CHAPTER - 1

INTRODUCTION

Stock market is the heart of any economy - be it a developing or a developed one. The proposition that a well-regulated stock market renders a crucial bundle of economic services is now widely accepted and recognized by various researchers. Among the various functions of stock exchange, the provision for liquidity of capital and continuous market for securities are considered as prime functions from the point of investors. It helps mobilize resources and their allocation in those sectors / industries which use them efficiently. From the point of view of economy in general, a healthy stock market has been considered indispensable for economic growth and is expected to contribute to improvements in productivity. More specifically, the indicators of stock market operations such as capitalization, liquidity, asset pricing and turnover help to assess whether the national economy is proceeding on sound lines or not. In addition, by ensuring a free and fair trading of stocks, the stock markets can assure and retain a healthy market participation of investors besides improving national economy. And, the performance of pricing mechanism of stock market is a driving force for channeling savings into profitable investment and hence, ensures an optimal allocation of capital. That is, the pricing mechanism by ensuring a suitable return on investment will ensure viable investment opportunities. Thus, in stock market, the pricing function has been considered important and a subject of extensive research.

In recent years, there has been greater concern among the investors, portfolio managers and researchers regarding the behaviour of stock market prices. The investors are interested to earn a higher return on their investments. Therefore, the portfolio managers have to examine the stock market conditions in order to advise the investors and construct a sound portfolio. Emerging stock markets have recently been of great importance to the worldwide investment community. India is considered as one of the fastest emerging markets in the
world. It has a well established stock market with a long history of organized trading in securities. Over the last few years, there has been a rapid change in the Indian capital market. Advanced technology and online based transactions have modernized the stock exchanges. In terms of the number of companies listed and total market capitalization, the Indian capital market is considered large relative to the country’s stage of economic development.

The issue of seasonality in the stock market has attracted the attention of researchers for a long time owing to its potential of producing abnormal returns during certain periods of the year. Seasonality refers to regular and repetitive fluctuation in a time series which occurs periodically over a span of less than a year. The existence of a pronounced seasonal behaviour in the market might suggest some form of market inefficiency. The existence of seasonality in stock returns, however, violates an important hypothesis in finance, i.e. Efficient Market Hypothesis (EMH) because equity prices are no longer random and can be predicted based on past pattern. The proposition, “Stock returns are not predictable” was until very recently regarded as one of the most firmly established empirical researches on the behaviour of stock returns. However, the non-predictability proposition has been questioned recently and consequently certain anomalies in the behaviour of returns such as Week-of-the Month Effect, Day-of-the Week Effect, Intra-day Effect, Size Effect, Tax-Year Effect, Turn-of-the Year Effect, January Effect, Monthly Effect, Turn-of-the-Month Effect and Price-Earning Ratio Effect and some others have been observed. These anomalies refute the existence of Efficient Market Hypothesis. Many recent studies have tried to see if it is possible to outperform the market based on these seasonal variations in returns. With mixed results, the present research aims at testing the existence of some popular anomalies in Indian stock market.

The first section reviews the theory behind the EMH, and the implications for empirical testing. Two other approaches to investment decision making have been considered thereafter. Anomalies in the equity markets are reviewed next; we also show various explanations for popular anomalies thereafter. And, the
third section presents an overview of Indian stock market; its major stock
exchanges and selected BSE and NSE indices, major capital market reforms, and
issues and developments in the last decade in Indian securities market.

1.1 Efficient Market Hypothesis

Origins of the Efficient Market Hypothesis (EMH) can be traced back to
Bachelier’s (1900) pioneering theoretical contribution on random spirit of stock
price movements. Since 1960s, discussion on EMH has emerged a dominant
theme in academic literature. It is a logical extension of fundamental and
technical approaches to equity investment decisions. Fama (1970) coined in the
term ‘Efficient Market Hypothesis’ (EMH) which means that stocks always
trade at their fair values on stock exchanges and thus, it is impossible for
investors to either purchase undervalued stocks or sell stocks for inflated prices.
The concept of EMH helps in finding an answer to the question: “How do the
stock prices behave”? It is used to depict the ability of stock market to process
information with respect to speed and quality.

Efficient Markets

An efficient capital market is a prerequisite for economic development of
any country. Efficiency of capital market and efficient capital market
participation by an individual determines his/her profitability. The larger
segment of the financial community, especially in developing countries, has a
very little understanding of the concept and theory of capital market efficiency.
In economics, the study of capital market efficiency is a broad one, comprising
of resources allocation efficiency, investment efficiency and informational
efficiency. The allocation efficiency deals with the efficient allocation of given
limited resources to attain maximum social welfare. The efficiency in investment
allocation deals with the allocation of resources between different investment
avenues and consumption. The informational efficiency deals with how prices of
assets fully reflect the available information. In fact, most of the studies on the
capital market efficiency in the field of finance focus on informational efficiency
only. A security market is said to be informationally efficient if all currently
available public information is very rapidly reflected in security prices. A market is efficient if a number of investors try to utilize information for their own benefit. If a security is underpriced given current public information, these investors buy the security in anticipation of the price rising to its equilibrium price. Consequently, the price should rise immediately to its equilibrium value if investors monitor the flow of information. An efficient market is one where market price is an unbiased estimate of the true value of investment. Contrary to the popular view, it does not require that the market price be equal to true value at every point in time. All it requires is that errors in the market price be unbiased, i.e. that prices can be greater than or less than true value, as long as these deviations are random. The fact that the deviations from true value are random implies that there is an equal chance that stocks are under or over valued at any point in time, and these deviations are uncorrelated with any observable variable. If the deviations of market prices from true values are random, it follows that no group of investors should be able to consistently earn excess return using any investment strategy.

An investment theory states that it is impossible to ‘beat the market’ because stock market efficiency causes existing share prices to always incorporate and reflect all relevant information. Market efficiency has an influence on the investment strategy of an investor because if securities markets are efficient, trying to pick winners will be a waste of time. Since in an efficient market, the prices of securities will reflect the market’s best estimate of their expected return and risk, taking into account all that is known about them. Therefore, there will be no undervalued securities offering higher than expected returns, given their risk. So, in an efficient market, an investment strategy concentrating simply on the overall risk and return characteristics of the portfolio will be more sensible. EMH emanates from the assumption of a stock market being competitive. It includes:

- Large number of buyers and sellers.
- Scrips are perfectly homogeneous without any differentiation.
• Capital markets are “perfect” with no transaction costs, securities infinitely divisible, short-sales allowed and perfect knowledge.
• All relevant information is available at little cost to all market participants.
• There are no barriers to entry and exit of firms from the market.
• All agree on the implication of current information for current prices and the distribution of future prices.
• Investors are good analysts; and they pay close attention to the market process and adjust their holdings appropriately.

EMH can be broken down into three sub-hypothesis, which differ according to the type of information. The three versions of market efficiency presented by Fama (1970) are: Weak, semi-strong and strong.

1. **Weak Form Efficiency:**

It says that stock prices have no memory. Yesterday has nothing to do with tomorrow. Weak form of market efficiency is synonymous with random walk model. Therefore, stock prices would behave like random walk as per weak form of market efficiency. It asserts that stock prices reflect all information that can be derived by examining market trading data such as the history of past prices, trading volume, or short interest. Therefore, knowledge of past price and volume information does not allow prediction of future price changes. There are no reliable time patterns to the random returns of any security. The reason behind this is that if there were reliable patterns, they would be noticed by traders who would try to sell at the high points and buy at low points. This process would lead to price pressure that would raise the low points and lower the high points, thereby destroying the patterns. Hence, weak form efficiency rules out technical analysis and seasonalities such as Day-of-the Month, Day-of-the Week, and Turn-of-the Year etc. in securities market. A large number of tests on the relevance and applicability of Random Walk Hypothesis or Weak form of EMH in UK, USA, Germany, Italy, Netherlands, South Africa, Belgium etc. have been performed in the last century. Some of the important international studies
conducted on this aspect, validating the Random Walk Hypothesis, include the works of Kendall (1953), Osborne (1959), Alexander (1961), Fama (1965), Dryden (1970), and Rosenthal (1983). However, certain studies like Rosenberg and Rudd (1982), Fama and French (1988), Lo and Mackinley (1988), and Jagadeesh (1990) revealed that weak form market efficiency did not hold well. A few important studies to test if Indian Stock Market is in weak form of EMH, have been conducted during the last three or four decades. Studies done by Rao and Mukherjee (1971), Sharma and Kennedy (1977), Gupta (1985), Pandey and Bhat (1988), Gupta (1990), and Mittal (1995) show that behaviour of share prices is a pure random walk and any attempt of prediction using past data would be a meaningless exercise. However, there are a few studies which have refuted the applicability of random walk hypothesis to Indian stock market like Kulkarni (1978), Barua and Ranganathan (1986), and Chaudhri (1991) etc.

2. **Semi-strong Form Efficiency:**

   In the semi-strong market efficiency hypothesis, the impact of non-price information upon the security price is practically instantaneous. It deals with publicly known information about the corporation being studied. Examples of the type of public information that will not be of value on a consistent basis to the analyst are corporate reports, corporate announcements, and information relating to corporate dividend policy, forthcoming stock splits, and so forth. The argument for semi-strong EMH is that traders will quickly and rationally respond to public announcements of relevant information. Therefore, simple trading rules based on public information can not earn abnormal profits. In a semi-strong efficient market, the anticipated amount of information should be incorporated into prices before the announcement. Surprise deviations of the actual prices from the anticipated prices result in rapid price adjustments in a semi-strong efficient market.

3. **Strong Form Efficiency:**

   This is the strictest form of market efficiency and affirms that there is no such thing as capitalizing on insider information. It deals with all information,
i.e. past, publicly available and insider information. It maintains that not only is publicly available information useless to the investor or analyst, but all information is worthless too. In such a market, information available to special group of investors is already incorporated into security prices and therefore, is of no real value to these investors. Professional money managers, investment advisory services and corporate insiders are special groups that have been investigated over a period of time whether they have been able to produce more than fair returns or not. A little evidence is available for this form of efficiency in India.

The weak and semi-strong levels are concerned with the processing of information, whereas strong level efficiency is concerned with the production of information and therefore, relates to the efficiency of the information market. The implication of market efficiency is that the prices that are actually arrived at in such a market would invariably represent best interpretation of information. Thus, the competitive nature of security markets makes it very hard to earn more than a fair return on a risk adjusted basis. But there is an important question; “How should investors behave in an efficient market, since earning more than a fair rate of return is difficult”? For this, investors should decide upon their preference about levels of expected returns and risk and select a portfolio and also adopt a strategy so as to minimize transaction costs and taxes. In addition, keeping in view about the Efficient Market Hypothesis, financial analysts rely upon two different approaches of investing for determining whether a security is worth buying, holding or selling and make recommendations thereon to help investors. The two approaches to investment decisions are:

1. Fundamental Analysis
2. Technical Analysis

These two approaches help in explaining the behaviour of stock prices.

1. **Fundamental Analysis:**

Fundamental analysis looks at matters like future earnings and dividends to assess intrinsic value of a security. Security analysts forecast the earning
potential and riskiness of a firm and link it to the prospects of the industry to which it belongs and which, in turn, are largely influenced by developments in macro-economy. Thus, fundamental analysis comprises of three stage analysis, i.e. economy analysis, industry and the company. Financial analysts try to estimate the fundamental value of securities and then compare this fundamental value to market price. If the estimated fundamental value exceeds the market price, the security is underpriced and should be purchased and vice-versa. The analysts try to understand the strategy of the firm, evaluate the quality of firm’s accounting data, and analyze the past performance of the firm, and finally estimate intrinsic value of a security. Analysts who are able to discover the fundamental value ahead of the rest of the market can reap substantial profits as market prices approach the fundamental value. The actions of these profit seeking investors push the market towards efficiency. Thus, fundamental analysis is essential for market efficiency.

2. Technical Analysis:

It involves a study of past prices and volumes to determine the direction of price movement. Technical analysts try to develop predictors of security price change. They don’t evaluate a large number of fundamental factors relating to the company, industry and the economy. The focus is mainly on internal market data and technical analysis approach appeals mostly to short term traders. Technical analysts look at charts to understand what the market participants have been doing and believe that this provides a basis for predicting future behaviour. They use a variety of charting techniques, the most popular ones being the Dow Theory, point and figure chart, bar and line chart, the moving average line, the relative strength line, and the support and resistance levels. Certain indicators like breadth and market indicators are also used. The basic premises underlying technical analysis are that the interaction of supply and demand forces determines market prices, stock prices tend to move in fairly persistent trends and shifts in demand and supply bring about changes in trends which can be detected with the help of charts of market action.
The empirical evidence regarding the randomness of stock price behaviour seems to be overwhelming in most of the developed countries. It means that markets are weak form efficient. But the substantial evidence in favor of weak form efficiency negates the value of technical analysis. Similarly, the semi-strong EMH which predicts that abnormal returns can not be earned by learning all of the available public information on companies and their stocks, and any other variables that may affect stock prices, such as economic factors would seem to negate the value of fundamental analysis. In earlier time periods, three types of tests were commonly employed for testing the weak form EMH which consists of serial correlation test, run test and filter rule test. The semi-strong EMH had been examined through the event and portfolio studies. Since decades, apart from the standard tests of efficiency, seasonal patterns have been found through the evidence termed “anomalies”. The present research is an attempt to examine the weak form EMH and semi-strong EMH in Indian stock market through the search for some seasonal patterns in stock returns, i.e. anomalies.

1.2 Anomalies

A great deal of research has been devoted to the investigation of the randomness of stock price movements in order to judge the informational efficiency of stock markets. Researchers have demonstrated instances of market inefficiency by identifying systematic variations in stock returns. These cross-sectional differences among stock returns have been termed as ‘anomalies.’ They suggest that past and publicly available information can be used to trace pattern in stock returns distribution. These patterns in stock returns distribution that tend to occur consistently over a period of time may be used to formulate investment strategies to earn superior returns. In the context of stock markets, EMH explains how the share prices should behave in an efficient market. The deviation of the behaviour of share prices from what is expected as per EMH is termed as stock market anomaly. It has been well documented in finance literature that any predictable pattern in asset returns may be exploitable. One statistically
significant pattern in stock market returns stems from seasonality. These seasonal patterns are anomalies in the sense that there are no asset pricing models to predict them. But at the same time most anomalies are irrelevant due to the fact that the abnormal returns observed fall within the limits of relevant bid-ask spreads and therefore, do not generate opportunities for arbitrage profits. In addition, the validity of asset pricing models has also been questioned in empirical studies. In the real world, imperfections are there, i.e. transaction costs and all information costs may lead to non-availability of information to all participants equally and this may lead to less than or more than equilibrium profits, namely excess profits or losses. Also, all investors are not risk averse exhibited by the gambling urges of people around the world. Investors, by their nature tend to follow the crowd, and therefore they create a dependency on what others are doing and information need not come to the market in an independent fashion. Also, the great investment names of –Warren Buffet, Philip Corret, George Michaels, Philip Fisher, Benjamin Graham, John Templeton, Robert Wilson, John Neff, Jim Rogers, Paul Cabot, and Ralph Wagner- may be added as an evidence that market inefficiencies clearly exist. These investors could not consistently beat the market unless the market possessed various inefficiencies. It appears from above that public information can be used for market return superiority.

There is mounting evidence that stock returns are predictable in India also. The market patterns that do seem to lead to abnormal returns are called market anomalies and the existence of these anomalies in India lies in the fact that most of the investors are incapable of monitoring and analyzing information themselves in a systematic manner and therefore, depend upon the services provided by the investment professionals, institutional investors and security analysts. The financial information, thus provided does not convey perfect idea about the state of the economy, the industry and the company and the security markets become imperfect as characterized by inadequate and misleading
information and under this situation, investors can not distinguish between good and bad scrips. Consequently, they lose faith in the market and gradually distance themselves from the market. An imperfect market also paves the way for excessive speculation by the investment managers and security dealers. Thus, these inefficiencies present a challenge to the EMH in India also. Empirical studies have turned up a wide range of anomalies relating to seasonality in stock returns which include calendar and other anomalies.

**Calendar Anomalies:**

Anomalies that are linked to a particular time are called calendar effects. Various empirical evidence show that there are seasonal variations in the distribution pattern of stock returns over calendar time periods- hours, days, weeks, months or years. These variations have been termed as calendar anomalies and these do seem to lead to abnormal returns in the security market. As the researchers scrutinized the data more and more closely, the following fascinating patterns in stock emerged:

- Day-of-the Week Effect
- Week-of-the Month Effect
- Semi-month Effect
- Intra-day Effect
- Month-of-the Year Effect
- Turn-of-the Year Effect
- Turn-of-the Tax Year Effect
- Intra-month Return Regularities
- Year Ending in 5 Effect
- Holiday Effect
- Halloween Effect
- Friday: the Thirteenth Effect

**Fundamental Anomalies:**

It has been observed that there are various characteristics of firm such as market capitalization, dividend yield per share, price-earning ratio, and
systematic risk etc. which act as a predictor of stock return. Therefore, various anomalies have been observed on account of this and are named as:

- Size Effect
- Price-Earning Ratio Effect
- Low Beta Effect
- Book-to-Market Ratio Effect
- Dividend Yield Effect
- Stock Split Effect
- Short-term Price Drift
- Merger Arbitrage
- Weather Anomaly

Besides these anomalies, there are some non market signals that some people believe will accurately indicate the direction of the market. The list of these signals include Super bowl indicator, the Hemline indicator and the Aspirin indicator which can be interpreted as supporting a behavioural and psychological approach to stock market returns.

1. **Day-of-the-Week Effect:**

   According to this phenomenon, the average daily return of the market is not the same for all days of the week, as we would expect on the basis of the efficient market theory, and when the returns are uneven at the turn-of-the-week, it is termed as weekend effect. For most of the western economies (USA, UK, Canada) empirical results have shown that on Mondays, the market gave statistically significant negative returns while on Fridays, statistically significant positive returns were observed. In other markets such as Japan, Australia, Singapore, Turkey and France, the highest negative returns appear on Tuesdays. The present study tests the existence of Day-of-the-Week Effect in Indian stock market.

2. **Week-of-the-Month Effect:**

   This anomaly refers to statistically different weekly return for different weeks of a month. This effect has been discussed in Ariel (1987), Lakonishok
and Smidt (1988), and Wang, Li, and Erickson (1997). Specifically, the returns during the first week of a month tend to be significantly positive while the returns during the other weeks of a month are statistically indistinguishable from zero (Kohli and Kohers 1992).

3. **Semi-month Effect:**

This anomaly refers to the significantly higher returns over the first fortnight of the month. It is sometimes called as trading month effect. Mills et al. (2000) and Floros (2008) depict this anomaly.

4. **Intra-day Effect:**

It is also called as hour-of-the-day effect. This anomaly states that returns on security during a particular trading day are not uniformly spread. The evidence from Smirlock and Starks (1986), and Harris (1986) revealed intraday patterns in stock returns. Most of the security prices tend to jump up at the end-of-the day whereas during the first hours of trading the Monday returns are negative on average, but for the other days of the week, the average returns in that first hour are positive.

5. **Month-of-the-Year Effect:**

This effect looks at the variation in returns across different months of the year (Gultekin and Gultekin, 1983). Most of the studies find that returns are large in January and low in December. Therefore, the Month-of-the Year effect is commonly referred to as the January Effect. It was first reported by Wachtel (1942). As early as 1976, Rozeff and Kinney documented that mean returns in January exceed the mean returns of the remaining months for a market index of New York Stock Exchange stocks over the period 1904-1974. The Month-of-the Year Effect has been extensively examined using stock return data from the United States as well as host of other industrialized countries. The empirical studies, however, have also covered the emerging stock markets for discovering the Month-of-the Year Effect. In addition to this, the other related anomalies such as Turn-of-the Year Effect and Turn-of-the-Tax Year Effect have been searched for.
5.1 **Turn-of-the-Year Effect:**

It is sometimes termed as ‘Year-end Effect’ wherein, stocks have historically tended to outperform at the turn-of-the year. It refers to the time in calendar year when the present year comes to an end and marks the beginning of the New Year. In some studies, to analyze Turn-of-the Year Effect, average returns for few days prior to New Year and after the New Year are calculated and compared and in another research studies, turn-of-the year effect has been analyzed by testing the existence of January effect.

5.2 **Turn-of-the-Tax Year Effect:**

The January anomaly was proposed as a unique trading rule to make use of tax selling. Most investors are observed to adopt tax selling at the end of the year to establish losses on stocks that have declined and re-acquire the same shares in the next year. This tendency leads to a downtrend pressure on the stock prices at the end of December and positive pressure during the beginning of the year. This is termed as ‘Tax-Year Effect’. In USA, and some other industrialized countries, tax year coincides with the calendar year. Therefore, Turn-of-the Year Effect and Turn-of-the Tax Year Effect do not get analyzed separately but in some countries like India, the tax year commences on 1 April and ends on 31 March and the calendar year begins on 1 January and ends on 31 December. Therefore, both Turn-of-the Year Effect and Turn-of-the Tax Year Effect have been analyzed separately in our research.

6. **Intra-month Return Regularities:**

Intra-month return regularities comprises of Monthly Effect and Turn-of-the Month Effect. Monthly effect refers to the tendency of stocks to earn on an average positive and high mean daily returns during the first half of a month and low or even negative mean returns during the second half. Another related anomaly is the turn-of-the-month effect, which results from higher stock returns on days surrounding the turn of the month in comparison with stock returns earned during the rest of the month.
7. **Year Ending in 5 Effect:**

   This anomaly has its existence from the Dow Jones Industrial Average (DJIA). It has never had a down year in any year ending in 5 though it is possible that it can be purely coincidental and thus termed as Year Ending in 5 Effect.

8. **Holiday Effect:**

   Ariel (1990) first documented Holiday Effect. This anomaly refers to the regularity of unusually good performance for stocks on the day prior to market-closing holidays.

9. **Halloween Effect:**

   It is commonly referred as “Sell in May and go away” which means stocks are sold at the start of May and the proceeds held in cash (for example a money market fund); stocks are bought again in the autumn, typically around Halloween. Stock returns in many countries such as USA, Canada, Japan, UK and most European countries during the period May-October are systematically negative or lower than the short term interest rate, which also goes against EMH.

10. **Friday-the Thirteenth Effect:**

    It states that the return on Friday-the thirteenth are significantly lower than returns of other Fridays. Kolb and Rodriguez (1987), and Dyl and Maberly (1988) found that returns on the Friday- the thirteenth is negative as compared to other Fridays.

**Fundamental Anomalies:**

1. **Size Effect:**

   Size effect refers to the negative relation between stock returns and the equity value of a firm. Small firms, i.e. low market capitalization firms have been found to have relatively high returns after adjusting for risk than those with high market capitalization firms. According to Ritter (1988), the small firm effect and January Effect are interrelated because most of the January excess returns appear to be among small firms. The reason for size effect may be the skewness of returns. If small firms have larger skewness of returns than big firms and if investors are averse to skewness, higher returns will be essential for the stocks of small firms as compensation for bearing the risk.
2. **Price-Earning (P/E) Ratio Anomaly:**

   This anomaly states that portfolios composed of low P/E stocks often outperform portfolios composed of high P/E stocks. P/E ratio represents the market price of a security per rupee of its earning per share (EPS). The P/E multiple of a company stock reflects its earning quality and growth potential. Price-earning multiple depicts the average price the market is willing to pay for purchasing each unit of a company's earnings. Basu (1977, 1983) found that firms with high E/P ratios earned positive abnormal returns relative to the Capital Asset Pricing Model. Subsequent a lot of research has been carried out on examining the usefulness of P/E ratio analysis for taking investment decisions so as to earn abnormal returns.

3. **Low Beta Effect:**

   It refers to the market patterns in which low beta stocks tend to outperform high beta stocks, on an average, over time on a risk adjusted basis. Beta is that part of total risk of a security that can not be diversified and also referred to as systematic risk of the security. Beta is calculated by dividing covariance between security and market index returns by the variance of market index returns.

4. **Book-to-Market Ratio Effect:**

   This anomaly states that the stocks with low book-to-market ratios underperform stocks with high book-to-market ratios, on an average, over time. Book-to-market ratio means book value of a share divided by the market value of the share. The explanation for this anomaly given in literature is that this effect is exaggerated due to delisting bias and rebalancing effects. Studies have shown that this effect seems to be independent of the stock's beta, and therefore, independent of systematic risk. This effect could be explained by the fact that companies with low book-to-market ratios tend to be companies that investors expect to grow rapidly. However, rapid growth continually declines as companies grow larger-hence; growth in stock prices will be diminished as the P/E ratio declines as future expectations of further growth are lowered. As the P/E ratio drops, the return also drops. Furthermore, stocks with high book-to-market ratios
tend to decline less in bear markets, since there is less risk when the market value of a company is close to its book value.

5. **Dividend Yield Effect:**

Dividend yield refers to dividend expected on a stock divided by market price of that stock. This anomaly states that stocks with high dividend yield tend to outperform stocks with low dividend yield, on an average, over time.

6. **Stock Split Effect:**

Stock splits increase the number of shares outstanding and decrease the value of each outstanding share, with a net effect of zero on the company's market capitalization. However, before and after a company announces a stock split, the stock price normally rises. The increase in price is known as the stock split effect.

7. **Short-term Price Drift:**

After announcements, stock prices react and often continue to move in the same direction. For example, if a positive earnings surprise is announced, the stock price may immediately move higher. Short-term price drift occurs when stock price movements related to the announcement continue long after the announcement.

8. **Merger Arbitrage:**

When companies announce a merger or acquisition, the value of the company being acquired tends to rise while the value of the bidding firm tends to fall. Merger arbitrage plays on potential mispricing after the announcement of a merger or acquisition.

9. **Weather Anomaly:**

It refers to that stock market returns tend to be significantly lower during summer and autumn months than they are during winter and spring. Researchers have pointed out that various weather variables used in stock market anomalies have seasonal patterns closely related to Halloween Effect. Also, the psychological studies show that weather variables do not necessarily influence behaviour when investors work indoor rather than face the weather outdoor.
Given the volume of literature on the above mentioned anomalies in national as well as international studies, a comprehensive analysis of main anomalies in Indian stock market based on technical and fundamental data has been done in the present research. These anomalies include Day-of-the-Week Effect, Intra-month Return Regularities, Month-of-the-Year Effect, Turn-of-the Year Effect, Turn-of-the-Tax Year Effect, Size Anomaly, Price-Earning Ratio Anomaly, and Low Beta Anomaly. These anomalies violate the basic postulates of the asset pricing theory that asset returns are random and independent of any particular day, week, month or year, and only systematic risk determines expected returns. The explanations for these anomalies in asset prices are also incorporated in the present section in a sequential manner.

- **Explanations for Day-of-the Week Effect:**

Many theories have been postulated to explain the day-of-the-week effect with the most popular ones are as follows:

1. **Settlement Period Hypothesis:**

The trading behaviour for weekdays could be caused due to settlement cycles. This attributes seasonality across days of the week to the settlement dates with prices being higher on the pay-in days as compared to the pay-out days. This theory has been opposed by some as the anomaly holds across markets that have different settlement periods (varying from one day in France and Hong-Kong to six-fifteen days in the UK – Agrawal and Tandon, 1994). Also, Gibbons and Hess (1981), and Lakonishok and Levi (1982) studies have found that settlement effect can not explain weekend effects.

2. **Information Flow Hypothesis:**

Penman (1987), and Dyl and Maberly (1988) propounded this theory which says that the difference in information flow over the weekend as compared to other days of the week causes the Monday Effect. Firms typically release good information during the weekdays and bad information after the weekend, to prevent investors from discounting bad news during holidays, causing the firm’s security prices be affected adversely on Monday, the first trading day of a week.
3. **Calendar/Trading Time Hypothesis:**

Under the calendar time hypothesis, the process operates continuously and the expected return for Monday should be three times the expected return for other days of the week because Monday returns are spread across three days. The observed negative Monday returns go against this intuitive reasoning and thus another theory was proposed. Under the trading time hypothesis, returns are generated only during active trading and expected return should be the same for each day of the week. Rogalski (1984), Harris (1986), and Smirlock and Starks (1986) show that the negative returns over the weekend occurs during the non-trading period from Friday-close to Monday-opening and that Monday trading returns are actually positive. They also explained that the weekend effect is due to measurement error.

4. **Retail Investor Trading Hypothesis:**

Brooks and Kim (1997) suggest that negative Monday returns could be the result of individual investor trading activity. Using odd lot trades as proxy for individual investors, they found that trading activity is significantly lower on Monday for large size trades. Moreover, small size trades have a higher percentage of sell orders on Monday as compared to other days of the week. Similarly, Ritter (1988), and Lakonishok and Maberly (1990) argued that there are more buy orders on Fridays and more sell orders on Mondays by retail investors and individual trading is responsible for weekend effect.

- **Explanations for Intra-month Return Regularities:**

Various explanations for the observed intra-month return regularities, i.e. Monthly Effect and Turn-of-the Month Effect have been provided in the literature and most familiar ones are used here to explain this anomaly.

1. **Cash Flow Hypothesis:**

Ogden (1990) provides empirical support for the flow of funds into the stock market hypothesis. He provided the evidence that monthly effect is probably driven by liquidity and standardization of payments in US. Payments such as wages, interest and dividends at the end and beginning of the month are
reinvested by the investors at turn-of-the month, resulting in a surge in stock returns.

2. **Timing of Corporate Earnings Announcements:**

   Penman (1987) proposed that the timing of earning announcements could possibly influence the monthly pattern of stock returns. He suggested that these announcements have a positive impact on share price resulting in higher return in the first half of the month.

3. **Window Dressing Hypothesis:**

   In addition to monthly payments, and reflection of positive earnings announcement, another reason that can be attributed to monthly effect is that institutional investors make seasonal related changes in their portfolios referred to as ‘window dressing’. The logic is that investment managers get rid of poor stocks before reporting dates to make look their portfolios better. Coincidently, these reporting dates typically coincide with month-end (Thaler, 1987).

   - **Explanations for Month-of-the-Year Effect/Turn-of-the Year Effect/Turn-of-the-Tax Year Effect:**

   Many theories have been postulated to explain this phenomenon:

1. **Tax-loss Selling Hypothesis:**

   One of the more often cited causes of January effect is year-end tax-loss selling. Most people come to the end of the year, and start thinking about their tax liability. They sell their losers sometime in/before December, and then they buy them back in January to lock in a tax loss (causing stock prices to rise). Thus year-end tax-loss selling of shares is responsible for the disproportionate returns in January.

2. **Portfolio Rebalancing Hypothesis:**

   Porter et al. (1996) postulated that portfolio rebalancing by institutions is a phenomenon which has been found to exist in sufficient size to affect prices around the end of year and may be responsible for a large part of the small firm January effect in the USA. Also, Choudhry (1998) states that the high returns in
January are caused by systematic shifts in the portfolio holdings of investors at the turn of the year.

3. **Information Arrival/ Insider Trading Hypothesis:**

Williams (1986) postulated the information arrival/insider trading hypothesis which predicts that not informed traders are more likely to trade in January. This hypothesis is based on idea that with the arrival of new information in market, stock returns tend to change. Positive news affects the stock prices, and thus returns in a positive manner and vice-versa. Significant information releases in first few days of January results in January anomaly.

4. **Liquidity Effect:**

Ligon (1997) suggests that January effect is significantly related to excessive investor liquidity in that month. He finds that higher January volume and lower real interest rates are correlated with higher January returns. Apart from this, many traders go on vacation around this time. Most traders sell all their positions before leaving on vacation. Also, people spend more money at Christmas than at other times of the year.

- **Explanations for Size Anomaly:**

Researchers have concentrated their efforts to investigate the reasons behind the detection of size effect and a partial list of possible explanations is given here:

1. **Seasonality Effect:**

Keim (1983) related size effect to the seasonality effect or January Effect and reported that nearly 50 percent of the total size effect over the period 1963-79 was due to abnormally large returns on small stocks in January. Further, Hawawini and Keim (2000) also reported that size effect is only a January effect; no size effect exists in the average returns of other months of the year.

2. **Underestimation of Betas:**

Roll (1981) suggested that the stocks of small firms were traded less frequently than the stocks of larger firms and therefore, the estimates of systematic risk from daily stock returns would be biased downwards causing
actual returns to be more than the estimated ones.

3. **Liquidity Premium:**

Amihud and Mendelson (1986) argued that a part of size effect may, in fact, be the liquidity premium. It has also been argued that since stocks of small firms usually have relatively few outstanding shares of stock, few shares trade at any particular time, which makes the stocks relatively illiquid. Illiquidity increases bid/ask spreads, which increases risk, and therefore, such stocks command a higher risk premium as compensation. Also, Edmister and James (1983) argued that although the firm size and trading activity are highly correlated, differences in trading activity are not the underlying reason for the firm size anomaly.

4. **Neglected Firm Effect:**

Arbel and Strebel (1983) argued that size effect might in part be due to the neglected firm effect. The neglected firm effect is the observation that small firms that are not covered extensively by analysts tend to outperform the market. But since almost all neglected firms are small firms, this may simply reflect the basic fact that small firms have a greater potential for growth and may not represent an independent effect. This effect may also arise because when small firms become larger, their coverage by analysts increases, and their stock float also increases, which allows more institutional investors to buy the stock. Institutional investors are reluctant to buy stocks with a limited float, since any major buying or selling can have a significant impact on the stock price.

- **Explanations for Price-Earning Ratio Anomaly:**

Proponents of price-earning ratio hypothesis claim that low P/E securities will tend to outperform high P/E stocks. In short, price of securities is biased, and the price-earning ratio is an indication of this bias. Smidt (1968) argues that one potential source of market inefficiency is inappropriate market responses to information. Inappropriate responses to information implicit in P/E ratios are believed to be caused by exaggerated investor expectations regarding growth in earnings and dividends; i.e., exaggerated optimism leads, on average, to high P/E
securities and exaggerated pessimism, leads, on average, to stocks with low P/E ratios. Besides this, the reasons for this anomaly have been attributed to statistical artifacts and omitted factors too.

- **Explanations for Low Beta Anomaly:**

  The reason for this anomaly is that risk loving investors prefer high beta due to their gambling urges behind them, and winner curse which result into high prices of these stocks, and in turn results in low returns, and consequently, low beta stocks tend to yield higher risk adjusted returns than high beta stocks. It could also be due to statistical misgivings also.

1.3 **An Overview of Indian Stock Market**

There are several motivations specific to emerging economies like India for research of stock market anomalies. First, stock markets are believed to be very efficient at allocating capital to its highest-value users. Improved capital allocation increases overall economic efficiency. Second, Capital market fulfills a vital function in the economic development of a nation, which supplies the necessary financial inputs for the production of goods and services; thereby stimulating the capital formation and to that extent, accelerating the process of economic growth. Third, by allowing diversification over a variety of financial instruments, stock markets reduce the risk that investors must bear, thus reducing the risk premium demanded by suppliers of funds and, through the risk premium, the cost of capital. Now-a-days investors, mutual funds, foreign institutional investors, intermediaries and other constitutes of the market are all committed to promote and develop a sustainable capital market. With the globalization of economies, the role of capital market is becoming more significant.

**History of the Indian Stock Market - The Origin**

One of the oldest stock markets in Asia, the Indian stock market has a 200 years old history which is described here in both pre-independence and post-independence scenarios.
### Pre-Independence Scenario - Establishment of Different Stock Exchanges

<table>
<thead>
<tr>
<th>18th Century</th>
<th>The East India Company was the dominant institution and by end of the century, business in its loan securities used to be transacted.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1830's</td>
<td>Business on corporate stocks and shares in Bank and Cotton presses commenced in Bombay. Trading list by the end of 1839 got broader.</td>
</tr>
<tr>
<td>1840's</td>
<td>Recognition from banks and merchants to about half a dozen brokers.</td>
</tr>
<tr>
<td>1850's</td>
<td>Rapid development of commercial enterprise and brokerage business.</td>
</tr>
<tr>
<td>1860's</td>
<td>The number of brokers increased to 60.</td>
</tr>
<tr>
<td>1860-61</td>
<td>The American civil war broke out and cotton supply from United States of America to Europe was stopped; thus marking the beginning of the &quot;Share Mania&quot; in India.</td>
</tr>
<tr>
<td>1862-63</td>
<td>The number of brokers increased to about 200 to 250.</td>
</tr>
<tr>
<td>1865</td>
<td>A disastrous slump began at the end of the American Civil War (For example, Bank of Bombay share which had touched ₹2850 could only be sold at ₹87).</td>
</tr>
<tr>
<td>1874</td>
<td>With the rapidly developing share trading business, brokers used to gather at a street (now well known as &quot;Dalal Street&quot;) for the purpose of transacting business.</td>
</tr>
<tr>
<td>1875</td>
<td>&quot;The Native Share and Stock Brokers' Association&quot;, also known as &quot;The Bombay Stock Exchange (BSE)&quot; was established in Bombay.</td>
</tr>
<tr>
<td>1880's</td>
<td>Development of cotton mills industry and set up of many others.</td>
</tr>
<tr>
<td>1894</td>
<td>Establishment of &quot;The Ahmedabad Share and Stock Brokers' Association&quot;.</td>
</tr>
<tr>
<td>1880 - 90's</td>
<td>Sharp increase in share prices of jute industries in 1870's was followed by a boom in tea stocks and coal.</td>
</tr>
<tr>
<td>1908</td>
<td>&quot;The Calcutta Stock Exchange Association&quot; was formed.</td>
</tr>
<tr>
<td>1920</td>
<td>Madras witnessed boom and business at &quot;The Madras Stock Exchange&quot; was transacted with 100 brokers.</td>
</tr>
<tr>
<td>1923</td>
<td>When recession followed, number of brokers came down to 3 and the Exchange was closed down.</td>
</tr>
<tr>
<td>1934</td>
<td>Establishment of the Lahore Stock Exchange.</td>
</tr>
<tr>
<td>1936</td>
<td>Merger of the Lahore Stock Exchange with the Punjab Stock Exchange.</td>
</tr>
<tr>
<td>1937</td>
<td>Re-organization and set up of the Madras Stock Exchange (Pvt.) Limited led by improvement in stock market activities in South India with establishment of new textile mills and plantation companies.</td>
</tr>
<tr>
<td>1940</td>
<td>Uttar Pradesh Stock Exchange Limited and Nagpur Stock Exchange Limited were established.</td>
</tr>
<tr>
<td>1944</td>
<td>Establishment of &quot;The Hyderabad Stock Exchange Limited&quot;.</td>
</tr>
<tr>
<td>1947</td>
<td>&quot;Delhi Stock and Share Brokers' Association Limited&quot; and &quot;The Delhi Stocks and Shares Exchange Limited&quot; were established and later on merged into &quot;The Delhi Stock Exchange Association Limited&quot;.</td>
</tr>
</tbody>
</table>

Source: [www.wikipedia.org](http://www.wikipedia.org)
Post Independence Scenario

The depression witnessed after the Independence led to closure of a lot of exchanges in the country. Lahore Stock Exchange was closed down after the partition of India, and later on merged with the Delhi Stock Exchange. Bangalore Stock Exchange Limited was registered in 1957 and got recognition only by 1963. Most of the other Exchanges were in a miserable state till 1957 when they applied for recognition under Securities Contracts (Regulations) Act, 1956. The Exchanges that were recognized under the Act were: Bombay, Calcutta, Madras, Ahmedabad, Delhi, Hyderabad, Bangalore, and Indore. And, many more stock exchanges were established during 1980's, namely: Cochin Stock Exchange (1980), Uttar Pradesh Stock Exchange Association Limited (at Kanpur, 1982), Pune Stock Exchange Limited (1982), Ludhiana Stock Exchange Association Limited (1983), Guwahati Stock Exchange Limited (1984), Kanara Stock Exchange Limited (at Mangalore, 1985), Magadh Stock Exchange Association (at Patna, 1986), Jaipur Stock Exchange Limited (1989), Bhubaneswar Stock Exchange Association Limited (1989), Saurashtra Kutch Stock Exchange Limited (at Rajkot, 1989), Vadodara Stock Exchange Limited (at Baroda, 1990), Coimbatore Stock Exchange, and Meerut Stock Exchange, and National Stock Exchange (at Mumbai, 1994). Table 1.1 presents a brief view of trading statistics of stock exchanges in India during the period (2001-2010). Though many other exchanges exist, Bombay Stock Exchange (BSE) and the National Stock Exchange of India (NSE) account for the majority of the equity trading in India.

Bombay Stock Exchange (BSE)

It is a stock exchange located on Dalal Street, Mumbai and is the oldest stock exchange in Asia. The equity market capitalization of the companies listed on the BSE was US $1.63 trillion as of December 2010, making it the 4th largest stock exchange in Asia and the 8th largest in the world. The BSE has the largest number of listed companies in the world. As of June 2011, there are over 5,085 listed Indian companies and over 8,196 scrips on the stock exchange, the Bombay Stock Exchange has a significant trading volume. The BSE Sensex, also
called "BSE30" is a widely used market index in India and Asia. The Sensex is generally considered to be the bellwether of the Indian stock market. It is an index of 30 stocks representing 12 major sectors. The Sensex is constructed on a 'free-float' methodology, and is sensitive to market sentiments and market realities. The Bombay Stock Exchange developed the BSE Sensex in 1986, giving the BSE a way to measure overall performance of the exchange. In 2000, the BSE used this index to open its derivatives market, trading Sensex futures contracts. The development of Sensex options along with equity derivatives followed in 2001 and 2002, expanding the BSE's trading platform. Historically an open outcry floor trading exchange, the Bombay Stock Exchange switched to an electronic trading system in 1995. It took the exchange only fifty days to make this transition. This automated, screen-based trading platform called BSE on-line trading (BOLT) currently has a capacity of 8 million orders per day.

**National Stock Exchange (NSE)**

NSE (National Stock Exchange) was the first exchange in the world to use satellite communication technology for trading, using a client server based system called National Exchange for Automated Trading (NEAT). For all trades entered into NEAT system, there is uniform response time of less than one second. It is a stock exchange located at Mumbai, Maharashtra, India. It is the 9th largest stock exchange in the world by market capitalization and largest in India by daily turnover and number of trades, for both equities and derivative trading. NSE has a market capitalization of around US $1.59 trillion and over 1,552 listings as of December 2010. NSE is the third largest Stock Exchange in the world in terms of the number of trades in equities. It is the second fastest growing stock exchange in the world with a recorded growth of 16.6%. Though, both BSE and NSE were set up with different objectives in their charter, yet they are helping in promoting industrial development in the country through effective resource mobilization by way of investment in securities. The major indices of BSE include: BSE Sensex, BSE 100, BSE 200, BSE 500, Dollex 200, BSE Shariah 50, BSE Smallcap index, BSE Midcap index, and few sectoral indices.
### Table 1.1: Trading Statistics of Stock Exchanges

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<td>UPSE</td>
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<td>1917</td>
<td>357</td>
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<td>Vadodara</td>
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Source: Compiled from various SEBI Issues
### Table 1.2: Description of Selected Indices

<table>
<thead>
<tr>
<th>Indices</th>
<th>Particulars</th>
<th>Base date of the Index</th>
<th>Date of shifting of computation method to free float market capitalization</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>a) NSE Indices</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S&amp;P CNX Nifty</td>
<td>Blue chip index of NSE which is most popular and widely used stock market indicator in the country. It consists of diversified 50 stocks index accounting for 22 sectors of the economy and accounts for 63.55% of the free float market capitalization as on September 30, 2011.</td>
<td>November 3, 1995</td>
<td>June 26, 2009</td>
</tr>
<tr>
<td>CNX Nifty Junior</td>
<td>This index contains the next rung of liquid securities after S &amp; P CNX Nifty. The maintenance of the S &amp; P CNX Nifty and the CNX Nifty Junior are synchronized so that the two indices will always be disjoint sets. This index accounts for 12.62 % of the free float market capitalization of capital market segment of NSE as on September 30, 2011.</td>
<td>November 3, 1996</td>
<td>May 04, 2009</td>
</tr>
<tr>
<td>CNX 100</td>
<td>This is a diversified 100 stocks index accounting for 38 sectors of the economy, which is a combination of the Nifty 50 and CNX Nifty Junior. CNX 100 represents about 77% of the free float market capitalization as on September 30, 2011.</td>
<td>January 1, 2003</td>
<td>June 26, 2009</td>
</tr>
<tr>
<td>CNX Midcap</td>
<td>The primary objective of CNX Midcap is to capture the movement of the midcap segment of the market segment which is being increasingly perceived as an attractive investment segment with high growth potential. The CNX Midcap index represents about 11.98% of the free float market capitalization of the stocks listed on NSE as on September 30, 2011.</td>
<td>January 1, 2003</td>
<td>February 26, 2010</td>
</tr>
<tr>
<td>S&amp;P CNX 500</td>
<td>It is India’s first broad-based benchmark of the capital market and helps in comparing portfolio returns vis -a- vis market returns. It represents about 94.95% of the free float market capitalization and about 93.64% of the total turnover on the NSE as on September 30, 2011.Industry weightages in the index reflect the industry weightages in the market. For e.g. if the banking sector has a 5% weightage in the universe of stocks traded on NSE, banking stocks in the index would also have an approximate representation of 5% in the index.</td>
<td>1994</td>
<td>October 11, 2010</td>
</tr>
</tbody>
</table>
b) **BSE Indices**

<table>
<thead>
<tr>
<th>BSE Sensex</th>
<th>It is the barometer of Indian capital market. It consists of 30 component stocks representing large, well-established and financially sound companies across key sectors.</th>
<th>1978-79</th>
<th>September 1, 2003</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSE 100</td>
<td>BSE 100 is a broad-based index comprising of 100 scrips which have a listing history of 3 months at BSE. Scrip selection will generally attempt to maintain index sectoral weights that are broadly in-line with the overall market.</td>
<td>1983-84</td>
<td>April 5, 2004</td>
</tr>
<tr>
<td>BSE 200</td>
<td>The equity shares of 200 selected companies from the specified and non-specified lists of BSE are considered for inclusion in the sample for BSE 200. It is a new broad-based index series reflecting the market trends in a more effective manner and providing a better representation of the increased equity stocks, market capitalization as also to the new industry groups.</td>
<td>1989-90</td>
<td>August 16, 2005</td>
</tr>
<tr>
<td>BSE 500</td>
<td>Bombay Stock Exchange Limited constructed a new index, christened BSE-500, consisting of 500 scrips w.e.f. August 9, 1999. The changing pattern of the economy and that of the market were kept in mind while constructing this index. BSE-500 index represents nearly 93% of the total market capitalization on BSE. BSE-500 covers all 20 major industries of the economy.</td>
<td>February 1, 1999</td>
<td>August 16, 2005</td>
</tr>
</tbody>
</table>


And, the popular indices of NSE include S & P CNX Nifty, CNX Nifty Junior, CNX 100, CNX Midcap, CNX 200, S & P CNX 500, Nifty Midcap 50, CNX Small cap index, S & P CNX Defty and few others. The present research uses only first four BSE indices and first five NSE indices, the brief discussion of these are presented in the Table 1.2.

Since the empowerment of SEBI, the Indian securities market represented by the two most prominent stock exchanges BSE & NSE has grown in terms of volume of transactions as evident from the data in Table 1.3 & 1.4 respectively. The NSE and BSE have most advanced and scientific risk management systems. The significant improvements in efficiency, transparency and safety, and the level of compliance with international standards have earned a new respect for the Indian securities market in the world market.
Table 1.3: Measures of Market Activity Volumes at BSE

<table>
<thead>
<tr>
<th>Year</th>
<th>Market Capitalization (₹ Cr.)</th>
<th>Annual Turnover (₹ Cr.)</th>
<th>No. of Listed Companies at BSE</th>
<th>SENSEX (Base 1978-79) Annual Average</th>
</tr>
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<td>2861</td>
<td>2896</td>
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<td>1993-94</td>
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<td>314073</td>
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<td>2003-04</td>
<td>1201206</td>
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<td>2004-05</td>
<td>1698428</td>
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<td>2005-06</td>
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<td>2006-07</td>
<td>3545041</td>
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<td>4821</td>
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<td>2007-08</td>
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<td>2008-09</td>
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<td>2009-10</td>
<td>6164157</td>
<td>1378809</td>
<td>4975</td>
<td>15585</td>
</tr>
</tbody>
</table>

Source: Compiled from various issues of SEBI and RBI bulletins

Table 1.4: Measures of Market Activity Volumes at NSE

<table>
<thead>
<tr>
<th>Year</th>
<th>Market Capitalization (₹ Cr.)</th>
<th>Annual Turnover (₹ Cr.)</th>
<th>No. of Listed Companies at NSE</th>
<th>S&amp;P CNX Nifty (Nov.3,1995=1000) Annual Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>1994-95</td>
<td>363350</td>
<td>1805</td>
<td>135</td>
<td>1202.87</td>
</tr>
<tr>
<td>1995-96</td>
<td>401459</td>
<td>67287</td>
<td>422</td>
<td>965.26</td>
</tr>
<tr>
<td>1996-97</td>
<td>419367</td>
<td>294503</td>
<td>550</td>
<td>1005.75</td>
</tr>
<tr>
<td>1997-98</td>
<td>481503</td>
<td>370193</td>
<td>612</td>
<td>1087.34</td>
</tr>
<tr>
<td>1998-99</td>
<td>491175</td>
<td>414474</td>
<td>648</td>
<td>956.62</td>
</tr>
<tr>
<td>1999-00</td>
<td>1020426</td>
<td>839052</td>
<td>720</td>
<td>1369.01</td>
</tr>
<tr>
<td>2000-01</td>
<td>657847</td>
<td>1339510</td>
<td>785</td>
<td>1336.49</td>
</tr>
<tr>
<td>2001-02</td>
<td>636861</td>
<td>513167</td>
<td>793</td>
<td>1077.13</td>
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<tr>
<td>2002-03</td>
<td>537133</td>
<td>617989</td>
<td>818</td>
<td>1036.10</td>
</tr>
<tr>
<td>2003-04</td>
<td>1120976</td>
<td>1099535</td>
<td>909</td>
<td>1428.13</td>
</tr>
<tr>
<td>2004-05</td>
<td>1585585</td>
<td>1140071</td>
<td>970</td>
<td>1805.26</td>
</tr>
<tr>
<td>2005-06</td>
<td>2813201</td>
<td>1569556</td>
<td>1069</td>
<td>2513.40</td>
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<td>2006-07</td>
<td>3367350</td>
<td>1945285</td>
<td>1228</td>
<td>3572.44</td>
</tr>
<tr>
<td>2007-08</td>
<td>4858122</td>
<td>3551038</td>
<td>381</td>
<td>4896.60</td>
</tr>
<tr>
<td>2008-09</td>
<td>2896194</td>
<td>2752023</td>
<td>1432</td>
<td>3731.03</td>
</tr>
<tr>
<td>2009-10</td>
<td>6009173</td>
<td>4138023</td>
<td>1470</td>
<td>4657.8</td>
</tr>
</tbody>
</table>

Source: www.nseindia.com
The responsibility for regulating Indian securities market is shared by Department of Economic Affairs (DEA), Ministry of Company Affairs (MCA), Reserve Bank of India (RBI) and Securities and Exchange Board of India (SEBI). The activities of these agencies are coordinated by a High Level Committee on Capital Markets. The regulators ensure that the market participants behave in a desired manner so that securities market continues to be a major source of finance for corporate and government sectors and the interests of the investors are protected. The rules under the securities laws are framed by the government and are administered by SEBI. At present the government has framed rules under five main Acts for regulation of security markets for prevention of unfair trade practices and to protect the interests of small investors: (a) Companies Act, 1956 (b) Securities Contract (Regulation) Act, 1956 (c) SEBI Act, 1992 (d) Depositories Act, 1996, and (e) Prevention of Money Laundering Act, 2002. Under these Acts, government and SEBI issue notifications, guidelines and circulars which need to be compiled with by stock market participants for the proper functioning of the securities market are mentioned.

Stock Market Revolution (Capital Market Reforms since 1991)

Since 1991, SEBI has announced far-reaching reforms to promote the capital market and protect investor interests. The focus on three main areas have been given: structure and functioning of stock exchange, automation of trading and post trade systems, and the introduction of surveillance and monitoring systems. The most important stock market reforms are:

1. **Empowerment of Powers of SEBI (1992)**

   The setting up of the Securities and Exchange Board of India (SEBI) was a most important step towards capital market reforms. The Securities and Exchange Board of India (SEBI), which set up in April 1988 as a non-statutory body had been given legislative backing in January 1992 for (a) protecting the interests of investors in securities, (b) promoting the development of the securities market, and (c) regulating the securities market. SEBI has full autonomy and authority to regulate and develop an orderly securities market and
regulatory jurisdiction powers over companies in the issuance of capital and transfer of securities, in addition to all intermediaries and persons associated with securities market. It can conduct enquiries, audits and inspection of all concerned and adjudicate offences under the Act. It has powers to register and regulate all market intermediaries and also to penalize them in case of violation of the provisions of the Act, rules and regulations made there under.

2. **Abolition of Capital Issues Act (1992)**

In the Capital Issues Control Act (1947) regime, bureaucratic approval was needed for public issue of shares and other securities by companies. The government embraced the policy of liberalization and abolished CCI Act in 1992 to boost the investment in the primary market. Now the companies were allowed to enter in the primary market with more freedom regarding the pricing, size and amount of their issues. Freeing of the pricing of issues led to unprecedented upsurge of activity in the primary capital market as the companies mobilized huge resources to meet their financial needs. SEBI further strengthened the norms for public issues in April 1996 and raised the standards of disclosure in public issues to enhance their transparency for improving the levels of investor protection.


NSE was given recognition as a stock exchange in April 1993 but it was operationalised in 1994. NSE was set up with the objectives of (a) establishing a nationwide screen based automated trading facility for all types of securities, (b) ensuring equal access to all investors all over the country irrespective of geographical location through an appropriate communication network, (c) providing a fair, efficient and transparent securities market using electronic trading system, (d) enabling shorter settlement cycles and book entry settlements, and (e) meeting the international benchmarks and standards. Within a short span of time, the above objectives have been realized and the exchange has played a
leading role as a change agent in transforming the Indian capital market to its present form. NSE provides a trading platform for all types of securities-equities and debts, i.e. corporate, government and derivatives. The exchange currently operates four market segments, namely capital market segment, wholesale debt market segment, futures and options segment and the currency derivatives segment. The standards set by NSE in terms of market practices, products, technology and service standards have become industry benchmarks and are being replicated by other market participants. The high level of information dissemination through on-line system has helped in integrating retail investors on a nation-wide basis. NSE has become the largest stock exchange in India with approximately two third of the total market trading volume and it has surpassed the BSE. It is one of the very few exchanges in the world to have adopted anonymous order matching system. The NSE has launched National Securities Clearing Corporation (1995) to act as a clearing house for securities transactions. It was the first clearing corporation to be established in the country and also the first clearing corporation in the country to introduce settlement guarantee. India Index Services & Products Limited (IISL), a joint venture between NSE and CRISIL Ltd. (formerly the Credit Rating Information Services of India Limited), was setup in May 1998 to provide a variety of indices and index related services and products for the Indian capital market.


The legal framework for derivatives trading was provided by the amendment of SCRA in 1999. Derivatives trading started in a gradual manner with stock index futures in June 2000. Later on, options and single stock futures were introduced in 2000-2001 and presently India’s derivatives market turnover is more than that of the cash market. In June 2003 the interest rate futures contracts on the screen based trading platform were introduced. Today, India is one of the largest single stock futures markets in the world. Table 1.5 shows that the total exchange traded derivatives witnessed a value of ₹ 292,483,750 million
(US $ 6,550,588 million) in 2010–2011 as against ₹176,638,990 million (US $ 3,921,825 million) in the preceding year. In 2010–2011, NSE proved itself the market leader in derivatives, contributing 100 percent of the total turnover in India.

### Table 1.5: Turnover in Derivatives Market

<table>
<thead>
<tr>
<th>At the End of Financial Year</th>
<th>Derivatives</th>
<th>Turnover (₹ mn)</th>
<th>Turnover (US $ mn)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000-01</td>
<td></td>
<td>40,180</td>
<td>861</td>
</tr>
<tr>
<td>2001-02</td>
<td></td>
<td>1,038,480</td>
<td>21,280</td>
</tr>
<tr>
<td>2002-03</td>
<td></td>
<td>4,423,333</td>
<td>93,123</td>
</tr>
<tr>
<td>2003-04</td>
<td></td>
<td>21,422,690</td>
<td>493,724</td>
</tr>
<tr>
<td>2004-05</td>
<td></td>
<td>25,641,269</td>
<td>586,086</td>
</tr>
<tr>
<td>2005-06</td>
<td></td>
<td>48,242,590</td>
<td>1,081,430</td>
</tr>
<tr>
<td>2006-07</td>
<td></td>
<td>74,152,780</td>
<td>1,701,142</td>
</tr>
<tr>
<td>2007-08</td>
<td></td>
<td>133,327,869</td>
<td>3,335,698</td>
</tr>
<tr>
<td>2008-09</td>
<td></td>
<td>110,227,501</td>
<td>2,302,643</td>
</tr>
<tr>
<td>2009-10</td>
<td></td>
<td>176,638,990</td>
<td>3,921,825</td>
</tr>
<tr>
<td>2010-11</td>
<td></td>
<td>292,483,750</td>
<td>6,550,588</td>
</tr>
<tr>
<td>April-Sept 2011</td>
<td></td>
<td>157,600,280</td>
<td>3,221,243</td>
</tr>
</tbody>
</table>

Source: SEBI, CMIE Prowess, and NSE

5. **PAN as the Sole Identification Number**

   Government has made PAN as the sole identification number for all transactions in securities market in his investor friendly measures. This step helps in the identification of black money and to curb undesirable speculation in the stock market. Further, identification through PAN would help the authorities in enforcement action.

6. **IPO Grading**

   SEBI has made it compulsory for companies entering in the primary market to get their IPOs graded by at least one credit rating agency registered with SEBI from May 1, 2007. The rating agency grants rating after analyzing
factors like business and financial prospects, management quality and corporate
governance practices etc. and the risk associated with the issue. This measure is
intended to provide the investor with more information about the
creditworthiness of the companies and better valuation of the issue so as to
protect their investment.

7. Investor Protection and Education Fund (IPEF)

SEBI has set up the Investor Protection and Education Fund (IPEF) with
the purpose of investor’s protection, education and related activities. SEBI has
contributed a sum of ₹10 crore towards the initial corpus of the IPEF from the
SEBI General Fund. In addition the following amounts will also be credited to
the IPEF: (i) Grants and donations given to IPEF by the Central Government,
State Governments or any institution approved by SEBI for the purpose of the
IPEF; (ii) Interest or other income received out of the investments made from the
IPEF; and (iii) Such other amount that SEBI may specify in the interests of the
investors.

8. Corporate Bond Markets

The government had set up a High-Level Expert Committee (Patil
Committee) on corporate bonds and securitization to look into the legal,
regulatory, tax and market design issues in the development of the corporate
bond market. The Committee submitted its report to the government in
December, 2005. The budget of 2006-07 announced that the government has
accepted the recommendations of the report and that steps would be taken to
create a single, unified, exchange-traded market for corporate bonds. The trading
platforms for corporate bonds at the major exchanges had been operational from
July 1, 2007.

Apart from all this, a qualitative comparison of Indian securities markets
in the pre-reform era and post reform era has been presented in Table 1.6. It can
be seen from the Table that a lot of developments have been done to improve
trading in Indian stock market.
<table>
<thead>
<tr>
<th>Feature</th>
<th>Pre-Reform era</th>
<th>Post-Reform era</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regulation</td>
<td>Information disclosures in Indian Companies Act, issue provisions in Capital Issues (Control) Act, trading regulations in Securities Contract Regulation Act</td>
<td>Securities Contract Regulation Act is administered by SEBI. SEBI has a range of regulations covering various aspects of the capital markets</td>
</tr>
<tr>
<td>Regulator</td>
<td>Central Government departments</td>
<td>SEBI</td>
</tr>
<tr>
<td>Capital Market Access by Companies</td>
<td>Controlled by CCI</td>
<td>Free access subject to compliance with Disclosure and investor protection guidelines of SEBI</td>
</tr>
<tr>
<td>Organization of exchanges</td>
<td>Association of persons with limited or unlimited liability</td>
<td>Corporate structure</td>
</tr>
<tr>
<td>Management of exchanges</td>
<td>Boards made up of members and few public representatives</td>
<td>Demutualised format with management that is independent of membership</td>
</tr>
<tr>
<td>Membership pattern of exchanges</td>
<td>Dominated by individuals who inherit memberships</td>
<td>Increased share of institutional members. Membership on the basis of capital adequacy requirements</td>
</tr>
<tr>
<td>Pricing of Issues</td>
<td>Determined by CCI</td>
<td>Determined by the market forces. Book building process with red herring prospectus</td>
</tr>
<tr>
<td>Issue Process</td>
<td>Limited institutional participation. Retail distribution by brokers and merchant bankers</td>
<td>Separate subscriptions by institutional and retail investors</td>
</tr>
<tr>
<td>Trading mechanism</td>
<td>Floor based open outcry system</td>
<td>Screen based electronic open order book</td>
</tr>
<tr>
<td>Execution of trades</td>
<td>Through market makers</td>
<td>On-line anonymous execution</td>
</tr>
<tr>
<td>Concentration of trades</td>
<td>BSE and Mumbai</td>
<td>Wider geographical spread of trading. Dominated by NSE terminals</td>
</tr>
<tr>
<td>Access to markets</td>
<td>Through broker offices and telephone</td>
<td>Internet Access to broker networks</td>
</tr>
<tr>
<td>Price information</td>
<td>Electronic display within exchanges. End of day prices published</td>
<td>Real time dissemination of prices through multiple electronic and media channels</td>
</tr>
<tr>
<td>Settlement of trades</td>
<td>Batch settlement. 14-day account periods. Settlement cycle completion in 21 days</td>
<td>Rolling Settlement. T+2 cycles</td>
</tr>
<tr>
<td>Custody of Securities</td>
<td>Physical holding in lockers</td>
<td>Electronic holding with custodians</td>
</tr>
<tr>
<td>-----------------------</td>
<td>----------------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>Trade confirmation and pay-in/ pay-out obligations</td>
<td>Bilateral end-of-batch process. Several trades fell into 'objections' (vanda)</td>
<td>Straight through processing and electronic confirmation of pay-in and pay-out</td>
</tr>
<tr>
<td>Payment mechanism</td>
<td>Cheques</td>
<td>Electronic Fund Transfer</td>
</tr>
<tr>
<td>Form of securities</td>
<td>Physical form</td>
<td>Demat form</td>
</tr>
<tr>
<td>Transfer of ownership in books</td>
<td>Executed through physical transfer of documents, along with transfer deeds</td>
<td>Executed through demat accounts implemented electronically</td>
</tr>
<tr>
<td>Counter party risk</td>
<td>High. Incidence of bad delivery and fraudulent transfer high</td>
<td>Eliminated through Clearing corporation and settlement guarantee funds</td>
</tr>
<tr>
<td>Derivatives</td>
<td>Forward trading in indigenous form, known as badla. Counter party risk high due to low levels of transparency</td>
<td>Futures and options in securities and index. Clearing corporation eliminated counterparty risk</td>
</tr>
<tr>
<td>Risk Management</td>
<td>Ad hoc margining system imposed by exchanges</td>
<td>VaR based margins computed using risk management systems, multiple times of the day</td>
</tr>
</tbody>
</table>

Source: Author’s compilation

**Issues and Developments in the Past Decade (2000-2010)**

To reduce transaction time and bolster liquidity, various reforms were undertaken during last decade (2000-2010), such as introduction of automated trading system, reduction in the settlement cycle, dematerialization etc. This decade has been the most eventful period for the Indian capital market during which it took major strides to carve a niche for itself in the global securities markets. The major developments which hastened this incredible journey can broadly be observed under three categories, viz. improved market microstructure, introduction of new products and progressive changes in the regulatory framework.

**Improved Market Microstructure**

With the advent of new technology, greater sophistication was brought to the Indian securities markets by introducing world class facilities like Direct
Market Access (DMA), algorithmic trading, smart order routing system and co-location service. The facility of DMA was introduced for institutional investors in the year 2008 which provided them direct access to the exchange trading system through the broker’s infrastructure without manual intervention by the broker. DMA ensured direct control over orders by institutional investors, faster order placement and execution, more arbitrage opportunities, improved liquidity, greater transparency and lower impact cost for large order. Algorithmic trading refers to orders that are automatically placed in the market by software programmes, built on certain mathematical models. Smart Order Routing enables the broker’s trading engines to systematically choose the execution destination from out of trading platforms of different stock exchanges based on factors such as price, costs, speed, likelihood of execution and settlement, size, nature or any other consideration relevant to the execution of the order. Finally, global exchanges introduced co-location services to support high frequency trading using Algorithmic trading and DMA. On the clearing and settlement front, in July 2001, the Indian securities market made a paradigm shift from the century old account period settlement to a T+5 rolling settlement and further to T+2 in April 2003. Dematerialisation which was introduced in 1998 achieved 100% demat trading at NSE in June 2002. In the primary markets, SEBI made IPO grading compulsory for companies coming out with the IPOs of equity shares in May 2007.

**Introduction of New Products**

Introduction of a variety of new products provided the much needed dynamism and impetus to the growth of the Indian securities market. In the last decade, various new products were introduced in different market segments of the securities markets. Among them, the equity derivative products with underlying such as indices and individual stocks met with a great success and later extended to other asset classes like interest rate and currency. Currency futures on USD–INR were introduced for trading and subsequently the Indian rupee was allowed to trade against other currencies such as euro, pound sterling
and the Japanese yen. To enhance retail participation and market liquidity in equity derivative segment, mini derivative contracts on Nifty and Sensex were introduced in 2008 having a minimum contract size of ₹ 1 lakh. SEBI also allowed trading on option contracts on Nifty and Sensex with tenure of up to five years to provide liquidity at the longer end of the market. In addition to derivatives products, a host of other products such as mutual funds, index funds, index and gold based ETFs and ETFs on international indices were introduced on the Indian stock exchanges during the last decade. Appropriate and timely changes were made to the regulatory framework to facilitate the introduction of these new products and their success in due course.

**Regulatory Framework**

The regulatory framework has been strengthened. In the year 2004, the corporation and demutualization of stock exchanges was mandated through amendments in SCRA, 1956. In the same year, amendment to SCRA was also made to provide for clearing and settlement by a clearing corporation. It provided that an exchange with the approval of SEBI could transfer the duties and functions of a clearing house to a recognized clearing corporation. In addition to the introduction of new products, an endeavor was made to strengthen the existing products which had not gained momentum. Notable among them were the corporate bonds and interest rate futures. Simplification of corporate bond issuance norms and introduction of repos in corporate bonds were some of the measures taken to resurrect this market segments. Indian exchanges are entering into cross border agreements with overseas exchanges for introducing their products on their trading platform. By providing an opportunity to the investors to diversify their portfolios internationally, this could add another dimension to the Indian securities markets. For example: in March 2010, NSE and Chicago Mercantile Exchange (CME) had announced cross-listing arrangements. Under the cross-listing arrangements, the S&P CNX Nifty Index (Nifty 50), the leading Indian benchmark index representing 22 sectors of the Indian economy, has been made available to CME for the creation and listing of U.S. dollar denominated
Nifty futures contracts for trading on CME. Keeping in view the increased integration of global markets, the market regulator also allowed Indian stock exchanges to extend their trade timings from 9:55 a.m.-3:30 p.m. to 9:00 a.m.-5:00 p.m. The securities market is endeavoring to make equity finance available for small and medium enterprises (SMEs). In May 2010, SEBI has permitted setting up of a stock exchange or trading platform for SMEs by stock exchanges having nationwide trading terminals. In addition to this, various initiatives have been taken by SEBI to strengthen the corporate governance among the listed companies. In a recent initiative on the regulatory front, a Financial Stability and Development Council (FSDC) has been created to strengthen and institutionalize the mechanism for maintaining financial stability and monitoring macro prudential supervision of the economy.

**Assessment of Performance of Indian Securities Market during 2000-10**

The initiatives discussed above have not only transformed the landscape of the securities market, but also contributed to its growth. Table 1.7 shows the performance in the capital market in terms of certain key indicators.

**Table 1.7: Key Performance Indicators of Indian Securities Market (2000-2010)**

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Compound Annual Growth Rate (2000-01 to 2009-10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resource Mobilisation in Primary Markets</td>
<td>17.15%</td>
</tr>
<tr>
<td>Resource mobilization through Euro Issues</td>
<td>43.89%</td>
</tr>
<tr>
<td>All-India Market Capitalisation</td>
<td>23.15%</td>
</tr>
<tr>
<td>All-India Equity Market Turnover*</td>
<td>19.94%</td>
</tr>
<tr>
<td>All-India Equity derivatives turnover</td>
<td>132.19%</td>
</tr>
<tr>
<td>Assets under Management of Mutual Funds</td>
<td>18.99%</td>
</tr>
<tr>
<td>Net Investments by Foreign Institutional Investors</td>
<td>30.53%</td>
</tr>
<tr>
<td>Net Investments by Mutual Funds</td>
<td>54.07%</td>
</tr>
<tr>
<td>Returns on Nifty 50</td>
<td>13.13%</td>
</tr>
</tbody>
</table>

* CAGR calculated from 2001-02 to 2009-10

Source: www.nseindia.com
The performance of the Indian capital market has been impressive with high returns and a high level of investment from both domestic and foreign investors. On the other hand, India’s debt market, particularly the corporate bond market is still underdeveloped. Of late, efforts have been made to bring regulatory changes to develop the corporate bond market. However, sustained effort and long-term commitment are needed to realize the true potential of this segment. The growth of India’s derivatives market has been significant but needs to develop further in terms of products and investor base. Therefore, equity segment of Indian securities market has been considered in the present research.

After doing a brief review of EMH, anomalies and Indian capital market reforms and developments during the last decade, the present research aims to find out the existence of various stock market anomalies i.e., Day-of-the Week Effect, Intra-month Return Regularities, Month-of-the Year Effect, Turn-of-the Year Effect, Turn-of-the-tax Year Effect, Size, Price-Earning Ratio Anomaly, and Low Beta Anomaly in Indian securities market at the macro as well as micro level.
REFERENCES


**Websites:**

• www.sebi.gov.in

• www.rbi.org.in

• www.bseindia.com

• www.nseindia.com

• www.investopedia.com

• www.yahooﬁnance.com

• www.wikipedia.org

• www.amazon.com

**Other References:**


• Various SEBI Bulletins

• Various RBI Bulletins