

# CHAPTER-I

## INTRODUCTION

### 1.1 General Background

Financial market is the place where the financial instruments (shares, bonds, debentures...etc.) are traded. It consists of series of channels through which savings of the community are made available to users of those funds. It provides a forum in which suppliers and demander of funds can transact business funds directly (Gitman, 1988:30-31). Financial market constitutes money market and capital markets. Money market is created by a suppliers and demanders of short term funds with maturities of one year or less than a year. Capital market is created by a suppliers and demanders of long-term funds with maturities of more than one year. The capital markets consist of the primary market, where new issue are distributed to investors, and the secondary market, where existing securities are traded. Moreover the secondary market is the financial market for trading of securities that have already been issued in an initial private or public offering. Alternatively, secondary market can refer to market for any kind of used goods. The market that exists in a new security just after the new issue is often referred to as the aftermarket. Once a newly issued stock in listed on a stock exchange, investors and spectators can easily trade on the exchange as market makers provide bids and offers in new stock ([www.wikipedia.com](http://www.wikipedia.com)).

A stock market is a private or public market for the trading of company stock and derivatives of company stock at an agreed price; these are securities listed on a stock exchange as well as those only traded privately. The stocks are listed and traded on stock exchanges which are entities a corporation or mutual organization specialized in the business of bringing buyers and sellers of stocks and securities buyers. The size of the stock market is estimated at about \$51 trillion. The world derivatives market has been estimated at about \$480 trillion face or nominal value, 30 times the size of the U.S. economy and 12 times the size of entire world economy ([www.nepalstock.com](http://www.nepalstock.com)).

Generally brokers are the backbone of stock market growth as they perform primary role in exchange of commission. Capital market is the market for long term borrowing and lending. It is concerned with long-term finance. It refers to the links between lenders and borrowers of funds arranging a fund transfer process to seek each other benefits. It consists of series of channels through which saving of the community are made available for industrial and commercial enterprises and public authorities. So it is vital concept of economic development. Establishment of security exchange center in 1976 developed the concept of capital market. Negligible number of listed companies and their trading, absence of professional brokers, early stage of growth and limited movement of investing people etc. characterized it. Share or stock market is major component of the securities market. It is the one form of secondary market. Stock market is a Place where shares of listed companies are traded and transferred from one hand to another at a fair price through the organized brokerage system. It is the medium, which bridges the corporate sector investors to individual or corporate sector saver. The stock market is a financial market, which probably has the greater glamour and is perhaps least understand. The efficient uses require a well-functioning capital market to facilitate the process (Mahat, 1981:30-31).

Hence, it creates and enhances liquidity in securities. As government opened and brought broad financial policies in the process economic liberalization, the privatization of public entities have been started, various financial and insurance companies in the private sector are established with local and foreign investments. These companies have to issue some of their shares to general public. Thus to give momentum a liquid market for shares, a strong competitive secondary market is necessary. In order to make the public issue more transparent and to facilitate buying and selling securities in the secondary market, the government has framed laws, by laws in this regard, and established Nepal stock exchange and also securities exchange board, which can be considered as the favorite steps towards the development of capital market in Nepal.

### **1.1.1 Development of Capital Market in Nepal**

The history of security market began with the floatation of shares by Biratnagar jute mills ltd and Nepal bank ltd in 1937. The ownership of shares was only within Rana family. Subsequently the development of capital market remained static. Almost two and half decades later the introduction of the company act in 1964, first issuance of government bond in 1964 and establishment of security exchange center ltd. In 1976 provides foundation stone for the institutional development of the securities market in Nepal. New York stock exchange was the first stock market in the history of investment literature. The US Government issued debt certificates in 1790, then the market for securities expanded greatly and trading become more active since then America, Italy and other countries gradually followed such a device for raising capital. But stock market in Nepalese context remained like snail pace. Only after the restoration of democracy in 1990 there were changes in Nepalese capital market such as listing of shares in stock exchange and their daily trading in the secondary market through institutional brokerage system. Modern banking practices are of recent origin in Nepal. "Tejarath Adda" can be considered as the father of modern banking institution in Nepal. The history of commercial bank in Nepal starts from the establishment of Nepal bank ltd on 1937. It is the first bank in Nepal and prior to this there was no such organized banking system in the country. Subsequently another state owned commercial banks Rastriya Banijya Bank was established in 1965. The process of economic liberalization and reforms in the financial sector was introduced in 1965. The process of economic liberalization and reforms in the financial sector introduced in early 1980's has led to significant changes in banking industry. One of the significant aspects of financial sector reform was the removal of entry restriction for establishing the banking and financial institution in private sector (Mahat, 2004). Consequently Nepal Arab Bank was established in 2041 under commercial bank act 1984. Similarly the Nepal Indosuez bank was established as a joint venture between Nepal and France plus Standard Chartered Bank Nepal Ltd on 1984. As the country followed economic liberalization there was massive entrance of foreign banks in Nepal. There are 31 commercial banks operation in Nepal including 2 public sector giants, 19 development banks, 5 rural development banks, 59 finance

companies, 34 licensed cooperative societies and 44 licensed micro finance nongovernmental organizations ([www.nrb.org.np](http://www.nrb.org.np)).

## **1.2 Nepal Stock Exchange Ltd.**

### **Introduction:**

Nepal stock exchange, in short NEPSE is a non- profit organization operating under securities exchange Act, 2040. The former securities exchange center was converted into NEPSE in 1993 under the program initiated to reform the capital market. The basis objective of NEPSE is to arrange marketability and liquidity to the government & corporate securities by facilitating transaction in this trading floor through market intermediaries such as brokers, market makers & others (Thapa 2009 : 24- 25).

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### **Members:**

Members of NEPSE are permitted to act as intermediaries in buying and selling government bonds and listed corporate securities. At present there are 23 members and 2 market makers, who operate on the trading floor as per the securities exchange Act, 1983, rules & bye-laws. Besides this, NEPSE has also granted membership to issue and sales manager securities trader (dealer). Issue and sales manager works as manager to the issue & underwriter for public issue of securities whereas securities trader works as individual portfolio manager. At present there are 11 sales & issue manager and 2 dealers (secondary).

The tenure of the membership is one year. The license should be renewed within 3 months after the closure of the fiscal year. If not, it can be done within another three months by 25% penalty ([www.nepalstock.com](http://www.nepalstock.com)).

**Trading:**

NEPSE the only stock exchange in Nepal introduced fully automated screen based trading since 24<sup>th</sup> august, 2007. The NEPSE trading system is called 'NEPSE Automated Trading System' (NATS) is a fully automated screen based trading system, which adopts the principle of an order driven market.

**Market Timing:**

Trading on equities takes place on all days of week except Saturday and holidays declared by exchange in advance. On Friday only odd lot is done.

The market timings of the equities are:-

Market Open: - 12:00 hours

Market Close: - 15:00 hours

Odd lot trading market times are;

Market Open: - 12:00 hours

Market Close: - 13:00 hours

The exchange may however close the market on days other than schedule holidays or may open the market on days originally declared as holidays. The exchange may also extend, advance or reduce trading hours when it deems fit necessary.

**1.3 Securities Board of Nepal (SEBON)**

Securities Board of Nepal was established on June 7, 1993 as an apex regulator of securities markets in Nepal.

**1.3.1 Objectives and Functions**

The major objective of SEBON is to regulate the securities market and protect investor's interests. As per the Securities related Act, 2007, the major functions of SEBON are as follows. Register securities of public limited companies. Approve prospectus for

issuing securities. Provide license to operate stock exchanges. Provide license to operate securities businesses. Permit the operation of collective investment schemes and investment fund programmed. Draft regulations, and issue directives and guidelines. Supervise and monitor stock exchanges and securities business activities. Take legal action against the non-compliance companies as per the legal provisions. Conduct research, study and awareness programmes regarding securities markets. Advise the Government of Nepal to formulate policies and programmes relating to securities market as and when required ([www.sebonp.com/](http://www.sebonp.com/)).

### **1.3.2 The Board**

The Governing Board of SEBON comprises seven members representing various government and non-government sectors. The seven-member board includes a full-time Chairman appointed by the Government of Nepal for the tenure of four years. Other members of the Board are joint secretary from Ministry of Finance, joint secretary from Ministry of Law, Justice and Constitutional Assembly Affairs, a representative from the Nepal Rastra Bank, a representative from Institute of Chartered Accountants of Nepal, a representative from Federation of Nepalese Chambers of Commerce and Industries, and an expert member appointed by the Government of Nepal. In the fiscal year 2009/10, a total of 26 board meetings were held.

## **1.4 Nepalese Securities Markets and Economy**

### **1.4.1 Securities Markets**

A total of 61 public limited companies raised funds amounting to Rs.10, 822.41 million by issuing securities in the fiscal year 2009/10. In the fiscal year 2008/09, a total of 64 public limited companies had raised funds amounting to Rs.16, 828.50 million.

In the last fiscal year, total listed companies in Nepal Stock Exchange Ltd. were 159 which reached to be 176 in the fiscal year 2009/10. In the fiscal year 2009/10, annual turnover decreased by 45.3 percent to be Rs. 11,851.11 million as compared to turnover of Rs. 21,681.14 million in the fiscal year 2008/09 ([www.nepalstock.com](http://www.nepalstock.com)).

## **1.4.2 Economy**

In the fiscal year 2009/10, GDP at current price is estimated to increase by 21.53 percent to Rs.11, 82,680.10 million, which was increased by 14.75 percent in the fiscal year 2008/09. In the fiscal year 2009/10, Gross National Income at current price is estimated to increase by 19.15 percent to Rs.11,95,118.0 million, which was increased by 21.78 percent to Rs.10,03,066.0 million in the fiscal year 2008/09. In the fiscal year 2009/10, Gross National Saving at current price is estimated to increase by 13.88 percent to Rs.4, 07,172.0 million, which was increased by 31.95 percent to Rs.3, 57,534.0 million during the fiscal year 2008/09.

In the fiscal year 2009/10, gross domestic saving at current price is estimated to increase by 15.01 percent to Rs.1, 10,751.0 million, which was increased by 20.08 percent to Rs.96, 298.0 million in the fiscal year 2008/09. In the fiscal year 2009/10, total consumption at constant price is estimated to increase by 19.76 percent to Rs.10, 71,929.0 million, which was increased by 21.69 percent to Rs.8, 95,018.0 million in the fiscal year 2008/09. Of the foreign trade, it is estimated to diminish by a high rate of 16.47 percent to Rs.2,94,145.90 million during the first eight months of the fiscal year 2009/10, which was increased by 25.23 percent to Rs.3,52,167.10 million in the fiscal year 2008/09. Of the total foreign trade, the trade to India is estimated to decrease by a high rate of 19.70 percent to Rs.1, 63,372.30 million during the first eight months of the fiscal year 2009/10, which was increased by 12.44 percent to Rs.2,03,443.50 million in the fiscal year 2008/09. The trade to other countries during the first eight months of the fiscal year 2009/10 is estimated to recede by a high rate of 12.07 percent to Rs.1, 30,773.60 million which was increased by 48.32 percent to Rs.1, 48,723.60 million in the fiscal year 2008/09 ([www.nepalstock.com](http://www.nepalstock.com)).

## **1.5 Stock Market as a Source of Fund**

Stock market are expected to boost domestic saving and increase the quantity and quality of investment by channeling funds from less to more productive uses. Stock markets are usually seen as enhancing the functioning of financial system in general and the capital market in particular. Developed stock markets provide opportunities to firm to raise funds

from varieties of source and facilitate in packing up the right one as per their risk bearing capabilities. Although in general managers have strong preference to use internal source of funds literature indicates that firms in the emerging economic prefer to raise funds from external sources.

During the last fifteen years period from 1994 to 2009, companies in Nepal raised about Rs. 23.8 billion through issue of ordinary shares, preference shares, right shares, debentures and mutual funds. Table 1.1 presents many important features of primary market in Nepal ([www.nepalstock.com](http://www.nepalstock.com)).

**Table 1.1**  
**Public issue approval by SEBON**

(Rs. In millions)

Time	Ordinary Shares	Preference Shares	Right shares	Mutual funds	Debentures	Total	No. of public issue
Mid July1994	236.9	7.5	0	100	0	344.4	17
Mid July1995	204.21	0	0	50	0	254.21	12
Mid July1996	224.74	0	69	0	0	293.74	12
Mid July1997	57	0	275.2	0	0	332.2	5
Mid July1998	119.4	0	249.96	0	93	462.36	12
Mid July1999	220	8	30	0	0	258	5
Mid July2000	412.46	0	124.6	93.25	0	630.31	9
Mid July2001	268.5	0	365.79	82.91	0	717.2	9
Mid July2002	1032.17	140	294.48	173.46	15	1555.11	16
Mid July2003	551.5	0	262.24	140.09	0	853.83	17
Mid July2004	755	0	429.92	62.87	300	1547.79	16
Mid July2005	300.89	0	669.42	0	300	1270.31	12
Mid July2006	456.42	1221.45	0	0	850	2527.87	29
Mid July2007	290.25	400	1817.25	0	250	2757.5	34
Mid July2008	924.8	0	6093.4	0	2950	10668.2	64
Mid July2009	1815.7	0	14262.19	0	750	16828	64

Sources: SEBON, 2010.



Finally, there is an increasing trend in the fund rising through primary market and this is observed so more during last five years. In mid July 1994, seventeen companies raised about Rs.344 million through primary market. The trend to raise fund from primary market decline since hit then the lowest in mid July 1998 when the fund raised was slight about Rs.250 million. However, from mid July 1999 the amount raised through new issue has consistently increased and reached to Rs.10.7 billion in mid July 2008. In the year mid July 2009, this amount has increased by 50% and reached to Rs.16.83 billion. Second, of the total amount raised, ordinary shares, including right shares, account for more than 70 percent, followed by debentures, preference shares and mutual funds accounting for 20.1, 7.47 and 2.96 percent respectively. Third, although ordinary shares appear to be the most common and popular financial instrument used by companies to rise fund in the primary market in Nepal, of late, particularly during last five years, debentures are also being increasingly used by companies as important instrument to rise fund. Fourth, companies that already listed on NEPSE, particularly commercial banks, are raising more and more funds by offering right issue to its existing shareholders increasingly during last six years' period. The issue of right benefits existing shareholders, particularly promoters, more than the general investors. Fifth, contributions of preference shares and mutual funds as instruments to raise funds have been marginal in the primary market of Nepal.

### **1.6 Issues Facing Stock Market Development in Nepal**

Stock market in Nepal faced problem right from initial years and has not yet gained its root in the economy. NEPSE is still in its infancy with only about 150 stocks traded in the stock exchange. The stock index, NEPSE Index, has been establish for the last 15 years and has displayed rapid growth even thought it has had a tumultuous ride in the interim period. It maintained the open cry system of trading till recently and the open outcry system of trading has now given way to a fully computerized system of trading. It has often been reported that with the open outcry system is susceptible to manipulation with investors getting less then market price at time of sales while they had no pay higher pricing during purchases. With the computerization of the financial markets and the concomitant transformation, it is expected that the manipulation of stock gain greater confidence in getting the best price during sales and purchase. Mare computerization however may not be

sufficient to curb excessive manipulation of the earlier years and a mechanism must exist whereby suspicious trades are unearthed and any one engaged in manipulation met with strong punitive measures.

Despite over one and half decade of history, the stock market in Nepal suffers from low level of tread and problem of liquidity and float. The problem of low float is caused by the high percentage of promotion's ownership of stock that may be the vicinity of 75 percentages to 85 percentages in almost all cases. The rules and regulation do not permit promoters to sell their shares. The public investors owning shares in the public companies have received high returns both through price increases of individual shares as well as the receipt of bonus and right shares from time to time. These high returns elicit a reluctance to dispose of the stocks of companies resulting in very low float overall. However, recent policy of government to allow companies to limit the holdings of promoters to 51 percent has somewhat helped to increase number of shares available for trading in market ([www.nepalstock.com](http://www.nepalstock.com)).

Development of stock market depends to a large extent on the existence of appropriate institutions and infrastructures. Existence of a market regulator, a governing law and its strict enforcement, nature of clearing and settlement, settlement cycle, existence of custodian, nature of trading system, existence of depository, accounting and auditing reporting system are necessary for well- functioning of stock market. In Nepal, the institutional and infrastructural aspects of markets are very weak, turning the market more like a club of some big investors.

### **1.7 Focus of the Study**

Stock price volatility of various listed companies in Nepalese stock market has already mentioned. Definitely it brings negative impact on Nepalese economy, low level of share transaction, small size capital market, market penetration by handful of businessman, limited number of market maker and intermediaries are the negative impacts which led Nepalese stock market to inefficiency (Adhikari, 2004).

In the focus of these types of problem, this study intends to analyze the problems and causes that led the stock market towards inefficiency. In this context, some

recommendations are to be initiated so that market certainty is to be ensured and interest of the investors can be protected.

### **1.8 Statement of the Problem**

Many researchers have been conducted in the issue of stock price volatility. They found different reasons and causes in this regards. The stock price fluctuates time to time and stock exchange reacts to the environment changes. The investors could not identify the good and bad stocks among many. Further, there is not adequate number of organized investors to analyze the information regarding the risk and return of the companies in the stock market in Nepal. In this situation any investors cannot take rational investment decision (Shrestha, 2008).

A well function stock market is necessary for the development of Nepal. Literature suggests many determinants of stock market development. However the major ones are macroeconomic stability well developed banking sector, transparent and accountable institutions, protection of shareholders and proper accounting and auditing system.

A stable macroeconomic environment is a pre- requisite for the development of stock market. An unstable macroeconomics environment creates the problem of informational asymmetries and makes the financial system vulnerable. Low and predictable inflation rate, high per capital GDP, high saving and capital formation, high investments are some of the major microeconomic indicators that determine the development of stock market in emerging market like Nepal.

Stock market development is usually seen as substitutes for the banking sector. Literature however suggests that banking sector development helps the development of stock market at the early stages. Support services from the banking sector such as merchant banking promote stock market stock development. Banking system with high liquidity supports flow funds to stock market and facilitates stock market to grow.

Transparent and accountable institutions are necessary for the development of stock market as they strengthen investor's confidence and enhance attractiveness to equity investment. Quality of institutions is determined by law and order, democratic accountability,

bureaucratic system, political stability, good governance, etc. stock market development in Nepal is highly hindered by the absence of transparent and accountable institutions, and good governance.

Ensuring adequate protection to shareholders in publicly traded companies is necessary for the development of stock market. Protection of minority shareholders interest lead to dispersed stock ownership which provides liquidity to the market. Low quality of laws and poor enforcement of laws relating to shareholders' interest lead to distrust of retail investors in the stock market, Small investor in such ways in such market are always apprehensive of actions of big investors and tend to avoid investment to equity. Recent case of insiders' trading and probable liquidation of one of the banks has raised serious question on the protection of shareholders interest in companies in Nepal.

Besides the other challenges for the development of stock market in Nepal are to make wide use of automation, encourage private limited companies to go public, promote regional integration, promote institutional investors, strengthen regulation and supervision, attract foreign capital flows and encourage foreign participation and educate investors and general public.

Stock price volatility is a prominent issue in Nepalese stock market. Unless and until Nepalese stock market heads towards efficiency, smooth share trading cannot be achieved as well as flow of investment and business activities cannot be increased. Attention of the rational investor can be made only if the market is somehow predictable. The stock market volatility and its impact in Nepalese share market are considered as the problem of this study.

In this regard, this study is concerned with following issues:

- ) What is the stock price volatility of NEPSE?
- ) What are the factors that play a major role in fluctuation of stock prices?
- ) Whether the price changes are random phenomenon or not?

### **1.9 Objectives of the study**

The major objective of this study is to analyze the stock price volatility and assess impact associated with return on common stock investment of listed commercial banks in NEPSE on the basis of selective financial tools.

The following specific objectives of the research have been proposed:

- ) To analyze the volatility of share price of stock market.
- ) To evaluate the impact of such price volatility.
- ) To identify causes and factors affecting stock price volatility.

### **1.10 Significance of the Study**

Stock price volatility is one of the major burning issues in Nepalese financial sector. So, this study will have academic as well as practical significance. The finding, conclusion and recommendation of the study will have practical importance to overcome artificial price fluctuation in share trading. This study will be more importance to an individual investor to get more information about price volatility and its impact and for making strategy to invest in securities in upcoming period. The finding is also useful for corporate houses also who actively engaged in the field of trading of securities. It is also far more beneficial to the researchers and scholars to research in this topic further, who are related to Nepalese Stock Market.

### **1.11 Limitations of the Study**

Findings of the study are very useful for both academicians as well as researcher. However, the present study suffers from many limitations. Cross sectional data are the major limitations to find the causal linkage between share price volatility and its possible causes. The following are the limitations have been made this study;

- ) Limited variable is being used for the study.
- ) Research is based on secondary data.

- ) Only 30 selected listed companies are used in the calculation of stock price volatility.
- ) The primary data collected with the respondents may not give accurate result because the opinion of the people may vary with time and environment changes.
- ) The generalization from the study of some sample variable may not be representative in all circumstances.

### **1.12 Organization of the Study**

Organized form of proposed study has been included different chapters and sub-chapters.

**Chapter-I Introduction:** It includes background of the study, focus of the study, statement of the problem, objective of the study, significance of the study, limitation of study and chapter scheme.

**Chapter-II Review of Literature:** This chapter includes the review of books, articles, journals, reports, theses, researches and other relevant materials.

**Chapter-III Research Methodology:** It covers on research design, population and sample, source of data, data collection procedure, analytical tools etc.

**Chapter-IV Presentation and Analysis of Data:** This chapter attempts to analyze and evaluate the both primary and secondary data of Nepal stock exchange with the help of different analytical tools.

**Chapter-V Summary, Conclusion and Recommendations:** It sums up the results obtained through analysis and recommends some suggestions.

Bibliography, Appendix and other supporting documents have also been incorporated at the end of the study.

## **CHAPTER-II**

### **REVIEW OF LITERATURE**

Various researches have been conducted by different professionals and experts concerned with development and testing model of price Behavior of stock. The past price variation in general market of shares will or will not be meaningful information in forecasting the future Behavior of price variation. Various theories were developed in the past to handle the above mentioned problem.

This chapter is concerned with review some of basic literature on share price Behavior and volatility as well as review of the empirical evidence of previous studies. It has been divided into two sections. The first section includes the conceptual framework of stock price Behavior. And section briefly reviews the empirical evidence of the related studies conducted in the context of the other countries and in the Nepalese context.

#### **2.1 Conceptual Framework**

There are numerous reasons that cause the share price fluctuations of them are economic, non-economic and other factors. The price of securities is typically very sensitive, responsive to all events, both real and imagined that cast light into the murky future. There is very hard to find out the one most efficient price formation theory which is completely acceptable. However, there are some approaches that explain the share price fluctuation. They are reviewed below in brief:

##### **2.1.1 Theories of Price Behavior**

In general, forces of supply and demand of stock determine the stock price. If the demand is high and supply is low then the price of stock goes up and vice versa. There are essentially there schools of thought to explain the stock price Behavior. They are explained in detail as follows:

### **2.1.1.1 Fundamental Analysis**

This type of analysis of a business involves analyzing its financial statements and health, its management and competitive advantages, and its competitors and markets. The analysis is performed on historical and present data, but with the goal to make financial projections. There are several possible objectives:

- ) To calculate a company's credit risk.
- ) To make projection on its business performance.
- ) To evaluate its management and make internal business decisions.
- ) To make the company's stock valuation and predict its probable price evolution.

Moreover 'A fundamental analysis approach attempts to determine whether the company is financially sound and will continue to earn money. When performing a fundamental analysis of the stock of interest, one tries to determine whether the stock is worth investing in. In this approach, one looks at how well the company is performing financially. What are the company's earnings? Have they been growing? How does the ratio of the price of the stock versus the earnings per share, the P/E ratio, compare with other similar companies (Thapa 2010: 231)?

This approach attempts to answer some basic or fundamental questions about the financial health of the company and the industry in which the company operates. How large is the company? How long has it been in business? What is the management of the company like? What is the outlook for the industry that the company is in?

Fundamental analysis is usually viewed as a more conservative approach to stock selection than technical analysis. It is certainly a more exact science. The price earnings ratio is easy to calculate; it is simply the price of each share of the stock divided by the earnings per share. The book value of the company can easily be determined from the company's financial statements, and the earnings are easily calculated from the financial records ([www.emeraldinsight.com](http://www.emeraldinsight.com)).



In contrast, the mathematics behind most technical analysis is much more complex and frequently requires much more of a judgment call on the part of the investor. In a technical analysis approach, the investor attempts to predict crowd behavior, while a fundamental analysis simply attempts to determine whether the company has been earning money and at what rate it will likely continue to earn money. The price of the stock in the short term is not that important in a fundamental analysis, since the theory is that if the company is earning money and continues to earn money, then the stock price will eventually go up ([www.emeraldinsight.com](http://www.emeraldinsight.com)).

Investing in stocks is much more likely to be successful if a systematic approach is used. A fundamental analysis approach is the easiest to understand and learn, and as such, it is perhaps the best place to start for a beginning investor.

#### **2.1.1.2 Technical Analysis**

This manner of playing the market assumes that non-random price patterns and trends exist in markets, and that these patterns can be identified and exploited. While many different methods and tools are used, the study of charts of past price and trading action is primary. It maintains that all information is reflected already in the stock price, so fundamental analysis is a waste of time. Trends “are your friend” and sentiment changes predate and predict trend changes. Investors’ emotional responses to price movements lead to recognizable price chart patterns. Technical analysis does not care what the “value” of a stock is. Their price predictions are only extrapolations from historical price patterns (Thapa, 2010: 232).

#### **2.1.1.3 Efficient Market Hypothesis**

The efficient market hypothesis (EMH) contradicts the basic tenets of technical analysis by stating that past prices cannot be used to profitably predict future prices. Thus it holds that technical analysis cannot be effective. Economist Eugene Fama published the seminal paper on the EMH in the *Journal of Finance* in 1970, and said "In short, the evidence in support of the efficient markets model is extensive, and (somewhat uniquely in economics) contradictory evidence is sparse." EMH advocates say that if prices

quickly reflect all relevant information, no method (including technical analysis) can "beat the market." Developments which influence prices occur randomly and are unknowable in advance ([www.wikipedia.com](http://www.wikipedia.com)).

Technicians say that EMH ignores the way markets work, in that many investors base their expectations on past earnings or track record, for example. Because future stock prices can be strongly influenced by investor expectations, technicians claim it only follows that past prices influence future prices. They also point to research in the field of behavioral finance, specifically that people are not the rational participants EMH makes them out to be. Technicians have long said that irrational human behavior influences stock prices, and that this behavior leads to predictable outcomes. Author David Aronson says that the theory of behavioral finance blends with the practice of technical analysis:

By considering the impact of emotions, cognitive errors, irrational preferences, and the dynamics of group behavior, behavioral finance offers succinct explanations of excess market volatility as well as the excess returns earned by stale information strategies. Cognitive errors may also explain the existence of market inefficiencies that spawn the systematic price movements that allow objective TA [technical analysis] methods to work (Pandey and Bhat, 1989).

EMH advocates reply that while individual market participants do not always act rationally (or have complete information), their aggregate decisions balance each other, resulting in a rational outcome (optimists who buy stock and bid the price higher are countered by pessimists who sell their stock, which keeps the price in equilibrium).

Likewise, complete information is reflected in the price because all market participants bring their own individual, but incomplete, knowledge together in the market. The vast majority of academic papers find that technical trading rules, after consideration for trading costs, are not profitable, thus confirming EMH.

#### **2.1.1.4 Random Walk Hypothesis**

The Random Walk Hypothesis may be derived from the weak-form efficient markets hypothesis, which is based on the assumption that market participants take full account of any information contained in past price movements (but not necessarily other public information). In his book *A Random Walk Down Wall Street*, Princeton economist Burton Malkiel said that technical forecasting tools such as pattern analysis must ultimately be self-defeating: "The problem is that once such regularity is known to market participants, people will act in such a way that prevents it from happening in the future." In a 1999 response to Malkiel, Andrew Lo and Craig McKinlay collected empirical papers that questioned the hypothesis' applicability that suggested a non-random and possibly predictive component to stock price movement, though they were careful to point out that rejecting random walk does not necessarily invalidate EMH ([www.emeraldinsight.com](http://www.emeraldinsight.com)).

Technicians say the EMH and random walk theories both ignore the realities of markets, in that participants are not completely rational (they can be greedy, overly risky, etc.) and that current price moves are not independent of previous moves. Critics reply that one can find virtually any chart pattern after the fact, but that this does not prove that such patterns are predictable. Technicians maintain that both theories would also invalidate numerous other trading strategies such as index arbitrage, statistical arbitrage and many other trading systems.

#### **2.1.1.5 Capital Asset Pricing Model (CAPM)**

Because investors are risk averse, they will choose to hold a portfolio of securities to take advantage of the benefits of Diversification. Therefore, when they are deciding whether or not to invest in a particular stock, they want to know how the stock will contribute to the risk and expected return of their portfolios. The standard deviation of an individual stock does not indicate how that stock will contribute to the risk and return of a diversified portfolio. Thus, another measure of risk is needed; a measure of a security's systematic risk. This measure is provided by the Capital Asset Pricing Model (CAPM) ([www.emeraldinsight.com](http://www.emeraldinsight.com)).

## Systematic and Unsystematic Risk

An asset's total risk consists of both systematic and unsystematic risk. Systematic risk, which is also called market risk or un-diversifiable risk, is the portion of an asset's risk that cannot be eliminated via diversification. The systematic risk indicates how including a particular asset in a diversified portfolio will contribute to the riskiness of the portfolio. Unsystematic risk, which is also called firm-specific or diversifiable risk, is the portion of an asset's total risk that can be eliminated by including the security as part of a diversifiable portfolio.

The Capital Asset Pricing Model (CAPM) provides an expression which relates the expected return on an asset to its systematic risk. The relationship is known as the Security Market Line (SML) equation and the measure of systematic risk in the CAPM is called Beta.

### The Security Market Line (SML)

The SML equation is expressed as follows:

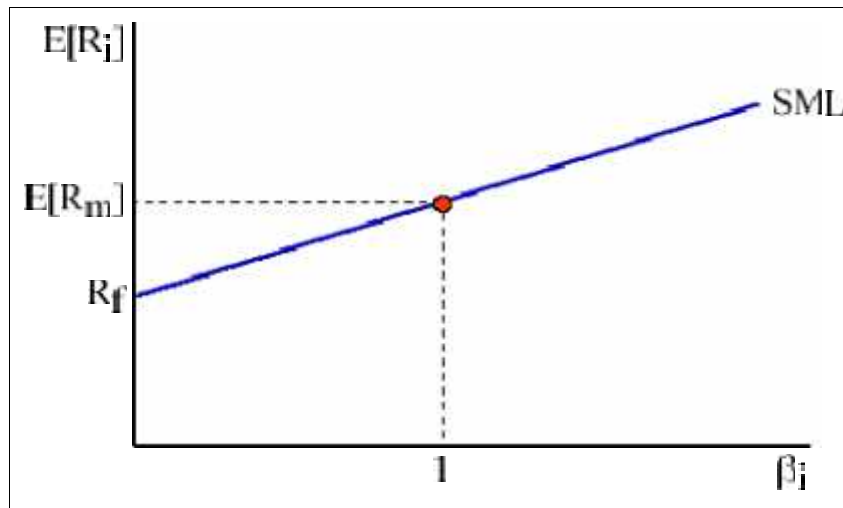
$$E[R_i] = R_f + (E[R_m] - R_f)\beta_i$$

Where

- )  $E[R_i]$  = the expected return on asset i,
- )  $R_f$  = the risk-free rate,
- )  $E[R_m]$  = the expected return on the market portfolio,
- )  $\beta_i$  = the Beta on asset i, and
- )  $E[R_m] - R_f$  = the market risk premium.

The graph below depicts the SML. Note that the slope of the SML is equal to  $(E[R_m] - R_f)$  which is the market risk premium and that the SML intercepts the y axis at the risk-free rate.

**Figure 2.1: Security Market Line**



In capital market equilibrium, the required return on an asset must equal its expected return. Thus, the SML equation can also be used to determine an asset's required return given its Beta.

### **The Beta ( $B_i$ )**

The beta for a stock is defined as follows:

$$\beta_i = \frac{\sigma_{im}}{\sigma_m^2}$$

Where

$\sigma_{im}$  = the Covariance between the returns on asset  $i$  and the market portfolio and

$\sigma_m^2$  = the Variance of the market portfolio.

Note that, by definition, the beta of the market portfolio equals 1 and the beta of the risk-free asset equals 0.

An asset's systematic risk, therefore, depends upon its covariance with the market portfolio. The market portfolio is the most diversified portfolio possible as it consists of every asset in the economy held according to its market portfolio weight.

## Critical assumptions of CAPM

The CAPM is simple and elegant. Consider the many assumptions that underlie the model. Are they valid?

- J **Zero Transaction Costs:** The CAPM assumes trading is costless so investments are priced to all fall on the capital market line. If not, some investments would hover below and above the line -- with transaction costs discouraging obvious swaps. But we know that many investments (such as acquiring a small business) involve significant transaction costs. Perhaps the capital market line is really a band whose width reflects trading costs.
- J **Zero Taxes:** The CAPM assumes investment trading is tax-free and returns are unaffected by taxes. Yet we know this to be false: (1) many investment transactions are subject to capital gains taxes, thus adding transaction costs; (2) taxes reduce expected returns for many investors, thus affecting their pricing of investments; (3) different returns (dividends versus capital gains, taxable versus tax-deferred) are taxed differently, thus inducing investors to choose portfolios with tax-favored assets; (4) different investors (individuals versus pension plans) are taxed differently, thus leading to different pricing of the same assets.
- J **Homogeneous Investor Expectations:** The CAPM assumes investors have the same beliefs about expected returns and risks of available investments. But we know that there is massive trading of stocks and bonds by investors with different expectations. We also know that investors have different risk preferences. Again, it may be that the capital market line is a fuzzy amalgamation of many different investors' capital market lines.
- J **Available Risk-Free Assets:** The CAPM assumes the existence of zero risk securities, of various maturities and sufficient quantities to allow for portfolio risk adjustments. But we know even Treasury bills have various risks: reinvestment risk -- investors may have investment horizons beyond the T-bill maturity date; inflation risk -- fixed returns may be devalued by future inflation; currency risk -- the purchasing power of fixed returns may diminish compared to that of other

currencies. (Even if investors could sell assets short -- by selling an asset she does not own, and buying it back later, thus profiting from price declines -- this method of reducing portfolio risk has costs and assumes unlimited short-selling ability.)

J) **Borrowing at Risk-Free Rates:** The CAPM assumes investors can borrow money at risk-free rates to increase the proportion of risky assets in their portfolio. We know this is not true for smaller, non-institutional investors. In fact, we would predict that the capital market line should become kinked downward for riskier portfolios ( $\beta > 1$ ) to reflect the higher cost of risk-free borrowing compared to risk free lending.

J) **Beta as Full Measure of Risk:** The CAPM assumes that risk is measured by the volatility (standard deviation) of an asset's systematic risk, relative to the volatility (standard deviation) of the market as a whole. But we know that investors face other risks: inflation risk -- returns may be devalued by future inflation; and liquidity risk -- investors in need of funds or wishing to change their portfolio's risk profile may be unable to readily sell at current market prices. Moreover, standard deviation does not measure risk when returns are not evenly distributed around the mean (non-bell curve). This uneven distribution describes our stock markets where winning companies, like Dell and Wal-Mart, have positive returns that greatly exceed losing companies' negative returns.

## 2.2 Review of Major Studies

A number of studies bring to light empirical evidence on volatility clustering regarding the impact of the news on stock price volatility. Among others, evidence about volatility clustering is provided by Engle (1982), Pindyck (1986) and Bollerslev (1986). These studies support the view that news tends to be clustered and this has an influence on stock price volatility. In particular, Engle (1982) introduced a new class of stochastic models referred to as autoregressive conditional hetero-skedasticity (ARCH) processes. In general, ARCH modeling approaches infer that past information can forecast next period's stock price volatility.

Louis Bachelier, French mathematician first tested the random walk model in 1900. He tested the model in commodity prices and found that those prices followed random walk. He also presented convincing evidence that commodity speculation in France was “fair game” and that the current price of a commodity was an unbiased estimate of its future price. He set forth formal models in which security prices were random outcomes that had probabilities attached to them (Francis, 6<sup>th</sup> edition/ 542). He was one of the first to study security price movement mathematically.

After the first discovery of random walk model by Bachelier empirical testing of the model in the stock market prices almost remained constant till 1960s. There are large number of studies have been done most of which are briefly reviewed below.

The work of Slutsky (Slutsky, 1927/105-1046) is given the credit of an independent rebirth of random walk. He proved that the randomly generated price changes and that they appear to exhibit cycles and other patterns. His work also did not receive much more attention. In 1933 Alfred Cowles (Cowles, 1933/309-324) found little evidence that stock market analyst could predict future prices.

Bixia Xu, Wilfrid Laurier University, Waterloo, Canada has conducted his research on “R&D strategy and stock price volatility in the biotechnology industry” in 2006. The propose of the study is to evaluate biotech share price volatility, which was highly volatile, compared to most other industries. There was limited explanation for what causes such a high volatility. The purpose of the study was to explore how R&D strategies selected by biotech firms affect their share price volatilities. Specifically, the paper empirically investigated the impact of drug discovery and development diversification on share price volatility.

For his study he used the Design/Methodology/Approach as Regression analysis applied to observe the effect of R&D strategy on share price volatility.

The major finding of his study is the significant impact of R&D strategy in term of drug discovery and development diversification on share price volatility. Firms that have more diversified drug portfolios are associated with lower share price volatilities; and lower



stock returns. In contrast, firms that have more concentrated drug portfolios are associated with higher share price volatilities; and higher stock returns.

Specifically, Black (1976) noted that stock price volatility tends to grow in relation to bad news and tends to fall in response to good news. The economic explanation given by Black is that negative returns make the equity value of a firm relatively more risky than the one of other firms, increasing the firm's stock price volatility. In another study, Black (1986) notes that noise can also increase stock price volatility. His results indicated that noise may be permanent or temporary and thus the stock price volatility could be influenced by both temporary and permanent bad and good news.

In addition to above studies, Ying et al. (1977) analyzed the impact of cross-listing on American stock exchanges, finding that cross-listing created value for companies, in the sense that abnormal returns were generated, as a result of the cross-listing. Moreover, the study of Sanger and McConnell (1986) indicated that a firm's stock price increases with the news that it will make a new cross-listing on a stock exchange. The increase in stock price was associated with an increase in market liquidity and managerial signals of this new cross-listing.

Pindyck (1986) found that changes in stock price variance do not typically persist for very long, despite his findings that the previous period volatility appeared to explain the next period's volatility. This result was due to the influence of more than one variable, such as the changes in corporate profits and real interest rates. Furthermore, the influence depended mainly on the magnitude of the respective shocks. Pindyck reported that about one-third of the 1974 stock market decline in the US could be attributed to stock price volatility changes.

Bollerslev (1986) extended the (ARCH) modeling framework introduced by Engle (1982) to a GARCH process. The GARCH allows the past conditional variances in the current conditional variance estimation to capture volatility clustering. As such, the GARCH framework is preferred to the ARCH modeling approach for investigating volatility spillovers between markets, since it allows us to examine both the magnitude and the persistence of spillover effects.

Volatility clustering characterizes the transmission of news from one market to another. In this respect the transmission of news regarding a foreign cross-listing may be: public, private or just trading noise. The public information hypothesis states that return volatility arises from the release of public information such as corporate announcements, judicial decisions and macroeconomic news. However, existing studies reject the public information hypothesis (e.g. French and Roll, 1989; Barclay et al. 1990). These studies tend to find that the returns' variance will be unaffected by a cross-listing on an overseas exchange. In contrast to the above studies, Harvey and Huang (1991) concluded that increased volatility in a foreign exchange market is associated with the release of US macroeconomic news.

The rejection of the public information hypothesis was considered by French and Roll (1986) who examined the two-day return variance over US stock exchange holidays. They surmised that if public information is an important determinant of return volatility, this two-day variance should be twice the one-day variance. Their evidence suggested that the two-day variance was only 15 per cent greater than the one-day variance and they rejected the public information hypothesis as an explanation for greater stock price volatility. Likewise, Barclay et al. (1990) also found that US cross-listings on overseas exchanges substantially increased the trading hours for these stocks but stock price volatility remained stable.

While the previous studies suggested that there is little evidence that public information influences cross-listing return volatility, other literature has identified that private information may have a more noteworthy impact. The view that private information influences return volatility is supported by the studies of Kyle (1985) and Admati and Pfleiderer (1988). Kyle (1985) developed a model that allowed for a chronological auction market in which informed traders generated order flows based on their private information. In this setting, changes in stock price volatility occurred as a result of changes in trading volume. Admati and Pfleiderer (1988) suggested that most of the trading of cross-listed shares were typically concentrated on one active market, whereas traders acquired private information with regard to the most active market after the listing on a foreign exchange. In general, the studies that examined the influence of private

information suggested that cross-listings may provide an incentive for traders to collect and exploit greater this type of news and consequently this may cause an increase in stock price volatility.

Among others, Lo and McKinley (1988) and Lehman (1990) looked at the impact of temporary noise on stock price volatility and found that noise trading leads to an increase in stock price volatility over the short-term period but to a decline over the long-term period (with negative autocorrelation). Similarly, Poterba and Summers (1988) suggested that stock price returns show positive serial correlation over short periods and negative serial correlation over longer intervals. In their study, using NYSE returns over the 1926-1985 periods, they found that transitory price components accounts for a substantial part of the variance in equity returns. In general, the aforementioned studies suggested that noise may influence stock price volatility and this may be temporary or permanent in its nature.

Closely related to the issues of volatility transmission, whether it is through public or private information, or just noise trading is the notion of market segmentation. The greater the impact of volatility spillover transfers among different markets, the higher the level of market segmentation. A growing body of literature has examined the issue of capital markets' segmentation, for example Stapleton and Subrahmanyam (1977) suggested three categories of corporate financial policies that can reduce the effects associated with market segmentation. In this respect, they suggested that direct foreign investments, mergers with foreign firms and the listing of the firms' securities on foreign exchanges all reduce the process of market segmentation.

Alternatively, Chowdhary and Nanda (1991) claimed that a dominant market will exist when a security has multiple locations of trading, predicting that a cross-listing will not change return variance. Chowdhry and Nanda (1991) analyzed a multi-market trading model with informed and liquidity traders, as suggested in Kyle (1985) and Admati and Pfleiderer (1988), predicting that if more than one market exists for a security, one will emerge as the dominant market. This may arise because liquidity traders look for markets with the lowest trading costs, while informed traders maximize their profitability by hiding trades in the most liquid markets. In contrast to Chowdhry and Nanda (1991),

Freedman (1989) argued that informed traders optimally allocate their trading amongst markets.

Above, it is revealed that private information is more likely to have a bigger influence on return volatility, which typically concentrated on one market. Another strand of the literature shows that trading noise may also have a significant impact on stock price volatility. For instance, Black (1976, 1986), Lo and McKinley (1988), Poterba and Summers (1988) and Lehman (1990) concluded that stock price volatility is possibly attributed to a form of permanent or temporary noise. In contrast to the public and private information hypothesis, the noise-trading hypothesis predicted that a foreign listing leads to an increase in return variance.

Another study by Varela and Lee (1993) examined US firms that cross-listed on the London stock exchange and UK firms that cross-listed in the US. Their results for foreign cross-listings on the US market presented significant effects of stock price volatility compared with the impact of cross-listings in the UK market. Also, trading location was found to have an important impact on stock price volatility. Dharan and Ikenberry (1995) examined small and large firms that listed on the ASE and NYSE stock exchanges and found the post-listing drift to be longer for large firms, while small firms to have a poor post-listing performance.

A number of studies bring to light evidence that a foreign listing can also mitigate information costs due to lower accounting standards, disclosure rules and regulatory environment. For instance, LaPorta *et al.* (1998) have argued that common law legal system protects investors better than civil law systems [1]. Investors may not want to hold equity in a firm from a country with poor investor protection rules because they may fear expropriation by concentrated shareholders or managers [2]. Another reason for firms seeking a foreign listing relates to investor recognition and/or liquidity reasons. When a firm cross-lists, it reduces some of the home bias providing greater investor access to the company equity. Kim and Suh (2001), for instance, find that US shareholders are more likely to accept the equity of cross-listed companies with greater turnover (liquidity) in the US market [3].

Alexander et al. (1998) examined a sample of 34 foreign firms that listed their stocks in the United States. Thirteen were Canadian stocks, while the remaining 21 were American depository receipts from Japan, Australia and other countries. Their evidence support positive abnormal returns in the pre-cross-listing period, no abnormal returns in the cross-listing period and negative abnormal returns in the post cross-listing period. There was found little evidence to document significant benefits to the shareholders of these firms that cross-listed their stock on a foreign exchange.

A study conducted by Shrestha (1999), who examined daily closing price of 60 stocks during the period from 13 Jan. 1994 to mid July 1998 by means of serial correlation and run test and found that the successive price changes are dependent. He also concluded that the Nepalese stock market is not efficient in pricing shares even in its weak form.

Gurung (2000) using serial correlation analysis and run test on daily closing data of 15 companies from 13 January 1994 to 31<sup>st</sup> December 1998. He found that the NEPSE index, in general, is in decreasing trend during the study period. NEPSE index reached a peak in the first year and started to decline in 1998. Market price dramatically gone up in the first year and sharply decreased in the same year. There is high fluctuating and instability in stock market. Moreover, capital market is bullish in initial period and it turned into bearish in the successive year.

Another study conducted by Upadhyay (2005), used serial correlation and runs test analysis on weekly closing data of 23 stocks during mid July 1997 to mid July 2000. He used both secondary as well as primary data in his study, concluded that both the test-serial correlation and run test analysis do not support the independence assumption of random walk models. However, in terms of both tests, a few of the price series support the random walk model. He also concluded that Nepalese stock market may not be termed as “weekly efficient” in pricing shares. Another conclusion that can be drawn from the views of financial executives is that share price movement are caused by flow of several kind of information in the market, some affecting price of large number of stocks while the other only equities of some specific industry or particular company. Lastly the existence of weak form efficient market hypothesis is slightly accepted by financial executives in Nepal.

Kharel (2009) also study on stock market and share price behavior in Nepal. He focused his study on daily closing data of 30 companies' stock listed in the NEPSE for the fiscal year 2001/02. He used serial correlation, run test and filters rule and concluded that the stock price changes of NEPSE can be explained as serially correlated and are dependent. And thus, sophisticated investors can beat the average market return applying can specific trading rule based on historical price.

The work of Johan Knif, *HANKEN and* Seppo Pynnönen (2009), in the title of “Volatility driven changes in stock return correlation dynamics”, with the purpose of the study is the relationship between stock return correlation and volatility. Utilizing a logit-type regression model, the paper analyzes the incremental effect of volatility on the level of correlation (Emerald Group Publishing Limited).

The finding is an explicit model was constructed to investigate the contribution of the level of volatility on mutual correlations of the markets. The empirical results strongly support the findings that high volatility tends to increase correlations between the markets. An analysis of the small Nordic markets further showed that the local volatilities may play a role in the change of the level of correlation. However, it is the general world-wide volatility level that mainly drives the changes in the correlations.

The another study has accomplished by Athanasios Koulakiotis, Department of Financial and Management Engineering, University of the Aegean, Greece And his friend in the topic “The impact of foreign cross-listings on the home Dutch equities”. The main purpose of the study is to develop the approach suggested by Howe *et al.* and to examine the impact of cross-listings on stock price volatility in Europe. A modified generalized autoregressive conditional hetero-skedasticity (GARCH) modeling approach as suggested by Li and Engle is used taking into account different regulatory structures across the range of markets using LaPorta *et al.*'s stock market regulatory classification.

It was found that information spillover effects are important for the Dutch market for cross-listed equities and that a different regulatory environment may have a noteworthy impact on symmetric information spillovers ([www.emeraldinsight.com](http://www.emeraldinsight.com)).

Joshi (2010), examine the relation between stock market development and economic growth in Nepal for period of mid July 1914 to mid July 2008 by using Karl Pearson correlation. The whole study period divided into two parts, first stage and second stage of stock market development. The study finds that first stage stock market development is not significantly associated with economic growth. In the second stage there is positive relation between stock market development and economic growth.

The main objective of this study is to examine the relationship between stock market development and economic growth in Nepal.

According to Pradhan (2010), assessing equity share price behavior in Nepal and testing the hypothesis that share prices changes are independent. The empirical test has been carried out by observing whether the sequence of stock indices and stock prices of individual companies are random. Efficient market hypothesis asserts that if the sequence of stock indices / prices is random, future prices movements cannot be predicted and the market can be characterized as being efficient in its weak form. In weekly – efficient market, the time series of stock indices/ prices move independently to their own past values. Secondary data analysis was made to observe the statistical properties of stock indices/ prices, and to test whether they follow the characteristic as required in the context of efficient market. For the purpose, initially, three years time series data on weekly indices from NEPSE were observed and then the results were compared with observation of weekly stock prices data of twenty- six NEPSE listed individual companies for the same three year period.

Main objectives of study: This study mainly deals with the following issues;

- ) Whether EMH holds in any of its weak and other forms?
- ) Is it possible to predict price of a given share from historical price change?
- ) Is stock market efficient in pricing shares?

- ) Whether stock prices show any systematic patterns or are indistinguishable from that of random walk?

The major findings of the study are as follows:

- ) Time series of changes in stock indices are independent to each other and thus they are random.
- ) The series is truly random to a large extent. This indicates that the stock price is dependent on future expectations about the stock.
- ) There is a greater dependence in the series of past prices and the present price will have significant influences on the changes in the future prices of such companies.
- ) Concerning individual companies, the time series of changes in stock prices of the frequently traded stock and less frequently traded stocks showed a clear distinction in their behavior.
- ) The difference in total number of actual and expected runs was statistically insignificant for equity shares implying that their prices changes are substantially random.
- ) Regarding highly traded individual stocks, both the auto- correlation analysis and runs test consistently rejected the random walk hypothesis in case of twenty four companies, however the results contradicted for other two companies.

Frino and Lecce et al. (2011,) Market behavior around trading halts associated with information releases on the Australian Stock Exchange, which operates an open electronic limit order book. Using the Lee, Ready and Seguin (1994) *pseudo-halt* methodology, we find trading halts increase both volume and price volatility. Trading halts also increase bid-ask spreads and reduce market depth at the best-quotes in the immediate post-halt period. The results of this study imply that trading halts impair rather than improve market quality in markets that operate open electronic limit order books.

Ruchika Gahlot and Saroj K. Datta (2011), Futures are used for hedging risk but at the same time this may cause changes in market efficiency as well as increase or decrease in



the volatility. The purpose of this article is to examine the impact of future trading on efficiency and volatility of the stock market.

This article uses closing prices of three indices: CNX 100, CNX500, and MSCI ACWI index to isolate the effect of future trading from macroeconomic factors of the world market as well as the Indian market. Data were collected from April 1, 2005, to March 31, 2010. Run tests and unit root tests are used to check the efficiency of the market. This study uses the Exponential General Autoregressive Conditional Heteroscedasticity (EGARCH) model to capture the asymmetric nature of the volatility.

The result shows that there is no impact on market efficiency (when calculated from mean) and market became inefficient in weak form (when computed from median). The evidences also suggest that future trading doesn't have any significant effect on stock market volatility. However, leverage implies bad news has greater impact on the volatility as compared to good news and there is high persistence of volatility in the stock market.

### **2.3 Research Gap**

There have been several researches done in stock market. All of those researches have many useful findings and their own limitations. Like, Aryal conducted a study in 1995 in share price behavior based on twenty- one sample stocks. The time period was only 8 months from the beginning day of organized stock market for eight months period. Now it is out of date. Till date market has experienced many ups and downs. Many other researchers have centered their research just in stock price behavior. The empirical evidence and responsible agencies has not identified. And the future strategy for control of such price volatility also did not identify. The present study is a supplement to overcome the weakness and limitations of previous studies.

The main focus of this research is to calculate and analyze the stock price volatility of Nepalese companies listed in NEPSE. This will analyze the causes and reasons of stock price volatility of Nepalese stock market. And it will also access the responsible agencies

for such price volatility and corrective measures for improvement stock market inefficiency. This will help to make the stock market more robust. Furthermore, by being able to point out the weakness; more investors can be made to contribute for the growth of stock market.

Considering all the above mentioned aspects, this study will also be fruitful to those interested person, scholars, students, teachers, civil society, stakeholders, businessmen and government for academically as well as policy perspectives.

## **CHAPTER-III**

### **RESEARCH METHODOLOGY**

#### **3.1 Background**

Research methodology provides the methodology followed to achieve the objectives stated in this research. This chapter describes the following aspects of research methodology; research design, sample selection, data collection procedure, data processing, definition of variables meaning and definition of both statistical and financial tools used in this research design. Results are presented in simple way using tables, graphs and diagrams. Detail research methods are described in following heading.

#### **3.2 Research Design**

This study followed both of two major research designs which are survey research design for primary data and descriptive research design for secondary data. For accessing stock price volatility, the secondary data from NEPSE have been collected of selected listed companies. For accessing the empirical evidence of such price volatility, the primary data have been collected through the questionnaire from different respondents and that have been analyzed with different tools and techniques.

#### **3.3 Nature and sources of data**

There is no doubt that many studies on market efficiency had to contend with significant data problems. The non-availability of computerized database has had a significantly limiting effect on market studies in developing countries, and consequently on volume of published evidence. The problems of carrying out research without a proper database are well documented in (Dryden, (1970), Russel (1972) and solnik (1973).

In the absence of an established database, considerable time and resources- and therefore cost- are involved in creating one. Even when the cost of acquiring the data can be met, there arises the problem of data availability. This is computed by:

- (i) The lack of awareness of stock exchange officials of the importance of maintaining centralized stock price records,
- (ii) The effort required to ensure the completeness and accuracy of the data, and
- (iii) The problem arising from thin trading.

Infrequent trading of particular shares can introduce serious biases into the results of empirical study. A major source of possible bias is that prices recorded at the end of time period may relate to a transaction which occurred earlier in, or even prior to, that period. In an effort to combat this problem longer time periods and therefore more data can be used. Taylor (1986) argues that longer price series improve variance estimates, increase the power of random walk tests, and are essential for the investigation of trading rules.

The data on this study are collected from NEPSE, Securities Board of Nepal (SEBON) and individual listed companies.

### **3.4 Population and Sample**

For the selection of the sample from the population, all the listed companies, people concerned to this sector, academicians and practitioners are taken as population of the study. Specifically, study covered two data sets primary and secondary.

Primary data is gathered through in the process of survey design. In survey design, the people who actively keep information or playing in the capital market of Nepal are taken as the population of the study and conveniently approached few experts of focus group study are the sample.

For access the volatility of Nepalese stock market, 30 listed companies are taken as the sample for the study out of 177 listed companies using quota sampling. These companies represent all sectors of financial market like banks, finance company, insurance companies, manufacturing and processing company etc.

### **3.5 Tools and Techniques**

To accomplish research work few statistical package such as excel and SPSS were used to process and analyze information. Secondary information collected from security board were first tabulated in excel spreadsheet and then analyzed using formula and charts of the same software.

Primary data were collected from carefully designed questionnaire. Such data were first tabulated in SPSS after properly defined variables. Some data were parametric and some were non-parametric data. Suitable tools such as descriptive statistics and one-sample 't' test was calculated in case of parametric data set. Friedman's chi-square test will be used to test the significance for non parametric data set.

#### **3.5.1 Runs test**

Runs test is a non parametric test that ignores the magnitude of price changes and observes only direction of changes in a given time series. Statistical tests based on theory of runs, the next model used by Fama 91965), ignore absolute values in a time series and observe only signs. That is they are essentially concerned with the direction of changes in a given time series. For the present purposes, a run may be defined as a sequence of prices changes of the same sign preceded and followed by price changes of different sign. In a given share price series, there are three possible types of runs. A plus run of length 'i' is defined as a sequence of positive price changes preceded and succeeded by either negative or zero price change. Similarly, a minus runs of length 'i' is defined as a sequence of negative price changes which is preceded and followed by either a positive or zero price change. A no change run can also be similarly defined. Thus, for purpose of runs analysis, the series of changes is first replaced by the series of symbols namely +, - and 0, depending upon such changes are positive, negative or zero then runs are counted. For example, the sequence, +++ - 0 - would be considered to consists of four runs.

A runs test is performed by comparing the actual numbers of runs with the expected number of runs on assumption that price changes are independent. If the observed runs are not significantly different from the expected number of runs then it is inferred that

successive price changes are independent. On the contrary, if this difference were statistically significant, the series of price changes would be regarded as dependent. Thus, a lower than expected number of runs indicates markets over reaction to information, subsequently reversed, while higher number of runs reflects a lagged response to information. Either situation would suggest an opportunity to make excess returns.

To perform this test 'N' is assigned to total number of observations. Each returns that equals or exceeds the mean value is denoted by 'N<sub>1</sub>' and items those are below the mean by 'N<sub>2</sub>'. The test statistic is 'R', the total number of runs. For a large sample size, that is when 'N<sub>1</sub>' and 'N<sub>2</sub>' are greater than twenty; the test statistic is approximately normally distributed.

$$Z = \frac{R - E(R)}{\sigma_R^2}$$

Where,

$$E(R) = \frac{2N_1N_2}{N} + 1, \text{ and}$$

$$\sigma_R^2 = \frac{\sqrt{2N_1N_2(2N_1N_2 - N)}}{N^2(N - 1)}$$

and,  $N = N_1 + N_2$

The runs test converts the total number of runs into z-statistics. For large samples, the z-statistics gives the probability of difference between the actual and expected number of runs. The z-value greater than or equal to  $\pm 1.96$  rejects the null hypothesis at 5% level of significance.

Recent approaches to the study of the predictability of stock markets returns in developed markets have included variance ratios model (Lo and MacKinlay (1988)), and cross sectional regression (Jegadees (1990)), unit root test and autoregressive models. These models have been used to challenge the robustness of the random walk model of weak from efficiency. While the development and application of newer models is academically appealing, the traditional models are used in this study for three reasons:

Firstly, the finding concerning the validity of the weak form EMH obtained from the use of traditional statistical methodologies still hold as strongly as they did in the 1960s.

Secondary, given the large body of evidence on efficiency in developed markets there is a need for 'triangulation' in the research by providing evidence from developing markets. Triangulation can be theoretical or implemental through the use of different research models, different settings, different data, different assumptions, and improved decision making techniques so forth. The extent to which triangulation produces similar results can be used as a measure of confidence in the findings, and in the validity of the underlying theory of stock prices particularly in developing countries.

Thirdly, there is a need to set a base for developing stock research in small stock markets like that of Nepal.

#### **3.5.4 t- test**

Fadem (2008), A **t-test** is any statistical hypothesis test in which the test statistic follows a Student's t distribution, if the null hypothesis is supported. It is most commonly applied when the test statistic would follow a normal distribution if the value of a scaling term in the test statistic were known. When the scaling term is unknown and is replaced by an estimate based on the data, the test statistic (under certain conditions) follows a Student's t distribution. Among the most frequently used *t*-tests are:

- ) A one-sample location test of whether the mean of a normally distributed population has a value specified in a null hypothesis.
- ) A two sample location test of the null hypothesis that the means of two normally distributed populations are equal. All such tests are usually called **Student's *t*-tests**, though strictly speaking that name should only be used if the variances of the two populations are also assumed to be equal; the form of the test used when this assumption is dropped is sometimes called Welch's *t*-test. These tests are often referred to as "unpaired" or "independent samples" *t*-tests, as they are typically applied when the statistical units underlying the two samples being compared are non-overlapping.

- ) A test of the null hypothesis that the difference between two responses measured on the same statistical unit has a mean value of zero. For example, suppose we measure the size of a cancer patient's tumor before and after a treatment. If the treatment is effective, we expect the tumor size for many of the patients to be smaller following the treatment. This is often referred to as the "paired" or "repeated measures"  $t$ -test.
- ) A test of whether the slope of a regression line differs significantly from 0.

The two-tailed test is a statistical test used in inference, in which a given statistical hypothesis,  $H_0$  (the null hypothesis), will be rejected when the value of the test statistic is either sufficiently small or sufficiently large. This contrasts with a **one-tailed test**, in which only one of the rejection regions "sufficiently small" or "sufficiently large" is preselected according to the alternative hypothesis being selected, and the hypothesis is rejected only if the test statistic satisfies that criterion. Alternative names are **one-sided** and **two-sided** tests.

This test is used when the samples are dependent; that is, when there is only one sample that has been tested twice (repeated measures) or when there are two samples that have been matched or "paired". This is an example of a paired difference test.

$$t = \frac{\bar{X}_D - \mu_0}{s_D / \sqrt{n}}$$

For this equation, the differences between all pairs must be calculated. The pairs are either one person's pre-test and post-test scores or between pairs of persons matched into meaningful groups (for instance drawn from the same family or age group: see table). The average ( $\bar{X}_D$ ) and standard deviation ( $s_D$ ) of those differences are used in the equation. The constant  $\mu_0$  is non-zero if you want to test whether the average of the difference is significantly different from  $\mu_0$ . The degree of freedom used is  $n - 1$ .



### 3.5.3 Standard Deviation

It is quantitative measure of total risk of assets. It provides more information about the risk of total assets. The standard deviation of a distribution is the square root of the variance of return around the mean which measure the absolute dispersion. The following formula is applied to calculate the standard deviation, using historical returns.

$$\sigma_j = \sqrt{\frac{\sum(R_j - \bar{R}_j)}{n}}$$

Where,

$\sigma_j$  = Standard deviation of stock 'j'.

$R_j$  = Realized rate of return of stock 'j'.

Symbolically,

$$R_j = \frac{[P_t - P_{t-1}] + D_t}{P_{t-1}}$$

Where,

$P_t$  = current market price per share

$P_{t-1}$  = previous time market price per share

$D_t$  = Cash dividend per share (if any).

### 3.5.4 NEPSE Index

Market index is a number that indicates the movement of the overall securities prices in the secondary market. Market index, thus reveals what is the security market doing? To put this way, securities market index have been constructed to give a quick answer to the question; what is the market doing? Thapa (2011)

Nepal Stock Exchange (NEPSE) is an organized secondary market for listed securities. NEPSE calculates the index, which is known as NEPSE index. It is an equity index. An equity index is an index that measures the changes in the aggregate market value of

common stocks. NEPSE opened its trading floor on 13 January 1994 and started to calculate the NEPSE index. NEPSE index is a market value index or it is based on total market capitalization. The base value of NEPSE index is value in the Nepal Stock Exchange at the close of Jan 13 1994, the first day of trading through the number broker. NEPSE considers all the stocks listed in stock exchange and their closing price to calculate the index. NEPSE index is calculated by using the following formula:

$$\text{NEPSE index} = (\text{current market value}) / (\text{Base market value}) \times 100$$

In practice, the listing and delisting of a company, issue of bonus shares, right shares and making additional issues increases the capital. In these conditions, the base value needs to be adjusted to reflect the real performance of the market. Under these conditions adjusted value is calculated as follows:

$$\text{Adjusted base value} = \frac{\text{New market value}}{\text{Old market value}} \times 100$$

### **3.6 The Hypotheses**

An attempt has been to test the following hypothesis related to stock price volatility model:

- ) The returns generated from the price series of individual companies are normally distributed.
- ) The expected and observed number of runs in the return series is uniform.

The hypothesis tested was that the correlation coefficients of successive price returns on the NEPSE at all lags are zero. In independence tests, for example, the results have on occasion been generalized on the basis of findings from first order serial correlations. The results at lag 1 may suggest serial independence or dependence, but it is obviously desirable to extend investigation to lags other than one. This study examines the serial coefficients across 30 lags, which is consistent with (Dickinson and Muragu (1994), Cooper (1982) and Taylor (1986).

## **CHAPTER-IV**

### **DATA PRESENTATION AND ANALYSIS**

#### **4.1 Presentation and Analysis of Secondary Data**

Nepalese share market has undergone through many ups and downs. High fluctuation was observed in past few years in Nepalese shares price. Therefore, it can be argued that share price behavior in Nepalese capital is volatile and fluctuating (Adhikari, 2004). This chapter aims to analyze the real price fluctuation trend in Nepalese capital market so that the pattern of the price fluctuation could be analyzed. All the listed companies were taken as the population of the study. Out of them, few companies that had satisfactory transaction were taken as the sample of the study. Secondary data were gathered from Nepalese stock exchange limited and analyzed them. The behavior of stock price in Nepalese capital market can be analyzed in following parts.

##### **4.1.1 Trend of Share Price Behavior of Selected Companies**

To analyze the fluctuation of the stock price in Nepalese share market 30 listed companies from different sector are taken as sample. The sampled companies are Ace Finance Company (ACEFIN), Annapurna Finance Company (ANPF), Bishal Bazar Company (BBC), Bank of Kathmandu (BOK), Citizen Investment Trust (CIT), Everest Bank Limited (EBL), Everest Insurance Co. Ltd. (EICL), Gorakhkali Rubber Udyog Ltd. (GRUL), Harisidhhi Brick and Tile Factory (HBTF), Himalayan Bank Limited (HIBL), Himalayan General Ins. Ltd. (HGIC), Kathmandu Finance Limited (KFL), Nabil Bank Limited (NABIL), National Finance Co. Ltd. (NFCL), Neco Insurance Co. Ltd. (NEIL), Nepal Bangladesh Bank Ltd. (NBBL), Nepal Finance and Savings Co. Ltd. (NFSC), Nepal Housing and Dev. Fin. Co. (NHDFC), Nepal Insurance Co. Ltd. (NICL), Nepal Investment Bank Limited (NIBL), Nepal SBI Bank Limited (SBI), NIDC Capital Market Limited (NCML), People's Finance Limited (PFL), Premier Insurance Co. Ltd. (PICL), Soaltee Hotel Limited (SHL), Standard Chartered Bank Limited (SCBL), Taragaon

Regency Hotel Ltd. (TRHL), Uniliver Limited (ULL), United Insurance Co. Ltd. (UICL), Universal Fin. and Cap. Mkt. Ltd. (UFCML). Data were collected at the first day of each quarter for five years starting from 2004 to 2010. First day of the first year was taken as the base year for calculating the percentage change in share price of each selected company.

In the table 4.1, all companies were designed in the column and the year in to row. The companies' were taken as the variable of in the data sheet. Thereafter, data were tabulated in excel spreadsheet table formula was defined in the each next column of the variable. That helped to find out the actual changes on the base year 15<sup>th</sup> sep. 2004. The results in price fluctuation are presented under following table in percentage base.

**Table 4.1**  
**Share Price Behavior of Selected Listed Companies**

(In Percentage)

S.N.	Company	2004	2005			2006			2007			2008			2009			2010		
		15-Sep	15-Jan	15-May	15-Sep	15-Jan	15-May	15-Sep	15-Jan	15-May	15-Sep	15-Jan	15-May	15-Sep	15-Jan	15-May	15-Sep	15-Jan	15-May	15-Sep
1	ACEFIN	100	42.1	52.6	71.6	71.6	70.9	71.6	92.6	73.7	96.6	37.9	34.3	37.9	42.1	50.5	45.1	63.2	50.5	50.5
2	ANPF	100	488.8	450.5	435	378.9	476.2	346.7	324.5	312.8	267.4	261.9	222.2	198	157	154.3	145.7			138.3
3	BBC	100	150.6	145	167	123.3	98.8	96.5	121.3	112.4	146	89.8	95.7	167.6	137	156.7	103.3	109.1	88.9	101.2
4	BOK	100	76.8	114.4	118.4	137.6	222.5	206.6	277.8	233.6	347.2	51	55.8	73.2	54.3	57.6	52.3	83.8	77.3	71.2
5	CIT	100	155.5	112	89.2	132.3	168	189.9	195.4	178.8	188.9	195	167.7	147	199.7	168	136.7	121.1	98.8	67
6	EBL	100	117.2	154.3	150	152.4	237.1	222.4	327.6	301.7	419	72.6	89.7	114.7	72.4	77.6	78.6	86.2	86.2	75
7	EICL	100	119.9	120.4	128	112.3	103	98.9	145	138.5	146	146	160.6	111.1	103	132.2	157.3	168.8	169.4	183.1
8	GRUL	100	71.3	67.9	77.4	71.3	67.5	81.1	88.7	98.1	57	67.9	64.2	64.2	71.7	73.6	56.6	79.2	92.5	73.6
9	HBTF	100	150.8	170.6	99.2	107.1	95.2	97.2	91.3	97.5	89.3	95.2	131.6	138.9	134.9	142.9	150.8	132	124.4	145.5
10	HIBL	100	92.6	85.6	89.2	87	109.4	96.8	112	109.3	163	79.6	74.4	83.8	73.1	75.7	79	96.3	91.7	88
11	HGIC	100	71.3	67.9	77.4	71.3	67.5	81.1	88.7	98.1	57	67.9	64.2	64.2	71.7	73.6	56.6	79.2	92.5	73.6
12	KFL	100	58.3	48.3	45	45	46.3	45	57.7	59	67.7	66.7	73.3	63.3	76.7	78.3	90	108.7	92	102
13	NABIL	100	144.4	176.7	192.7	214.8	283.3	264.2	419.8	429	623.5	98.8	100.6	137	88.3	28.3	90.1	110	97.5	91.4
14	NFCL	100	59.2	55.2	46.4	41.6	40	44.8	48	56.8	115.2	18.4	59.7	56	78.4	68	68.3	81.6	80	76.8
15	NEIL	100	131.6	138.9	134.9	142.9	150.8	132	124.4	145.5	150.8	170.6	99.2	107.1	95.2	97.2	91.3	97.5	89.3	95.2
16	NBBL	100	27.6	31.3	31.2	26.1	22.4	25.6	48.8	36.2	64.7	51.2	42.5	33.1	42.7	42.4	43.5	105.9	67.1	61.2

17	NFSC	100	214.8	283.3	264.2	419.8	429	623.5	98.8	100.6	144.4	176.7	192.7	137	88.3	28.3	90.1	110	97.5	91.4
18	NHDFC	100	67.5	81.1	88.7	98.1	57	71.3	67.9	77.4	71.3	67.9	64.2	56	78.4	68	68.3	81.6	80	76.8
19	NICL	100	95.2	103.2	131.6	138.9	134.9	142.9	150.8	150.8	170.6	99.2	107.1	95.2	97.2	91.3	97.5	89.3	95.2	103.2
20	NIBL	100	51.4	57.1	57.7	55.4	50.9	57.7	97.7	68.6	86.3	66.3	61.1	54.3	76	77.1	73.1	93.7	114.3	89.7
21	SBI	100	31.4	32.8	32.7	35.9	60.2	51.8	70.8	72.6	99.1	24.8	25.3	31.2	26.1	27	26.2	88.7	40.3	35
22	NCML	100	87.5	102.1	114.6	96.7	97.9	115	458.8	364.6	350	60	69.2	83.3	70.8	70.8	64.6	104.6	100	92.9
23	PFL	100	47.8	43.5	43.5	46.5	54.8	43.5	56.5	55.2	54.3	48.7	44.8	65.2	43.9	42.6	40	87	54.8	56.5
24	PICL	100	107.1	95.2	97.2	91.3	97.5	89.3	95.2	103.2	95.2	103.2	131.6	138.9	134.9	142.9	150.8	150.8	113.3	117.4
25	SHL	100	89.8	80	80	84.4	90.5	92.1	99.86	92	100.8	108.6	102	84	32	60.8	56.8	77.6	80	72.8
26	SCBL	100	103.3	125.8	143.6	160.4	220.9	216.4	274.6	268.9	352.2	90.7	86	105.1	83.3	98.3	103	94.9	94.3	103
27	TRHL	100	45.4	40.6	78	56.8	66.67	74.23	68	76	56.67	53.33	59.9	67.76	21.1	27	26.2	88.7	40.3	35
28	ULL	100	86.1	90.6	100	105.6	125	152.8	161.1	177.8	188.9	86.1	107.3	86.1	60.9	60.8	30.6	97.2	82.2	73.6
29	UICL	100	42.5	33.1	42.7	42.4	43.5	105.9	67.1	61.2	27.6	31.3	31.2	26.1	22.4	25.6	48.8	36.2	64.7	51.2
30	UFCML	100	124.4	145.5	150.8	170.6	99.2	107.1	95.2	51.4	57.1	57.7	55.4	50.9	57.7	97.7	67.5	81.1	88.7	98.1

Source:- NEPSE

Table 4.1 shows, the price fluctuation of different listed companies in different time period. It also shows the increasing trend of share price of Nepalese share from the ending of year 2004 of some companies. Many ups and downs can be observed in different time period in the figure. That difference in price can be affected from artificial price fluctuation and external factors. The companies own internal strategies, earning and dividend might not be the major reason for such price fluctuation.

Intermediaries such as investors or brokers might be the major factors in such price fluctuation. Furthermore, the political environment of the country especially Maoist movement might have influenced the share price pattern in Nepalese share market.

#### **4.1.2 Trend of Share Price Behavior in Term of Trend Line**

In above section, we saw the price fluctuating trend in Nepalese share market of selected companies. Now, it would be better to analyze the pattern of the share price behavior of selected Nepalese listed companies for the seven years in terms of trend lines. Graphical presentation is a very powerful tool for presentation and its analysis. The following figure shows the trend of stock price fluctuation in of selected companies in different quarterly period.

Figure 4.1

Trend of Share Price Behavior

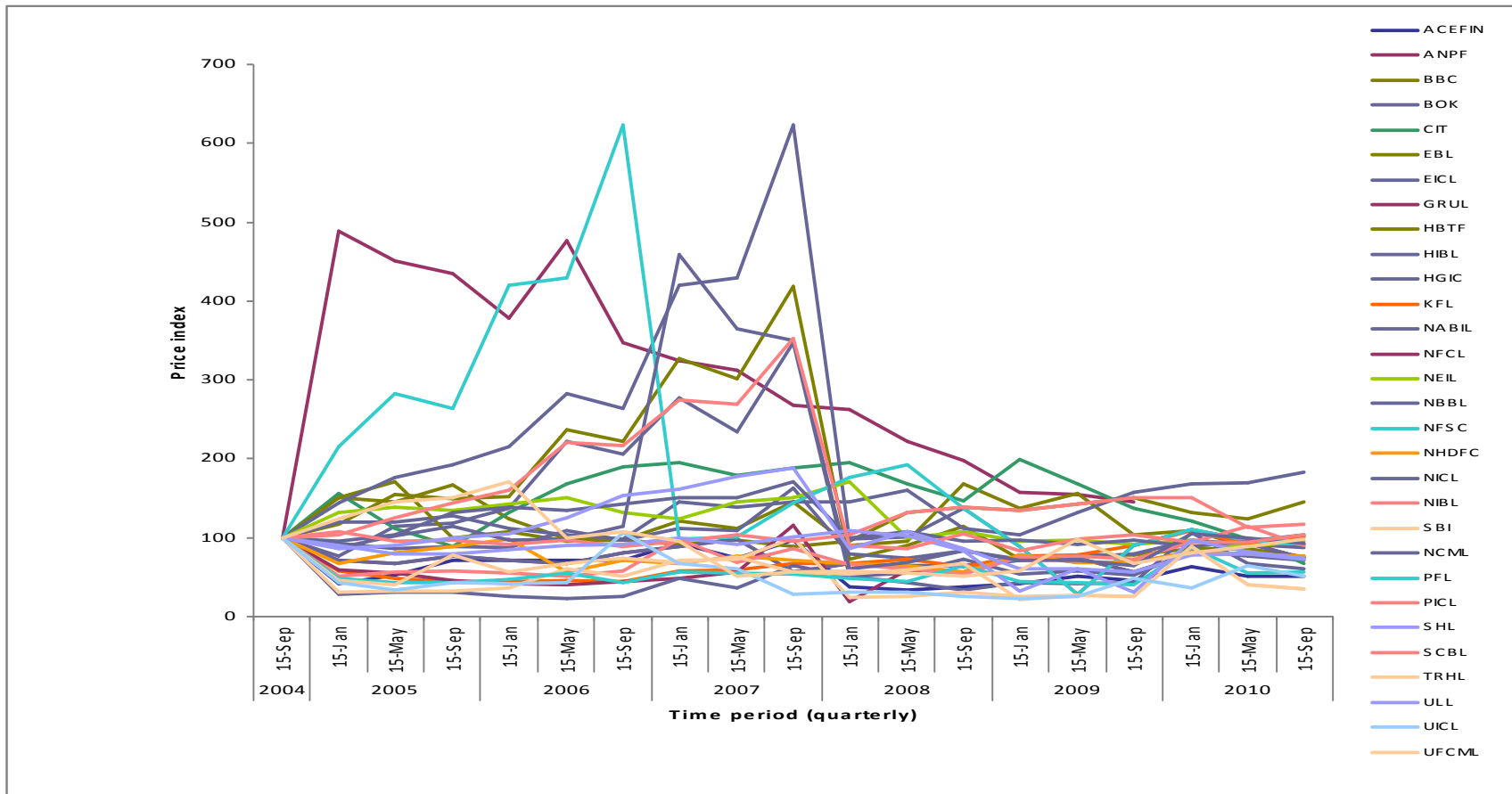




Figure 4.1 shows, the share price fluctuating trend line of different sampled companies of Nepalese capital market during 2004 to 2010. In the above figure year 2004 is taken as base year for calculation of volatility.

The stock price of Unilever Nepal limited and NABIL Bank limited was observed as very high fluctuation stock during 15 Jan 2004 to 15 Jan 2007. Where the stock price of Unilever Nepal limited was Rs 550 in 15 Sep 2004 and the stock price of NABIL Bank Limited was Rs 229 on 15 may 2008. This is the lowest trading price of these two companies to till date. After eight month the stock price of Unilever was increased to Rs 1932. Similarly, the stock price of NABIL bank limited was in increase to Rs 730 within 4 months. However, the share price of other listed companies also fluctuating significantly during the period.

The above results clearly shows that the price increment and decrement is not just because of companies internal strategy and performance or dividend policy but it may caused due to market mechanisms or environmental forces. The above figure shows the prices of all companies were sharply dropped in September 2009 even lower than earlier. According to the analysis, it simply seems the affecting factor of such price volatility is from external forces rather than the organizational. It further showed that the artificial price fluctuation is exists in Nepalese share market. Because of limited active investor and broker in Nepalese share market; such artificial volatility is being creating day by day according to their wish.

## **4.2 Descriptive Statistics: Monthly Returns of Individual Companies**

The table reports descriptive statistics of monthly returns series of individual companies. Return is calculated as the change in the last closing price of a month from the previous month last closing price plus any dividend yield. In the table, N represents number of observations and mean, max. and min. for average, maximum and minimum market returns respectively for the period. SD stands for standard deviation of the returns. SK is the measure of skewness and KURT represents kurtosis. A random walk test assumes that

the return series follow normal distribution characterized by zero skewness and kurtosis value equal to 3. The JB test of normality is the test of the joint hypothesis that SK and KURT are 0 and 3, respectively. In that case the value of the JB statistic is expected to be zero. Any p-value less than 0.05 indicate that the distribution is not normal. The JB-statistic with \* indicates the distribution is significantly different from normal distribution.

**Table 4.2**  
**Descriptive Statistics: Monthly Returns of Individual Companies**

SN	Company	N	Mean (percent)	Max (percent)	Min ( percent)	SD (percent)	SK	KURT	Jarque- Bera
1	Ace Finance Company (ACEFIN)	103	1.59	34.9	-40.5	9.65	-0.18	7.35	81*
2	Annapurna Finance Company (ANPF)	120	0.72	26.3	-60.8	11.2	-2.14	13.5	632*
3	Bishal Bazar Company (BBC)	120	0.05	19	-30	6.02	-1.12	9.36	228*
4	Bank of Kathmandu (BOK)	96	1.09	36.3	-53.3	12.9	-0.99	6.79	73*
5	Citizen Investment Trust (CIT)	112	1.24	31.9	-24.7	7.52	0.42	7.86	113*
6	Everest Bank Limited (EBL)	111	2.05	65.1	-37.3	13	0.76	8.04	128*
7	Everest Insurance Co. Ltd. (EICL)	119	0.83	43.4	-61.9	10.5	1.28	14.4	680*
8	Gorakhkali Rubber Udyog Ltd. (GRUL)	119	-0.45	55.7	-32.3	10.9	0.88	9.42	220*
9	Harisidhhi Brick and Tile Factory (HBTF)	118	-1.16	37.8	-53.1	9.19	0.64	8.82	175*
10	Himalayan Bank Limited (HIBL)	120	0.57	25.1	-45.6	10.8	-1.37	7.08	120*
11	Himalayan General Ins. Ltd. (HGIC)	118	0.23	25.2	-29.95	7.87	-0.17	6.54	62*
12	Kathmandu Finance Limited (KFL)	119	0.4	40.5	-29	9.85	1.09	7.02	103*
13	Nabil Bank Limited	121	0.93	26.6	-53.20	11.3	-1.97	10	325*

	(NABIL)								
14	National Finance Co. Ltd. (NFCL)	119	0.48	22.9	-32	7.3	-0.52	6.56	68*
15	Neco Insurance Co. Ltd. (NEIL)	87	0.25	32.4	-23.8	8.41	0.8	6.18	46*
16	Nepal Bangladesh Nank Ltd. (NBBL)	115	0.47	33.2	-47.6	12.7	-0.94	5.64	50*
17	Nepal Finance and Savings Co. Ltd. (NFSC)	117	0.66	40.3	-68.5	11.7	-1.04	14.2	635*
18	Nepal Housing and Dev. Fin. Co. (NHDFC)	115	1.75	37.3	-18.6	8.11	1.62	8.14	177*
19	Nepal Insurance Co. Ltd. (NICT)	119	-0.04	20.6	-39.3	7.22	-1.33	10.5	315*
20	Nepal Investment Bank Limited (NIBL)	120	0.33	34.8	-56.6	11.4	-1.63	9.64	273*
21	Nepal SBI Bank Limited (SBI)	120	-0.09	35.1	-91.6	13.3	-2.63	20.8	1727*
22	NIDC Capital Market Limited (NCML)	120	0.02	48	-74.4	12.7	-1.19	13.2	544*
23	People's Finance Limited (PFL)	119	0.2	85.3	-85.3	14.1	0.36	24.4	2267*
24	Priemer Insurance Co. Ltd. (PICL)	118	0.35	27.4	-22.3	8.97	0.05	4.41	9*
25	Soaltee Hotel Limited (SHL)	120	0.47	27.4	-39.1	8.43	-1	8.34	162*
26	Standard Chartered Bank Limited (SCBL)	120	1.24	23.9	-48.8	11.2	-1.84	9.23	262*
27	Taragaon Regency Hotel Ltd. (TRHL)	67	-1.68	37.4	-32.7	10.4	0.49	5.63	22*
28	Uniliver Limited (ULL)	120	1.39	32.9	-27.1	9.17	0.61	5.38	36*
29	United Insurance Co. Ltd. (UICL)	120	0.27	49.8	-16.3	8.24	1.92	12.9	566*
30	Universal Fin. and Cap. Mkt. Ltd. (UFCML)	97	1.53	55.6	-31.8	11.3	1.02	8.73	149*

\*Significant at 5 percent

Sources: NEPSE

The highest maximum return has been reported for PFL (85.27 percent) followed by EBL (65.11 percent), GURL (55.65 percent) UFCML (55.62 percent), UICL (49.75 percent) and NCML (47.95 percent). The lowest maximum return is observed for BBC (19.03 percent). Similarly, the highest minimum return is observed for SBI (-91.62 percent) followed by PFL (-85.27 percent), NCML (-74.44 percent), NFSC (-68.51 percent), EICL (-61.9 percent) and ANPF (-60.83 percent). The lowest minimum return is observed for NHDFC (-18.61 percent).

The highest volatility in the monthly return, as measured by standard deviation, is observed for PFL (14.09 percent) followed by SBI (13.28 percent), EBL (12.96 percent), BOK (12.90 percent), NCML (12.72 percent), and NBBL (12.66 percent). The third moment of companies, as reported by skewness coefficient, shows that the return of 16 companies is negatively skewed. The highest positive skewness coefficient is observed for UICL (1.92) followed by NHDFC (1.62), EICL (1.28), KFL (1.09), and UFCML (1.02) and GURL (0.88). The highest negative skewness coefficient has been observed for SBI (-2.63) followed by ANPF (-2.14), NABIL (-1.97), SCBL (-1.84), NIBL (-1.63), HBL (-1.37), and NICL (-1.33). The table further shows that the returns of all the 30 companies are leptokurtic. The highest kurtosis coefficient is observed for PFL (24.37), followed by EICL (14.43), NFSC (14.22), ANPF (13.45), NCML (13.15) and UICL (12.92).

It can be concluded that on the basis of kurtosis most of the companies' price are in peaked and on the basis of skewness prices are decreases trend. In statistics, the Jarque–Bera test is a goodness-of-fit measure of departure from normality, based on the sample kurtosis and skewness. The test is named after Carlos Jarque and Anil K. Bera. The market return as measured by NEPSE index is negatively skewed and leptokurtic irrespective of the monthly interval of returns. This result is also supported by the return behavior of majority of the enterprises. Further, the Jarque- Bera values are significant for all three intervals of returns for market and individual companies imply the non-normal distribution of returns of returns in stock market of Nepal.

### 4.3 Runs Test: Monthly Return on Individual Companies

This table lists statistics associated with the runs test of monthly return on listed companies. Runs test, being a non-parametric test, is a procedure that examines consecutive occurrence of variable. This variable has only two categories. The runs test classifies the value of the variable as being above or below the mean (test value). The test employs the total number of runs in the transformed data. Large significance values (p-value >0.05) indicates the data are randomly ordered. In the table 'N<sub>1</sub>' stands for the cases below mean, 'N<sub>2</sub>' stands for the cases above or equal to mean, 'N' for total number of cases E(R) for expected number of runs and R for observed number of runs. Any Z-value with \* indicates the significant difference between actual number of runs and observed number of runs indicating that the series is not random.

**Table 4.3**  
**Runs Test: Monthly Return on Individual Companies**

SN	Company	N1	N2	N	E (R)	R	Z-value	R/NR
1	Ace Finance Company (ACEFIN)	43	60	103	51.1	42	-1.85	R
2	Annapurna Finance Company (ANPF)	49	71	120	59	52	-1.33	R
3	Bishal Bazar Company (BBC)	40	80	120	54.3	49	0.04	R
4	Bank of Kathmandu (BOK)	48	48	96	49	42	-1.44	R
5	Citizen Investment Trust (CIT)	47	65	112	55.6	47	-1.67	R
6	Everest Bank Limited (EBL)	57	54	111	56.5	50	-1.24	R
7	Everest Insurance Co. Ltd. (EICL)	57	62	119	60.4	39	-3.95*	NR
8	Gorakhkali Rubber Udyog Ltd. (GRUL)	77	42	119	55.4	48	-1.48	R
9	Harisidhhi Brick and Tile Factory (HBTF)	79	39	118	53.2	50	-0.67	R
10	Himalayan Bank Limited (HIBL)	70	50	120	59.3	56	-0.63	R
11	Himalayan General Ins. Ltd. (HGIC)	40	78	118	53.9	49	-1.01	R
12	Kathmandu Finance Limited (KFL)	44	75	119	56.5	55	-0.75	R

13	Nabil Bank Limited (NABIL)	67	53	120	60.2	68	1.45	R
14	National Finance Co. Ltd. (NFCL)	51	68	119	59.3	54	-0.99	R
15	Neco Insurance Co. Ltd. (NEIL)	28	59	87	39	30	-2.22*	NR
16	Nepal Bangladesh Bank Ltd. (NBBL)	63	52	115	58	47	-2.08*	NR
17	Nepal Finance and Savings Co. Ltd. (NFSC)	40	77	117	53.6	47	-1.37	R
18	Nepal Housing and Dev. Fin. Co. (NHDFC)	43	72	115	54.8	59	0.83	R
19	Nepal Insurance Co. Ltd. (NICL)	76	43	119	55.9	47	-1.78	R
20	Nepal Investment Bank Limited (NIBL)	68	52	120	59.9	56	-0.73	R
21	Nepal SBI Bank Limited (SBI)	59	61	120	61	58	-0.55	R
22	NIDC Capital Market Limited (NCML)	48	72	120	58.6	47	-2.22*	NR
23	People's Finance Limited (PFL)	45	74	119	57	51	-1.17	R
24	Premier Insurance Co. Ltd. (PICL)	54	64	118	59.6	52	-1.41	R
25	Soaltee Hotel Limited (SHL)	75	45	120	57.3	60	0.54	R
26	Standard Chartered Bank Limited (SCBL)	67	53	120	60.2	62	0.34	R
27	Taragaon Regency Hotel Ltd. (TRHL)	30	47	67	34.1	28	-1.53	R
28	Uniliver Limited (ULL)	53	67	120	60.2	57	-0.59	R
29	United Insurance Co. Ltd. (UICL)	48	72	120	58.6	48	-2.03*	NR
30	Universal Fin. and Cap. Mkt. Ltd. (UFCML)	38	59	97	47.2	48	0.17	R

\*Significant at 5 percent

Source: NEPSE

The results of runs test are also similar to the findings of (Poshakwale (1996)), who finds that the actual number of runs significantly lower than expected number of runs for daily returns in India, Philippines, Malaysia, and Thailand. Dickinson and Muragu (1994) also find statistically insignificant values for majority of sample companies in Nairobi Stock Exchange.

Caution is required, however, when interpreting the significant results of runs test because the runs test is affected readily by trends. This is because the expected number of runs increases proportionately with the sample size, while the standard error increases proportionately with square root of the sample size (Fama (1965)). This means that a constant but small percentage difference between the expected and actual numbers of runs will produce higher z-values as sample size is increased. The significant results of the runs test for some enterprises are nevertheless not at a level where they may be used to formulate profitable trading strategies when transactions costs are taken into account.

#### **4.4 Volatility**

The following table data are taken from mid July 1995 to mid July 2010 to measure volatility of stock by using standard deviation. High volatility in the stock market denotes risk in stock market denotes risk in equity investment, if does not necessarily imply undeveloped stock market. It is generally expected that developed stock markets absorb risks in financial assets and offer higher return with less volatility. Put simply, it means that as an indicator of a country's stock market development less volatility is preferred to high. Volatility may be measured as a twelve-month, rolling standard deviation of market returns. Higher standard deviation means higher volatility, and more risk.

**Table 4.4**  
**Volatility in NEPSE**

<b>Year</b>	<b>Annual market return</b>	<b>Annual market volatility</b>	<b>Value traded (percent) volatility</b>
mid July 1995	126.42	26.48	0.12
mid July 1996	-12.98	7.36	1.1
mid July 1997	-1.33	4.11	0.41
mid July 1998	-0.68	2.71	1.21
mid July 1999	-2.56	4.57	0.31
mid July 2000	37.36	3.79	1.67
mid July 2001	67.93	5.53	0.49
mid July 2002	-1.93	9.24	0.63
mid July 2003	-34.74	12.79	0.35
mid July 2004	-9.97	3.08	0.53
mid July 2005	8.39	2.6	1.99
mid July 2006	29.11	4.73	1.55
mid July 2007	33.94	5.02	0.71
mid July 2008	76.81	7.58	0.59
mid July 2009	40.85	9.79	0.64
mid July 2010	-22.24	8.14	0.52

Source: SEBON

Stock market in Nepal was high during the initial years, it was on decline till mid July 1997 indication that equity in stock market tended to stabilize during this period. From mid July 1999 onwards volatility in stock market had wider fluctuation but it showed a tendency to rise consistently. Countries with high inflation rates seem to have higher volatility in the equity markets. Except in the mid July 1995, mid July 2002, and mid July 2003 volatility in the stock market in Nepal remained relatively low. The reason for this is mainly volatility in the market has increased consistently with the increase in the market return which is calculated based on the NEPSE index. Volatility in each of these



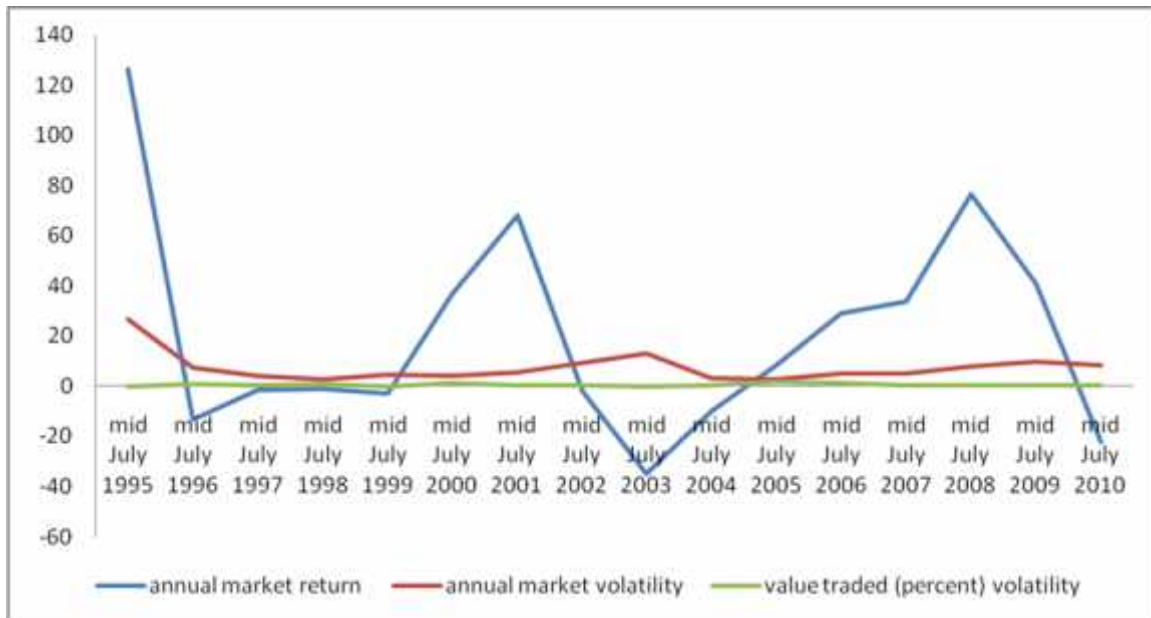
years was high due to increase in the volume of trading triggered by speculative motive of investors.

Analysis argues that developed stock markets should not only provide high liquidity but also handle large volume of trading with less price swings. In other words a liquid market should allow large volume of trading with less volatility. One of the indicators to measure this is a ratio of value-traded-ratio to volatility. A high ratio indicates the ability of the stock market to provide liquidity and handle risk. Empirical evidence shows that this ratio is a good predictor of economic growth and countries with high ratio have growth much faster than countries with low ratios. These ratios for the stock market in Nepal are presented in the column 4 in above table. These ratios indicate inability of stock market in Nepal to handle risk relatively to volume of trading of shares. A positive but very weak relationship is observed between volatility and value of trading of shares in the stock market.

The trends in the indicators of stock market development in Nepal for the period between mid July 1995 and mid July 2010 are presented in the figure 1 below. Market capitalization ratio which was on rise for the period mid July 1998 to mid July 2002 again declined from mid July 2003 to mid July 2006. It increased almost exponentially since then. Annual volatility in the market, as measured in terms of 12 months rolling standard deviation has also increased in tandem with market capitalization ratio. However, the volatility when measured in terms of value of traded shares ratio to annual volatility does not reveal any increasing trend during the period indicating stock market's inability to provide liquidity and handle risk. Turnover ratio and value of shares traded to market capitalization ratio have remained fairly low and varied within a narrow range during the 15 years between mid July 1995 and mid July 2010 indicating persistent problem of illiquidity, though some sign of improvement is seen during the latest two years. It is interesting to note that none of these indicators revealed a consistent trend during this period, indicating that the development of stock market in Nepal lacks the definite direction and is not guided by clear-cut policies and actions. Due to low volume of shares traded and wide fluctuations, the stock market in Nepal has been highly illiquid and volatile.

**Figure 4.2**

**Trends of Stock Market Volatility & Market Return**



The analyses of the indicators reveal that the problems of stock market in Nepal are (i) its small size, (ii) illiquidity, (iii) domination of by few large companies and (iv) inability of market to handle risk relative to the volume of trading.

**4.5 Presentation and Analysis of Primary Data**

In this section, the analysis of the results of price fluctuation calculated in previous section is done through the opinions of the Respondents. The previous section showed very high share price volatility of all selected listed companies during analysis period. In this chapter, the investigation on potential responsible factors of such price volatility, institution responsible for such price volatility, potential affecting factors for stock market inefficiency, and some potential strategies to make the better stock market practices will be find out.

In Nepalese share market; there are many factors which directly affect the stock price volatility. The major research question of this analysis is heading towards to measure the contributing factors and possible corrective action for the ultimate benefit to the stakeholder of Nepalese capital market.

In this analysis, the researcher has taken opinion from different person who directly or indirectly attached with Nepalese capital market, especially in secondary market. Most of them are well informed and player of capital market trading system in Nepal. In this analysis, the questionnaire was distributed for different 65 peoples. Out of them only 50 questionnaires are usable for analysis. The questionnaire was designed in six point Liker scale, ordinal ranking scale, and open-ended subjective questions. The details about the respondents are as followings.

#### 4.5.1 Gender of the Respondents

In this research many people from different sector gave their opinion as their own idea and experience. Following table shows the actual status of gender of the respondent.

**Table 4.5**  
**Gender of the Respondents**

Category	Frequency	Percentage	Actual Percent	Cumulative Percent
Male	30	60	66.5	66.5
Female	15	30	33.5	100
Total	45	90	100	
Not Stated	5	10		
Total	50	100		

Source:- Field Survey, 2011

Table 4.5 shows, the gender of respondents and their valid ratio, where 66.5% are male and 33.5% are female respondents. Out of total respondent there are 5 respondents who did not identify their gender. It shows one third of the total respondents are female.

### 4.5.2 Age of the Respondents

In a good research there should be attempt the information from diverse groups of respondents. Age is also on factor in this campaign. Following table depicts the age of the respondents.

**Table 4.6**  
**Age of the Respondents**

Category	Frequency	Percent	Valid percent	Cumulative percent
Age below 30	10	20	22	22
31 to 40	15	30	31	53
41 to 50	15	30	31	84
Age above 50	8	16	16	100
Total	48	96	100	
Not Stated	2	4		
Total	50	100		

Source:- Field Survey, 2011

Table 4.6 shows, the age group of people who involve in this research as respondents. It shows that the respondents are from young generation and old generation as well. Young people have fresh knowledge and old people have experience.

### 4.5.3 Profession of the Respondents

Respondent's profession is also important part in survey research. The following table presents the profession of the respondents.

**Table 4.7**  
**Profession of the Respondents**

Category	Frequency	Percent	Valid percent	Cumulative percent
Banker	5	10	10	10
Broker	10	20	20	30
Investor	15	30	30	60
Academician(Finance Lecturers)	15	30	30	90
Bureaucrat	5	10	10	100
Total	50	100	100	

Source:- Field Survey, 2011

Table 4.7 shows, the profession of the respondents. The focus of the survey is on the profession of that respondents who are most concerned with Nepalese share market. As compared with other respondents, investors and academician are taken as rational and well informed respondents. Hence 30 respondents are from investors and academician.

#### **4.5.4 Abnormal Price Fluctuation- Causes in Nepalese Share Market**

Each action is backed by some causes and reasons. So in order to assess the cause and reasons of such price volatility in Nepalese share market, here few statements are design for testing. The collected views and opinions from respondents have been processed through t-test. For that purpose, first descriptive statistics are presented so that the actual level of the variable could be analyzed. After calculating the mean and standard deviation of the variables used to assess the causes for abnormal price fluctuation. Each variables 't' statistics is computed to find the significance of the mean differences. The descriptive statistics of the potential variables for abnormal price fluctuation in Nepalese share market can be shown in following table.

**Table 4.8**  
**Causes for Abnormal Price Fluctuation in Nepalese Share Market**

Causes	No	Mean	Std. Dev.	SE of Mean
Irrational investor	50	4.06	1.2357	0.1748
Companies manipulate their financial stmt.	50	3.76	1.3024	0.1842
Lack of facilitating institution	50	4.44	0.7866	0.1112
Share price affected by the market rate	50	3.38	1.2760	0.1805
Demand and supply do not affect the price of the stock	50	2.88	1.4658	0.2073
Limited no of investor in share market	50	4.48	1.3438	0.1900
The developing stage of share market	50	5.00	0.8330	0.1178

Source:- Field Survey, 2011

Table 4.8 shows, the mean opinion of respondents in regard to the causes of abnormal price fluctuation in Nepalese capital market. Highest mean score and relative low standard deviation with low standard error proves that lack of developed share market is one of the main causes in price fluctuation in Nepalese share market. It identified the few no of competitor in share market has been identified as the second major reason of abnormal price fluctuation. After that investors are not being rational in assessing risk and return is another reason for such price fluctuation. Similarly lack of facilitating institution, stock price is not actual because the companies of share is not actual because organization manipulate their financial statement and share price is not affected by the market are also identified as significant causes respectively. Respondents have almost denied that demand and supply do not affect the price of the stock.

Now, the above descriptive variables are tested through one sample t-test. To test significance difference between the mean variance among the variables, we use one sample t-test in following way.

**Table 4.9**  
**One Sample t-test to Test Significance Difference between Variable**

Variables/Factors	t-value	df	Sig. (2-tailed)	Mean difference	95% confidence level	
					Lower	Upper
Irrational investor	23.233	49	0.000	4.0600	3.7088	4.4112
Companies manipulate their financial stmt.	20.414	49	0.000	3.7600	3.3899	4.1301
Lack of facilitating institution	39.912	49	0.000	4.4400	4.2164	4.6636
Share price affected by the market rate	18.731	49	0.000	3.3800	3.0174	3.7426
Demand and supply do not affect the price of the stock	13.893	49	0.000	2.8800	2.4634	3.2966
Limited no of investor in share market	23.574	49	0.000	4.4800	4.0981	4.8619
The developing stage of share market	42.444	49	0.000	5.0000	4.7633	5.2367

Source:- Field Survey, 2011

According to above test statistics, it is conformed that there is significance difference between variables in each other. The statistics even shows the significance different at 99% level of confidence. Thus it can be concluded that lack of perfect development of Nepalese share market was reported as the most important factor and limited number of investor/competitor in Nepalese share market is reported as the second important factor of share price volatility.

#### 4.2.5 Responsible Agencies for Share Market Inefficiency in Nepal

It is difficult to predict the exact responsible agency for such price fluctuation in Nepalese share market. But many researcher has selected four major responsible agencies in Nepalese share market. They are listed companies, government body, market maker and brokerage firm. Here, questionnaire are distributed to the respondents to fill their opinion about responsible agencies in six point liker type of scale anchored by 1; totally disagreed' to 6; totally agreed. The collected opinion from respondents can be shown in table for descriptive analysis. And can be shown as follows.

**Table 4.10**

**Agencies Responsible for Inefficiency of Nepalese Share Market**

Agencies	No.	Mean	Std. Dev	SE of mean
Brokerage firm	50	4.3400	1.1359	0.1606
Stock exchange board	50	4.3400	1.0616	0.1501
Market maker	50	4.3400	1.0422	0.1474
Listed companies	50	3.7200	1.3099	0.1853

Source:- Field Survey, 2011

According to above descriptive table, the 3 agencies (brokerage firm, government body and market maker) are equally responsible for market inefficiency from the view point of calculated mean. All three agencies have equal mean score of opinion. And the lowest mean score of opinion of listed companies found 3.7200.



After the descriptive analysis, one sample t-test has been computed to find whether there is significance difference between the variables or not. At the 95% confidence level the following calculation has done as following.

**Table 4.11**  
**One- Sample Test of Responsible Agencies in Share Market Inefficiency**

Agencies	t-values	Df	Sig. (2-tailed)	Mean difference	95% conf. level	
					Lower	higher
Brokerage firm	27.018	49	0.000	4.3400	1.0172	4.6628
Stock exchange board	28.908	49	0.000	4.3400	4.0383	4.6417
Market maker	29.447	49	0.000	4.3400	4.0438	4.6362
Listed companies	20.081	49	0.000	3.7200	3.3477	4.0923

Source:- Field Survey, 2011

Table 4.11 clearly showed that all the variables are significantly different among each other at '0.95' level of confidence. Thus, it is clearly evident that listed companies were not found relatively responsible agency in the stock market inefficiency in Nepalese capital market. In general, all the three other agencies such as brokers, government and market makers were found responsible in the present market inefficiency of Nepalese stock market.

#### **4.5.6 Potential Affecting Factors for Market Inefficiency in Nepalese Share Market**

This analysis is focused in finding potential factors that affect for the inefficiency of Nepalese stock market. Researcher has attempted to cover most of the important environmental factors and close factors that are responsible in effectiveness of capital market. Information was collected in ordinal scale and suitable non-parametric Freidman's chi-square test was used to identify the relative importance of the selected

relevant external environmental factors that affect Nepalese capital market. The following table presents the mean rank of all these variables.

**Table 4.12**  
**Ranks of Potential Affecting Factor for Market Inefficiency**

Variables	Mean Rank
1. Adverse economic situation	2.66
2. Small size of capital market	3.38
3. Instable political situation	3.50
4. Not having effective law & policy	3.52
5. Security board is not active and effective	4.00
6. Govt. tax policy in dividend & capital gain	4.98
7. Non-convertibility of capital account for foreign investment	5.96
Friedman test statistics: chi-square 79.954, df=6, significant level 0.01, N=50	

Source:- Field Survey, 2011

Above mean rank clearly shows the adverse economic situation of the country the most relevant affecting force for the inefficiency of Nepalese capital market. It means the poor economic condition and present environment is the one of the external influencing force in Nepalese capital market. Similarly, small size of Nepalese capital market was identified as second important factor and the third one was the instable political environment. Furthermore, the regulatory bodies such, as security board was found inactive and ineffective. Other variables were found less relevant to the issue.

Friedman's chi-square test was calculated to find out the mean differences of the ranking variables. The result showed Friedman chi-square 79.954, df =6, significance level 0.01. It is clearly evident that the chi-square is high and that is significant at '0.01' level of significance in 6 degree of freedom. Thus, it is evident that the low mean score showed

the most preferred and highest mean score showed the least preferred variable among the seven variables.

#### 4.5.7 Correctives Measures for Improving Stock Market Inefficiency

Researcher has designed the questionnaire to identify the potential corrective measures for removing inefficiency that exists in Nepalese stock market. Ordinal scale was used following ranking method so that respondents could rank the important aspects for the corrective measures for improving stock market. Only five aspects were selected to ask the respondents for their ranking so that respondents could assign 1 to the most preferred 2 to the next and so on accordance to their significance. The following table shows mean rank of those corrective measures.

**Table 4.13**  
**Correctives Measures for Improving Stock Market Inefficiency**

Variables	Mean rank
1. actual information to the investor about financial market	2.14
2. monitoring mechanism for determination of stock price	3.04
3. establishing stock pricing bodies/ institutions	3.12
4. stock price should be determined by demand and supply of stock	3.26
5. stock pricing should be based on market interest rate	3.44
Friedman test statistics: chi-square 20.336, df=4, significance level 0.01, N=50	

Source:- Field Survey, 2011

*Note: 1=most important, 2=second important.....7=least preferred in rank*

Respondents rated 'flow of actual information to the investors about the financial market' as one of the most important strategy for the corrective measure of today's market inefficiency. Respondents also specified monitoring mechanism for determination of stock price as the second preferred strategy in this regard. Similarly, third important

issue appeared as establishment of stock pricing institution for the corrective measure in today's market mechanism. Rest two variables were not found very important in respondents' viewpoint.

Hence on the basis of above analysis it can be concluded that stock market inefficiency in Nepalese stock exchange can be removed by improving the factors and giving priority to them according to their significance.

Friedman's chi-square test was computed to find out the significant differences among the ranked variables. The chi-square statistics is high based on the responses collected from 50 respondents. The statistics was found significant at '0.01' level of significance in 6 degree of freedom. Therefore, it can be concluded that following information, better monitoring mechanism and establishing institution for price determination were found the most important corrective measures of Nepalese capital market.

#### **4.6 Major Findings of the Study**

Finding of present analysis are very important for the academicians and researchers. Researchers can design future research to investigate research issues in this regard and practitioners can play appropriate roles in minimizing the artificial price fluctuation in Nepalese capital market.

Following are the major findings have been drawn from the analysis:

- ❖ The secondary data analysis showed, the high price volatility was existing in Nepalese capital market in past few years. It shows high price fluctuation during 2004 to 2008. The entire company's share price was found decreased sharply in the end of year 2009. The share prices of entire companies are high before and after that date.
- ❖ The analysis also shows that the prices of the companies are in decreasing trend at beginning of 2008. After this date prices are in increasing trend from the beginning of January, 2008. Hence analysis shows the high price volatility in Nepalese share market. The high price volatility is observed in case of NABIL bank limited and Unilever Nepal limited. The share price of other listed companies also has significant price fluctuation observed in Nepalese share market.

- ❖ The market return as measured by NEPSE index is negatively skewed and leptokurtic irrespective of the monthly interval of returns. This result is also supported by the return behavior of majority of the enterprises. Further, the Jarque- Bera values are significant for all three intervals of returns for market and individual companies imply the non- normal distribution of returns of returns in stock market of Nepal.
- ❖ The total numbers of actual and expected runs are statistically significant for monthly market return that is not significant implies that future prices in Nepalese stock market cannot be predicted on the basis of historical monthly prices.
- ❖ Low turnover ratio and value- traded ratio to volatility, and high concentration ratio indicate that the stock market in Nepal is highly illiquid and risk. Investors tend to avoid stock market because they cannot invest in securities according to their risk return preference. Similarly firms shun it because stock market is less reliable sources of raising funds for them.
- ❖ The difference in total number of actual and expected runs was statistically insignificant for equity shares implying that their price changes are substantially random. As in case of runs test again supported the random walk hypothesis for the less frequently traded individual stocks.
- ❖ Hence, research findings shows that there is a high price fluctuation in Nepalese capital market. So the entire study attempts to identify the affecting factors and responsible parties in such price volatility in Nepalese capital market.
- ❖ Primary data analysis identified very important findings based on the analysis of information generated from primary survey. In general, high price volatility was observed in Nepalese capital market in past few years and respondents reported responsible causes for such price volatility, responsible institutions in this regard, major environmental factors of artificial price fluctuation, and appropriate measures to solve the problem in this regard.
- ❖ Survey design was based on 50 respondents. Out of them around 75 percent were male and 33.5% were female. More than 62% of the respondents were from the age

30 to 50 years old. And, there were equal number of respondents from five different sectors for the present primary survey design.

- ❖ Lack of developed share market was found as one of the main causes in price fluctuation in Nepalese capital market similarly few numbers of competitors in share market has been identified as the second major reason of abnormal price fluctuation. After that investor are not being rational, lack of such institution that facilitate flowing information and pricing of stock, stock price is not actual because organizations manipulate their financial statement and price of share is not affected by the market are also identified as significant causes respectively.
- ❖ Differences of all the above-described variables were found significant among each other in one sample t-test. The statistics even shows the differences significant at 99% level of confidence. Brokerage firm, stock exchange and market maker were found equally responsible for market inefficiency but the listed companies were found relatively less responsible in this issue. One sample t-test showed the significant differences among the variables.
- ❖ Adverse economic situation of the country was found the most relevant affecting force for the inefficiency of Nepalese capital market. It is the one of the external influencing force in Nepalese capital market. Small size of Nepalese capital market and instable political environmental were identified as other two relevant factors. Similarly the regulatory body such as security board was found inactive and ineffective that was also identified as the fourth affecting factors in Nepalese capital market inefficiency. These identified factors were found significantly different among each other in chi-square test.
- ❖ Few appropriate measures were found from the survey. Flow of actual information to the investors about the financial market' was identified as one of the most important strategy for the corrective measure of today's market inefficiency. Respondents also specified monitoring mechanism for determination of stock price as the second preferred strategy in this regard. Similarly, third important issue was appeared as establishment of stock pricing institution. All the variables were found significantly different in Friedman's chi-square test.

## **CHAPTER-V**

### **SUMMARY, CONSLUSION AND RECOMMENDATIONS**

In this chapter findings and conclusions emanated from the study are presented. The first section of this chapter provides summary of the study. The second section includes the major conclusions drawn from the study. And finally, the third section of this chapter proposes the recommendations.

Present chapter attempt to summarize the major findings of the earlier analyses and results. Researcher also attempts to draw some meaningful conclusions based on those findings. Such conclusion might be very much useful for academicians and practitioners. Based on the summary and conclusion of the study, researcher also attempts to identify some recommendation for the effective action plan to develop Nepalese capital market. Therefore, this analysis is a very important contribution for the development of Nepalese capital market. Issues regarding to summaries, conclusions, and recommendation are discussed in the following sections.

#### **5.1 Summary**

The Nepalese capital market has its beginning with the establishment of the Securities Exchange Center in 1976. It was the first institution established for the purpose of developing the security market in the country. Initially, it was assigned the job for promoting secondary market for the government securities. After the establishment of SEC under company act, institutional development of securities market in Nepal was started.

The function of SEC was very limited on trading government bonds and national certificate only, which had predominately held by Nepal Rastra Bank.

Securities Board of Nepal (SEBON) was established on 26 may 1993 after the first amendment in the securities exchange act 1983 becomes effective. After eighteen years of incorporation, HMG Nepal converted SEC into NEPSE on 16 may 1993, under the programme initiated to develop a competitive and efficient securities market.

Before analyzing the results of tests, the overview of Nepalese stock market was sketched. The present position and performance of stock market in Nepal was analyzed. The Nepalese stock market has not developed remarkably in the economy because of various market imperfections like limited number of buyers and sellers, stringent government policies, negligible development of corporate sector etc. Few years back, stock market has experienced high volatility in prices and turnover volumes. However, the prospect of the securities market in Nepal seems good.

Literature review has covered the related studies. Conceptual review covered the concepts of securities analysis, theories and approaches relating to the securities market. Further, both foreign and Nepalese journals and articles and previous master degree dissertations has been reviewed.

To accomplish the stated objectives, this study employed the descriptive and survey research design. Thirty listed companies in NEPSE were selected as sample among the 177 listed companies in NEPSE which are taken as population.

In this study, descriptive statistical tools like index, standard deviation, mean, kurtosis, skewness, were used to analyze the volatility of the annually prices. Further, this study used SPSS software to work out index, average SD, Jarque Bera and Minitab software for runs test analysis respectively. At the same time, Microsoft Excel application has been frequently used for computations of data and drawing of graphs.

Lack of developed share market was found as one of the main causes in price fluctuation in Nepalese capital market. Similarly few numbers of competitors in share market were also identified as the second major reason of abnormal price fluctuation. Brokerage firms, stock exchange, and market maker were found equally responsible for market inefficiency. Adverse economic situation of the country was found as the most relevant affecting force for the inefficiency of Nepalese capital market. Similarly, small size of Nepalese capital market was identified as second important factor and the third one was the instable political environment.



Respondents rated 'flow of actual information to the investors about the financial market' as one of the most important strategy for the corrective measure of today's market inefficiency. Respondents also specified monitoring mechanism for determination of stock price as the second preferred strategy in this regard.

## **5.2 Conclusion**

In conclusion, at present research is a very important breakthrough in analyses of stock price behavior in Nepalese capital market. It has investigated secondary information and found high price volatility pattern in Nepalese capital market. Further, it has also identified the responsible factors in such price volatility, responsible agencies for price volatility, and some potential measures to minimize such artificial price volatility in Nepalese capital market.

Runs tests results have revealed that there a significant difference between the observed and actual numbers of runs in the series of prices changes. It is obvious that the successive price changes are not random. This implies that the random walk hypothesis does not exist in the Nepalese stock market during the study period. The price changes in the present and future stock market will not be independent from the price changes of past and present respectively.

Volatility of stock price has been observed through the computation of average prices, SD and CV. According to the computed values of SD and CV, the stock of BOK is the most volatile. All the computed values have supported the graphical presentation and conclusions.

Present study was found very successful. Most of the test showed significant and meaningful results. It can be concluded that the findings of the study will be pertinent to both academicians and practitioners. Present research might be a good basis in designing very useful future research. Similarly the facts and results found in the research might be very interesting for interest groups and stockholders of Nepalese capital market.

### **5.3 Recommendations**

Based on the above discussed findings and conclusion present research recommend few major issues to the concerned authority, academicians, and practitioners. It is necessary to make a better information disclosure system in Nepalese capital market. Concerned authority should have better mechanism of supervision and control of artificial price fluctuation in market to prevent such factors. Furthermore security board makes more effective and active control mechanism for healthy practices in Nepalese capital market.

Hence the following major points are recommended to minimize the abnormal price fluctuation in Nepalese share market that directly or indirectly support in the development of Nepalese capital market. Researcher has found lack of develop share market as one of the main causes in abnormal price fluctuation in Nepalese share market. Thus some relevant points to uplift the existing Nepalese share market are recommended as follows.

#### **5.3.1 Regular Monitoring and Evaluation of Stock Market**

The Nepalese stock market (NEPSE, SEBO/N and NRB) should take some effective initiatives to control random fluctuation of MPS and establish the system of regular monitoring and evaluation of stock market, so that investors would be assured on the NEPSE, SEBO/N and NRB.

#### **5.3.2 Publication of Financial Information**

It is recommended that the NEPSE should enforce all the listed member companies to publish latest financial information to general public within a specified timeframe. In the mean time, NEPSE should also publish updated data and information related to the performance of the listed companies and should be made it publicly available.

#### **5.3.3 Adoption of Advance and Effective Regulatory Framework**

Though the establishment of Nepal stock exchange has not been so long, the prevailed regulatory process has not been found effective and satisfactory. The role and responsibility of NEPSE and security exchange board should be clear and effective

towards the monitoring and supervision of the exchange activities. The role of market makers, brokers and other stakeholders should be more effective and their activities

#### **5.3.4 There is Need of Credit Rating Agencies and Investment Banks to Analyze the Companies**

People in Nepal have shown the tendency to run after those companies, which have allocated higher bonus, right share, probably at the cost of future growth and opportunities. People invest their hard money on the basis of rumors and hearsay that are spread in financial market rather than intuitive rational financing thinking. Therefore, there is need of credit rating agencies and investment banks to analyze the companies.

#### **5.3.5 Protect Investor's Interest Effectively**

Government must have to establish a separate body to analyze strengths and weakness of public companies, which should disclose right information and suggestions to public investors about investment risk. This will help the investors to take proper investment decision at the right time to avoid or minimize the level of risk. The NEPSE, SEBO and NRB should be able to protect investor's interest effectively.

#### **5.3.6 Campaign for the Investors Awareness**

For the improvement of Nepalese stock market smoothly, the potential investors should be informed and educated properly about the prevailing rule and regulation of NEPSE. Moreover, they should have accesses to the current affairs of the business as well as relevant financial information of the listed companies. If the investors are aware of the prevailed rules of fair- trading, then they will be able to analyze the market situation and make sell or buy decision after proper risk return analysis of the particular stock. If all the investors are benefited by the stock market transactions then it will have better image and increase the interest amongst investors to invest in the stocks and there will be no chance for unfair trading as well as abnormal price fluctuation.

### **5.3.7 Improvement in Infrastructures**

Nepal stock exchange should improve its infrastructure. Present available in the NEPSE's trading floor are not adequate to make quick and reliable stock transaction. On line information providing system, computer aided transaction facility and computerized dealing therefore; it is advisable to the NEPSE to adopt modern and sophisticated technology like ATM. VISA Card as availed in the developed share market.

### **5.3.8 Effective Supervision and Implementation**

Government should formulate and implement a suitable rules and regulation for further development of share market. A mechanism to take immediate action for the faulty company is to be established.

### **5.3.9 Focus on Investors**

The ultimate objective of any firm is to maximize the wealth position of its investors, which largely depends upon the proper trends of EPS, DPS, BVPS and other dominant variables. This reality should be well imparted to the investors in order to make them rational in the field of investment for which the public companies themselves should frequently launch their well- designed awareness campaigns.

### **5.3.10 Effective Use of Banking System for Share Trading**

Effective and well-established banking system is an essential prerequisite for the successful stock market. As the present banking system seems to be quite sufficient to make clearing of cheques and other financial transactions, the transaction of stocks should be canalized through the banking network so as to make fast service will be materialized in share trading also.

For this effective transaction, NEPSE should make proper initiation with the banks and finance companies for the market creation and cheaper underwriting of shares.

### **5.3.11 Establishment of Regional Stock Exchange**

At present, only NEPSE has only a Kathmandu based office for entire stock exchange activities, which has reverse impact to the outsider investors as well as bank and financial institution established in outside the Kathmandu valley. Thus, it is advisable to the NEPSE to open regional stock exchange in the country to provide and easy excess to all investors and facilitate public transaction. Then after the volume of activities will be strengthened and have positive impact in the development of the Nepalese capital market.

### **5.3.12 Preparation of Sector Index to Minimize Risk**

Till now, NEPSE prepares only market index that is an average of all traded stocks. So that stock market is the lacking position of the sector index like bank, financial companies, insurance companies, hotel industries and other industries. Sector indices help to the potential investors to compare the risk and return inherited with the available stocks and beat the market by proper analysis.

### **5.3.13 Development of New Financial Instruments**

For the expansion of the capital market, different type of instrument should be needed. For this purpose another recommendation is for researchers of academicians. Researchers should attempt to investigate in hidden or unexplored issues using qualitative and behavioral research to identify the most appropriate strategy to develop Nepalese capital market. Similarly, the recommendation to the practitioners is active participation in development of fair market mechanism in Nepalese capital market. Practitioners should not be the agent of rumor and propaganda but they should encourage in making the fair transaction of shares based on company performance and their dividend policy.

### **5.3.14 Recommendation for Future Researcher**

At finally the researcher wants to suggest upcoming researcher who really want to study in this sector could be use more sample size, advanced methodology, large no. of observations, deep research and by including more respondents' opinion for getting the good result about stock market in Nepal form the study.

## BIBLIOGRAPHY

- Abeyssekera, S.P. (2001), 'Efficient market hypothesis and the emerging capital market in Sri Lanka: evidence from the Colombo Stock Exchange-A Note'. *Journal of Business, Finance and Accounting*, 28, 249-261.
- Adhikari, Manju., (2004), *A Study Entitled 'Stock Price Volatility And Its Degree* Thesis, Central Department of Management, T.U.
- Alexander, S., (1961), Price movements in speculative markets: trends or random walks, *Industrial management review*, 7-26.
- Aryal, Mukti., (1995), *A Study on General Behavior of Stock Market Price*. An Unpublished Master Degree Thesis, Central Department of Management T.U.
- Brealy, R. & Myers, S., (1991). *Principals of Corporate Finance*, New Delhi: McGraw Hill Publishing Company.
- Campbell, J. J., Lettau, B. Malkiel, and Y. Xu. (Jan/Feb, 2001) Have Individual Stocks Become More Volatile? An Empirical Exploration of Idiosyncratic Risk. *Journal of Finance*, 56, , pp.30.
- Frino Alex' Lecce Steven and Segara Reuben, (2011), 'The impact of trading halts on liquidity and price volatility: Evidence from the Australian Stock Exchange:' *Pacific Basin Finance Journal* Volume 19, Issue 3, June 2011, Pages 298-307
- Gahlot Ruchika & Datta K. Saroj. (2011), 'Impact of Future Trading on Efficiency and Volatility of the Indian Stock Market: A Case of CNX 100', *Journal of Transnational Management*. Volume 16, Issue 1, Pages 43 - 57
- Gitman, L.j (1994). *Principles of Managerial Finance*, New York: Horper and Row Publishers.

- Gupta, S. C. (2000). *Fundamental of Statistics*, New Delhi: Himalayan Publishing House Private Limited.
- Haugen, Roberta (1997). *Modern Investment Theory*, Prentice Hall, Fourth Edition
- Horne, James C. Van (1988), *Financial Management and Policy*, (7<sup>th</sup> Edition), N.J.: Prentice-Hall.
- Kishor, C. Samal. (1999). 'Do Emerging Stock Market Affect Economic Growth Through Creation Liquidity? The case of India:' *Asian Economic Review*, V. 41 Issue. 3 476-484
- Kothari, C. R. (1990). *Research Methodology: Method and Techniques*. New Delhi: Wiley Eastern Limited.
- NEPSE (15 April- 13 June 2008). *NEPSE News Letter*, Issue 2.
- NEPSE (March/April, 2008). *Monthly Market Statistics and Review*, Volume 1,
- Pandey, I. M. (1979), *Financial Management*, New Delhi: Vikas Publishing House Private Limited.
- Pant, P. R. & Wolff, H. K. (2000). *A Handbook for Social Science Research and Thesis Writing*, Kathmandu: Buddha Academic Enterprises Private Limited.
- Pradhan Radhesham, (2011), 'Efficient market hypothesis and behavior of share prices: the Nepalese evidence': *Journal of SEBON*, volume-4, 104-107.
- Raya, Rajendra (2007). *Behaviour of Secondary Market in Nepal*, An Unpublished Master Degree Thesis, Shanker Dev Campus, T.U.
- Shrestha, Surya Chandra. (1999). A Study on Stock Price Behavior in Nepal, An Unpublished Master Degree Thesis, Public Youth Campus. T.U.

*ldmahat@mos.com.np*

*SPSS 19*

*Wikipedia, the free encyclopedia*

*www.blackwellsynergy.com*

*www.emeraldinsight.com*

*www.nepalstock.com*

*www.nepalstock.com/nepalstock*

*www.search.epnet.com*

*www.sobonp.com*



## **APPENDICES**

### **Appendix-I**

#### **Functions, Duties and Powers of SEBON**

The functions, duties and powers of SEBON as per the Act are as follows.

- ) To offer advice to Government on matters connected with the development of the capital market.
- ) To register the securities of corporate bodies established with the authority to make a public issue of its securities.
- ) To regulate and systematize the issue, transfer, sale and exchange of registered securities.
- ) To give permission to operate a stock exchange to any corporate body desirous of doing so, subject to this Act or the rules and bye-rules framed under this Act.
- ) To supervise and monitor the functions and activities of stock exchange.
- ) To inspect whether or not any stock exchange is executing its functions and activities in accordance with this Act or the rules and bye-rules framed under this Act, and to suspend or cancel the license of any stock exchange which is not found to be doing so.
- ) To issue licenses to conduct the business of dealing in securities, subject to this Act, or the rules and the bye-rules framed under this Act, to companies or institutions desirous of conducting the business of dealing in securities.
- ) To supervise and monitor the functions and activities of securities-dealers.
- ) To grant permission to operate collective investment schemes and investment fund programs, and to supervise and monitor them.
- ) To approve the bye-rules concerning transactions in securities framed by stock exchanges and institutions engaged in the business of dealing in securities, and, for the purpose of making necessary provisions concerning the development of the capital market and protecting the interests of investors investing in securities, issue orders to have necessary alterations made in such bye-rules of stock exchange and institutions engaged in the business of dealing in securities.
- ) To systematize the task of clearing accounts related to transactions in securities.

- ) To supervise whether or not security dealers are behaving in the manner prescribed in this Act, or the rules and the bye-rules framed under this Act, while conducting business of dealing in securities, and suspend the license to conduct the business of dealing in securities in case any securities dealer is not found to be behaving accordingly.
- ) To make or ensure necessary arrangements to regulate the volume of securities transacted and the procedure of conducting such transactions in order to ensure the promotion, development and clean operation of stock exchanges.
- ) To make necessary arrangements to prevent insider trading or any other offenses relating to transactions in securities in order to protect the interest of investors in securities.
- ) To review or make arrangement for reviewing the financial statements submitted by the corporate bodies issuing securities and security dealers, and issue directives deemed necessary in that connection to the concerned corporate body.
- ) To systematize and make transparent the act of acquiring the ownership of a company or gaining control over its management by purchasing its shares in a single lot or in different lots.
- ) To establish coordination and exchange cooperation with the appropriate agencies in order to supervise and regulate matters concerning securities or companies.

To discharge or make arrangements for discharging such other functions as are necessary for the development of securities and the capital market. ([www.sebon.com.np](http://www.sebon.com.np))

**ANNEX-2:**  
**QUESTIONNAIRE**

July 25, 2011

Dear respondents,

The undersigned encloses herewith the questionnaire prepared for the research work for the partial fulfillment of the requirement for the MBS (masters of business students) degree. You the respondents are cordially requested to complete the each questionnaire after duly filled up. The views collected from you will only be used for the purpose of this study. I heartily request to you to complete the questionnaire without any biasness. Your valuable cooperation will be contributing a lot for all concerned parties of Nepalese share market and this research as well.

Yours truly,

.....

D.D. Pathak

(Researcher)

1. Please give your opinion in regard to the following question of causes that have significance contribution for abnormal price fluctuation in Nepalese share market.

<b>Causes</b>	<b>Strongly disagree</b> 1	<b>Disagree</b> 2	<b>Slightly disagree</b> 3	<b>Slightly agree</b> 4	<b>Agreed</b> 5	<b>Strongly agreed</b> 6
Irrational investor						
Companies manipulate their financial stmt.						
Lack of facilitating institution						
Share price affected by the market rate						
Demand and supply do not affect the price of the stock						
Limited no of investor in share market						
The developing stage of share market						

2. What you think about the responsible agencies for making market inefficiency in Nepalese stock market?

<b>Agencies</b>	Strongly disagree 1	Disagree 2	Slightly disagree 3	Slightly agree 4	Agreed 5	Strongly agreed 6
1. Brokerage Firm						
2. Government Body						
3. Market Maker						
4. Listed						

3. What you think about potential affecting factors for Nepalese stock market inefficiency. Rank them in accordance to their significance. Please allocate 1 to the most preferred, 2 to the next and so on.

) Adverse Economic Situation

) Instable Political Situation

) Non-Convertibility of capital account for foreign investment

) Tax policy of the government imposing tax in dividend & capital gain

) Stock exchange board is not active and effective

) Not having effective law & policy

) Small size of capital market

4. What do u think about the improving factors to remove such inefficiency in Nepalese stock market. Please give the priority by allocating 1 to the most preferred, 2 to the next and so on.

a. by flowing of actual information to the investor about financial market/ companies.

b. By establishing stock pricing bodies/ institution.

c. Stock pricing should e based on market interest rate.

d. Stock price should be determined by demand & supply of stocks.

e. By enhancing strong monitoring & controlling mechanism for determination of stock price.

**Profession of the Respondent** :

**Gender of Respondent** :

**Age of the Respondent** :