A PROJECT REPORT

On the Topic

"A Study on Construction of Optimal Portfolio Using Sharpe's Single Index Model"

By

Mr. CHANDRA SHEKARA

USN: 1CY18MBA10

MBA 4th Semester

Submitted to VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
in partial fulfillment of the requirements for the award of the degree of MASTER OF BUSINESS ADMINISTRATION

Under the Guidance of

INTERNALGUIDE

Mrs. PrekshaYadav

Assistant professor

Department of Management Studies

CMR Institute of TechnologyBENGALURU

EXTERNAL GUIDE

Mr.BhanuPrakash

Asst. Manager

Kotak Securities ltd.

DEPARTMENT OF MASTER OF BUSINESSADMINISTRATION

C M R INSTITUTE OFTECHNOLOGY

#132, AECS Layout, ITPL Main Road,
Kundalahalli, BENGALURU-560037

June/July 2020

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BENGALURU-560037

June/July 2020

Kotak Securities

February 20, 2020

To Whom so Ever it May Concern

This is to certify that **Mr. CHANDRA SHEKARA** (USN NO. **1CY18MBA10**) 4th Semester MBA, **CMR Institute of Technology,** BENGALURU affiliated **Visvesvaraya Technological University** has completed project in **"A Study on Construction of Optimal Portfolio Using Sharpe's Single Index Model"** at Kotak Securities Limited with respect to NSE" with the Company at our Bangalore branch office, from January 2, 2020 to February 16, 2020 under the guidance of **Mr. Bhanu Prakash**.

During the course of his assignment, we have found Chandra Shekara to be sincere and hardworking.

We wish him all the very best in his academic and career endeavors.

For Kotak Securities Limited

Authorised Signatory

Kotak Securities Limited, 10/7, Umiya Landmark,1st Floor, Lavelle Road,Bengaluru- 560 001
T: +91 80 66203602 / 603, GSTN:27KAAACK3436F1ZS

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CERTIFICATE

This is to certify that **Mr. Chandra Shekara** bearing USN **1CY18MBA10** is a bonafide student of Master of Business Administration Programme of the Institute (2018-20 Batch), affiliated to Visvesvaraya Technological University, Belagavi. Project report on **"A STUDY ON PORTFOLIO CONSTRUCTION USING SHARPE'S SINGLE INDEX MODEL AT KOTAK SECURITIES, BANGALORE"** is prepared by him under the guidance of **Mrs. Preksha Yadav,** Assistant Professor, in partial fulfilment of the requirements for the award of the degree of Master of Business Administration of Visvesvaraya Technological University, Belagavi in Karnataka.

Signature of Internal Guide

22/6/20
Signature of HoD

Head of the Department
Department of MBA
CMRIT-PG Studies
Bangalore-560 037

Sanjay Jain
Signature of Principal

Principal
CMR Institute of Technology
Bangalore - 560037

Evaluators

1) Name of external evaluator — Signature with Date

____________ ____________

2) Name of internal evaluator

____________ ____________

CERTIFICATE

This is to certify that **Mr. Chandra shekara** bearing USN **1CY18MBA10** has done project work in our company for six weeks duration from 02 January 2020 to 16 february 2020. The project report on "**A Study on Construction of Optimal Portfolio Using Sharpe's Single Index Model**" is prepared by him under the guidance of **Mr. Bhanu Prakash,** Asst. Manager, in partial fulfillment of the requirements for the award of the degree of Master of Business Administration of Visvesvaraya Technological University, Belagavi in Karnataka.

Mr. Bhanu Prakash
Asst. Manager
Kotak Securities Ltd.

DECLARATION

I, Mr. Chandra Shekara, hereby declare that the Project report entitled "**A Study on Construction of Optimal Portfolio Using Sharpe's Single Index Model**" prepared by me under the guidance of Mrs. Preksha Yadav, faculty of MBA Department, CMR Institute of Technology and external assistance by Mr. Bhanu Prakash, Asst. manager, Kotak securities ltd. Bangalore. I also declare that this project work is towards the partial fulfillment of the university regulations for the award of degree of Master of Business Administration by Visvesvaraya Technological University, Belagavi. I have undergone a summer project for a period of six weeks. I further declare that this project is based on the original study undertaken by me and has not been submitted to any other University/Institution for the award of any degree/diploma.

M.C. Shekara

Place: **Bangalore** **Mr. CHANDRA SHEKARA**

Date: 01-07-2020 **USN:1CY18MBA10**

ACKNOWLEDGEMENT

I have been fortunate enough to get good timely advice and support from a host of people to whom I shall remain grateful.

I take this opportunity to express my heartfelt thanks to **Dr. Sanjay Jain,** Principal, CMR Institute of Technology, Bangalore, for his support and cooperation to undertake and complete the project work.

I am extremely thankful to **Prof. Sandeep Kumar,** Head of the Department of Management Studies and Research, CMR Institute of Technology, Bangalore, for his advice and support throughout the completion of the project work.

It gives me immense pleasure to record my thanks to my Internal Guide, **Mrs. Preksha Yadav, Asst. Professor,** CMR Institute of Technology, Bangalore, for her valuable guidance and untiring support and cooperation in completing the project work.

I acknowledge the insights provided by my External Guide, **Mr. Bhanu Prakash, Asst. Manager at Kotak Securities, Bangalore** which helped me to a great extent in completion of the project work.

And finally, there is deepest of thanks for the patience and cooperation of the family and friends, without whom the endeavour would not have been possible.

M.C. Shekara

Mr. CHANDRA SHEKARA

USN : 1CY18MBA10

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EXECUTIVE SUMMARY

The project work entitled "A Study on Construction of Optimum Portfolio Using Sharpe Single Index Model with respect to NSE", was carried out at Kotak Securities Pvt Ltd.

The present study reveals that there are more than 7000 equities, bonds, mutual funds and derivatives traded on major stock exchanges, selecting and creating right investment portfolio to meet investment objective is a difficult task. Most of the investor chooses their investment based on the recommendations of stock brokers, research papers and magazines etc.

There are different techniques to overcome the above problem such as "Markowitz model", "Sharpe single index model", "portfolio selection through security evaluation" etc. are used. In this particular report Sharpe single index model is opted for constructing the portfolio. The main objective of the study was to construct an optimum portfolio and to evaluate the returns as to see the performance of the shares constituting the portfolio.

The study mainly focused on constructing the portfolios of 16 scrip's from different sectors but the importance was given to Banking sector and IT sector. Risk, return and beta of the stocks are considered while selection so as to meet the investment objective. Thus the study gives a good basis for how to evaluate various securities and build winnable portfolio to reduce risk.

This research work is therefore believed to provide guidance to those seeking to develop their own portfolios and provide basis on how to build winning portfolios.

CHAPTER 1
INTRODUCTION

INTRODUCTION

In finance Portfolio'is be described as a combinition of shares in which funding has been made. While setting up a inventory portfolio, investor wants to define his economic desires first. At the equal time, the hazard tolerance level is additionally very important. On the different hand, the initial funding is also plays'an essential function in developing an most excellent stock portfolio. In any type of portfolio, diversification'is an essential factor. If there is enough variety in the portfolio, the investor can'remain secured even in the most hostile situations. At the same time, the diverse inventory portfolio can help the investor to trip regular boom in the Investment.

A frequent objective of the'portfolio investor is to acquire a higher portfolio threat adjusted return as adversarial to funding in a single equity. Combining equities into a portfolio carries the chance of risk discount and at the identical time getting a higher return compared to funding in single'equities. '

The goal of modern'portfolio concept is maximization of return or minimization of risk. In this context the lookup research have tried to evolve a composite index to measure chance based totally return. The deposit for evaluating the systematic, unsystematic and residual danger goes to Sharpe, Treynor and Jensen.

TOPIC CHOOSEN FOR THE STUDY:

Title'of report is "A Study on Portfolio Construction the usage of Sharpe's Single Index Model at Kotak Securities personal ltd with recognize to NSE".

STATEMENT OF PROBLEM

Return is express'as the quantity which an investor truely earned on an investment throughout a certain length of time. Return consists of the interest',dividend and capital features In monetary terms , danger is the'chance or probability that a certain'investment may also differ in delivering the traders expected'returns.

The‘risk and return alternate off says that the potential return rises with an extend in risk. It is essential for an‘investor to decide on a balance between the wish for the lowest feasible risk and easiest possible return.

Risk in investment‘exists because of the incapacity to make best or accurate forecasts. Risk in investment is defined as the variability that is probably to occur in future cash flows from an investment. the grater variability‘of these money flows shows increased risk. Hence to recognize trade off between danger and return to choose different securities in the portfolio the Sharpe’s single index mannequin is chooses.

NEED OF THE STUDY‘

This document has‘been prepared to furnish the foundation for reading the a range of avenues or sectors where investors‘can invest their savings in a group of securities or portfolios. Creation of portfolios helps‘to minimize risk, except sacrificing returns. Portfolio administration deals with the analysis‘of man or woman securities as properly as with the concept and practice of optimally combining securities into good‘portfolios. Portfolio is developed to minimize the dangers and maintain ideal negative‘correlation between the securities held together. Framing portfolio by way of choosing securities based on brand identification and recent overall performance of them does not flip up expected return in long‘term.

OBJECTIVES OF THE STUDY

- ❖ To‘construct an highest quality portfolio with much less and excessive return.
- ❖ To consider performance‘of security through setting up a portfolio.
- ❖ To allocate investment‘in extraordinary shares thinking about risk-return criteria.
- ❖ To recognize different‘type of risks such as systematic risk, unsystematic threat and total risk.

SCOPE OF THE STUDY‘

- ❖ The area‘of learn about is limited only to fairness securities. The find out about entails the usage of quantitative valuation as‘a basis for evaluating stocks.

- ❖ From NSE list 16‘companies are choosen for the study, the companies are chosen and analyzed based‘on their overall performance in the past five years and their EPS.

RESEARCH METHODOLOGY

This is a descriptive‘study on the building of portfolio of stocks. The‘data taken for the study is secondary in nature. For the learn about reason the combination of shares fro m a number sectors specifically Banking (private‘&‘public) ‘IT, Fmcg, Automob ile, etc. the pattern stocks are chosen primarily based on the EPS & Past‘performance of the stocks.

The learn about viewed the movement‘of share prices, expected returns, general deviation and beta‘values.

Secondary data:

It‘is the information which is already accrued by‘someone or an organization for some reason and lookup study. The‘data for study has been accumulated from quite a number sources like

- Kotak Securities‘monthly journals
- Websites like‘(NSE, Money control, ‘https://in.finance.yahoo.com/q/hp?s=GE)

Statistical tools used are:

William Sharpe Single Index Model

LIMITATIONS OF THE STUDY:

- The‘study is limited to establishing portfolio which specifically consists of investing only in equities, many‘other investment avenues have been left out. Hence applicability of the study is confined to this extent‘only. ‘‘‘
- The‘data taken for analysis in the learn about is restricted for the period of 5 years (2014-2018).
- The businesses are selected‘from nifty50‘only.
- Only 16 stocks‘are considered for valuation‘and building portfolio.
- Construction‘of portfolio is accomplished solely by means of using Sharpe’s model which‘basically considers the stock rate movements and does not take‘into consideration agency specific factors, industry‘specific factors and monetary precise elements and many different things.

Financial statement of Kotak Securities:

Particulars	Mar '16	Mar '17	Mar '18
	------------------- in Rs. Cr. ------------------		
Capital and Liabilities:			
Total Share Capital	385.16	373.3	370.34
Equity Share Capital	385.16	373.3	370.34
Share Application Money	0	0	0
Preference Share Capital	0	0	0
Init. Contribution Settler	0	0	0
Preference Share Application Money	0	0	0
Employee Stock Opiton	8.53	17.53	34.82
Reserves	18,690.85	14,876.49	12,530.70
Revaluation Reserves	0	0	0
Net Worth	19,084.54	15,267.32	12,935.86
Deposits	56,929.75	49,389.14	36,460.73
Borrowings	29,007.14	36,171.96	29,194.69
Total Debt	85,936.89	85,561.10	65,655.42
Minority Interest	270.89	208.72	160.06
Policy Holders Funds	11,014.56	10,077.27	9,011.53

Group Share in Joint Venture	0	0	0
Other Liabilities & Provisions	5,929.76	4,720.24	4,586.52
Total Liabilities	122,236.64	115,834.65	92,349.39
Assets			
Cash & Balances with RBI	2,960.51	2,220.76	2,030.63
Balance with Banks, Money at Call	3,682.60	2,297.49	1,545.20
Advances	71,692.52	66,257.65	53,143.61
Investments	38,791.05	40,907.24	31,658.43
Gross Block	1,264.09	619.9	615.29
Accumulated Depreciation	0	0	0
Net Block	1,264.09	619.9	615.29
Capital Work In Progress	0	0	0
Other Assets	3,845.87	3,531.63	3,356.22
Minority Interest	0	0	0
Group Share in Joint Venture	0	0	0
Total Assets	122,236.64	115,834.67	92,349.38
Contingent Liabilities	48,822.33	43,980.45	42,221.94
Bills for collection	0	0	0
Book Value (Rs)	247.64	204.25	174.18

CHAPTER – 2

CONCEPTUAL BACKGROUND AND LITERATURE REVIEW

INTRODUCTION TO STOCK MARKET:

A inventory market or equity market is a public entity for the buying and selling of agency inventory (shares,scrips etc) and derivatives at an agreed price. Only those agencies shares are traded who are listed in the stock market.

Stock is a share in the possession of a company. Stock represents a declare on the com pany's assets and earnings. As you gather more stock, your ownership stake in the bus iness enterprise will become greater. Whether you say shares, equity or stock and it all ability the same.

Holding a company's inventory ability that you are one of the many proprietors (shareholders) of a organization and as such, you have a claim to the whole lot the enterprise owns. As an owner, you are entitled to your share of the company's profits as nicely as any vote casting rights attached to the stock.

A stock is represented via a stock certificate. This is a piece of paper that is proof of your ownership. In today's pc age, inventory documents are saved electronically, which is also recognized as conserving shares. This is achieved to make shares simpler to trade. IN the past when a individual wanted to promote his or her shares, that character bodily tool the certificates down to brokerage. Now, buying and selling takes place with a click of the mouse or a smartphone call.

The administration of the corporation is supposed to amplify the price of the firm for shareholders. The significance of being a shareholder is that you are entitled to componentof the company's income and have claims on assets. Profits are on occasio n paid out in the shape of dividends. The greater shares you own, the large the portion of the earnings you get. Your claims on property are solely applicable if a corporation bankrupt. In case of liquidation, you will get hold of what is left after all the lenders and obligations have been paid.

Another extremely important characteristic of stock is its restricted liability, which capability that, as an owner of a stock, you are not in my view liable if the organization is now not in a position to pay its debts. Owning stock means that no matter what, the most fee you can lose is the fee of your investment. It need to be emphasised that there are no ensures regarding returns when it comes to character stocks. Some businesses pay out dividends, but many different do not. There is no obligation to pay dividends even for these firms that have historically given them. Without dividends, an investor can make money on a stock as it appreciates in the open market due to market forces.

Stock costs changes each and every day as a result of market forces. By this we imply that shares fees changes due to the fact of furnish and demand. If more human beings desire to buy a stock (demand) than promote it (supply), then that stock’s prices moves up and conversely if extra humans choose to sell a stock (supply) than purchase a stock (demand), there is larger supply than demand, then that inventory price would fall.

Understanding demand and furnish is hard, due to the fact in inventory market each and every macro-economic factor has impact on the market forces. That potential any effective information which helps company’s business boost, creates a high quality vibes among the buyers which in flip amplify the demand for that organizations stocks and any bad information which will harm groups increase prospective, will minimize demand for that groups stocks and amplify supply. The rate movements of a inventory point out what investors sense about the employer and its increase potential.

The most vital element that influences the fee of a enterprise is its earnings. Earnings are the earnings a company makes and in the lengthy run no organization can survive except them. If a business enterprise by no means makes money, it can't remain in business going through competition; it would now not have any funds to run its basic operations and meet its important obligations, so it is vital for corporation to generate profits.

Public organizations are required to report their earnings four times in a yr (quarterly).Stock exchange watches with rabid interest at these times, which are referred to as revenue seasons. The purpose at the back of this is that analysts base their future cost of the agency o their salary projection. If company’s result surprise (better than expected), then that organizations charge jumps up. If the company’s end result are disappointing (are worse than expected), then company’s stock rate shall fall in the stock market. It is not possible for every body in the world to completely predict the fee movements, as inventory price actions are unstable and it is affected via every macro-economic issue in relation to the company.

The integral things to think about about the shares are as following:

- At the most essential level, provide and demand in the market determines inventory price. There is no theory that explains everything about why shares prices cross the way they do.
- Price times the variety of shares exquisite is the price of a company.
- Theoretically, profits are what affect investors’ valuation of a company, however there are other warning signs that investors’ use to predict stock prices, like investors’ sentiments, mindset and expectations that sooner or later impacts inventory prices.

This market can be cut up into two primary sections: the primary and secondary market. The most important market is the place new troubles are first offered, with any subsequent trading going on in the secondary market, inventory exchanges are the most visible example of liquid secondary markets. In India we have two predominant stock exchanges that is National Stock trade (NSE) and Bombay Stock Exchange (BSE).Index is a portfolio of securities representing a specific market, performance of these securities in the basket represents the performance of the index. The NSE's key index is the S&P CNX Nifty, regarded as the NSE NIFTY (National Stock Exchange Fifty), an index of fifty most important stocks weighted by market capitalization and BSE’s key index is BSE SENSEX, an index of 30 main shares weighted by means of market capitalization. Few of the most important indexes in the world are:

Ttable 1.1 : Major stock exchanges in the world

Index	Stock exchange	Country
NIKKEI 225	Tokyo stock exchange	Japan
FTSE 100	London stock exchange	London
DAX	Frankfurt stock exchange	Germany
CAC 40	French stock exchange market	France
IBEX 35	Spanish stock exchange index	Spain
Hang Seng (HIS)	Hong Kong stock exchange	Hong Kong
Straits Times index	Singapore stock exchange	Singapore
JSX	Jakarta stock exchange	Indonesia
SSEC	Shanghai Stock exchange	China
NASDAQ	American stock exchange	USA
KOSPI	Korean stock exchange	South Korea
NYSE composite index	New York stock exchange	USA

NATIONAL STOCK EXCHANGE (NSE):

The **National Stock Exchange (NSE)** is stock change placed at Mumbai, India. It is the 11th largest inventory trade in the world by market capitalization and biggest in India through every day turnover and range of trades, for both equities and by-product trading. NSE has a market capitalization of round US$1 trillion and over 1,652 listing s as of July 2012. NSE used to be promoted with the aid of main monetary institutions at the behest of the Government of India and used to be included in November 1992 as tax-paying agency unlike different exchanges in the country.NSE is jointly owned through a set of main financial institutions, banks, insurance plan groups and different economic intermediaries in India but its ownership and administration function as sep -arate entities.

The country wide stock change operates a nation-wide, electronic market, supplying trading in capital market, derivatives market and foreign money derivatives segments including equities, equities based totally derivatives, currency, futures and options, equity primarily based ETF’s, Gold ETF and Retail Government Securities. Today NSE network stretches to more than 1500 locations in the united states and helps extra than 230000 terminals.

With extra than 10 assets instructions of offering, NSE has taken many initiatives to reinforce the securities enterprise and affords a number of new products like Mini Nifty, Long Dated Options and Mutual Fund Service System. Responding to market wishes NSE has added services like DMA, FIX capabilities, co-location facility and cellular buying and selling to cater to the evolving want of the market and quite a number categories of market participants.

NSE has made its global presence felt with cross-listing arrangements, together with license agreements protecting benchmark indexes for U.S. and Indian equities with CME Group and has also signed a Memorandum of Understanding (MOU) with Singapore Exchange (SGX). The two exchanges also will appear into a bilateral securities buying and selling link to allow buyers in one united states to seamlessly alternate on the different country’s exchange.

NSE is committed to function a market ecosystem which is transparent at the same time gives excessive tiers of safety, integrity and corporate governance, offering ever developing trading and investment opportunities for investors.

Objectives of NSE:

- Establishing nationwide buying and selling facilities for all kinds of securities.
- Ensuring equal get right of entry to to traders all-over the usa thru an splendid communication network.
- Providing a fair, efficient and transparent securities market to investors the usa ge of digital trading systems.
- Meeting modern international benchmarks and requirements of securities.
- Enabling shorter settlement cycles and book entry settlements systems.

The NSE's key index is the S&P CNX Nifty, acknowledged as the NSE NIFTY (National Stock Exchange Fifty), an index of fifty principal stocks weighted via mark et capitalization.

Table 1.2: Nifty50 companies

ACC Ltd.	Cipla Ltd.	HDFC Ltd.	Mahindra & Mahindra Ltd .	Sun Pharmaceutical Industries Ltd.
Ambuja Cements Ltd.	Coal India Ltd.	I T C Ltd.	Maruti Suzuk i India Ltd.	Tata Consultan cy Services Ltd.
Asian Paints Ltd.	Dr. Reddy's Laboratorie s Ltd.	ICICI Bank Ltd.	NMDC Ltd.	Tata Motors Lt d.
Axis Bank Ltd.	GAIL (India) Ltd.	IDFC Ltd.	NTPC Ltd.	Tata Power Co. Ltd.
Bajaj Auto Ltd.	Grasim Indu stries Ltd.	Idea Cellular Ltd.	Oil & Natural Gas Corporation Ltd.	Tata Steel Ltd.
Bank of Baroda	HCL Technologie s Ltd.	IndusInd Ban k Ltd.	Power Grid Corporation of India Ltd.	Tech Mahindra Ltd.
Bharat Heavy Ele ctricals Ltd.	HDFC Bank Ltd.	Infosys Ltd.	Punjab Natio nal Bank	UltraTech Cem ent Ltd.
Bharat Petroleum Corporation Ltd.	Hero Moto Corp Ltd.	Kotak Mahin dra Bank Ltd.	Reliance Indu stries Ltd.	Wipro Ltd.
Bharti Airtel Ltd.	Hindalco In dustries Ltd.	Larsen & To ubro Ltd.	Sesa Sterlite Ltd.	Yes Bank Ltd.
Cairn India Ltd.	Hindustan Unilever Lt d.	Lupin Ltd.	State Bank of India	Zee Entertainm ent Enterprises Ltd.

BOMBAY STOCK EXCHANGE (BSE):

The **Bombay Stock Exchange** is the oldest stock trade in Asia, what is now popularly acknowledged as the BSE. BSE is one of the leading inventory change in India and it was mounted as “The Native Share & Stock brokers” Association in 1875. Over the previous 137 years, BSE has facilitated the boom of the Indian company quarter with the aid of providing it with an environment friendly capital raising platform.

BSE has more than 5000 Companies listed; making it world's No. 1 change in terms of listed members.. It is additionally one of the world’s leading exchanges (3rd largest in December 2016) for Index selections trading (Source: World Federation of Exchanges).BSE is the first trade in India and the 2d in the world to reap an ISO 9001:2000 certifications.

BSE VISION:

"Emerge as the premier Indian inventory alternate with best-in-class global exercise in technology, merchandise innovation and purchaser service."

The BSE index, SENSEX, is India’s first and most popular inventory market benchmark index. It is an index of thirty fundamental stocks weighted through market capitalization.

Objectives of BSE:

- To guard the hobby of investing public having dealings on the exchange.
- To set up and promote honorable and just practices in securities transactions.
- To promote, strengthen and keep well-regulated market in securities.
- To promote industrial development in the u . s . via efficient resource mobiliza tion by the way of funding comprises securities. SENSEX 30 businesses are:

Table 1.2 : SENSEX 30 companies

HDFC ltd	Reliance Industries	ITC	Maruthi Suzuki	Infosys
Cipla	Tata Power	Wipro	TCS	ONGC Ltd
BHEL	Hindalco Industries	Strelite industries	NTPC	Tata Motors

SBI	Tata steel	Sun Pharmaceutical	DLF	Hindustan unilever
HDFC bank	L & T	GAIL	Bajaj Auto	Jindal steel and power
Hero Motocorp	M & M	ICICI bank	Coal India	BharatiAirtel

Company History

About Kotak Securities

Kotak Securities Ltd. is a subsidiary of Kotak Mahindra Bank. It has over 1,255 outlet in 386 cities; it serves over 14 lakhs customer bills and control belongings really worth Rs. 463 crores underneath Portfolio Management Services as on 31stDec, 2018.

Kotak Securities used to be headquartered in 1994 as a subsidiary of Kotak Mahindra Bank and it is the nation's biggest inventory dealer today.

Statistical facts of the company

Rs 373 crore of Assets beneath Management (AUM) as on 31st March 2018

9.33 Lakh patron accounts

4 Lakh trades per day

1157 branches, franchisees and satellite tv for pc offices

367 cities across India

Kotak is a corporate contributors with the Bombay Stock Exchange and the National Stock Exchange. It also a depository participant with National Securities Depository L imited (NSDL) and Central Depository Services Limited (CDSL).

Kotak have been one of the pioneers in offering many products and offerings which have now end up enterprise standards. Some of them are:

- Facility of Margin Trading to the customers
- Investing in IPOs and Mutual Funds on the phone
- SMS signals earlier than execution of depository transactions
- Mobile application to tune portfolios
- Auto Invest - A systematic investing design in Equities, Mutual dollars and Gold ETFs
- Provision of margin towards securities

Vision

"To be the most depended on Global Indian Financial Services company and the most preferred monetary offerings corporation with focus on developing value".

Mission

"To work collectively with integrity and make consumer feel valued"

Products or Services presented with the aid of Kotak Securities

1) Equity Trading

Usually, organizations promote a component of their ownership to the public in exchange for money. Investors buy a share of the ownership of organization via shopping for shares it. They then come to be a shareholder. Company shares are know n as equities.

Equities are traded on the inventory market. These could be in the foremost or second ary market. In the most important market, groups get listed through an Initial Public Offering (IPO). Thus, new securities are available in the most important market. In the secondary market, investors buy or promote securities, which have already been issued by using the agencies in the important market. Currently, extra than 1300 securities are handy for fairness trading on the National Stock Exchange (NSE) and over 6000 on Bombay Stock Exchange (BSE).

2) Currency Derivatives Trading

In the stock market, investor can buy and sell shares of companies. Based on these shares, derivatives gadgets are additionally traded on the market. These gadgets are an settlement to buy or sell the underlying shares in the future. This settlement is bought in the market. They are referred to as contracts or derivatives.

Derivative instruments are reachable for shares, indices, currencies as properly as commodities. Their fee is tied to the underlying asset.

3) Tax Free Bonds

Bonds are a form of debt instrument. By investing in bond, the investor offers a loan to the issuing entity. The traders will be repaid via the issuing agency at the end of the tenure.There are exclusive kinds of bonds. Those bonds which are exempt from taxation on the hobby earnings beneath the Income Tax Act, 1961 are called tax-free bonds. These are generally issued by government-backed entities.

4) Gold Funds

Not solely is buying gold considered auspicious in Indian culture; it is also regarded as a impervious investment avenue.

Gold ETFs are open-

ended Mutual Funds that invest in Standard Gold Bullion of 99.5% purity. Instead of buying bodily gold bullion, investor can purchase devices of Gold ETFs that are equal to buying the actual thing. The devices which are delivered through investor are stored in his demat account. This is why Gold ETFs are also known as 'Paper Gold'.

Units of Gold ETFs are listed on the stock change will upward jostle and fall with the altering traits in the spot market for physical gold.

Services

- Instruments accessible to trade: Kotak Securities permits the clients to exchan ge in shares – fairness as nicely as preferred shares, debentures – partly-, fully-, and non-convertible debentures, warrants, coupons and bonds. Customers can additionally exchange in mutual money and exchange-traded funds.
- Ease of trade: Kotak Securities cater to the wishes of each buyers as properly as every day traders. Investors places their cash in the stock market for long-term returns. The underlying principle is that the cost of the funding will expand in the long-term irrespective of momentary volatility. A trader, in contrast, performs on the fluctuations in the stock market. As a result, they want to monitor their portfolios extra regularly. Depending on customer profile, Kotak Securities offer one-of-a-kind sorts of value-added services and brokerage plans for both online as well as offline equity trading.
- Investor education: If Customer is a new investor, they need now not to worry. Kotak Securities assist customers to apprehend the basics of the inventory ma rket and its workings.
- Research: Kotak Securities constantly strives to hold customers informed of all the stock market activities to assist clients to make an knowledgeable decision. Its devoted group of market specialists typically analyses the trends of the stock market across sectors and industries, and publishes comprehensive reports. This is aimed to assist customers make better decisions.

- Portfolio Management:Kotak Securities values the customer’s time. It knows that caught up in the day by day grind, it is tough to set time aside to invest in the inventory market. It, thus, assist customers manipulate their portfolio.
- Stock Lending & Borrowing Mechanism (SLBM): is a gadget in which a dealer can borrow shares that they do not already very own or can lend the shares that they own. An SLB transaction has a charge of hobby and a fixed tenure.

How does it work?

For example, investor have a negative view on the rate of a stock. Then they can borro -w shares from SLB and promote them. Then they can buy them lower back if and when the charge falls. Investors profit is the difference between the promoting rate and the buying price, after deducting the pastime rate.

Let’s say stock fee of Company Z is trading at Rs. 200. investor figure out to brief pro mote one hundred shares of Z for a total of Rs. 20,000.

Suddenly, disappointing quarterly profits motive the share rate of Z to fall to Rs. 190 Then he can buy 100 shares of Z for Rs. 19,000.

he then return the shares of Z to the lender who accepts the return of the equal number of shares lent, regardless of the reality that the shares prices have fallen.

And the investor retains the Rs. 1,000 distinction (minus pastime and other costs).

TYPES OF ACCOUNTS

Demat Account

A dematerialized or demat account is a facility that allows traders to maintain shares in an electronic format. This is similar to a bank account, the place you keep your money. In this case, a demat account holds the certificates of monetary devices like shares, bonds, government securities, mutual money and change traded cash (ETFs). investor need a demat account before they start to alternate on India’s stock exchange.

Equity Trading Account

When customer change on the inventory markets, you are securing your economic well-being. Signing up for an fairness trading account with Kotak Securities permits you to do exactly that.

Here is an all-in-one buying and selling account that approves you to make investments in equity, initial public choices or IPOs, mutual funds, equity and currency derivatives instruments.

2-in-1 Trading Account

Kotak Securities permit the investors to open each demat as well as trading money owed both independently or at the identical time. This is known as a two-in-one account.

In this purchaser can hyperlink their third-party financial savings account to the 2-in-1 buying and selling account.

Three-In-One Account

Kotak Securities additionally provides a three-in-one account – demat, trading as nicely as a bank account, together with Kotak Mahindra Bank Limited. This means, investors won't have to open three debts separately, but as an alternative do so with a single application form. Also, customers won't have to manually transfer cash to their trading account from their bank account. The required money get credited automatically.

Trinity account

The Kotak Securities Trinity account is a seamless funding platform that integrates a financial savings account, a demat account and a buying and selling account into one first-rate service.

Forget the trouble of juggling three unique banking companions for every account. With the Trinity account investor get all three advantages with a single utility and a single entity – Kotak Securities.

Rajiv Gandhi Equity Savings Scheme (RGESS)

The Rajiv Gandhi Equity Savings Scheme (the RGESS) is an investment option that approves traders to experience the advantages of fairness investments alongside with tax exemptions up to Rs. 25,000 through investing in 'eligible' securities.

Areas of Operation:

- Kotak Group is a global economic offerings provider catering to customers world-wide. With headquarters at Mumbai.The crew has a net really worth of over Rs. 100.6 billion, employs round 20,000 people in its a range of organizations and has a distribution community of branches, franchisees, consultant places of work and satellite tv for pc workplaces across 448 cities and cities in India.Kotaksecurities.c om, the on line division of Kotak Securities Limited gives Internet Broking servic es and additionally online IPO and Mutual Fund Investments.

OVERSEAS	KARNATAKA	INDIA
New York	Bangalore	Chandigarh
London	Hubli	Delhi
San Francisco	Bellary	Chennai
Dubai	Mangalore	Mumbai
Mauritius	Dharwad	Kolkata
Singapore	Raichur	Pune

INFRASTRUCTURE FACILITIES:

Company believes exceptional infrastructure gives a widespread gain presenting efficient, obvious and qualitative services. Company science helps the whole thing from govt trades and managing organization buyers of shares to speaking up-to-the-second information to enterprise consumers and monitoring for compliance.

Human Resources:

With the manpower energy of over 1100 employees, the Company is managed by way of a tremendously motivated, qualified & talented team of professional qualified CA's, MBAs, Engineers, etc with tested music records.

Technology:

Stock-broking being a manner intensive activity, problems such as speed, accuracy, round-the-clock system availability and system securities are of paramount significance and science varieties the backbones of the business.

Kotak securities is technological know-how driven. They boast of modern science and an in-house learns of enormously capable software program and networking engineers who continuously review device and methods to ensure operational efficiency.

All organization branches are connected thru large place network (WAN) and are served by means of a centralized back office processing system, which allows purchasers to attain up to date statistics on line at the click on of a button.

Customer focus:

Despite a hastily expanding consumer base and a dizzying increase in transaction volu mes, every purchaser at Kotak securities is special. They specialize in building lengthy time period relationship with their clients with the aid of offering them with the 4 matters they wish most, viz, speed, convenience, reliability, and customized services. They non-stop try to supply great offerings to their clients, effects in receipt of now not a single arbitration award in opposition to the organisation given that its inception.

COMPETITORS INFORMATION:

• India Bulls:

India bulls Securities (1SL) is one of India's main capital markets groups providing securities broking and advisory services. India bulls Securities also gives depository services, fairness research services and IPO distribution to its consumers and presents commodities buying and selling thru a separate company. These offerings are supplied each via on-line and off-line distribution channels. India bulls Securities is a pioneer of on line securities trading in India. India bulls Securities in- residence trading platform is one of the quickest and most efficient trading structures in the country. India bulls Securities has been assigned the very best ranking BQ-1 via CRISIL

• Religare:

Religare Securities Ltd. (RSL) is a thoroughly owned subsidiary of Religare Enterpris es Limited (REL), a main varied economic services crew from India. RSL is one of the market leading securities corporations in India serving over eight lakh customers throughout each Offline and Online platforms. Through its large footprint extending to over 500 cities, the enterprise affords broking offerings in Equity, Currency and Commodity (through its subsidiary Religare Commodities Limited) as well as depository participant services.

• India Infoline:

IIFL Holdings Limited is the apex maintaining enterprise of the entire IIFL Group, which is a main economic services business enterprise in India, promoted with the aid of first era entrepreneurs. They have a generally retail targeted model, servicing over 2 million customers, along with various lakh first-time customers for mutual funds, insurance plan and customer credit. This has been accomplished due to our significant distribution attain of close to 4,000 enterprise places and additionally progressive methods like seminar sales and use of mobile vans for advertising in smaller areas.

• **Angel Broking:**

Angel Broking's have faith with excellence in purchaser family members started out in 1987. Today, Angel has emerged as one of the most revered Stock-Broking and Wealth Management Companies in India. With its special retail-focused inventory buying and selling business model, Angel is dedicated to supplying Real Value for Money' to all its clients. The Angel Group is a member of the Bombay Stock Exchange (BSE), National Stock Exchange (NSE) and the two main Commodity Exchanges in the country: NCDEX & MCX. Angel is additionally registered as a Depository Participant with CDSL

Share khan:

Share khan is India’s leading on line retail broking house. Launched on feb 8th 2000 as an online buying and selling portal, share khan has these days a pan India presence with over 1529 retailers serving 950000 customers throughout 450 cities. It also has worldwide presence via its branches in the UAE and OMAN. Share khan affords servi ces like portfolio management, trade execution in equities, futures and options, comm odities, and distribution of mutual funds, insurance plan and structured products.

SWOT analysis of the company:

Strength:

- Kotak securities Ltd is one of the greatest players in IPO distribution and has p roperly diversified geographical network.
- Brokerage fees are less in contrast to some of the competitors.
- Highly co operative and skilled staff.
- Aggressive income force.
- Personalized product for higher client satisfaction.
- High manufacturer first-class and client loyalty.
- Specialized research team.

Weakness:

- Not tons of presence in rural and semi city segment.

- Lack of ordinary promotional activates.
- Opportunities:
- Continuous boom in the sector
- There is probability for growth as the markets are no longer been absolutely acquired, nevertheless there is a scope to enlarge business to semi city areas.
- People are getting involved in investments in share market than in financial savings bank, main to greater consumer base opportunities.

Threats:

- The Competitors in this quarter is increasing with the entry of a lot of non-public companies.

FUTURE GROWTH AND PROSPECTS

Kotak securities is providing aggressive offerings to customers and day by means of day their customers are spreading throughout India. For boom they are conducting ed ucation assembly and convention for investors. As Investor increases Company's earni ngs also increases.

Kotak securities increase aspects are growing of clients, motivating new traders impar ting new Demat account, offering multi funding option in one floor. Increasing in day’s
complete transaction and also kotak securities business enterprise has a brilliant poten tial and is very dynamic business economic market is so young and energetic. It helps to company's growth and creates mark in the financial market.

- New initiative portfolio management service & commodities trading.
- 3, 00,000 plus retail clients being serviced thru centralized name centers / web solutions.
- Branches / Semi branches servicing prosperous / aggressive traders thru high talent economic advisor.
- 250 impartial funding managers/ franchisee servicing 50000 extraordinarily va lued clients.

LITERATURE REVIEW:

- **Bansal and Gupta (2000),** in their research tested the effectivity of Sharpe Single Index Model to make choicest portfolio‘selection. Their outcomes are comparable as all concluded that Single index model is efficient in setting up s uperior portfolio and portfolio return is tons higher than the portfolio‘variance.
- **Campbell, Husiman and Kodedijk (2001),** viewed‘that top-quality inventory portfolio is one which allocates economic property through maximizing expected‘return subject to the constraint that the expected most loss ought to meet the Value at‘Risk limits set by the threat manager. Similar to the mean-variance method a performance‘index like the Sharpe index is constructed
- **Paudel and Koirala (2006),** checked the‘efficiency of Sharpe portfolio optimi -zation model in Nepalese Stock market and identified‘that portfolio beta is extensively lower than the market beta. ‘‘‘
- **C.Nateson and B.Arun Rajesh (2010),** constructed‘portfolio using Sharpe's Single Index Model. They select eight stocks for developing an‘optimal portfolio from Nifty 50 and six shares have been selected from Nifty Junior. The‘respective portfolio betas have been calculated and capital allocation for each inventory used to be also‘determined. Thus, the evaluation of the portfolio gives the purpose for forming an most advantageous portfolio of the securities as an alternative of buying solely a single security. ‘‘
- **Varadharajan (2011),** Constructed an optimal fairness portfolio with the help of Sharpe Index model. The find out about was once conducted‘with the financial information from April 2006 to March 2011. The sample dimension used to be limited to‘19. He took these businesses from Banking and Informati on Technology. The portfolio used to be con- structured with the top 5 stocks that meet the standards to be in- eluded in the portfolio‘according to Sharpe‘Index Model. The portfolio predominantly consisted of stocks from the banking sector, and one stock from IT sector.
- **Meenakshi Rani and SaritaBahl(2012),** It‘found that the eleven out of thirty stocks have anticipated return larger than risk free charge of‘return and these eleven shares have been used for best portfolio construction. ‘All the chosen stocks have represented positive return. The study concluded that the‘Sharpe's

single index mannequin is of extremely good significance and the framework of Sharpe's single index model for most effective portfolio construction‘is very simple and useful. The findings of the study will be useful for investors and practically related for the motive of investing. ‘‘‘‘

- **A.Saravanan and P.Natarajan (2012),** ‘ Attempted to assemble an ultimate portfolio by way of the usage of Sharpe's Single Index Model. For this purpose‘NSE Nifty Index has been considered. The day by day records for all the stocks and index for the length of April 2006 to December 2011 have been considered. From the empirical analysis, it‘was concluded that returns on both man or woman securities or on portfolio involves of‘securities of distinctive agencies listed in Nifty 50 stocks beneath various sectors are asymmetrical and‘heterogeneous. The most suitable portfolio consists of 4 stocks selected out of 50‘short listed scrip’s, giving the return of 0.116. Significance of beta is no longer consistent with‘all safety return, leading to the conclusion that every protection relies upon to some extent on‘the universal overall performance of the market. ‘‘
- **P.Varadharajan** and Ganesh (2012), The‘selected corporations from three sectors particularly energy sector, transport sector and textile‘sector for develo pment of optimum portfolio. From each quarter six corporations had been selected, ‘so a complete of eighteen companies. They chosen these groups on the groundwork of market capitalization. From the analysis, they observed out most advantageous portfolio consisting of five companies. ‘‘

CHAPTER 3
RESEARCH DESIGN

INTRODUCTION TO THE TOPIC:

Portfolio is a mixture of securities such as stocks, bonds and cash market instruments. The manner of blending collectively the extensive asset instructions so as to attain ideal return with minimum danger is referred to as portfolio construction. Diversificati -on of investments helps in spreading the threat over many assets.

Phases of Portfolio Management:

Portfolio Management is a process encompassing many things to do aimed at optimizi ng the investment of one’s funds. Five phases can be recognized in the portfolio admi- -nistration process-

1. Security Analysis,
2. Portfolio Analysis,
3. Portfolio Selection,
4. Portfolio Revision, &
5. Portfolio Evaluation.

Each segment is an essential part of the entire procedure and the success of portfolio management depends upon the efficiency in carrying out every of these phases.

1.Security Analysis:

Security evaluation is the preliminary section of the portfolio administration process. This step consists of inspecting the risk-return characteristics of individual securities. A primary strategy in securities investment is to purchase below priced securities and sell overpriced securities. But the problem is how to perceive these below priced and overpriced securities. This is what safety analysis is all about.

There are two choice methods to protection analysis, namely, Fundamental Analysis and Technical Analysis.

Fundamental Analysis provides and analytical framework for rational funding decisio n-making. It concentrates Fundamental evaluation research now not solely the necessary factors affecting the company but additionally the fundamental elements affecting the enterprise to which the employer belongs and also the economy fundamentals. Fundamental analysis works out intrinsic cost of a protection based on its fundamentals; then compares this intrinsic fee with the present day market price. Fundamental Analysis helps to perceive essentially robust companies whose shares is well worth to be protected in the investor's portfolio.

Technical Analysis believes that share charge movements are systematic and exhibit positive steady patterns. It research the past actions in the expenditures of shares to perceive traits and patterns and then tries to predict the future fee movements. Technical evaluation ignores the integral of shares.

2.Portfolio Analysis:

A portfolio is a group of securities held together as investment. Investors invest their funds in a portfolio of securities as a substitute than in a single safety to spread risk by using now not placing all their eggs in one basket. The return and danger of each portfolio has to be calculated mathematically and expressed quantitatively. Portfolio analysis phase of portfolio management consists of identifying the vary of feasible portfolios that can be constituted from a given set of securities and calculating their return and danger for similarly analysis.

3.Portfolio Selection:

Portfolio decision is the manner of discovering the best portfolio. The fundamental pu -rpose of portfolio decision is to generate a portfolio that offers the best possible return and the lowest risk. The portfolio having this attribute is recognised as environment friendly portfolio. The portfolio determination trouble is the method of delineating the environment friendly portfolios and then determination the first-class portfolio from the set. The decision of the greatest portfolio depends upon the investors threat aversion or conversely on his threat tolerance.

4.Portfolio Revision:

Having constructed the optimum portfolio, the investor has to reveal it constantly to make certain that it continues to be optimal. The investor has to revise his portfolio in the light of the tendencies in the market. This revision leads to purchase of some new securities and sale of some of the existing securities from the portfolio. The combine of securities and their percentage adjustments as a end result of the revision.

Portfolio revision can also additionally be necessitated by some investor related modifications such as availability of additional funds, alternate in risk attitude, want of money for other alternative use, etc. Portfolio revision has to be accomplished scientifically and objectively so as to ensure the optimality of the revised portfolio. Portfolio revision is as important as portfolio evaluation and determination and subsequently the revision procedure has to be carried out with a good deal care.

5.Portfolio Evaluation:

Portfolio evaluation is the process, which is worried with assessing the performance o f the portfolio over a selected period of time in phrases of return and risk. This include -s quantitative measurement of real return realized and the threat borne by way of the portfolio over the period of investment. Alternative measures of overall performance assessment have been developed for use through traders and portfolio managers.

Portfolio assessment affords a mechanism for identifying weaknesses in the funding manner and for improving these deficit areas. It gives a feedback mechanism for impr -oving the whole portfolio management process.

Approaches In Portfolio Construction:

There are two tactics in the construction of portfolio:

- Traditional approach
- Modern strategy

Traditional approach:

In the standard approach investor's desires in phrases of profits and capital understand -ing are evaluated and fantastic securities are selected to meet the needs of the investor. The common practice in the ordinary approach is to evaluate the complete monetary plan of the individual.

It deals with two dimensions.

- Determining the targets of the portfolio.
- Selection of securities to be included in the portfolio.

Modern approach: In modem approach, portfolios are developed to maximize the expected return for a given degree of risk. The typical strategy is a complete financial sketch for the individual. It takes into account the person wants such as housing, lifestyles insurance and pension plans.

But these sorts of financial processes are now not completed in the Markowitz approach. Markowitz gives more attention to the process of deciding on the portfolio. His planning can be utilized greater in the decision of common shares portfolio than the Bond portfolio.

The stocks are not selected on the foundation of want for earnings but the decision is based on the threat and return analysis. Return consists of the dividend and market ret -urn.

Portfolio- Markowitz model:

The basis of Modern Portfolio Theory is laid through Markowitz in 1951. Markowitz concept recommend investor to make investments in multiple securities rather than put all eggs in one basket because environment friendly diversification of the portfolio includes combining securities with less than fantastic correlation in order to limit risk in the portfolio except sacrificing any of the portfolio return. analysis, added a complete new terminology.

Sharpe Single Index Model:

A casual observation of stock prices over a period reveals that most stock prices move with the market index. When the Sensex increases, stock prices also tend to increase and vice-versa. This indicates that some underlying factors influence the market index as well as the stock prices. Stock prices are linked to the market index and this relationship can be used to determine the return on stock. The following equation can be used towards this purpose:

$$R_i = \alpha_i + \beta_i R_m + e_i$$

Where,

R_i = Expected return on security i

α_i = intercept of the straight line or alpha co-efficient

β_i = slope of the straight line or beta co-efficient

R_m = rate of return on the market index

e_i = error term

The single index model is based on the assumption that stocks vary together because of the common moment in stock market. There are no effects beyond the market (i.e., any fundamental factor effects) that account for the stocks co-moment. The expected return, standard deviation and co-variance of the single index model represent the joint moment of securities.

The variance of security's return $\sigma_i = \beta_i \sigma_m^2 + \sigma_{ei}^2$

The covariance of returns between securities i and j is

$$\sigma_{ij} = \beta_i + \beta_j \sigma_m^2$$

Risk:

The variance of the security has two components namely; systematic risk or market ri sk and unsystematic risk or unique risk. The variance explained by the index is referred to as systematic risk. The unexplained variance is called residual variance or unsystematic risk.

Systematic risk = β_i^2 * variance of market index

$= \beta_i^2 \sigma_m^2$

Unsystematic risk = Total variance – Systematic risk

$e_i^2 = \sigma_i^2$ – Systematic risk

Thus, total risk = Systematic risk + Unsystematic risk

$= \beta_i^2 \sigma_m^2 + e_i^2$

Portfolio Variance:

From this point, the portfolio variance can be derived

$$\sigma_p^2 = \left[\left(\sum_{i=1}^{N} x_i\, \beta_i\right)^2 \sigma_m^2\right] + \left[\sum_{i=1}^{N} x_i^2\, e_i^2\right]$$

Where,

σ_p^2 = Variance of portfolio

σ_m^2 = Expected variance of index

e_i^2 = Variation in a security's return not related to the market index

x_i = The portion of stock i in the portfolio

Expected return of Portfolio:

Likewise, the expected return on the portfolio can also be estimated. For each security , α_i and β_i should be estimated.

$$R_p = \sum_{i=1}^{N} x_i\, (\alpha_i + \beta_i R_m)$$

Portfolio return is the weighted average of the estimated return for each security in the portfolio. The weights are the respective stocks' proportions in the portfolio.

Portfolio Beta:

A portfolio's beta value is the weighted average of the beta values of its component st ocks, with the weights being their relative shares in the portfolio.

$$\beta_p = \sum_{i=1}^{N} x_i\, \beta_i$$

β_p is the portfolio beta.

Sharpe's Optimal Portfolio:

Sharpe provided a model for the selection of appropriate securities in a portfolio. The selection of any stock is directly related to excess return-beta ratio.

$$\frac{R_i - R_f}{\beta_i}$$

Where,

R^i = the expected return on stock i

R_f = the return on a risk-free asset

β_i = the expected change in the rate of return on stock i associated with one un it change in the market return.

The excess return is the difference between the expected return on the stock and the risk-free rate of interest such as the rate offered on a government security or Treasury bill. The excess return to beta ratio measures the additional return on a security (excess of the risk-free asset return) per unit of systematic risk or non-diversifiable risk. This ratio provides a relationship between potential risk and reward.

The ranking of stocks is done on the base of the excess return to beta. Portfolio manager would like to include stocks with higher ratios. The selection of stocks depends on a unique cut-off rate such that all stocks with higher ratios of $\frac{R_i - R_f}{\beta_i}$ are included, and stocks with lower ratios are left out. The cut-off point is denoted by C^*.

The steps involved in finding out the stocks to be included in the optimal portfolio are as follows:

1. Find out the excess returns to beta ratio for each stock under consideration.
2. Rank them from the highest to lowest.
3. Calculate C_i for all stocks according to ranked order using the following formula.

$$C_i = \frac{\sigma_m^2 \sum_{i=1}^{N} \frac{(R_i - R_f)\beta_i}{\sigma_{ei}^2}}{1 + \sigma_m^2 \sum_{i=1}^{N} \frac{\beta_i^2}{\sigma_{ei}^2}}$$

Where,

σ_m^2 = variance of the market index

σ_{ei}^2 = variance of a stock's movement that is not associated with the movemen t of market index, i.e., a stock's unsystematic risk.

4. The cumulated values of C_i start declining after a particular C_i and that point is taken as the cut-off point; also that stock ratio is the cut-off ratio C.

Construction of an optimal portfolio:

The portfolio manager has to find out how much will be invested in each security, once the securities are selected. The percentage of funds to be invested in each security can be estimated as follows:

$$X_i = \frac{Z_i}{\sum_{i=1}^{N} Z_i}$$

$$Z_i = \frac{\beta_i}{\sigma_{ei}^2}\left(\frac{R_i - R_f}{\beta_i} - C^*\right)$$

The first expression indicates the weights on each security and they add up to one. Th e second shows the relative investment in each security. The residual variance of the u nsystematic risk has a role in determining the amount to be invested in each security.

Return on Market:

The return on the market is the return obtained by the companies consisting in the nifty index.

The closing price of the nifty index from jan 2014 to dec 2018 is recorded for calculat ion purposes.

Table no 3.1: showing the market return for 5 years

Years	2014	2015	2016	2017	2018	average
Return	23.98822	-25.7517	26.15072	7.589127	28.32949	12.061171
Risk	4.362552	6.286375	5.226203	4.377541	3.643891	4.7793124

Return is calculated using following formula:

$$\text{Returns} = \frac{\text{Closing Price} - \text{Opening Price}}{\text{Opening Price}} * 100$$

Graph 4.1: showing the market return for 5 years

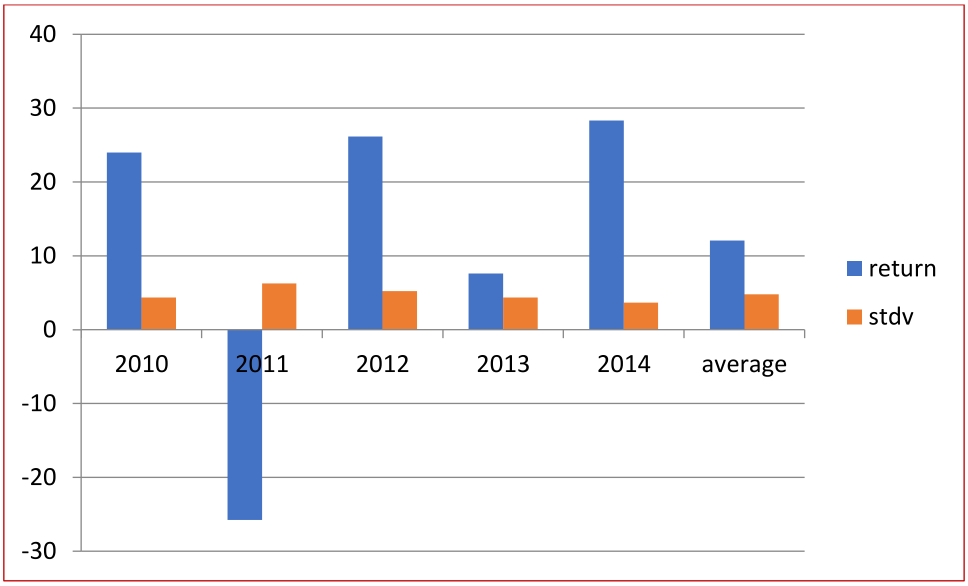


Table No 3.2: SHOWING SAMPLE DISCRIPTION

SL NO.	SECTOR	COMPANIES
1	Telecom	Bharti Aitel
2	Banking (pvt)	HDFC
3	Information Technology	INFOSYS
4	Auto mobile	Mahindra & Mahindra
5	Auto mobile	Maruthi Suzuki
6	Information Technology	Oracle Financil Services Software
7	Pharmaceuticals	Procter & gamble
8	FMCG	Shree Cements

9	FMCG	State Bank Of Bikaner And Jaipur
10	Banking (public)	SBI
11	Banking (public)	SBM
12	Information Technology	Tata Consultancy Services (TCS)
13	Cements	Ultra Tech Cement
14	Banking (pvt)	Yes Bank
15	Auto mobile	Tata Motors
16	Finance	Bajaj Finance

CHAPTER 4
ANALYSIS AND INTERPRETATION

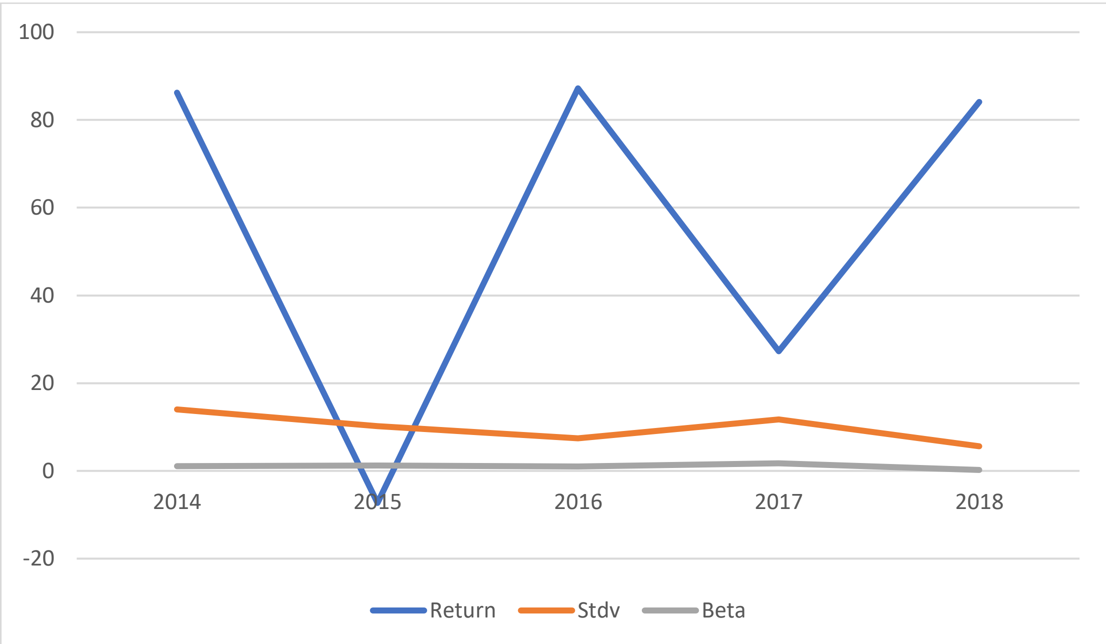
Bajaj Financial Services:

Bajaj finance is the most diversified non-banking company in the country, With its 24 products across 12 product lines, it is one of the fastest growing and diversified NBFCs in the country With 150 branches and presence in over 7000 retail outlets

TABLE 4.1: Showing 5 Years Annual Return, Risk, Beta Of Bajaj Fin Services

Year	2014	2015	2016	2017	2018	average
Return	86.24902	-7.30362	87.20826	27.24675	84.1185	55.50378
Stdv	14.01012	10.22091	7.458774	11.74528	5.613192	9.809664
Beta	1.106619	1.241510	0.983525	1.73099	0.214270	1.055384

Graph 4.1: showing 5 years annual return, risk, beta of bajaj fin services



Interpretation:

From the above analysis it is been observed that return is very high throughout except in the year 2015, whereas risk related aspects is relatively high, that is 14.01 in the year

2010 to 9.80 with average beta of 1.05 showing that there is more market risk and henceforth to say that the returns are negative so, hence including the above companies stock will be risk resulting in negative returns in near future also.

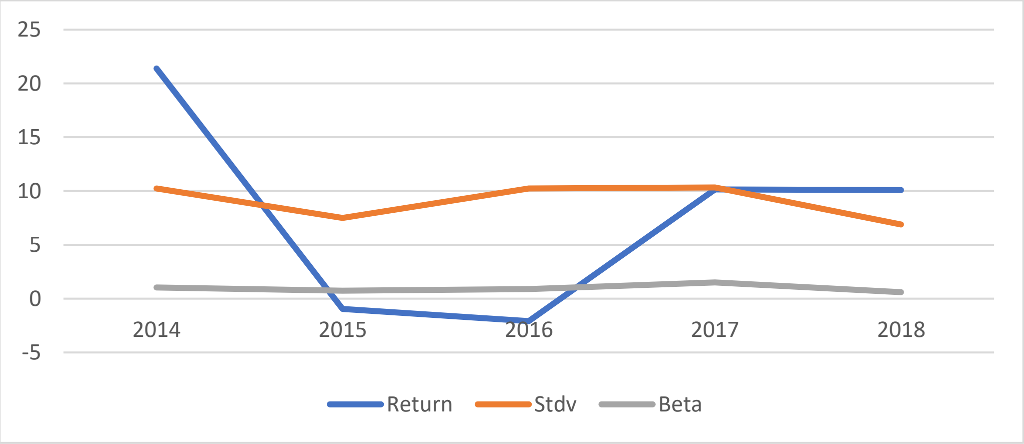
Bharti Airtel

Bharti Airtel limited was incorporated on 7th July, 1985, for promoting investments in diversified telecom service projects. It is one of the India's leading private sector providing telecom services with more than 275 million subscribers across 20 countries. It is the largest provider of mobile telephony and second largest provider of fixed tele- -phony in India, and it is also a provider of broadband and subscription television services etc.

TABLE 4.2: showing 5 years annual return, risk, beta of bharti airtel

year	2014	2015	2016	2017	2018
returns	21.39588	-0.94559	-2.08775	10.1566	10.09252
stdv	10.23285	7.515535	10.23215	10.33805	6.89382
beta	1.04576	0.736227	0.890516	1.508202	0.604025

Graph 4.2: showing 5 years annual return, risk, beta of bharti airtel



Interpretation

From the above analysis it is observed that risk related aspects is relatively high, that is 10.23 in the year 2010 to 6.89 in 2018, with a beta of 1.04 in the year 2010 to 0.60 showing that there is more market risk and henceforth to say that the returns are positive so, hence including the above companies stock will be risk resulting in positive returns in near future also.

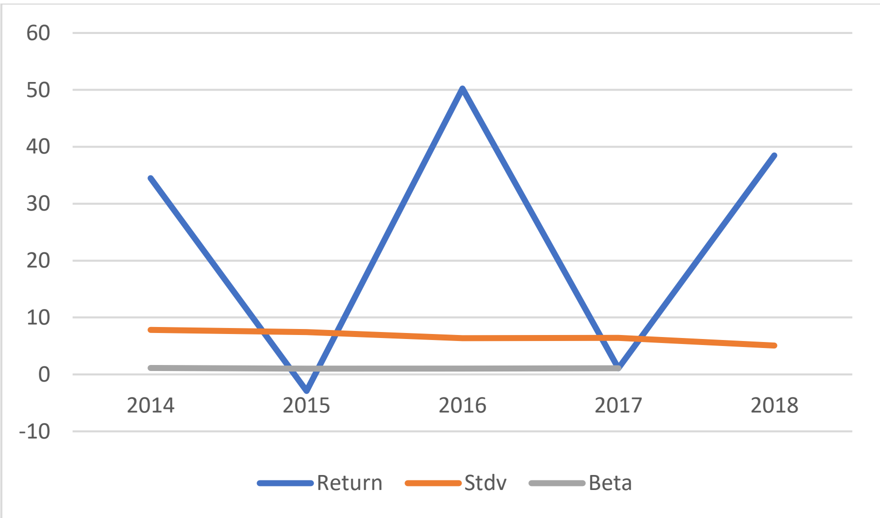
HDFC:

HDFC Bank Limited is one of an Indian financial services company based in Mumbai , Maharashtra and was incorporated in August 1994. HDFC Bank is the fifth largest bank in India by assets and the first largest bank by market capitalization as on Februa -ry 24, 2018.

TABLE 4.3: showing 5 years annual return, risk, beta of HDFC

year	2010	2011	2012	2013	2014
return	34.49373	-2.90507	50.235	1.109742	38.49032
stdv	7.92835	7.465261	6.389742	6.410423	5.075167
beta	1.434448	1.01507	1.051941	1.10752	1.206398

Graph 4.3: showing 5 years annual return, risk, beta of HDFC



Interpretation:

From the above analysis it is been observed that risk related aspects is relatively high, that is 7.92 in the year 2014 to 5.07 in 2014 with a beta 1.43 in the year 2014 to 1.20 in 2018 showing that there is more market risk and henceforth to say that the returns are positive so, hence including the above companies stock will be risk resulting in positive returns in near future also.

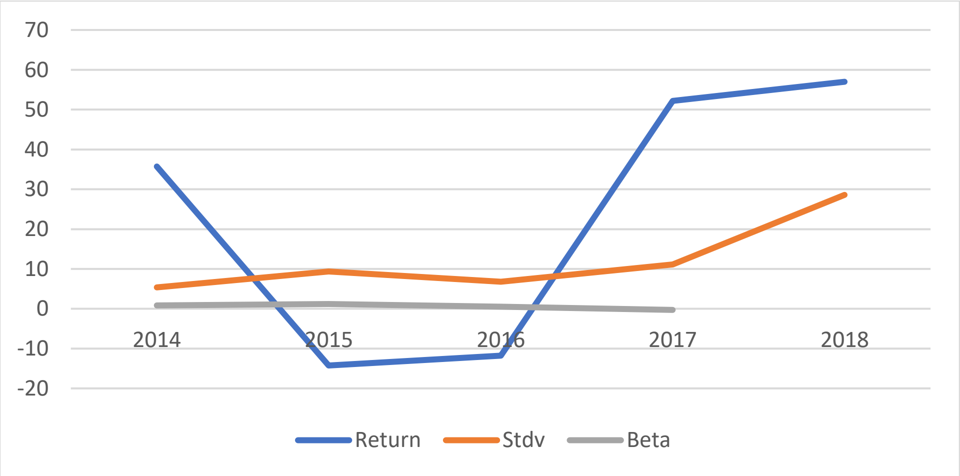
Infosys:

It was cofounded in 1981 by N.R.Narayana Murthy, Nandan Nilekani, N.S.Raghavan, S.Gopalakrishnan, S.D.Shibulal, K.Danish and Ashok Arora. This company was inc-rporated as "Infosys Consultants Pvt Ltd". In Model Colony, later in 1983 Infosys co-rporate headquarters was relocated to Bangalore. Globally, Infosys consultants Pvt Lt--d is the third largest India-based IT services company in 2014 by revenues.

TABLE 4.4: showing 5 years annual return, risk, beta of Infosys

year	2014	2015	2016	2017	2018
returns	35.74062	-14.2556	-11.8059	52.18521	56.99514
stdv	5.362224	9.371134	6.78127	11.13672	28.59159
beta	0.817242	1.183094	0.547348	-0.29704	-4.04128

Graph 4.4: showing 5 years annual return, risk, beta of Infosys



Interpretation:

From the above analysis it is been observed that risk related aspects is low in the beginning that is 5.36but it increased drastically to 28.59 in 2018. And beta 0.81 in the year 2014 to -4.04 in 2018 showing that there is less market risk and henceforth to say that the returns are positive so, hence including the above companies stock will be risk resulting in positive returns in near future also.

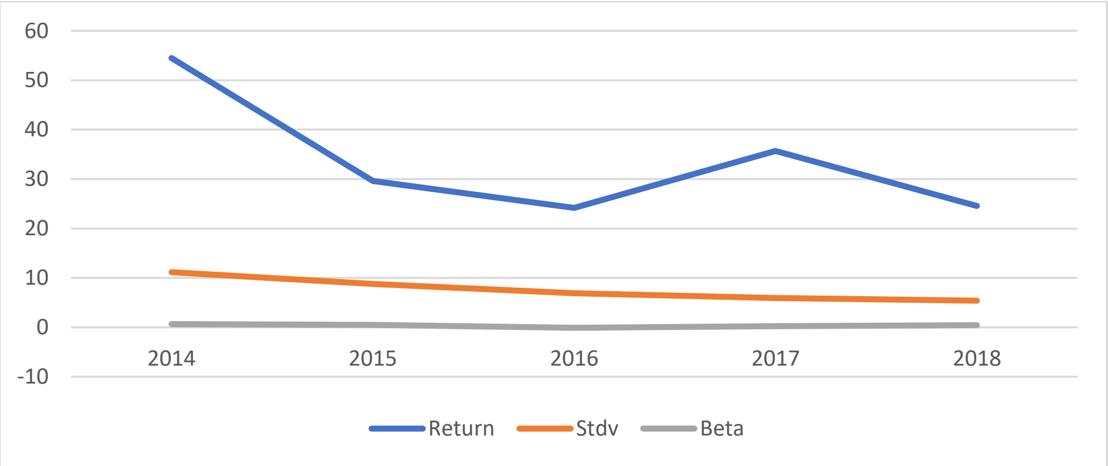
Mahindra & Mahindra ltd

It is an Indian multinational automobile manufacturing corporation headquartered in Mumbai, Maharashtra. It is one of the subsidiary of Mahindra Group, an Indian conglomerate. The company was founded in 1945 in Ludhiana as Mahindra & Mohammed. The company changed its name to Mahindra & Mahindra in 1948.

TABLE 4.5 : showing 5 years annual return, risk, beta of Mahindra & Mahindra ltd

year	2014	2015	2016	2017	2018
returns	54.48526	29.59482	24.1698	35.71684	24.58301
stdv	11.16005	8.785403	6.934745	5.910316	5.40585
beta	0.659418	0.515587	-0.08361	0.269434	0.429271

Graph 4.5 : showing 5 years annual return, risk, beta of Mahindra & Mahindra ltd



Interpretation:

From the above analysis it is been observed that return is high in almost all the years, with low risk related aspects, that is 11.16 in the year 2014 to5.40 in 2018, with low beta values throughout that is 0.65 in the year 2014 to 0.42 showing that there is less market risk and henceforth to say that the returns are positive so, hence including the above companies stock will be low risk resulting in positive returns in near future also

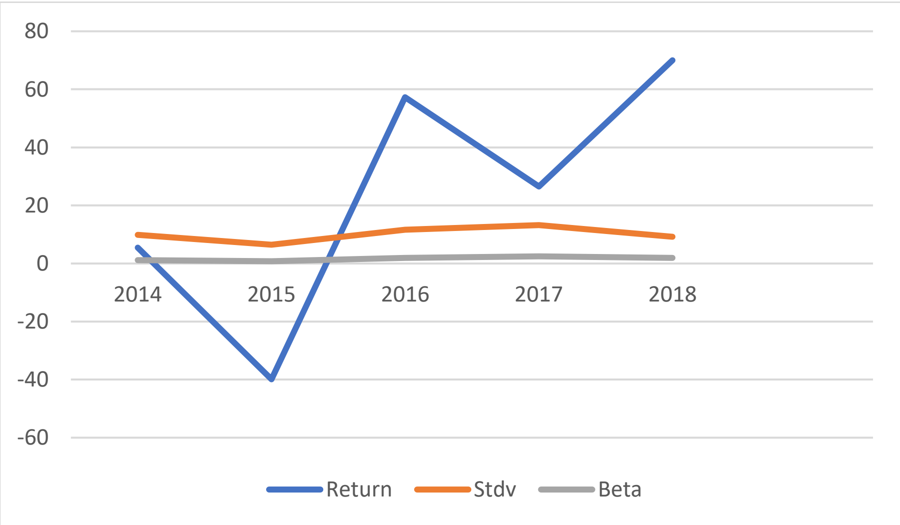
Maruthi Suzuki

Maruti Suzuki commonly referred as Maruti and formerly known as Maruti Udyog Limited, is one of the largest automobile manufacturer in India. It is one of the subsid -iary of Japanese automobile and motorcycle manufacturer Suzuki. As of November 2012, it had a market share of 37 % of the Indian passenger car market.

TABLE 4.6: showing 5 years annual return, risk, beta of Maruthi Suzuki

year	2014	2015	2016	2017	2018
returns	5.51580	-39.891	57.2908	26.5499	70.0079
stdv	9.84585	6.4730	11.65836	13.2262	9.20071
beta	1.16436	0.7881	1.904507	2.46506	1.91606

Graph 4.6: showing 5 years annual return, risk, beta of Maruthi Suzuki



Interpretation:

From the above analysis it is been observed that risk related aspects is relatively high, that is 9.84 in the year 2014 to 9.20 in 2018 with a beta 1.16 in the year 2014 to 1.91 in

2018 showing that there is more market risk and henceforth to say that the returns are positive so, hence including the above companies stock will be risk resulting in positive returns in near future also.

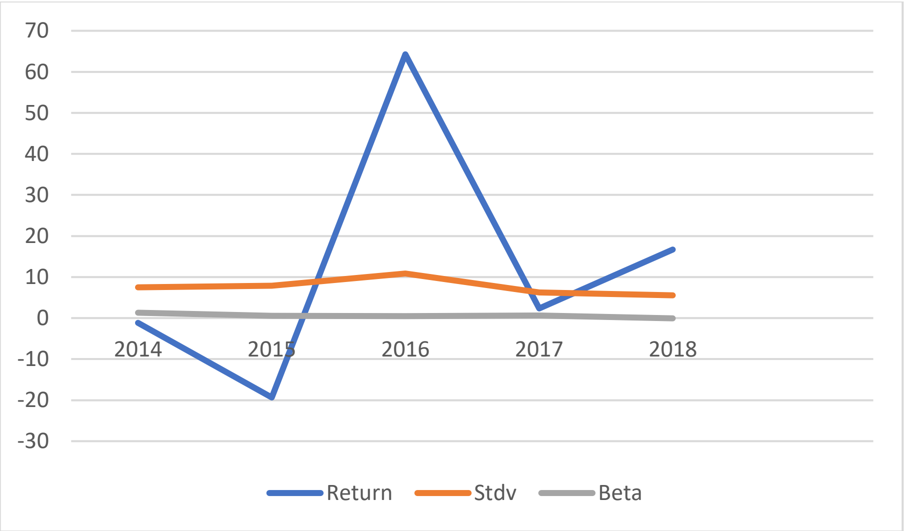
Oracle Financial Services

It has a strong global reach with its sales, marketing and support presence in 27 overseas locations operating under four subsidiaries (Oracle Financial Services Software, Inc. in the USA, Oracle Financial Services Software b.v. in The Netherland Oracle Financial Services Software Pte. Ltd. in Singapore, a nd iPSL in India). In addition to this, the Company is represented in 85 countries through over 32 corporate business partners. It also has strong alliance or implementation relationships with industry leaders such as Hewlett-Packard(hp).

TABLE 4.7 : showing 5 years annual return, risk, beta Oracle Financial Services

year	2014	2015	2016	2017	2018
returns	-1.19515	-19.3497	64.26931	2.313907	16.72313
stdv	7.481983	7.881378	10.84948	6.204758	5.543749
beta	1.305138	0.558105	0.445173	0.595894	-0.06463

Graph 4.7 : showing 5 years annual return, risk, beta Oracle Financial Services



Interpretation:

From the above analysis it is been observed that return is very low in all the years except in the year 2016, and risk related aspects is relatively high, that is 7.48 in the year 2014 to 5.54 in 2018, with a beta 1.30 showing that there is more market risk and henceforth to say that the returns are negative so, hence including the above companies stock will be risk resulting in negative returns in near future also.

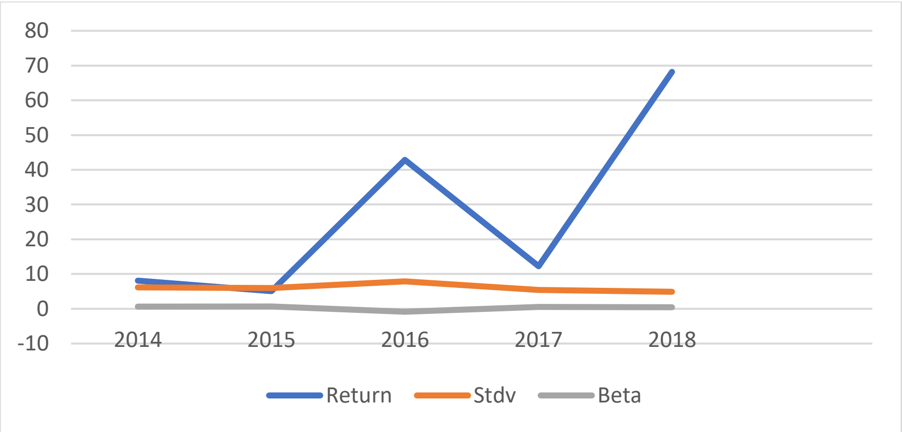
Procter & Gamble:

P&G is one of the largest the fastest growing consumer goods companies in India, Established in the year 1837, Head Quarter is Ohio, Cincinnati, USA. Its products are available area over 80 countries. P&G serving 650 million consumers across India .

TABLE 4.8 : showing 5 years annual return, risk, beta Procter & Gamble.

year	2014	2015	2016	2017	2018
returns	8.08939	5.08204	42.8654	12.2854	68.1823
stdv	6.17012	5.93526	7.89388	5.38957	4.8994
beta	0.61853	0.66476	-0.84615	0.51205	0.4478

Graph 4.8 : showing 5 years annual return, risk, beta Procter & Gamble.



Interpretation:

From the above analysis it is been observed that risk related aspects is relatively low that is 6.17 in the year 2014 to 4.89 in 2018 with a beta 0.61 in the year 2014 to 0.44 in 2018 showing that there is more market risk and henceforth to say that the returns are negative so, hence including the above companies stock will be risk resulting in negative returns in near future also.

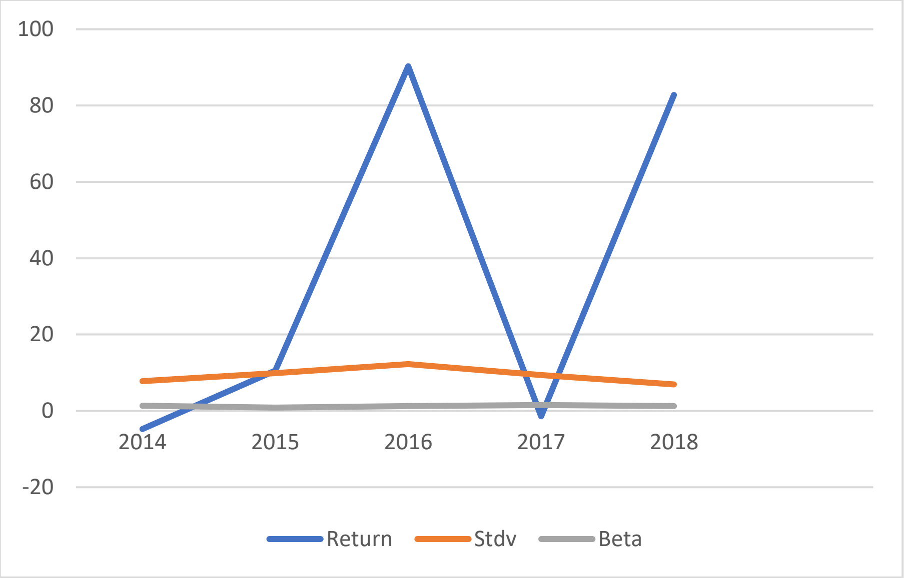
Shree Cements

The company has huge Cement Capacity that is 17.5 Million Tonnes Per Annum. It has its presence in Beawar, Ras, Khushkhera, Jobner (Jaipur) and Suratgarh in Rajasthan, Laksar (Roorkee) in Uttarakhand and Aurangabad in Bihar. Its new Project s are as follows Integrated (clinkerization-cum-grinding) unit at Baloda Bazar near Raipur in Chhattisgarh. Cement grinding unit in Bulandshahr, Uttar Pradesh.

TABLE 4.9 : showing 5 years annual return, risk, beta Shree Cements.

year	2014	2015	2016	2017	2018
returns	-4.75915	10.56318	90.29917	-1.39958	82.74519
stdv	7.812738	9.910316	12.25793	9.388677	6.937677
beta	1.355765	0.861555	1.283211	1.536659	1.273174

Graph 4.9 : showing 5 years annual return, risk, beta Shree Cements.



Interpretation:

From the above analysis it is been observed that risk related aspects is relatively high, that is 7.81 in the year to 6.93 in 2018 with a beta 1.35 in the year 2014 to 1.27 showing that there is more market risk and henceforth to say that the returns are negative so, hence including the above companies stock will be risk resulting in negative returns in near future also.

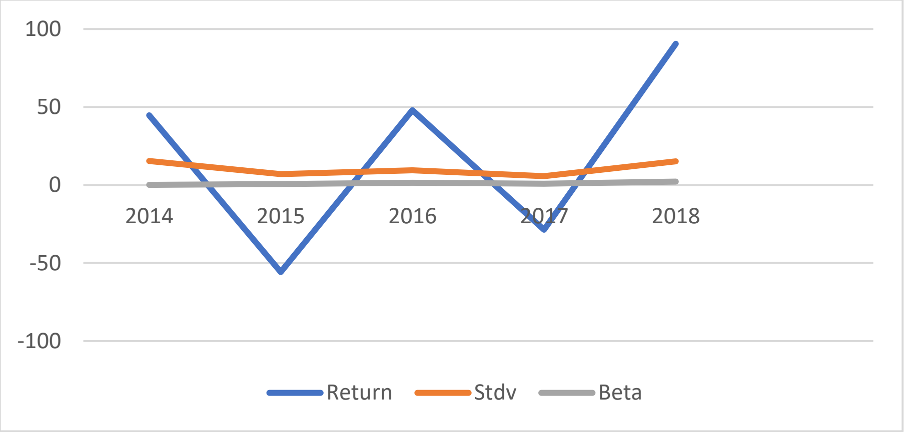
State Bank Of Bikaner And Jaipur:

It is an associate Bank of State Bank of India. As of 2018, SBBJ had 1140 branches all over india. Most of its branches are located in the State of Rajasthan. In 1997, This Bank entered in the capital market with an Initial Public Offering (IPO) of 1360000 shares at a premium of Rs 440 per share.

TABLE 4.10 : showing 5 years annual return, risk, beta State Bank Of Bikaner And Jaipur.

year	2014	2015	2016	2017	2018
returns	44.7590	-55.7527	48.0383	-28.6538	90.5389
stdv	15.4086	6.9211	9.4227	5.6995	15.2362
beta	0.14973	0.6402	1.4615	0.9312	2.2315

Graph 4.10 : showing 5 years annual return, risk, beta State Bank Of Bikaner And Jaipur.



Interpretation:

From the above analysis it is been observed that risk related aspects is relatively high, that is 15.40n the year 2014 to 15.23 with a beta 0.14 in the year 2014 to 2.23 showing that there is more market risk and henceforth to say that the returns are negative so, hence including the above companies stock will be risk resulting in negative returns in near future also.

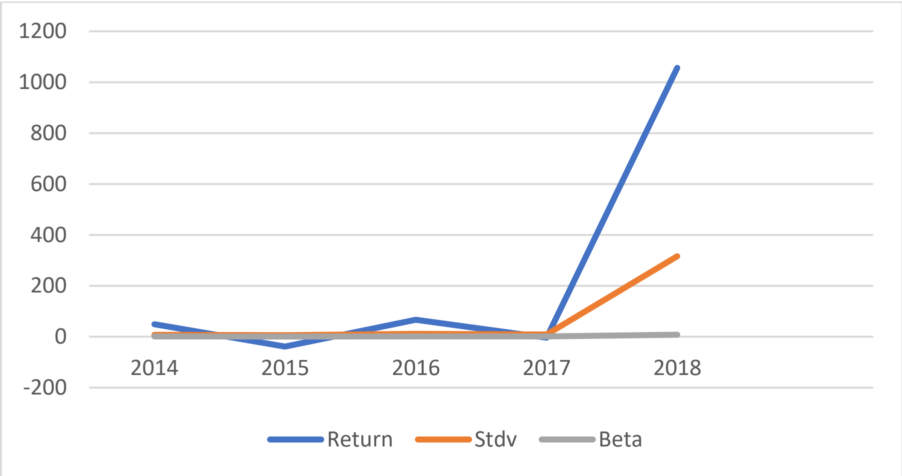
State Bank Of India:

It is a banking and financial services company based in India. It is a state-owned corporation its headquarters in Mumbai, Maharashtra, India. It has 17,000 branches, including 190 foreign offices, in 32 countries across the globe. It is the largest banking and financial services company in India. SBI has been ranked 298th in Fortune Global 500 ranking of the world's biggest corporations for the year 2016.

TABLE 4.11 : showing 5 years annual return, risk, beta State Bank Of India.

years	2014	2015	2016	2017	2018
returns	49.5356	-38.6183	67.1548	-3.9945	1056.143
stdv	7.7333	5.93011	11.9211	9.15639	316.7514
beta	0.9940	0.7417	1.26204	1.7031	7.9224

Graph 4.11 : showing 5 years annual return, risk, beta State Bank Of India.



Interpretation:

From the above analysis it is been observed that risk related aspects is relatively high, that is 7.73 in the year 2014 to 316.75 in 2018 with a beta 0.99 in the year 2014 to 7.92 showing that there is more market risk and henceforth to say that the returns are negative so, hence including the above companies stock will be risk resulting in negative returns in near future also.

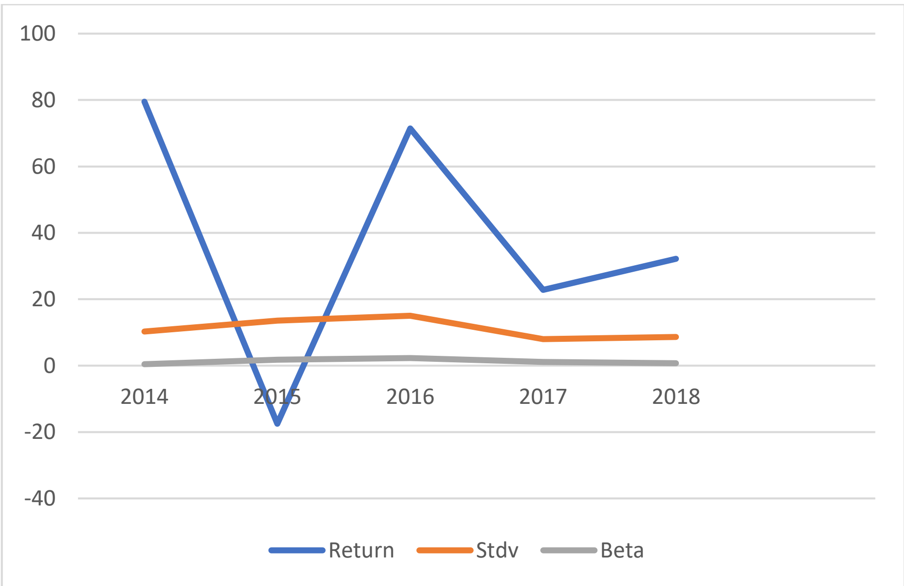
Tata Motors

Tata Motors Limited is one of the largest Indian multinational automotive manufactur ing company headquartered in Mumbai, Maharashtra, India. It is a subsidiary of the T ata Group. Its products include passenger cars, trucks, vans, coaches, buses, constructi on equipment and military vehicles etc. It is the world's seventeenth-largest motor vehicle manufacturing company, fourth-largest truck manufacturer and second-largest bus manufacturer by volume. Tata Motors is ranked 314th in the 2012 Fortune Global 500 ranking of the world's biggest corporations.

TABLE 4.12 : showing 5 years annual return, risk, beta Tata Motors.

years	2014	2015	2016	2017	2018
returns	79.5070	-17.5114	71.4514	22.8315	32.1350
stdv	10.2772	13.60016	15.0332	7.98843	8.6649
beta	0.43257	1.742707	2.2856	1.09467	0.7585

Graph 4.12 : showing 5 years annual return, risk, beta Tata Motors.



Interpretation:

From the above analysis it is been observed that risk related aspects is relatively high, that is 10.27 in the year 2014 to 8.66 in 2018 with a beta 0.43 in the year 2014 to 0.75 showing that there is more market risk and henceforth to say that the returns are negative , hence including the above companies stock will be risk resulting in negative returns in near future also.

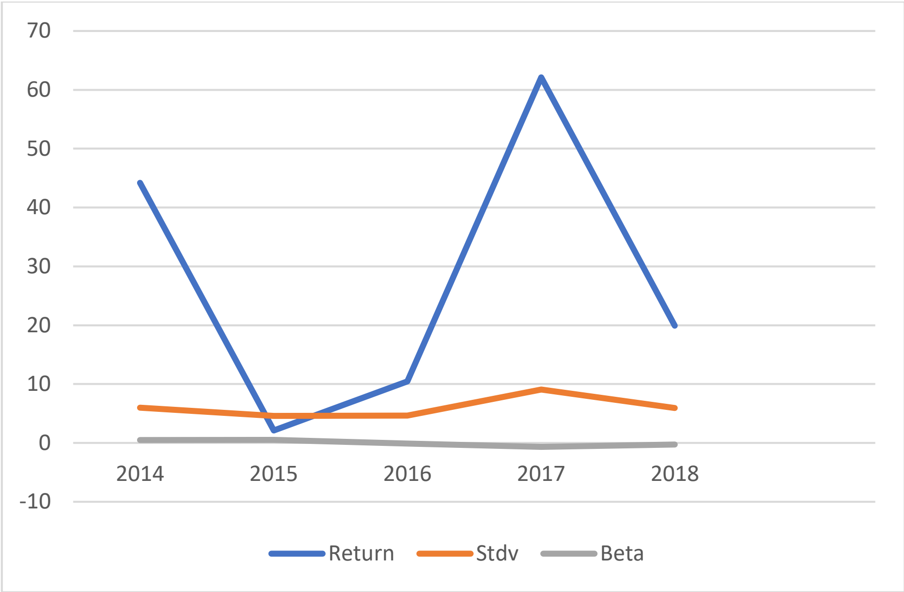
Tata Consultancy Services (TCS)

TCS is an Indian multinational information technology (IT) service, consulting and business solutions company headquartered in Mumbai, Maharashtra. It operates in 46 countries. It is a subsidiary of the Tata Group. It is the largest Indian company by market capitalization ($80 billion) and is the largest India-based IT services company in 2013 by revenues as well. TCS is now placed among the ‘Big 4’ most valuable IT services brands worldwide.

TABLE 4.13 : showing 5 years annual return, risk, beta Tata Consultancy Services

years	2014	2015	2016	2017	2018
returns	44.211	2.116233	10.47451	62.12026	19.90427
stdv	5.9663	4.594107	4.64852	9.074728	5.958321
beta	0.50009	0.51957	-0.08162	-0.66705	-0.26686

Graph 4.13 : showing 5 years annual return, risk, beta Tata Consultancy Services



Interpretation:

From the above analysis it is been observed that risk related aspects is relatively high, that is 5.96 in the year 2014 to 5.95 in 2018 with a beta 0.50 in the year 2014 to -0.26 showing that there is more market risk and henceforth to say that the returns are negative so, hence including the above companies stock will be risk resulting in negative returns in near future also.

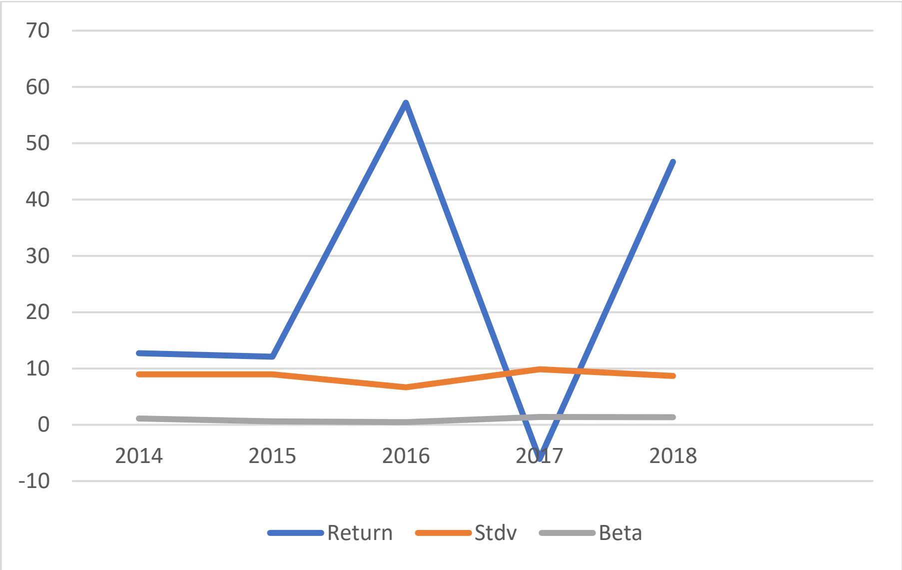
Ultra Tech Cement Ltd.

It is the largest manufacturer of grey cement, Ready Mix Concrete (RMC) and white cement in India. Company has an installed capacity of 62 Million Tonnes Per Annum of grey cement. And it has 12 integrated plants, 1 clinkerisation plant, 16 grinding units and 6 bulk terminals.

TABLE 4.14: showing 5 years annual return, risk, beta Ultra Tech Cement Ltd.

year	2014	2015	2016	2017	2018
return	12.7308	12.0632	57.2099	-6.0715	46.7248
stdv	8.9390	8.9446	6.6509	9.8582	8.7003
beta	1.1413	0.5932	0.4674	1.3852	1.3449

Graph 4.14: showing 5 years annual return, risk, beta Ultra Tech Cement Ltd.



Interpretation:

From the above analysis it is been observed that risk related aspects is relatively high, that is 8.93 in the year 2014 to 8.70 with a beta 1.14 in the year 2014 to 1.34 in 2018 showing that there is more market risk and henceforth to say that the returns are negative so, hence including the above companies stock will be risk resulting in negative returns in near future also.

Yes Bank

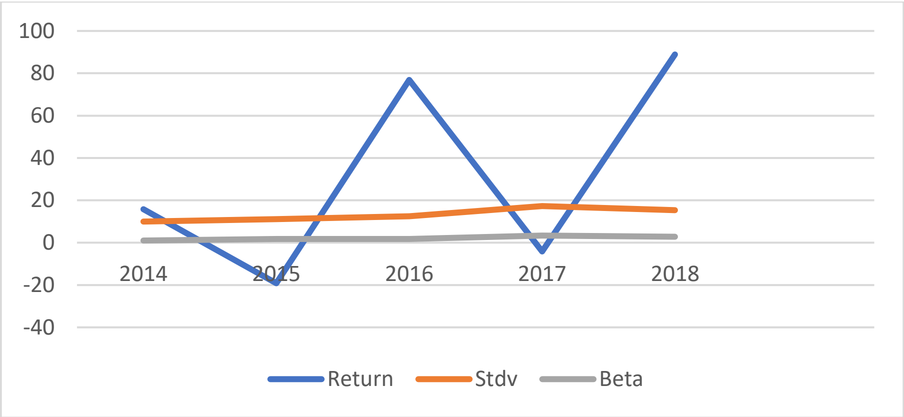
Yes Bank, is India's fourth largest private sector Bank, founded by Rana kapoor in 2004. It is the only bank which Greenfield Bank licence awarded by the RBI in the last two decades. Yes Bank is a “Full Service Commercial Bank”, has steadily built a

Corporate, Retail & SME Banking franchise, Financial Markets, Investment Banking, Corporate Finance, Branch Banking, Business and Transaction Banking, and Wealth Management business lines across the country.

TABLE 4.15 : showing 5 years annual return, risk, beta Yes Bank.

year	2014	2015	2016	2017	2018
return	15.85685	-19.178	76.90905	-4.15576	88.88971
stdv	9.963779	11.14285	12.41	17.28006	15.28619
beta	1.001202	1.699934	1.742214	3.350313	2.788446

Graph 4.15 : showing 5 years annual return, risk, beta Yes Bank.



Interpretation:

From the above analysis it is been observed that risk related aspects is relatively high, that is 9.96 in the year 2010 to 15.28 with a beta 1.001 in the year 2010 to 2.78 showing that there is more market risk and henceforth to say that the returns are negative so, hence including the above companies stock will be risk resulting in negative returns in near future also.

Table No 4.16 : Showing calculation of Systematic Risk and Unsystematic Risk

Company Name	σi	β_i	σ_i^2	β_i^2	σ_m	σ_m^2	Sys Risk	σ_{ei}^2
Bajaj	9.8096	1.0553	96.229	1.113	4.7793	22.8418	25.4420	70.7874
Bharati	9.0424	0.9569	81.766	0.915	4.7793	22.8418	20.9173	60.8491
Hdfc	6.6537	1.1630	44.272	1.352	4.7793	22.8418	30.8991	13.373
Infosys	12.248	-0.358	150.02	0.128	4.7793	22.8418	2.92958	147.0983
Mm	7.6392	0.358	58.358	0.128	4.7793	22.8418	2.92783	55.4306
Maruthi	10.080	1.6476	101.63	2.714	4.7793	22.8418	62.0080	39.617
Oracle	7.5922	0.5679	57.642	0.322	4.7793	22.8418	7.36763	50.2749
P&G	6.0576	0.2794	36.695	0.0780	4.7793	22.8418	1.78337	34.9119
Shree	9.2614	1.2620	85.774	1.592	4.7793	22.8418	36.3830	49.3916
Sbbb	10.537	1.0828	111.042	1.1726	4.7793	22.8418	26.7850	84.257
Sbi	70.298	2.5246	4941.87	6.374	4.7793	22.8418	145.595	4796.279
Tcs	6.0483	0.0008	36.583	6.809E-07	4.7793	22.8418	1.56E-05	36.5830
Ultra tech	8.6186	0.9864	74.281	0.9730	4.7793	22.8418	22.227	52.054
Yes bank	13.216	2.1164	174.67	4.4792	4.7793	22.8418	102.31	72.3638
Tata motors	11.112	1.2628	123.49	1.594	4.7793	22.8418	36.4263	87.0682

Where, R_i = Return, σ_i = Risk, β_i = Beta, Systematic Risk = $\beta_i^2 * \sigma_m^2$, Unsystematic Risk $(\sigma_{ei}^2) = \sigma_i^2 - \ Systematic\ Risk\ \ \sigma_m$ = 4.779312

σ_m^2 = 22.84183

Determination Of Cut Off Point (C*):

The following steps are involved in the process of determination of cut off point **Company**	$\boldsymbol{R_i}$	$\boldsymbol{R_f}$	$\boldsymbol{R_i - R_f}$	$\boldsymbol{\beta_i}$	$\boldsymbol{\frac{(R_i - R_f)}{\beta_i}}$	**Ranks**
Bajaj fin	55.5037	8.5	47.008	1.0553	44.5371	5
Bharti aitel	7.7223	8.5	-0.7777	0.9569	-0.81265	14
Hdfc	24.2844	8.5	15.784	1.1630	13.5715	9
Infosys	23.7718	8.5	15.271	-0.358	-42.64373	16
Mm	33.7099	8.5	25.209	0.358	70.41489	3
Maruthi	23.8946	8.5	15.394	1.6476	9.34353	12
Oralce	12.5523	8.5	4.0523	0.5679	7.1351	13
Pg	27.3009	8.5	18.800	0.2794	67.2858	4
Shree	35.4897	8.5	26.989	1.2620	21.3855	7
State bank of bikaner And jaipur	19.7859	8.5	11.285	1.082	10.42215	11
Sbi	226.0442	8.5	217.52	2.5246	86.1666	2
Sbm	3.91633	8.5	-4.583	0.760	-6.029074	15
Tcs	27.7652	8.5	19.265	0.0008	23345.8	1
Ultra tech	24.5318	8.5	16.031	0.9864	16.2515	8

Yes bank	31.6641	8.5	23.164	2.1164	10.9450	10
Tata motors	37.6827	8.5	29.182	1.2628	23.10913	6

STEP 1:-

In order to determine the cut off, first rank the companies based on the decreasing values of the excess return to beta ratio. That is, Rank according to decreasing order of

$\frac{(R_i - R_f)}{\beta_i}$ values, R_f = 8.5%

Table 4.17: showing ranking of companies based on excess return to beta

Where, $R_i - R_f$ = Excess Return, $\frac{(R_i - R_f)}{\beta_i}$ = Excess return to beta ratio

STEP 2:-

The companies are rearranged here according to their ranks with decreasing excess return to beta ratios. And C Values for each company is calculated using the following

formula $C_i = \frac{\sigma_m^2 \sum_{i=1}^{N} \frac{(R_i - R_f)\beta_i}{\sigma_{ei}^2}}{1 + \sigma_m^2 \sum_{i=1}^{N} \frac{\beta_i^2}{\sigma_{ei}^2}}$, σ_m^2 = 22.84183

Table No 4.18: Showing rearranging of companies according to excess return to beta

Ranks	**Company**	$\frac{(R_i - R_f) * \beta_i}{\sigma_{ei}^2}$	$\sum \frac{(R_i - R_f) * \beta_i}{\sigma_{ei}^2}$	$\sigma_m^2 \sum \frac{(R_i - R_f) * \beta_i}{\sigma_{ei}^2}$	$\frac{\beta_i^2}{\sigma_{ei}^2}$	$\sum \frac{\beta_i^2}{\sigma_{ei}^2}$	**Cut-off**
1	TCS	0.000434	0.0004	0.00996	1.86E-08	4.28E-05	0.0099
2	SBI	0.114512	0.11494	2.6284	0.001329	0.00132	2.5482
3	Mahinra & Mahindra	0.162828	0.2773	6.3349	0.002312	0.0036	5.8485

4	P&G	0.150473	0.31330	7.15638	0.002236	0.0045	6.4828
5	Bajaj Fin	0.700789	0.85126	19.4443	0.015735	0.0179	13.785
6	Tata Motors	0.423261	1.1245	25.6753	0.018316	0.0340	14.442 **C***
7	Shree	0.689651	1.1129	25.4209	0.032249	0.0505	11.796
8	Ultra Tech	0.303804	0.9934	22.6923	0.018694	0.0509	10.488
9	HDFC	1.372751	1.6765	38.2955	0.101149	0.1198	10.24
10	Yes Bank	0.67748	2.0502	46.831	0.061899	0.1630	9.9128
11	SBBJ	0.145048	0.8225	18.78820	0.013917	0.0758	6.8776
12	Maruthi Suzuki	0.640242	0.7852	17.9374	0.068522	0.082	6.2216
13	Oralce	0.045777	0.6860	15.6699	0.006416	0.0749	5.7785
14	Bharti Airtel	-0.012230	0.0335	0.76627	0.015049	0.0214	0.5141
15	Infosys	-0.0371	-0.0744	-1.6994	0.0008	0.0070	-1.46385

Step 4:- The C_i values go's on increasing up to a certain point and then starts decreasing in the table shown. The highest point is called cut off point (C_i), the securities which are above C* point are chosen to the portfolio.

i.e., the companies to be included in the portfolio are:

Table No 4.19 : Showing selected companies for investment

Rank	**Company**	**cutoff**
1	TCS	0.009917
2	SBI	2.548236

3	M&M	5.848505
4	P&G	6.482813
5	Bajaj Fin	13.78549
6	Tata Motors	14.44237 **C***

Step 5:- Calculation of Z_i value, using formula

$$Z_i = \frac{\beta_i}{\sigma_{ei}^2}\left(\frac{R_i - R_f}{\beta_i} - C^*\right)$$

Table No 4.20: showing calculation of $\boldsymbol{Z_i}$

Company name	$\boldsymbol{\frac{\beta_i}{\sigma_{ei}^2}}$	$\boldsymbol{\frac{R_i - R_f}{\beta_i}}$	$\boldsymbol{Z_i}$
TCS	2.26E-05	23345.82	0.526291
SBI	0.000526	86.16668	0.037755
M&M	0.006459	70.41484	0.36152
P&G	0.008004	67.2859	0.422934
Bajaj Fin	0.014909	44.53711	0.448689
Tata Motors	0.014504	23.10914	0.125701

Step 6:- Calculation of X_i, using formula

$$X_i = \frac{Z_i}{\sum_{i=1}^{N} Z_i}$$

Table No 4.21: showing calculation of X_i

Company name	Z_i	X_i	X_i%
TCS	0.526291	0.273698	27.3698
SBI	0.037755	0.019634	1.9634
M&M	0.36152	0.188009	18.8009
P&G	0.422934	0.219947	21.9947
Bajaj Fin	0.448689	0.233341	23.341
Tata Motors	0.125701	0.065371	6.5371
$\sum Z_i$	**1.92289**		

Graph 4.16: Showing Percentage Of Investments

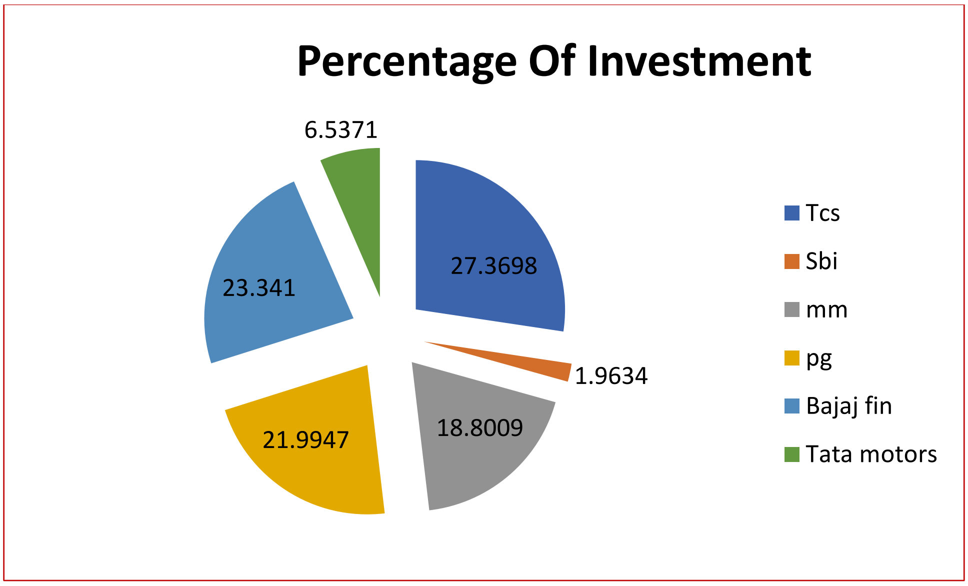
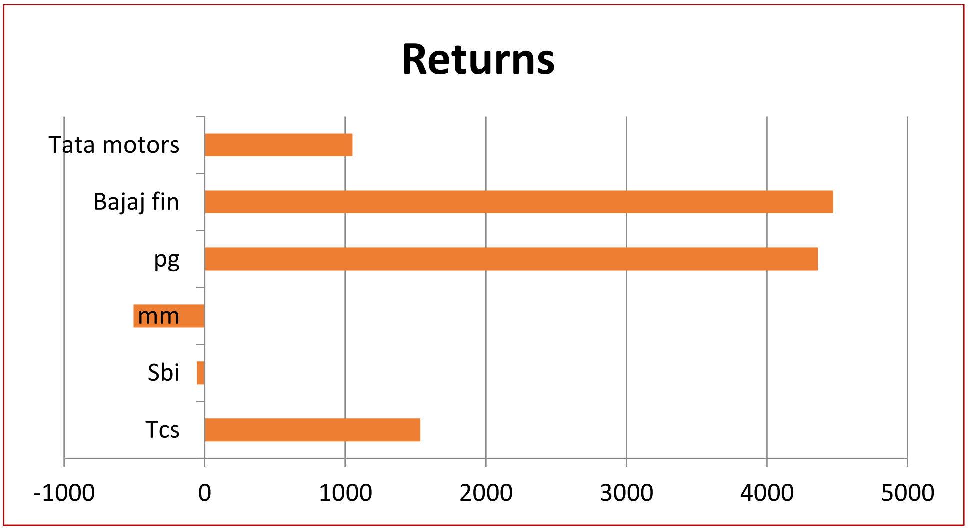


Table no 4.22: Showing weights of amount to be invested in selected companies & actual returns earned.

In this report I took Rs.100000 as virtual investment and invested in the live(real) market virtually, in the selected companies according to their weights on January 1st 2015 to February 20th .2015. the results of which is as follows

Graph 4.17 showing returns on invested securities



Company Name	X_i%	% of money to be invested	Actual returns of selected scrip	Return on investment
TCS	27.3698	27369.81	5.605739	1534.28
SBI	1.9634	1963.431	-2.81391	-55.2492
M&M	18.8009	18800.86	-2.69749	-507.151
P&G	21.9947	21994.72	19.83395	4362.422
Bajaj Fin	23.341	23334.08	19.16817	4472.715
Tata Motors	6.5371	6537.097	16.10001	1052.473
			Total returns	**10859.49**

Interpreteation: The above table is showing weights of amount to be invested in companies, and the actual return earned in real market. For instance if rs 100000 is invested in the above selected securities, the investor can earn profit of Rs. 10859.49, which comes upto 10.85% return only in two months.

CHAPTER 5

FINDINGS, CONCLUSION AND SUGGESTIONS

FINDINGS:

- Among the 16 businesses SBI is giving best possible returns i,e.. 226.0442% accompanied by BAJAJ FIN 55.50378%, TATA MOTORS 37.68274%, SHREE CEMENTS 35.48976% and JL MORISON 38.83%.
- Among all the stocks SBM is giving very low fee of return I,e.. 3.916337% , BHARTI AIRTEL 7.77%.
- During the period the prices of SBI is greater volatile on the different hand its returns are high, with this we can conclude that securities with more risk will provide you the greater Return.
- During the length fees of HDFC & TCS are extra regular in contrast to other securities.
- The scripts of YES BANK, SBI, are greater touchy to the market risk. On the other hand TCS scrips are now not touchy with market market risk.
- According to the extra return beta ratio TCS stands first with its absolute best excess return to beta i.e., 44.5371093% followed SBI, Mahinra & Mahindra, P&G, Bajaj Fin,Tata Motors, Shree cement, Ultra Tech, HDFC, Yes Bank, State Bank Of Bikaner, And Jaipur, Maruthi Suzuki, Oralce fin serv, Bharti Aitel, SBM, Infosys, but bharti airtel, Infosys & SBM's extra return to beta is in negatives.
- Even though the businesses have been chosen from all the sectors constituting NSE index, the gold standard portfolio developed groups of securities belonging to only Automotive Industry, FMCG (PERSONAL CARE) Industry, Banking & IT Industry.
- As formerly mentioned the return in the case of SBI scrips used to be high but the Risk related with it is additionally high. It is proved when digital funding is achieved in that specific stock, it was predicted to provide positive returns but its true returns was once in negative.

SUGGESTIONS:

- The traders who are searching ahead to get high return assuming high risk can make investments in SBI, INFOSYS, and YES BANK.
- The traders who are searching ahead to get moderate return assuming moderate danger can make investments in SHREE CEMENTS, ULTRATECH CEMENT and BAJAJ FINANCE .
- Even although the corporations had been chosen from all the sectors constituting NSE index, the choicest portfolio developed groups of securities belonging to only Automotive Industry, FMCG (PERSONAL CARE) Industry, Banking & IT Industry. The portfolio investor can make investments in these sectors
- Along with Sharpe's Single Index Model it is smart for an investor to make technical analysis and imperative analysis of the groups before investing in that specific company.
- The investor has to construct foremost portfolio by using considering exceptional kinds of securities like bonds, commodities, and so on in your portfolio. Where as in our report we regarded solely equities.

CONCLUSION:

It is being assumed that casual statement of the stock expenditures over a period of time displays that most of the inventory expenditures cross the market index. The returns received by every of the businesses and beta, the sensitiveness of the inventory return to the adjustments in the market returns is observed. Also the potion in which the securities be invested to reap greatest returns is also calculated and represented at the end records evaluation section of the report.

When the amplify in NIFTY, stock fees additionally have a tendency to increase and vice-versa. This suggests that some underlying elements have an effect on the market index as nicely as stock prices. Stock prices are related to market index and this relati- -onship may want to be used to estimate the return on stock.

NSE corporations like investment in TCS, TATA MOTORS, BAJAJ FIN SERVICES and P&G has given very good return in previous so funding in these inventory will greater really useful for quick term and long time period investments.

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WEEKLY REPORT

Sl. No.	Activity	Activity Details	Duration
1	**Activity-1**	Understanding the Structure, Cultures followed by the company and function of organization.	Week-1 [2nd Jan 2020 to 9th Jan 2020]
2	**Activity-2**	Identification of the problem faced by the company through Literature-Review and Industry and company-profile.	Week-2 [10th Jan 2020 to 16th Jan 2020]
3	**Activity-3**	Deciding the final structure of the report along with the guide and structuring it.	Week-3 [17th Jan 2020 to 23rd Jan 2020]
4	**Activity-4**	Collecting the data, surfing the data, editing the data collected, coding the collected data and tabulating it and presenting the same to the guide for suggestions to make the analysis.	Week-4 [24th Jan 2020 to 30th Jan 2020]
5	**Activity-5**	Analysing and Finalizing the report after presenting it to the guide.	Week-5 [31st Jan 2020 to 6th Feb 2020]
6	**Activity-6**	Submission of final-Report to the University before one-week of the commencement of the theory examination.	Week-6 [9th Feb 2020 to 17th Feb 2020]

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