CHAPTER II

STOCK MARKET ANOMALIES - THEORETICAL ASPECTS & REVIEW OF RELATED STUDIES
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This chapter is divided into two parts. Part A contains a discussion of theoretical aspects of the Indian capital market. A review of the related literature is presented in part B where related studies of anomalous effects, which include day of the week effect, monthly effect including fortnightly and turn of the year effects and size effect have been classified and presented.

Part A

An investment is a commitment of funds made in the expectation of some future of return. Investment in securities is a key factor in an economy. Investors prefer to invest their money in industrial securities rather than bank deposits because investment in equity shares gives higher rate of return than other investments. The proportion of investment in shares and debentures by the household sector has increased significantly from 3.4 per cent in 1980 - 81 to 10.3 per cent in 1992 - 93. In comparison, the proportion of banking and non-banking deposits by the household sector has declined to 38.9 per cent in 1992 - 93 from 48.9 per cent in 1980-81.
Investment decisions involve selection of securities and amount allocated to each security. These decisions are normally made in securities and risk-return analyses. In security analysis, estimates are prepared for the return and risk associated with available securities over a forward holding period. Return-risk estimates must be compared in order to allocate available funds among these securities on a continuing basis. Security analysis is built around the theory that investors are concerned with two important properties inherent in securities: the return that can be expected from the investment, and the risk involved in the securities.

2.1 Securities Market

The security market of a country comprises of primary market and secondary market. New securities are floated both by new and existing organisations in the primary market. This market is primarily called as new issues market whose main function is to facilitate transfer of funds to establish and expand the organisations. There are a number of instruments, which are used to generate a market for the primary issues. In developed countries, primary instruments like warrants, options, futures and index-linked instruments are used to generate funds for the companies. In India, options are not permitted but limited form of futures trading (carry forward system) exists. Recently, new instruments like warrants zero coupon bonds and convertible securities have been introduced in India.
In tune with the growth of the new issues market, the secondary market also expanded rapidly in the nineties. Markets where shares and securities of existing business enterprises, Government and semi-government bodies are bought and sold are called as secondary markets.

Stock Exchange

The Securities Contracts (Regulation) Act, 1956 defines stock exchange as “an association, organisation or body of individuals, whether incorporated or not, established for the purpose of assisting, regulating and controlling business in buying, selling and dealing in securities”. Indian capital market is one of the largest in the world. There are 23 recognised stock exchanges, including Over The Counter Exchange of India (OTCEI) and National Stock Exchange (NSE) spread all over the country. The OTCEI which was granted recognition in August 1989, has become operational since November 1992. The National Stock Exchange was established in early 1994. These exchanges constitute an organised market for securities issued by Central and State Governments, Public bodies and Joint Stock companies. Savings of investors flow into public loans and securities of joint stock enterprises because of their ready marketability provided by the stock exchanges.

The Bombay Stock Exchange (BSE) is the premier stock exchange in India. It was formed on 9th July 1875 as the Native Share and Stock Brokers' Association. The deed of the Brokers' Association constituting the exchange was adopted on the 3rd, December 1887. On 14th May 1927, the exchange was recognised by the
erstwhile Government of Bombay under the Bombay Securities Contracts (Control) Act, 1925. The exchange was granted permanent recognition under the Securities Contracts (Regulation) Act, 1956 by Government of India with effect from August 31st, 1956. The number of companies listed on the BSE has gone up considerably from 992 in 1980 to 5,276 in October 1995 with the total market capitalisation of Rs. 4,65,574 crores\(^2\). With the increasing investment activity there are now around 7000 companies listed on the Bombay Stock Exchange\(^3\). The Bombay Stock Exchange accounts for more than two-thirds of the trading volume with more than 70 per cent of the listed capital in the country and over 90 per cent of market capitalisation\(^4\).

**Regulation of Stock Exchanges**

The Indian stock market is more than a century old and it has functioned continuously through the medium of organised stock exchanges. The Securities Contracts (Regulation) Act, 1956 regulates the activities of the stock exchanges and dealings in securities. No stock exchange can operate legally without permission or recognition from the Government. Thus the recognised stock exchanges are placed in a privileged position, but at the same time the Government has wide powers of supervision and control.

Prior to the establishment of Securities and Exchange Board of India (SEBI), the protection of investors' rights and interests were governed by the provisions of the Indian Companies Act, 1956, Capital Issues (Control) Act, 1947, (which has now been repealed) and the Securities Contracts (Regulation) Act, 1956. Amendments
have been made in these Acts and guidelines issued from time to time to protect the interests of the investors.

With the growing number of investors, steady growth of the securities markets and market imperfections, reformulating the regulation of capital market a separate body to control the affairs of the stock exchanges was considered imminent. Again, realising the importance of effective regulation, a separate authority to supervise stock market activities and to provide protection to the investors the Securities and Exchange Board of India was established by the Government of India on April 12, 1988 as a non-statutory body. SEBI was given statutory recognition by an ordinance formulated by the President of India on March 31, 1992. The ordinance was replaced by the Securities and Exchange Board of India (SEBI) Act, 1992 and came into force on 30th January 1992. The SEBI is an apex body to regulate the activities of the stock exchanges for healthy growth of the capital market. The following are the functions of the SEBI as provided in the Act:

- development and regulation of securities markets and investor protection
- registration and regulation of the working of collective investment schemes including mutual funds
- prohibition of fraudulent and unfair trade practices and insider trading related to securities
2.2 Efficient Market Hypothesis:

The Efficient Market Hypothesis states that the security market is perfect, and hence an average investor cannot earn a return higher than the market return. "A market is efficient with respect to a particular set of information if it is impossible to make abnormal profits by using this set of information to formulate buying and selling decisions". The security prices should reflect both private and publicly available information. There are three forms of the efficient market hypothesis. Under each different types of information are assumed to be reflected in security prices. The three forms of efficient market hypothesis are:

1. Weak form;
2. Semi-strong form; and
3. Strong form.

**Weak Form:**

Weak form of EMH is popularly known as random walk theory. Under weak form of EMH, the information being considered is restricted to only historical prices. The investors would not be able to consistently earn abnormal profits by simply observing the historical prices of securities. Hence if the weak form of EMH is true, it is not to accept the technical analysis.
**Semi-strong form:**

Semi-strong form of EMH asserts that security prices adjust rapidly to the release of all publicly available information. It says that efforts by investors to acquire and analyse public information will not yield consistently abnormal returns.

**Strong Form:**

Under the strong form of EMH it is argued that security prices fully reflect all information, both private and public. Not many proponents of the efficient market hypothesis would argue that the strong form is a correct description of the securities markets. As Fama (1970) noted, the strong form "is obviously an extreme null hypothesis. And, like any other extreme null hypothesis, we do not expect it to be literally true".

**Random Walk Theory:**

During the sixties no subject in the area of investment analysis and securities selection has received more attention in the minds of researchers than random walk theory. According to Fama (1965), Random Walk Theory states that "the future path of the price level of a security is no more predictable than the path of a series of cumulated random numbers". In statistical terms the random walk implies that successive price changes are independent and identically distributed random variable so that future price changes cannot be predicted from past price changes.

Extensive research into stock market price behaviour has been largely confined to analysis of the New York and London stock exchanges and such classic
studies as those of Fama (1965)\textsuperscript{6} and Granger and Morgenstern (1970)\textsuperscript{8} are well documented. The efficient market theory is being extensively tested in other countries also. Sharma (1977)\textsuperscript{9} studied the price behaviour on the BSE vis a vis London and New York; Agmon (1972)\textsuperscript{10} examined share price movements in United States, UK, Germany and Japan; Palacios (1973)\textsuperscript{11} tested market efficiency of stock market in Spain; Lessard (1976)\textsuperscript{12} made a comparative study of World Stock Markets and New York Stock Exchange. These studies confirm acceptance of efficient market hypothesis.

There are also several studies rejecting the random walk theory. Andrew and Craig (1988)\textsuperscript{13} have rejected the Random Walk Hypothesis for weekly stock market returns by using a simple volatility-based specification test. The patterns of rejections indicate that the stationery mean reverting models of Shiller and Perron (1985)\textsuperscript{14}, Summers (1986)\textsuperscript{15} and Fama and French (1988)\textsuperscript{16} could not account for the departures of weekly returns from the random walk. A study by Frennberg and Hansson (1993)\textsuperscript{17} indicates that the Swedish stock prices have not followed a random walk during the period 1919-1990. Similarly, the market efficiency was tested by Rosenberg and Lanstein (1985)\textsuperscript{18} and Zarowin (1989)\textsuperscript{19} concluding that stock prices overreact in the short run. They have concluded that the stock market is inefficient because arbitrageurs are aware of the market's tendency to overreact and could earn huge returns by buying losers and selling winners\textsuperscript{20}. 

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2.3 Risk-Return Theory:

A major factor influencing the pattern of investment is its return. All investments involve some risk or uncertainty of return. The objective of the investor is to minimise the risk involved in investment and maximise the return. Generally, an investor prefers liquidity for his investments, safety of his funds, and a good return for his investment with a minimum risk. Risk is inherent in any investment. The return on a security is closely related to risk of that security. There is a higher risk in equity investment. Hence the expected rate of return on equity investment is higher as compared to other investments. Security price depends on a host of factors like earning per share, future earning potential, and possible issue of bonus or rights shares. Though investors like high returns they dislike risk. The risk may be either systematic or unsystematic.

The elements of systematic risk are external and cannot be controlled by the firm. Examples for systematic risk are changes in economic conditions, interest rate changes, inflation, recession, changes in the market demand etc. Systematic risk reflects the behaviour of individual scrip to the market sequence. Some shares move along the market more closely than others. This relative measure of volatility of individual scrip to the market behaviour is called ‘Beta’. The concept of beta is defined as that part of the variability of the return of a scrip to the overall variability of the market return. The sign of beta may either be positive or negative depending upon the price movement of a stock in relation to the market. If the beta is positive,
the share price moves in the same direction and if it is negative, the share price moves contrary to the general trend. The scrips that have high beta (more than one) are called aggressive, and those with a low beta (less than one) are called defensive. The portfolios with high beta scrips will have greater return than the market return. On the other hand, unsystematic risk is one which is the controllable variation in earnings due to the peculiar characteristics of the industry, management efficiency, consumer preferences, labour problems and raw material problems.

2.4 Stock Market Anomalies:

The cross-sectional differences among stock returns have been found to occur with regularity. Some regularities should occur according to certain asset pricing models. For instance, the Capital Assets Pricing Model (CAPM)\textsuperscript{21} asserts that different stocks should have different returns because different stocks have different betas. The regularities on stock prices that are not predicted by any of the traditional asset pricing models are sometimes also referred to as ‘anomalies’. Stock market anomalies include day of the week effect, fortnightly effect, monthly effect, size effect, budget effect and settlement cycle effect, which influence the behaviour of stock returns. The empirical exceptions, the so-called anomalies, have challenged the simple structure constructed by asset pricing models.

\textit{Day of the week effect:}

There is no obvious reason to expect stock returns to be higher in certain days than in other days. Numerous studies in USA and other developed markets and a few
studies in developing and under-developed countries have documented and offered various conjectures to explain weekend effect. A notable conclusion can be drawn that returns show evidence of significant variations across all the weekdays. This appears to be the evidence of market inefficiency, which is contrary to random walk hypothesis. Santesmases (1986) who analysed the daily returns of the Madrid Stock Exchange Index using a sample of 40 stocks has not found the 'day of the week effect'. On the basis of these results, the efficient market hypothesis can not be rejected for Spanish stock market. These result agree with those obtained by Gibbons and Hess (1981), Lakonishok and Levi (1982), and Keim and Stambaugh (1984) on the US stock market.

A study by Cross (1973) using returns on the S&P 500 index stocks over the period 1953–1970, found that index rose on 62 per cent of the Fridays, but on only 39.5 per cent of the Mondays. The mean return on Fridays was 0.12 per cent while the mean return on Mondays was - 0.18 per cent.

An investigation of the 'day of the week effect' was that of Fama (1965), who reported that Monday's variance, were about 20 per cent greater than other days. Godfrey, Granger and Morgenstern (1964) also reached a similar conclusion.

An interesting aspect of the day of the week effect is observed by Ziemba (1993) that Tuesdays tend to have negative returns following a one-day weekends (ie., Monday to Saturday). As Osborne (1962) argues that institutional investors are less active on Mondays as effort is made that day to plan the week's trades. It is
confirmed that Monday has the lowest trading volume as observed by Lakonishok and Edwin (1990)\textsuperscript{30} for the NYSE. It is generally observed that institutional trading is lowest on Mondays of all trading days, while individual trading on Monday is the highest relative to other days of the week.

The stock returns vary across days of the week. Specifically, the day of the week variation is higher for small-capitalised than for large-capitalised firms because of the largest bid-ask spreads and the thin trading in these generally low-priced securities, as observed by Keim and Smirlock (1987)\textsuperscript{31} and Stoll and Robert (1983)\textsuperscript{32}. A number of studies document that average returns on US common stocks vary across days of the week\textsuperscript{33}. However, few studies have been conducted regarding weekend anomalous effect outside the developed markets. Pattway and Tapley (1984)\textsuperscript{34} first document the weekly pattern in the Japanese stock market using three market indices and stock data from five major Japanese firms from 1979 through 1982. Their findings are different from those in the US: Tuesday returns are the lowest and Wednesday returns are the highest. Similar results are arrived by Jaffe and Westerfield (1985 a, b)\textsuperscript{35}, and Ikeda (1988)\textsuperscript{36}. However, as far as Indian capital market is concerned, Tuesday has the lowest return and Friday the highest positive return by using the daily close-to-close returns of BSE National Index over the period from January 1990 to February 1993, as observed by Mittal (1994)\textsuperscript{37}. 

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Turn of the month effect:

The monthly effect asserts that a standardisation in the payments system in the US generally induces a surge in stock returns around the turn of each calendar month, particularly at the turn of the year. The surge occurs because investors, who have substantial cash receipts at the turn of the month or year, will at that time increase their demand for the purchase of stocks. Most of the studies have documented that the return in January is usually higher than that of other months. The first study by Rozeff and Kinney (1976) documented that the average stock index return in January is higher than in any other months. The surge in January returns is largely confined to stocks of small firms and to the first few trading days in January as observed by Keim (1983). Branch (1977) has suggested that the surge in January returns is due to year-end tax-loss selling and subsequent repurchases in January. Reinganum (1983), Roll (1983), Ritter (1988) have provided the evidence consistent with the tax-loss selling hypothesis.

However, some others argue that the January effect is not due to tax-loss selling but it may be a result of year-end portfolio rebalancing by institutions, where managers dump small stocks showing losses in the current year and reinvest the amounts in selected stocks in early January.

In contrast to January effect, the highest average return is found in July for S&P as observed by Roger and Reic (1982). When they used a value-weighted index, there is no January effect. However, equally-weighted indices display January
seasonal because low capitalisation stock display high average return in January. But high-capitalisation stocks do not have higher returns in January than in other months.

As regards pattern of returns within the months, that is the first and second half of the month, the average rates of return for the first half of the month is significantly larger than those for the second half irrespective of the firm sizes as observed by Fortin and Jay (1991)\(^46\). The same results are arrived by Ariel (1987)\(^47\) and Lakomishok and Smidt (1987)\(^48\).

**Size Effects:**

Firms can be classified into two groups: small and large based on their market capitalisation. Many studies have shown that the small firms tend to have a higher return than the large firms. The main reason for variation of stock returns between small and large stocks is concerned with risk. Because of non-availability of information on the small firms, the risk of the small firm investors is greater than large firms’ investors resulting in higher rate of returns for small firm investors. The returns of firms within the same range of the size tend to respond to risk factors in similar ways, and their returns tend to move together, as observed by Huberman et al., (1987)\(^49\). A view that the risk differences between small and large stocks arise from the differences in their time series responses to changes in the underlying risk factors. Chan et al (1985)\(^50\) have found that small firms are more exposed to production risk and changes in the risk premium. Chan and Chen (1991)\(^51\) show that
the return difference between small and large firms can be captured by the responses of high leverage firms and marginal firms to economic news.

Small firms have higher returns than large firms particularly in January. It is important to think whether or not these two effects are somehow interrelated. Many studies have found a relationship between the January and size effects. Keim (1983)\textsuperscript{52} has reported that small firms returns during January are significantly higher than large firms and also specified that approximately 50 per cent of the size effect appears in January. Givoly and Ovadia (1983)\textsuperscript{53}, Reinganum (1983)\textsuperscript{54} and Roll (1983)\textsuperscript{55} have also documented the January and size effects. A possible explanation is that small stocks may be relatively riskier in January than during the rest of the year. If this is true, then they should have a relatively higher average return in January. The studies by Richard et al (1986)\textsuperscript{56}, Avner Arbel (1985)\textsuperscript{57}, Chan and Chen (1991)\textsuperscript{58} have supported the above explanation.

**PART-B**

**Review of Related Studies**

There are many reasons for fluctuation in share prices. There is evidence of stock market anomalies in developed countries. There are only a few studies relating to stock market anomalies in India. Though many studies are available a review of selected studies which are classified as day of the week effect, monthly effect, turn of the year effect and size effect are given below:
2.5 Day of the week effect:

French (1980)\(^59\) has examined the weekend effect in stock returns and reported that the average daily return on NYSE-listed securities, on Monday was low or negative as compared to other days of the week.

Gibbons and Hess (1981)\(^60\) have studied the day of the week effect on asset returns. The sample was selected from S&P 500, both value weighted and equally weighted portfolios of CRSP for the period July 2, 1962 through December 28, 1978. They found that both individual stocks and treasury bills are having low/negative return on Monday. The market adjusted returns exhibit day of the week effects, but the effects are not concentrated on a particular day of the week. They also reported that a large positive return on Wednesdays and Fridays.

Keim and Stambaugh (1984)\(^61\) investigated the weekend effect in stock returns. The daily S&P 500 and NYSE composite index were taken for analysis for the period 1928 through 1982. It was found that consistently negative Monday returns even when the NYSE was working on Saturdays (till 1952). During the period 1928-1952 the highest return was found on Saturdays. Returns are consistently negative across all size portfolios but Fridays returns are more pronounced for smaller firms. The weekend higher returns are exhibited in small firms than the larger firms. They also investigated, all the firms listed on the NYSE or AMEX that have returns on the CRSP files during the period January 2, 1963 to December 31, 1979,
and observed that the Monday returns are consistently negative across all size portfolios and Fridays returns are higher for smaller firms.

Santesmases (1986)\textsuperscript{62} investigated the Spanish stock market seasonalities, with a sample of 40 stocks which were selected from the Madrid stock exchange over the period January 2, 1979 to December 30, 1983. He reported that there is no confirmation of presence of the day of the week effect in the Spanish stock market during the period under review.

Lakonishok and Smidt (1988)\textsuperscript{63} examined the seasonality on Dow Jones Industrial Average over a period of 90 years from 1897 to 1986. They observed that the rate of return on Monday was substantially negative.

Flannery and Protopapadakis (1988)\textsuperscript{64}, studied the extent to which intra-week seasonality still exists and whether its pattern is uniform across three stock indices and Treasury bonds with seven different maturities. They have analysed the daily return data over a period of 8 years from 1977 to 1984. They pointed out that the intra-week seasonality in security returns is not an unusual phenomenon with negative Monday returns.

Sun-Woong (1988)\textsuperscript{65} analysed the weekend effect of the six international markets viz., USA, UK, Canada, Korea, Japan and Australia. These six markets are classified into two groups: Groups I and II based on time zone. The first three markets come under group I and next three come under group II. The daily closing indices of six countries for the trading days between 1980 and 1984 were taken for
analysis. The result seems to support the time zone hypothesis. That is, the lowest returns in the second group of companies are found on Tuesday - the day that is equivalent to Monday in the first group of countries. For the second group of countries, lag-one correlation coefficients of daily returns with the first group are significantly higher compared with contemporaneous correlation coefficients between these two groups. Korea shows a relatively low correlation with the remaining five countries.

Jaffe et al (1989)\textsuperscript{66} have conducted a study on Monday effect in stock prices in US and foreign stock markets. For the analysis, they split Mondays in two sets where one set corresponds to Mondays that follow the week where the market declined and the second set corresponds to Mondays that follow a week where the market rose. They pointed out that, interestingly, in both the US and Japanese markets, the average return for the first set of Mondays is significantly negative (-0.39 per cent in US and -0.18 per cent in Japan), but the returns in second set of Mondays are slightly positive (0.06 per cent in US and 0.11 per cent in Japan).

Lakonishok and Maberly (1990)\textsuperscript{67} documented the weekend effect, with the trading patterns of individual and institutional investors. The daily NYSE trading volume (no. of shares) and daily odd-lot sales and purchases (no. of shares) were collected for the period from 1962 to 1986. Their findings are: trading volume on Monday is low; even though the volume was low large number of transactions were
made by the individual investors as compared to other days of the week. In contrast to the individual investors, the institutional investor transactions on Monday are low.

Kato (1990)\textsuperscript{68} examined the weekly patterns in Japanese stock returns. The daily prices on the Tokyo stock exchange were collected for a period from April 1978 through June 1987. He observed that the large negative returns are shown on Tuesday and high positive returns on Wednesday for the close to close returns.

Fortin (1990)\textsuperscript{69} examined the day of the week effects in the OTC / NASDAQ equity market. The sample consists of 5,822 firms for the period from 1973 to 1985. He reported that the Monday and Tuesday mean returns in most cases were negative with mean returns increasing throughout the week and peaking on Friday. In contrast, dealer percentage bid-ask spreads are relatively constant over the week.

Chaudhury (1991)\textsuperscript{70} has conducted a study on seasonality in share returns providing evidence on day of the week effect. He selected the daily closing price quotations of 93 shares drawn from Bombay Stock Exchange for the period from January 1988 to April 1990, for analysis. He observed that the stock returns were negative on Monday and Tuesday and the highest positive return occurred on Friday.

Broca (1992)\textsuperscript{71} has studied the day of the week pattern in the Indian Stock market. He analysed the daily Bombay Stock Exchange national index of equity shares from 1st April 1984 to 31st December 1989. He reported that low Wednesday returns in contrast to developed markets where Monday exhibits the lowest return.
and Friday the highest. The trading strategies designed to exploit this empirical day of the week patterns, however, do not outperform a naive buy and hold strategy.

Wilson and Jones (1993)\textsuperscript{72} have reexamined the existence of seasonal anomalies in daily stock prices by integrating seasonal patterns into a single comprehensive model that captures the joint effect of seasonal variations for each of the three (NYSE, Amex and NASDAQ) major markets. It was observed that the day of the week effect is present with significantly negative return on Monday.

Ziemba (1993)\textsuperscript{73} investigated the weekend hypothesis for the Japanese market using daily data from May 16, 1949 to December 28, 1988. The data are broken into 475 ten years sub-periods beginning with May 1949 to December 1958 and ending with January 1979 to December 1988. The data were analysed to find the day of the week effect, after adjusting for pre-and-post holiday effects. It was found that most of the time, daily return is not zero at 5 per cent level of significance.

Mittal (1994)\textsuperscript{74} examined the day of the week effect on Indian stock market. The daily closing data on Bombay Stock Exchange National Index for the period from January 1990 through February 1993 was taken for analysis. Using this data he tried to find the day of the week effect and the behaviour of trading and non-trading period returns for the period January 1990 to February 1993. He observed, with the help of non-parametric Kruskal-wallies test, that Tuesday has the highest negative return, and Friday the highest positive return. Most of the positive returns arise
during trading period and negative returns in non-trading period. These two periods are not normally distributed across all the week days.

Schatzberg and Datta (1990)\(^7^5\) studied the weekend effect and corporate dividend announcements. A sample of 1,38,824 dividend announcements is investigated over twenty-six years across 3,484 firms. Using daily return data they concluded that the weekend effect is not due to dividend announcement per se.

2.6 Monthly Effect:

Rozeff and Kinney (1976)\(^7^6\) documented that the mean returns in January exceed the mean returns of the other months for a market index of NYSE stocks over the period 1904 - 1974.

Gultekin and Gultekin (1983)\(^7^7\) studied the January return patterns in 17 countries including United States. They find much higher returns in January than all other months for all the countries they studied. In fact, for the period they found that the effect was significant in 16 non-US markets.

Reinganum (1983)\(^7^8\) observed that the purchase of a security that has declined substantially by December has excess return in January. His finding confirmed what Branch (1977)\(^8^5\) arrived for the January effect.

Ariel (1987)\(^7^9\) in his paper “A Monthly Effect in Stock Returns” concluded that the returns over the first half of any month (defined to include the last day of the previous month) are significantly higher than the returns over the second half of the month.
Lakonishok and Smidt (1988)\textsuperscript{80} studied the turn of the month effect on Dow Jones Industrial Average. The study was based on the daily closing DJIA over a period 1897-1986. According to them, the price increase around the turn of the month exceeds the total monthly price increase.

The share price behaviour of OTC/NASDAQ market was analysed by Mansor (1989)\textsuperscript{81}. In his doctoral dissertation, the first part examined the existence and characteristics of the 'size effect' and seasonality of stock returns. Mansor noticed that the OTC index returns and portfolio raw returns are generally higher in January than in other months and the size effect also reflects this January seasonality. However, there is no evidence of an inter-market size premium. He also reported that portfolio returns were more linearly related to either portfolio rankings (by market value) or to log transformation of market values than they were to absolute market values.

Kato (1990)\textsuperscript{82} studied the relationship between the January effect and the weekly pattern on the daily prices on the Tokyo stock exchange. He found that the weekly pattern is present in non-January months.

Fama (1991)\textsuperscript{83} studied efficient capital markets with two sets of data. The first set covers a period of forty years from 1941-1981 and nine years period from 1982 through January 1991 covered by the second set. When considering the first set (period), small stocks return in January (8.06 per cent) was higher than large stock's January return (1.342 per cent). In both small and large stocks, January returns were higher than the average return in other months. In a second set (period), the
difference in returns in January between large and small stocks was not as pronounced. Small stocks had a January return of 5.32 per cent while large stocks had a January return of 3.2 per cent. The extra return in January for small stocks is especially high in the first few days of January.

Fortin and Jay (1991)\textsuperscript{84} studied the monthly regularities in the OTC National market system. The data used in the study covers the period from November 1, 1982 to December 29, 1989. It was observed, with the last trading day of a month included in the first half of the next month, that rates of return were higher in the first half of the month, while percentage spreads were lower. In the five day trading week beginning on the last trading day of the month, rates of return were extraordinarily high and percentage spreads were at their lowest levels for the month.

2.7 Turn of the year effect:

Branch (1977)\textsuperscript{85} studied a trading rule that involved the purchase of a security that reached its annual low in the last week of trading in December. He found that these securities rose faster in the first four weeks of the New Year than the market as a whole, with very little difference in risk. Again, he obtained average returns 8 per cent above the market for a four week holding period.

Dyl (1977)\textsuperscript{86} examined the association between capital gains tax consideration and year-end trading volume. A random sample of 100 common stocks was selected from the CRSP for the period from 1948 through 1970, and monthly volume data for a period January 1959 to February 1970 were also used for analysis. Based on the
analysis, Dyl concluded that the abnormal year-end trading volumes observed above should be especially pronounced in a bull market year. The data revealed abnormally low volume for stocks that have appreciated during the year, presumably reflecting the year-end capital gains tax lock-in effect, and abnormally high volume for stocks that have declined in price during the year, presumably reflecting year-end tax loss selling.

Givoly and Ovadia (1983)\(^87\) examined year-end tax-induced sales and stock market seasonality. The sample consists of all NYSE securities for which a record of returns was available on the monthly CRSP tape over a period 1945 - 79 for about 1300 stocks. They related two phenomena in the stock market: the high return during the month of January, and the apparent existence of widespread sales of stocks for tax purposes towards the end of the fiscal year.

Berges et al (1984)\(^88\) analysed the returns of Canadian stocks over the period 1951-1980. The Canadian stock returns display a strong January effect even during the period in which there were no capital gains taxes. They concluded that this evidence does not support the tax-loss selling hypothesis as the sole explanation for January effect.

Rogalski (1984)\(^89\) in his paper on “New Findings Regarding Day-of-the-week returns over Trading and Non-Trading Periods: A Note” observed that the anomalous price behaviour of stocks in January mostly occurs in the first five trading days.
Kato and Schallheim (1985)\(^90\) studied the January effect and the relationship between firm size and January effect on Tokyo stock exchange. They observed that the excess return was pronounced for both the large and small firms in January. In fact, the returns on small firms in January were greater than that of the large firms.

Santesmases (1986)\(^91\) analysed the daily returns of the Spanish stocks over the period 1979 - 83. During this period, Miguel found turn of the year effect, with higher returns for the first quarter of the year and lower ones for the last quarter.

Ogden (1987)\(^92\), in his paper on “The end of the month as preferred habitat: A test of operational efficiency in the money market”. It has stated that bills maturing at the end of the calendar months have substantially lower yield than they mature in any other months.

Ritter (1988)\(^93\) analysed the daily buy/sell data of NYSE stocks over a period of fifteen years from December 17, 1970 through December 16, 1985. Ritter proposed the "parking-the-proceeds" hypothesis, i.e., the individual investors who sell the stocks prior to late December, for tax-loss selling and they buy the stocks in early January, mostly small stocks. He had concluded that the ratio of stock purchases to sales by individual investor displays a seasonal pattern, with individuals having a below-normal buy/sell ratio in late December and an above-normal ratio in early January.
A study by Lakonishok and Smidt (1988) reveals the turn of the year effect on DJIA. Analysis of the daily closing data during 1897 to 1986 indicates that the price increases from the last trading day before Christmas to the end of the year.

In his doctoral dissertation, Mansor (1989) studied the share price behaviour in the OTC/NASDAQ market. This work consists of two empirical studies; the first one deals with seasonal anomalies and the second study examines price behaviour, liquidity and risks of a sample of NASDAQ stocks. The OTC stocks, particularly the small-firm portfolios, experience significant price increases beginning from the last trading day in December and extending into a few days in January thus exhibiting turn of the year effect.

Ogden (1990) analysed the CRSP, both value-weighted and equally-weighted, daily index returns over the period 1969-86. In his study, he used the data for the first nine trading days before and after the beginning of each month. Ogden tested a hypothesis, which asserts that the standardization of payments in the US at the turn of each calendar month generally induces a surge in stock returns at the turn of each calendar month.

Zarowin (1990) reexamined DeBondt and Thaler's evidence on stock market overreaction. They found that neither risk nor seasonality alone can account for their results. The loser's superior performance over winners during the 3-year test period is not due to investor overreaction, but to size discrepancies between winners and losers since losers tend to be smaller than winners. When losers and winners of comparable
size are matched, there is evidence of differential performance only in January. When 3-year losers are smaller than winners, losers outperform winners (and vice versa).

2.8 Size Effects:

Roll (1981) examined a possible explanation of the small firm effect. He analysed the data on S&P 500 index and equally weighted index on NYSE and Amex listed common stocks for the period July 1962 through December 1977. He asserts that mis-assessment of risk has the potential to explain why small firms display large excess returns than large firms.

Roll (1983) in an another study observed that the largest daily differences in the returns between small firms and large firms occur over the last trading day of an year and the first four trading days of the next year. Furthermore, eight of the subsequent ten trading days also have notably large differences in returns.

Keim and Stambaugh (1984) conducted a study on ‘A further Investigation of the weekend effect in stock returns’. For the purpose of this study they took the daily S&P’s Composite Index and NYSE for the period from 1928 through 1982. They found that the weekend higher returns were exhibited in small firms than the larger firms.

On another set of data, all the firms listed on the NYSE and Amex that have returns compiled on the CRSP files during the period January 2, 1963 through December 31, 1979, were used to examine the size effect. They obtained interesting
result that the Monday returns were consistently negative across all size portfolios but Fridays returns were higher pronounced for smaller firms.

Kato and Schallheim (1985)\textsuperscript{101} examined the seasonal and size anomalies in the Japanese stock market. The monthly stock prices in Tokyo Stock Exchange (TSE) were taken for analysis from the period 1952 to 1980. They used Kruskal-Wallies, regression and autocorrelation analysis to find the seasonalities. They observed that January stock return is greater than other months and the small firms, on average, earn higher returns than large firms in January. Further evidence is presented indicating a possible June seasonal in the Japanese Stock market. This may be due to issue of bonus shares two times a year i.e., January and June.

Mansor (1989)\textsuperscript{102} has conducted an empirical study on the share price behaviour in the OTC/NASDAQ market. In the first part of his doctoral dissertation, Mansor observed that the size-return relationship is not stable over time nor across calendar months. He found the OTC market characterised by a size-seasonality behaviour similar to that observed in the NYSE-AMEX. Moreover a major component of transaction costs, the bid-ask spread, has a strong negative relation with size for all years and for all months. Mansor also noticed that the seasonality of the bid-ask spread does not follow the pattern of the seasonality of the returns.

Kato (1990)\textsuperscript{103} has tested the weekly patterns related to the size effect on Tokyo Stock Exchange. He found that the small firms' stocks are riskier than large firm's stocks and as a result, experience higher mean returns.
Chan and Chen (1991) examined the differences in structural characteristics that lead firms of different sizes to react differently to the same economic news. By using time series analysis they found that return difference between small and large firms can be captured by the responses of high leverage firms and marginal firms to economic news.

A recent study by Fraser (1996) revealed the risk return relationships of a small company portfolio and a broadly based market portfolio on UK data over a period January 1970 through June 1994. Fraser tests the hypothesis that the expected excess returns of companies with low market capitalization display similar risk return characteristics to those of the market as a whole, and observed that small companies investors may have greater risk than the average market investor. The differences in risk-return behaviour may be due to non-availability of information on smaller companies. She also suggests that post-1987 (stock market crash) excess returns of small stocks have exhibited relatively greater ex ante volatility than the market as a whole.

2.9 Conclusion:

Eventhough many studies have been conducted on the USA and other developed markets, only very few studies have examined in Indian data. Moreover, the researcher has not come across any such study in India using stock market data during the period 1990 to 1995. Besides 'budget and settlement cycle effects have not
been studied under Indian conditions. Hence an attempt is made in this study to find whether stock market anomalous affect behaviour of stock returns.

Notes and References:


20. Strategy for buying the stocks that are performing poor and selling the stocks that are performing well to generate significant future returns.

21. According to Capital Asset Pricing Model, efficient frontier is defined as a risk-return trade off curve. It provides the maximum return at a given level of risk of the investor. That is the efficient portfolio minimises the return for a given level of risk.


52. Keim, (1983) op. cited.


58. Chan K.C. and Nai-Fu Chen (1991) op. cited


91. Santesmases (1986), op cited.
96. Ogden, Joseph P (1990), op. cited.
100. Keim and Stambaugh (1984), op cited.