CHAPTER VII

SUMMARY, CONCLUSIONS AND SUGGESTIONS

This is a decade of equities. A marked awareness in equity investment is evident throughout the world nowadays. Academics, investment magazines, fund managers and investors throughout the world are interested in equity investments for a variety of reasons. By using historical data, they tried to identify trading patterns of share price movements to take advantage of its rise and fall. Based on the rapidity with which security prices adjust to information, the stock market is called efficient or inefficient. In an efficient market, future path of price movements cannot be predicted.

The literature on stock price behaviour or stock returns behaviour is vast. Empirical results produced in various countries so far confirmed the RWH, even though the degree of conformity differs. Recent studies in countries like India and even USA, point out that the stock returns behaviour does not obey a random walk. The existence of various stock returns anomalies, brought to light recently by many researchers in various countries, points out that the markets are not efficient. Thus the debate whether the stock market is efficient or not goes on endlessly.

In India, there are some studies which found the applicability of Random Walk Hypothesis for the Indian Stock Market. Some recent studies disputed its applicability for the Indian stock market. There are only very few studies which tested the existence of some anomalies. Hence, in this study, stock returns behaviour is tested to find out to what extent RWH describes the behaviour of Indian Stock Market. The existence of various anomalies are also tested in the Indian conditions. Also, stock returns behaviour in India and USA are compared.
The study was undertaken with the following objectives.

1. To study the behaviour of stock returns,
2. To study the seasonal anomalies in stock returns and
3. To compare the behaviour of stock return in India and USA.

The study was carried out with the following data.

1. Daily closing share price data of 90 companies out of 94 companies included in group A of Bombay stock exchange,
2. Weekly average share price data of the above 90 companies,
3. Daily and Weekly returns of the two Index numbers of Bombay Stock Exchange, namely Bombay Stock Exchange National Index and Bombay Stock Exchange Sensitive Index and
4. New York Stock Exchange Composite Index.

Daily share price data for a period of 6 years and weekly share price data for a period of maximum 11 years for most of the companies and minimum of 1 year for few companies were used for this study.

Daily BSE National Index data for a period of 10 years and weekly BSE National Index data for a period of nearly 6 years, daily BSE Sensitive Index data for a period of 14 years and weekly BSE Sensitive Index data for a period of nearly 8 years and daily NYSE Composite Index data for a period of 11 years were used in the study.

Necessary adjustments were made in the data for Bonus issue and change in face value. Various tests for finding out the independence and randomness in the data and seasonal anomalies were conducted.

The results of tests conducted to test the randomness and independence are presented below. The results of the tests conducted on individual stocks are presented first followed by Indices.
7.1 ANALYSIS OF INDIVIDUAL SHARES

7.1.1 Daily Returns

For testing the randomness and independence in the return series auto correlation, runs test, and filter technique were used. The presence of various anomalies were found out by a suitable arrangement of the data. Data were also arranged in frequency tables and various summary statistical measures were calculated.

Stock Returns of 90 Individual Shares were analyzed. The number of observations vary from a minimum of 383 to a maximum of 1268. All the companies are having positive average returns. Among the 90 companies, the minimum average return is 0.042% and the maximum is 0.4951%. Those companies whose minimum and maximum returns show highest variation and range exhibit highest skewness and excess kurtosis.

Empirical results carried on daily returns through auto correlation analysis of individual shares indicate that the first order auto correlation coefficients are small in magnitude, statistically insignificant in majority of the cases. There is a preponderance of positive signs. The largest of the coefficient is 0.212 (it exceeds four times its computed standard error) and the smallest being -0.203. The first order auto correlation coefficients of 25 shares (out of 90) exceed twice their standard error values and become significant. Thus 27.77% of the first order auto correlation coefficients are significant suggesting the dependence in the returns series. In few cases where the coefficients are significantly different from zero and suggests dependence, coefficients as small as 0.058 exceed twice their standard error values. Even though it indicates dependence, it lacks neither economic nor statistical
importance. Fama observes "dependence of such a small order of magnitude is from a practical point of view probably unimportant for both the statistician and the investor". Hence the dependence in this date is not important.

The second order auto correlation coefficients of only three shares exceed twice or more their standard error values. The third order auto correlation coefficients of only three companies are greater than two standard error values. The higher order coefficients are also numerically small and statistically insignificant in almost all the cases. Thus the data suggest randomness. An analysis of the coefficients (lags 1-90) reveal the that the coefficients of 2 companies exceed their standard error values 8 times. The coefficients of 10 other companies do not exceed twice their standard error values even on a single day. Thus, there is a very little pattern in the behaviour of stock returns. Hence, the empirical results of auto correlation analysis indicate that the stock returns is independent and random.

For stock prices or stock there are three possible types of price changes and thus three different types of runs. The positive, negative and zero runs. The runs test is conducted by comparing the actual number of runs with the expected number of runs. In a truly random series, the actual number of runs will not be significantly different from the expected number of runs. If the difference is significant, the series would be dependent. The significance of deviations is tested with the help of standard error. The results of analysis are presented as follows:
For daily return series, the actual number of runs exceed the expected number of runs for 87 shares out of 90. That is why the Z values are positive for 87 companies. The Z values are significant at 5% level of significance for 85 shares and suggest dependence in the data series. At the significance level of 1% (when the Z values 2.58) the Z values are significant for 82 of these 85 companies whose Z values are significant at 5% level and suggest dependence. Thus the results of runs analysis do not lend support to the results of auto correlation analysis. Runs test suggests that the data is not random. There is dependence in the data.

A mechanical trading rule for testing the randomness is the filter technique. Under the filter technique, filter profit was calculated for filter sizes such as 0.5%, 1% and 2%.

The filter profit is compared with the profit of a simple buy and hold strategy. It is found that filter profit is more than a simple naive buy-and-hold policy for all filter sizes. When the filter size is increased from 0.5% to 1% and then to 2%, the profit declines for majority of the shares. The total profit of all shares put together decreases with the increase in filter size. The excess of filter profit over naive buy-and-hold profit indicate that there is no randomness in the data.

For the individual shares the number of weekly observations ranges from a minimum of 53 to a maximum of 560. All the average returns are positive. The highest mean return is 1.7903% and the lowest is 0.1338%. The coefficient of variation is maximum for JK Synthetics (8863.5714). In the daily returns series also, the coefficient of variation is the highest only for this company.
For the weekly returns also, the first order auto correlation coefficients contain a preponderance of positive signs which is in conformity with the daily returns. The largest of the coefficients is 0.405 and the smallest is -0.044. A look at the first order auto correlation indicates dependence since 86% of the coefficients exceed at least twice their standard error values. Out of 90 coefficients for lag 2, only 5 coefficients are significant. Thus, 94% of the second order coefficients suggest randomness. But in the case of third order coefficients, 15 exceed at least twice their standard error values, suggesting dependence. Only 8 fourth order auto correlation coefficients exceed twice their computer standard error values. But none of the coefficients for lag 5 exceed twice their standard error value. An analysis for coefficient for all 90 lags reveal that only 2% of the coefficients suggest dependence. Thus, in general, the data suggest independence and randomness for stock returns.

The results of runs tests for weekly returns show similarities with the results of run tests for daily returns. The actual number of runs is more than the expected number of runs for all the shares. That is why the Z values are positive for all the shares. The Z values are significant at 5% level of significance for all the companies. Even at 1% level of significance the Z values are significant for 84 companies out of 90 indicating lack of randomness. This suggests dependence in the data series.

7.2 ANALYSIS OF INDICES

7.2.1 Bombay Stock Exchange National Index - Daily Returns

The average return is 0.1393% with a standard deviation of 1.706. The minimum return is -15.156% and the maximum is 24.594%. Its skewness and kurtosis are
slightly higher than that of sensitive index. The returns vary from a minimum of -18% to a maximum of +25.33%. 99% of total observations lie between -4.67% and +5.33%.

The first order auto correlation coefficients exceed four times of its computed standard error values. But for the remaining 89 lags, it exceeds twice its computed standard error values only for 6 lags. Since only 8% of the total coefficients suggest dependence, there is independence and randomness in the National Index returns series.

The actual number of runs exceeds the expected number of runs. Hence the Z value is positive. The Z value is significant at 5 percent and 1 percent level of significance. This suggests dependence in the BSE National Index Return series. Thus, the returns behaviour is not random.

The filter test conducted on the BSENI indicates that filter technique earned a profit higher than that of simple buy and hold policy. The profit is higher for all three filter sizes - 0.5%, 1% and 2%. The excess of filter profit over a buy and hold profit indicates that the return series is not random and not independent. However, the transaction costs is not considered to arrive at the filter profit. When the filter size is increased from 0.5% to 1% the profit goes up, but declined considerably when the filter size is increased to 2%. The excess of filter profit over the profit of a simple buy-and-hold policy points out the return behaviour is not random.
7.2.2 Bombay Stock Exchange National Index - Weekly Returns

The number of observations for BSE National Index is 287. The average return is 0.71646 percent with a standard deviation of 3.7057. The return varies from a minimum of -15 percent to a maximum of 19.67 percent. Nearly 90% of the observations lie between -4.33% and 6.33%. Compared to daily returns, the standard deviation is higher but the skewness and kurtosis are lower.

The first order auto correlation coefficient exceeds thrice its computed standard error values. The second, third and fourth order coefficients also exceed twice its computed standard error values indicating dependence on successive four lags. But for the remaining 86 lags none of the coefficients exceeds twice its computed standard error values. The dependence is only marginal and hence the Index return series exhibit randomness.

The actual number of runs is more than the expected number of runs. That is why the Z value is positive. The Z value is significant at 5 percent and 1 percent level of significance. This suggests dependence in the data series.

7.2.3 Bombay Stock Exchange Sensitive Index - Daily Returns

The total number of observations are 2750. The average return is 0.1388 and standard deviation is 1.858. 64% of total observations lie within a minimum of -1.67% and +1.00%. However, the return varies from a minimum of -12.77% to 20.80%. Compared to National Index, the variation in return is lesser and the skewness and kurtosis are lower.

Just like the National Index, the Sensitive Index also shows that the first order auto correlation coefficient exceeds four times of its computed standard error values.
For the remaining 89 lags the coefficient exceeds twice its computed standard error values only on four days. Thus, only 6% of the coefficients suggest dependence. This suggests randomness in the data. Coefficient as small as 0.047 exceed twice its computed standard error and suggest dependence. This dependence is insignificant.

The actual number of runs is more than the expected number of runs. Hence the Z value is positive. The Z value is also significant at 5% level and 1% level of significance. Thus the sensitive index returns series suggests dependence. This shows lack of randomness in the data.

The filter test conducted on the BSE Sensitive Index indicates that filter technique earned a profit higher than that of simple buy-and-hold policy. The profit is higher for all three filter sizes of 0.5%, 1% and 2%. The excess of filter profit over a buy-and-hold profit indicates that the return series is nonrandom and hence dependent. However, the transaction costs are not considered to arrive at the filter profit. When the filter size is increased from 0.5% to 1% the profit goes up from Rs.1214.64 to Rs. 1658.79, but declined considerably to Rs. 21.08 when the filter size is increased to 2%.

Just like individual shares and National Index, Sensitive Index also indicate, independence and randomness in the data when auto correlation analysis is used. But when runs tests is applied, it exhibited dependence in the data series. The results of filter technique also reveal that the return series is not random. Thus, there is dependence in the return series.

7.2.4 Bombay Stock Exchange Sensitive Index - Weekly Returns

The number of observations for weekly returns is 381 with a mean return of 0.5869 percent and a Standard Deviation of 3.96. The average return is lower when
compared to National Index but the range is higher. The return varies from a minimum of -18% to a maximum of +22%. Nearly 85% of total observations lie within -4.67% and 5.33%.

The Sensitive Index also exhibits the pattern as found in National Index. The first order auto correlation coefficient exceeds three times its computed standard error values. The second, third and fourth order coefficients also exceed at least two times of its computed standard error values. None of the remaining coefficients for 86 lags exceeds twice its computed standard error values. The return series data is independent and random. The dependence is either extremely slight or completely non-existent.

The actual number of runs exceeds the expected number of runs for the Bombay Stock Exchange Sensitive Index. The Z values are positive and significant at 5% and 1% level of significance. This suggests that the data are non-random and hence dependence is indicated.

7.2.5. Summary

The auto correlation analysis conducted on individual shares and indices suggest independence and randomness in the data. But the results of runs tests suggest dependence in the series. Thus, the results of the runs tests do not lend support to the results produced by auto correlation coefficients. If the actual number of runs is more than the expected number of runs, there may be a negative dependence. In that case, there will be negative auto correlation coefficient. But we observed a preponderance of positive auto correlation coefficients. Fama observes "for most purposes, however, the absolute amount of dependence in the price changes is more important than whether the dependence is positive or negative. The amount of dependence implied by the runs tests can be depicted by the size of the difference
between total actual number of runs and total expected number of runs". (1965, p. 76). The results produced by Filter Technique support the view that the stock return series is not independent.

Even though the auto correlation analysis, in general, suggests independence, the first order auto correlation coefficients of 25 shares of daily return series and 77 shares of the weekly return series suggest dependence. For the indices also, the first order auto correlation coefficients suggest dependence for both the daily return and weekly return series. The runs test suggests dependence for individual shares and also indices. The results of filter technique lend further support to dependence. Thus the stock returns behaviour is not random. Hence it can be stated that Random Walk Hypothesis cannot be established for the Indian Stock Market.

7.3 STOCK MARKET ANOMALIES

Efficient Market Hypothesis states that the stock market is efficient and thus an investor or a superior analyst cannot outperform the market than those of the investor who follows some naive buy-and-hold policy. Even a superior analyst cannot make consistently greater gains than those of the market. Fama states "consistently is the crucial word here, since for any given short period of time, even if there are no superior analyst, in a world of random walks some people will do much better than the market and some will do much worse".

The random walk hypothesis ruled the capital market scenario for a long time, mostly in stock markets of developed countries and also in few less developed countries. There are few studies appearing recently even in stock markets of developed countries which found out that the market is not efficient and thus rejected the Random Walk Hypothesis. Recent studies in India also rejected the Random Walk Hypothesis. The present study also rejects Random Walk Hypothesis.
Many researches identified various anomalies in stock returns which also go against Efficient Market Hypothesis. This study tested some of the anomalies and the results are presented as follows.

7.3.1. The Day of the Week Effect in Stock Returns

Equality of mean returns across all days of the week is tested with individual stocks. It is found that Friday exhibits the highest mean returns for 53 companies out of 90. The lowest mean return falls either on Wednesdays or Thursdays.

The results of analysis of returns for individual shares show evidence of significant variation across all days of the week. This anomaly is an evidence of the existence of market inefficiency. Sales planned should be done either on Wednesday or Thursday. Thus a superior analyst can make consistently greater gains over the market.

Analysis of National Index return series indicates that Friday is having the highest return. Wednesday is having lowest return Wednesday. Regression on dummy variable also indicates a highest Friday return and Lowest return is observed on Wednesdays.
The Sensitive Index indicates a slightly different picture. As with Individual shares and National Index, Sensitive Index also exhibits highest return on Friday. Lowest return is observed on Monday. Regression on dummy variable also indicate a similar result - highest Friday return, lowest Monday return. Thus the mean return across all days of the week is not uniform. The anomaly indicates that the stock returns behaviour is not random. The significant difference in the mean return across the days of the week gives an Idea for an investment strategy. The National Index may be considered as a portfolio and it can be purchased on Wednesday and sold on Friday. In this way an investor can increase the expected gain. This indicates that the market is not efficient.

7.3.2. Calendar Year Effect.

The results of National index indicate that a pre-New Year average return fluctuates, but the Post-New Year return have shown stability. Looking at the individual years, it can be seen that during 1992, pre - New Year returns are negative but post-New Year returns are positive while the reverse is true for 1993. During 1991, the returns were mostly negative or zero and even the only one positive return is the lowest. Returns at the state of the New year (+5) subperiod) were highest only for three years. But returns immediately before the new year (-5 subperiod) were highest for three years. Thus, there is very little pattern and it can be said that calendar year effect is not observed in the case of National Index.

The Sensitive Index reveal that the Pre-New Year returns were generally positive and are on the increase from one sub period to another. Returns at the start
of the New Year also increased but later decreased. 1989 and 1991 saw negative returns during both pre-New Year and post-New Year. Positive pre-New Year return and negative post-New Year return were observed during 1982, 1983, 1984, 1988, 1990 and 1993. In short, there is no pattern in stock return series. Thus, calendar year effect is not observed for the Indian stock market.

7.3.3 Budget Effect

The presentation of budget in Parliament is an annual exercise by the Government of India usually on the last day of February every year. The influence of Budget before and after its presentation in parliament is tested and the results are presented below.

The results of analysis of National Index indicate that the average pre-budget returns grow from one sub period to another and reaches the highest in -5 sub period. Immediately after the budget, the returns go down.

Analysis of individual years reveals, that the pre-budget profits in 1987 and 1993 were generally positive and highest during the -5 sub period, but the post-budget returns were negative. Even though negative returns were observed during 1989, 1990 and 1991 in the pre-budget period, they were positive in the post-budget period. During 1985 and 1992 all the returns, i.e., both pre-budget and post-budget returns are positive. In general, it can be seen that the pre-budget returns grow from one subperiod to another during almost all the years. This may indicate that the perception of all investors were good in the pre-budget period. Depending upon the contents of the budget, the post-budget prices increased or decreased.

Speculation with regard to the anticipated policy statement makes different investors to react differently. The Sensitive Index indicates that on an average, the
returns during the period 5 days earlier to budget day was highest and it increased from one sub period to another. After the budget, the returns go down. An analysis of results during individual years reflect different results. In the year 1988, returns during almost all the sub periods were negative, which indicates that the investors are pessimistic about the budget prior to the budget date. The budget confirmed their expectation and hence there is negative return even after the budget. During 1984 and 1993, the pre-budget returns were increasing gradually as the budget date was nearing, but the post-budget returns were negative.

The Pre-budget returns were more or less increasing gradually and they were highest during the sub-period -5. After the budget, the returns go down. In general, the average returns during the pre-budget days are higher than the post-budget returns.

Just like the average pre-budget returns for National Index, the pre-budget average returns for Sensitive Index also grow from one subperiod to another. This indicates that the investors' expectations about the budget were optimistic. But the post-budget returns does not show any systematic pattern as the pre-budget return. This may be due to the fact that post-budget prices reflect the policy statements contained in the budget. Thus, budget has the effect of increasing stock returns in the pre-budget period. Thus there is budget effect for the Indian stock returns.

7.3.4 Tax Year Effect

In USA, the tax year and calendar year coincide. But in India, the tax year is from 1st April of a year to 31st March of next year. Hence calendar year effect and tax year effect are studied seperately. The behaviour of returns during pre tax year and post tax year was tested in this study.
As 31st March is getting nearer, the average returns grow from one sub period to another for the National Index. Pre tax year return was highest during the sub period -05. But there is no systematic pattern in the post tax year return as in the case of pre tax year return. Analysis of individual years also reveals a similar pattern.

In the case of sensitive index also, the average pre tax year return grows from one sub period to another and reaches the highest during the sub period -05. In fact, there was nearly 4 times increase in the average returns from sub period -20 to -05. But the post tax year return shows erratic movement.

Considering the growth trend in the pre tax year return for both indices, there appears to be a tax year effect for Indian stock returns.

7.3.5 Monthly Effect

In the US stock market, it is found that returns during the first half of the month are more than the second half of the month. To what extent such a pattern exists in India is tested by taking individual shares and also indices.

Yearwise analysis on individual shares indicates that the monthly second half returns are higher than the first half returns. Out of 522 half monthly returns, 314 second half returns are higher (60%). Monthwise analysis also indicates similar results. Out of 1080 half monthly returns, 575 second half returns are higher whereas only 505 first half returns are higher.

For the National Index, monthly second half returns are higher for most of the months (7 months) while only 5 months exhibit higher monthly first half returns. Yearwise analysis also indicates that for 6 out of 10 years monthly second half returns are more.
The Sensitive Index behaves like that of US stock market in the sense that the monthly first half returns are higher than the monthly second half returns for 7 months. To confirm this results, monthly first half returns are higher for 8 years while the second half returns are higher only for 6 years.

The results suggested by National Index and individual shares may be taken as the representative picture of Indian stock market. National Index represents the country as a whole, whose results are confirmed by individual shares also. However, the results of Sensitive Index is not insignificant.

The reason why monthly second half returns are higher may be due to the following. Market players consist of salaried people whose cash flow will arise in the first week of the month. In few cases, it may be even during second week. Thus, the availability of cash during the second week of the month may result in an increased return in the second half. Recently, there is a growth of institutional investors in India. Also, the Foreign Institutional Investors (FII) are making their entry in the Indian stock market. They make purchasing and or selling decisions uniformly during all weeks. Even if investors place order for purchase of a share in the first week, there may be few days gap for its execution. The order may reach the broker with some delay, and the broker may take few days for its execution. Delay in settlement, Stock exchange holidays, Book closures and Unethical business practice by some brokers may also be a contributory reason for this phenomenon.

7.3.6 Summary

This study found out the existence of the day-of-the-week effect for stock returns in India, since the returns across all days of the week is not uniform.
In the absence of any pattern in the behaviour of return, Calendar year effect is not found for the Indian stock market.

Since there is growth in the average return from one subperiod to another during the pre-budget days, budget effect is found out for the Indian stock market.

Since, there is a pattern for the stock returns in the pre-31st March period, tax effect is found for the Indian stock market.

There is significant variation in the half-monthly returns. In general, returns during the second half of the month are more than the first half of the month. Thus monthly effect is found for the Indian Stock Market.

Thus, the existence of the above few anomalies point out that the market is not efficient. This further supports the view that the Random Walk Hypothesis can not describe the returns behaviour in India.

7.4 COMPARISON OF STOCK RETURNS BEHAVIOUR IN INDIA AND USA

Capital market in USA is well developed. It is influenced by the developments in other parts of the world, and in turn, US capital market is influencing other capital markets. Random walk model is offered as an adequate description of its stock price behaviour. However, recently, certain seasonal anomalies are brought out in the return behaviour of the US stock market which goes against the concept of market efficiency.

Indian stock market is an emerging stock market. It is slowly acquiring the characteristics of a developed capital market. Few studies conducted earlier established that the random walk hypothesis describes correctly its price behaviour. But
recently, certain seasonal anomalies are brought out in the Indian stock market price behaviour. Hence, a comparison between the return behaviour in India and USA is made.

The lowest return for the National Index is -15.15 percent, for the Sensitive Index it is -12.77 percent and for the NYSE Composite Index it is -19.17 percent. The highest return is 24.59 percent for the National Index, 20.80 percent for the Sensitive Index and 9 percent for the NYSE Composite Index. The range of return for the Indian Indices is more than the US Index. The average mean return is higher in India. About 79 percent of total observations lie within -1.33 percent and 2 percent for the National Index, about 85 percent of total observations lie within -1.67 percent and 3.67 percent for the Sensitive Index, while 98 percent of the observations are within -2.33 percent to 3 percent for the NYSE Composite Index.

The results of tests of auto correlation analysis indicate randomness for the Indian as well as US stock market. Out of 90 Lags, the coefficient exceeds atleast twice its computed standard error values seven times for National Index and Composite Index and five times for the Sensitive Index. For the National Index, coefficient as small as 0.055; for the Sensitive Index, coefficient as small as 0.047; and for the Composite Index, coefficient as small as 0.043 exceed twice their computed standard error values which suggest dependence. However the dependence exhibited is low. Hence, it can be said that the auto correlation analysis conducted on three indices suggests independence and randomness in the data.

The results of runs tests carried on the three Indices indicate a contradictory results. Actual number of runs are higher than the expected number of runs and
that is the reason for Z values being positive. The Z values are significant at 5% and 1% level. Hence, all the three Indices suggest dependence in the data. Thus, the stock returns behaviour is not random in USA and in India.

The filter test conducted on indices indicate that the filter technique earned a profit higher than that of a simple buy-and-hold policy. This true for all filter sizes in the case of Indian Indices. But the Composite Index earned a higher profit only when the filter size is 0.5%. Hence, it can be said that behaviour of composite Index is random and independent. However, the Indian indices suggest dependence and absence of randomness.

Based on the overall analysis of individual shares and indices, it can be said that the Random Walk Hypothesis is not established for the Indian stock market. But the random walk hypothesis adequately describes the price behaviour of US Stock Market.

The Indian Indices earn higher return on Friday. The individual shares also earn highest return on Friday. For the Composite Index, the return on Monday is negative. Thus, equality of mean return across all days of the week is rejected for all three indices. Thus, the US and Indian stock market exhibit day-of-the-week effect.

The movement of pre-New Year average return is erratic, but the post-New Year return have shown stability in the case of National Index. But in the case of Sensitive Index, the average return increase from one subperiod to another and reaches the highest in the first week of January. More negative returns are observed in January. The movement of average return in January is also erratic. Hence, there is no calendar year effect in India. With the erratic movement of NYSE Composite Index, there is no calendar year effect for USA also.
Individual shares and the National Index have higher monthly second half returns whereas Sensitive Index is having higher first half monthly returns. NYSE Composite Index data have higher first half monthly returns than the second half returns. It can be said that there is a variation in half monthly returns. Based on the results of National Index and individual shares, it can be said that in the Indian stock market, returns during the second half of the month are higher than the first half whereas in US stock market, returns during the first half of the month are higher than that of the second half.

7.4.1 Summary

Based on the above analysis, since there is no randomness in the returns series, it can be concluded that Random Walk Hypothesis cannot describe the price behaviour of the Indian stock market. The existence of few anomalies in the Indian stock market returns also point out that the Indian stock market is not efficient.

Eventhough run tests conducted on the composite index suggest dependence, the results of auto correlation analysis and filter technique do not support dependence. Hence, it can be inferred that the US stock returns behaviour still obeys a random walk.

7.5 SUGGESTIONS FOR FURTHER RESEARCH

Fama (1991) observes "sequels are rarely as good as the originals, so I approach this review of market efficiency literature with trepidation. The task is thornier than it was 20 years ago, when work on efficiency was rather new. The literature is now so large". Thus there is a lot of literature in this field which tested market efficiency and also anomalies. Fama (1991) further states, "when we find anomalous
evidence on the behaviour of returns, the way it should be split between market inefficiency or a bad model of market equilibrium is ambiguous. Academics largely agree on the facts that emerge from the tests, even when they disagree about their implications for efficiency" (p.1576). The Stock returns behaviour and the existence of various anomalies are the areas which offer a good scope for an extensive research. Hence, research on the following lines may be undertaken in the Indian context.

(1) Sample shares are selected from Group A of the Bombay Stock Exchange. The Indices selected are also of the Bombay Stock Exchange. Group A shares are most actively traded. Hence the findings of the study cannot be made applicable to the less actively traded shares. For an understanding of the behaviour of stock returns of Group B shares, further studies may be undertaken.

(2) The existence of various anomalies are advanced against efficient market hypothesis. Its usefulness to the investment community is not established. For example, the Day of the Week Effect in Stock returns finds highest returns on Fridays and lowest or negative returns on Wednesdays and Thursdays. To what extent this will generate an above normal profit may be tested by considering transaction cost.

(3) Bombay Stock Exchange was the first stock exchange established in India and occupies a unique position in the Indian Capital Market. However, many other stock exchanges have grown in importance recently. The behaviour of stocks quoted in those exchanges may also to be tested in order to understand their stock returns behaviour.
(4) Transaction volume is not considered in most of the foreign studies and almost all the Indian studies. Volumes provide an important understanding of the nature of transactions. It might not be undertaken mainly due to the fact that volume data on Indian stock market are not available. Hence data on volume may be collected and analyzed.

(5) Filter profits are calculated without taking transaction cost. Filter test result indicates profitability than a simple buy and hold policy. However, true profitability can be found out only if transaction cost is considered.