CHAPTER 1

Introduction

Capital market helps companies to raise long-term debt and equity securities for long-term investment. It includes the stock market and the bond market. The securities issued by the companies which make public issues are listed in stock exchanges and provide opportunities to traders to trade in these securities. It provides liquidity. The efficiency of the money market is the building block for the development of the capital market. Money market smoothens the functioning of the capital market by linking it to banking system. Money market plays a key role in the financial stability and development. The most important function of the capital market is the economic function (Strong, 2006). The economic function of any capital market involves facilitating the flow of capital from the savers to the borrowers. In the global economy, capital market plays a major role in mobilizing the domestic savings for productive purposes. The absence of effective capital market will lead to poor economic growth. Capital market connects the financial resources to other sectors such as manufacturing, telecom, infrastructure, real estate etc., and, therefore, contributes to the economic development of any nation. It channelises the long term investments from small individual house-holds through various long term schemes such as pension and provident funds, insurance schemes, medical aid schemes, collective investment schemes, etc. Capital market, in this way, encourages business organisations to raise funds and enhance their long term investment. Efficient functioning of the capital market is important for achieving economic function. Apart from the allocation of financial resources, capital market helps to allocate funds according to the risk and returns by offering a large variety of financial instruments. The key role of the capital market is to
provide investment avenues, promote public-private participation, improve the pricing efficiency through competitive pricing mechanism, provide a platform for global and foreign investors to invest their surplus funds and promote increased economic growth.

The second function of the capital market is continuous pricing. The continuous pricing function enables market participants to get accurate and up-to-date price information. Security prices should be available to the traders on time and moment by moment. Recent developments in stock markets enable the traders to access up-to-date information with minimum cost. Therefore, these developments will enhance the market quality. Prices of financial assets such as stocks and bonds are disseminated by the stocks exchanges for wider information. The investors approach brokers, related journals, newspapers etc. for pricing information of regularly traded stocks. If stocks are not regularly traded, the pricing quotes are derived from the business analysts who estimate accurately (Strong, 2006).

The third function of the capital market is the fair price function. The fair price function removes the fear of buying or selling at an unreasonable price. It means that the investor has faith in the financial system and he/she asks his/her broker to buy or sell stocks at quoted price by anticipating good returns. In the stock market, prices quoted are fair because if the investor wants to sell his stocks, there are many people bidding for it. The market ensures that the seller gets the highest bidder (Strong, 2006). The more the participants in the formal market place, the greater the likelihood that the buyers and sellers get a fair price. The discussion of economic function, continuous pricing and fair pricing leads to the efficient market hypothesis (EMH) which supports the assumption that market
prices are fair and accurate, and thereby, it rules out abnormal profits. This shows that the capital market enables the participants to get accurate and up-to-date information. This encourages more market participants, fair pricing and reasonable returns to investors.

1.1 Efficient Market Hypothesis (EMH)

The capital market efficiency is classified into allocative efficiency, operational efficiency and informational efficiency. The allocative efficiency is a characteristic of an efficient market where capital is allocated in a way that benefits all the market participants. Capital market allocates the funds to public and private participants for most profitable projects and thus enhances the economic growth of a country. Operational efficiency refers to low cost and low risk involved in executing financial transactions in the capital market. Informational efficiency refers to the extent to which the prices of any assets reflect new information. It deals with the relationship between market prices and information. EMH deals with informational efficiency which states that participants cannot outperform the market with new informational flow. An important debate among the traders, investors, speculators, economists and researchers is whether the market is efficient. Fama (1965, 1970) defined the term EMH and thereafter, Beaver (1981), Jensen and Smith (1985), Merton (1985) and other researchers proceeded with formal development of the theory. Fama (1965, 1970) classified EMH into weak-form, semi-strong form and strong form of market efficiency. The weak-form EMH suggests that the historical prices of securities cannot be used to predict the future price direction as the security prices reflect the relevant information contained in the past prices. According to this theory, share prices should not
exhibit any serial correlation and should be independent. Hence, security prices should follow a random walk. There is vast literature which uses different tests to see the randomness in the historical prices. The main implication of this theory is that the technical analysis is not useful in analyzing the predictable trend in the security prices. The semi-strong form market efficiency states that the security prices reflect all publicly available information, and therefore, traders cannot earn abnormal profits based on new information flow. The semi-strong form of market efficiency is often studied by using event study methodology. The main events such as stock splits, initial public offerings (IPO), dividend announcements, rights issue, earnings announcements, unexpected economic events, world events, financial crises etc. are tested by event study. Apart from this, researchers use regression analysis and correlation analysis for testing semi-strong form of market efficiency. The main implication of this theory is that the traders cannot use the fundamental analysis to observe any trend in the market based on publicly available information. The strong-form of market efficiency claims that security prices reflect all public as well as private information, thereby, rule out any abnormal profits. To test the strong-form market efficiency, tests focus on special group of investors who have excess of information regarding inside traders, exchange specialist, analysts and institutional money managers. The main implication of this study is that the portfolio management process cannot beat the market with specific investment ideas. Even though the EMH theory has gained a lot of attention and empirical support, many researchers questioned its validity especially among emerging economies. The efficient market states that no investor can beat the market as the security prices absorb new information rapidly. There are many empirical evidences that investors consistently beat the market. There is
an argument among the researchers that no market can attain 100% efficiency, all the time as the market takes time to respond to new information and thus admit that absolute efficiency is not possible.

1.2 Indian Securities Market

A well-established securities market is essential for the development of any financial system in the economy. It channelizes the funds from domestic savings to various investment purposes and helps in increasing productivity and enhances the economic growth of a country. Indian securities market plays a vital role in shaping the Indian economy. It includes both equity and debt market. The Indian market has achieved tremendous developments in terms of market design, technology, settlement process, transparency, introduction of new instruments etc. These developments have increased the volume of transactions and also attracted the foreign investments. The Indian capital market is one of the oldest markets in Asia. The market has served as financial intermediary since independence and changed drastically after the liberalization of Indian economy due to the growing needs of the economy. The present Indian financial system has both intermediary based and market based systems.

Since 1990, the Indian equity market has developed exponentially in terms of resource mobilization, number of listed stocks, market capitalization, trading volumes, and investor base. The market has witnessed drastic institutional changes that resulting in reduction in transaction cost. All these developments should make the Indian capital market move towards market efficiency. The adoption of technology for trading and settlement in stock exchanges has greatly altered the market design and the speed with which the trades are entered into. Further,
dematerialization and rolling settlement have played an important role in eliminating the drudgery of physical settlement. All these developments have also resulted in risk containment. At the end of March 2013, there were 10,128 trading members registered with SEBI. As more companies use stock exchange route to raise the funds and therefore, the market capitalization of Indian stock market has increased rapidly. The market capitalization of BSE at the end of March 2013 was around 63,878 billion. Market capitalization ratio is defined as the market capitalization of stocks divided by the GDP. This shows the relative importance of equity market on the GDP. The positive correlation of equity market and GDP shows economic significance which is able to mobilize the domestic savings in to long term investment by diversifying the risk. Indian overall market capitalization ratio is decreased to 63.7 percent in the financial year 2013 from 69.3 percent in the financial year 2012. In India there are 20 listed stock exchanges, Bombay Stock Exchange limited (BSE) and National Stock Exchange of India Limited (NSE) play a predominant role in Indian Capital Market. The BSE has been in existence since 1875 and NSE was founded in the year 1992. The BSE has 5,336 listed firms whereas, NSE has 1696 firms. The BSE-500 index based companies form 93% of market capitalization of BSE and rest of the firms are not traded on a regular basis. Both the exchanges compete for the order flow which leads to reduced transaction cost and market efficiency. A stock market index is the measurement of the value of a section of the stock market. It describes the performance of the market. It is used by the investors, traders and speculators to see the market performance and predict the specific returns on investment. The most watched and prominent Indian indices are Sensex and Nifty. The Sensex is the oldest index for equities; it includes 30 stocks which are listed in BSE as highly liquid and highly traded
stocks. It represents 45% of free float market capitalization of BSE. It was started in the year 1986. The CNX Nifty is the index which includes 50 shares listed in NSE. \(^1\) It represents 66.85% of the free float market capitalization of the stocks listed on NSE as on June 30, 2014. This index started in the year 1996. SEBI takes the overall responsibility of development, regulation and supervision of the stock market in India. It was founded in the year 1988 and given statutory powers during 1992 as an independent authority through the SEBI Act, 1992. It controls the functioning of all the stock exchanges in India and has the vast power of imposing penalties on market participants, in case of a breach. The securities market of India is ranked 7th largest market in the world based on market capitalization. The India’s securities market has undergone reforms in terms of operations, regulation, taxes, allocation of funds, risk management and institutional developments. The Government of India’s initiatives for improving stock market efficiency and smooth functioning of the economy as whole have yielded good results as reflected in the FII flows into the Indian economy and gradual buildup of the Forex reserves. With these developments, we expect that Indian market should exhibit the characteristics of market efficiency.

### 1.3 Statement of the Problem

EMH is an important part of modern finance and it is widely applied in capital market to test its validity. In the globalization era, capital markets are undergoing drastic changes to sophisticate the system and bring transparency which aims at market efficiency. Information technology is playing a prominent role in disseminating information and this development of the capital market has

\(^1\) [http://www.nseindia.com/products/content/equities/indices/cnx_nifty.htm](http://www.nseindia.com/products/content/equities/indices/cnx_nifty.htm)
changed the relevance and empirical validity of the EMH. The changing nature of capital market determines the need for efficiency research. In modern financial theory, the significance of EMH is a subject of discussion. Shiller (2013) refers to EMH as ‘half true’ and he states that the information dissemination and execution of trade is faster than ever in a world of technology. EMH has failed in explaining certain pattern which still exists in security prices. The financial markets are more complex than the basic assumption of perfect competition which assumes free information flow and zero transaction cost. Different forms of market efficiencies have been investigated by different researchers and have come to differing conclusions. One of the most investigated forms of market efficiency is the weak-form of efficiency. Majority of the research has shown that the market is efficient in the weak form. However, the overwhelming literature on this form of market efficiency is the contribution of western researchers in the context of developed markets. Emerging markets have not been fully researched. Even among the western researchers, there are some who have concluded that the markets are not weak form efficient.

The investors’ expectation on the extent of excess return that they would make from trading in the stock market is based on several factors and one of them is earnings announcement news. The earnings may be quarterly, half yearly or annually which reflect the profits of the company generated in a given period of time and is reported in a financial statement as mandatory disclosure to the general public. The earnings news of a particular company is important because it indicates the performance and companies’ potential growth. Earnings are viewed as an indicator of management’s competence in running a profitable company and the ability to deliver value to the shareholders. Therefore, market reaction to earnings
releases is deemed to be an interesting topic for research and has been researched since the 1960s. It has been observed that, during the earnings announcement, stock prices usually rise and increase price volatility. The earnings announcements are in regular intervals and it provides good opportunity to test whether these announcements generate predictable returns to the investors. As the earnings contain information and influence the stock prices, the investors wait for the earnings announcement season to make money. The investors forecast the earnings on pre-announcement drift, announcement effect and on post announcement drift. There are vast majority of the studies such as Ball and Brown (1968), Brown and Kennelly (1972), Woodruff and Senchack (1988), Cornell and Landsman (1989) and Bernard and Thomas (1989, 1990) who empirically showed that earnings contain information content and traders gained trading on this information flow. The disclosure of accounting numbers of listed companies has significant influence on stock market. This study provides empirical evidence, how stock market reacts to earning announcement in emerging Indian stock market. We examine whether there is any significant relationship between stock returns and quarterly earnings announcements. Further, the stock exchanges of developing economies are gaining a lot of attention globally and investors are giving importance to analyzing the market efficiency to assess their investment avenues.

The P/E effect has been thoroughly documented and widely studied around the world. The vast body of literature empirically showed that low P/E stocks have the tendency to outperform with high P/E stocks. The counter argument for low P/E stock is that, the low P/E stocks may not always be undervalued and therefore, the low P/E stocks may fail to give better returns. P/E effect has been examined extensively in international markets particularly in the US. However, there is a
dearth of research in this area in the Indian market. This study proposes to add to
the existing literature on RWH, stock prices reaction on quarterly earnings
announcements and P/E anomaly in Indian stock market. Keeping this background,
we propose to investigate the RWH, semi-strong form of the market efficiency and
P/E anomaly of Indian stock market.

1.4 Scope of the Study

This study focuses on testing the market efficiency in weak (RWH), semi-
strong form and P/E anomaly. Market efficiency is tested by taking a
representative sample of BSE-500 index based companies. To examine RWH, we
use historical prices of 23 years from 1st January 1990 to 31st December 2013.
The semi-strong form of market efficiency is examined by considering 8 years
quarterly earnings announcement from March 2006 to December 2013 quarter.
Monthly adjusted closing prices of 9 years from 1st January 2005 to 31st
December 2013 are used to investigate the P/E anomaly.

1.5 Objectives of the Study

After analyzing the available literature, we envisaged the following objectives
to examine the market efficiency. This study has the following objectives:

1. To examine whether Indian stock market follows random walk
2. To investigate the semi-strong form of market efficiency in Indian stock
   market
3. To examine the P/E effect in Indian stock market
1.6 Hypotheses of the Study

The literature review in chapter 3 reveals that some markets absorb the historical and publicly available information and do not allow investors to make abnormal profits. Other studies also showed that the markets do allow investors to make profit from the publicly available information. Based on this debate on the market efficiency, we formulated the following hypotheses:

\( H_{01} \): The daily return series are normally distributed.

\( H_{02} \): Successive price changes are independent and move randomly.

\( H_{03} \): The price series are non-stationery.

\( H_{04} \): There is no autocorrelation in return series.

\( H_{05} \): The observed series are martingale.

\( H_{06} \): There is no volatility clustering in the observed series.

\( H_{07} \): There is no leverage effect in the observed series.

\( H_{08} \): The average abnormal return and cumulative average abnormal return are close to zero.

\( H_{09} \): The average abnormal returns occur randomly.

\( H_{10} \): There is no significant difference between the number of positive and negative average abnormal returns.

\( H_{11} \): There is no statistical difference between low P/E return and high P/E return.

\( H_{12} \): There is no superior performance of low P/E portfolio to high P/E portfolio.
1.7 Limitations of the Study

This study is limited to Indian context as it has taken BSE-500 as the composite index which represents fairly traded stocks. This study has used only 500 companies while 5,336 companies are listed on the BSE. One of the problems is that many companies are not traded regularly and therefore, studying these companies is problematic. We have investigated only the short run price reactions. The seasonality effect can be evaluated by taking the day effect, month effect, semi-month effect, Friday effect, January effect etc. to have broader comprehensive market picture. Due to the time limit, we have not focused on seasonality effect of Indian stock market.

1.8 Chapter Scheme

This study is organized in seven chapters. The description of each chapter is presented below.

Chapter 1: Introduction

This chapter presents the basic functions of capital market, the concept of efficiency and the development of EMH theory, the overview of Indian securities market, the scope of the study, objectives of the study, hypothesis of the study, limitations of the study and the chapter scheme.

Chapter 2: Conceptual Frame Work of Efficient Market Hypothesis

This chapter discusses the development of EMH theory; perfect capital market characteristics; classification of EMH: the random walk hypothesis (RWH), the semi-strong form of EMH, the strong form of EMH; implications of EMH; problems with the EMH: information asymmetry, investors are not rational, stock market crashes; market anomalies: the January effect, day of the week effect, turn-
of-the-calendar effect, small firm effect, P/E ratio effect, neglected stocks, announcements anomalies and holiday effect.

Chapter 3: Survey of Literature on the Efficient Market Hypothesis.

This chapter is divided into three sections. Part A discusses the empirical evidences of random walk hypothesis; empirical evidences supported RWH, empirical evidences against RWH. Part B reviews the relevant empirical evidences of semi-strong EMH: empirical evidences supported semi-strong EMH and empirical evidences against semi-strong EMH. Part C discusses the empirical evidences of strong-form EMH and the concluding remarks are presented at the end of the chapter.

Chapter 4: Empirical Examination of Random Walk Hypothesis

This chapter analyses whether Indian stock market follows RWH. It includes: introduction, sample data and methodology (Runs Test, Unit Root Tests, Autocorrelation Test, Variance Ratio Test and GARCH family models), results and analysis and conclusion.

Chapter 5: Stock Price Reactions to Earnings Announcements: Evidence from Indian Stock Market

This chapter discusses the market reactions to quarterly earnings announcement in Indian stock market. It includes introduction; sample and data; classification of portfolios; event study methodology: mean adjusted model, market adjusted model, OLS market model; standardized average abnormal and cumulative average abnormal returns; t test; Runs test; Sign test, results and analysis and conclusion.
Chapter 6: A Study of P/E Effect in Indian Stock Market

This chapter discusses the P/E effect, sample, data and methodology, results and analysis and conclusion.

Chapter 7: Summary and Conclusion

In this chapter, we sum up our study by discussing the major findings of fourth, fifth and sixth chapters and present the conclusion. The suggestions for future research are also given in this chapter.