CHAPTER I
INTRODUCTION

1.1 INTRODUCTION

By any standard of measure, the growth of Indian Share Markets in the 1980s is phenomenal. On the one hand, the number of shares being listed on the Stock Exchanges staged quantum jumps; on the other, the number of new investors coming to the stock markets multiplied manifold. During the past nine years - between 1982 and 1990 - ten new Stock Exchanges have come into existence. The tradition-minded Indians who till recently considered share markets as the 'gambling dens' suitable only for the speculators, are now changing their opinions. Shares are increasingly preferred as a medium of investment.

Equity Shares serve as a first-class medium for investment. They bring in reasonable returns with prospects of capital appreciation. They are safe, easily marketable and have liquidity. At any time, the worth of a Listed company's share can be ascertained through the Stock Exchange quotations. In times of urgency, they need not be sold; money can be borrowed on them. Investment in good shares acts as a hedge against inflation. Successful companies declare high rates of dividend and issue bonus shares.

Among the types of Capital, Equity Capital occupies the prime position from the points of view of both the companies and the investors. As on December 31, 1988, in the aggregate Paid-Up Share Capital of all Listed Companies amounting to Rs.19725 crores, Equity Capital is
predominant constituting 98.3 per cent of the total, whereas Preference Capital represents only 1.3 per cent. As far as individuals are concerned, their main interest in the share market is confined to equity shares only.

The shares are evaluated in the stock exchanges by the competing participants and prices are determined by them. The share prices do not always remain static; they change continuously. It is the frequent changes in the movements of share prices that attract the investors to invest in shares.

1.2 STATEMENT OF THE PROBLEM

The behaviour of share prices is explained with the help of three different theories. The Fundamental Theory says that share price changes occur in response to changes in fundamental factors such as earnings, dividends, etc., The Technical Theory observes that the share prices move in trends and patterns. As such, the past prices can be used to predict future prices. The Theory of Random Walks refutes this argument and notes that the share prices behave in an independent and random manner.

The studies undertaken in developed countries, particularly in the United States, have established that the behaviour of share prices in those markets conforms the theory of random walks. This being the case, in a developing country like India, how do the share prices behave?. Do they behave in an independent manner?. Can the random walk theory explain the behaviour of Indian share prices?.

A few studies which have been undertaken in India analysed the share price changes between the 1940s and the 1970s and concluded that the Indian share prices also follow generally a random walk. In the 1980s all the facets of the Indian stock markets have grown enormously.
So in the changed circumstances, how do the Indian share prices behave? Do the price changes still follow a random walk?

1.3 OBJECTIVES OF THE STUDY

The main objective of the study is:

To examine the behaviour of Indian Equity prices in the 1980s to test the applicability of the theory of random walks. For this purpose, the effect of past price data over successive price changes is analysed.

In addition, this study tests certain wide-spread notions which exist in the stock market circles. The notions are:

i) There are leaders and laggers among shares. The leaders among shares lead the price changes of other shares called laggers in the market.

ii) When one share is traded simultaneously in two different stock exchanges, the price changes in one stock exchange influence the price changes in the other stock exchange.

iii) Bombay Stock Exchange acts as the price-setter for the other Stock Exchanges.

1.4 HYPOTHESES

In view of the main objective, the hypothesis that the successive price changes of shares are independent is tested.

In the light of the other objectives, the following hypotheses have been framed:

i) Leaders and laggers are not discernible among shares.

ii) The price changes in one share traded in a Stock Exchange do not affect the price changes of the same share traded simultaneously in some other Stock Exchange and
iii) Bombay Stock Exchange is not a price-setter for the other Stock Exchanges.

1.5 DATA AND SOURCES OF DATA

Two sets of data are used in this study.

The first set consists of daily closing quotations of 75 equity shares. These shares are traded in any one of the four leading Stock Exchanges of India, viz., Bombay, Calcutta, Delhi and Madras. The sample of shares is a mix of actively traded as well as not-so-actively traded shares.

The second set of data consists of 25 series of different index numbers published by India’s two most popular financial dailies, viz., The Economic Times and The Financial Express. They are:

a) The Economic Times Index of Ordinary Share Prices (1969-70 = 100) compiled on a daily basis. This includes 13 industrywise indices, five regional indices and one All-India Index.

b) The Financial Express Equity Index (1979 = 100). The Financial Express publishes two types of Index Numbers.
   i) a Daily All-India Index and
   ii) Week-end Index Numbers for five regions.

1.6 PERIOD COVERED

The period covered by the study is five years, i.e., from 1st April, 1982 to 31st March, 1987.

1.7 STATISTICAL ANALYSIS

Two statistical techniques are used to test the main objective of examining the applicability of the theory of random walks to the Indian share prices. They include a parametric test, namely Autocorrelation.
Analysis\textsuperscript{19} and a non-parametric test\textsuperscript{20}, namely Runs Analysis\textsuperscript{21}.

Cross correlation analysis\textsuperscript{22} is employed to test the other objectives, namely:

i) the lead-lag relationship among shares

ii) the influence of price changes in a particular share traded in one stock exchange over the price changes of the same share traded simultaneously in some other stock exchange and

iii) the lead-lag relationship among stock exchanges.

1.8 SIGNIFICANCE OF THE STUDY

While in developed countries there are a number of studies on share price behaviour, only a few studies have been undertaken in India. Though Indian Share markets are one of the few emerging markets of the world,\textsuperscript{23} yet they have not been extensively studied so far. This is the first study in India which uses a sample of 75 shares and 20 Index numbers for testing the theory of random walks. Also this study uses the daily price changes over a period of five years. This study examines the quotations of shares represented in the stock exchanges hitherto largely neglected in research studies, namely Calcutta, Madras and Delhi. Usually the not-so-active shares are left out in research studies. But here 19 not-so-active shares are also analysed along with the actively traded shares\textsuperscript{24}. It is hoped that this study would give a better view about the behaviour of Indian share prices.
The study would clear a few myths which surround the share market circles. A clear idea about the supremacy of leaders among shares and leader among Stock Exchanges in initiating price changes would be provided by this study. This is for the first time that a study on the lead-lag relationship among Stock Exchanges is taken up for research.

This study would be useful to the investors, share analysts, portfolio managers, academicians, government and all those connected with equity investment.

1.9 LIMITATIONS OF THE STUDY

The quotations of equity prices are noted down by the concerned people in the Stock Exchange manually. While noting down the prices, there are chances of errors. The Stock Exchanges subsequently give the quotations to the press. Again, there are chances of errors when the newspapers publish it. But these types of errors, if any, are rare and the printed quotations are by and large reliable.

The index numbers used in the study are compiled and published by the two financial dailies mentioned earlier. There may be printing mistakes or mistakes in compilation. Every care has been taken to check the accuracy of printing mistakes.

Daily prices of shares listed in four Stock Exchanges alone are studied here. It is only because the price lists of other Stock Exchanges are not regularly available in either of the two popular financial dailies or other national newspapers. But this cannot be a serious limitation because the four Stock Exchanges taken up for this study account for more than 75 per cent of the overall trading.
Only 75 shares are taken for this research. But for this type of research, this sample representing the major stock exchanges, different industries and different types of activity is considered adequate.

To analyse the lead-lag relationship among Stock Exchanges, only five Stock Exchanges could be taken up. There are no index numbers for the other Stock Exchanges.

Common statistical tools are used for testing the theory of random walks. Mechanical trading rules tests are not used.

1.10 CHAPTER SCHEME

The Thesis is organised into eight chapters.

Chapter II consists of two parts. The first part discusses the three theories of share price behaviour. A review of relevant empirical studies on the random walk behaviour of share prices is presented in the second part.

Chapter III gives a broad view of the Stock Exchanges in India. History and Development of stock exchanges, their Methods of Organisation, Regulation of stock exchanges, Types of Securities traded and Different Types of Transactions are discussed in this chapter. Present Position of the stock exchanges, Recent Developments and Limitations of the Indian stock exchanges are also included.

The important aspects of Research methodology used in this study are described in Chapter IV. A discussion on the selection of shares and index numbers, selection of time interval for the data used, the period of study and adjustment of daily data series for bonus issues, rights issues, dividend and change in the face value of shares are covered in this chapter. The sample shares and sample index numbers are presented in the Appendices of this Chapter.
Chapters V and VI analyse the empirical results pertaining to the main objective of this study. Chapter V is concerned with the examination of the sample data with the help of Autocorrelation analysis to test the independence of successive share price changes. Chapter VI examines the sample data for their randomness with the help of the Runs analysis.

Chapter VII is concerned with the analysis of lead-lag relationship among share prices and among stock exchanges with the help of Crosscorrelation analysis. Lead-lag relationship among different shares is first taken up. The influence of price changes of a particular share traded in one stock exchange over the price changes of the same share traded simultaneously in some other stock exchange is discussed next. The role of Bombay stock exchange as the price-setter is analysed later.

Summary of findings and conclusions are presented in Chapter-VIII. Implications of this research study and Suggestions for further research are also included.
Notes and References:

1. Shares referred are Equity Shares. According to the Indian Companies Act, 1956, a Public Limited Company can issue only two types of shares namely, Equity Shares and Preference Shares. Equity Share-holders are the residual claimants after satisfying the Preference Share-holders for (i) dividend and (ii) capital in the event of winding up of a company. Equity shareholders are the main risk-bearers and the real owners of the company.

2. The terms Stock Exchange, Stock Market and Share Market are interchangeably used in the study.

3. There are 19 stock exchanges in India as on January, 1990. Discussed in Chapter III.


5. An Industrial Development Bank of India Study pertaining to 447 Industries quoted in Fortune India, July 1985, says that individuals favour equities investing 88.9% of their funds.

6. Review of previous studies is presented in Chapter II.

7. Till 1978, there were only nine Stock Exchanges. In the 1980s, 10 new Stock Exchanges have come into existence. The number of shareholders which was 20 lakhs in 1977-78 stands at 10 million in 1988 (S.R.K. Rao in Commerce, July 9-15, 1988, p.9). “The quantum of new issues raised, on an annual average, rose from less than Rs.100 crores in the 1970s to Rs.1000 crores by 1980s and reached Rs.4200 crores by 1986-87”. (ibid., p.9).

8. Leaders are those shares which are supposed to lead the price movements of other shares.

9. Laggers are those share which follow the price movements of leaders.

10. Bombay Stock Exchange is the Premier stock exchange in India. Discussed in Chapter III.

11. The list of sample shares is given in Appendix 4.A at the end of Chapter IV.
12. Actively traded shares are those which are frequently traded. These shares are separately grouped for the purpose of trading and are variously called as A Group shares, Cleared shares and Specified shares.

13. Not-so-actively traded shares are those which are not regularly traded. They are grouped separately and are variously called as B Group shares, Non-Cleared shares and Non-Specified shares.


16. The index numbers are given in Appendix 4.B. at the end of Chapter IV.

17. The regions are: Bombay, Calcutta, Madras, Ahmedabad and Delhi.

18. Tests which require certain assumptions about the parameters of the population.

19. Autocorrelation analysis is explained in Chapter V.

20. Tests which do not require knowledge about the shape of universe or its population parameters

21. Runs analysis is explained in Chapter VI.

22. Crosscorrelation analysis is expalined in Chapter VII.


24. The lists of actively traded and not-so-actively traded shares are regrouped by the concerned stock exchanges whenever changes are considered necessary. During the period of the study, sample shares were regrouped many times by the different stock exchanges. It is not possible to incorporate every groupings in the study and so the groupings prevalent at the beginning of this study is used throughout the period of study.

25. Only recently computers are used for this purpose.

26. These tests examine whether trading strategies based on past price data provide opportunities for earning abnormal profits.