

**PROJECT REPORT (17MBAPR407) ON  
“A STUDY ON CONSTRUCTION OF OPTIMAL PORTFOLIO  
USING SINGLE INDEX MODEL AT ANANDRATHI SHARES  
AND STOCK BROKERS LIMITED, BANGALORE”**

BY

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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

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March 2019

Date: 18 Feb 2019

Ramasubramanian V H

Bangalore

**TO WHOMSOEVER IT MAY CONCERN**

This is to certify that **Mr. Ramasubramanian V H** bearing USN **11A17MBA59** has successfully completed his Internship in the project titled '**A Study on Construction of Optimal Portfolio using Single Index Model**' with AnandRathi Group for the period dated 3<sup>rd</sup> January 2019 to 16th February 2019.

We wish him all the best in his future endeavors.

For Anand Rathi Share and Stock Brokers Limited,



Authorized Signatory




# ACHARYA INSTITUTE OF TECHNOLOGY

(Affiliated to Visvesvaraya Technological University, Belagavi, Approved by AICTE, New Delhi and Accredited by NBA and NAAC)

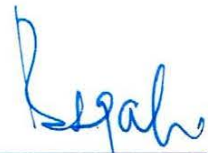
Date: 22/03/2019

## CERTIFICATE

This is to certify that **Mr. V H Ramasubramanian** bearing USN **1IA17MBA59** is a bonafide student of Master of Business Administration course of the Institute 2017-19 batch, affiliated to Visvesvaraya Technological University, Belagavi. Internship report on “**A Study on Construction of Optimal Portfolio using Single Index Model, at AnandRathi Shares & Stock Brokers Ltd.**” Bangalore is prepared by him under the guidance of **Prof. Mallika B K**, in partial fulfillment of the requirements for the award of the degree of Master of Business Administration, Visvesvaraya Technological University, Belagavi, Karnataka.


  
22/3/2019

Signature of Internal Guide

  
22/3

Signature of HOD

Head of the Department  
Department of MBA  
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01.04.19

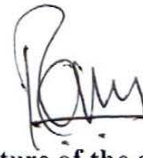
Signature of Principal/Dean Academics

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Bengaluru-107.

## DECLARATION

I **V.H.Ramasubramanian**, hereby declare that the Project report entitled "A Study on construction of optimal portfolio using single index model" with reference to "AnandRathi shares and stock brokers Ltd, Bengaluru" prepared by me under the guidance of **Prof. Mallika B K**, faculty of **M.B.A Department, AIT** and external assistance by **Mr.Madhu.R Assistant Vice President, AnandRathi shares and stock brokers Ltd**. I also declare that this Project work is towards the partial fulfilment 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 for the award of any degree/diploma from any other University / Institution.

Place: Bengaluru  
Date: 01/04/2019



Signature of the student

## **ACKNOWLEDGEMENTS**

I deem it a privilege to thank our Principal **Dr. Prakash M R, Dr. Devarajaiah R M**, Dean Academics and thanks to **Dr. M.M Bagali**, HOD, Department of MBA, for having giving me the opportunity to do the project, which has been a very valuable learning experience.

I am truly grateful to my Internal guide **Mrs. Mallika B K** and my External guide **Mr. Madhu R**, Assistant Vice President, AnandRathi shares and stock brokers Ltd for their research guidance, encouragement and opportunities provided.

My sincere and heartfelt thanks to all my teachers at the department of MBA, Acharya Institute of Technology for their valuable support and guidance.

Last, but not least, I want to express my deep appreciation to my parents for their unstinted support.

**Place: Bengaluru**

**Date:**

**V.H.Ramasubramanian**

**USN: 11A17MBA59**

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## **EXECUTIVE SUMMARY**

This study was made with the intension of constructing an efficient optimal equity portfolio using the effective and very more popular utility of **Sharpe's Single Index Model**. In order to get more knowledge about the Indian securities market the Internship was done in one of the stock broking agency called **ANANDRATHI SHARES AND STOCK BROKERS LIMITED**. As an Investor and the fund managers know Indian Securities market is high volatile, risky and highly sensitive. The portfolio construction with the help of Single Index model became necessity to minimize the risk and to maximize the return on investment.

This study is targeted to create awareness in the minds of investors. Here the study is for 50 companies listed in NSE where risk and return is determined and based on the cut off point the selected 10 companies portfolio construction is determined. The selection of securities is made based on the return and excess return to beta ratio. Excess return to beta ratio is identified by comparing the excess return in to the particular stock's beta. Standard deviation is the process where it is used to measure the variability of the securities and the relationship of the mean variable of the securities for the selected stock.

Cut-off rate helps the author to select securities in a scientific way. Here all the securities selected whose excess return to beta ratio is more than the cut-off rate. Cut-off rate helped to identify the securities and the investment proportion to be made on those securities.

Findings and suggestions will give more clarity of this study and it will help the fund managers and the professional investors to make wise decision on their investment. Hope this study and constructed portfolio will help the investors, fund managers and other institutional investors to make appropriate investment.

**CHAPTER-1**  
**INTRODUCTION**

## **1.1 INTRODUCTION**

The project with the title to study the portfolio construction at AnandRathi shares and stock brokers Ltd enables an investor to have an investment diversification based upon the risk and return. This study is based on the return on annual basis taken for 52 weeks and computed average to determine the return and risk. To conduct the study the data is collected from the NSE and Yahoo Finance website taking 50 listed companies for 5 years.

The study gives majorly an clear idea of the investment avenues wherein stock market is taken as one of the major avenue to determine their diversification of funds. So the investors therefore can utilize this methodology of sharpe index model to construct their optimum portfolio. Any beginner investors can definitely use this optimum portfolio construction before making the investment.

## **1.2 INDUSTRY PROFILE**

### **Financial Services**

The Indian financial services have undergone a complete magical since 19<sup>th</sup> century. Before the financial services emerged Commercial banks and other financial organization henpecked the area. They found financial requirement of the industries in India. Only after economic liberalization financial services sector has acquired some prominence. Now this financial services sector has grown into an emerging industry, in fact the present world's largest industry.

Financial services may be explained as the services and projects rendered by Institutions that is banks of different kind for the aspiration of financial transactions, other finance associated activities in Finance world such Insurance, Loans, Credit cards, Money management furthermore investment opportunities to provide the knowledge on this stock market and upcoming trends in the market.

The financial service industry is explained as “The accumulation of organizations where its main focus is to facilitate and intermediate financial transactions of Individual, Banks and other institutional investors to result from allocation of their activities through time.”

Financial services consists of various types, they are:

1. Wholesale financial services.
2. Retail financial services.

**Wholesale financial services:** Services are availed by financial industry and businessmen, which are utilized for transition into ultimate final retail products through directly or indirectly.

**Retail financial services:** Services are offered to the individuals, directly thrown to consumption needs.

It is categorised into following:

- Traditional Activities.
- Modern Activities.

**Traditional Activities:** The financial institutions and intermediaries have been offering variety of financial services consisting of both money market and capital market activities. Traditional activities are further grouped as fund based and non fund based activities.

#### **ASSET/ FUND BASED FINANCIAL SERVICES**

- Hire Purchasing
- Forfeiting
- Mutual Fund
- Exchange Traded Funds
- Consumer finance
- Housing Finance

#### **FEE BASED FINANCIAL SERVICES**

- Merchant Banking
- Letter of Credit
- Credit Rating
- Securitization of debts
- Stock Broking

**Modern Activities:** Modern activities consist of subsequent services

1. Offering project and forecast advisory services straight from the formulation of financial project report till the budgeting of funds for beginning the project with the essential government approvals.
2. Rendering planning service for Merger and Acquisition and assistance for their smooth carrying of business.
3. Acting as trustee and advisors to the debenture holders.
4. Projecting and constructing financial collaborations with the joint ventures through selecting acceptable joint venture partner firms, composing joint venture agreements.

In this services stock broking financial services is captured to the detailed study of my research.

**FINANCIAL MARKET:** It is described as any market where the sellers and buyers of financial securities participate in trade of equities, bonds, currencies with that of derivatives. This market is transparent in evaluating, basic regulation on selling and buying, fees, cost and also market forces determine the securities price that trade in market. The market means the aggregation of available sellers and buyers of various certain goods, services and also the transaction of actives between them. They deal with Stocks, Bonds and Commodities which include agricultural products and precious metals.

### **Types in Financial market**

- Money Market
- Capital Market

**MONEY MARKET:** It is a financial market. Its main role is to deal with financial securities whose maturity period is up to 1 year, it is a market for short term funds. This money market instrument is replacement of money, because it does not manage with money. It just offers credit instrument facilities like Commercial Papers, Treasury Bills, Promissory Notes, Certificate of Deposits and Bills of Exchange. These instrument are

beneficiary to the government, to the various units and organizations to borrow funds accessible in this market to accomplish their short term needs and requirement. The financial urge in money market instrument is generally low default risk, high marketability and maturity with 1 year.

**Money Market Instruments:**

- Commercial Papers
- Certificate of Deposits
- Promissory Notes
- Bills of Exchange
- Treasury Bills

**Commercial Papers:** It is popular in corporate industry to finance their working capital requirements, it is unsecured promissory note in nature issued by blue chip companies. This is issued in time range that lies between 15days - 1year.

**Certificate of Deposits:** It is generally furnished by some Commercial banks or other related Financial Institutions, which is very easily transferable in nature from one person to the other. Its maturity ranges between 91days – 1year. It can be provided to any Co-operatives, Individuals and Organizations.

**Promissory Notes:** It is signed document which contains a written promise for paying certain amount of money to specified person or the bearer of that document at mentioned date or on demand.

**Bills of Exchange:** It is a kind of instrument in written format containing an unconditional order, specifying a definite person for paying money or to the order of mentioned person for paying money or to the order of mentioned person, or to the holder of bills of exchange. It is only valid if it is underwrite by the maker of the particular instrument.

**Treasury Bills:** It is a sort of financial bills, that are similar character of promissory notes, it is basically issued and offered by the government for fixed period of time under some discount but not abundant of 1 year, favouring to pay stated amount to the bearer of treasury bill instrument.

**CAPITAL MARKET:** It mentions the kind of financial market, where we can generate funds from various market instruments for company's growth and sometime for national growth. These are generally used by professional investors to gain more profit out of their market condition. Its main character is to deal with both medium and long term funds. It is an arrangement to marketing and buying, selling securities in market. It can be known as Securities market.

This security market is mainly categorized into 2 major segments called Primary and Secondary market.

- 1. Primary Market:** It is a place where the investors buy securities that are directly issued by the company. New securities are furnished in this kind of market.
- 2. Secondary Market:** In this market Bonds, Stocks, Options and Futures which are previously issued can be bought and sold. After the initial issuance, investors have the right to purchase from the other investors.

### **STOCK MARKET OVERVIEW:**

They play a very important role in economy. It enables to trade in shares which are of public company. If a firm wants to raise its business they can raise funds through stock market. They help in funding new projects or for business which have expansion plans. The stocks and securities of various companies are traded by the registered members so it is called as Standardized association. There are 23 recognized Stock Exchanges in India.

**Bombay Stock Exchange:** It is the oldest in the world, which is famous for the large number of companies that are listed, recently they have also come up with screen based trading system with prologue of the Bombay online trading system.



Alternate name for BSE was “The Native Share & Stock Brokers Association”. They were the first to get the permanent recognition from government through Securities Contracts Regulation Act 1956. In addition with dematerialization, Deutsche Borse Singapore Exchange were the best World’s Exchange.

Today, BSE is ranked number 1 Stock Exchange with respect to companies which are listed and 5<sup>th</sup> according to the World. An investor has option to choose from more than 4700 listed companies.

It is the first stock exchange to enjoy iconic status and is worldwide. It consists of 30 stocks which constitute 12 major sectors. “SPICE” was the first Exchange Trade Fund which assist investors a trading tool for the trading purpose of investment, trading, arbitrage and hedging which is very easy to handle.

BSE was 1<sup>st</sup> to receive Information Security Management System. Standard BS7799-2002 certification, Online Trading System (BOLT). It was designed for safeguard market integrity through enhancing transparency in their working.

### **Vision**

“Emerge as a best prime stock exchange through providing excellence in class global practice in various technologies, innovations, projects and finally customer services.”

**National Stock Exchange:** Established in November 1992, with the capital of 25crores. They took the helping hand of the International Securities Consultancy of Hong Kong. Financial institutions, Insurances Companies Limited and Stock Holding Corporation were the promotions for NSE. They focus on providing nationwide securities trading facilities to investors to add on they strengthen the move towards professionalization towards capital market.

Different players are as follows:

- Trading members
- Participants

They provide a automated which is fully screen based trading mechanism that consists principle of order driven market. Investors have option to stay at their office and execute the trading by linking with communication network. Then all the share prices

are displayed at which the buyers and sellers are willing to transact. When such prices are matched the transaction will be complete and the final step is to get the confirmation slip.

**Vision:** Sustaining as market leader, establishing and maintaining the global present and facilitating the people to financially well-being.

**Securities and Exchange Board of India:** It was setup for protecting interest of investors by government of India 1988. SEBI act, 1992 and Securities Contract Regulation Act, 1956 empowered SEBI. Protecting rights the investors and regulating capital market are primary functions of SEBI. Its headquarters is situated at Mumbai.

**The companies of NIFTY50 are shown below**

SL No	Company Name
1	Bharti Infratel Ltd
2	Tata Motors Ltd
3	Bharat Petroleum Corporation Ltd
4	Axis Bank Ltd
5	Indian Oil Corporation
6	State Bank of India
7	Bharti Airtel Ltd
8	Oil & Natural Gas Corporation Ltd
9	Mahindra and Mahindra Ltd
10	Hindustan Petroleum Corporation Ltd
11	Housing Development Finance Corporation Ltd
12	Asian Paints Ltd
13	Indiabulls Housing Finance Ltd
14	Grasim Industries Ltd
15	NTPC Ltd
16	Maruti Suzuki India Ltd
17	Dr. Reddy's Laboratories Ltd
18	Bajaj Auto Ltd
19	Power Grid Corporation of India Ltd

20	Eicher Motors Ltd
21	Tata Steel Ltd
22	Adani Ports and Special Economic Zone Ltd
23	ITC Ltd
24	Yes Bank Ltd
25	UPL Ltd
26	Kotak Mahindra Bank Ltd
27	HDFC Bank Ltd
28	JSW Steel
29	Bajaj Finance Ltd
30	Vedanta Ltd
31	Hero MotoCrop Ltd
32	Sun Pharmaceutical Industries Ltd
33	ICICI Bank Ltd
34	Coal India Ltd
35	Bajaj Finserv Ltd
36	Hindalco Industries Ltd
37	Zee Entertainment Enterprises Ltd
38	Reliance Industries Ltd
39	Indusind Bank Ltd
40	GAIL (India) Ltd
41	Cipla Ltd
42	Ultratech Cement Ltd
43	Titan Company Ltd
44	Larsen & Toubro Ltd
45	Wipro Ltd
46	Hindustan Unilever Ltd
47	HCL Technologies Ltd
48	Infosys Ltd
49	Tata Consultancy Services Ltd
50	Tech Mahindra Ltd

## 1.3 COMPANY PROFILE

### Introduction

AnandRathi is a main full administration speculation bank established in 1994 offering a wide scope of money related administrations and riches the executives answers for organizations, partnerships, high– total assets people and families. The firm has quickly extended its impression to more than 350 areas crosswise over India with worldwide nearness in Hong Kong, Dubai and London. Established by Mr. Anand Rathi and Mr. Pradeep Gupta, the gathering today utilizes more than 2,500 experts all through India and its global workplaces.

The company's theory is altogether customer driven, with a reasonable spotlight on giving long haul esteem expansion to customers, while keeping up the most astounding models of magnificence, morals and polished methodology. The whole firm exercises are partitioned crosswise over unmistakable customer gatherings: Individuals, Private Clients, Corporates and Institutions. AnandRathi has been named The Best Domestic Private Bank in India by Asiamoney in their Fifth Annual Private Banking Poll 2009. The firm has risen a champ over every key fragment in Asiamoney's biggest review of high total assets people in India.

## 1.4 PROMOTERS

1	Anand Rathi	Founder & Chairman
2.	Pradeep Gupta	Co founder & Vice Chairman
3.	Amith Rathi	Managing Director
4.	Charan Das Arba	Director
5.	Priti Pradeep Gupta	Director

## **1.5 VISION, MISSION AND QUALITY POLICY**

### **Vision:**

“To be a shining example as a LEADER IN INNOVATION and the first choice for Clients and Employees”

### **Mission:**

“To be India’s multinational firm providing complete financial services with solutions across the globe”

### **Quality Policy:**

The firm’s quality approach is totally client driven, with a reasonable spotlight on giving long term value addition to customers, while keeping up the most excellence services, morals and professionalism. The main aim of the firm is to provide efficient services to their customers with appropriate financial advices and with adequate solutions to their problems.

## **1.6 PRODUCT AND SERVICE PROFILE**

### **Product Offerings:**

- ✧ Equities
- ✧ Derivatives
- ✧ Commodities
- ✧ Currencies
- ✧ Documents against payments
- ✧ Portfolio management services
- ✧ Insurance
- ✧ Mutual funds
- ✧ Fixed deposits
- ✧ Loan against shares

### **Services Offerings:**

- ✦ Private wealth management services
- ✦ Institutional services
- ✦ Investment banking services
- ✦ Currency consultancy
- ✦ Corporate insurance advisory
- ✦ Investment services
  - ✓ Preferred client services
  - ✓ Privilege client services

### **1.7 AREA OF OPERATIONS**

- Nagpur
- Delhi
- Ahmadabad
- Hyderabad
- Kolkata
- Mumbai
- Jaipur
- Bangalore
- Pune
- Chennai
- Dehradun
- Bangkok
- Hong Kong

## 1.8 COMPETITORS

- Zerodha
- ICICI Direct
- Share Khan
- Kotak Securities
- Motilal Oswal
- India Bulls Securities
- Karvy
- Alchemy Capital Management
- Angel Broking

## 1.9 SWOT ANALYSIS

### **Strength:**

- India's leading broking house.
- Strict risk control systems.
- Company with well diversified portfolio.
- Multiple products under single roof.
- Huge customer base.
- Strong customer relationship.
- Dedicated employees with good research team.
- Strong online platform.

### **Weakness:**

- Lack of digital marketing.
- Does not have effective direct marketing strategies.
- Not having unique product.
- Lack of advertisement.
- Rural areas has less penetration.

**Opportunities:**

- Financial sector boom.
- Opening new branches at different locations.
- Increase in income and spending power.
- Growing customer awareness about stock market.

**Threats:**

- Huge competition from other brokers.
- Customer's needs, preference and taste changes.
- Market uncertainty.
- Government rules and regulation.
- Stiff competition from existing players in the market.
- Broad economic factors like inflation.
- Price war pursuant to competitors.

**1.10 FUTURE GROWTH PROSPECTS**

- AnandRathi deployed Elina Network ENPAQ Unified Gateway at their branch locations.
- AnandRathi got a network infrastructure solution that integrated their trading application, connectivity, network security and manageability in one platform.
- 100% branch trading uptime.
- AnandRathi uses ASDL or cable broadband from any ISP to create a VPN to their HQ Elina Network's auto failover works between any combinations of network connections or leased line fails, trading traffic moves to the VPN over broadband.
- Simultaneously an SMS or EMAIL alert is triggered to the AnandRathi Network administrator, letting them quickly escalate the issue to the ISP.
- Creating a DEMAT account to buy and sell with the help of exchange stock without fraud damage to certificate.
- Strong financial advisory role through fundamental and technical analysis.



## 1.11 FINANCIAL STATEMENT ANALYSIS

### Profit & Loss Statement for the year ended 31<sup>st</sup> March 2018 & 2017

(Amount in Crores)

Particulars	Amount as on 31.03.2018	Amount as on 31.03.2017
<b>INCOME</b>		
<b>Operating Income</b>		
Brokerages and Commission	27.63	13.21
<b>Total Revenue</b>	<b>27.63</b>	<b>13.21</b>
<b>EXPENSES</b>		
Employee Cost	11.62	7.24
Salaries, Wages and Bonus	10.69	6.52
Workmen and Staff Welfare Expenses	0.29	0.25
Other Employee Cost	0.06	0.03
Operating and Establishment Expenses	2.13	1.40
Commission, Brokerage and Discounts	0.07	0.00
Rent, Rates and Taxes	1.75	1.21
Repairs and Maintenance	0.13	0.06
Insurance	0.09	0.04
Electricity and Power	0.16	0.02
Administration and Other Expenses	3.50	1.70
Printing and Stationery	0.45	0.33
Professional and Legal Fees	0.69	0.15
Advertisement and Sales Promotion	0.55	0.23
Other General Expenses	1.80	1.00
Provision and Contingencies	1.12	3.03

<b>Particulars</b>	<b>Amount as on 31.03.2018</b>	<b>Amount as on 31.03.2017</b>
<b>Total Expenditure</b>	<b>18.37</b>	<b>13.37</b>
<b>Operating Profit</b>	<b>9.26</b>	<b>-0.16</b>
<b>Other Income</b>		
Other Interest Income	0.13	0.07
Interest from Investment	0.22	0.11
Others	0.00	3.05
<b>Operating Profit</b>		
Other Interest	0.00	0.01
Depreciation	0.34	0.11
Profit before Taxation and Exceptional Items	9.27	2.94
Exceptional Income / Expenses		
Profit Before Tax	9.27	2.94
Profit After Tax	5.99	1.98
<b>Appropriations</b>		
Other Appropriations	12.31	6.33
<b>Earnings Per Share</b>		
Adjusted Earnings Per Share	21.00	34.00

**Balance Sheet for the year ended 31<sup>st</sup> March 2018 and 2017**

**(Amount in Crores)**

<b>A.EQUITY AND LIABILITIES</b>		<b>31.03.2018</b>		<b>31.03.2017</b>
<b>1.Share Holders Funds</b>				
a)Share Capital	2.91		0.58	
b)Reserves and Surplus	10.04	<b>12.95</b>	6.38	<b>6.96</b>
<b>2.Non Current Liabilities</b>				
a)Deferred Tax Assets	0.03	<b>0.03</b>	0.03	<b>0.03</b>
<b>3.Current Liabilities</b>				
a) Other Current Liabilities	2.14		1.55	
b)Short Term Provisions	0.04	<b>2.18</b>	0.08	<b>1.63</b>
<b>TOTAL LIABILITIES</b>		<b>15.16</b>		<b>8.62</b>
<b>B.ASSETS</b>				
<b>1. Non Current Assets</b>				
a)Non Current Assets	1.02		1.86	
b)Long Term Loans and Advances	3.23	<b>5.35</b>	3.22	<b>5.08</b>
<b>2.Current Assets</b>				
a)Sundry Debtors				
b)Cash and Bank	4.83		2.05	
c)Other Current Assets	3.70		1.06	
d)Short Term Loans and Advances	1.05		0.06	
<b>TOTAL ASSETS</b>	0.23	<b>9.81</b>	0.37	<b>3.54</b>
		<b>15.16</b>		<b>8.62</b>

## **Ratio Analysis**

It is a financial statement analysis which indicates the company's financial performance and gives the information of companies P&L A\C and Balance Sheet. It helps us to determine the company's financial position.

### **Types of Ratio Analysis:**

- Current Ratio
- Liquid Ratio
- Proprietary Ratio
- Gross Profit Ratio
- Net Profit Ratio
- Working Capital Ratio
- Fixed Assets Turnover Ratio
- Debt Equity Turnover Ratio
- Stock Turnover Ratio
- Profits on Funds Employed

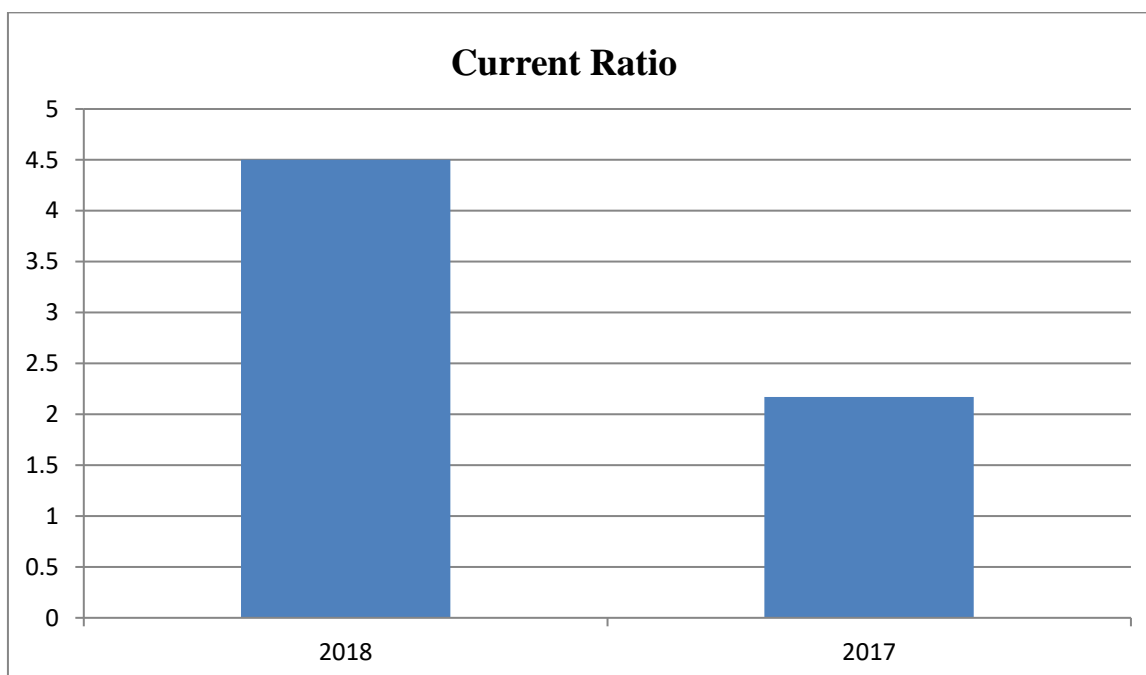
## 1. Current Ratio

Current Ratio = Current Assets / Current Liabilities

**Table 1.11.1: Table showing Current Ratio** (Amount in Crores)

Year	Current Assets in rupees	Current Liabilities in rupees	Current ratio
2018	9.81	2.18	4.50
2017	3.54	1.63	2.17

**Graph 1.11.1: Graph showing Current Ratio**



### INTERPRETATION

AnandRathi Current Ratio in the year 2017 is 2.17 and in 2018 is 4.50. From the graph it is evident that Current Ratio of AnandRathi is increasing. The increasing in Current Ratio indicates good solvent position of the company and shows good performance and proper utilization of inventory and is efficient in collection of Debtors.

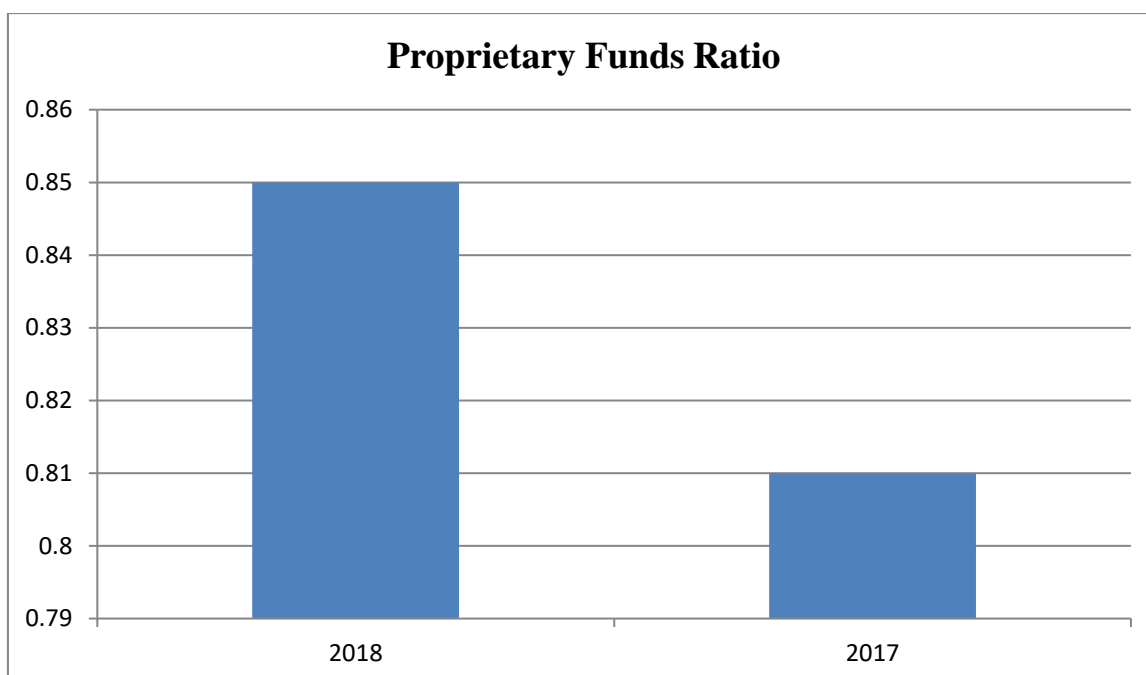
## 2. Proprietary Funds Ratio

Proprietary Funds Ratio = Shareholders Fund /Total Assets

**Table 1.11.2: Table showing Proprietary Funds Ratio** (Amount in Crores)

Year	Shareholders' Funds in rupees	Total Assets in rupees	Proprietary Funds Ratio
2018	12.95	15.16	0.85
2017	6.96	8.62	0.81

**Graph 1.11.2: Graph showing Proprietary Funds Ratio**



### INTERPRETATION

AnandRathi Proprietary Funds Ratio for the year 2017 is 0.81 and in the year 2018 is 0.85. From the graph it is evident that proprietary Funds Ratio of AnandRathi is increasing. The increasing in Proprietary Funds Ratio indicates that in the company there is proper utilization of capital funds for the long term assets.

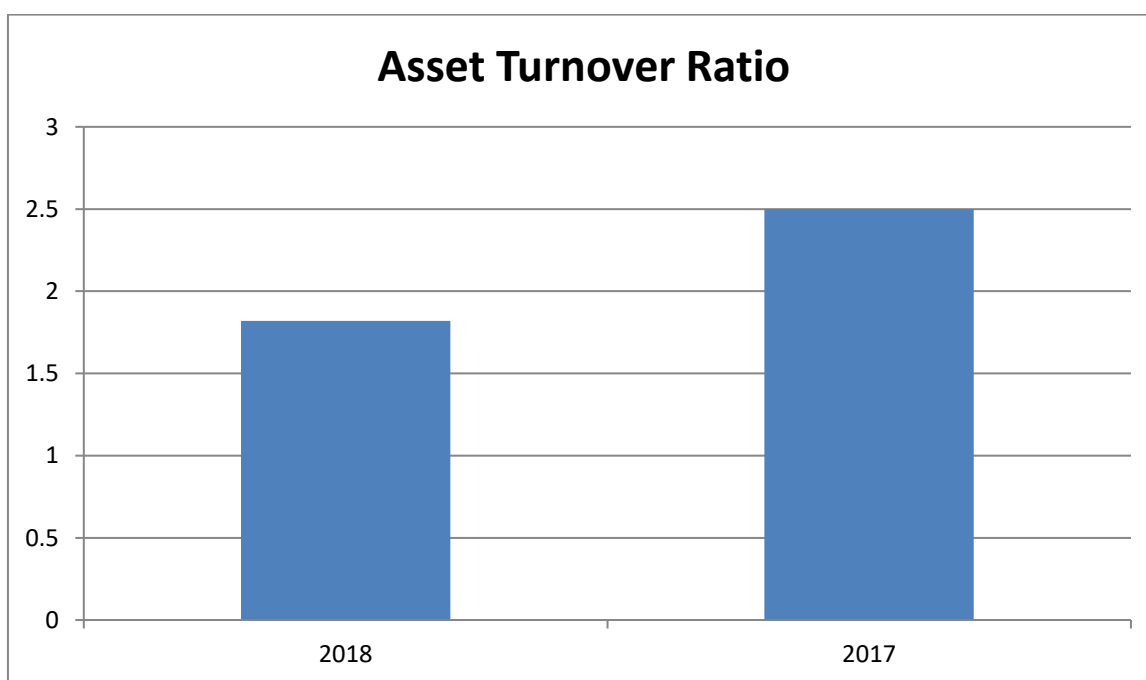
### 3. Asset Turnover Ratio

Asset Turnover Ratio = Sales / Total Assets

**Table 1.11.3: Table showing Asset Turnover Ratio** (Amount in Crores)

Year	Sales in rupees	Total Assets in rupees	Asset Turnover Ratio
2018	27.63	15.16	1.82
2017	13.21	8.62	1.53

**Graph 1.11.3: Graph showing Asset Turnover Ratio**



#### **INTERPRETATION**

AnandRathi Asset Turnover Ratio for the year 2017 is 1.53 and in the year 2018 is 1.82. From the graph it is evident that Asset Turnover Ratio of AnandRathi is increasing. The increasing in Asset Turnover Ratio indicates that company used its Assets efficiently and effectively and is most likely to have no management problems.

#### 4. Net Profit Ratio

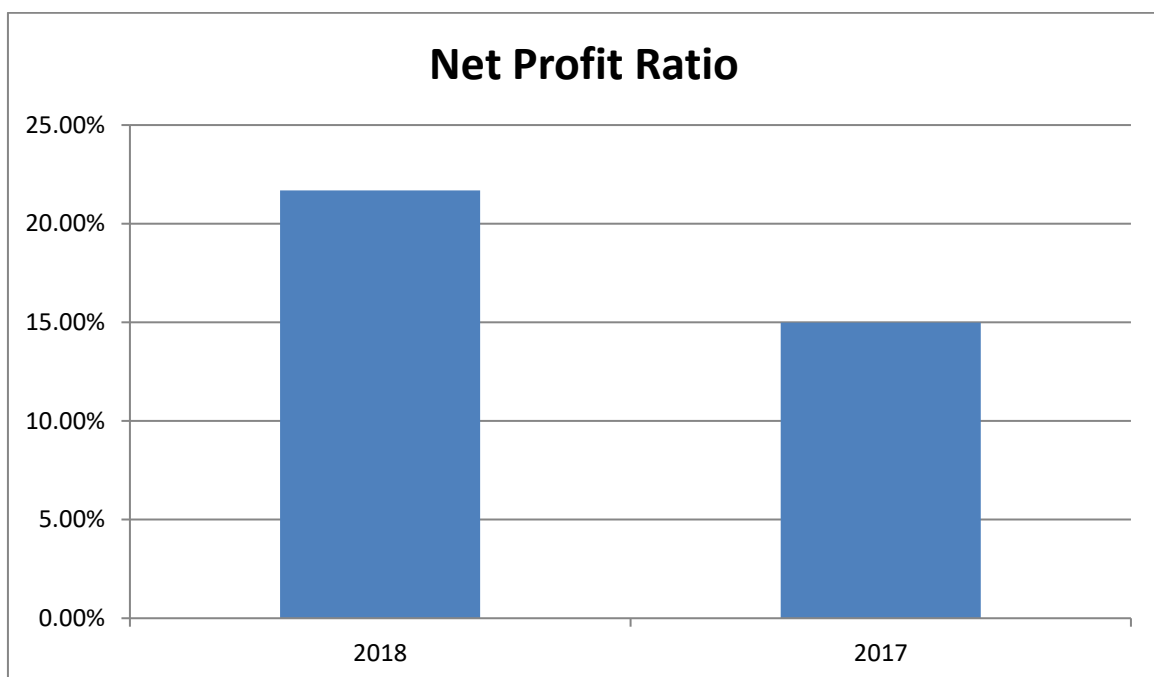
Net Profit Ratio = Net Profit after Tax / Net Sales \* 100

**Table 1.11.4: Table showing Net Profit Ratio**

(Amount in Crores)

Year	Net Profit After Tax  in rupees	Net Sales  in rupees	Net profit Ratio
2018	5.99	27.63	21.68%
2017	1.98	13.21	14.99%

**Graph 1.11.4: Graph showing Net Profit Ratio**



#### **INTERPRETATION**

AnandRathi Net Profit for the year 2017 is 14.99% and in the year 2018 is 21.68%. From the above graph it is evident that Net Profit Ratio of AnandRathi is increasing. The increase in Net Profit indicates that the company's profitability position is good.



## **CHAPTER 2**

### **CONCEPTUAL BACKGROUND AND LITERATURE REVIEW**

## **2.1 THEORETICAL BACKGROUND OF THE STUDY**

### **Introduction to Optimal Portfolio**

The Investor constantly likes to buy a pair of combination of stocks which will provide high return with low risk. The investor wants to just maintain a satisfactory income with reward to risk ratio. In ancient time the stock analyst always tend to have attention more on return aspect of the company's stock. In the recent times risk have received and pulled a more attention, for that analyst. Are providing both risk as well as return estimates to investors.

While making a investment decision, risk and return plays a very important role to generate returns. These decisions will help investors to know whether he should invest or not and also it helps in a portfolio which stock to include in order to balance investors investment. To make a proper decision on investment and to manage the proper portfolio is very important. An investor always tries to maximize his returns with risk.

In a traditional approach the investors' objectives in terms of return, appreciation in capital from the selected stock is just to satisfy their needs and wants. Another famous approach is modern approach. In this Markowitz model is built to select a stock based on the analysis of risk and return. Markowitz constructed a model as a foundation to quantify the risk and his contribution to the portfolio segment on popularly called as 'Modern Portfolio Theory'. He contributed an analytical tool making analysis, to select optimal portfolio to the investors. For this he won Nobel Prize and later he was called as 'Father of Modern Portfolio Theory'.

According to Markowitz, meaningful measure of selecting optimal portfolio is to calculate variance of the rate of return of the selected stocks, if the sample size is take for 50 companies then according to the Markowitz model there as to find out correlation between the each 50 stocks. Earlier it was find to the investor to make a satisfactory profit, but later there comes a problems in data to analysis it, Markowitz tried several times to identify the solution for that problem.

One of the students of Markowitz called William Sharpe helped Markowitz in solving the issue that he had. William Sharp introduced a model called 'Sharpe Single index model' which constitutently reduce its data calculation. A well simplify model where the fluctuations in the stock price  $e$  of a company in the market are equally inter collected to the fluctuation in the market index. William Sharpe just connected the individual stock behavior to market index behavior this resulted in reduce paper work and well organized optimal portfolio sharp model is consider as best model investments.

## **Elaborate Information about the topic**

### **Meaning of Portfolio**

Portfolio is the process where the investor gets the clear idea of risk and return by constructing the Optimal Portfolio. The Portfolio is combination of the return and risk for the securities in the stock market

### **Return**

Returns the investor gets in market.

### **Risk**

Risk is the possible outcomes of the stock that occurs from the actual outcomes and expected returns.

There are 2 kinds of risk

- Systematic Risk
- Unsystematic Risk

Systematic Risk – Systematic Risk are those risk in which the individual securities where the returns are caused by affecting the market as whole like market changes and inflation.

Unsystematic Risk – Unsystematic Risk are those risk which is caused unique to company and company strikes.

## **Introduction to Sharpe Single Index Model**

An attempt made here is to get a clear view and insight idea which is included in Sharpe's Single Index model and to study how to construct optimum portfolio by using this model NSE Nifty is the main indicator of NSE India and it is mostly be broadly traded exchange in India. NSE Nifty is taken as market performance index and daily closing price is considered in order to comparing with the daily closing price of selected securities, and the closing price is taken from 1<sup>st</sup> April 2012 to 31<sup>st</sup> March 2018. This Sharpe index model is formulated here by using the daily closing price of Nifty 50 companies and the daily closing price of Nifty Index closing price.

Here in this proposed form of calculation formulates a variety of unique cut off rates and helps to select those securities to construct efficient optimal portfolio those securities is having an excess returns to beta ratio is more than that of cut off rate. After this a well proportionate of investment in each securities selected is calculated on the basis of securities beta value, excess return to beta ration, unsystematic risk and cut off rate of each of the assets or securities concerned.

### **Steps involved in Construction of Optimal Portfolio**

Step 1: Calculation on year on year return.

Step 2: Calculation on expected return and various risk.

Step 3: Examine the best performing stock on various securities raised on their returns & risk and ranking those securities accordingly.

Step 4: Constructing the best performing stocks in portfolio.

Step 5: Determine the cut-off point of stock to choose the best securities.

Step 6: Identifying the best performing securities which results optimum portfolio.

Step 7: Determining securities for the proportion of investment for the identical securities.

The simplified model proposes that the relationship between each pair of securities can indirectly be measured by comparing each security to a common factor market

performance index that is shared amongst all the securities. As a result the model can reduce the burden of large input requirement. SIM has gained its popularity to a great extent in the arena of investment finance as compared to Markowitz's model.

### **Assumptions made**

The SIM is based on the following assumptions:

- All investors have homogenous expectations.
- A uniform holding period is used in estimating risk and return for each security.
- The price movements of a security in relation to another do not depend primarily upon the nature of those two securities alone. They could reflect a greater influence that might have cropped up as a result of general business and economic conditions.
- The relation between securities occurs only through their individual influences along with some indices of business and economic activities.
- The indices to which the returns of each security are correlated are likely to be some securities market proxy.
- The random disturbance terms has an expected value zero and a finite variance. It is not correlated with the return on market portfolio as well as with the error term for any other securities

SIM divides the return into two parts:

- Unique part
- Market related part

**Unique part:** The intercept term is called by the Greek name 'Alpha' and is a micro event affecting an individual security but not all securities in general. It is obviously the value  $R_i$  when  $R_m = 0$ .

**Market related part:**  $R_m$  on other hand is a micro event that is broad based and affects all or most of the firms. Beta the slope of the line, is referred to as 'Beta Coefficient'.

It is a measure of sensitivity of the security return to the movements in overall market returns. It shows how risky a security is, if the security is held in a well diversified portfolio.

**SIM Risk Characteristic Line:** The line represents SIM is also known as the risk characteristic line. The concept of risk characteristic line conveys the message about the nature of security simply by observing its value as follows:

1. Securities having  $> 1$  are classified as aggressive securities, since they go up faster than the market in a 'bull'(rising market), go down in a 'bear'(falling market)
2. Securities having  $< 1$  are categorized as defensive securities, since their returns fluctuate less than the market variability as a whole.
3. Finally, the limiting case of securities having  $= 1$ , are neutral securities, since their return fluctuate at the same rate with the rate of market variability of return.

**Limitations:** One of the most important limitations with SIM is that it does not consider uncertainty in the market as time progresses instead the model optimizes for a single point in the time. Moreover, this model assumes that security prices move together only because of common co movement with the market. Many researchers have identified that there influences beyond the general business and market conditions like industry oriented factors that cause securities to move together .

However, empirical evidence shows that the more complicated models have not been in a position to outperform the SIM terms of their ability to predict ex-ante covariances between security returns.

## 2.2 REVIEW OF LITERATURE

**1. Francis Mary and G. Rathika (2015):** Their investigation focused on portfolio development by utilizing the month to month shutting costs of 10 organizations recorded in NSE and CNX Pharma. The time of study was from September 2010 to September 2014. Put together up with respect to the cut-off an incentive out of the 10 organizations just a single organization is chosen for the ideal portfolio development.

**2. Nithya.J (2014)** for large cap companies he constructed an effective portfolio. He calculated the risk and return by using SIM. He selected 8 stocks from Pharma sector.

**3. Chauhan (2014)** built a portfolio utilizing top 10 loads of NIFTY. In the investigation, it was observed to be a simple and straightforward technique to compute ideal portfolio. In this strategy, less number of factors are utilized. It is named Single Index Model as it utilizes just a solitary list for portfolio development. Nalini (2014) in her investigation considered 15 loads of different segments from S&P list, taking BSE

**4. Gopalakrishna, Muthu (2014)** explains the rational investors about the alternatives in the investment. He tries to compare the traditional and modern portfolio theory. This study aims to test whether SIM provides an explanation of stock return of IT sector. Data was collected from 2004-2008. He used regression on market return and investigated 4 stocks.

**5. Mandal & Niranjana (2013)** used 21 stocks from 10 years i.e April - March 2011 the daily prices was collected. Cut-off rate was determined the stocks which was greater than the cut- off rates were selected. The he used different statistical tools, charts and diagram for the better interpretation of the results.

**6. Dileep & Rao, Kesava (2013)** analyzed applicability, utility of SIM in Indian context. In terms of rate of return he evaluated the performance of the portfolio. He took 30 companies and collected all the necessary data by using secondary sources. As a result only 4 companies were selected for the optimal construction.

**7. Kumar, Arun & Manjunatha (2013)** constructed portfolio using SIM. The data was collected from S&P CNX Nifty for the time period of 5 years. He selected 6 securities out of fifty companies for the optimal portfolio construction. He stated that market index and stock prices move in the same direction.

**8. Saravana & Natarajan (2012)** calculated the portfolio was 4 companies from NSE and used NSE Nifty as market index. He aimed at minimizing the portfolio risk.

**9. Nanda, Mahanty & Tiwari (2012)** selected some random stocks to build a portfolio, he compared the return with that of the bench mark.

**10. Debasish, Sataswaroop & Khan, Jakki Samir (2012)** a 14th stocks were selected from manufacturing sector like automobile, cement, paints, textiles etc which are traded in NSE. The daily prices of these stocks were collected from Jan 2003 to Nov 2012. He calculated beta, variance, unsystematic risk and return of each stock. Among 14 selected stocks only 3 stocks were taken for consideration.

**11. Meenakshi and Sarita (2012)** stated that Sharpe Single index model is very simple and was easy for the construction of the portfolio.

**12. Tanja Mago . C (2009)** this was a technique to solve the issues that are arise on optimum portfolio in constructing the values. The problems that are arise to solve that the new kind of approach were been used to decide the market setting. The theoretically the paper was been done with the experiment, they measures the intervals with the values. By the share ratio to trade off the assessment. It is been estimated that the share ratio developed the approach for the portfolio that maximum ideal ratios was been developed. Thus, the sample distribution was possible in the optimum risk for the trade-off that is constructed from data analysis.

**13. Woo Gon Kim, Jun Zhong, Ming-Hsiang Chen & Ersem Karadag (2009)** analyzed between 1st Jan 1998 & 31st Dec 2004 the risk adjustment concert of three restaurant segments. As an analytical structure the Jenson, the Treynor and Sharpe index were used. The findings have are not entirely consistent with quick service segment out performs other two segments. As a result restaurants are having much unsystematic risk.

**14. Markus Ebner & Thorsten Neumann (2008)** examined differences correlation in derive variance- covariance and stock returns in US by time-varying factor model. The problem can be answered by three approaches, 1.Random walk model, 2.Flexible least squares and 3.Moving window least square model. This study result suggests that time variant estimation is carrying low weight than time-varying estimate and it increases the efficiency and effectiveness of portfolio selection.



**15. Fikriyah Abdullah, Taufiq Hassan & Shamsheer Mohamed (2007)** analyzed the difference between conventional and Islamic mutual fund performance in Malaysian financial market. In order to achieve the objectives Sharpe's Index, Jensen test and adjusted Sharpe index were used. In the result findings they observed two different performances. In Bullish trend Islamic funds low performed than conventional funds and in bearish market Islamic funds are better than conventional funds.

**16. Kwok Wai Yu, Xiaoqiyang & Hung Wong (2007)** analyzed the portfolio management and measures in application with the Sharpe rule. They stated that for the improvement investment should be made in some other assets. With the help of rule they satisfy the condition stating that the old portfolio can be added with new stocks, where return can be multiplied by the sum of Elasticity of the value of risk.

**17. Beliakov & Bagirov (2006)** studied performance of numeric on various methods for the calculations for the Conditional Values at Risk (CVR) this will carry out evaluation of optimum portfolio for the measurement of risk. They executed that this method for the purpose of the smooth construction of portfolio with efficiently getting the portfolio returns and they also analyzed parallel execution computer based cluster for the method.

**18. David Moreno, Paulina Marco and Ignaciomedea (2005)** analyzed investor of portfolio seek to evaluate the portfolio return. This study specially investigates whether Markowitz model is less efficient than Arch-type risk adjusted return model. The same examination is carried down with replica based on Lower Partial Moment (LPM) which takes into account that irregularity in the sharing of takings. No model is efficient in finding out effective average performance. Reward to semi-variance ratio is effective than other variance based replica of portfolio performance.

**19. Brandt & Clara (2005)** studied an approach to dynamic portfolio for selection of that easy for the implementation of the Markowitz paradigm. They widened assets and statistically they optimized the portfolio for space of extent. They reviewed the conditional portfolio and portfolios which are for timing. They decided that portfolio which is managed by static in their choice and the horizons which were for up to five years is for dynamic strategy.

**20. Seegopaul, Hamish, Gupta, Francis, Prestbo & Johan (2005)** the researcher analyzed that the greatest arrangements for single index for large cap in the domestic so that the equities are marginal in the difference for the performance that the long period in single index are the significant in its value for the overall plan in the study.

**21. Detemple, Garcia & Rindisscher (2003)** analyzed that the new simulation is based on approach for the construction with allocation of realistic environment of complex dynamic situations for variable state. They also examined for the stocks where the returns of the stocks are predicted with dividend yields, where the investors will be having relative risk on their wealth. They examined the analysis by using BSE Sensex, S&P 500 index as an empirical data for evidence.

**22. Schaerf (2002)** studied the problems related to portfolio selected. Optimum portfolio gives clear picture of returns and gives clear picture of how to balance to investors while investing in various securities. He also determines the constraints for additional cardinality of portfolio and for quantity of individual assets for Markowitz model of seminal mean-variance.

**23. Sahalia & Brandt (2001)** explained about the asset allocation of problem in which conditional movements of the portfolio returns are partly predictable. They both explained how the weights of the optimal portfolio depend on predictive variable. optimal portfolio weights they both combine the predictive weights in to Sharpe's single index model. So, that the best time captures differential in the investment decisions.

**24. Doumpos (2000)** examines that research study is classified into four basic classes, models which is focusing on perception for securities and for the analysis. For behavior of this study, the models which focuses on rapid spot for the security. The evaluation of securities based on various investor performances in an portfolio.

**25. Finnerty (2000)** analyzed that study is related to the high inflationary situation for portfolios in 1970's based on risk, returns of traditional portfolio. Portfolio consists of bonds, securities and stocks with an increased inclusion of the commodities for the allocation of the assets.

**26. Zopounidis (1998)** examines that study is concerned for the analysis multi criteria in which portfolio selection done accordingly a methodological background: is a conglomerate objective for mathematical programming, heterogeneous attribute.

**27. Irwin & Landa (1987)** they examined that the mixed benefits of portfolio is an alternative class. The very significant justification of portfolio commodity is provides an inflation hedge. Thus the hedging function may be excellent source of diversification portfolio. The situation of inflationary can be characterized with purposeful increase in price of the commodity, the value during such periods will be offered for duration and usually stocks will perform very poorly at the increased inflationary situations.

**28. Merton (1980)** examines the difficulties which are precisely expected while constructing optimum portfolio for returns of the investors. The investor can assign on the various stocks where the investor gets the maximum returns for their investments with less risk in optimal portfolio, which is governed by government for rate of interest and for risky stocks

**29. Ross (1976)** studied on the alternative pricing of asset theorem which is called as Arbitrage Pricing Theory (APT). The theory is mainly based on less restrictive assumptions. Under arbitrage condition theory explains that return on any one of the stocks will be related to assets of systematic or risk factor. The portfolio which is having the same risk factor cannot expect the same returns for stocks. Basically APT theory fails to advise the nature of the stock and the number of the factors.

**30. Eltonetal (1976)** he tried to develop successfully an optimum portfolio of heuristic by defining single average correlation coefficient of all correlation coefficients. He always use to manage and obtain the optimized portfolio thus this answer was computationally intensive while satisfying while substituting the portfolios.

**31. Maller, Durand, Jafarpour & Tobin (1958)** examined about the Mean- Variance of optimization. Markowitz model presents that the solution for the “black box” is for maximizing the returns for period of risk given. Usually risk is calculated on standard deviation of portfolio where the result is efficient in the frontier for the possible portfolios hyperbola, the portfolio is calculated on each security and result is given for each of the security regarding their risk and other aspects in the construction of portfolio. It is calculated for the risky assets in the optimum portfolio. Portfolio which is having the tangency is expected to get maximum returns for their portfolios in Sharpe’s SIM.

**CHAPTER 3**  
**RESEARCH DESIGN**

### **3.1 STATEMENT OF PROBLEM**

The investor has faced many problems while choosing the securities from the large set of securities. They do not know how much to invest, at what proportion they need to allocate their investments in different securities. So by using Sharpe Single Index Model Investors will get a clear picture of which Stocks is performing well and at which proportion they can invest. The present study entitles “Optimal Portfolio Construction using Sharpe’s Single Index Model” for these top 50 stocks from NSE were taken for calculation.

### **3.2 NEED FOR THE STUDY**

Every investor goes to confusion as how much to invest and to which stocks to consider for his portfolio. To avoid such confusions and difficulties Sharpe index model is constructed to minimize those attributes by helping investors to build strong portfolio keeping into account of their needs which suits them best. This topic was selected to prove by using Shapes Index Model investors can easily construct optimal portfolio which has less risk with high return.

### **3.3 OBJECTIVE OF THE STUDY**

- To calculate Risk and Return of all Stocks listed in Nifty 50.
- To get practical knowledge of Single Index Model.
- To calculate proportion for each stock to be invested in portfolio.
- To construct an Optimal Portfolio for Stocks listed in NIFTY 50.

### 3.4 SCOPE OF THE STUDY

The companies which are restricted are only for top 50 stocks in Nifty. Based on their performance 50 companies are selected from the NSE. The other factors are not for the analysis only the share price of the companies, index values, government securities, rate of return and beta value, residual values and cutoff point are calculated for the analysis of optimal portfolio construction.

### 3.5 RESEARCH METHODOLOGY

Secondary data is used for study. [www.yahoofinance.com](http://www.yahoofinance.com) and [www.nseindia.com](http://www.nseindia.com) were websites used for collecting data.. For the current study Nifty 50 index is considered as Market Index. Weekly NSE indices and prices of all the 50 stocks of Nifty 50 are taken for the period between April 1, 2013 to March 31, 2018.

The steps followed are

#### **Step 1: Framework for Mean Return on various stocks**

Mean return stock is calculated on the selected stocks in financial industry by analyzing the current price divided by the preceding previous price to estimate the percentage of the return for the current financial year.

$$R_i = \frac{P_t - P_{t-1}}{P_{t-1}}$$

**$R_i$  = i<sup>t</sup> security of stock**

**$P_t$  = stock of current period**

**$P_{t-1}$  = stock of preceding period**

## Step 2: Calculation of Excess Return to Beta

The relationship between the reward ratio and potential risk is known as excess return. The stocks of riskless stocks difference and expected return is known as excess return. Based on these excess returns of stocks Beta is ranked from ascending to descending order.

$$\text{Excess Return to Beta} = \frac{R_i - R_f}{\beta_i}$$

$R_i$  = return expected for stock i

$R_f$  = 365 days T-bills

$\beta_i$  = un-diversifiable risk of stock i

## Step 3: Calculation of Cut-Off point

Cut off point is calculated to get the complete picture about those stocks which are preferable to invest

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

$\sigma_{ei}^2$  = residual variance

$\beta$  = beta value of individual security i

$\sigma_m$  = risk of market

$R_i - R_f$  = excess return

#### **Step 4: Calculation of Absolute Proportion on Investment**

Absolute Proportion helps the investors to determine about the valuation of business and financial performance. Absolute values tries to know the companies intrinsic worth for the projected flows of the cash.

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

$\sigma_{ei}^2$  = Residual Variance

$R_i$  = Rate of Return

$R_f$  = 365 days Treasury Bills

$\beta_i$  = Beta value of Individual Security

#### **Step 5: Calculation of Relative Proportion on Investment**

Constant mix of investments means bringing the portfolios which are deviated away from the allocation of asset. This process is usually done like buying the assets which are underweight and selling the assets

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

$Z_i$  = Absolute Proportion

$\sum_{i=1}^n Z_i$  = Total of Selected Variance



### **3.6 LIMITATION OF THE STUDY**

- Only Risk and Return calculation done for the future outcomes
- Data collected is secondary data, which may include lack of information
- This study is not at all appropriate for short term investors
- The data of closing price of the securities is considered for 5 years which may not give exact impact.
- All the calculations were not be able to brought into the report as calculations were done on weekly basis

**CHAPTER 4**  
**DATA ANALYSIS AND INTERPRETATION**

**Table 4.1: Table showing descriptive statistics of top 50 Nifty stocks**

SI NO	COMPANY	MEAN RETURN	SD	BETA	$\sigma_{Ei}^2$
1	BHARTI INFRATEL LTD	0.3264	4.1977	0.89	14.5501
2	TATA MOTORS LTD	0.2010	4.5378	1.59	10.7913
3	BHARAT PETROLEUM CORPORATION LTD	0.5695	4.4212	2.57	-6.0573
4	AXIS BANK LTD	0.3888	4.6436	1.45	13.4125
5	INDIAN OIL CORPORATION	0.4346	4.2537	0.85	15.2931
6	STATE BANK OF INDIA	0.1902	4.8752	1.68	12.8264
7	BHARTI AIRTEL LTD	0.2263	3.9447	0.89	12.4900
8	OIL & NATURAL GAS CORPORATION LTD	0.0232	4.1962	1.11	12.8318
9	MAHINDRA AND MAHINDRA LTD	0.2762	3.3997	0.91	8.3478
10	HINDUSTAN PETROLEUM CORPORATIONS LTD	0.7861	5.1339	1.26	20.2025
11	HOUSING DEVELOPMENT FINANCE CORPORATION LTD	0.3910	3.4412	1.08	7.3202
12	ASIAN PAINTS LTD	0.3823	3.2534	0.96	7.0120
13	INDIABULLS HOUSING FINANCE LTD	0.7980	5.1576	1.66	15.9186
14	GRASIM INDUSTRIES LTD	0.4121	3.4561	1.2	6.3624
15	NTPC LTD	0.1362	3.6119	0.60	11.6503
16	MARUTI SUZUKI INDIA LTD	0.7701	3.4636	1.42	4.1798
17	DR. REDDY'S LABORATORIES LTD	0.1209	4.1553	0.04	17.2603
18	BAJAJ AUTO LTD	0.1177	3.1450	0.95	6.3924
19	POWER GRID CORPORATIONS OF INDIA LTD	0.2798	2.9459	0.72	6.6687
20	EICHER MOTORS LTD	1.0206	4.6911	0.75	19.8259

21	TATA STEEL LTD	0.3858	5.1699	1.12	21.8651
22	ADANI PORTS AND SPECIAL ECONOMIC ZONE LTD	0.4899	5.4030	1.5	20.4701
23	ITC LTD	0.1585	3.2382	0.76	8.2468
24	YES BANK LTD	0.6486	5.6431	1.9	17.8502
25	UPL LTD	-2.2061	8.6452	0.98	71.0164
26	KOTAK MAHINDRA BANK LTD	0.5123	3.2662	1.05	6.3941
27	HDFC BANK LTD	0.4573	2.4111	1.08	1.2918
28	JSW STEEL	0.6436	4.1440	0.61	15.7303
29	BAJAJ FINANCE LTD	1.1531	4.5924	1.16	15.8738
30	VEDANTA LTD	0.4342	6.3518	1.43	32.4182
31	HERO MOTOCROP LTD	0.3984	3.5651	0.96	9.1373
32	SUN PHARMACEUTICAL INDUSTRIES LTD	0.1448	4.2365	0.24	17.7246
33	ICICI BANK LTD	0.2701	4.6476	1.47	13.2233
34	COAL INDIA LTD	0.0464	4.0080	0.67	14.3239
35	BAJAJ FINSERV LTD	0.8247	4.1007	0.9	13.6757
36	HINDALCO INDUSTRIES LTD	0.4783	5.3792	1.52	19.9794
37	ZEE ENTERTAINMENT ENTERPRISES LTD	0.4597	3.5638	0.76	10.4616
38	RELIANCE INDUSTRIES LTD	0.3696	3.3245	1.20	5.4700
39	INDUSIND BANK LTD	0.6463	3.6917	1.33	6.7714
40	GAIL (INDIA) LTD	0.3217	4.1869	0.88	14.5281
41	CIPLA LTD	0.1913	3.4328	0.49	10.8534
42	ULTRATECH CEMENT LTD	0.3738	3.6253	1.45	4.9923
43	TITAN COMPANY LTD	0.6019	4.0802	0.85	13.8472

44	LARSEN & TURBO LTD	0.3792	3.9626	1.44	7.6637
45	WIPRO LTD	0.1377	3.3292	0.44	10.3331
46	HINDUSTAN UNILEVER LTD	0.4560	3.3915	0.85	8.7015
47	HCL TECHNOLOGIES LTD	0.4232	3.4882	0.43	11.4508
48	INFOSYS LTD	0.2316	3.3071	0.59	9.5875
49	TATA CONSULTANCY SERVICES LTD	0.2970	3.1477	0.85	7.1072
50	TECH MAHINDRA LTD	0.4480	3.7837	0.72	12.3068

**Source: Weekly data for 5 years has been compiled to Year on Year Average**

### **INTERPRETATION:**

1. From the above data, we can say that company that yields the highest return is BAJAJ FINANCE LIMITED and the company with lowest return is UPL LIMITED
2. Beta value of an industry indicates the relationship of company with that of market. Securities whose beta values are greater than 1 are highly sensitive. Higher Beta value of YES BANK indicates a greater volatility than the index.
3. Standard deviation measures the risk of the stock. From the above calculation UPL has higher risk and HDFC BANK LTD has the lowest risk.
4. Residual Variance shows the difference between return companies and market, UPL has the highest residual variance indicating the return of the company and the market is highest for the company. On the other hand Bharat Petroleum Corporation Ltd has lowest indicating that it is the least deviates from the market.

**Table 4.2: Table showing determination of excess return and ranking of the stocks  
(Risk free rate of return is 6.5 p.a. that is 0.125 per week)**

<b>COMPANY</b>	<b>MEAN RETURN (R<sub>i</sub>)</b>	<b>TREASURY BILLS (R<sub>f</sub>)</b>	<b>BETA</b>	<b>EXCESS RETURN WITH BETA</b>	<b>RANK</b>
BHARTI INFRATEL LTD	0.3264	0.125	0.89	0.2263	25
TATA MOTORS LTD	0.2010	0.125	1.59	0.0478	41
BHARAT PETROLEUM CORPORATION LTD	0.5695	0.125	2.57	0.1730	34
AXIS BANK LTD	0.3888	0.125	1.45	0.1819	31
INDIAN OIL CORPORATION	0.4346	0.125	0.85	0.3642	15
STATE BANK OF INDIA	0.1902	0.125	1.68	0.0388	43
BHARTI AIRTEL LTD	0.2263	0.125	0.89	0.1138	38
OIL & NATURAL GAS CORPORATION LTD	0.0232	0.125	1.11	-0.0917	47
MAHINDRA AND MAHINDRA LTD	0.2762	0.125	0.91	0.1662	36
HINDUSTAN PETROLEUM CORPORATIONS LTD	0.7861	0.125	1.26	0.5247	07
HOUSING DEVELOPMENT FINANCE CORPORATION LTD	0.3910	0.125	1.08	0.2463	20
ASIAN PAINTS LTD	0.3823	0.125	0.96	0.2680	19
INDIABULLS HOUSING FINANCE LTD	0.7980	0.125	1.66	0.4054	11
GRASIM INDUSTRIES LTD	0.4121	0.125	1.2	0.2393	22
NTPC LTD	0.1362	0.125	0.60	0.0187	45
MARUTI SUZUKI INDIA LTD	0.7701	0.125	1.42	0.4543	08
DR. REDDY'S LAB LTD	0.1209	0.125	0.04	-0.1025	48

BAJAJ AUTO LTD	0.1177	0.125	0.95	-0.0077	46
POWER GRID CORPORATIONS OF INDIA LTD	0.2798	0.125	0.72	0.215	28
EICHER MOTORS LTD	1.0206	0.125	0.75	1.1941	01
TATA STEEL LTD	0.3858	0.125	1.12	0.2329	23
ADANI PORTS AND SPECIAL ECONOMIC ZONE LTD	0.4899	0.125	1.5	0.2433	21
ITC LTD	0.1585	0.125	0.76	0.0441	42
YES BANK LTD	0.6486	0.125	1.9	0.2756	18
UPL LTD	-2.2061	0.125	0.98	-2.3788	50
KOTAK MAHINDRA BANK LTD	0.5123	0.125	1.05	0.3689	14
HDFC BANK LTD	0.4573	0.125	1.08	0.3077	16
JSW STEEL	0.6436	0.125	0.61	0.8502	03
BAJAJ FINANCE LTD	1.1531	0.125	1.16	0.8863	02
VEDANTA LTD	0.4342	0.125	1.43	0.2162	27
HERO MOTOCROP LTD	0.3984	0.125	0.96	0.2849	17
SUN PHARMACEUTICAL INDUSTRIES LTD	0.1448	0.125	0.24	0.0825	40
ICICI BANK LTD	0.2701	0.125	1.47	0.0987	39
COAL INDIA LTD	0.0464	0.125	0.67	-0.1173	49
BAJAJ FINSERV LTD	0.8247	0.125	0.9	0.7774	04
HINDALCO INDUSTRIES LTD	0.4783	0.125	1.52	0.2324	24
ZEE ENTERTAINMENT ENTERPRISES LTD	0.4597	0.125	0.76	0.4404	10
RELIANCE INDUSTRIES	0.3696	0.125	1.20	0.2038	29

INDUSIND BANK LTD	0.6463	0.125	1.33	0.3920	12
GAIL (INDIA) LTD	0.3217	0.125	0.88	0.2235	26
CIPLA LTD	0.1913	0.125	0.49	0.1353	37
UTRATECH CEMENT LTD	0.3738	0.125	1.45	0.1716	35
TITAN COMPANY LTD	0.6019	0.125	0.85	0.5611	06
LARSEN & TURBO LTD	0.3792	0.125	1.44	0.1765	33
WIPRO LTD	0.1377	0.125	0.44	0.0289	44
HINDUSTAN UNILEVER LTD	0.4560	0.125	0.85	0.3894	13
HCL TECHNOLOGIES LTD	0.4232	0.125	0.43	0.6935	05
INFOSYS LTD	0.2316	0.125	0.59	0.1807	32
TATA CONSULTANCY SERVICES LTD	0.2970	0.125	0.85	0.2024	30
TECH MAHINDRA LTD	0.4480	0.125	0.72	0.4486	09

**INTERPRETATION:**

1. From the above calculation, Treasury bill for the above calculation is 6.50 p.a. that is 0.125 per week. It remains same for all the companies.
2. Based on excess return to Beta EICHER MOTORS LTD is ranked 1<sup>st</sup>, ZEE ENTERTAINMENT ENTERPRISES LTD takes the 10<sup>th</sup> rank, BHARTI INFRATEL LTD is ranked 25, SUN PHARMACEUTICAL INDUSTRIES LTD takes the 40<sup>th</sup> rank and UPL LTD is ranked the lowest.



**Table 4.3: Table showing determination of Cut-off Point**

Rank	Ranked companies	$((R_i - R_f) * b) / RV$	Cumulative	$B^2/RV$	Cumulative	Cut-off Point
1	EICHER MOTORS LTD	0.0267	0.0267	16.6028	16.6028	0.1184
2	BAJAJ FINANCE LTD	0.0752	0.1019	17.9103	34.5131	0.2938
3	JSW STEEL	0.0201	0.122	18.5027	53.0158	0.3271
4	BAJAJ FINSERV LTD	0.0460	0.168	17.5906	70.6064	0.3859
5	HCL TECHNOLOGIES LTD	0.0112	0.1792	16.5119	87.1183	0.3964
6	TITAN COMPANY LTD	0.0293	0.2085	24.6805	111.7988	0.4129
7	HINDUSTAN PETROLEUM CORPORATIONS LTD	0.0412	0.2497	38.5042	150.303	0.4275
8	MARUTI SUZUKI INDIA LTD	0.2192	0.4689	9.2006	159.5036	0.4394
9	TECH MAHINDRA LTD	0.0189	0.4878	27.4331	186.9367	0.4398
10	ZEE ENTERTAINMENT ENTERPRISES LTD	0.0243	0.5121	23.7551	210.6918	0.4398
11	INDIABULLS HOUSING FINANCE LTD	0.0702	0.5823	39.2643	249.9561	0.4354
12	INDUSIND BANK LTD	0.1024	0.6847	17.2760	267.2321	0.4284
13	HINDUSTAN UNILEVER LTD	0.0323	0.717	22.3452	289.5773	0.4265
14	KOTAK MAHINDRA BANK	0.0636	0.7806	17.3349	306.9122	0.4212

15	INDIAN OIL CORPORATION	0.0172	0.7978	41.9869	348.8991	0.4198
16	HDFC BANK LTD	0.2778	1.0756	4.1984	353.0975	0.3839
17	HERO MOTOCROP LTD	0.0287	1.1043	32.0842	385.1817	0.3805
18	YES BANK LTD	0.0557	1.16	64.7735	449.9552	0.3737
19	ASIAN PAINTS LTD	0.0352	1.1952	26.1957	476.1509	0.3694
20	HOUSING DEVELOPMENT FINANCE CORPORATION LTD	0.0392	1.2344	29.7211	505.872	0.3637
21	ADANI PORTS AND SPECIAL ECONOMIC ZONE LTD	0.0267	1.2611	84.1468	590.0188	0.3599
22	GRASIM INDUSTRIES LTD	0.0541	1.3152	26.5931	616.6119	0.3526
23	TATA STEEL LTD	0.0134	1.3286	93.8992	710.5111	0.3508
24	HINDALCO INDUSTRIES LTD	0.0269	1.3555	85.9572	796.4683	0.3473
25	BHARTI INFRATEL LTD	0.0123	1.3678	64.2979	860.7662	0.3457
26	GAIL (INDIA) LTD	0.0119	1.3797	64.9961	925.7623	0.3441
27	VEDANTA LTD	0.0136	1.3933	149.9289	1075.6912	0.3421
28	POWER GRID CORPORATIONS OF INDIA LTD	0.0167	1.41	31.0172	1106.7084	0.3397
29	RELIANCE INDUSTRIES LTD	0.0537	1.4637	26.8357	1133.5441	0.3317

30	TATA CONSULTANCY SERVICES LTD	0.0206	1.4843	35.1228	1168.6669	0.3288
31	AXIS BANK LTD	0.0285	1.5128	73.7230	1242.3899	0.3239
32	INFOSYS LTD	0.0066	1.5194	53.0640	1295.4539	0.3228
33	LARSEN & TURBO LTD	0.0478	1.5672	43.4136	1338.8675	0.3148
34	BHARAT PETROLEUM CORPORATION LTD	-0.1886	1.3786	-35.022	1303.8455	0.3544
35	UTRATECH CEMENT LTD	0.0723	1.4509	29.095	1332.9405	0.3366
36	MAHINDRA AND MAHINDRA LTD	0.0165	1.4674	50.2414	1383.1819	0.3328
37	CIPLA LTD	0.0030	1.4704	80.2137	1463.3956	0.3318
38	BHARTI AIRTEL LTD	0.0072	1.4776	109.7345	1573.1301	0.3288
39	ICICI BANK LTD	0.0161	1.4937	133.9645	1707.0946	0.3207
40	TATA MOTORS LTD	0.0112	1.5049	225.7654	1932.86	0.3077
41	SUN PHARMACEUTICAL INDUSTRIES LTD	0.0003	1.5052	214.8436	2147.7036	0.3076
42	ITC LTD	0.0031	1.5083	187.0916	2334.7952	0.3039
43	STATE BANK OF INDIA	0.0085	1.5168	330.4962	2665.2914	0.2927
44	WIPRO LTD	0.0005	1.1573	357.9972	3023.2886	0.2917
45	NTPC LTD	0.0006	1.5179	624.1232	3647.4118	0.2901
46	BAJAJ AUTO LTD	-0.0011	1.5168	-831.888	2815.5238	0.2823

47	OIL & NATURAL GAS CORPORATION LTD	-0.0088	1.148	-139.915	2675.6088	0.2758
48	DR. REDDY'S LABORATORIES LTD	-9.5016	-8.3536	-168.393	2507.2158	0.2758
49	COAL INDIA LTD	-0.0037	-8.3573	-122.099	2385.1168	0.2736
50	UPL LTD	-0.0322	-8.3895	-29.8555	2355.2613	0.2671

### INTERPRETATION

1. Based on excess of return to Beta ratio the above table, company is ranked from the highest value
2. From the above calculation we found out firstly calculation of absolute return of all fifty companies from which cumulative value was drawn.
3. In the next stage we calculated for all fifty companies from which cumulative values was drawn
4. Lastly with the help of above calculation cut off point was derived which helped us in knowing the most eligible companies.

The cut off value is 0.4398. The stocks which are above the cut off rate are taken into consideration for further calculations.

**Table 4.4: Table showing identification of Stocks which constitutes Optimum Portfolio**

<b>SI NO</b>	<b>COMPANY NAME</b>
1	EICHER MOTORS LIMITED
2	BAJAJ FINANCE LIMITED
3	JSW STEEL
4	BAJAJ FINSERV LIMITED
5	HCL TECHNOLOGIES LIMITED
6	TITAN COMPANY LIMITED
7	HINDUSTAN PETROLEUM CORPORATION LIMITED
8	MARUTI SUZUKI INDIA LTD
9	TECH MAHINDRA LIMITED
10	ZEE ENTERTAINMENT ENTERPRISES LIMITED

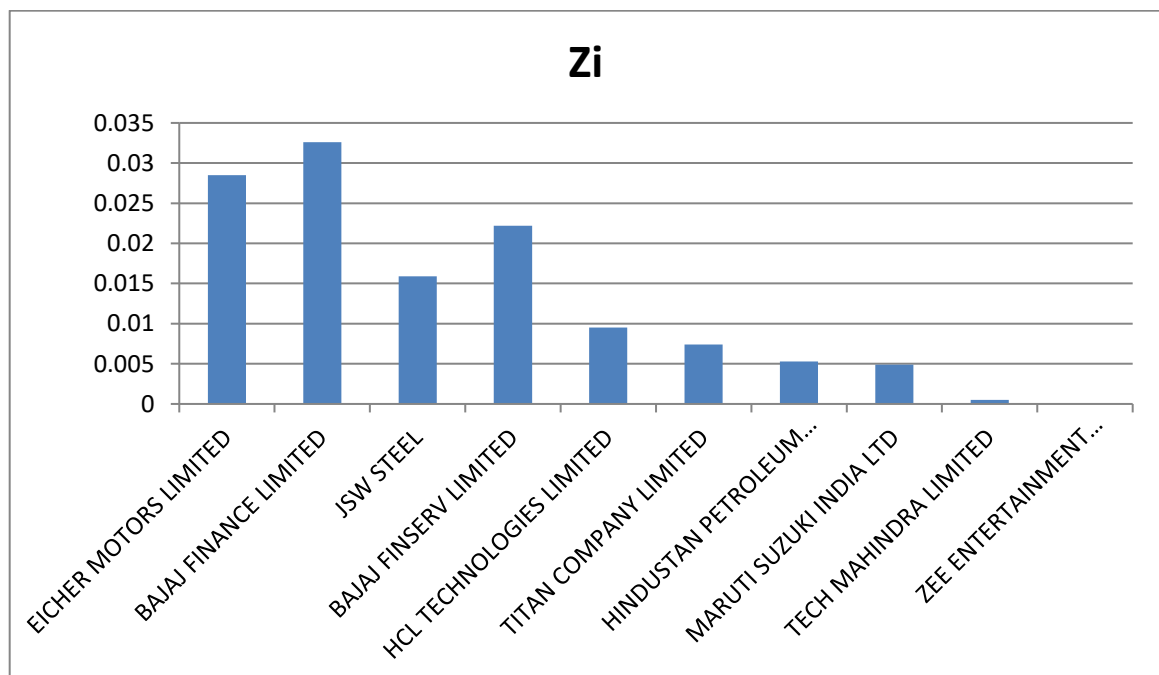
From the above table we are able to see the list of ten companies which are eligible for Construction of Optimal Portfolio. These ten companies are selected with the help of Risk and Return.

**Table 4.5: Table showing determination of Absolute Proportion on Investment**

SL NO	COMPANY	Mean	TB	BETA	RV	CUT OFF	Zi
1	EICHER MOTORS LIMITED	1.0206	0.125	0.75	19.8259	0.1184	0.0285
2	BAJAJ FINANCE LIMITED	1.1531	0.125	1.16	15.8738	0.2938	0.0386
3	JSW STEEL	0.6436	0.125	0.61	15.7303	0.3271	0.0159
4	BAJAJ FINSERV LIMITED	0.8247	0.125	0.9	13.6757	0.3859	0.0222
5	HCL TECHNOLOGIES LIMITED	0.4212	0.125	0.43	11.4508	0.3964	0.0095
6	TITAN COMPANY LIMITED	0.6019	0.125	0.85	13.8472	0.4129	0.0074
7	HINDUSTAN PETROLEUM CORPORATION LIMITED	0.7861	0.125	1.26	20.2025	0.4275	0.0053
8	MARUTI SUZUKI INDIA LTD	0.7701	0.125	1.42	4.1798	0.4394	0.0049
9	TECH MAHINDRA LIMITED	0.448	0.125	0.72	12.3068	0.4398	0.0005
10	ZEE ENTERTAINMENT ENTERPRISES LIMITED	0.4597	0.125	0.76	10.4616	0.4398	0.0000

Absolute Proportion on Investment helps investors to estimate performance of various stocks which are selected for construction of Portfolio

**Graph 4.5.1: Graph showing the Absolute Proportion**



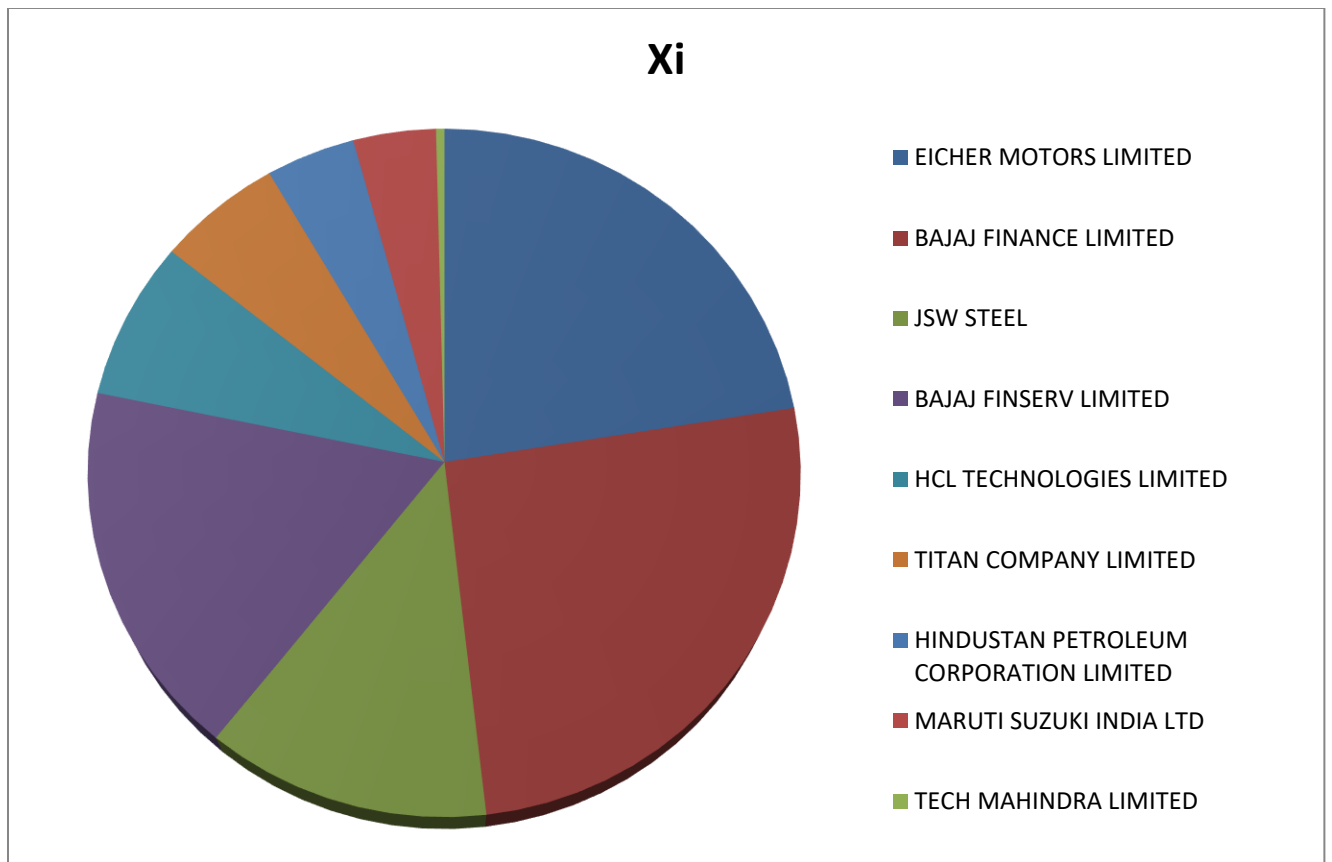
The table shows a list of ten companies for which absolute proportion on investment has been calculated. Absolute proportion helps investors to estimate performance of various stocks which are selected for construction of portfolio. Usually absolute proportion tries to vary with the companies intrinsic values of cash.

Bajaj Finance Limited has got the highest proportion of stock that is 0.0326 and Zee Entertainment has got the least proportion of stock that is 0.0000

**Table 4.6: Table showing determination of Relative Proportion on Investment**

<b>SL NO</b>	<b>COMPANY</b>	<b>Zi</b>	<b>Xi</b>
1	EICHER MOTORS LIMITED	0.0285	22.4763%
2	BAJAJ FINANCE LIMITED	0.0326	25.7098%
3	JSW STEEL	0.0159	12.5394%
4	BAJAJ FINSERV LIMITED	0.0222	17.5079%
5	HCL TECHNOLOGIES LIMITED	0.0095	7.4921%
6	TITAN COMPANY LIMITED	0.0074	5.8360%
7	HINDUSTAN PETROLEUM CORPORATION LIMITED	0.0053	4.1798%
8	MARUTI SUZUKI INDIA LTD	0.0049	3.8644%
9	TECH MAHINDRA LIMITED	0.0005	0.3943%
10	ZEE ENTERTAINMENT ENTERPRISES LIMITED	0.0000	0.0000%

**Graph 4.6.1: Graph showing relative proportion of Investment**



### **INTERPRETATION**

The above graph contains a list of ten companies and its Relative proportion on investment. BAJAJ FINANCE LIMITED has the highest volatility of relative proportion on investment with 25.7078% followed by EICHER MOTORS LIMITED, BAJAJ FINSERV LIMITED, JSW STEEL, HCL TECHNOLOGIES LIMITED, TITAN COMPANY LIMITED, HINDUSTAN PETROLEUM CORPORATION LIMITED, MARUTI SUZUKI INDIA LIMITED, TECH MAHINDRA LIMITED AND ZEE ENTERTAINMENT ENTERPRISES LIMITED with 22.4763%, 17.5079%, 12.5397%, 7.4921%, 5.8360%, 4.1798%, 3.8644%, 0.3943% and 0.0000% respectively. Since ZEE ENTERTAINMENT ENTERPRISES LIMITED has the least volatility of relative proportion on investment it is suggested not to make investment on this stock.



**CHAPTER 5**  
**FINDINGS, SUGGESTIONS AND CONCLUSION**

## 5.1 FINDINGS

- It is estimated that the EICHER MOTORS LTD has got the highest return of 1.0206 compared to all other 50 companies which are selected from NSE Nifty for Construction of Portfolio
- BHARAT PETROLEUM CORPORATION LTD has the highest volatile of stock due to systematic risk  $\beta = 2.57$  and DR. REDDY'S LABORATORIES LTD has low volatile of stock due to systematic risk  $\beta = 0.04$  ( $\beta > 1$ )
- UPL LTD has the highest risk of 71.0164 and BHARAT PETROLEUM CORPORATION LTD has the lowest risk of -6.0573
- Standard deviation measures the investors volatility of annual stock of returns
- The 365 days T-BILLS are selected from RESERVE BANK OF INDIA i.e. 6.5% per annum (0.125% per week) for calculating excess return of stock.
- For construction of Optimal Portfolio 50 companies was taken from NSE website and EICHER MOTORS LTD is ranked as the first to invest.
- For Optimal portfolio construction 50 companies are selected from NSE website and 10 companies are preferable for construction of the portfolio.
- It is observed that Sharpe's single index model gives an easy mechanism of constructing an optimal portfolio of stocks for a rational investor by analyzing the reason behind the inclusion of securities in the portfolio with their respective weights.

## 5.2 SUGGESTIONS

- According to the study BAJAJ FINANCE LTD has the highest proportion of investment in the constructed portfolio i.e. 25.7098%. in order to earn maximum returns the investors can invest maximum money in the BAJAJ FINANCE LTD stock
- During the study the investors are asked to ignore UPL LTD, COAL INDIA LTD, BAJAJ AUTO LTD, DR. REDDY'S LABORATORIES LTD and OIL & NATURAL GAS CORPORATION LTD as they all yield negative returns.
- The suggestions and recommendations are purely based on Sharpe's Single Index Model where to advice for the investors which one is preferable to purchase or sell the securities.

### 5.3 CONCLUSION

- Study adopts an empirical research design to build optimal portfolio with leverage of Sharpe's Single Index Model, the stocks or the companies are selected from the constituents of Nifty 50
- Portfolio management helps investor to get clear picture about the return and risk it also helps investors to know which stock is preferable and which is having less risk
- Based on this 10 companies were selected for construction of optimal portfolio they are EICHER MOTORS LIMITED, BAJAJ FINANCE LIMITED, JSW STEEL, BAJAJ FINSERV LIMITED, HCL TECHNOLOGIES LIMITED, TITAN COMPANY LIMITED, HINDUSTAN PETROLEUM CORPORATION LIMITED, MARUTI SUZUKI INDIA LTD, TECH MAHINDRA LIMITED and ZEE ENTERTAINMENT ENTERPRISES LIMITED.
- The diversification of investment helps the investors to achieve highest portfolio return at the low risk and Sharpes Index Model helps the investors to select securities for the construction of optimal portfolio
- It is clear that the construction of optimal portfolio investment by using SIM is easier and more comfortable.
- SIM can show how risky a security is, if the security is held in a well diversified portfolio.
- This study is extended to large sample that is 50 companies to get a accurate result.
- This study will contribute a lot in the field of investment finance.

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## **WEBSITE**

- [www.bseindia.com](http://www.bseindia.com)
- [www.nseindia.com](http://www.nseindia.com)
- [www.rbi.com](http://www.rbi.com)
- [www.moneycontrol.com](http://www.moneycontrol.com)
- [www.riskcontrol.com](http://www.riskcontrol.com)

## ANNEXURE

COMPANY	MEAN RETURN
BHARTI INFRATEL LTD	0.3264
TATA MOTORS LTD	0.2010
BHARAT PETROLEUM CORPORATION LTD	0.5695
AXIS BANK LTD	0.3888
INDIAN OIL CORPORATION	0.4346
STATE BANK OF INDIA	0.1902
BHARTI AIRTEL LTD	0.2263
OIL & NATURAL GAS CORPORATION LTD	0.0232
MAHINDRA AND MAHINDRA LTD	0.2762
HINDUSTAN PETROLEUM CORPORATIONS LTD	0.7861
HOUSING DEVELOPMENT FINANCE CORPORATION LTD	0.3910
ASIAN PAINTS LTD	0.3823
INDIABULLS HOUSING FINANCE LTD	0.7980
GRASIM INDUSTRIES LTD	0.4121
NTPC LTD	0.1362
MARUTI SUZUKI INDIA LTD	0.7701
DR. REDDY'S LABORATORIES LTD	0.1209
BAJAJ AUTO LTD	0.1177
POWER GRID CORPORATIONS OF INDIA LTD	0.2798
EICHER MOTORS LTD	1.0206



TATA STEEL LTD	0.3858
ADANI PORTS AND SPECIAL ECONOMIC ZONE LTD	0.4899
ITC LTD	0.1585
YES BANK LTD	0.6486
UPL LTD	-2.2061
KOTAK MAHINDRA BANK LTD	0.5123
HDFC BANK LTD	0.4573
JSW STEEL	0.6436
BAJAJ FINANCE LTD	1.1531
VEDANTA LTD	0.4342
HERO MOTOCROP LTD	0.3984
SUN PHARMACEUTICAL INDUSTRIES LTD	0.1448
ICICI BANK LTD	0.2701
COAL INDIA LTD	0.0464
BAJAJ FINSERV LTD	0.8247
HINDALCO INDUSTRIES LTD	0.4783
ZEE ENTERTAINMENT ENTERPRISES LTD	0.4597
RELIANCE INDUSTRIES LTD	0.3696
INDUSIND BANK LTD	0.6463
GAIL (INDIA) LTD	0.3217
CIPLA LTD	0.1913
ULTRATECH CEMENT LTD	0.3738

TITAN COMPANY LTD	0.6019
LARSEN & TURBO LTD	0.3792
WIPRO LTD	0.1377
HINDUSTAN UNILEVER LTD	0.4560
HCL TECHNOLOGIES LTD	0.4232
INFOSYS LTD	0.2316
TATA CONSULTANCY SERVICES LTD	0.2970
TECH MAHINDRA LTD	0.4480

Compilation is based on

1. Data: Weekly share prices of sampled securities and weekly market index
2. Period: 1<sup>st</sup> April 2013 to 31<sup>st</sup> March 2018



**ACHARYA INSTITUTE OF TECHNOLOGY  
DEPARTMENT OF MBA**

**PROJECT(17MBAPR407) -WEEKLY REPORT**

**NAME OF THE STUDENT: V.H.RAMASUBRAMANIAN**

**INTERNAL GUIDE: MALLIKA.B.K**

**USN: 1IA17MBA59**

**COMPANY NAME: ANANDRATHI SHARES AND STOCK BROKERS  
LIMITED**

WEEK	WORK UNDERTAKEN	EXTERNAL GUIDE SIGNATURE	INTERNAL GUIDE SIGNATURE
3 <sup>rd</sup> Jan 2019 – 9 <sup>th</sup> Jan 2019	Industry Profile and Company Profile		
10 <sup>th</sup> Jan 2019 – 17 <sup>th</sup> Jan 2019	Preparation of Research instrument for data collection		
18 <sup>th</sup> Jan 2019 – 25 <sup>th</sup> Jan 2019	Data collection		
26 <sup>th</sup> Jan 2019 – 2 <sup>nd</sup> Feb 2019	Analysis and finalization of report		
3 <sup>rd</sup> Feb 2019 – 9 <sup>th</sup> Feb 2019	Findings and Suggestions		
10 <sup>th</sup> Feb 2019 – 16 <sup>th</sup> Feb 2019	Conclusion and Final Report		



Company Seal

College Seal

HOD Signature

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