable over a period of time. Stock market ensures liquidity of industrial securities; it also ensures the appreciation of funds invested in the securities with the improvement in the performance of companies and increase in the demand for their securities. Thus they motivate the public to invest their savings in the capital of companies. These savings are channelized in the productive activities of the companies resulting in the capital formation which is essential for the economic development of a nation.*

Key words--*Risk, Return, CAPM, Investment, Expected return, Beta.*

I. INTRODUCTION

Stock exchanges play an important role in the economic development of a nation. Stock exchange keeps a record and makes a public declaration of prices at which securities are traded. On the basis of these prices for the securities quoted in the markets the investors and speculators can evaluate the values of securities held by them. Every individual always need high (or) maximum returns and wants to avoid the risk. They serve as an economic barometer of a country 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 though 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.

II. OBJECTIVES OF THE STUDY

- To study the Risk and Return relationship stocks on public sector banks
- To compare the performance of banks with their Yardstick index.
- To rank the companies on the basis of risk and return

[1] *Assistant Professor, Mannar Thirumalai Naicker College, Madurai,geeth.reeth@gmail.com*

[2] *Associate Professor, CMS Business School, Jain University, Bangalore, Karnataka*

[3] *Professor and Head, Dhurva Institute of Engineering and Technology, Hyderabad.*

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III. SCOPE OF THE STUDY

A Research entitled “An analysis of Risk and Return Relationships for selected stocks on NSE using Capita Asset Pricing Model with the special reference to Karvy Stock Broking Company, Sattur” attempts to analyze the investment decision on stocks based on risk and return. The aim of investors’ is 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. This study tries to establish the possible risk-return relation in capital market by analysing the influence of risk variables on stocks return for selected industries and the respective companies using Capital Asset Pricing Model.

IV. NEED FOR THE STUDY

A research entitled “An analysis of Risk and Return Relationships for selected stocks on NSE using Capital Asset Pricing Model”. This study is needed to know 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 analysis. This study is structured to analyse the performance of the selected stocks in the selected industries to reveal the risk and return relationships in a particular period of time.

V. REVIEW OF LITERATURE

Sunil Rashinkar et. al. (2014), entitled their research as “A Study on Market Risk Analyses of selected Banking Stocks (Nationalized Banks) in Indian Context”.

This paper studies the Market risk analysis of five Nationalized Banks in terms of Beta coefficient for the period from 1st July 2013 to 31st June 2014. On the other hand the betas of Punjab National Bank & Bank of Baroda were more than one. It indicates that these stocks were exposed to high market risk; i.e., any small changes in the market will directly impact on these stocks.

Shaini Naveen et. al. (2016), entitled their research as **“A Study on Comparative Analysis Of Risk and Return With Reference to Stocks of CNX Bank Nifty”**. This study deals with India is one of the emerging economies, which has witnessed significant developments in the stock markets during the liberalization policy initiated by the government. The study evaluates the performance of banking stocks mainly to identify the required rate of return and risk of a particular stock based upon different risk elements prevailing in the market and other economic factors.

Poornima et. al. (2017), entitled their research as **“A study on relationship between risk and return analysis of selected stocks on NSE using capital asset pricing model”**. 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. 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.

Nirmala et. al. (2107), entitled their research as **"Risk And Return Analysis Of Equity Shares with Special Reference To Select Mutual Fund Companies (Using Capital Asset Pricing Model)".** This study aims to study the risk and return of select five mutual fund companies listed at NSE. The risk and return analysis done by using Capital Asset Pricing Model and Performance analysis done by using Jenson's Alpha. It can be concluded from the study that the investors can choose SBI and ICICI to invest their fund because their cost of capital and risk is less and they are performing too good. Long term investors were able to take advantage of the market as it less volatile. As there is less fluctuation in the shares when compared to market as well as its prices, the long term investors able to predict about when the share will raise.

Muthu Gopalakrishnan et. al. **(2017),** entitled their research as **"A Study on Risk Return Analysis of Pharmaceutical Industries in Indian Stock Market".** 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 avenue of investment. This study helps the potential investors to make informed and rational investment decision. The data have been collected and analysed using MS excel. The study concluded that from the selected pharmaceutical companies Sun Pharmaceutical Industries Ltd provides high return but the market risk of the shares are much high.

Muthu Gopalakrishnan et. al (2017), entitled their research as **"Equity Analysis of Automobile Industry in Indian Stock Market".** Every individual always wishes to get a decent return on his/her investments because investor makes the investment from the hard earned savings.. Since the risk is very high in equity investment, the investors need to make equity analysis that helps them to know about the risk-return characteristics of those equity shares and those industries in which he/she wishes to park the savings. In order to maintain the growing demand, many automakers have started to invest in this industry. It takes only 50% of the total companies forming NIFTY Auto index as on 21st April 2017. That is 8 companies. From the analysis, it is found that among all other companies Mahindra & Mahindra Ltd is the best company to invest because its beta value is less than one (0.9082) and it has a positive alpha value (0.0073).

Arti Sharma et. al. (2017) entitled their research as **"Return & Risk Analysis of Selected Sector Specific Mutual Funds in India"**. This Sector funds are industry specific funds which invest money in a particular sector of economy such as banking, healthcare, real estate, technology, transportation, etc. These funds provide diversification within a particular sector. But there return ability is more volatile than diversified equity mutual funds. The present study is based on analyzing the performance of some selected Indian sector fund schemes in terms of risk and return. In this paper Compound Annualized return, Standard Deviation, Beta, Alpha and R-Squared are determined for last five year period.

VI. RESEARCH METHODOLOGY

Collection of Data

The present study based on secondary data collected from National Stock Exchange, journals, books, magazines, and Websites It is aimed at finding out the risk and return of selected five sectors.

Sample size

This paper studies the correlation between Risk and Return of 25 stocks selected from different five sectors on the basis of coefficient value of Beta/Volatile .The sample size for the study is taken on the basis of random sampling technique.

Automobile Sector

- Tata Motors Ltd.
- Bajaj Auto
- Eicher Motors Ltd.
- Hero Moto Corp Ltd.
- Maruti Suzuki India Ltd.

Banking Sector

- Axis Bank.
- ICICI Bank.
- State bank of India.
- HDFC Bank Ltd.
- Yes Bank

Information Technology Sector

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

Pharmaceutical Sector

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

Fast Moving Consumer Goods Sector

- Britannia Industries Ltd.

- Dabur India Ltd.
- Nestle
- Godrej Consumer Products Ltd.
- ITC Ltd.

Tools Used for Data Analysis

The collected data has analysed with the help various statistical tools, The risk of an asset is measured quantitatively using statistics- the standard deviation and also beta is analyzed to measure the variability of returns. The most common indicator of risk is standard deviation, σ, which measures the dispersion around the expected value of returns.

Standard deviation = √ {Σ (k-k) 2 ⁄ n}

Average Return

Formula for calculating the AR = Return/N

Return = (Closing Price – Opening Price) / Opening Price *100

Variance = Σ(x-X)2/N

Capital Asset **Pricing Model**

CAPM to find out Expected return $R_i = R_f + \beta\,(R_m - R_f)$

Beta

$$\beta = \frac{\text{COV (Market returns, sectoral index returns)}}{\text{VAR (Market returns)}}$$

Where β is Beta, COV (Market returns, sectoral index returns) is the covariance between the market returns and sectoral index returns and VAR (Market) is the variance of the market returns. Calculations are done with the help of Excel.

VII. DATA ANALYSIS

APPRAISAL FOR LONG TERM INVESTORS

Table 1: Table showing the Escalation of Automobile Sector for Long term Investors

S.No	Name of the Automobile Companies	Average Return	Beta	CAPM	Standard Deviation	Ranking
1	Tata Motors	-0.11	0.91	0.61	1.94	4
2	Bajaj Auto	-0.05	0.68	2.45	1.51	3

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3	Eicher Motors	0.02	0	7.77	0.02	1
4	Hero MotorCorp	-0.05	0.49	3.90	1.54	3
5	Maruti Suzuki	-0.01	0.58	3.20	1.59	2

Source: Secondary Data

Inference

The above table upshots that, all the companies has positive beta value, Risk averse investors can select Eicher securities has low beta value which is less risky. Return seeking investors can select Eicher securities whose average return is 0.02 and Risk Sensitive investors can select the securities of Eicher without much variation in return compared to expected return.

Table 2: Table showing the Intensification of Banking Sector for Long term Investors

S.No	**Name of the Bank**	**Average return**	**Beta**	**CAPM**	**Standard deviation**	**Ranking**
1	Axis Bank	-0.10	0.92	0.56	1.90	3
2	HDFC Bank	0.01	0.33	5.20	1.24	1
3	ICICI Bank	-0.12	0.90	0.75	1.71	4
4	SBI	-0.20	0.93	0.51	1.94	5
5	YES Bank	-0.06	0.92	0.56	1.90	2

Source: Secondary Data

Inference

The above table upshots that, all the companies has positive beta value, Risk averse investors can select HDFC securities has low beta value which is less risky. Return seeking investors can select HDFC security which has highest return of 0.01 and Risk Sensitive investors can select the securities of ICICI without much variation in return compared to expected return.

Table 3 : Table showing the Acceleration of FMCG Sector for Long term Investors

S.No	**Name of the FMCG**	**Average return**	**Beta**	**CAPM**	**Standard Deviation**	**Ranking**
1	Britania	-0.02	0.40	4.62	1.80	2
2	Dabur	-0.10	0.36	4.90	1.57	5
3	Godrej	-0.09	0.45	4.28	2.15	4
4	ITC	-0.01	0.92	0.56	1.90	1
5	Nestle	-0.08	0.22	6.04	1.48	3

Source: Secondary Data

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Inference

The above table upshots that, all the companies has positive beta value, Risk sensitive investors can select Nestle securities has low beta value which is less risky. All the securities gives negative average return which is not feasible for the investors and Risk averse investors can select the securities of Godrej without much variation in return compared to expected return.

Table 4 : Table showing the Growth of Information Technology Sector for Long term Investors

S.No	Name of the IT Sector	Average Return	Beta	CAPM	Standard Deviations	Ranking
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: Secondary Data

Inference

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 expected return.

Table 5: Table showing the Boom of Pharmaceutical Sector for Long term Investors

S.No	Name of the Pharmaceuticals	Average Return	Beta	CAPM	Standard Deviations	Ranking
1	Aurobindo	-0.21	1.05	-0.50	2.57	4
2	Cipla	0.05	0.73	2.01	1.55	1
3	Lupin	0.05	0.73	2.01	1.55	1
4	Dr.Reddy's Laboratory	-0.09	0.63	2.83	1.52	2
5	Sun Pharmaceuticals	-0.12	1.45	3.63	1.69	3

Source: Secondary Data

Inference

The above table upshots that, all the companies has positive beta value, Neutral risk takers can select those securities having beta value nearing to 1 such as Aurobindo and Sun Pharm whereas less risky investors can select Cipla and Lupin securities has low beta value which is less risky. Return seeking investors can select Cipla and Lupin securities which has highest return of 0.05 and Risk Sensitive investors can select the securities of Dr.Reddy's lab without much variation in return compared to expected return.

APPRAISAL FOR SHORT TERM INVESTORS

Table 7: Table showing the Escalation of Automobile Sector for Short term Investors

S.No	Name of the Automobile Companies	Average Return	Beta	CAPM	Standard Deviation	Ranking
1	Tata Motors	1.50	1.65	-2.47	11.52	3
2	Bajaj Auto	1.14	0.65	3.73	6.77	5
3	Eicher Motors	4.29	0.72	3.30	8.88	1
4	Hero MotorCorp	1.16	0.69	3.52	7.42	4
5	Maruti Suzuki	2.99	1.24	0.12	9.53	2

Source: Secondary Data

Inference

The above table upshot that, all the companies has positive beta value, Neutral risk takers can select those securities having beta value nearer to 1 such as Maruti, Tata Motors whereas less risky investors can select Bajaj securities has low beta value which is less risky. Return seeking investors can select an Eicher security which has highest return of 4.29 and Risk Sensitive investors can select the securities of Bajaj without much variation in return compared to expected return.

Table 8: Table showing the Acceleration of Banking Sector for Short term Investors

S.No	Name of the Bank	Average Return	Beta	CAPM	Standard deviation	Ranking
1	Axis Bank	1.30	1.23	-0.39	10.26	3
2	HDFC Bank	1.79	0.66	3.40	5.74	2

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3	ICICI Bank	0.92	1.20	-0.20	9.65	4
4	SBI	0.41	1.11	0.45	9.83	5
5	YES Bank	2.64	1.43	-1.69	12.30	1

Source: Secondary Data

Inference

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 Axis, ICICI, SBI and YES bank whereas less risky investors can select HDFC securities has low beta value which is less risky. Return seeking investors can select Yes bank securities which has highest return of 2.64 and Risk Sensitive investors can select the securities of HDFC without much variation in return compared to expected return.

Table 9: Table showing the Boom of FMCG Sector for Short term Investors

S.No	Name of the FMCG	Average return	Beta	CAPM	Standard Deviation	Ranking
1	Britania	3.35	0.52	4.45	7.50	1
2	Dabur	1.61	0.60	3.97	5.37	3
3	Godrej	2.28	0.67	3.49	6.37	2
4	ITC	1.20	1.15	0.47	5.21	4
5	Nestle	1.15	0.64	3.69	5.52	5

Source: Secondary Data

Inference

The above table expound that all the companies has positive beta value, Neutral risk takers can select those securities having beta value nearer to 1 such as ITC whereas less risky investors can select Britania securities has low beta value which is less risky. Return seeking investors can select Britania securities which have highest return of 3.35 and Risk Sensitive investors can select the securities of ITC, Nestle without much variation in return compared to expected return.

Table 10: 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	Ranking

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

Inference

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 have highest return of 1.92 and Risk Sensitive investors can select the securities of Tata much variation in return.

Table 11: Table showing the Growth of Pharmaceutical Sector for Short term Investors

S.No	Name of the Pharmaceuticals	Average Return	Beta	CAPM	Standard Deviations	Ranking
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'sLaboratory	0.63	0.97	1.06	7.01	5
5	Sun Pharmaceuticals	1.33	1.31	-1.26	7.51	2

Source: Secondary Data

Inference

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.

VIII. FINDINGS

- 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, stocks which would be considered as more conservative investments such as Eicher Motors Automobile company, HDFC Bank, Tata IT company, Cipla and Lupin Pharmaceutical companies for Long term investors and for short term investors such as Bajaj Auto, Eicher Motors, Hero MotoCorp Automobile companies, HDFC bank, Britania, Godrej, Dabur, Nestle FMCG Companies, Cipla and Dr. Reddy's lab Pharmaceutical companies.

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- From the study, it is recommended that Return seekers without risk contemplation investors can invest in Eicher Motors Automobile concern, HDFC bank securities because those securities bestow profit in both short term and long term investment, so the investors who are interested in stable growth can prefer those securities.
- Based on the research analysis, Neutral Risk takers can opt the securities whose beta value is nearing to 1 with good returns such as Tata Automobile company, TCS IT Company in long term investment and for short term investment all the companies beta values are not nearer to 1.
- High risk takers can select the securities whose beta value is greater than 1 with good returns are Tata, Maruti Suzuki Automobile companies, Axis, Yes Banks, ITC Fmcg company, Infosys IT company, Aurobindo, Lupin, Sun Pharmaceutical companies for short term investors and all the companies beta value are less than 1 in long term investment.

IX. CONCLUSION

The paper shows that information about the performance of various stocks in the market in terms of risk and return with the help of CAPM. An investor should be in a position to analyze 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 techn *Professor and Head, Dhurva Institute of Engineering and Technology, Hyderabad.*

ology, 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.

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