



AN EMPIRICAL STUDY ON RETURN PROFILE OF NIFTY

A PROJECT REPORT
submitted by

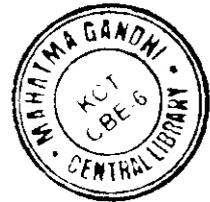
BHARATHI P
Reg. No. 0720400009

In partial fulfilment of the requirements
for the award of the degree

of

MASTER OF BUSINESS ADMINISTRATION

April, 2009

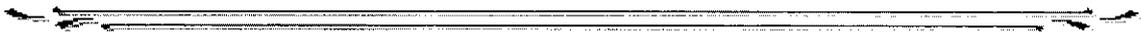


KCT Business School
Department of Management Studies
Kumaraguru College of Technology

(An autonomous institution affiliated to Anna University, Coimbatore)

Coimbatore-641 006

Certificate





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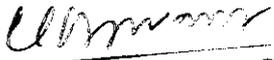
BONAFIDE CERTIFICATE

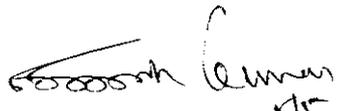
Certified that this project report titled “**An Empirical Study on Return Profile of NIFTY**” is the bonafide work of **Ms. Bharathi P (0720400009)** who carried out the research under my supervision. Certified further, that to the best of my knowledge the work reported herein does not form part of any other project report or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.


Project Guide


Director

Viva – Voce Examination held on27/5/09.....


Internal Examiner 5-5-09


External Examiner SF



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PROJECT COMPLETION CERTIFICATE

This is to certify that Miss. P. Bharathi (Roll No. 072040009), a student of KCT Business School, Kumaraguru College of Technology, Coimbatore, has successfully completed her project work titled "An empirical study on return profile of NIFTY" in our organization for a period of one month between (18th Jan, 2009 to 18th Apr, 2009).

During the tenure her performance was Good.

Signature of the
Organization Guide

Name and Designation

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Acknowledgement

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At the Outset I am grateful to our honourable Correspondent **Mr. Balasubramanian M**, and other college trust members for allowing me to develop the project in their institution.

I would like to express my sincere thanks to **Dr. S V Devanathan**, Director, Department of management studies, **Kumaraguru College of Technology**, who provided me an opportunity to do this project.,

I specially thank **Ms. Sangeetha S and Mr. A. Senthil Kumar**, Lecturers, KCT Business School, for their kind co-operation, extensive guidance, valued advice and support as well, which enabled me to complete my project.

I express my sincere gratitude to **Mr. Thiyagarajan, Franchisee Sharewealth Securities Ltd, Coimbatore**, for giving me the opportunity to carry out the project at his concern and for his valuable guidance all through.

I express my profound gratitude to my **Family Members & Friends** for their help and encouragement. I also take this opportunity to thank all those creative minds and helpful hearts for their assistance in making this project work.

BHARATHI. P

Declaration



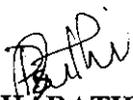
DECLARATION

I, hereby declare that this project report entitled as “**An Empirical Study on Return Profile of NIFTY**”, has been undertaken for academic purpose submitted to Anna University, Coimbatore in partial fulfilment of requirements for the award of the degree of Master of Business Administration. The project report is the record of the original work done by me under the guidance of *Ms. Sangeetha S and Mr. A. Senthil Kumar*, Lecturers, KCT Business School, Department of Management Studies during the academic year 2008-2009.

I, also declare hereby, that the information given in this report is correct to the best of my knowledge and belief.

Date:

Place: Coimbatore


BHARATHI. P

Contents



CONTENTS

CHAPTER NO.	DESCRIPTION	PAGE NO.
	Acknowledgement	iv
	Declaration	v
	Contents	vi
	List of Tables	vii
	Abstract	ix
1	INTRODUCTION	
	1.1 About the Study	1
	1.2 Introduction to the Company	5
	1.3 Introduction to the Industry	10
2	THEME OF THE PROJECT	13
	2.1 Objectives of the Project	13
	2.2 Scope of the Project	13
	2.3 Limitations of the Project	14
	2.4 Research Methodology	14
	2.5 Review of Literature	17
3	ANALYSIS AND INTERPRETATION	26
4	FINDINGS, SUGGESTIONS AND CONCLUSION	69
	BIBLIOGRAPHY	
	ANNEXURE	

List of Tables



LIST OF TABLES

TABLE No	TABLE NAME	PAGE No
3.1	Table showing the companies ranked on the basis of logarithmic mean returns	26
3.2	Table showing the companies ranked on the basis of Standard deviation	27
3.3	Table showing the companies ranked on the basis of maximum returns	28
3.4	Table showing the companies ranked on the basis of minimum returns	29
3.5	Table showing the companies ranked on the basis of range	30
3.6	Table showing the companies ranked on the basis of coefficient of variation	31
3.7	Table showing the companies having high Positive correlation with ABB	32
3.8	Table showing the companies having negative correlation with ABB	32
3.9	Table showing the companies having high Positive correlation with ACC	34
3.10	Table showing the companies having negative correlation with ACC	34
3.11	Table showing the companies having high Positive correlation with Ambuja cement	35
3.12	Table showing the companies having negative correlation with Ambujacement	35
3.13	Table showing the companies having negative correlation with Ambujacement	36
3.14	Table showing the companies having negative correlation with Cipla	36
3.15	Table showing the companies having high Positive correlation with Gail	37

TABLE No	TABLE NAME	PAGE No
3.16	Table showing the companies having high Positive correlation with Gail	37
3.17	Table showing the companies having high Positive correlation with Grasim	38
3.18	Table showing the companies having negative correlation with Grasim	38
3.19	Table showing the companies having high Positive correlation with Bhartiairtel	39
3.20	Table showing the companies having negative correlation with Bhartiairtel	39
3.21	Table showing the companies having high Positive correlation with HDFC	40
3.22	Table showing the companies having negative correlation with HDFC	40
3.23	Table showing the companies having high Positive correlation with HDFC Bank	41
3.24	Table showing the companies having high negative correlation with HDFC Bank	41
3.25	Table showing the companies having high Positive correlation with Herohonda	42
3.26	Table showing the companies having negative correlation with Herohonda	42
3.27	Table showing the companies having high Positive correlation with ICICI	43
3.28	Table showing the companies having negative correlation with ICICI	43
3.29	Table showing the companies having high Positive correlation with Infosys Tech	44

TABLE No	TABLE NAME	PAGE No
3.30	Table showing the companies having negative correlation with Infosys Tech	44
3.31	Table showing the companies having high Positive correlation with ITC	45
3.32	Table showing the companies having negative correlation with ITC	45
3.33	Table showing the companies having high Positive correlation with L&T	46
3.34	Table showing the companies having negative correlation with L&T	46
3.35	Table showing the companies having high Positive correlation with M&M	47
3.36	Table showing the companies having negative correlation with M&M	47
3.37	Table showing the companies having high Positive correlation with Maruti	48
3.38	Table showing the companies having negative correlation with Maruti	48
3.39	Table showing the companies having high Positive correlation with ONGC	49
3.40	Table showing the companies having negative correlation with ONGC	49
3.41	Table showing the companies having high Positive correlation with PNB	50
3.42	Table showing the companies having negative correlation with PNB	50
3.43	Table showing the companies having high Positive correlation with Ranbaxy	51
3.44	Table showing the companies having negative correlation with Ranbaxy	51

TABLE No	TABLE NAME	PAGE No
3.45	Table showing the companies having high Positive correlation with Reliance Industries	52
3.46	Table showing the companies having negative correlation with Reliance Industries	52
3.47	Table showing the companies having high Positive correlation with SAIL	53
3.48	Table showing the companies having negative correlation with SAIL	53
3.49	Table showing the companies having high Positive correlation with Satyam	54
3.50	Table showing the companies having negative correlation with Satyam	54
3.51	Table showing the companies having high Positive correlation with SBI	55
3.52	Table showing the companies having negative correlation with SBI	55
3.53	Table showing the companies having high Positive correlation with BHEL	56
3.54	Table showing the companies having negative correlation with BHEL	56
3.55	Table showing the companies having high Positive correlation with Hindalco	56
3.56	Table showing the companies having negative correlation with Hindalco	57
3.57	Table showing the companies having high Positive correlation with Hindustan unilever	57
3.58	Table showing the companies having negative correlation with Hindustan unilever	58
3.59	Table showing the companies having high Positive correlation with Tatacommunications	59

3.60	Table showing the companies having negative correlation with Tata Communications	59
3.61	Table showing the companies having high Positive correlation with Tata motors	60
3.62	Table showing the companies having negative correlation with Tata motors	60
3.63	Table showing the companies having high Positive correlation with Tata steels	61
3.64	Table showing the companies having negative correlation with Tata Steels	61
3.65	Table showing the companies having high Positive correlation with TCS	62
3.66	Table showing the companies having negative correlation with Sail	62
3.67	Table showing the companies having high Positive correlation with Zeel	63
3.68	Table showing the companies having negative correlation with Zee	63
3.69	Table showing the companies having high Positive correlation with WIPRO	64
3.70	Table showing the companies having negative correlation with WIPRO	64
3.71	Table showing the companies having high Positive correlation with the Index	65
3.72	Table showing the companies whose beta is less than 1	66
3.73	Table showing the companies whose beta is greater 1	67
3.74	Table showing the companies whose beta is equal to 1	68

Abstract



ABSTRACT

Nifty consists of 50 stocks which help to recognize the broad trends in the market. The investors use index as a benchmark for evaluating the investment portfolio. Unless the investors know how to choose the stocks that reflect the market movement, it is difficult for them to allocate funds rationally among stocks which would earn returns par with the market returns. The study has been taken up to analyze the return profile of nifty. This study examines the nifty index returns and its constituent scrip returns over the three years period (2006-2008). The companies were ranked on the basis of mean, standard deviation, maximum returns, minimum returns, range, coefficient of variation and beta. The relationship between the Index and its constituent scrips, and the relationship among the constituent scrips were studied using correlation. It would be helpful for the investors to choose the stocks based upon their risk taking capability.

Introduction



CHAPTER I

INTRODUCTION

1.1 Introduction to the study

The Indian capital market is more than a century old. Its history goes back to 1875, when 22 brokers formed the Bombay Stock Exchange (BSE). Over the period, the Indian securities market has evolved continuously to become one of the most dynamic, modern, and efficient securities markets in Asia.

Today, Indian market confirms to best international practices and standards both in terms of structure and in terms of operating efficiency. Indian securities markets are mainly governed by a) The Company's Act 1956, b) the Securities Contracts (Regulation) Act 1956 (SCRA Act), and c) the Securities and Exchange Board of India (SEBI) Act, 1992.

The Indian securities market consists of primary (new issues) as well as secondary (stock) market in both equity and debt. The primary market provides the channel for sale of new securities, while the secondary market deals in trading of securities previously issued. The issuers of securities issue (create and sell) new securities in the primary market to raise funds for investment. They do so either through public issues or private placement. There are two major types of issuers who issue securities. The corporate entities issue mainly debt and equity instruments (shares, debentures, etc.), while the governments (central and state governments) issue debt securities (dated securities, treasury bills). The secondary market enables participants who hold securities to adjust their holdings in response to changes in their assessment of risk and return. A variant of secondary market is the forward market, where securities are traded for future delivery and payment in the form of futures and options. The futures and options can be on individual stocks or basket of stocks like index. Two exchanges, namely National Stock Exchange (NSE) and the Stock Exchange, Mumbai

(BSE) provide trading of derivatives in single stock futures, index futures, single stock options and index options. Derivatives trading commenced in India in June 2000.

Stock market indices:

Stock market indices are the barometers of the stock market. They mirror the stock market behavior. With some 7000 companies listed on Bombay stock exchange, it is not possible to look at the prices of every stock to find out whether the market movement is upward or downward. The indices give a broad outline of the market movement and represent the market. Some of the stock market indices are BSE sensex, BSE-200, Dollex, NSE-50, CRISIL-500, Business line 250 and RBI indices of ordinary shares.

The two major indicators of Indian capital market- SENSEX & NIFTY:

The Sensex is an "index". An index is basically an indicator. It gives you a general idea about whether most of the stocks have gone up or most of the stocks have gone down. The Sensex is an indicator of all the major companies of the BSE. The Nifty is an indicator of all the major companies of the NSE. If the Sensex goes up, it means that the prices of the stocks of most of the major companies on the BSE have gone up. If the Sensex goes down, this tells you that the stock price of most of the major stocks on the BSE have gone down. Just like the Sensex represents the top stocks of the BSE, the Nifty represents the top stocks of the NSE. The Bombay Stock Exchange (BSE) and the National Stock Exchange of India Ltd (NSE) are the two primary exchanges in India. In addition, there are 22 Regional Stock Exchanges. However, the BSE and NSE have established themselves as the two leading exchanges and account for about 80 per cent of the equity volume traded in India.

Most of the stock trading in the country is done through the BSE & the NSE. There are many other types of index. Unless stock markets provide professionalized service, small investors and foreign investors will not be interested in capital market operations. And capital market being one of the major source of long-term finance for

industrial projects, India cannot afford to damage the capital market path. In this regard NSE gains vital importance in the Indian capital market.

Differences between the indices:

The indices are different from each other to a certain extent. Sometimes the sensex may move up by 100 points but NSE nifty may move up only 40 points. The main factors that differentiate one index from the other are:

- The number of the component stocks
- The composition of stocks
- The weights
- Base year

S&P CNX Nifty:

The S&P CNX Nifty is the headline index on the National Stock Exchange of India Ltd (NSE). The S&P CNX Nifty tracks the behavior of a portfolio of blue chip companies, the largest and most liquid Indian securities. It includes 50 of the approximately 935 companies listed on the NSE, captures approximately 60% of its equity market capitalization and is a true reflection of the Indian stock market. The S&P CNX Nifty covers 22 sectors of the Indian economy and offers investment managers exposure to the Indian market in one efficient portfolio. The index has been trading since April 1996 and is well suited for benchmarking, index funds and indexbased derivatives.

Partnership

The S&P CNX Nifty is owned and managed by India Index Services and Products Ltd.(IISL), which is a joint venture between the NSE and CRISIL. IISL is India's first specialized company focused on the index as a core product. IISL has a

licensing and marketing agreement with Standard & Poor's, who are world leaders in index services.

Market Representation:

The S&P CNX Nifty stocks represent about 60% of the total market capitalization of the National Stock Exchange (NSE)

Eligible Criteria:

The constituents and the criteria for the selection judge the effectiveness of the index. The S&P CNX Nifty is unique in this respect. Selection of the index set is based on four criteria:

- Liquidity (Impact Cost)
- Market Capitalization
- Floating Stock
- Others

- **Liquidity**

For inclusion in the index, the security should have traded at an average impact cost of 0.75% or less during the last six months, for 90% of the observations. Impact cost is the cost of executing a transaction in a security in proportion to the weight of its market capitalization against the index market capitalization, at any point in time. This is the percentage mark up suffered while buying/selling the desired quantity of a security compared to its ideal price -- (best buy + best sell)/2.

- **Market Capitalization**

Companies eligible for inclusion in the S&P CNX Nifty must have a six-month average market capitalization of Rs 5 billion or more, during the latest six months.

- **Shares Outstanding**

Companies eligible for inclusion in the S&P CNX Nifty should have at least 12% of its stock available to investors (float). For this purpose, float shall mean stocks which are not held by the promoters and associated entities (where identifiable) of such companies.

- **Domicile** The Company must be domiciled in India and trade on the NSE.

Statement of the problem:

Nifty consists of 50 stocks which help to recognize the broad trends in the market. The investors use index as a benchmark for evaluating the investment portfolio. Unless the investors know how to choose the stocks that reflect the market movement, it is difficult for them to allocate funds rationally among stocks which would earn returns par with the market returns. If the securities listed in the nifty are ranked on the basis of summary statistics and by making the relationship study, the investors can easily pick the stocks reflecting the market movement. So, in the present study analysis of return profile of nifty is taken as a research problem to be studied upon.

1.2 Introduction to the Industry

Indian stock market- Quick look at year 2006:

In the secondary market, the uptrend continued in 2006-07 with BSE indices closing above 14000(14,015) for the first time on January 3, 2007. After a somewhat dull firsthalf conditions on the bourses turned buoyant during the later part of the year with large inflows from Foreign Institutional Investors (FIIs) and larger participation of domestic investors. During 2006, on a point-to-point basis, Sensex rose by 46.7%.The pickup in the stock indices could be attributed to impressive growth in the profitability of Indian corporate, overall higher growth in the economy, and other global factors such as continuation of relatively soft interest rates and fall in the international crude prices.

BSE Sensex (top 30 stocks) which was 9,398 at end-December 2005 and 10,399 at end-May 2006, after dropping to 8,929 on June 14, 2006, recovered soon thereafter to rise steadily to 13787 by end-December 2006. According to the number of transactions, NSE continued to occupy the third position among the world's biggest exchanges in 2006, as in the previous three years. BSE occupied the sixth position in 2006, slipping one position from 2005. In terms of listed companies, the BSE ranks first in the world.

In terms of volatility of weekly returns, uncertainties as depicted by Indian indices were higher than those in outside India such as S&P 500 of United States of America and Kospi of South Korea. The Indian indices recorded higher volatility on weekly returns during the two-year period. January 2005 to December 2006 as compared to January 2004 to December 2005. The market valuation of Indian stocks at the end of December 2006, with the Sensex trading at a P/E multiple of 22.76 and S&P CNX Nifty at 21.26, was higher than those in most emerging markets of Asia, e.g. South Korea, Thailand, Malaysia and Taiwan was the second highest among emerging markets. The better valuation could be on account of the good fundamentals and expected future growth in earnings of Indian corporate Liquidity, which serves as a fuel for the price discovery process, is one of the main criteria sought by the investor while investing in the stock market. Market forces of demand and supply determine the price of any security at any point of time. Impact cost quantifies the impact of a small change in such forces on prices. Higher the liquidity, lower the impact cost.

Quick look at year 2007:

In the secondary market segment, the market activity expanded further during 2007-08 with BSE and NSE indices scaling new peaks of 21,000 and 6,300, respectively, in January 2008. Although the indices showed some intermittent fluctuations, reflecting change in the market sentiments, the indices maintained their north-bound trend during the year. This could be attributed to the larger inflows from Foreign Institutional Investors (FIIs) and wider participation of domestic investors, particularly the institutional investors. During 2007, on a point-to-point basis, Sensex and Nifty Indices rose by 47.1 and 54.8 per cent, respectively.

The buoyant conditions in the Indian bourses were aided by, among other things, India posting a relatively higher GDP growth amongst the emerging economies, continued uptrend in the profitability of Indian corporate, persistence of difference in domestic and international levels of interest rates, impressive returns on equities and a strong Indian rupee on the back of larger capital inflows. The BSE Sensex (top 30 stocks) too echoed a similar trend to NSE nifty. The sell-off in Indian bourses in August 2007 could partly be attributed to the concerns on the possible fallout of the sub-prime crisis in the West.

While the climb of BSE Sensex during 2007-08 so far was the fastest ever, the journey of BSE Sensex from 18,000 to 19,000 mark was achieved in just four trading sessions during October 2007. It further crossed the 20,000 mark in December 2007 and 21,000 in an intra-day trading in January 2008. However, BSE and NSE indices declined subsequently reflecting concerns on global developments. BSE Sensex yielded a Compounded return of 36.5 per cent per year between 2003 and 2007. In terms of simple average, BSE Sensex has given an annual return of more than 40 per cent during the last three years.

A global depression:

In the age of globalization, no country can remain isolated from the fluctuations of world economy. Heavy losses suffered by major International Banks is going to affect all countries of the world as these financial institutes have their investment interest in almost all countries.

As of now India is facing heat on three grounds: (1) Our Share Markets are falling everyday, (2) Rupee is weakening against dollars and (3) Our banks are facing severe crash crunch resulting in shortage of liquidity in the market.

Actually all the above three problems are interconnected and have their roots in the above-mentioned global crisis. For the last two years, our stock market was

touching new heights thanks to heavy investments by Foreign Institutional Investors (FIIs). However, when the parent companies of these investors (based mainly in US and Europe) found themselves in a severe credit crunch as a result of sub-prime mess, the only option left with these investors was to withdraw their money from Indian Stock Markets to meet liabilities at home. FIIs were the main buyers of Indian Stocks and their exit from the market is certain to wreak havoc in the market. FIIs who were on a buying spree last year, are now in the mood of selling their stocks in India. As a result our Share Markets are touching new lows everyday.

Since, the money, which FIIs get after selling their stocks, needs to be converted into dollars before they can sent it home, the demands for dollars has suddenly increased. As more and more FIIs are buying dollars, the rupee is loosing its strength against dollar. As long as demands for dollars remain high, the rupee will keep loosing its strength against dollar.

The current financial crisis has also started directly affecting Indian Industries. For the past few years, the two most preferred method of raising money by the companies were Stock Markets and external borrowings on low interest rates. Stock Markets are bleeding everyday and it is not possible to raise money there. Regarding external borrowing from world markets, this option has also become difficult.

In the last fiscal year alone, India borrowed \$29 billion from foreign lenders and got \$34 billion of foreign direct investment. A global recession has hurt external demand. International lenders who have become extremely risk averse can limit access to international capital. If that happens, both India's financial markets and the real economy will be hurt in the process. Suddenly, the 9% growth target does not seem that 'doable' any more; we should be happy to clock 7% this fiscal year and the next.

However, one positive point in favor of India is the fact that Indian Banks are more or less secured from the ill-effects of sub-prime mess. A glance at Indian banks' balance sheets would show that their exposure to complex instruments like CDOs is almost nil. In India, still the major banking operations are in the hands of Public Sector

Banks who exercise extreme cautions in disbursing loans to needy people/companies. As a result, we are not likely to see a repeat of sub-prime crisis in India. Though there have been a presence of big US/European Banks in India and even some Indian banks (like ICICI) have some foreign subsidiary with stake in the sub-prime losses, there presence is miniscule as compare to the overall size of Indian banking industry. So at least on this major front we need not worry much.

However, a global depression is likely to result in a fall in demand of all types of consumer goods. In 2007-08, India sold 13.5% of its goods to foreign buyers. A fall in demand is likely to affect the growth rate this year. Our export may get affected badly.

A negative atmosphere, shortage of cash, fall in demands, reducing growth rate and uncertainties in the market are some of the most visible aspects of an economic depression.

The performance of Indian stock market during the last 3 years:

The Indian economy had started growing up since 2003-2004 but the stock market performance had begun perking up since 2006 and year 2007 was the mind boggling in the Indian Capital Markets history. This uptrend continued only upto January 10, 2008, after that direness had started in the secondary as well as primary market but the real trouble was seen in the second half of 2008, which has not seen its end yet. Foreign Institutional Investors (FIIs), the main drivers of the market had invested Rs 71,000 crore in 2007 while the same people withdrew nearly Rs 53,000 crore in 2008. "Subprime Crisis" in the US Industry (that spillover to European countries) was the main reason, which kept the global as well as Indian markets on the gas. This has created big trouble on the liquidity front; big example is that banks have not been ready to lend each other as well as to institutions. A person, who has been in the stock market, has seen a lot in the last three years: boom as well as burst. Lot of holdings of investors became valueless or dropped in value to great extent like 70-90% from all-time high.

1.3 Introduction to the Company

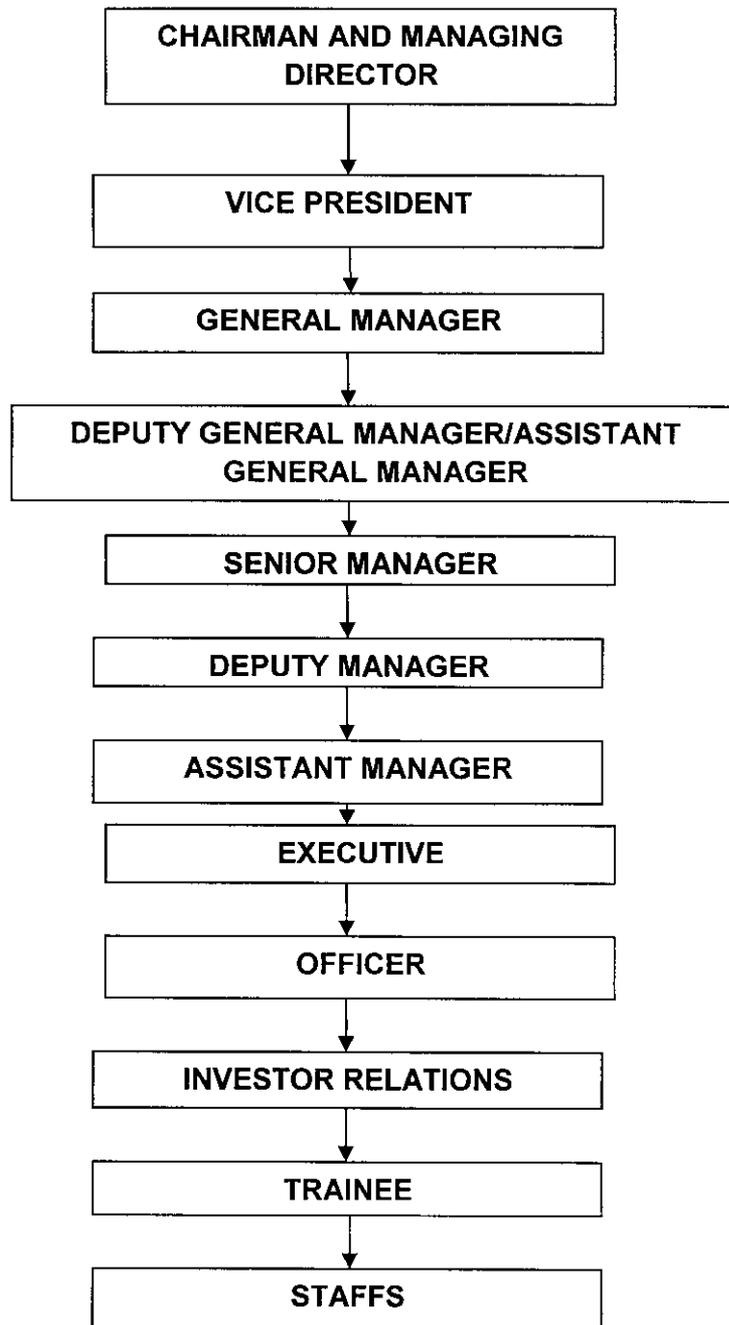
Company Profile

Sharewealth Securities Ltd is the first corporate member of National Stock Exchange of India Ltd and Bombay Stock Exchange Ltd from THRISSUR, the Cultural Capital of Kerala. Registered offices of Sharewealth Group of companies are at Thrissur. Sharewealth is also a Depository Participant with CDSL (Central Depository Services (India) Ltd).

Sharewealth Securities Ltd has two group companies, Sharewealth Commodities Pvt Ltd (Member: MCX-Multi Commodity Exchange Ltd) and Sharewealth Financial Services Ltd (AMFI Registered Mutual Fund Distributor). Sharewealth is promoted by a group of Financial Market Professionals having more than 20 years of experience in Financial Markets, and various professional dignitaries from different fields of entrepreneurship Mr. T.B. Ramakrishnan (Ramki) - CEO is leading the core team of Sharewealth, which has a highly competent diversified Board of Directors. Mr.Ramki is a Stock Market Analyst, Ex. Treasurer & Governing Council Member of Cochin Stock Exchange Ltd (1998-2000) and former Kerala Regional Head of Sharekhan who has got more than 20 years of experience in Financial Markets.

Mission of the company

"To educate growing investing public in a simple & practical way to help them to protect their hard earned money and to make more money from financial & commodity markets", which we mean by "Wealth creation simplified"

Organizational Structure:

Products dealt with:

- Equities
- Derivatives
- Depository
- Commodities
- Mutual Fund
- IPO and
- Insurance

Theme of the Project



CHAPTER II

MAIN THEME OF THE PROJECT

2.1 Objectives of the project:

Primary objective:

- To analyze the return profile of nifty scrips

Secondary objectives:

- To prepare the summary statistics on the returns generated by nifty
- To study the relationship between the index and constituent scrips
- To study the association amongst the constituent scrips
- To rank the scrips based on their returns

2.2 Scope of the Project:

The S&P CNX Nifty (Nifty 50 or simply Nifty) is a composite of the top 50 stocks listed on the National Stock Exchange (NSE), representing 24 different sectors of the economy. It is a simplified tool that helps investors and ordinary people alike, to understand what is happening in the stock market and by extension, the economy. If the Nifty Index performs well, it is a signal that companies in India are performing well and consequently that the country is doing well. An upbeat economy is usually reflected in a strong performance of the Nifty Index. A rising index is also indicative that the investors are enthusiastic about the future. In this study it is attempted to analyse the return profile of nifty over the past three years and also to rank the scrips based on the summary statistics. It helps the investors to identify the scrips that are highly influential for the movement of index and those scrips that are consistently performing over the three year period.

2.3 Limitations of the Project:

- Only those scrips that had been continuously inside and traded in nifty during the study period are alone considered.
- The changes taken place before and after the study period have not been considered.

2.4 Research Methodology:

Type of study:

The type of study comes under analytical research design as the facts or information used are already available, and are analysed to make a critical evaluation of securities in order to arrive at right investment decision.

Data and sources of data:

The data used for the study is secondary data. It is collected through print media and internet. The data was obtained from the national stock exchange website (www.nseindia.com). For the purpose of this study, the scrips listed in the National stock exchange are taken into account. The companies selected for the study are:

ABB	Infosystch	SBIN
ACC	ITC	BHEL
Ambuja cements	L&T	Hindalco
Cipla	M&M	Hindunilvr
Gail	MARUTI	Tatacom
Grasim	ONGC	Tatamotors
Bhartiairtel	PNB	Tatasteels
HDFC	Ranbaxy	TCS
HDFCBANK	Reliance	Zee entertainment ltd
Herohonda	Sail	
ICICIBANK	satyam	

Time Period Covered:

The above mentioned company's monthly closing prices were taken for the period of three years from 1st Jan 2006 to 31st Dec 2008. The period has been split up into three parts (Jan 06-Dec 06, Jan 07–Dec 07 and Jan 08–Dec 08) and the calculations were done separately.

Tools for analysis:

Logarithmic Returns:

Returns using logarithmic method have been computed using the formula:

$$r_t = \ln [P(t)/P(t-1)]$$

where r_t is the return in the period 't'

\ln is $\log(e)$, a natural logarithm

$P(t)$ and $P(t-1)$ are the closing prices of current month and previous month respectively.

Summary statistics: The companies are ranked on the basis of the following return statistics

- **Mean:** The mean returns have been calculated by taking an average of logarithmic returns.
- **Standard deviation:** It is a measure of the dispersion of a set of data from its mean. A volatile stock will have a high standard deviation while the deviation of a stable blue chip stock will be lower. A large dispersion tells how much the return on funds is deviating from the expected normal returns.

$$\text{Standard deviation (SD)} = \sqrt{\sum(x-\bar{x})^2/n}$$

- **Coefficient of variation:** It is a normalized measure of dispersion of a probability distribution. The coefficient of variation helps to determine how much volatility (risk) to assume in comparison to the amount of return expected from the investment. The lower the ratio of standard deviation to mean return, the better will be the risk-return tradeoff. It is to know whether the data is consistent over the years.

Coefficient of Variation= standard deviation / Expected Returns

- **Maximum Returns**
- **Minimum Returns**
- **Range:** It is the spread between the highest and lowest return during the period of time.

Correlation:

A measure that determines the degree to which two variable's movements are associated. The correlation coefficient is calculated as:

$$\rho_{xy} = \frac{\text{Cov}(r_x, r_y)}{\sigma_x \sigma_y}$$

The correlation coefficient will vary from -1 to +1. A -1 indicates perfect negative correlation, and +1 indicates perfect positive correlation.

Beta:

A measure of the volatility or systematic risk, of a security or a portfolio in comparison to the market as a whole. The beta factor describes the movement in a stock's or a portfolio's returns in relation to that of the market return.

$$\beta_i = \text{COV}_{im} / \sigma_m^2$$

If the beta is 1, the company moves along with the market

If the beta is >1 , the share is more volatile than the market

If the beta is <1 , the share is less volatile than the market

2.5 Review of literature

Punithavathy pandian et al (Mar 2008)¹ attempted to study the return and risk element of investing in the shares of Indian Information Technology industry. The Information Technology industry stocks constitute around 14% of Nifty, and play a vital role in the movement of the market indices. India is now emerging as a major credible information technology outsourcing center creating huge opportunities as well as challenges to the investors. Although the stock markets are positive towards the IT stocks, they are also affected by the national and international events. The average daily returns of the six companies studied in this paper were lower than the daily mean return of the indices. The volatilities of the stock returns over the study period were much higher than that of the indices. The values of the securities show that except CMC and Moser Baer, the other four securities were very aggressive. The unsystematic risks of the IT stocks were much higher than the systematic risk.

Balwinder Singh (Feb 2008)² has conducted a study on Trading Volume and Return Volatility Dynamics in Indian Stock Market. This paper examines the pattern of information flow between trading volume and return volatility (squared value of returns) using daily data of closing prices and volume of Nifty index for the period from July 2001 to March 2006. The methods used include correlation analysis, unit root tests, VAR modeling, Granger causality test, GARCH (1,1) and EGARCH model. The study provides evidence of low but significant positive contemporaneous relationship between

¹ Punithavathy pandian et al (Mar 2008). "Risk and return analysis of Indian Information technology sector stocks", Icfai Journal of Financial Risk Management, Vol. 5, No. 1, pp. 41-49

² Balwinder Singh (Feb 2008). "Trading Volume and Return Volatility Dynamics in Indian Stock Market", The Icfai Journal of Applied Finance, Vol. 14, No. 2, pp. 53-73

Karmakar and Madhusudan(jul-sep 2005)⁴ have conducted a study on Modeling Conditional Volatility of the Indian Stock Markets. The aim of this paper is to estimate conditional volatility models in an effort to capture the salient features of stock market volatility in India and evaluate the models in terms of out-of-sample forecast accuracy. The paper also investigates whether there is any leverage effect in Indian companies. The estimation of volatility is made at the macro level on two major market indices, namely, S&P CNX Nifty and BSE Sensex. The fitted model is then evaluated in terms of its forecasting accuracy on these two indices. In addition, 50 individual companies' share prices currently included in S&P CNX Nifty are used to examine the heteroskedastic behaviour of the Indian stock market at the micro level.

Balaban, Ercan and Bayar, Asli (Aug 2005)⁵ made a pioneering effort to test in 14 countries the relationship between stock market returns and their forecast volatility derived from the symmetric and asymmetric conditional heteroscedasticity models. Both weekly and monthly returns and their volatility are investigated. An out-of-sample testing methodology is employed using volatility forecasts instead of investigating the relation between stock returns and their in-sample volatility estimates. Expected volatility is found to have a significant negative or positive effect on country returns in a few cases. Unexpected volatility has a negative effect on weekly stock returns in six to seven countries and on monthly returns in nine to eleven countries depending on the volatility forecasting model. However, it has a positive effect on weekly and monthly returns in none of the countries investigated. It is concluded that the return variance may not be an appropriate measure of risk

⁴ Karmakar and Madhusudan(jul-sep 2005). "Modeling Conditional Volatility of the Indian Stock Markets", *Vikalpa: The Journal for Decision Makers*, Vol. 30 Issue 3, p21-37, 17p

⁵ Balaban, Ercan and Bayar, Asli (Aug 2005). "the relationship between stock market returns and their forecast volatility", *Applied Economics Letters*, Vol. 12 Issue 10, p603-611, 9p

volume and return volatility that is indicative of the both mixture of distribution and sequential arrival hypothesis of information flow. The asymmetric relationship which is hypothesized to exist due to the differential cost of taking long and short positions is also evident through the EGARCH (1,1) model. The study further confirms the familiar Wall Street adage, It takes volume to make prices move, by documenting the weak unidirectional causality from volume to return volatility, which also indicates the mild support for sequential information flow as well directed from volume to price change.

Rohini Singh (April 2008)³ has conducted a study on Beta Stationarity Over Bull and Bear Markets in India. Beta is a widely accepted measure of systematic risk and is used by practitioners for capital budgeting, portfolio formation, and performance evaluation. It is important to know whether beta is stationary overtime and to identify the factors that may help forecast it. Since beta represents co-movement with the market, it is pertinent to check if betas of individual stocks and portfolios change over bull and bear market phases. Regression analysis, paired t-tests, and correlation analysis were used to study beta for 158 stocks and 15 portfolios in the Indian stock market over 12 years from 1991 to 2002. Regression analysis indicates that alpha and beta were not significantly different for majority of the individual stocks and portfolios during the alternating market phases. Paired t-tests, on the other hand, shows evidence of non-stationarity in some of the alternating periods and stationarity between all bull periods. Analysis of the control groups also reveal that the overall period was not stationary. Although correlation between pairs of periods was fairly high and significant in some cases, it was not consistent group-wise and was at odds with the t-tests in some cases. Overall, the evidence of non-stationarity of beta between bull and bear periods was not consistent and cannot be put to practical use.

³ Rohini Singh (April 2008). "Stationarity Over Bull and Bear Markets in India", The Icfai Journal of Applied Finance, Vol. 14, No. 4, pp. 32-47

Abhay Abhyankar et al (Feb 2005)⁶ have conducted a study on the optimum use of return predictability. In this paper they investigated the empirical performance of unconditionally efficient portfolios strategies for a number of commonly used predictive variables. Their criterion is to maximize various ex-post performance measures and conducted both in-samples as well as out-of-sample analysis. This analysis allows them to determine the economic value of using different predictor variables and also groups of predictor variables. Overall they found that the optimal use of conditioning information significantly improves the risk-return tradeoff available to a mean-variance investor relative to fixed weight strategies. These findings are consistent across portfolio efficiency measures such as Sharpe ratios, portfolio variance subject to a mean constraint or portfolio mean subject to a volatility constraint as well as measures of economic value such as switching costs. In addition they also compare the performance of the unconditionally efficient strategies with conditionally efficient strategies from an investment-based perspective. They find that the performance of the two strategies is quite different due to the differing response of the portfolio weights of the two strategies to conditioning information.

Chris Brooks et al (may 2007)⁷ have conducted a study on S&P Index effects. The advent of index tracking early in the 1970s and the continuous growth of assets tied to the S&P 500 index have enforced perceptions of the importance of becoming an index -member, due to increased demand by index fund participants for the stocks involved in index composition changes. This study focuses on S&P 500 inclusions and examines the impact of potential overnight price adjustment after the announcement of an S&P 500 index change. They have found evidence of a significant

⁶ Abhay Abhyankar et al (Feb 2005). "The optimal use of return predictability- an empirical analysis", EFA 2005 Moscow Meetings Paper, Cass Business School Research Paper.

⁷ Chris Brooks et al (may 2007). "The S&P 500 Index Effect in Continuous Time: Evidence from Overnight, Intraday and Tick-By-Tick Stock Price Performance", *Vision*, Vol. 11 Issue 3, p11-23, 13p.

overnight price change that diminishes the profits available to speculators although there are still profits available from the first day after announcement until a few days after the actual event. More importantly observing the tick-by-tick stock price performance of the key days of the event window for the first time, they found evidence of consistent trading patterns during trading hours over inclusion event. A separate analysis of two different sub-periods as well as of NASDAQ and NYSE listed stocks allows for a detailed examination of the price and volume effect in continuous time.

Manish Kumar and M. Thenmozhi (Dec 2007)⁸ have investigated the predictability of s&p cnx nifty Index returns using Support vector machines (SVM). The performance of the SVM model in forecasting Nifty index returns is rigorously evaluated in terms of widely used statistical metrics like mean absolute error, root mean square error, normalized mean square error, correctness of sign and direction change (Pesaran and Timmermann (1992, DA test), and equal forecast accuracy using Diebold and Mariano (1995, DM test) by comparing its performance with those of neural network, random forest regression and a linear ARIMA model. The four competing models are also examined in terms of various trading performance and economic criteria like annualized return, Sharpe ratio, maximum drawdown, annualized volatility, average gain/loss ratio etc via a trading experiment. The findings of the study reveal that SVM model achieves greater forecasting accuracy and improves prediction quality compared to other models experimented in the study. The SVM model can be used as an alternative forecasting tool for nifty Index returns and it will lead to better returns based on the traditional forecasting accuracy measures, such as root mean squared errors, and financial criteria, such as risk-adjusted measures of return.

⁹Niladri Das and J. K. Pattanayak (Aug 2007) have conducted a study on Factors Affecting Market Price of sensex Shares. This paper examines various research studies

⁸ Manish Kumar and M. Thenmozhi (Dec 2007). "Support Vector Machines Approach to Predict the S&P CNX NIFTY Index Returns", 10th Capital Markets Conference, Indian Institute of Capital Markets Paper

⁹ Niladri Das and J. K. Pattanayak (Aug 2007). " Factors Affecting Market Price of sensex Shares", Icfai Journal of Applied Finance, Vol. 13, No. 8, pp . 33-51

undertaken in the Indian and international context highlighting the affect of various fundamental factors on the behavior of the stock market. The empirical analysis of these studies exposes a lot of contradictions among them and there prevails a wide gap between the Indian and international research studies. This paper identifies the critical variables, which have significant effect on stock price movements and thereby influencing the entire market movement. The 30 scrips constituting the sensex are used as proxy to capture the entire stock market movement. Appropriate statistical techniques have been used to establish a meaningful relationship among the various explanatory variables identified through the empirical analysis considering the available research studies. The various explanatory variables, which are acting as major determinants of stock price movements, are condensed into a few critical factors by the factor analysis and the relevance of these factors in influencing the stock market movements is explained in detail. The results reveal that few factors are acting as major determinants of stock price movements and thereby have a significant bearing on the entire market. With the sensex touching the 13,000 mark, there is a lot of skepticism among the investors about the behavior of the stock market and the safety of their investment in the highly volatile Indian stock market. These factors can be used as a major analytical tool by the investors, corporates, and the brokers to make rational and intelligent investment decisions.

Purna Chandra Padhan (Feb 2006)¹⁰ examined the price integration between the two domestic stock markets in India, i.e., Bombay Stock Exchange (BSE) and National Stock Exchange (NSE), using monthly data on BSE sensex and S&P CNX Nifty, from April 1994 to March 2005. The empirical method exercised here has been carried out by applying Engel-Granger cointegration test, which exhibits sufficient evidence of long-run equilibrium relationships between the variables. The long-run causal flows are unidirectional - running from NSE to BSE - and are found through the error correction mechanism. The findings of the study provide sufficient evidence for price integration between both the stock markets.

¹⁰ Manish Kumar and M. Thenmozhi (Dec 2007). "Support Vector Machines Approach to Predict the S&P CNX NIFTY Index Returns", 10th Capital Markets Conference, Indian Institute of Capital Markets Paper

Ryan McKeon and Jeffry M. Netter (Jan 2009)¹¹ reviewed an explanation for the causes of the stock market crash in 1987, update the empirical support for that argument, and compare to recent market developments. While the market crash on October 19, 1987 was the largest one-day S&P 500 drop in percentage terms in history (20.47%) there was also a large market drop (10.12%) in the three trading days before the 1987 crash. Mitchell and Netter (1989) show that the three-day decline was the largest in more than 40 years, large enough that the drop was news itself (the October 16, 1987 drop immediately before the crash was also an extremely large one-day decline). The theoretical model of Jacklin, Kleidon, and Pflleiderer (1992) shows how a surprise significant drop in the market could have provided information to the market that could directly lead to an immediate crash Here they followed the stock market for 20 years after 1987, and find the magnitude of the market decline immediately preceding October 19, 1987 was still a significant outlier - only one three-day period in the 20 years after 1987 had as large a market decline. They also documented the large market movements and volatility in the period beginning in October 2008 and suggested that this "crash " is different than what occurred in 1987. The 1987 crash was due in part to characteristics news but also of the market and trading strategy, 2008 is more likely a response to fundamental economic news.

Sidharta Chatterjee et al (Oct 2008)¹² have conducted a study on Standard Deviation Correlation Variation as a Measure of an Impending Market Crash. This paper investigates the events that run up to the current global rout of financial distress evolving into a full blown stock market crash across the globe. They have summarized the episodes with the aid of statistical methods employed to study the sequence of events that lead to the current turmoil. Their approach is from a different viewpoint that has yielded substantial information regarding the sequences using parameters for volatility assumptions from statistical outputs as a measure of standard deviations under

¹¹ Ryan McKeon and Jeffry M. Netter (Jan 2009). "What Caused the 1987 stock Market Crash and Lessons for the 2008 Crash", *Journal of Economic Surveys*, Vol. 21 Issue 4, p786-826, 41p.

¹² Sidharta Chatterjee et al (Oct 2008). "Standard Deviation Correlation Variation as a Measure of an Impending Market Crash", *Applied Financial Economics*, Vol. 13 Issue 7, p543, 9p.

current settings. They have shown that the modeled behavior patterns of indices substantiated clinical inferences and path prognostic features that correlated with the kinematics of indicial movements. The cross-sectional model that they have used attempts to assess the market behavior, before and after the current crisis with empirical specifications thereafter which ascertained the effects of changing volatility levels as a diagnostic feature impounding a market crash. They also found that their volatility assumptions are effectual.

Martin Lettau and Ludvigson (Dec 2001)¹³ reviewed what is known about the time-series evolution of the risk-return tradeoff for stock market investment, and presented some new empirical evidence using a proxy for the log consumption-aggregate wealth ratio as a predictor of both the mean and volatility of excess stock market returns. They characterized the risk- return tradeoff as the conditional expected excess return on a broad stock market index divided by its conditional standard deviation, a quantity commonly known as the Sharpe ratio. Their investigation suggests that variation in the equity risk-premium is strongly negatively linked to variation in market volatility, at odds with leading asset pricing models. Since the conditional volatility and conditional mean move in opposite directions, the degree of counter cyclicity in the Sharpe ratio that they documented here is far more dramatic than that produced by existing equilibrium models of financial market behaviour, which completely miss the sheer magnitude of variation in the price of stock market risk.

Fabio Trojani et al (May 2006)¹⁴ developed a new framework for intertemporal portfolio choice when the covariance matrix of returns is stochastic. An important contribution of this framework is that it allows deriving optimal portfolio implications for economies in which the degree of correlation across different industries, countries, and

¹³ Martin Lettau and Ludvigson (Dec 2001). "Measuring and Modelling Variation in the Risk-Return Trade-off", *Financial Analysts Journal*; Vol. 22 Issue 4, p83-89, 7

¹⁴ Fabio Trojani et al (May 2006). "Correlation Risk and Optimal Portfolio Choice", AFA 2008 New Orleans Meetings Paper

asset classes is time-varying and stochastic. In this setting, markets are incomplete and optimal portfolios include distinct hedging components against both stochastic volatility and correlation risk. The model gives rise to simple optimal portfolio solutions that are available in closed-form. They have used these solutions to investigate, in several concrete applications, the properties of the optimal portfolios. They found that the hedging demand is typically four to five times larger than in univariate models and it includes an economically significant correlation hedging component, which tends to increase with the persistence of variance covariance shocks, the strength of leverage effects and the dimension of the investment opportunity set. These findings persist also in the discrete-time portfolio problem with short-selling or VaR constraints.

Malcolm P. Baker and Jeffrey Wurgler (Feb 2007)¹⁵ have conducted a study on Investor sentiment in the stock market. Real investors and markets are too complicated to be neatly summarized by a few selected biases and trading frictions. The "top down" approach to behavioral finance focuses on the measurement of reduced form, aggregate sentiment and traces its effects to stock returns. It builds on the two broader and more irrefutable assumptions of behavioral finance - sentiment and the limits to arbitrage - to explain which stocks are likely to be most affected by sentiment. In particular, stocks of low capitalization, younger, unprofitable, high volatility, non-dividend paying, growth companies, or stocks of firms in financial distress, are likely to be disproportionately sensitive to broad waves of investor sentiment. They also reviewed the theoretical and empirical evidence for these predictions

¹⁵ Malcolm P. Baker and Jeffrey Wurgler (Feb 2007). "Investor sentiment in the stock market", *Marketing Science*, Vol. 26, No. 6, pp. 758-773

Analysis and Interpretation



CHAPTER III

ANALYSIS AND INTERPRETATION

3.1 Mean Returns:

In this chapter nifty scrips are being analysed and corresponding interpretation is given on the basis of summary statistics, correlation and t-test.

3.1 Table showing the companies ranked on the basis of logarithmic mean returns

Rank	2006		2007		2008	
	Companies	Mean	Companies	Mean	Companies	Mean
1	Grasim	5.960	Sail	9.681	Hindunilvr	1.317
2	ACC	5.798	L&T	8.821	Herohonda	1.194
3	Zee	5.254	Reliance	6.830	Cipla	-1.089
4	Reliance	5.238	Gail	6.098	ITC	-1.656
5	Bhartiartl	5.156	Tatasteels	5.521	Tatacom	-3.509
6	M&M	4.424	SBIN	5.365	Infosystch	-3.847
7	Ambujacem	4.232	Tatacom	4.889	PNB	-4.354
8	Sail	4.176	HDFC	4.753	HDFCBANK	-4.577
9	ABB	3.509	HDFCBANK	4.016	SBI	-5.081
10	ICICIBANK	3.461	Bhartiartl	3.821	ONGC	-5.146

Source: Secondary data

Interpretation:

In the above table companies are ranked on the basis of logarithmic mean returns. By analyzing the ranks occupied by the companies for the three year period, it is quiet clear from the above table that not even single scrip has retained its position in the top ten list for three years consecutively.

The companies Bhartiartel and SAIL were in the top ten list in first two consecutive years. On the same hand HDFCBank, SBI and TataCommunication were amongst the top ten the list in the years 2007 and 2008 consecutively.

In 2006, the first two spots were dominated by cement industry. The Reliance industries had occupied 4th position in the year 2006 and 3rd position in the year 2007. The year 2007 was better than the other two years as the mean returns were comparatively higher. In 2008, except Hindustan unilever and Herohonda, all other companies had shown negative returns.

3.2 Standard deviation:

3.2 Table showing the companies ranked on the basis of Standard deviation

Rank	2006		2007		2008	
	Companies	SD	Companies	SD	Companies	SD
1	M&M	5.426	TCS	4.444	ITC	8.114
2	Herohonda	5.524	Bhartiartl	4.992	Hindunilvr	8.246
3	HDFCBANK	6.413	Herohonda	5.600	MARUTI	9.927
4	Bhartiartl	7.927	Infosystch	5.858	Cipla	10.082
5	Wipro	8.155	Tatamotors	6.163	Herohonda	10.675
6	HDFC	8.273	M&M	6.369	Wipro	11.495
7	ICICIBANK	8.479	Satyam	6.519	Infosystch	12.087
8	Ranbaxy	8.900	Wipro	6.593	TCS	12.107
9	Reliance	9.103	Reliance	6.916	Reliance	12.711
10	BHEL	9.301	ITC	7.057	HDFC	12.859

Source: Secondary data

Interpretation:

In the above table companies are ranked on the basis of standard deviation. By analyzing the table it can be inferred that Reliance and Herohonda retained its position in all the three years consecutively.

The companies Bhartiartel, M&M, and WIPRO were in the top ten list in the first two consecutive years and HDFC was in the list in the first and third year. The actual returns tend to be so close to the mean only in the year 2007. The risk involved in the year 2007 was comparatively lesser than 2006 and 2008. The deviations were high only in the year 2008 where the returns of most of the scrips were negative.

3.3 Maximum Returns:

3.3 Table showing the companies ranked on the basis of maximum returns

Rank	2006		2007		2008	
	Companies	Returns	Companies	Returns	Companies	Returns
1	Zee	30.258	L&T	41.287	Tatasteels	36.089
2	Sail	26.568	BHEL	27.305	Grasim	31.954
3	ACC	25.930	ONGC	26.302	Ambujacem	29.413
4	Tatacom	25.233	HDFC	24.556	Zee	24.922
5	Reliance	25.166	Tatacom	24.132	Ranbaxy	24.727
6	Cipla	22.194	Gail	23.804	SBIN	24.292
7	Hindunilvr	22.166	Sail	23.108	ICICIBANK	24.238
8	Tatasteels	21.896	Tatasteels	20.957	Tatacom	24.086
9	PNB	21.498	SBI	20.577	Hindalco	21.167
10	Ambujacem	20.615	HDFCBANK	20.313	Herohonda	20.385

Source: Secondary data

Interpretation:

In the above table companies were ranked on the basis of maximum returns. Tata communication and tata steels maintained its position over the three period. The Tata steels obtained 8th rank in the first two consecutive years, but the return was declined by 4.3% in 2007 and in 2008, the return was gradually increased where it gained the first position. The Steel Authorities of India Ltd was in the top ten list in the year 2006 and 2007 and on the same hand Ambujacements and Zee entertainment were amongst the top ten list in 2006 and 2008.

By comparing the returns over the three years, it can be inferred that the maximum return was generated by L&T in the year 2007 and Tata steels occupied the next position to L&T.

3.4 Minimum Returns:

3.4 Table showing the companies ranked on the basis of minimum returns

Rank	2006		2007		2008	
	Companies	Returns	Companies	Returns	Companies	Returns
1	Cipla	-93.650	ABB	-143.679	L&T	-110.899
2	L&T	-63.609	BHEL	-66.876	Bhartiartl	-105.609
3	Satyam	-62.103	Zee	-28.625	Ranbaxy	-74.173
4	Infosystch	-62.046	Hindalco	-23.578	Tatasteels	-71.122
5	TCS	-61.915	Tatacom	-23.402	Tatamotors	-70.720
6	ONGC	-36.052	Grasim	-22.940	Gail	-64.373
7	Grasim	-35.025	ACC	-20.440	Grasim	-49.795
8	ABB	-29.303	Ranbaxy	-19.099	Hindalco	-48.487
9	Ambujacem	-29.104	PNB	-17.907	ONGC	-43.545
10	ACC	-28.428	Ambujacem	-17.030	Sail	-41.175

Source: Secondary data

Interpretation:

In the above table companies were ranked on the basis of minimum return generation. By making overall comparison cement industry has generated lower returns in the three year period. In 2008, the Tata steels was ranked in the 4th position in the minimum return generation whereas it was in the first position in the provision of maximum returns in the same year. The companies ABB, L&T, Bhartiartel, and Cipla had provided the least returns during the three year period.

3.5 Range:

3.5 Table showing the companies ranked on the basis of range

Rank	2006		2007		2008	
	Companies	Range	Companies	Range	Companies	Range
1	Herohonda	18.926	TCS	14.529	Hindunilvr	28.078
2	M&M	19.188	bhartiartl	18.755	ITC	30.468
3	HDFCBANK	21.305	Herohonda	20.574	MARUTI	33.404
4	Ranbaxy	23.221	Tatamotors	22.180	TCS	34.163
5	ICICIBANK	25.466	Reliance	22.544	Herohonda	36.107
6	Bhartiartl	28.020	Wipro	22.817	Wipro	36.389
7	HDFC	31.205	ITC	23.366	Cipla	37.670
8	Wipro	31.268	MARUTI	23.492	M&M	40.943
9	SBI	31.870	Infosystch	23.617	BHEL	41.494
10	Tatamotors	33.011	satyam	25.775	Infosystch	42.083

Source: Secondary data

Interpretation:

In the above table companies are ranked on the basis of range. During the three year, the difference between minimum returns and maximum returns is less for the companies Herohonda, TCS and Hindustan unilever. This shows that the variability in returns is less in those companies whose range is at the minimum rate. The companies which are in the lower position indicate that the variability of returns is high.

3.6 Co efficient of Variation:

3.6 Table showing the companies ranked on the basis of coefficient of variation

Rank	2006		2007		2008	
	Companies	Coeff of var	Companies	Coeff of var	Companies	Coeff of var
1	M&M	1.226	Sail	0.909	Hindunilvr	6.259
2	Bhartiartl	1.537	Reliance	1.012	Herohonda	8.938
3	Reliance	1.738	Bhartiartl	1.306		
4	HDFCBANK	2.093	L&T	1.360		
5	Sail	2.386	Gail	1.497		
6	Grasim	2.394	Tatasteels	1.763		
7	ACC	2.404	HDFC	1.765		
8	ICICIBANK	2.450	SBI	1.778		
9	Zee	2.689	HDFCBANK	2.094		
10	Ambujacem	3.027	Tatacom	2.563		

Source: Secondary data

Note: In the year 2008, the expected returns of all other companies were negative

Interpretation:

In the above table companies are ranked on the basis of coefficient of variation. The risk involved in the scrips will be less, if the coefficient of variation is at the minimum level. By making overall comparison SAIL ranks first which indicates that the risk-return trade off was good. The companies which have minimum variation reduce the risk to be undertaken in terms of amount of return.

3.7 Correlation:

3.7.1 ABB

3.7 Table showing the companies having high Positive correlation with ABB

No	2006		2007		2008	
	Companies	Correlation	Companies	Correlation	Companies	Correlation
1	Gail	0.701	Bhel	0.954	ACC	0.775
2	Grasim	0.796			Ambujacem	0.761
3	Itc	0.774			Gail	0.851
4	M&M	0.724			Grasim	0.807
5	Maruti	0.756			HDFCBANK	0.716
6	Hindalco	0.824			M&M	0.939
7	Tatacom	0.746			Maruti	0.758
8	Wipro	0.710			Reliance	0.775
9	Index	0.871			Sail	0.763
10					Tatamotors	0.781
11					Tatasteels	0.712
12					Wipro	0.742
13					Index	0.801

Source: Secondary data

3.8 Table showing the companies having negative correlation with ABB

No	2006		2007		2008	
	Companies	Correlation	Companies	Correlation	Companies	Correlation
1	Satyam	-0.235	ACC	-0.211	Bhartiartl	-0.041
2			Ambujacem	-0.281		
3			Infosystch	-0.099		
4			SBIN	-0.088		

Source: Secondary data

Interpretation:

The tables above show the companies having high positive correlation and those companies having negative correlation with ABB. In the year 2006, 8 companies had a high positive correlation with ABB. Those 8 companies include M&M and Maruti which shows that automobile Industry had high positive relationship with ABB. The relationship between Index and ABB was also positive. In the same year satyam was negatively correlated with ABB.

In 2007, only BHEL is observed to have a high positive correlation and the cement industries which had positive relationship were negatively correlated. In 2008, cement, automobiles and steel industries had a high positive correlation. The relationship with the index was also positive. Only the relationship between ABB and Bhartiartel was negative ie, both the securities move in opposite direction.

3.7.2 ACC

3.9 Table showing the companies having high Positive correlation with ACC

No	2006		2007		2008	
	Companies	Correlation	Companies	Correlation	Companies	Correlation
1	Ambujacem	0.943	Ambujacem	0.832	ABB	0.775
2	Grasim	0.866	Grasim	0.767	Ambujacem	0.911
3	Maruti	0.714			Gail	0.728
4	Bhel	0.719			M&M	0.763
5	Hindalco	0.704			Tatacom	0.841
6	Hindunilvr	0.770				
7	Tatasteel	0.829				
8	Zee	0.771				
9	Index	0.851				

Source: Secondary data

3.10 Table showing the companies having negative correlation with ACC

No	2006		2007		2008	
	Companies	Correlation	Companies	Correlation	Companies	Correlation
1	Bhartiartl	-0.289	ABB	-0.211	Cipla	-0.232
2	Infosystch	-0.074	Cipla	-0.236		
3	Satyam	-0.250	Bhartiartl	-0.106		
4			L&T	-0.038		
5			ONGC	-0.169		
6			Satyam	-0.186		
7			Bhel	-0.153		
8			Tatacom	-0.065		
9			TCS	-0.101		
10			Wipro	-0.270		

Source: Secondary data

Interpretation:

The tables above show the companies having high positive correlation and those companies having negative correlation with ACC. The companies Ambuja cements and Grasim had high positive correlation with ABB as they all belong to the same sector.

In 2007, only Grasim is found to have a high positive correlation and 10 companies were negatively correlated with ACC. In the year 2008, 5 companies were highly positively correlated. Those companies belong to different sectors except Ambuja cements and only cipla is found to be negatively correlated.

3.7.3 Ambuja cements

3.11 Table showing the companies having high Positive correlation with Ambuja cement

No	2006		2007		2008	
	Companies	Correlation	Companies	Correlation	Companies	Correlation
1	Acc	0.943	ACC	0.832	ABB	0.761
2	Grasim	0.793	Grasim	0.913	ACC	0.911
3	HDFCbank	0.801	Hindalco	0.745	Gail	0.705
4	Zee	0.725			Grasim	0.862
5	Wipro	0.738			M&M	0.708
6	Index	0.873			Reliance	0.727
7					Tatacom	0.705
8					Index	0.735

Source: Secondary data

3.12 Table showing the companies having negative correlation with Ambujacement

No	2006		2007		2008	
	Companies	Correlation	Companies	Correlation	Companies	Correlation
1	Cipla	-0.200	ABB	-0.281	Bhartiartl	-0.529
2			Cipla	-0.122	Infosystch	-0.081
3			Bhartiartl	-0.080	Satyam	-0.315
4			Bhel	-0.147		

Source: Secondary data

Interpretation:

The tables above show the companies having high positive correlation and those companies having negative correlation with Ambuja cements. The companies belong to cement industries had high positive correlation. The HDFC bank, Zeel and WIPRO moved along with Ambuja cements in the year 2006 and cipla alone had a negative relationship.

In 2007, the companies ABB, BHEL, Cipla, and Bhartiartel is observed to be negatively correlated. Among those companies ABB and BHEL belong to Electricals sector. In the year 2008, the companies belong to different sectors had high positive correlation and computer software companies were negatively correlated.

3.7.4 Cipla:

3.13 Table showing the companies having negative correlation with Ambujacement

2008		
No	Companies	Correlation
1	Gail	0.751
2	ITC	0.746
3	ONGC	0.776
4	Bhel	0.774

Source: Secondary data

3.14 Table showing the companies having negative correlation with Cipla

No	2006		2007	
	Companies	Correlation	Companies	Correlation
1	ACC	-0.232	ACC	-0.236
2	Ambujacem	-0.200	Ambujacem	-0.122
3	Grasim	-0.060	Grasim	-0.032
4	HDFCBANK	-0.132	Reliance	-0.007
5	Infosystch	-0.172	Bhel	-0.029
6	L&T	-0.158		
7	Ranbaxy	-0.092		
8	Reliance	-0.614		
9	Hindalco	-0.369		
10	Tatasteels	-0.225		
11	TCS	-0.094		

Source: Secondary data

Interpretation:

The tables above show the companies having high positive correlation and those companies having negative correlation with Cipla. There was no high positive correlation for the years 2006 and 2007. In 2008, four companies that belong to different are found to be highly positively correlated. The companies that belong to cement industries had negative correlation with Cipla. The portfolio with negative correlation saves the investors from the possible losses, but it would be compensatory. The profit provided by one security would be eaten up by the loss generated by other security.

3.7.5 GAIL:

3.15 Table showing the companies having high Positive correlation with Gail

No	2006		2007		2008	
	Companies	Correlation	Companies	Correlation	Companies	Correlation
1	ABB	0.701	ITC	0.723	ABB	0.851
2	Bhartiartl	0.706	M&M	0.812	ACC	0.728
3	ITC	0.714			Ambujacem	0.705
4	Tatacom	0.835			Cipla	0.751
5	Wipro	0.899			Grasim	0.803
6	Index	0.803			ITC	0.752
7					L&T	0.921
8					M&M	0.789
9					ONGC	0.912
10					Reliance	0.840
11					Sail	0.702
12					Bhel	0.774
13					Hindalco	0.736
14					Hindunilvr	0.775
15					Tatamotors	0.816
16					Tatasteels	0.712
17					Index	0.873

Source: Secondary data

3.16 Table showing the companies having high Positive correlation with Gail

No	2008	
	Companies	Correlation
1	Satyam	-0.087

Source: Secondary data

Interpretation:

The tables above show the companies having high positive correlation and those companies having negative correlation with Gail. In 2008, 13 companies had high positive correlation with Gail. The relationship with the Index was also good and satyam alone was having negative relationship. The negative correlation was not found in the first two consecutive years.

3.7.6 Grasim:

3.17 Table showing the companies having high Positive correlation with Grasim

No	2006		2007		2008	
	Companies	Correlation	Companies	Correlation	Companies	Correlation
1	ABB	0.796	ACC	0.767	ABB	0.807
2	ACC	0.866	Ambujacem	0.913	Ambujacem	0.862
3	Ambujacem	0.793	HDFC	0.752	Gail	0.803
4	ITC	0.800	HDFCBANK	0.807	ICICIBANK	0.766
5	Maruti	0.896	SBIN	0.704	Lt	0.788
6	Bhel	0.789	Hindalco	0.730	Reliance	0.804
7	Hindalco	0.739	Tatamotors	0.708	Sail	0.828
8	Hindunilvr	0.816			Tatamotors	0.878
9	Tatamotor	0.714			Tatasteels	0.871
10	Tatasteel	0.808			Zeel	0.754
11	Index	0.865			Index	0.832

Source: Secondary data

3.18 Table showing the companies having negative correlation with Grasim

No	2006		2007		2008	
	Companies	Correlation	Companies	Correlation	Companies	Correlation
1	Cipla	-0.06	Cipla	-0.032	Bhartiartl	-0.474
2					Satyam	-0.186

Source: Secondary data

Interpretation:

The tables above show the companies having high positive correlation and those companies having negative correlation with Grasim. From the table it can be inferred that it had high positive relationship with cement, metals and Electrical industries. These scrips moved along with Grasim and Cipla is observed to have negative correlation. In 2008, Bhartiartel and satyam was negatively correlated.

3.7.7 Bhartiairtel:

3.19 Table showing the companies having high Positive correlation with Bhartiairtel

No	2006		2007	
	Companies	Correlation	Companies	Correlation
1	Gail	0.706	Sail	0.714
2	HDFCbank	0.798		
3	SBIN	0.813		
4	Index	0.781		

Source: Secondary data

3.20 Table showing the companies having negative correlation with Bhartiairtel

No	2006		2007		2008	
	Companies	Correlation	Companies	Correlation	Companies	Correlation
1	L&T	-0.165	ACC	-0.106	ABB	-0.041
2	Satyam	-0.073	Ambujacem	-0.080	ACC	-0.289
3			PNB	-0.016	Ambujacem	-0.529
4			SBI	-0.156	Grasim	-0.474
5					HDFCBANK	-0.020
6					ICICIBANK	-0.399
7					PNB	-0.193
8					Ranbaxy	-0.123
9					Reliance	-0.129
10					Sail	-0.245
11					SBI	-0.168
12					Bhel	-0.003
13					Tatacom	-0.299
14					Tatamotors	-0.172
15					Tatasteels	-0.360
16					Zee	-0.506

Source: Secondary data

Interpretation:

The tables above show the companies having high positive correlation and those companies having negative correlation with Bhartiairtel. In 2008, none of the company was having high positive correlation with Bhartiairtel whereas most of the scrips were having negative correlation. The negatively correlated scrips indicate that they move in opposite direction with the return generated by Bhartiairtel.

3.7.8 HDFC:

3.21 Table showing the companies having high Positive correlation with HDFC

No	2007		2008	
	Companies	Correlation	Companies	Correlation
1	Grasim	0.752	HDFCBANK	0.877
2	HDFCBANK	0.900	Herohonda	0.735
3	Herohonda	0.771	ICICIBANK	0.771
4	ICICIBANK	0.861	PNB	0.770
5	SBI	0.776	Reliance	0.792
6	Index	0.758	SBI	0.801
7			Hindunilvr	0.755
8			Index	0.763

Source: Secondary data

3.22 Table showing the companies having negative correlation with HDFC

No	2007	
	Companies	Correlation
1	L&T	-0.317

Source: Secondary data

Interpretation:

The tables above show the companies having high positive correlation and those companies having negative correlation with HDFC. In both the years i.e., 2007 and 2008, banking sector is found to have high positive relationship. Almost same companies were repeated in the high positive correlation table in both the years. In 2007 alone L&T was having negative relationship with HDFC.

3.7.9 HDFC Bank

3.23 Table showing the companies having high Positive correlation with HDFC Bank

No	2006		2007		2008	
	Companies	Correlation	Companies	Correlation	Companies	Correlation
1	Ambujacem	0.801	Grasim	0.807	ABB	0.716
2	Bhartiartl	0.798	HDFC	0.900	HDFC	0.877
3	Wipro	0.751	Herohonda	0.744	ICICIBANK	0.755
4	Index	0.782	ICICIBANK	0.841	PNB	0.843
5			Maruti	0.709	Reliance	0.743
6			ONGC	0.717	SBI	0.788
7			Reliance	0.813	Hindunilvr	0.765
8			SBI	0.744	Tatamotors	0.713
9			Index	0.869	Index	0.799

Source: Secondary data

3.24 Table showing the companies having high negative correlation with HDFC Bank

No	2006		2008	
	Companies	Correlation	Companies	Correlation
1	Cipla	-0.132	Bhartiartl	-0.020
2	L&T	-0.082		
3	Satyam	-0.159		

Source: Secondary data

Interpretation:

The tables above show the companies having high positive correlation and those companies having negative correlation with HDFC bank. The HDFC bank followed a trend along with the Index. The banking sector companies move along the same direction. The companies Cipla, L&T and Satyam had negative correlation in the year 2006 and in 2008 Bhartiartel alone is found to have a negative relationship with HDFC bank.

3.7.10 Herohonda:

3.25 Table showing the companies having high Positive correlation with Herohonda

No	2006		2007		2008	
	Companies	Correlation	Companies	Correlation	Companies	Correlation
1	Maruti	0.702	HDFC	0.771	HDFC	0.735
2			HDFCBANK	0.744	ONGC	0.780
3					SBI	0.827
4					Hindunilvr	0.856
5					Index	0.741

Source: Secondary data

3.26 Table showing the companies having negative correlation with Herohonda

No	2006		2007		2008	
	Companies	Correlation	Companies	Correlation	Companies	Correlation
1	L&T	-0.282	Wipro	-0.192	Zee	-0.136
2	PNB	-0.075				

Source: Secondary data

Interpretation:

The tables above show the companies having high positive correlation and those companies having negative correlation with Herohonda. The banking sector is observed to have high positive correlation with Herohonda in the second two consecutive years. In the year 2006 PNB and L&T were having negative relationship. The companies WIPRO and Zeel moved in opposite direction with the market index in 2007 and 2008 respectively.

3.7.11 ICICI:

3.27 Table showing the companies having high Positive correlation with ICICI

No	2006		2007		2008	
	Companies	Correlation	Companies	Correlation	Companies	Correlation
1	SBI	0.768	HDFC	0.861	Grasim	0.766
2			HDFCBANK	0.841	HDFC	0.771
3			ONGC	0.866	HDFCBANK	0.755
4			Tatacom	0.710	PNB	0.773
5			Index	0.904	Reliance	0.760
6					Sail	0.806
7					SBI	0.780
8					Tatamotors	0.769
9					Tatasteels	0.755
10					Index	0.788

Source: Secondary data

3.28 Table showing the companies having negative correlation with ICICI

No	2006		2008	
	Companies	Correlation	Companies	Correlation
1	Infosystch	-0.222	Bhartiartl	-0.399
2	ITC	-0.05		
3	L&T	-0.284		
4	ONGC	-0.054		
5	Reliance	-0.153		
6	Sail	-0.154		
7	Satyam	-0.15		
8	Tatacom	-0.088		
9	Tatasteels	-0.063		
10	TCS	-0.182		

Source: Secondary data

Interpretation:

The tables above show the companies having high positive correlation and those companies having negative correlation with ICICI bank. From the table it can be inferred that ICICI bank was highly positively correlated with Tata group of companies in the second two consecutive years where the relationship was negative in the year 2006. In 2008 Bhartiartel was alone moved in opposite direction with respect to the movement of ICICI bank.

3.7.12 Infosys Technologies:

3.29 Table showing the companies having high Positive correlation with Infosys Tech

No	2006		2007		2008	
	Companies	Correlation	Companies	Correlation	Companies	Correlation
1	TCS	0.975	M&M	0.762	satyam	0.909
2			Hindalco	0.717	TCS	0.743
3			Zee	0.716	Wipro	0.812

Source: Secondary data

3.30 Table showing the companies having negative correlation with Infosys Tech

No	2006		2007		2008	
	Companies	Correlation	Companies	Correlation	Companies	Correlation
1	Cipla	-0.172	ABB	-0.099	ACC	-0.074
2	ICICIBANK	-0.222	Bhel	-0.148	Ambujacem	-0.081
3	ONGC	-0.221			ONGC	-0.003
4	PNB	-0.322			SBI	-0.029
5	Ranbaxy	-0.13				
6	Satyam	-0.26				
7	SBI	-0.132				
8	Bhel	-0.002				
9	Zee	-0.004				

Source: Secondary data

Interpretation:

The tables above show the companies having high positive correlation and those companies having negative correlation with Infosys technologies. The company was having high positive relationship with the computer software companies. By making overall comparison Banking, Cement, Pharma and Electrical industries were having negative correlation.

3.7.13 ITC:

3.31 Table showing the companies having high Positive correlation with ITC

No	2006		2007		2008	
	Companies	Correlation	Companies	Correlation	Companies	Correlation
1	ABB	0.774	Gail	0.7227	Cipla	0.746
2	Gail	0.714	Tatamotors	0.7475	Gail	0.752
3	Grasim	0.800			L&T	0.730
4	Maruti	0.812			ONGC	0.704
5	Bhel	0.721			Bhel	0.712
6	Tatacom	0.735			Hindalco	0.717
7	Tatamotor	0.822			Hindunilvr	0.802
8	Tatasteel	0.709			TCS	0.704
9	Index	0.811			Index	0.762

Source: Secondary data

3.32 Table showing the companies having negative correlation with ITC

No	2006		2007	
	Companies	Correlation	Companies	Correlation
1	ICICIBANK	-0.05	L&T	-0.227
2			ONGC	-0.167
3			satyam	-0.279

Source: Secondary data

Interpretation:

The tables above show the companies having high positive correlation and those companies having negative correlation with ITC. The company was performed in line with the market index in the year 2006 and 2007. The company had a high positive relationship with Tata group of companies and also with automobiles industry. In 2007 ONGC showed a negative relationship whereas in the year 2008, the trend got reversed and it moved in the same direction along with ITC.

3.7.14 L&T:

3.33 Table showing the companies having high Positive correlation with L&T

No	2007		2008	
	Companies	Correlation	Companies	Correlation
1	ONGC	0.8065	Gail	0.921
2	Index	0.7724	Grasim	0.788
3			ITC	0.730
4			ONGC	0.815
5			Reliance	0.798
6			Hindalco	0.720
7			Hindunilvr	0.730
8			Tatamotors	0.877
9			Tatasteels	0.748
10			Index	0.828

Source: Secondary data

3.34 Table showing the companies having negative correlation with L&T

No	2006		2007		2008	
	Companies	Correlation	Companies	Correlation	Companies	Correlation
1	Cipla	-0.158	ACC	-0.038	satyam	-0.124
2	Bhartiartl	-0.165	ITC	-0.227		
3	HDFC	-0.317	PNB	-0.021		
4	HDFCBANK	-0.082				
5	Herohonda	-0.282				
6	ICICIBANK	-0.284				
7	Maruti	-0.097				
8	PNB	-0.186				
9	Ranbaxy	-0.012				
10	Satyam	-0.063				
11	SBI	-0.096				
12	Zee	-0.015				

Source: Secondary data

Interpretation:

The tables above show the companies having high positive correlation and those companies having negative correlation with L&T. ONGC had high positive correlation with L&T in the second and third year consecutively. In 2006, almost all companies showed a negative return. It is clear from the table that the banking sector had a negative relationship with L&T in the year 2006. The company Satyam was alone having negative correlation in 2008.

3.7.15 M&M:

3.35 Table showing the companies having high Positive correlation with M&M

No	2006		2007		2008	
	Companies	Correlation	Companies	Correlation	Companies	Correlation
1	ABB	0.724	Gail	0.8116	ABB	0.939
2			Infosystch	0.7619	ACC	0.763
3			Ranbaxy	0.7172	Ambujacem	0.708
4			Wipro	0.7008	Gail	0.789
5					Reliance	0.775
6					Sail	0.754
7					Tatamotors	0.706
8					Index	0.745

Source: Secondary data

3.36 Table showing the companies having negative correlation with M&M

No	2006	
	Companies	Correlation
1	ONGC	-0.299
2	Satyam	-0.396
3	Zee	-0.093

Source: Secondary data

Interpretation:

The tables above show the companies having high positive correlation and those companies having negative correlation with M&M. In 2006, ABB alone was having high positive relationship. Though M&M belong to automobile industry it had a high positive relationship with IT and Cement industry during 2007 and 2008 respectively. The companies ONGC, Satyam and Zee moved in a opposite direction with respect to the movement of M&M

3.7.16 Maruti:

3.37 Table showing the companies having high Positive correlation with Maruti

No	2006		2007		2008	
	Companies	Correlation	Companies	Correlation	Companies	Correlation
1	ABB	0.756	HDFCBANK	0.7094	ABB	0.758
2	ACC	0.714	Reliance	0.7818		
3	Grasim	0.896	Sail	0.7922		
4	Herohonda	0.702	Tatamotors	0.8229		
5	ITC	0.812				
6	Bhel	0.713				
7	Hindunilvr	0.766				
8	Tatamotors	0.769				
9	Tatasteels	0.766				
10	Index	0.815				

Source: Secondary data

3.38 Table showing the companies having negative correlation with Maruti

No	2006	
	Companies	Correlation
1	L&T	-0.097

Source: Secondary data

Interpretation:

The tables above show the companies having high positive correlation and those companies having negative correlation with Maruti. From the table it is clear that the proportion of companies with high positive relationship had declined year by year. In 2008, ABB alone was having high positive correlation. The company L&T is found to have a negative relationship in 2006 and there was no negative correlation with any other securities in the year 2007 and 2008.

3.7.17 ONGC:

3.39 Table showing the companies having high Positive correlation with ONGC

No	2006		2007		2008	
	Companies	Correlation	Companies	Correlation	Companies	Correlation
1	Satyam	0.894	HDFCBANK	0.7167	Cipla	0.776
2			ICICIBANK	0.8658	Gail	0.912
3			L&T	0.8065	Herohonda	0.780
4			Satyam	0.8088	ITC	0.704
5			Tatacom	0.7906	L&T	0.815
6			Index	0.9089	Reliance	0.731
7					Bhel	0.850
8					Hindunivr	0.805
9					Index	0.806

Source: Secondary data

3.40 Table showing the companies having negative correlation with ONGC

No	2006		2007		2008	
	Companies	Correlation	Companies	Correlation	Companies	Correlation
1	ICICIBANK	-0.054	ACC	-0.169	Infosystch	-0.003
2	Infosystch	-0.221	ITC	-0.167	satyam	-0.118
3	M&M	-0.299				
4	TCS	-0.103				

Source: Secondary data

Interpretation:

The tables above show the companies having high positive correlation and those companies having negative correlation with ONGC. From the table it can be inferred that the number of companies with high positive correlation had been increasing year by year. In 2006 and 2008, Computer software companies were found to have negative correlation with ONGC.

3.7.18 PNB

3.41 Table showing the companies having high Positive correlation with PNB

No	2006		2007		2008	
	Companies	Correlation	Companies	Correlation	Companies	Correlation
1	SBI	0.869	Tatacom	0.7041	HDFC	0.770
2					HDFCBANK	0.843
3					ICICIBANK	0.773
4					SBI	0.930
5					Hindunilvr	0.800
6					Index	0.719

Source: Secondary data

3.42 Table showing the companies having negative correlation with PNB

No	2006		2007		2008	
	Companies	Correlation	Companies	Correlation	Companies	Correlation
1	Herohonda	-0.075	Bhartiartl	-0.016	Bhartiartl	-0.193
2	Infosystch	-0.322	L&T	-0.021	satyam	-0.159
3	L&T	-0.186	Sail	-0.005		
4	Reliance	-0.136				
5	Sail	-0.038				
6	Tatasteels	-0.03				
7	TCS	-0.23				

Source: Secondary data

Interpretation:

The tables above show the companies having high positive correlation and those companies having negative correlation with PNB. The company had a good relationship with its own banking sector companies and with the index. The company Bhartiartel was having negative correlation in the last two consecutive years.

3.7.19 Ranbaxy

3.43 Table showing the companies having high Positive correlation with Ranbaxy

No	2007		2008	
	Companies	Correlation	Companies	Correlation
1	M&M	0.7172	Wipro	0.720
2	Hindunilvr	0.7367		
3	Tatamotors	0.7986		
4	Tatasteels	0.7535		
5	Zee	0.9473		

Source: Secondary data

3.44 Table showing the companies having negative correlation with Ranbaxy

No	2006		2008	
	Companies	Correlation	Companies	Correlation
1	Cipla	-0.092	Bhartiartl	-0.123
2	Infosystch	-0.13	Tatacom	-0.100
3	L&T	-0.012		
4	TCS	-0.061		
5	Wipro	-0.059		

Source: Secondary data

Interpretation:

The tables above show the companies having high positive correlation and those companies having negative correlation with Ranbaxy. In 2007, automobiles industry was found to have good relationship with Ranbaxy and Wipro alone had high positive correlation in the year 2008. Though Cipla belong to Pharma Industry, it had a negative correlation and also Telecommunication companies moved in an opposite direction.

3.7.20 Reliance Industries

3.45 Table showing the companies having high Positive correlation with Reliance Industries

No	2006		2007		2008	
	Companies	Correlation	Companies	Correlation	Companies	Correlation
1	Hindalco	0.854	HDFCBANK	0.8129	ABB	0.775
2	Tatasteels	0.724	Maruti	0.7818	Ambujacem	0.727
3			Sail	0.8287	Gail	0.840
4			Bhel	0.7034	Grasim	0.804
5			Tatamotors	0.7012	HDFC	0.792
6			Index	0.8166	HDFCBANK	0.743
7					ICICIBANK	0.760
8					L&T	0.798
9					M&M	0.775
10					ONGC	0.731
11					Sail	0.799
12					SBIN	0.719
13					Hindalco	0.823
14					Hindunilvr	0.726
15					Tatamotors	0.867
16					Tatasteels	0.873
17					Wipro	0.708
18					Index	0.914

Source: Secondary data

3.46 Table showing the companies having negative correlation with Reliance Industries

No	2006		2007		2008	
	Companies	Correlation	Companies	Correlation	Companies	Correlation
1	Cipla	-0.614	Cipla	-0.007	Bhartiartl	-0.129
2	ICICIBANK	-0.153				
3	PNB	-0.136				
4	Satyam	-0.034				
5	SBI	-0.098				

Source: Secondary data

Interpretation:

The tables above show the companies having high positive correlation and those companies having negative correlation with Reliance. Almost the sectors such as Cement , bank , metals and FMCG had a high positive relationship with Reliance. The company Cipla had negative correlation in the first two consecutive years. Most of the companies had positive relationship with Reliance Industries

3.7.21 SAIL:

3.47 Table showing the companies having high Positive correlation with SAIL

No	2006		2007		2008	
	Companies	Correlation	Companies	Correlation	Companies	Correlation
1	Tatacom	0.736	Bhartiartl	0.7137	ABB	0.763
2	TCS	0.721	Maruti	0.7922	Gail	0.702
3			Reliance	0.8287	Grasim	0.828
4			Bhel	0.725	ICICIBANK	0.806
5			Tatamotors	0.7029	M&M	0.754
6			Index	0.7419	Reliance	0.799
7					Bhel	0.743
8					Hindalco	0.774
9					Tatamotors	0.773
10					Tatasteels	0.791
11					Index	0.825

Source: Secondary data

3.48 Table showing the companies having negative correlation with SAIL

No	2006		2007		2008	
	Companies	Correlation	Companies	Correlation	Companies	Correlation
1	ICICIBANK	-0.154	PNB	-0.005	Bhartiartl	-0.245
2	PNB	-0.038				
3	Satyam	-0.074				

Source: Secondary data

Interpretation:

The tables above show the companies having high positive correlation and those companies having negative correlation with SAIL. From the table it can be inferred that SAIL had a high positive correlation with its own metal industry companies, Cement, and automobile industry. The bank PNB was found to have a negative relationship in first two consecutive years. In 2008, Bhartiartel was alone having negative correlation.

3.7.22 Satyam

3.49 Table showing the companies having high Positive correlation with Satyam

No	2006		2007		2008	
	Companies	Correlation	Companies	Correlation	Companies	Correlation
1	ONGC	0.894	ONGC	0.8088	Infosystch	0.909

Source: Secondary data

3.50 Table showing the companies having negative correlation with Satyam

No	2006		2007		2008	
	Companies	Correlation	Companies	Correlation	Companies	Correlation
1	ABB	-0.235	ACC	-0.186	ACC	-0.250
2	Bhartiartl	-0.073	ITC	-0.279	Ambujacem	-0.315
3	HDFCBANK	-0.159			Gail	-0.087
4	ICICIBANK	-0.15			Grasim	-0.186
5	Infosystch	-0.26			L&T	-0.124
6	L&T	-0.063			ONGC	-0.118
7	M&M	-0.396			PNB	-0.159
8	Reliance	-0.034			SBI	-0.202
9	Sail	-0.074			Bhel	-0.112
10	Hindalco	-0.186			Hindunilvr	-0.012
11	Tatacom	-0.017			Tatacom	-0.120
12	TCS	-0.146			Zee	-0.094

Source: Secondary data

Interpretation:

The tables above show the companies having high positive correlation and those companies having negative correlation with Satyam. The companies ONGC and Infosys technologies were having high positive relationship with Satyam. Almost all companies had negative correlation except the year 2007. The story of Satyam computers became pathetic since the books of accounts had been misrepresented to make easy money by the way of boosting up the market capitalization. Recently it has been taken over by Tech Mahindra.

3.7.23 SBI

3.51 Table showing the companies having high Positive correlation with SBI

No	2006		2007		2008	
	Companies	Correlation	Companies	Correlation	Companies	Correlation
1	Bhartiartl	0.813	Grasim	0.7036	HDFC	0.801
2	ICICIBANK	0.768	HDFC	0.7763	HDFCBANK	0.788
3	PNB	0.869	HDFCBANK	0.7436	Herohonda	0.827
4					ICICIBANK	0.780
5					PNB	0.930
6					Reliance	0.719
7					Bhel	0.701
8					Hindunilvr	0.852
9					Index	0.793

Source: Secondary data

3.52 Table showing the companies having negative correlation with SBI

No	2006		2007		2008	
	Companies	Correlation	Companies	Correlation	Companies	Correlation
1	Infosystch	-0.132	ABB	-0.088	Bhartiartl	-0.168
2	L&T	-0.096	Bhartiartl	-0.156	Infosystch	-0.029
3	Reliance	-0.098	Bhel	-0.028	satyam	-0.202
4	TCS	-0.01	TCS	-0.134		
5			Wipro	-0.145		

Source: Secondary data

Interpretation:

The tables above show the companies having high positive correlation and those companies having negative correlation with SBI. The bank is found to have a high positive relationship with its banking sector over the three year period. From the table it is quiet clear that SBI had a negative relationship with the computer software companies.

3.7.24 BHEL

3.53 Table showing the companies having high Positive correlation with BHEL

No	2006		2007		2008	
	Companies	Correlation	Companies	Correlation	Companies	Correlation
1	ACC	0.719	ABB	0.954	Cipla	0.774
2	Grasim	0.789	Reliance	0.7034	Gail	0.774
3	ITC	0.721	Sail	0.725	ITC	0.712
4	Maruti	0.713			ONGC	0.850
5	Hindunilvr	0.769			Sail	0.743
6	Index	0.810			SBI	0.701
7					Hindunilvr	0.789
8					Index	0.806

Source: Secondary data

3.54 Table showing the companies having negative correlation with BHEL

No	2006		2007		2008	
	Companies	Correlation	Companies	Correlation	Companies	Correlation
1	Infosystch	-0.002	ACC	-0.153	Bhartiartl	-0.003
2			Ambujacem	-0.147		
3			Cipla	-0.029		
4			Infosystch	-0.148		
5			SBI	-0.028		
6			Hindaico	-0.115		

Source: Secondary data

Interpretation:

The tables above show the companies having high positive correlation and those companies having negative correlation with BHEL. In 2006 and 2008, BHEL was observed to have a good relationship with Cement and FMCG sector. On the same hand the relationship with the cement industry was negative in 2007.

3.7.25 Hindalco

3.55 Table showing the companies having high Positive correlation with Hindalco

No	2006		2007		2008	
	Companies	Correlation	Companies	Correlation	Companies	Correlation
1	ABB	0.824	Ambujacem	0.7453	Gail	0.736
2	ACC	0.704	Grasim	0.7295	ITC	0.717
3	Grasim	0.739	Infosystch	0.7167	L&T	0.720
4	Reliance	0.854	Tatacom	0.7054	Reliance	0.823
5	Tatasteels	0.783	Index	0.776	Sail	0.774
6	Index	0.758			Hindunilvr	0.746
7					Tatamotors	0.740
8					Tatasteels	0.808
9					TCS	0.746
10					Wipro	0.791
11					Index	0.877

Source: Secondary data

3.56 Table showing the companies having negative correlation with Hindalco

No	2006		2007	
	Companies	Correlation	Companies	Correlation
1	Cipla	-0.369	ABB	-0.218
2	Satyam	-0.186	Bhel	-0.115

Source: Secondary data

Interpretation:

The tables above show the companies having high positive correlation and those companies having negative correlation with Hindalco. From the table it is clear that Hindalco had a high positive correlation with Metals, Cement, FMCG and Computer software industries. In 2007, Hindalco was found to have a negative correlation with Electrical Industry.

3.7.26 Hindustan unilever

3.57 Table showing the companies having high Positive correlation with Hindustan unilever

No	2006		2007		2008	
	Companies	Correlation	Companies	Correlation	Companies	Correlation
1	ACC	0.770	Ranbaxy	0.7367	Gail	0.775
2	Grasim	0.816			HDFC	0.755
3	Maruti	0.766			HDFCBANK	0.765
4	Bhel	0.769			Herohonda	0.856
5	Tatasteels	0.734			ITC	0.802
6					L&T	0.730
7					ONGC	0.805
8					PNB	0.800
9					Reliance	0.726
10					SBIN	0.852
11					Bhel	0.789
12					Hindalco	0.746
13					Index	0.864

Source: Secondary data

3.58 Table showing the companies having negative correlation with Hindustan unilever

No	2008	
	Companies	Correlation
1	Satyam	-0.012

Source: Secondary data

Interpretation:

The tables above show the companies having high positive correlation and those companies having negative correlation with Hindustan unilever. The company is found to have high positive relationship with FMCG, cement, and Banking sector. In 2007, Ranbaxy alone was high positive correlation. The years 2006 and 2007 had no negative correlation.

3.7.27 Tata communications

3.59 Table showing the companies having high Positive correlation with Tata communications

No	2006		2007		2008	
	Companies	Correlation	Companies	Correlation	Companies	Correlation
1	ABB	0.746	ICICIBANK	0.7103	ACC	0.841
2	Gail	0.835	ONGC	0.7906	Ambujacem	0.705
3	ITC	0.735	PNB	0.7041		
4	Sail	0.736	Hindalco	0.7054		
5	Index	0.702	Index	0.7574		

Source: Secondary data

3.60 Table showing the companies having negative correlation with Tata Communications

No	2006		2007		2008	
	Companies	Correlation	Companies	Correlation	Companies	Correlation
1	ICICIBANK	-0.088	ACC	-0.065	Cipla	-0.066
2	Satyam	-0.017			Bhartiartl	-0.299
3					Ranbaxy	-0.100
4					satyam	-0.120

Source: Secondary data

Interpretation:

The tables above show the companies having high positive correlation and those companies having negative correlation with Tata communications. The company moved in line with the index in positive direction in the first two consecutive years. The cement industries were alone having high positive relationship in the year 2008 whereas in 2007, it was negative. The pharmaceutical Industry is found to be negatively correlated in 2008.

3.7.28 Tata motors

3.61 Table showing the companies having high Positive correlation with Tata motors

No	2006		2007		2008	
	Companies	Correlation	Companies	Correlation	Companies	Correlation
1	Grasim	0.714	Grasim	0.7076	ABB	0.781
2	ITC	0.822	ITC	0.7475	Gail	0.816
3	Maruti	0.769	Maruti	0.8229	Grasim	0.878
4	Tatasteels	0.741	Ranbaxy	0.7986	HDFCBANK	0.713
5	Index	0.732	Reliance	0.7012	ICICIBANK	0.769
6			Sail	0.7029	L&T	0.877
7			Tatasteels	0.816	M&M	0.706
8					Reliance	0.867
9					Sail	0.773
10					Hindalco	0.740
11					Tatasteels	0.871
12					Index	0.853

Source: Secondary data

3.62 Table showing the companies having negative correlation with Tata motors

No	2008	
	Companies	Correlation
1	Bhartiartl	-0.172

Source: Secondary data

Interpretation:

The tables above show the companies having high positive correlation and those companies having negative correlation with Tata Motors. From the table it is clear that the sectors such as Banking, Metals, engineering and FMCG moved in the same direction with Tata motors. The years 2006 and 2007 had no negative correlation and Bhartiartel was alone having negative relationship in the year 2008.

3.7.29 Tata steels:

3.63 Table showing the companies having high Positive correlation with Tata steels

No	2006		2007		2008	
	Companies	Correlation	Companies	Correlation	Companies	Correlation
1	ACC	0.829	Ranbaxy	0.7535	ABB	0.712
2	Grasim	0.808	Tatamotors	0.816	Gail	0.712
3	ITC	0.709	Zee	0.7279	Grasim	0.871
4	Maruti	0.766			ICICIBANK	0.755
5	Reliance	0.724			L&T	0.748
6	Hindalco	0.783			Reliance	0.873
7	Hindunilvr	0.734			Sail	0.791
8	Tatamotors	0.741			Hindalco	0.808
9	Index	0.718			Tatamotors	0.871
10					Wipro	0.751
11					Index	0.816

Source: Secondary data

3.64 Table showing the companies having negative correlation with Tata Steels

No	2006		2008	
	Companies	Correlation	Companies	Correlation
1	Cipla	-0.225	Bhartiartl	-0.360
2	ICICIBANK	-0.063		
3	PNB	-0.03		

Source: Secondary data

Interpretation:

The tables above show the companies having high positive correlation and those companies having negative correlation with Tata Steels. The company is observed to have a good positive relationship with sectors such as Metals, Cement, Automobiles and FMCG. Some of the banking companies had negative relationship with Tata Steels in the year 2006.

3.7.30 TCS

3.65 Table showing the companies having high Positive correlation with TCS

No	2006		2007		2008	
	Companies	Correlation	Companies	Correlation	Companies	Correlation
1	Infosystch	0.975	Zee	0.7121	Infosystch	0.743
2	Sail	0.721			ITC	0.704
3					Hindalco	0.746
4					Wipro	0.823

Source: Secondary data

3.66 Table showing the companies having negative correlation with Sail

No	2006	
	Companies	Correlation
1	Cipla	-0.094
2	ICICIBANK	-0.182
3	ONGC	-0.103
4	PNB	-0.23
5	Ranbaxy	-0.061
6	Satyam	-0.146
7	SBI	-0.01

Source: Secondary data

Interpretation:

The tables above show the companies having high positive correlation and those companies having negative correlation with TCS. From the table it is clear that the company had a positive relationship with the sectors such as Computer software companies, FMCG and Oil sector. The year 2006 is alone found to have a negative relationship with Banking and Pharma Industries.

3.7.31 Zee

3.67 Table showing the companies having high Positive correlation with Zee

No	2006		2008	
	Companies	Correlation	Companies	Correlation
1	ACC	0.771	Grasim	0.754
2	Ambujacem	0.725		

Source: Secondary data

3.68 Table showing the companies having negative correlation with Zee

No	2006		2008	
	Companies	Correlation	Companies	Correlation
1	Infosystch	-0.004	Bhartiartl	-0.506
2	L&T	-0.015	Herohonda	-0.136
3	M&M	-0.093	satyam	-0.094

Source: Secondary data

Interpretation:

The tables above show the companies having high positive correlation and those companies having negative correlation with Zee. The company is found to have a positive relationship only with the Cement sector alone. There was no high positive or negative correlation for the year 2007.

3.7.32 WIPRO:

3.69 Table showing the companies having high Positive correlation with WIPRO

No	2006		2007		2008	
	Companies	Correlation	Companies	Correlation	Companies	Correlation
1	ABB	0.710	M&M	0.7008	ABB	0.742
2	Ambujacem	0.738			Infosystch	0.812
3	Gail	0.899			Ranbaxy	0.720
4	HDFCBANK	0.751			Reliance	0.708
5	Index	0.772			Hindalco	0.791
6					Tatasteels	0.751
7					TCS	0.823
8					Index	0.744

Source: Secondary data

3.70 Table showing the companies having negative correlation with WIPRO

No	2006		2007	
	Companies	Correlation	Companies	Correlation
1	Ranbaxy	-0.059	ACC	-0.270
2			Herohonda	-0.192
3			SBI	-0.145

Source: Secondary data

Interpretation:

The tables above show the companies having high positive correlation and those companies having negative correlation with Wipro. Over the three year period, the company is observed to have good relationship with the sectors such as Computer software companies, Metals and gas industries. There was no negative correlation in the year 2008.

3.7.33 Index

3.71 Table showing the companies having high Positive correlation with the Index

No	2006		2007		2008	
	Companies	Correlation	Companies	Correlation	Companies	Correlation
1	ABB	0.871	HDFC	0.758	ABB	0.801
2	ACC	0.851	HDFCBANK	0.869	Ambujacem	0.735
3	Ambujacem	0.873	ICICIBANK	0.904	Gail	0.873
4	Gail	0.803	L&T	0.772	Grasim	0.832
5	Grasim	0.865	ONGC	0.909	HDFC	0.763
6	Bhartiartl	0.781	Reliance	0.817	HDFCBANK	0.799
7	HDFCBANK	0.782	Sail	0.742	Herohonda	0.741
8	ITC	0.811	Hindalco	0.776	ICICIBANK	0.788
9	Maruti	0.815	Tatacom	0.757	ITC	0.762
10	Bhel	0.810			L&T	0.828
11	Hindalco	0.758			M&M	0.745
12	Tatacom	0.702			ONGC	0.806
13	Tatamotors	0.732			PNB	0.719
14	Tatasteels	0.718			Reliance	0.914
15	Wipro	0.772			Sail	0.825
16					SBI	0.793
17					Bhel	0.806
18					Hindalco	0.877
19					Hindunilvr	0.864
20					Tatamotors	0.853

Source: Secondary data

Interpretation:

The tables above show the companies having high positive correlation and those companies having negative correlation with the Index. In 2006, 15 companies moved along the same direction with the index and the number of companies with high positive correlation declined to 9 in the year 2007. The number was drastically increased to 20 companies in the year 2008. The Reliance industries had a correlation of .914 which shows it is highly inter-related with the market.

3.8 BETA

3.72 Table showing the companies whose beta is less than 1

2006		2007		2008	
Companies	Beta <1	Companies	Beta <1	Companies	Beta <1
Satyam	0.326	ITC	0.218	Satyam	0.182
Herohonda	0.448	TCS	0.294	Infosystch	0.372
M&M	0.467	ACC	0.327	MARUTI	0.466
Cipla	0.469	Hindunilvr	0.392	Cipla	0.514
L&T	0.489	Herohonda	0.397	ITC	0.535
ICICIBANK	0.581	Cipla	0.401	Zee	0.596
Ranbaxy	0.659	Bhartiartl	0.453	Hindunilvr	0.616
PNB	0.736	Infosystch	0.470	TCS	0.665
ONGC	0.800	PNB	0.516	Herohonda	0.683
HDFCBANK	0.812	Ambujacem	0.559	Tatacom	0.715
Reliance	0.860	M&M	0.597	Wipro	0.739
HDFC	0.880	Tatamotors	0.603	PNB	0.816
Sail	0.910	Wipro	0.660	ACC	0.820
SBI	0.935	Satyam	0.685	HDFC	0.848
Infosystch	0.979	SBI	0.727	M&M	0.877
		MARUTI	0.814	HDFCBANK	0.901
		Gail	0.844	BHEL	0.914
		Reliance	0.905	Ambujacem	0.936
		Ranbaxy	0.922		

Source: Secondary data

Interpretation:

The companies whose beta value was less than 1 are listed in the above table. It shows that the companies had generated less return than the market and the risk associated with these securities are found to be less. The investors with long term investment objective invest in this type of stock and speculation has no role to play in this type of investment. The risk averse investors to be on the safer side can choose this type of securities.

3.73 Table showing the companies whose beta is greater 1

2006		2007		2008	
Companies	Beta >1	Companies	Beta >1	Companies	Beta >1
TCS	1.154	Grasim	1.126	ONGC	1.086
Tatamotors	1.155	HDFCBANK	1.171	ICICIBANK	1.144
Hindunilvr	1.178	ICICIBANK	1.216	SBI	1.159
BHEL	1.222	Zee	1.298	Ranbaxy	1.308
Gail	1.223	Hindalco	1.375	Grasim	1.312
MARUTI	1.246	BHEL	1.419	Sail	1.314
Tatacom	1.309	ONGC	1.454	Hindalco	1.433
ITC	1.311	L&T	1.486	Gail	1.530
Tatasteels	1.386	Tatacom	1.521	Tatamotors	1.617
Zee	1.488	ABB	1.880	Tatasteels	1.895
Hindalco	1.491			L&T	2.245
ABB	1.745				
Ambujacem	1.813				
ACC	1.922				
Grasim	2.000				

Source: Secondary data

Interpretation:

The companies whose beta value was greater than 1 are listed in the above table. It shows that the companies had generated more returns than the market and the risk associated with these securities are also found to be high. The investors with speculative motive invest in this type of stock in order to gain more returns.

3.74 Table showing the companies whose beta is equal to 1

2006		2007		2008	
Companies	Beta =1	Companies	Beta =1	Companies	Beta =1
Infosystch	0.979	HDFC	1.020	Reliance	1.004
Bhartiartl	1.004	Tatasteels	1.032	ABB	1.015
Wipro	1.021	Sail	1.046		

Source: Secondary data

Interpretation:

The companies whose beta value was equal to 1 are listed in the above table. This shows that the above companies were performed in line with the market. The return provided by this type of securities equals the return provided by the market. The investors assume moderate risk by investing in this type of securities.

Findings, Suggestions and Conclusion

CHAPTER IV

FINDINGS, SUGGESTIONS AND CONCLUSION

4.1 FINDINGS:

4.1.1 ABB:

- The mean return of ABB was 3.509, -7.502 and -10.031 in the year 2006, 2007 and 2008 respectively. Except the year 2006, the mean return of ABB was negative. In the year 2006, the company was ranked in 9th position in terms of mean returns. The mean return of the year 2008 was less than that of the mean return of the year 2007.
- The standard deviation of ABB was 12.357, 41.755, and 14.656 in the three consecutive years. The deviation from the mean was so high in the year 2007 and it got the least rank i.e., 32nd. In the year 2008, the deviation was quiet less comparing to the year 2007.
- The maximum return provided by ABB was 19.968, 19.497, and 12.723 in the year 2006, 2007 and 2008 respectively. The company provided maximum returns in the year 2006. The minimum return provided by the company was -29.303, -143.679 and -37.227 in all the three consecutive years.
- The company got 23rd, 32nd and 16th rank in terms of range. The fluctuations in returns were less in the year 2008.
- The coefficient of variation in the 2008 was 3.521 and it got 12th rank. The lower the co- efficient of correlation, the lower will be the risk.
- The beta was above 1 in all the three years which shows that the securities provide more returns than the market.
- ABB was highly positively correlated with the securities that belong to Cement, metals, and automobile industry.

4.1.2 ACC:

- The company has got 2nd, 24th and 15th rank in terms of mean returns in the three consecutive years. The return was negative in the year 2007 and 2008.
- The Standard deviation was 13.943, 10.494 and 14.504 in the year 2006, 2007 and 2008 respectively. The deviation is found to be higher in the third year.
- The company had obtained 3rd, 23rd and 17th rank under the criteria maximum returns. It had provided maximum returns in the year 2006.
- On the same hand it was in the top ten list in the provision of minimum returns in the first two consecutive years.
- The year 2008 alone is having Coefficient of variation which got 7th rank.
- The beta was above 1 in the 1st year and they were less than 1 in the next two consecutive years. It means in the year 2006, the company generated more returns than the market and in subsequent years it had performed less than the market.
- The company was found to have positive relationship with cement industry, metals, gas and automobiles industry. It was having a negative relationship with Bhartiairtel, Cipla and with most of the computer software industries.

4.1.3 Ambuja cements:

- The company has got 7nd, 21th and 14th rank in terms of mean returns in the three consecutive years. The return was negative in the year 2008.
- The Standard deviation was 12.811, 7.502 and 14.732 in the year 2006, 2007 and 2008 respectively. The deviation is found to be higher in the third year.

- The company had obtained 10th, 30th and 3rd rank under the criteria of maximum returns. It had provided maximum returns in the year 2008.
- The company was ranked in 9th, 10th, and 24th position in the provision of minimum returns.
- In terms of range the ranks obtained were 24th, 11th and 18th in the three year period respectively. The return fluctuation was less in the year 2007.
- The coefficient of variation was 21.609 in the year 2007 where the variability was high. This indicates that the risk was high
- The beta was above 1 in the 1st year where the returns were more than the market return. In the next two consecutive years the beta was less than 1.
- The company was having high positive correlation with cement, metals and automobile industry. The companies such as Cipla, Bhartiairtel, BHEL and some of the computer software industry had a negative relationship with Ambuja cements.

4.1.4 Cipla:

- The company has got 32nd, 29th and 3rd rank in terms of mean returns in the three consecutive years. The returns were negative in the year 2007 and 2008.
- The Standard deviation was 29.602, 7.936 and 10.082 in the year 2006, 2007 and 2008 respectively. The deviation is found to be higher in the first year and it was declined by 73% in the second year.
- The company had obtained 6th, 18th and 26th rank under the criteria of maximum returns. It had provided maximum returns in the year 2006.

- The company was ranked in 1st, 15th and 25th position in the provision of minimum returns for the three years respectively. It has provided a very least returns in the year 2006.
- In terms of range the ranks obtained were 32nd, 13th and 7th in the three year period respectively. The return fluctuation was less in the year 2008.
- The expected returns for all three years were negative. The coefficient of variation cannot be calculated.
- The beta was less than 1 in all the three years which shows that the securities provide less returns than the market.
- The company got a high positive correlation with Gail, ITC, ONGC and BHEL in the year 2008. By making overall comparison the relationship was negative with sectors like cement, Computer software companies and metal industry.

4.1.5 Gail:

- The company has got 25th, 4th and 20th rank in terms of mean returns in the three consecutive years. The return was positive only in the year 2007.
- The Standard deviation was 9.396, 9.130 and 20.278 in the year 2006, 2007 and 2008 respectively. The deviation is found to be higher in the third year.
- The company had obtained 19th, 6th and 28th rank under the criteria of maximum returns. It had provided maximum returns in the year 2007.
- The company was ranked in 18th, 26th, and 6th position in the provision of minimum returns for the three years respectively.
- In terms of range the ranks obtained were 14th, 21st and 26th in the three year period respectively. The return fluctuation was less in the year 2006.

- The coefficient of variation was 1.497 in the year 2007 and it had obtained 5th position.
- The beta was less than 1 in the first two years consecutively where it had provided less return than the market. The performance was above the market in the year 2008.
- In 2008, 13 companies had positive correlation with Gail and satyam alone was having negative relationship.

4.1.6 Grasim:

- The company has got 1st, 14th and 24th rank in terms of mean returns in the three consecutive years. The return was negative only in the year 2008.
- The Standard deviation was 14.270, 10.266 and 18.247 in the year 2006, 2007 and 2008 respectively. The deviation is found to be higher in the third year.
- The company had obtained 13th, 14th and 2nd rank under the criteria of maximum returns. It had provided maximum returns in the year 2007.
- The company was ranked in 7th, 6th, and 7th position in the provision of minimum returns for the three years respectively.
- In terms of range the ranks obtained were 27th, 26th and 27th in the three year period respectively. The return fluctuation was high in all the years.
- The coefficient of variation was 2.934 in the year 2006 and it had obtained 6th position.
- The beta was above 1 in all the three years which shows that the securities provide more returns than the market.

- The Cement, Banking, Automobile, Metal, Entertainment, Engineering sector had high positive correlation whereas negative correlation was associated with Cipla, airtel, and Satyam.

4.1.7 Bhartiairtel:

- The company has got 5th, 10th and 29th rank in terms of mean returns in the three consecutive years. The return was negative only in the year 2008.
- The Standard deviation was 7.927, 4.992 and 29.72 in the year 2006, 2007 and 2008 respectively. The deviation is found to be higher in the third year.
- The company had obtained 15th, 26th and 31st rank under the criteria of maximum returns. It had provided maximum returns in the year 2006.
- The company was ranked in 28th, 29th, and 2th position in the provision of minimum returns for the three years respectively.
- In terms of range the ranks obtained were 6th, 2nd and 3rd in the three year period respectively.
- The coefficient of variation was 1.537 in the year 2006 and 1.306 in the year 2007. They had obtained 2nd and 3rd position in the respective years.
- The beta was above 1, less than 1 and negative in the year 2006, 2007 and 2008 respectively. The negative beta indicates that the security is moving in an opposite direction with the market.
- The high positive correlation is observed to have with Gail, SBI, HDFC, and SAIL. The company was having negative correlation with cement, banking, entertainment, automobile sector and also with index.

4.1.8 HDFC:

- The company has got 16th, 8th and 13th rank in terms of mean returns in the three consecutive years. The return was negative only in the year 2008.
- The Standard deviation was 8.273, 8.391 and 12.859 in the year 2006, 2007 and 2008 respectively. The deviation is found to be higher in the third year.
- The company had obtained 17th, 4th and 18th rank under the criteria of maximum returns. It had provided maximum returns in the year 2007.
- The company was ranked in 22nd, 21st, and 22nd position in the provision of minimum returns for the three years respectively.
- In terms of range the ranks obtained were 7th, 24th and 11th in the three year period respectively. The return fluctuation was less in the year 2006.
- The coefficient of variation was 4.685 in the year 2006 and 1.765 in the year 2007. The variation was high in the year 2006.
- The beta was less than 1 in the first and third year whereas it was greater than 1 in the year 2007.
- The company had high positive correlation with banking sector, Hindustan unilever, Reliance industries, SBI, Herohonda and with Index. It was negatively correlated with L&T in the year 2007.

4.1.9 HDFC Bank:

- The company has got 12th, 9th and 8th rank in terms of mean returns in the three consecutive years. The return was negative only in the year 2008.
- The Standard deviation was 6.413, 8.411 and 13.040 in the year 2006, 2007 and 2008 respectively. The deviation is found to be higher in the third year.

- The company had obtained 28th, 10th and 20th rank under the criteria of maximum returns. It had provided maximum returns in the year 2007.
- The company was ranked in 29th, 13th, and 18th position in the provision of minimum returns for the three years respectively.
- In terms of range the ranks obtained were 3rd, 23rd and 14th in the three year period respectively. The return fluctuation was less in the 2006.
- The coefficient of variation was 2.093 in the year 2006 and 2.095 in the year 2007. The variation was high in both the years.
- The beta was less than 1 in the first and third year whereas it was greater than 1 in the year 2007.
- The banking sector companies move along the same direction. The companies Cipla, L&T and Satyam had negative correlation in the year 2006 and in 2008 Bhartiairtel alone is found to have a negative relationship with HDFC bank.

4.1.10 Herohonda:

- The company has got 26th, 26th and 2nd rank in terms of mean returns in the three consecutive years. The return was negative in the year 2006 and 2007.
- The Standard deviation was 5.524, 5.6 and 10.675 in the year 2006, 2007 and 2008 respectively. The deviation is found to be higher in the third year.
- The company had obtained 32nd, 20th and 10th rank under the criteria of maximum returns. It had provided maximum returns in the year 2008.
- The company was ranked in 27th, 31st, and 31th position in the provision of minimum returns for the three years respectively.

- In terms of range the ranks obtained were 1st, 3rd and 5th in the three year period respectively. The return fluctuation was less in all the three years.
- The coefficient of variation was 8.939 in the year 2008 which was too high.
- The beta was less than 1 in all the three years where it provided returns below the market returns.
- The banking sector is observed to have high positive correlation with Herohonda in the second two consecutive years. In the year 2006 PNB and L&T were having negative relationship. The companies WIPRO and Zeel moved in opposite direction with the market index in 2007 and 2008 respectively.

4.1.11 ICICI:

- The company has got 10th, 12th and 23rd rank in terms of mean returns in the three consecutive years. The return was negative in the year 2008.
- The Standard deviation was 8.479, 8.393 and 16.805 in the year 2006, 2007 and 2008 respectively. The deviation is found to be higher in the third year.
- The company had obtained 16th, 13th and 7th rank under the criteria of maximum returns. It had provided maximum returns in the year 2008.
- The company was ranked in 30th, 18th, and 15th position in the provision of minimum returns for the three years respectively.
- In terms of range the ranks obtained were 5th, 18th and 21st in the three year period respectively. The return fluctuation was less the year 2006.
- The expected returns for all three years were negative. The coefficient of variation cannot be calculated.
- The beta was less than 1 in the first two years consecutively where it had provided less return than the market. The performance was above the market in the year 2008.

- The ICICI bank was highly positively correlated with Tata group of companies in the second two consecutive years where the relationship was negative in the year 2006. In 2008 Bhartiairtel was alone moved in opposite direction with respect to the movement of ICICI bank.

4.1.12 Infosys Technologies:

- The company has got 27th, 31st and 6th rank in terms of mean returns in the three consecutive years. The return was negative in the year 2007 and 2008.
- The Standard deviation was 19.619, 5.858 and 12.087 in the year 2006, 2007 and 2008 respectively. The deviation is found to be higher in the first year.
- The company had obtained 26th, 31st and 13th rank under the criteria of maximum returns. It had provided maximum returns in the year 2008.
- The company was ranked in 4th, 14th, and 27th position in the provision of minimum returns for the three years respectively.
- In terms of range the ranks obtained were 30th, 9th and 10th in the three year period respectively. The return fluctuation was less in all the three years.
- The coefficient of variation was 24.081 in the year 2006 and 6.33 in the year 2007. The variation was high in both the years, however the year 2006 is comparatively better than 2006.
- The beta was less than 1 in all the three years where it provided returns below the market returns.
- The company was having high positive relationship with the computer software companies. By making overall comparison Banking, Cement, Pharma and Electrical industries were having negative correlation with Infosys technologies.

4.1.13 ITC:

- The company has got 19th, 16th and 4th rank in terms of mean returns in the three consecutive years. The return was negative in the year 2008.
- The Standard deviation was 9.979, 7.057 and 8.114 in the year 2006, 2007 and 2008 respectively. The deviation is found to be higher in 2006.
- The company had obtained 23rd, 27th and 30th rank under the criteria of maximum returns. It had provided maximum returns in the year 2006.
- The company was ranked in 17th, 17th and 30th position in the provision of minimum returns.
- In terms of range the ranks obtained were 13th, 7th and 2nd in the three year period respectively. The return fluctuation was very low in 2008.
- The coefficient of variation was 11.884 in the year 2007 where the variability was high. This indicates that the risk was high.
- The beta was above 1 in the 1st year where the returns were more than the market return. In the next two consecutive years the beta was less than 1.
- The company was performed in line with the market index in the year 2006 and 2007. The Company had a high positive relationship with Tata group of companies and also with automobiles industry. In 2007 ONGC showed a negative relationship whereas in the year 2008, the trend got reversed and it moved in the same direction along with ITC.

4.1.14 L&T:

- The company has got 30th, 2nd and 32nd rank in terms of mean returns in the three consecutive years. The return was negative in the year 2006 and 2008.
- The Standard deviation was 20.24, 12.00 and 31.37 in the year 2006, 2007 and 2008 respectively. The deviation is found to be higher in 2008.

- The company had obtained 29th, 1st and 15th rank under the criteria of maximum returns. It had provided maximum returns in the year 2007.
- The company was ranked in 2nd, 30th and 1st position in the provision of minimum returns.
- In terms of range the ranks obtained were 31st, 30th and 32nd in the three year period respectively. The return fluctuation was very high in all the three years.
- The coefficient of variation was 2.450 in the year 2006 and 3.062 in the year 2007. The variation was comparatively less in the year 2006.
- The beta was above 1 in the 1st year where the returns were more than the market return. In the next two consecutive years the beta was less than 1.
- ONGC had high positive correlation with L&T in the second and third year consecutively. In 2006, almost all companies showed a negative return. The banking sector had a negative relationship with L&T in the year 2006. The company Satyam was alone having negative correlation in 2008.

4.1.15 M&M:

- The company has got 6th, 23rd and 25th rank in terms of mean returns in the three consecutive years. The return was negative in the year 2007 and 2008.
- The Standard deviation was 5.426, 6.369 and 13.621 in the year 2006, 2007 and 2008 respectively. The deviation is found to be higher in 2008.
- The company had obtained 22nd, 15th and 32nd rank under the criteria of maximum returns. It had provided maximum returns in the year 2007.
- The company was ranked in 32nd, 20th and 17th position in the provision of minimum returns.
- In terms of range the ranks obtained were 2nd, 12th and 8th in the three year period respectively. The return fluctuation was low in the year 2006

- The expected returns for all three years were negative. The coefficient of variation cannot be calculated.
- The beta was less than 1 in all the three years where it provided returns below the market returns.
- In 2006, ABB alone was having high positive relationship. Though M&M belong to automobile industry it had a high positive relationship with IT and Cement industry during 2007 and 2008 respectively. The companies ONGC, Satyam and Zee moved in a opposite direction with respect to the movement of M&M

4.1.16 Maruti:

- The company has got 15th, 20th and 12th rank in terms of mean returns in the three consecutive years. The return was negative in the year 2008.
- The Standard deviation was 9.436, 7.295 and 9.927 in the year 2006, 2007 and 2008 respectively. The deviation is found to be higher in 2008.
- The company had obtained 25th, 22nd and 27th rank under the criteria of maximum returns. It had provided maximum returns in the year 2007.
- The company was ranked in 13th, 23rd and 29th position in the provision of minimum returns.
- In terms of range the ranks obtained were 15th, 8th and 3rd in the three year period respectively. The return fluctuation was low in the year 2008.
- The coefficient of variation was 8.514 in the year 2006 and 4.883 in the year 2007. The variation was comparatively less in the year 2007.
- The beta was above 1 in the 1st year where the returns were more than the market return. In the next two consecutive years the beta was less than 1.

- The proportion of companies with high positive relationship had declined year by year. In 2008, ABB alone was having high positive correlation. The company L&T is found to have a negative relationship in 2006 and there was no negative correlation with any other securities in the year 2007 and 2008.

4.1.17 ONGC:

- The company has got 29th, 11th and 10th rank in terms of mean returns in the three consecutive years. The return was negative in the year 2006 and 2008.
- The Standard deviation was 12.832, 9.981 and 15.582 in the year 2006, 2007 and 2008 respectively. The deviation is found to be higher in 2008.
- The company had obtained 20th, 3rd and 11th rank under the criteria of maximum returns. It had provided maximum returns in the year 2008.
- The company was ranked in 6th, 12th and 9th position in the provision of minimum returns.
- In terms of range the ranks obtained were 25th, 27th and 24th in the three year period respectively. The return fluctuation was low in the year 2008.
- The coefficient of variation was 8.514 in the year 2006 and 4.883 in the year 2007. The variation was comparatively less in the year 2007.
- The beta was above 1 in the 1st year where the returns were more than the market return. In the next two consecutive years the beta was less than 1.
- The number of companies with high positive correlation had been increasing year by year. In 2006 and 2008, Computer software companies were found to have negative correlation with ONGC.

4.1.18 PNB:

- The company has got 22nd, 13th and 7th rank in terms of mean returns in the three consecutive years. The return was negative in the year 2008.
- The Standard deviation was 11.872, 8.913 and 13.138 in the year 2006, 2007 and 2008 respectively. The deviation is found to be higher in 2008.
- The company had obtained 9th, 21st and 14th rank under the criteria of maximum returns. It had provided maximum returns in the year 2006.
- The company was ranked in 15th, 9th and 23rd position in the provision of minimum returns.
- In terms of range the ranks obtained were 19th, 20th and 12th in the three year period respectively. The return fluctuation was low in the year 2006.
- The coefficient of variation was 1.226 in the year 2006 which was the minimum variation in the year 2006.
- The beta was less than 1 in all the three years where it provided returns below the market returns.
- The company had a good relationship with its own banking sector companies and with the index. The company Bhartiairtel was having negative correlation in the last two consecutive years

4.1.19 Ranbaxy:

- The company has got 24th, 19th and 18th rank in terms of mean returns in the three consecutive years. The return was negative in the year 2006 and 2008.
- The Standard deviation was 8.9, 8.717 and 27.038 in the year 2006, 2007 and 2008 respectively. The deviation is found to be higher in the third year.
- The company had obtained 31st, 28th and 5th rank under the criteria of maximum returns. It had provided maximum returns in the year 2008.

- The company was ranked in 25th, 8th, and 3rd position in the provision of minimum returns for the three years respectively.
- In terms of range the ranks obtained were 4th, 14th and 29th in the three year period respectively. The return fluctuation was low in the year 2006.
- The coefficient of variation was 5.115 in the year 2006 and 12.89 in the year 2007. The variation was comparatively less in the year 2007.
- The beta was less than 1 in the first two consecutive years where the performance was less than the market and it was greater than 1 in the next year 2008.
- In 2007, automobiles industry was found to have good relationship with Ranbaxy and Wipro alone had high positive correlation in the year 2008. Though Cipla belong to Pharma Industry, it had a negative correlation and also Telecommunication companies moved in an opposite direction.

4.1.20 Reliance:

- The company has got 4th, 3rd and 21st rank in terms of mean returns in the three consecutive years. The return was negative in the year 2008.
- The Standard deviation was 9.103, 6.916 and 12.711 in the year 2006, 2007 and 2008 respectively. The deviation is found to be higher in the third year.
- The company had obtained 5th, 12th and 22nd rank under the criteria of maximum returns. It had provided maximum returns in the year 2006.
- The company was ranked in 25th, 8th, and 3rd position in the provision of minimum returns for the three years respectively.
- In terms of range the ranks obtained were 31st, 32nd and 14th in the three year period respectively. The return fluctuation was less in the year 2008.
- The coefficient of variation was 3.417 in the year 2007 which is found to be less when comparing with other securities.

- The beta was less than 1 in the first two years and in the year 2008 beta was equal to 1 where the return was equal to the market returns.
- Almost the sectors such as Cement, bank, metals and FMCG had a high positive relationship with Reliance. The company Cipla had negative correlation in the first two consecutive years. Most of the companies had positive relationship with Reliance Industries Pharma Industry, it had a negative correlation and also Telecommunication companies moved in an opposite direction.

4.1.21 SAIL:

- The company has got 8th, 1st and 27th rank in terms of mean returns in the three consecutive years. The return was negative in the year 2008.
- The Standard deviation was 9.965, 8.801 and 18.432 in the year 2006, 2007 and 2008 respectively. The deviation is found to be higher in the third year.
- The company had obtained 2nd, 7th and 16th rank under the criteria of maximum returns. It had provided maximum returns in the year 2008.
- The company was ranked in 24th, 28th, and 20th position in the provision of minimum returns for the three years respectively.
- In terms of range the ranks obtained were 17th, 16th and 20th in the three year period respectively. The return fluctuation was less in the year 2007.
- The coefficient of variation was 15.234 in the year 2006 and 3.954 in the year 2007. The variation was comparatively less in the year 2007.
- The beta was less than 1 in the first year where the performance was less than the market and it was greater than 1 in the next two consecutive years.
- SAIL had a high positive correlation with its own metal industry companies, Cement, and automobile industry. The bank PNB was found to have a negative

relationship in first two consecutive years. In 2008, Bhartiairtel was alone having negative correlation.

4.1.22 Satyam:

- The company has got 31st, 25th and 21st rank in terms of mean returns in the three consecutive years. The return was negative in all the three years.
- The Standard deviation was 19.395, 6.519 and 17.346 in the year 2006, 2007 and 2008 respectively. The deviation is found to be higher in 2006.
- The company had obtained 30th, 25th and 12th rank under the criteria of maximum returns. It had provided maximum returns in the year 2008.
- The company was ranked in 3rd, 16th and 13th position in the provision of minimum returns.
- In terms of range the ranks obtained were 28th, 10th and 19th in the three year period respectively. The return fluctuation was less in the year 2007.
- The coefficient of variation was 12.68 in the year 2007 where the variability was too high.
- The beta was less than 1 in the first year where the performance was less than the market and it was greater than 1 in the next two consecutive years.
- The companies ONGC and Infosys technologies were having high positive relationship with Satyam. Almost all companies had negative correlation except the year 2007. The story of Satyam computers became pathetic since the books of accounts had been misrepresented to make easy money by the way of boosting up the market capitalization. Recently it has been taken over by Tech Mahindra.

4.1.23 SBI:

- The company has got 11th, 6th and 9th rank in terms of mean returns in the three consecutive years. The return was negative in the year 2008.
- The Standard deviation was 10.054, 9.539 and 16.898 in the year 2006, 2007 and 2008 respectively. The deviation is found to be higher in the third year.
- The company had obtained 14th, 9th and 6th rank under the criteria of maximum returns. It had provided maximum returns in the year 2008.
- The company was ranked in 26th, 25th, and 21st position in the provision of minimum returns for the three years respectively.
- In terms of range the ranks obtained were 9th, 15th and 17th in the three year period respectively. The return fluctuation was low in the year 2006.
- The coefficient of variation was 1.738 in the year 2006 and 1.013 in the year 2007. The variation was comparatively less in the year 2006.
- The beta was less than 1 in the first two consecutive years where the performance was less than the market and it was greater than 1 in the next year 2008.
- The bank is found to have a high positive relationship with its banking sector over the three year period. The SBI had a negative relationship with the computer software companies.

4.1.24 BHEL:

- The company has got 13th, 18th and 11th rank in terms of mean returns in the three consecutive years. The return was negative in the year 2008.
- The Standard deviation was 9.301, 22.255 and 13.119 in the year 2006, 2007 and 2008 respectively. The deviation is found to be higher in 2007.

- The company had obtained 18th, 2nd and 29th rank under the criteria of maximum returns. It had provided maximum returns in the year 2007.
- The company was ranked in 20th, 2nd and 19th position in the provision of minimum returns.
- In terms of range the ranks obtained were 12th, 31st and 9th in the three year period respectively. The return fluctuation was low in the year 2008.
- The coefficient of variation was 2.386 in the year 2006 and .909 in the year 2007. The variation was very less in the year 2007.
- The beta was above 1 in the 1st year where the returns were more than the market return. In the next two consecutive years the beta was less than 1.
- In 2006 and 2008, BHEL was observed to have a good relationship with Cement and FMCG sector. On the same hand the relationship with the cement industry was negative in 2007.

4.1.25 Hindalco:

- The company has got 23rd, 15th and 28th rank in terms of mean returns in the three consecutive years. The return was negative in the year 2008.
- The Standard deviation was 12.144, 11.060 and 18.9 in the year 2006, 2007 and 2008 respectively. The deviation is found to be higher in 2008.
- The company had obtained 11th, 19th and 9th rank under the criteria of maximum returns. It had provided maximum returns in the year 2007.
- The company was ranked in 12th, 4th and 8th position in the provision of minimum returns.
- In terms of range the ranks obtained were 21st, 25th and 25th in the three year period respectively.

- The expected returns for all three years were negative. The coefficient of variation cannot be calculated.
- The beta was greater than 1 in all the three years where it provided returns higher than the market returns.
- Hindalco had a high positive correlation with Metals, Cement, FMCG and Computer software industries. In 2007, Hindalco was found to have a negative correlation with Electrical Industry.

4.1.26 Hindustan Unilever:

- The company has got 21st, 22nd and 1st rank in terms of mean returns in the three consecutive years. The return was negative in the year 2007.
- The Standard deviation was 11.11, 7.955 and 8.246 in the year 2006, 2007 and 2008 respectively. The deviation is found to be higher in 2006.
- The company had obtained 7th, 17th and 21st rank under the criteria of maximum returns. It had provided maximum returns in the year 2006.
- The company was ranked in 16th, 11th and 32nd position in the provision of minimum returns.
- In terms of range the ranks obtained were 20th, 19th and 1st in the three year period respectively. The return fluctuation was less in the year 2008.
- The coefficient of variation was 3.250, 1.778, 6.260 in the year 2006, 2007 and 2008 respectively. The variation was very less in the year 2007.
- The beta was above 1 in the 1st year where the returns were more than the market return. In the next two consecutive years the beta was less than 1.
- The company is found to have high positive relationship with FMCG, cement, and Banking sector. In 2007, Ranbaxy alone was high positive correlation. The years 2006 and 2007 had no negative correlation.

4.1.27 Tata Communications:

- The company has got 20th, 7th and 5th rank in terms of mean returns in the three consecutive years. The return was negative in the year 2008.
- The Standard deviation was 11.506, 12.534 and 18.128 in the year 2006, 2007 and 2008 respectively. The deviation is found to be higher in 2007.
- The company had obtained 4th, 5th and 8th rank under the criteria of maximum returns. It had provided maximum returns in the year 2006.
- The company was ranked in 23rd, 5th and 11th position in the provision of minimum returns.
- In terms of range the ranks obtained were 16th, 29th and 23rd in the three year period respectively. The return fluctuation was low in the year 2008.
- The coefficient of variation was 12.137 in the year 2006 and 2.563 in the year 2007. The variation was very less in the year 2007.
- The beta was above 1 in the first two consecutive years year where the returns were less than the market return. In the next year the beta was greater than 1.
- The company moved in line with the index in positive direction in the first two consecutive years. The cement industries were alone having high positive relationship in the year 2008 whereas in 2007, it was negative. The pharmaceutical Industry is found to be negatively correlated in 2008.

4.1.28 Tata motors:

- The company has got 14th, 30th and 31st rank in terms of mean returns in the three consecutive years. The return was negative in the year 2007 and 2008.
- The Standard deviation was 9.734, 6.163 and 21.948 in the year 2006, 2007 and 2008 respectively. The deviation is found to be higher in 2007.
- The company had obtained 21st, 29th and 19th rank under the criteria of maximum returns. It had provided maximum returns in the year 2008.
- The company was ranked in 19th, 19th and 5th position in the provision of minimum returns.
- In terms of range the ranks obtained were 10th, 4th and 28th in the three year period respectively. The return fluctuation was low in the year 2007.
- The coefficient of variation was 4.461 in the year 2006. The variation was quiet less when comparing to other securities.
- The beta was above 1 in the first and third year where the returns were less than the market return. In the next year the beta was greater than 1.
- The sectors such as Banking, Metals, engineering and FMCG moved in the same direction with Tata motors. The years 2006 and 2007 had no negative correlation and Bhartiairtel was alone having negative relationship in the year 2008.

4.1.29 Tata Steels:

- The company has got 17th, 5th and 30th rank in terms of mean returns in the three consecutive years. The return was negative in the year 2008.
- The Standard deviation was 11.906, 9.734 and 26.856 in the year 2006, 2007 and 2008 respectively. The deviation is found to be higher in 2007.

- The company had obtained 8th, 8th and 1th rank under the criteria of maximum returns. It had provided maximum returns in the year 2008.
- The company was ranked in 14th, 24th and 4th position in the provision of minimum returns.
- In terms of range the ranks obtained were 22nd, 17th and 30th in the three year period respectively. The return fluctuation was comparatively less in the year 2007.
- The coefficient of variation was 7.444 in the year 2006 and 1.763 in the year 2007. The variation was very less in the year 2007.
- The beta was greater than 1 in all the three years where it provided returns higher than the market returns.
- The company is observed to have a good positive relationship with sectors such as Metals, Cement, Automobiles and FMCG. Some of the banking companies had negative relationship with Tata Steels in the year 2006.

4.1.30 TCS:

- The company has got 28th, 27th and 17th rank in terms of mean returns in the three consecutive years. The return was negative in all the three years.
- The Standard deviation was 19.539, 4.444 and 12.107 in the year 2006, 2007 and 2008 respectively. The deviation is found to be higher in 2007.
- The company had obtained 27th, 32nd and 23rd rank under the criteria of maximum returns. It had provided maximum returns in the year 2008.
- The company was ranked in 5th, 27th and 28th position in the provision of minimum returns.
- In terms of range the ranks obtained were 29th, 1st and 4th in the three year period respectively. The return fluctuation was very less in the year 2007.

- The expected returns for all three years were negative. The coefficient of variation cannot be calculated.
- The company had a positive relationship with the sectors such as Computer software companies, FMCG and Oil sector. The year 2006 is alone found to have a negative relationship with Banking and Pharma Industries.

4.1.31 Zee entertainment ltd:

- The company has got 3rd, 17th and 9th rank in terms of mean returns in the three consecutive years. The return was negative in the three year 2008.
- The Standard deviation was 14.132, 12.281 and 15.635 in the year 2006, 2007 and 2008 respectively. The deviation is found to be higher in 2007.
- The company had obtained 1st, 16th and 4th rank under the criteria of maximum returns. It had provided maximum returns in the year 2006.
- The company was ranked in 11th, 3rd and 16th position in the provision of minimum returns.
- In terms of range the ranks obtained were 26th, 28th and 22nd in the three year period respectively.
- The coefficient of variation was 6.674 in the year 2006. The variation was quiet less when comparing to other securities.
- The beta was above 1 in the first two consecutive years year where the returns were less than the market return. In the next year the beta was greater than 1.
- The company is found to have a positive relationship only with the Cement sector alone. There was no high positive or negative correlation for the year 2007.

4.1.32 WIPRO:

- The company has got 18th, 28th and 16th rank in terms of mean returns in the three consecutive years. The return was negative in the year 2007 and 2008.
- The Standard deviation was 8.155, 6.593 and 11.495 in the year 2006, 2007 and 2008 respectively. The deviation is found to be higher in 2008.
- The company had obtained 24th, 24th and 25th rank under the criteria of maximum returns.
- The company was ranked in 21st, 22nd and 26th position in the provision of minimum returns.
- In terms of range the ranks obtained were 8th, 8th and 6th in the three year period respectively. The return fluctuation was less in all the three years.
- The coefficient of variation was 2.689, 13.637 and 2.887 in the year 2006, 2007 and 2008. The variation was quiet less in 2006 and 2008.
- The company is observed to have good relationship with the sectors such as Computer software companies, Metals and gas industries. There was no negative correlation in the year 2008.

4.2 SUGGESTIONS

The suggestions are provided on the basis of summary statistics and correlation.

4.2.1 Summary statistics:

Mean:

The mean returns have been calculated for three years separately for 32 companies. The companies were ranked on the basis of mean returns. In the year 2008, only two companies i.e., Hindustan unilever and Herohonda were found to have positive mean. Almost all companies generated only negative returns during this period. The Hindustan unilever and Herohonda are the two companies which have performing well even during the overall downtrend. Hence it is suggested that the investors shall consider buying the securities of Hindustan unilever and Herohonda.

Standard deviation:

The standard deviation tells how much the return on funds is deviating from the expected normal returns. The stocks are more volatile in the year 2008. The deviation from the mean went upto 31.370. Based on standard deviation, it is suggested that the investors who are risk averse shall buy the securities such as ITC, Hindustan unilever, Maruti, Cipla and Herohonda. The companies L&T and Bhartiairtel are found to have higher deviation which is suitable for the speculative investors.

Range:

Range is the spread between the highest and lowest return during a period of time. The spread should be at the minimum level. It shows the provision of stability in returns over a period of time with minimum fluctuations. By investing in the companies which are performing in a particular range, the investors can get assured amount of returns. The following are the companies suggested to the investors for making investment on the basis of range: Hindustan unilever, ITC, Maruti, TCS and Herohonda. The volatility is more in the returns of ABB and BHEL. The investors can pick the stocks based on their risk taking capacity.

4.2.2 Coefficient of variation:

The coefficient of variation helps to determine how much volatility (risk) to assume in comparison to the amount of return expected from the investment. The lower the ratio of standard deviation to mean return, the better will be the risk-return tradeoff. It is to know whether the data is consistent over the years. By analysing the companies return by means of coefficient of variation it is suggested that the investors who are risk averse shall invest in the companies having low ratio of variation in order to safeguard their position. The companies suggested are Hindustan unilever, Herohonda, and Sail. The speculative investors shall invest in volatile securities to get maximum returns.

4.2.3 Beta:

The beta factor describes the in a stock's return movement in relation to that of the market return. The investors with long term investment objective are suggested to invest in the companies whose beta is less than 1. The companies with beta less than 1 are: Infosys technologies, Maruti, Cipla, Herohonda and Hindustan unilever. The risk averse investors shall invest in the companies whose beta is equal to 1. The companies suggested are: Reliance and ABB. The investors with speculative motive shall invest in the companies ONGC, ICICI, SBI, Ranbaxy and Grasim.

4.2.4 Correlation:

The correlation is a measure that determines the degree to which two variable's movements are associated. The Industries such as cement industry, Banking, Metals , Automobiles and FMCG were found to have a high positive correlation with almost all the sectors. The companies that had a negative relationship with almost all sectors were: Cipla, Bharatiairtel, Tata communications, Ranbaxy, Satyam and Infosys technologies.

The investors shall consider a portfolio with the following combination of any of these securities based on their risk taking capacity: ACC, Ambuja cements, Grasim, Hindustan Unilever, ITC, M&M, Maruti, HDFC, HDFC Bank, Herohonda, Tata motors and Tata Steels.

4.3 CONCLUSION

This study deals with the analysis of return profile of nifty. It gives an idea to the investors to choose the securities that reflect the market movement and to allocate the funds rationally to the stock which would earn returns par with the market. The 32 companies which were consistently inside the nifty over the past three were ranked using different parameters for constructing a portfolio that provides maximum returns with minimal risk. The relationship between the Index and its constituent scrips and also the relationship among the constituent scrips were studied using correlation.

Based on the study it is concluded that the investors who are risk averse can prefer the securities of Herohonda, Hindustan unilever, M&M, Maruti, HDFC, ITC, Tata communications, TCS, Infosys, Ambuja cements, BHEL and Zee entertainment ltd. The risk taker can prefer the companies such as ONGC, ICICI, SBI, Ranbaxy, Tata motors, Tata Steels, L&T, Sail and Gail. The investors who are risk avoiders can prefer the companies such as Reliance and ABB.

Due to the global economic depression and prevalence of high volatility in the market, it is very difficult to predict the accurate way in which the company moves. The position of a company may shift towards any direction in the turbulent market.

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