CHAPTER - I
INTRODUCTION

1.1 Background of the Study

Stock market is a sensitive place and is influenced by multiple factors. Therefore, forecast about future movement has become global phenomena and a basic concern of financial and economic condition of a nation. Stock market index is perceived as an indicator of investors' confidence to invest in stocks, which obviously, represents economic status of the nation. As capital market is the crucial element in the national economy, its role in reinvigorating and boosting the economic activities in the country holds significance. It helps to mobilize domestic resources. Its role to provide the best investment opportunity by transferring the funds from surplus sectors to deficit sectors through transaction of stocks cannot be ignored. Hence, for the attainment of self-reliant growth of national economy and smooth running of the economic activities of the nation, stock market's role has become major importance in financial management.

A number of studies have been conducted on the Stock Market Behavior in developed and big capital markets but their relevance is yet to be seen in the context of smaller and under developed capital markets. The Stock Market Behavior in smaller and under-developed capital markets is thus one of the most important areas of the study in finance (Pradhan, 1993).

The Nepalese stock market is characterized by a low trading volume, absence of professional brokers, early stage of growth, limited movement of share prices, and limited information available to the investors. Thus it is felt necessary to study stock market behavior in the context of smaller and under-developed capital markets, and this study prepared with reference to commercial banks listed in Nepal Stock Exchange Limited (NEPSE) is a small attempt.

The act of raising fund by issuing shares to the public in Nepal started in 1937.Though the development of securities markets could not be a national policy, Nepal led to institutional development of securities markets with the establishment of

Security Exchange Centre (SEC) in 1976.The SEC used to manage and operate primary and secondary markets of long-term government securities and corporate securities. After some years of establishment, policies and programs were made to develop and promote Stock Exchange and market makers.

With the objectives of regulating securities transactions and protecting interest of the investors, a Security Exchange Act was enacted in 1993. The act provided some legal and institutional basis for the securities markets development. The SEC was converted into the Nepal Stock Exchange Ltd (NEPSE) in 1993 with the objectives of operating and managing secondary transaction of securities. After this conversion the open cry out system of trading among the stockbrokers started. It means transaction of the securities is conducted an open auction principle on the trading floor. The establishment of the specialized firm as NEPSE proved to be a strong step towards liberalization of the economy and a milestone in the path of the economic development in the nation.

Under the provision of securities exchange act 1983A.D, Securities Board Nepal (SEBO/N) was established in May 26, 1993 A.D. to regulate and manage the securities market. Since the establishment, SEBO/N has been concentrating its effect to improve the legal and statutory framework, which one the banes for the healthy development of capital market. The amendment of that same act was made in 1997. This amendment made provisions for registering securities businessperson and submitting semi and annual report to SEBO/N. It is the apex regulator of the securities markets in Nepal. It provides licenses to Stock Exchange and Securities business persons (stockbrokers, securities dealers, market makers, and issue managers) it approves public securities. NEPSE is the market operator and it provides membership to the securities businesspersons. Listed companies and the securities businesspersons report their performance to SEBON and NEPSE.

The securities market plays an important role in mobilizing savings and channeling them into productive investment for the development of commerce and industry in the country. It assists the capital formation and economic growth in the country. But, the Nepalese securities market still is in growing stage. Its further development is crucial.

History indicates that there are two basic theories of stock price behavior: the technical analysis theory and fundamental analysis theory. Briefly, the technical analysts believe that the forces of supply and demand are reflected in the patterns of price and volume of trading while fundamental analysts do that economic environment and earning power are reflected in the pattern of market prices (Fischer and Jordan 2000). Whereas the fundamentalists predict the stock price behavior by analyzing earning power and the economic environment in the risk-return framework. The fundamentalists believe that at any point in time, every share has an intrinsic value which should be in principle be equal to the present value of the future stream of income from that share discounted at an appropriate risk related rate of interest (Bhalla 1999). Thus, the actual price of the security is considered a function of a set of anticipated capitalization rate.The present study represents an effort to improve on shortcommings of the past studies in the hope that the "Behavior of Stock price" can easily be understood.

1.2 Statement of the Problem

The technical analysis theory assumes that the historical behavior of a security is rich in information and that can be used to predict future behavior (Fama, 1965). Technical analysis uses most of the anomalies to extract information on future price movements from historical data. The theory of Random Walk Hypothesis (RWH) or Weak Efficient Market Hypothesis (EMH) attempts to analyze statistically underlying share price behavior. This study is concerned mainly with above mentioned theory, which is the most illustrious hypothesis in the field of share price behavior. The Efficient Market Hypothesis (EMH) states that three forms of stock market prevails in theory,

- **Weak**

The weak form of efficient market hypothesis states that the current share prices fully reflect the information contained in the past price movements. The stock price will fluctuate less and more randomly. Weak efficiency market are markets in which past prices provide no information about future prices that would allow a short-term trader to buy and hold strategy.

) Semi-strong

The semi-strong form of efficient market hypothesis states that current market price also reflects all the publicly available information besides all price movements.

) Strong

The strong form of efficient market hypothesis states that current market prices reflect all the relevant information in security prices. The market price reflects the true or intrinsic value of the share based on underlying future cash flow and no one can beat such market.

So, the form of the markets are determined on the basis of how publicly available information is reflected in the market price of share.

Some analysts doubt the concept of stock market efficiency in developing countries due to some reasons. These are;(a)difficulty in detecting and discriminating among investment opportunities,(b) investment performance is given to physical assets rather than to financial assets, and (c)A dichotomy exists in the financial activities between organized and unorganized money markets etc (Sharma and Kennedy,1977).There is no unanimous finding as regards the effect of capital structure on stock price behavior. Different studies have come up with different findings. Some of the issues are pointed below:

) Irrational or Inefficient Behavior of Investors

Some economists, for example Eugene Fama, argue that most of these patterns occur accidentally, rather than as a result of irrational or inefficient behavior of investors: the huge amount of data available to researchers for analysis allegedly causes the fluctuations.

) Lacks to Reflect the Real Worth of Securities

The another theory, Fundamental analysis, in essence, which attempts to estimate the intrinsic value of the security by considering key economic and financial variables and then decide whether the actual price of share is above or under the intrinsic value. Both the theories are included in conventional security analysis theory. Their view about the stock market has been that the prices generally fall to reflect the real worth of securities.

⟩ Provides More challenges to the Investors

The theory of efficient market in stock-market prices presents important challenges to both the technical analysis and the proponent of the fundamental analysis. For the chartist (technical analysis) the challenge is straight forward. If the efficient market theory is valid description reality, the work of the chartists, like that of the astrologer, is of no real value in the stock market analysis. The empirical evidence to data provides strong support for the efficient market theory. The only way the chartists can indicate his position is to show that he can consistently use his techniques to make better-than-chance predictions of stock prices.

The challenges of the theory of efficient market to the proponent of fundamental analysis, however, are more involved. If the efficient market theory is valid and if the security exchanges are "efficient" markets then the stock prices at any point in time will represent good estimates of intrinsic or fundamental values. Thus, additional fundamental analysis is of value is only when the analyst has new information, which was not fully considered in forming current market prices, or has new insights concerning the effects of generally available information, he may as well forget about the fundamental analysis and choose securitied by some random selection procedure.

In essence, the RWH implies that the past price changes cannot be used to predict future prices. The RWH in share price has no use in predicting its future price movements. Furthermore, the EMH theory cannot be tested directly.

⟩ Conflict in Dependency in the Theories

The weak form of EMH or RWH theory is just opposite with the technical analysis theory. While RWH says that successive price changes are independent, the technical analysis supports that they are dependent. Likewise, the fundamental analysis theory holds that the value of share is simply the present value of all the future income which the owner of the share will receive (Francis,1991). In an uncertain world, however the intrinsic value of a security cannot be determined exactly. The basic ideas behind the RWH are the successive price changes are uncorrelated over the time and its actual price moves randomly about its intrinsic value.

) Lack of Appropriate Policy for Development of Nepalese Stock Market

Nepalese stock market is in early stage of development, and the problem of the Nepalese Stock Market have not been diagnosed and identified. The policy makers are unable to make the appropriate policy for the development of the stock market.

) Harmful effect due to Stock Price Hike and More Liquidity in the Secondary Market

The stock prices and the liquidity in the stock market increased sharply after the introduction of semi-modern (open-out-cry) system of trading and conversion of the SEC into the NEPSE. It attracts the general public to invest their savings in the stocks, which caused the stock prices to raise firther. The stock price hike and the more liquidity in the secondary market have left positive and immediate impact on the capital mobilization in the economy and the equillibrium of the supply of and demand for funds from the general public is set at lower level than the previous level which is one of the most harmful signals to the stock market and the economy as a whole.

) Immature Stage of Stock Market

Since, the stock market in Nepal is the most sufferer problems and is operating in an immature stage. This market has inseperable part of the liberal economy; existing economic imbalances, political instability and ineffective implementation of the liberal economic policy and political crisis are the major problems that have severe impact in the economy. However, there has been continous increased to the number of listed companies. The stock of the financial institutions play crucial role to extend the growth rate of economic development of the nation.

) Defeciency in the Profitability and Good Governance

The major causes of the deficiencies in Nepalese stock market appeared to be the profitability and the good governance of the company, government policy regarding investment, market operation system, investors' knowledge information disclosures and inefficiency of the market. Despite these facts, market makers involved in the securities market are unable to exhibit the well performance according to the expectations of the investors. It is very difficult to examine all these avenues of the stock market.

Thus, this study is carried out to analyze the market share prices of Nepalese Stock market in relation to banking sector and to recommend for the improvement. To sum up, the study deals with the following issues:

- What is the stock price behavior of commercial banks in Nepal?
- What is the behavior of commercial bank index and NEPSE index?
- Is the Nepalese stock market efficient in pricing shares?

1.3 Objectives of the Study

Within the periphery of the stated problem of the study, the broad objective of the study is to analyze and assess the behavior of stock prices of the sampled commercial banks operating in the present context of the country. It tests the hypothesis of the share price movements. However, the specific objectives of the study are as follows:

- To analyze the stock price behavior of the commercial banks operating in the present context of Nepal.
- To analyze the behavior of those commercial banks index and NEPSE index.
- To determine whether the present Nepalese stock market is efficient in pricing shares.
- To outline the possible implications and also to recommend for the betterment of stock market.

1.4 Significance of the Study

The main reason behind this study is to analyze the stock price behavior of commercial banks in Nepal. This study will benefit the prospective investors to gain the information regarding the stocks of commercial banks and to make the better investment decisions. As well as the investors can gain the information about the position of Nepalese stock market during the study period. Besides, this study will contribute to the concerned authorities and the market makers. Further, it will add little worth to those who wants to conduct a research work in related topic.

1.5 Limitation of the Study

For the MBS program this study represents the partial fulfillment and this research has been conducted and submitted within a time constraint, this study will be limited by the following factors:

- The data problem is acute in Nepal. Even the financial statements of listed companies published by Nepal Stock Exchange are not readily available since they are treated as confidential.
- Since the data covers only a certain period, the findings may not be a complete picture of the Nepalese stock market.
- The other limitations are time constraints, resource constraints, and lack of research experience.
- The regression equations are based on only five years data whereas the various tests are done on the basis of daily stock price from July 16 2006 to July 16 2007.
- The major portions of analysis and interpretation have been done on the basis of the available data and information. So the consistency of finding and conclusion is strictly dependent upon the reliability of secondary data and information.
- This study is done for the partial fulfillment for MBS degree in management. So, it is not a comprehensive study.
- The data has been collected from NEPSE for its official records and the data are not verified.

1.6 Organization of the Study

Entire thesis has been organized into five parts, each devoted to some aspects of the study of stock price behavior. The titles of each part are as follows:

Chapter -I: Introduction
Chapter –II: Review of Literature
Chapter- III: Research Methodology
Chapter- IV: Data presentation and Empirical Analysis
Chapter-V: Summary, Conclusion and Recommendations.

The rationale behind this kind of organization is to follow a simple research methodology approach. The content of each part of this study are briefly mentioned here.

The first chapter introduction describes background of the study, statement of the problem, the major issues to be investigated along with the objectives and scope of the study, limitation of the study and ends with the organization of the study.

The second chapter is devoted to theoretical analysis and brief review of related literature. It tries to define the concept of security market, and conceptual theories of stock price behavior. This chapter also reviews the literature from foreign context, as well as the Nepalese context, highlighting the major contributions of different studies like international journals, Masters Dissertations and Nepalese journals.

The third chapter, Research Methodology, is the most important part to the study which discusses the methodologies used in the study. It deals with research design, sources and nature of data, sampling and population, test model and method of analysis as test methodology and definition of key terms.

The fourth chapter, Data presentation and empirical analysis present the graphical and statistical analysis of stock behavior includes analysis of NEPSE and commercial Banks indices behavior and at the end of this chapter

The last chapter of the study states summary and conclusion, findings, suggestion and recommendation. It includes summary of the study, findings, conclusion drawn from the findings and the recommendation to the concerned authorities, companies, investors and forthcoming researches for improving the future performance of the sample banks. Finally, an extensive, bibliography and appendices are also presented at the end of the thesis work.

CHAPTER - II

CONCEPTUAL FRAMEWORK AND REVIEW OF LITERATURE

In this chapter, reviews have been made on some of the basic literatures on share price behavior concerning theories including review of empirical evidence of previous studies done within and outside the country. This chapter will not attempt to develop such theories but will make efforts to lay down certain decision rules that can be of some value in assessing the stock price behavior. This chapter is divided into two sub headings: conceptual review and research review. Conceptual review covers the concept of basic terms and various theories used in the study and research review includes the reviews of international journals, Masters Dissertation and Nepalese journals.

2.1 Conceptual Review

This part covers the theoretical concept of securities, securities market with its classification and security analysis or the theories of share price behavior. It concludes with the explanation of Nepalese securities market as well as the foreign context and its classification.

2.1.1 Concept of Securities

Securities are the financial assets that form the part of the investors' wealth. They are the marketable interests represented by the certificate as a financial value. They include shares of corporate stock or mutual funds, bond issued by the corporations or governmental agencies, stock options or other options, other derivative securities, limited partnership units and various other formal investment instruments.

A corporation may conveniently issue each class of securities in the market. There is a class of investors for each class of securities because of their varying preferences of risk, income and control. There are various class of buyers such as the stock holders, employers, customers and creditors of the corporation and traders in the capital market (Kulkarni, 1992). The largest number of security buyers is that o individual investors who seek safety on their commitment and reasonable certainty of a moderate but regular income. The speculator seeks large profits, even though considerable risk may be involve in it.

When someone borrows money from a pawnbroker, the borrower must leave some item of value as a security. If the borrower fails to repay the loan (plus interest), the pawnbroker can sell the pawned item to recover the amount of the loan (plus interest) and perhaps make the profit. The terms of the agreements are recorded on pawn tickets. When a college student borrows money to buy a car, the lenders usually holds formal title to the car until the loan is repaid. In the event of default, the lender can repossess the car, and sell it to recover the costs. In this case, the official certificate of title, issued by the state, serves as the security for the loan. A person who borrows money for a vacation may sign a piece of paper promising repayment with interest.

The loan is unsecured in the sense that there is no collateral, meaning that no specific assets have been promised to the lender in the event of default. In such a situation, the lender would have to take the borrower to court to try to recover the amount of the loan. Only a piece of paper called a promissory note stands as evidence of such a loan. When a firm borrows money, it may or may not offer collateral. Some loans may be secured with specific pieces of property (building or equipment). Such loans are recorded by means of mortgage bonds, which indicate the terms of repayment and the particular assets pledged to the lender in the event of default. However, it is much more common for a corporation to simply pledge all of its assets, perhaps which some provision for the manner in which the division will take place in the event of default. Such a promise is known as a debenture bond.

Finally a firm may promise a right to share in its profits in return for an investor's fund. Nothing is pledged and no irrevocable promises are made the firm simply pledge whatever its directors deem reasonable from time to time. However, the investors are given the right to participate in the determination of who will be the member of the board of directors. This right protects the investors against serious malfeasance. A share of common stock, which can be sold to someone else, who will then be able to exercise that right, represents the investors' property right. The holder of common stock is said to be the owner of the corporation and can exercise the control over its operations through the board of directors.

In general, only a piece of paper represents the investors' right to certain prospects or property and the conditions under which she/he may exercise those rights. This piece

of paper, saving on evidence of property rights is called the security. It may be transferred to other investors and with it will go all its rights and conditions. Thus, everything from pawn ticket to a share of common stock is the security. Hence, the term of security can be understood as a legal representation of the right to receive prospective future benefits under conditions. The primary tasks of security analysis is to identify misplaced securities by determining these prospective future benefits, the conditions under which they will be received and the likelihood of such conditions (Francis, 2002).

Briefly, securities are the intangible assets, represented by legal claims to some future benefits or future cash. They give the holder an ownership interest in the assets of the company as well these have value in exchange. Securities are the term used interchangeably as financial assets or financial instruments.

2.1.2 Security Market

Security market is a broad term embracing a number of markets in which securities are bought and sold. The securities traded in the securities market are share, bonds, debentures, bills, notes etc. therefore, security market is a mechanism for raising required funds by selling and buying these securities. The development of the securities market enables the efficient transformation of savings from the hand of surplus spending units to those of deficit spending ones who can use them productively with lesser risk.

The growth of the US economy has been due in large part to the strength and efficiency of its security markets (Cheney and Moses, 64). The importance of an efficient broadly based security market for a country's economy is demonstrated by the fact that one of the top priorities of emerging eastern European countries is the establishment of security markets. In converting from centrally planned economy to a market based system, the eastern European countries are establishing an environment in which business can operate. This includes, creating a new framework of commercial law, setting up autonomous and decentralized system of wholesale and retail distribution, establishing a banking system and providing sources of debt and equity capital for business through efficiently operated security market.

Security market interchangeably known as the integral part of the capital market is in fact basis of the economy. The most effective use o idle and surplus resources can be brought into pro-active purpose only by means of market mechanism. This indicates the structural network of the savers and user group of funds presumably garnered for the long term financing but the formation of network originates via conversion process of saving into investment outlet. Thus the security market upholds the attempts particularly concerned with the collection and mobilization of savings. Saving meticulously diverted towards the regeneration activities, in essence of financialization and industrialization activities will result in the repercussion favorable to the economy as a whole (Khatiwada, 1998).

The security market can be defined as a mechanism for bringing together buyer and seller of financial assets to facilitate trading. Security market is classified into two: the market in which new securities are sold is called the primary market and the market in which the securities are resold is called secondary market. Brokers, dealers, and market makers create secondary market. Brokers bring buyer and seller together without themselves actually buying and selling does not take place; dealer sets price at which they themselves are ready to buy and sell (bid and ask price respectively). Broker and dealer come together in organized market of in stock exchange (Gitman 1994).

New York, London, Tokyo contain the largest securities market in the world-all are about equal in size (Francis, 2002). Trading goes on 24 hours in a day. Each market conducts trading differently, So that the securities market should be viewed as components of a global market.

Securities market can be classified by the maturity of the securities that are traded in the market and by the new securities being sold or already issued securities are being brought and sold. New issues are made in the primary market whereas securities owned by the investors are usually bought and sold through the secondary market.

丿 Primary Market

The primary market is that part of securities market that deals with the issuance of new securities. Companies, governments or public sector institutions can obtain

funding through the sale of new stock or bond issue. The issue of new securities is commonly known as an Initial Public Offering (IPO). Issuers usually retain investment banks to assist them in finding buyers for these issues, and in many cases, to buy any remaining interests themselves. This arrangement is known as underwriting.

The issuance of securities in the primary market leads to direct transfer of money from the savers to the issuer of the securities. Thus, the primary market transfers the fund from savers to investors to make the capital available for the investment in building, equipment, and stock of necessary goods (Shrestha, 2004).

) Secondary Market

After the securities have been purchased in the primary market, they can be traded in the secondary market. The secondary market is an organized market to enable buyers and sellers to effect their transaction more quickly and cheaply. It is therefore important that the secondary market do not go to the original issuer but to the owner (sellers) of the securities. Once the investors have purchased the securities in the primary markets, they need to sell those securities. Without the liquidity of the secondary market, firms would have difficulty in raising funds for productive purposes in the primary market (Cheney and Moses, 10th edition).

As the stock exchange typically deals in existing securities rather than in new issues, its economic significance may be misunderstood. Because an increase in volume of securities trading in the stock market does not represent an increase in the economy's aggregate saving, every purchase of an existing security being exactly offset by the sale of the security. The availability of an efficient secondary market for securities is one of the more important factors including investors to acquire new issues of securities. The basic economic function is to provide marketability for long-term investments, thereby reducing the personal risk incurred by investors, broadening the supply of equity and long-term debt capital for the financing of business enterprise. Thus, the secondary market is vital to an efficient and modern securities market (Bhalla, 1993).

2.1.3 Growth of Nepalese Security Markets

Security means shares, bonds, stocks, debentures or government's debts securities, nation saving certificates, treasury bills etc, which are issued by industrial organizations or organized institutions. Hence, security market refers to that market where buyers and sellers meet at a stated place.

The history of capital market in Nepal is very new. The concept of capital market was developed in 1976 by the establishment of Security Exchange Center (SEC). The number of listed companies and their trading was very negligible until the His Majesty Government (HMG) of Nepal has made economic reforms along with broad financial policy in 1993. The SEC is only the organization that is responsible for selling and buying securities in Nepal. It was established with the objectives of facilitating and promoting the growth of capital markets in Nepal. It was the only capital markets institutions undertaking the job of brokering, underwriting, managing public issue, market making for government bonds and other financial services. So it was both primary and secondary market as well.

The remarkable changes came only after the initiation to reform of the market in 1993, when SEC was converted into the Nepal Stock Exchange Ltd. (NEPSE) and new market mechanism was introduced providing membership to market intermediaries and allowed to participate in the transaction of securities. Then the government established Securities Board of Nepal (SEBO/N) as an apex regulatory body under the security exchange act, 1983 (second amendment) to regulate and monitor both the markets in 1997. The act has authorized to SEBO/N to supervise, regulate and monitor the activities of the NEPSE and other companies related to securities business.

The history of securities market began with the floatation of shares by Biratnagar Jute Mills Ltd. and Nepal Bank Ltd. in 1937. Introduction of the Company Act in 1964, the first issuance of Government Bond in 1964 and the establishment of Securities Exchange Center Ltd. in 1976 were other significant development relating to capital markets.

The basic objective of NEPSE is to impart free marketability and liquidity to the government and the corporate securities by facilitating transactions in its trading floor through members, market intermediaries, such as brokers, market makers etc. NEPSE opened its trading floor on 13th January 1994. NEPSE the only Stock Exchange in Nepal introduced fully automated screen based trading since 24th 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. The growth pattern of Nepalese Securities for the last five years is shown in table 2.1.

Table 2.1

Growth Pattern of Nepalese Securities Market from 2002/03 to 2006/07

(Rs in Million)

Year	Number. of listed companies	Number of public issue	Amount Issued (Rs)	Paid up value (Rs)	Annual turnover	Market capitalization	NEPSE index
2002/03	108	18	556.5	12560.1	575.8	35240.4	204.86
2003/04	114	14	1027.5	13404.9	2144.3	41424.3	222.04
2004/05	125	14	1626.8	16771.9	4507.7	61365.9	286.67
2005/06	135	29	2443.3	19958.0	3415.4	96763.7	386.83
2006/07	135	34	2295.5	21799.0	8360.1	186301.3	683.95

Sources: SEBO/N Annual report 2006/2007

Table 2.1 shows the growth pattern of Nepalese stock market. The total market scenario can be learned from the above table regarding the number of listed companies, number of public issue and so on.

2.1.4 Role of Stock Exchange

Stock exchange is the market where second hand securities are bought and sold for investment or speculative purposes. It provides facilities for trading in listed securities. In recent years the role of stock exchange is being increasingly recognized by the authorities (Mahat, 1981). Stock exchange as the market for securities gives everybody access to a number of different opportunities for as many buyers and

sellers of securities as possible. From a general economic point of view, the stock exchange constitutes the core of capital market.

Investment is the lifeblood of economic development. It is evident that stock exchange will continue to fulfill their vital function in the national economy. So long as private enterprise exists, we know that the stock exchange is the place where stock and shares are bought and sold.

The substantial competition in innumerable buyers and sellers determines the prices with a measure of precision that cannot be obtained in other unorganized market to such as the property market to such as the property market where activity are of spasmodic nature. Investors want liquidity, the facility to convert their investment into cash at any given time. The answer was a market for investments and thus was how the stock exchange cares into being.

Thus institution plays a notable role in the economic life of the country acting a free market for securities, where price are determined by the forces of supply and demand. The function of stock exchange is not only to provide a market for securities but also in raising of funds for government and industry. Thus, a free and active market in stock and share has become a prerequisite for the mobilization and distribution of the nations saving as to support modern business (Mahat, 1981).

In this way, we can say that stock exchange have a vital role to play in helping industries to raise necessary finance. They have a supremacy function to perform in developing a stock capital and to enable government to raise loans. Their services are indispensable in the operation by the authority for the regulation of the country's credit play. It is generally thought that a stock exchange serves only those who have money to invest and securities to sell. This is an understatement for a stock exchange, which benefits the whole community in many ways. By enabling producers to raise capacity it indirectly gives employment to the millions of people and helps consumers to get goods needed by them.

2.1.5 Theories of Share Price Behavior

There are numerous reasons that cause the share price movements. Mainly they are economic and non-economic factors. The price of securities is typically very sensitive, responsive to all events, both real and imagined, that cast light into the murky future (Cootner, 1962). Although all factors give rise to observed movement of share prices, it would be very hard to find a completely accepted price formation theory. Before describing the Efficient Market Theory, it would be proper to explain the first two conventional theories, viz; Technical Analysis Theory and Fundamental Analysis Theory.

- **Technical Analysis Theory**

The word technical implies a study of the market itself and not of those external factors, which are reflected in the market. In simple term, "Technical Analysis" is a general term for a number of investigating techniques that attempt to forecast securities prices by studying past prices and related statistics. Charles Dow is the greatest protagonist of this theory. The technicians usually attempt to predict the term price movements and thus make recommendation concerning the timing of purchase and sales of either specific stock or group of stocks in general. However a large part of the methodology of technical analysis lacks a strictly logical explanation. Technical analysis is useful for timing a buy or sells order. Investors put off the buy a share if technicians predict that stock prices are further dropping in future. Conversely, investors postpone the selling order if technicians predict that prices further are increasing in near future.

- **Fundamental Analysis Theory**

Fundamental analysis approach involves working to analyze different factors such as economic influences, industry factors, governmental action, firms financial statement, its competitors and pertinent company information like product demand, earnings, dividends in order to calculate an intrinsic value for firms securities. The analysts who believe on fundamental facts to determine intrinsic value of the stock is popularly known as fundamentalist.

Fundamentalist forecast stock price on the basis of economic industry and company statistic. The principal decision variables ultimately take form of earning and value with a risk-returns framework based upon earning power and the economic environment. Fundamental analysts delve into company's earnings, their management, economic outlook, firm's competitors, market condition and many other factors (Francis, 1991).

The objective of fundamentalist is to appraise the intrinsic value of a security. The fundamentalist maintain that any point of time every stock has an intrinsic value (true economic work of financial assets) which should in principle be equal to the present value of the future stream of income from the stock discounted at an appropriated risk related to the rate of interest.

The study of fundamentalist involves examining its sales earnings, profit margins, dividends, management proficiency, industrial and business outlook, labor competence any factor that would have a bearing on its performance in its future. On the basis of such study, fundamentalists project a company's future profits and earning capacity with reasonable accuracy what the price of company's share ought to be. The estimated price is termed as the intrinsic value, which is generally away from the present market value.

Thus, there is a gap between them. Fundamentalist reaches to an investment decision by comparing this value with current market value; it is believed that price will rise. In this situation, fundamentalist will acquire the share ass the difference presents them with an opportunity to make a profit. Alternatively, in case of low intrinsic value the share is considered overpriced and fundamentalist sell the share believing that the market is inefficient in pricing shares.

) Efficient Market Theory

An efficient market is one where shares are correctly priced. An efficient financial market exists when a security price reflects all available public information about economic, financial markets and all about the specific company involved (Van Horne, 1998). An efficient capital market is one in which it is impossible to earn abnormal return by trading on the basis of publicly available information.

An initial and very important premise of an efficient market is that there are large numbers of knowledgeable and profit maximizing independent buyers and sellers, new information is generated randomly and the investors adjust the information rapidly (Reilly, 1986).

2.2 Research Review

This section discusses about the review of international journals, Masters Dissertations and Nepalese Journals. The journals have been browsed through websites whereas the Masters dissertations have been reviewed through central library of TU, library of SEBON and college library.

2.2.1 Review of Foreign Context

All the empirical work on efficient market hypothesis can be considered within the context of the expected return on "fair game" model. Indeed in the early literature, discussion of the efficient market hypothesis were phrased in terms of the even more special random walk model though most of the early authors were in the fact concerned with more general version of the "Fair Game" model. There are large numbers of studies but only few of them are briefly reviewed below.

Fama's (1965) study on random walk model was considered to be one of the most definitive studies. He analyzed the daily proportionate price changes of 30 blue chip stocks in the DJIJ for the period of late 1957 to 26th September 1962. He followed standard statistical tools such as serial correlation and run tests to examine whether any dependency exists in any lag price change. He found that the serial correlation coefficient for daily price change were very small and average was 0.03,which is close to zero, but the correlation coefficient of 11 stocks out of 30 were more than twice of their computed standard errors. He used serial correlation coefficient for differentiating intervals stronger evidence of dependence. It leads Fama to conclude that the evidence produced by the serial correlation model seems to indicate that dependence in successive price changes is either extremely, slight or non-existence (Fama, 1965).

Fama further examined using run test analysis to testify whether price changes were likely to be followed by more price changes in the same time. In fact, he found that the actual and expected runs are not significantly different. The largest difference exists for daily changes, but the different was not significant. However, the difference for the 4-day,9-day and 16-day intervals was very small and the departure from Random Walk Hypothesis was negligible and Fama concludes that there was little evidence ,either from serial correlation or run test of any large degree of dependence in the daily 4-day,9-day and 16-day price changes (Fama, 1965).

Conard and Juttner (1973), applied runs and serial correlation test to examine the daily prices of 54 German stocks and observer dependence in the successive price changes. Thus, they concluded that the random walk theory is inappropriate I to describe the behavior of share price in Germany (Conard and Junter, 1973).

Rao and Mukherjee (1979), applied spectral method to test random walk model of share price behavior by using spectral analysis. They examined weekly average share price of Aluminum Company's share for the sixteen years from 1954 to 1970 and eventually their study supported the random walk hypothesis (Rao and Mukherji, 1979).

Mahapatra (1995) tested the EMH using rank correlation analysis based on relative strength. His sample consisted of month-end closing price of 26 stocks from Bombay stock Exchange between the periods of January 1989 to December 1992. He found that the Indian stock market is less efficient in the short run, but more efficient in the long run (Mahapatra, 1995).

Dorner (2005) conducted a research by using a computer-based content analysis of qualitative data. He took the data from a Swedish real estate firm during the period 1991-1996. The main objective was to examine the response of stock price to financial announcement. He found the positive correlation between the stock price and the following information categories: net assets value, occupancy rates, cash flow and overall capitalization rate. The main contribution of the study was to support the assumption that public financial information has an impact on stock market behavior (Dorner, 2005).

The review of the above mentioned studies carried out in foreign countries shows many interesting findings on share price behavior. However the question arises as to what extent these findings are pertinent for the context of Nepal? They all may not be applicable for Nepalese stock market where stock market is small and underdeveloped.

2.2.2 Review Related Studies in Nepal

There are many researches carried out by different researchers in this topic in Nepal. Here are some of the past related studies conducted which can help us to understand about their objectives, used statistical tools and major findings about the stock price behavior in Nepal.

Gurung (December 2004) has conducted the study on Growth and performance of securities market. The variables such as number of listed and traded companies, their securities, number of transactions, trading turnovers, paid up value, market capitalization and NEPSE index. They are analyzed to know the growth trend and the performance of Nepalese securities market. The study revealed the growth and performance of Nepalese securities market even after the introduction of new mechanism in 1993/1994 are not satisfactory though it is improving gradually.

Pradhan and Upadhyay (January 2004) have tested the efficient market hypothesis in context of Nepal. The core objective of the study is to make the comprehensive investigation of weak and other form of EMH. In other to be conclusive about the efficiency of the stock market, primary sources of information about the share price is collected for the first time to find out more subjective facts on share price behavior, which cannot be determined using secondary data. Statistical tools like serial correlation, the run test, the weighted mean, median, chi-square test, and spearman's rank correlation are used. The twenty-three stocks actively traded are examined as a sample for the study from mid July 1997 to mid July 2000.

Shrestha (Summer 1992) has the studied on Capital Market in Nepal. He has attempted to highlight mainly on three aspects: conceptual rationale of the capital market, achievement of the Nepalese capital market and the possible scenarios to improve the performance of the capital market in Nepal. For this he has examine the

14 listed companies and his study concluded that the various inconsistencies and hindrance do exists in the smooth functioning of capital market. Likewise it is necessary to identify national talent and put committed-dedicated professionals with additional background of knowledge and experience in the decision-making capacity of SEC.

Pradhan (1993) conducted a study on Stock Market Behavior in a small capital market by collecting the data of 17 enterprises from 1986-1990. He has applied Market Equity, Market Value to Book Value, Price Earning and Dividend as the technical tools for analysis of data. His findings indicate that larger stocks have larger price earning ratios, larger ratios of market value to book value of equity, lower liquidity, lower profitability and smaller dividends. Price earning ratios and dividend ratios are more variable for smaller stocks where as market value to book value is mare variable to for larger stocks. Larger stocks also have higher leverage, lower assets turnover, and lower interest coverage but these are more variable for smaller stocks than for larger stocks. Stocks with larger market value to book value of equity have larger price-earning ratios, and lower dividends. These stocks also have lower liquidity, higher leverage, lower earnings, lower turnover and lower interest coverage. The study can be concluded that there is positive relation between the ratio of dividend per share and interest coverage.

2.2.3 Review of Unpublished Masters Dissertations

Poudel (2001) studied on share price movement of joint venture commercial banks by using various financial and statistical tools like standard deviation, correlation, beta, t-test concluded that Nepal stock exchange operates in a weak form of efficient market hypothesis, indicating that the market price move randomly .The market value per share does not accommodate all the available historical information. The shares of joint venture commercial banks emerge as a blue chip in the Nepalese stock market. The beta coefficient, which measures the risky ness of individual security in relative term, suggests that none of the share of eight sampled banks were risky.

Poudel (2002) carried study on Share Price Behavior of Joint Venture Banks in Nepal. He concluded that the growth rate analysis as a stand-alone may not be adequate for the analysis of share prices behavior and may not represent the banks performance in

the secondary market. The ordinary least square equation of the book value per share on market value per share reveals that the independent variable does not fully explain the dependent variable. Nepal Stock Exchange operated in the weak form of EMH, including the market price move randomly. The market value per share does not accommodate all the available historical information. Having good record of accomplishment of the financial position, the market potential investors buy the shares of the joint venture commercial banks. Thus the shares of these banks emerge as a blue chip in the Nepalese Stock Market (NSM).

Poudel (2003) studied on the movement of stock price of Joint Venture commercial Banks and found that generally banking sectors NEPSE Index has dominated to all the other sectors. The movement of the stock prices is dependent to the historical prices. The stocks of all the sampled companies are under priced since their expected rate of return is higher than the respective required rate of return.

Gautam (2004) carried a study on stock market behavior. The study concluded that political instability and other laws related issues are the prominent factors for the underdevelopment of security market in Nepal. She further concluded that the stockbrokers and the stock market are not being much active to create investment environment in the stock market. Information deficiency in the capital market is one of the reasons for determination of share price by excessive speculation. The available information is of low quality and people have very little knowledge of the trading procedure and price formation mechanism in the NEPSE. Lack of effective laws and implication of the existing laws are the contributing factors for the less development of capital market. She also highlighted some of the major problems experienced by stock market and the poor regulatory controls and supervisions by SEBON & NEPSE.

Poudel (2005) studied on Stock Price Behavior of Commercial Banks in NEPSE with the objectives to examine monthly closing price of 6 listed commercial banks during the period of three consecutives years from 2002-2004.The researcher used correlation coefficient, regression analysis, run test and auto correlation. He found that successive price changes were correlated with previous price series. He also found that most of the stocks do not follow Random Walk Hypothesis. The present stock prices were dependent to the historical prices. Most of the investors wanted to

invest in the commercial banks and the fluctuation in the NEPSE index was due to the transaction of commercial banks. Data used in this study that is the monthly closing price was not enough to predict the stock prices.

Thapa (2006) has studied the behavior of Nepal Stock Exchange (NSE) index on Behavior of Nepal Stock Exchange Index. The study endeavors to examine the efficiency of the behavior of NEPSE index. It covers the period of five years from 2000-2005 by considering all the sectors. Conclusion says that the growth of the capital market is in slow pace. Banks and finance companies are in better position. NEPSE Index shows no sign of improvement and reflects the aggregate volatility of the share prices of the listed companies.

Bhattarai (2007) conducted the study on Stock Price Behavior of commercial Banks in Nepal with the objective to analyze the behavior of NEPSE index and the factors that impact on stock price. To meet the objectives the behavior of NEPSE index were identified by taking the closing point of sampled banks and NEPSE index and various financial tools like EPS, DPS, BVPS etc as well as correlation analysis were done. Survey shows that not only the position of the company, earning, dividend affects the price of the share and the share price fluctuates with the publication of financial report increase in liquidity in market and so on but the environmental factors like uncertainty, strike, demand & supply of share also affect it.

Shrestha (2008) has completed the study on "An analysis on the factors of volatility of share price in Nepalese Stock Market" with the objective to analyze the share price volatility factors with different listed companies in NEPSE. Financial as well as the statistical tools were used by the researcher in analyzing and drawing the conclusion from the collected data. However this study concludes that there are various factors in the stock market, which is responsible in the fluctuation of the share price in Nepalese, share market.

2.3 Research Gap

Very few studies have been conducted in the field of share price behavior. The government policy to reform capital market under the extended structural program (ESAP) and modern system of open-cry-cut in F/Y 1993/94 had significantly positive

impact on stock market development. After the restoration of democracy, the government has launched liberalization policy, which builds the expectation for the establishment of multinational companies. But unfortunately, because of lack of proper implementation stock market development seems useless. Various studies have been conducted related to share price considering it as a crucial phenomenon in the stock market. New laws are being established to control stock market price. But it is clearly realized that share price are fluctuating abnormally and there is lack of appropriate researches to find out the volatility of share price of commercial banks in the stock market.

Present study tries to analyze the stock price behavior of commercial banks by applying various facts using secondary data. The present study will be fruitful to the interested person in academic as well as in policy prospective. Hope this study will help others in future in the related field.

CHAPTER - III

RESEARCH METHODOLOGY

Research is an effort to search new fact, knowledge and principle in an effort to search new fact, knowledge. A systematic research study requires a proper methodology to achieve the set objective. Research methodology is a systematic method of finding solution of a problem that is systematic collection, recording, analysis, interpretation and reporting of date's and information. In other words, research methodology describes the methods and process applied in the entire aspect of the study. "Research Methodology" refers to the various sequential steps (along with a rationale, of each step) to be adopted by researcher in studying a problem with certain objects in view (Kothari, 1994). It indicates the methods and the processes employed in the entire aspects of the study. In order to achieve the objectives of the study the following research methodology has been applied.

Study is based on primary as well as secondary sources of information. Secondary sources of information were used to test the random walk hypothesis by means of (i) a parametric test for independence and (ii) a non parametric test for randomness. While the basic purpose of primary sources of information analysis is to survey the opinions of the financial executives on share price behavior. This chapter describes the following aspects of research methodology.

1. Research design
2. Population and sample
3. Nature and Sources of data
4. Data collection techniques
5. Data analysis tools

3.1 Research Design

The research design refers to the entire process of planning and carrying out a research study. This study is carried out to get the empirical result of the stock price behavior. To conduct the study, analytical and descriptive research approach is adopted for the historical data and information. Descriptive design is adopted to analyze the behavior of daily stock price behavior of the sampled banks, NEPSE

index and commercial bank index. At the same time, analytical design is applied to identify the independence and the randomness of the successive stock prices further, it interprets the empirical results.

3.2 Population and Sample

There are altogether twenty five commercial bank listed as per the data available on the website of Nepal Rastra Bank (NRB) and SEBO/N. Out of these, 25 commercial banks are regarded as population and among those 5 commercial banks were sampled randomly.

3.3 Nature and Sources of Data

This research is fully based on secondary data. However, primary data are also necessary for the support of the study. The required data were collected from annual trading report of NEPSE 2005/06, national dailies: Kantipur, The Himalayan Times, Gorkhaptra and The Rising Nepal and also the required data were downloaded from www.bm.com.np, an official website of Business Manager and www.nepalstock.com, an official site of NEPSE. Previous studies and reports (Master's Dissertation), published and unpublished official records (concerned bank manual report & Nepse annual reports) are also of great help while doing the research work. And the researchers have also visited the office of SEBO/N in Thapathali and NEPSE in Singh durbar plaza Kathmandu. This study covers the observations of one fiscal year (July 16, 2006 to July 16, 2006)

3.4 Data Analysis Tools

In this study, Statistical as well as financial tools are used to analyze the data. Statistical tools are to function as a tool in designing research, analyzing its data and drawing conclusion. Statistics is the science, which deals with classification and tabulation of numerical facts as the basis of explanation description and comparison of phenomenon. The various statistical as well as financial tools are presented below:

3.4.1 Statistical Tools

⁾ Arithmetic Mean

The most common method, generally referred to the average is the arithmetic mean. In descriptive statistics, the arithmetic mean is the average of set of values or distribution.

The most popular and widely used measure of representing the entire data by one value is what most laymen call an average and what the statisticians call the Arithmetic mean (Gupta, 2000) for a data set, the mean is just the sum of all the observations divided by the number of observations.

Symbolically,

$$\mu\ X\frac{X}{N}$$

Where,

μ = the population means variable 'X'

X = sum of all the observed value of 'X' variable

N = the total number of observations

⁾ Standard Deviation

The standard deviation (SD) of a probability distribution, random variable or population or multiset of values is defined as the square root of the variance. The standard deviation measures the absolute dispersion, the greater the standard deviation the greater will be the magnitude of the deviation of the deviation means a high degree of uniformity of the observation as well as homogeneity of a series and a large standard deviation means just the opposite. Standard deviation is extremely useful in judging the representative ness of the means (Gupta, 2000).

Symbolically,

$$\pm\ =\ \sqrt{\frac{(X\ Z\mu)^2}{N}}$$

Where,

$\pm$ = Standard deviation

X = Observation

« = population mean for observed value of 'X'

N = total number of observations

= sum of all values of $(X-«)^2$

) Coefficient of Variation

The coefficient of variation (CV) is the measure of dispersion of a probability distribution in probability theory and statistics. It is defined as the ratio of the SD to mean. It is dimensionless number that allows comparison of the variation of populations that have significantly different mean values. The CV of the exponential distribution is often more important than the normal distribution. The CV of an exponential distribution is equal to 1. Distribution with CV<1 are considered low-variance, while those with CV>1 are considered high-variance.

Symbolically,

$$CV= \frac{\sigma}{\mu} |100\%$$

Where,

± =SD of population

« =Population Mean

) Regression

Analysis means the estimation or prediction of the unknown values of one variable. It is a mathematical measure of the average relationship between two or more variables in terms of the original units of data. In regression analysis, there are two types of variables. The variable whose value is influenced or is to be predicted is called dependent variable and the variable, which influences the values or is used for prediction is called the independent variable.

Simple Regression

The line of regression of X on Y is the line which gives the best estimates of X for any given amount of Y. the simple regression can be expressed as:

Y (dependent variable) = a (constant) + $B_1 \times X_1$ (independent variable) + E (error)

Where, B_1=Beta

Multiple Regressions

The multiple regressions can be expressed as:

Y (dependent variable) = a (constant) + B_1X_1 + B_2X_2 + B_3X_3 + E (error)

Where, X_1, X_2 and X_3 are independent variables

) Coefficient of Regression

The coefficient 'b' which is the slope of regression of Y on X is called the coefficient of regression of Y on X. it represents the increment in the value of the dependent variable Y for a unit change in the value of the independent variable X. in other words, it represents the rate of change. The convenient way to calculate the value of 'b' is as follows:

Symbolically,

$$'b'X\frac{n \quad xy\,Z \quad x \quad y}{n \quad x^2\,Z(\quad x)^2}$$

Where,

x = sum of all the observed value of 'X' variable

y = sum of all the observed value of 'X' variable

x y = sum of all the observed value of 'X' variable and 'Y' variable

$(\quad x)^2$ = sum of the square of observed value of 'X' variable

n = number of the sampled variable.

) Standard Error of Estimates

A measure of the estimates so obtained from regression equation is provided by standard error (S.E.E) of the estimates. Standard error is a word analogous to standard deviation, which is a measure of dispersion of observation about the mean of the distribution and gives us a measure of the scatter ness of the observations about the line of regression.

3.4.2 Test Model

The daily closing price of each stock has been selected for analysis of share price behavior. The actual tests of autocorrelation were not performed on the daily prices themselves but on the first differences of their natural logarithms. The variable of this study is: (Fama, 1965).

$$R_{j,t}\ X\ Ln\frac{P_{i,j}}{P_{j,(t\,Z1)}}$$

$$X\ Ln(P_{j,t})\ Z\ Ln[P_{j(t\,Z1)}]\ldots\ldots\ldots\ldots\ldots\ldots\ldots..3.1$$

Where;

$R_{j.t}$ = Price Changes in natural logarithm of stock j

$P_{j,t}$ = Price of stock j. observed at the end of day t.

$P_{j(t\,Z1)}$ =Price of Stock j observed at the end of day t-1

j =1, 2, 3, 4, ……..n

t =1, 2, 3, 4, ……..n

L_n = natural log

It is preferable to analyze the data on the difference of lag prices rather than the raw prices. Because the changes in the log prices is the yield with continuous compounding from holding the security for that day (t) and the variability of the simple price changes for the given stock is probably the function of the price level (Fama, 1965).

There are three main reasons for using changes in log price rather than simple price changes (Fama, 1965). First, the changes in the log price are the yield, with continuous compounding, from holding the security for that day. Second, Moore (1962) has shown that the variability of simple price changes for a given stock is an increasing function of the price level of the stock. Third, for changes less stock (±) 15 percent the changes in log price is very close to the percentage price changes. Similarly, Roberts (Roberts, 1959) suggested that it is wiser to analyze changes of

logarithms or square root of level. However, the other non-parametric test i.e. run tests have been performed on the arithmetic first differences.

3.4.3 Test Methodology

The method of analysis employed in this study includes the use of:

- Autocorrelation
- Run Tests

- **Serial Correlation/ Autocorrelation**

Serial correlation is one of the statistical tools used to measure dependence of successive number in series. It has been widely used to measure the possible dependence in successive share price change as well. In general, serial correlation coefficient measures the relationship between the values of a random variable in time (t) and its value of the (k) period earlier. It indicates whether the price change at time (t) is influenced by the price changes occurring (k) period earlier. (Pradhan, January 2004)

For the given time series, the auto correlation coefficient for lag k is;

$$r_k \; X \frac{\text{Covariance}(e_t . e_{tZ1})}{\text{Variance}(e_t)} \ldots\ldots\ldots\ldots\ldots\ldots\ldots 3.2$$

$$= \frac{\sum_{t\,X1}^{n} e_t . e_{t\,Z1}}{\sum_{t\,X1}^{n} e_t^{\,2}}$$

[…variance($e_t . e_{tZ1}$)]

Where,

r_k =Auto correlation coefficient

e_t =Price changes in natural logarithm of given stock from the end of day $(t\ Z1)$ to the end of day (t)

k=lagged variables (1, 2, 3……..n)

t= time variable (1, 2, 3……n)

The result of autocorrelation always ranges between +1 and -1. If the computed coefficient of autocorrelation is near to zero, then it is an indication of independence, i.e. today's price is an unbiased outcome of yesterday's price. But if the computed value departs significantly from zero, in positive and negative direction causes dependence among the time series data accordingly either direction.

If the distribution of e_t has finite variance, then in very large samples the standard error of r_t is given by;

$$S.E(r_k) X \sqrt{\frac{1}{(N Z k)}} \quad \ldots\ldots\ldots\ldots\ldots\ldots 3.3$$

Where,

$S.E.(r_k)$ = Standard Error of Auto correlation coefficient

N=Sample size

k= lag period

J The Run Test Analysis

Statistical tests based on the theory of runs ignore absolute values in the time series and observe only their signs. That is, they are essentially concerned with the direction of changes in a given time series. Thus for the present purpose, a run can be defined as a sequence of price changes of the same sign preceded and followed by price change of different sign. In a given share price change series, there are three types of price change in a series i.e. positive, negative, and no change, thus implying three types of runs. Therefore, a plus run of length I may be defined as the sequence of positive price changes preceded and succeeded by either negative or positive or zero price change (Fama, 1965). Likewise, a run of length I of minus and no-change sign can be defined as a sequence of I consecutive price changes of the same sign followed and preceded by negative and no-change sign of price changes. A run test is performed by comparing the actual number of runs with the expected number of runs on the assumptions that price changes are independent. If the actual (observed) runs are not significantly different from the expected number of runs then it is concluded that the successive price changes are independent. In contrast, if these differences were significant, the price changes would be dependent. Run test is the non-

parametric test that ignores the magnitude of price changes and observes only direction of changes in a given time series. The difference between the expected and actual number of runs will be analyzed by the total number of runs.

J Total Number of Runs

Under the hypothesis of independence and on assumption that sample proportions of positive, negative and no-change are unbiased estimate of the population proportions, the population proportions, the expected number of runs of all types can be computed as follows: (Waills and Roberts,1956).

Symbolically,

$$M = \frac{N(N-1) - \sum_{i=1}^{3} n_i^2}{N} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots 3.4$$

Where,

M : Expected number of runs.

N : Total number of runs.

n_i : Number of price changes of each sign.

The standard error of M is;

$$\sigma_m = \frac{\left[\sum_{i=1}^{3} n_i^2 \sum_{i=1}^{3} n_i^2 - N(N-1)(2N-3)\sum_{i=1}^{3} n_i^3\right]^{\frac{1}{2}}}{N^2(N-1)} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots 3.5$$

For large N, the sampling distribution of the expected number of runs of all types is approximately normal with mean M and standard error (σm) as given by (3.4) and (3.5) respectively. Thus, the difference between the actual number of runs and the expected number of runs can be expressed by means of the usual standardized variable.

Symbolically,

$$Z = \frac{R \pm \frac{1}{2} - M}{\sigma_m} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 3.6$$

Where,

R =Total actual no of runs of all signs.

$\frac{1}{2}$ =Numerator of a discontinuity adjustment.

M =Mean (Expected number of runs).

$\pm_m$ =Standard error of sampling distribution of runs

For large sample, Z will be approximately normal with mean 0 and Variance 1. Therefore, for testing significance of the difference between actual and expected number of runs, the test statistic employed would be standardized to normal variate Z. the null hypothesis (i.e., randomness hypothesis) will be rejected or accepted at 5 percent and 1 percent level of significance in favor of (or against) the alternative hypothesis (non-random hypothesis) depending on observed values of Z. In addition, for comparison of actual and expected number of runs, the percentage of K will be employed as;

Symbolically,

$$K = \frac{(R - M)}{M} \quad \ldots\ldots\ldots\ldots\ldots\ldots 3.7$$

Here, the term K, is defined as proportionate difference between actual and expected number of runs.

3.4.4 Hypothesis of the Study

The following hypothesis is set up in this study;

H_0 : The successive or lagged price changes are independent.

H_1 : The successive or lagged price changes are dependent.

Where,

H_0 =Null hypothesis

H_1 =Alternative hypothesis

Decision:

Decision can be made by comparing the calculated vale of Z with tabulated value of Z. if the calculated value of Z is less than equal to tabulated value of Z, it is not significant and H_0 is accepted. Otherwise, it is rejected.

3.5 Limitation of the Methodology

Like other studies, this study has no exception regarding the limitations. Random sampling method itself is not free from bias. Only equity shares of commercial banks are studied, though NEPSE has listed others company too. This study has covered he short period due to time constraints. In addition, NEPSE lacks the reliable system in keeping and disclosing data.

This has led difficulty in data collection process. Political instability has influenced the trading days of the stock market as well as to carry out the research work smoothly. Benefits of the study are limited to those who carry out the research work smoothly. Methods employed in this study may not be suitable to the other avenues of the Nepalese stock market.

CHAPTER - IV

DATA PRESENTATION AND ANALYSIS

This chapter presents the graphs of stock price behavior and volatility analysis of sampled stocks. Similarly it presents the comparative analysis of the commercial banks index and the NEPSE index. Where as other aspect displays the graph of daily co-movement of commercial bank index and the Nepse index. Likewise, it imparts the detail of serial correlation analysis and run test analysis.

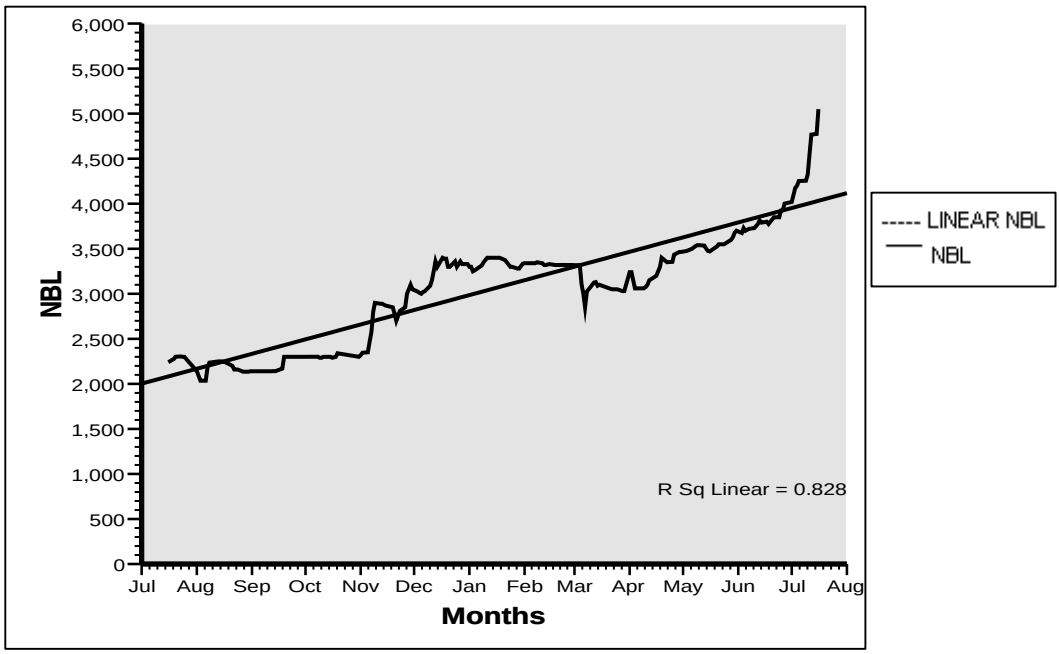
4.1 Data Presentation and Analysis

4.1.1 Stock Price Behavior of Sampled Commercial Banks

This part presents the individual graphs of sampled commercial banks. Graphs clearly exhibit the series of stock price behavior. The series represents the daily data covering from July 17 2006 to July 16 2007. In the figures below dotted line represents the linear line where as the other line represents the true price of share.

Figure 4.1

Daily Stock Price Behavior of Nabil



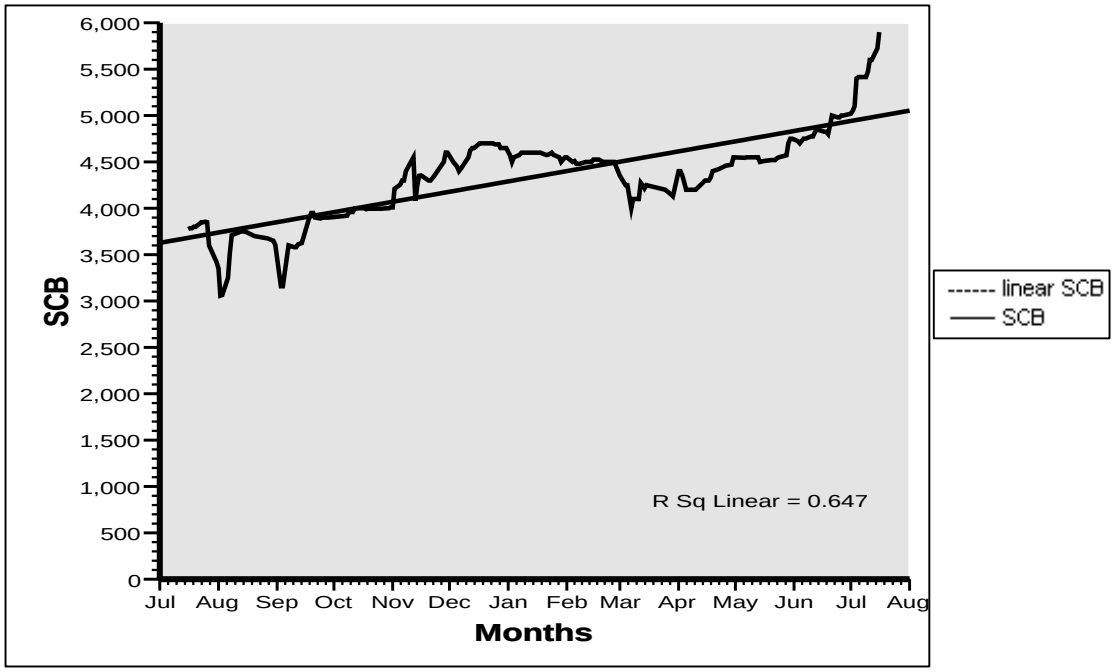
Source: Appendix-1

Figure 4.1 exhibits the daily stock price behavior of Nabil. The maximum price of Nabil is Rs 5050.00 in July 16, 2007 and the minimum is Rs 2035.00 in august 3,

2006 and the average price is Rs3102.96.it shows the high variation in the stock price. The positive linear equation shows the increasing pattern in the stock price of Nabil bank.

Figure 4.2

Daily Stock Price Behavior of SCB

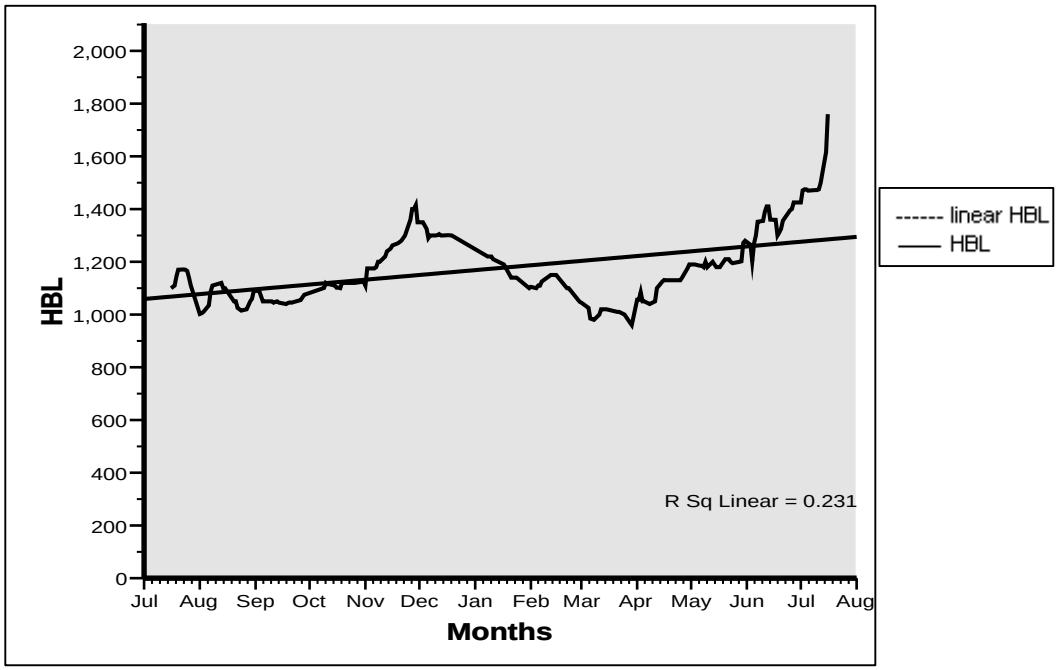


Source: Appendix-1

Fig 4.2 exhibits the daily stock price behavior of SCB. The maximum price of SCB is Rs 5900.00 in July 16, 2007 and the minimum is Rs 3058.00 in august 2, 2006 and the average price is Rs 4360.09. Figure 4.2 shows the upward trend of the share price of SCB.

Figure 4.3

Daily Stock Price Behavior of HBL

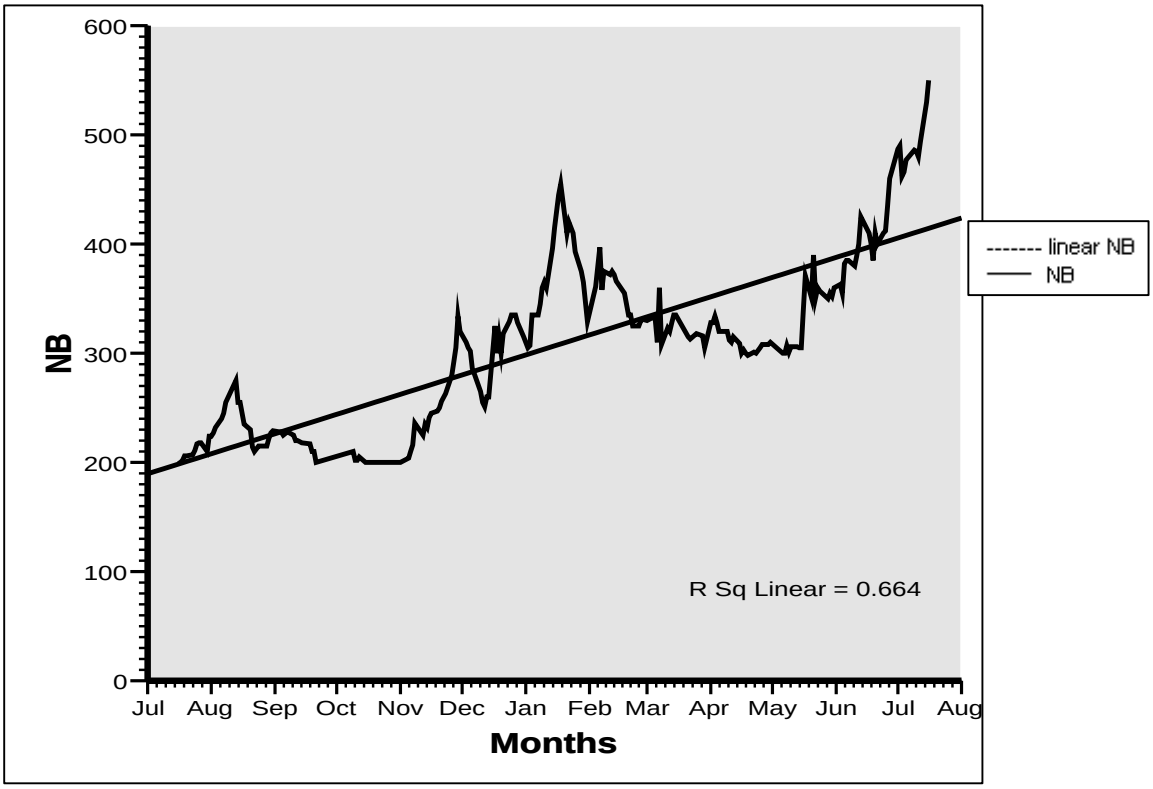


Source: Appendix-1

Figure 4.3 exhibits the daily stock price behavior of HBL. The maximum price of HBL is Rs 1760.00in July 16, 2007 and the minimum is Rs 930.00 in April 22, 2007 and the average price is Rs 1180.02.there is no such kind of variation in the price of stock of HBL during the study period. However, the coefficient of linear equation signifies the positive changes in the future.

Figure 4.4

Daily Stock Price Behavior of NB

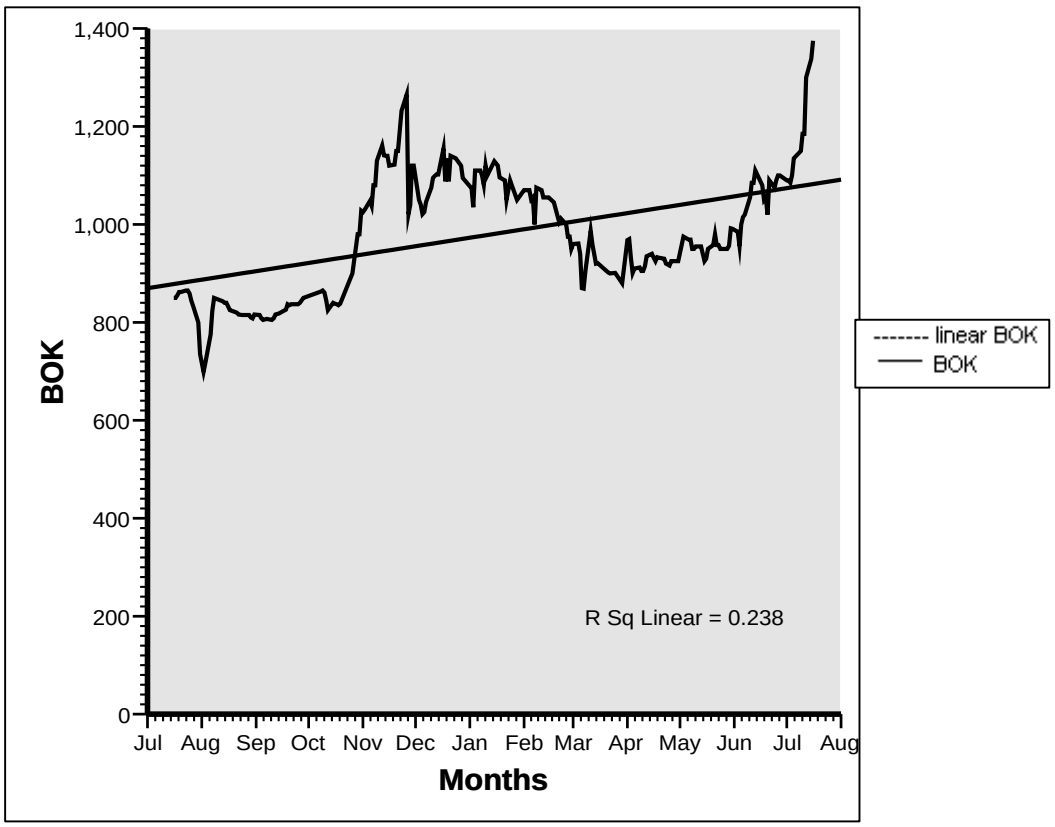


Source: Appendix-1

Figure 4.4 exhibits the daily stock price behavior of NB. The maximum price of NB is Rs 550.00in July 16, 2007 and the minimum is Rs 199.00 in July 16, 2006 and the average price is Rs 309.83.The stock price seems to be in the fluctuation state and even in the increasing trend.

Figure 4.5

Daily Stock Price Behavior of BOK



Source: Appendix-1

Figure 4.5 exhibits the daily stock price behavior of BOK. The maximum price of BOK is Rs 1375.00in July 16, 2007 and the minimum is Rs699.00 in August 2, 2006 and the average price is Rs 981.85.there is no great change and variation in the price of the stock of BOK. The positive linear equation shows the increasing pattern in the stock price of BOK bank.

4.1.2 Volatility of Daily Stock Prices

Only the graphical presentation is not sufficient. To gain the actual knowledge, some statistical tools are used to analyze the daily stock price behavior. Therefore, this part presents the computation of average prices (mean), standard deviation (SD) and coefficient of variation (CV). Based on the analysis of absolute variation (SD) and relative Variation (CV), volatility of daily stock price is determined. The computation of stock volatility is shown in table 4.1.

Table 4.1

Computation of Stock Volatility

Banks	N*	Mean	Std. Deviation	C.V
NABIL	205	3102.96	617.87	19.91
SCB	199	4360.09	476.68	10.93
HBL	190	1180.02	138.77	11.76
NB	212	309.83	78.08	25.20
BOK	220	981.85	122.17	12.44

Source: appendix-4 (Note: N means total no. of observation)

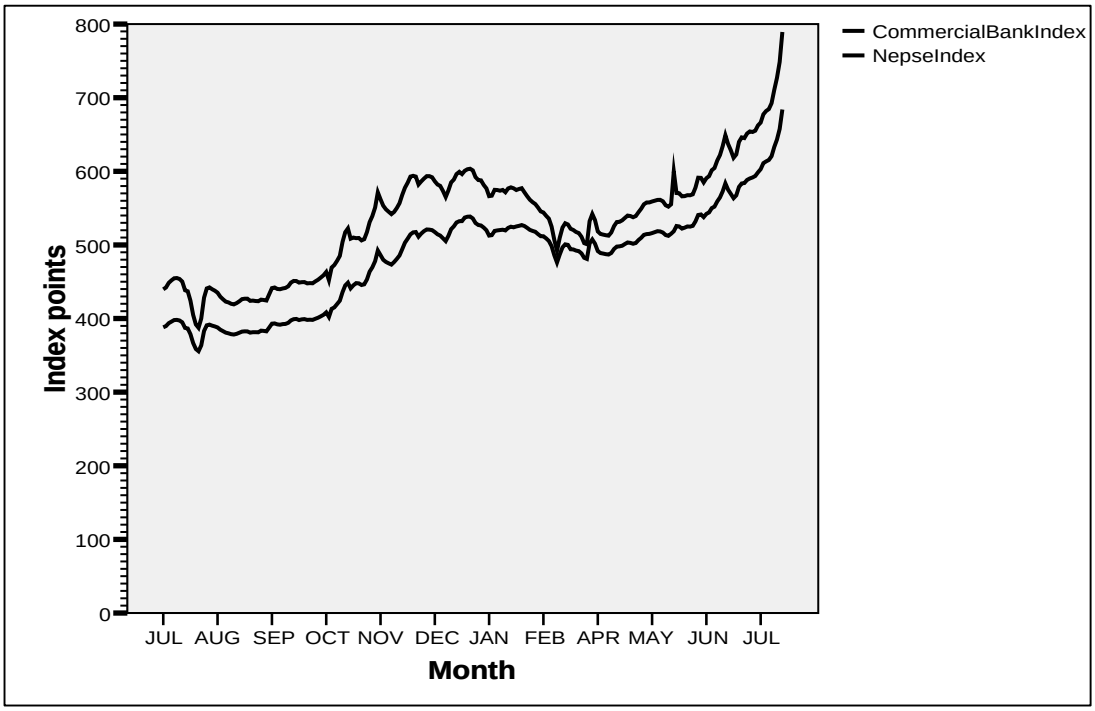
The mean shows the average value for each stock price of the sampled banks. The highest average value is of SCB where as the lowest average value is of NB. The standard deviation indicates the amount of variability in stock. Among the computed standard deviation of the sampled banks, the standard deviation of Nabil is 617.87, which indicates that the most volatile stock is of Nabil. Similarly, the computed SD of NB is 78.08, which conveys that its stock is less volatile. The stocks of SCB, HBL, BOK consecutively volatile. Only measuring the absolute variation is not sufficient to conclude the variation in the stock, if the alternatives need relative measure. The computed values of CV indicate the variance in the stock. CV, which is equal to 1, is considered as an exponential distribution whereas; CV with the distribution less than 1 is considered low variance. In the above computation all those stocks can be considered as low variance.

4.1.3 Analysis of Co-Movement of Commercial Bank Index and Nepse Index

This part presents the graph exhibiting the co-movement between commercial bank index and NEPSE index. Based on the index series, variation is compared between them. For this observation, daily closing index points are extracted from the annual NEPSE trading report2056/07. Fig 4.6 clearly exhibits the graph of daily co-movement between commercial bank index and NEPSE index.

Figure 4.6

Co- movement between Indices of NEPSE and Commercial Bank



Source: Appendix-2

In the figure 4.6 index points describes the commercial index and NEPSE index. The index series of the commercial bank clearly exhibits that the fluctuation is higher than the NEPSE index. The maximum daily point of the commercial bank is 789.21 on 16-Jul-07 where as the minimum point is Rs 387.37 on 3-Aug-06. In case of index series of Nepse the maximum daily point is Rs 683.95 on 16-Jul-07 and the minimum daily point is Rs 355.60 on 3-Aug-06. From the above figure we can see that the index point of commercial bank as well as NEPSE is in increasing trend.

4.2 Descriptive Analysis

The explanation below provides the summary of descriptive statistics with respect o both dependent and explanatory variables. This shows the average indicators of variables computed from the financial statements. The regression equation is calculated using SPSS 15.0 software program as shown in appendix-5

4.2.1 Simple Regression Equation

The next aspect of the study is devoted to analyzing how NEPSE is related to Amount to public issue, Paid up value and Total turnover. For the purpose, the average slopes

were computed from linear regressions of return on NEPSE on various measures such as Amount to public issue (PI), Paid up value (PV) and Annual turnover (AT). NEPSE has been specified as the dependent variable and the independent variables are specified as PI, PV and AT. The results are presented in table 4.2.

The results are based on time series data of 5 banks with 1026 observations for the period of 2002/03 to 2006/7 by using simple regression equation. The model is, NEPSE= a + B_1 (independent variable) + E. Results for various subsets of independent variables are presented as well.

Table 4.2

Estimated Relationship between NEPSE and Fundamental Variables

Independent Variable	Constant (a)	Regression Coefficient	R^2	SEE	F
Amt(PI)	60.598 (.386)	.186 (2.071)*	.589	145.37671	4.291
Paid up(PV)	-386.550 (-1.813)	.044 (3.565)	.809	99.03124	12.712
Turnover(AT)	120.515 (1.831)	.062 (4.364)	.864	83.60258	19.047

Notes: Figures in parentheses are t- values

*The sign * denotes that the results are significant at 5 percent level of Significance*

With respect to the computed regression equations shows that all the beta coefficients have priori expected signs. Above table shows the simple regression analysis between NEPSE and other independent variables. Here, only a few beta coefficients are found to be significant. Among others, the above results indicate that Paid up value (PV) of all securities are negatively related to NEPSE while Amount of public issue (PI) and Annual Turnover (AT) are all positively related. As NEPSE decreases, an increase can be noticed on Paid up value while a decline can be noticed in Amount on Public issue and Annual Turnover. The result of t-statistic indicate that the variable PI and AT have higher explanatory power. Similarly, adjusted R square (R^2) is 0.589, 0.809 and 0.864 respectively. This indicate 58.9%, 80.9% and 86.4% variation in dependent variable NEPSE is explained by independent variables PI, PV and AT respectively.

4.2.2 Multiple Regression Equation

After examining the simple regression analysis among the selected variables, the multiple regression analysis has been undertaken for the purpose of investigating the causality between dependent and independent variables. The multiple regressions open up several additional options to enrich analysis and make modeling more realistic compared to the simple regression.

For the purpose, the average slopes were computed from linear regressions of NEPSE on various measures such as Amount to public issue (PI), Paid up value (PV) and Annual turnover (TT). NEPSE has been specified as the dependent variable and the independent variables are specified as (PI), (PV) and (AT). This model is developed to unravel the separate influence of the various variables on NEPSE and the results are presented in table 4.3. The model is:

$$NEPSE = a + B_1PI + B_2PV + B_3AT + E$$

With respect to the computed multiple regression equations shows that all the beta coefficients have priori expected signs. However, only a few beta coefficients are found to be significant. The positive regression coefficient indicates that there is an increase in the PV and AT. The regression constant in multiple regression NEPSE on PI, PV and AI is -755.984. The results of t-statistics indicate that none of the selected variable is significant. However adjusted R square is 0.962. this indicate about 96.2% variation is dependent variable NEPSE is explained by independent variable Amount on public issue (PI), Paid up (PV) and Annual Turnover (AT) The values of R squared range from 0 to 1. Here, R square being 0.962 indicates that the independent variables do explain the dependent variable NEPSE. The result of multiple regression analysis presented that, the relationship between NEPSE (the dependent variable) is negative with Amount in public issue where as it has positive relation with Paid up Value and Annual turnover.

The results are based data related to the securities market as a whole for the period of 2002/03 to 2006/07 by using multiple regression model stated above. Results for various subsets of independent variables are presented as well.

Table 4.3

Estimated Relationships between NEPSE and Fundamental Variables

Model	Constant (a)	Regression Coefficients of			R^2	SEE	F
		AMT	Paid Up	Turn Over			
1	-775.984 (-1.358)	-.291 (-1.295)	.091 (1.535)	.015 (.450)	.962	76.365	8.475

Notes: Figures in parentheses are t- values

*The sign * denotes that the results are significant at 5 percent level of Significance*

4.3 Test of Random Walk Hypothesis

As stated in methodology, independency of successive price is tested using the serial correlation and run tests. In this section, first, results of serial correlation are analyzed and then of run tests.

4.3.1 Analysis of the Results of Serial Correlation (Autocorrelation)

Autocorrelation/serial correlation technique measures the correlation coefficient among the series of stock prices with the lagged numbers in the same time data series. Autocorrelation coefficients for each day in the sample were computed to test the hypothesis that successive share price changes are independent. It is computed under 1 natural log differences for lags 1 to 10.if the observed autocorrelation coefficient among price changes be zero, the hypothesis would be accepted. It means past price contains no predictive values regarding the future price changes, which lead that, above normal return, cannot be earned by exploiting a sequence of historical prices. In this situation the hypothesis will be rejected. It means that the market is inefficient in pricing shares. Moreover, larger the values of coefficient (both positive and negative) i.e. departed from zero, greater the dependence in the service of price changes.

The autocorrelation coefficients and standard errors of each stock of daily log price for 5 sample company shares have been computed for 1 to 10 lag days according to the equation (3.2) and (3.3) of methodology chapter and presented its summary in appendix-7 these coefficient helps to find out whether there is any degree of independence or dependence between successive price changes for last 10 days in predicting tomorrow's price changes.

The results of autocorrelation coefficient for daily price series have been computed for lag 1 to 10. The first, second, sixth, ninth and tenth order coefficient shows the small serial dependence. It means if the order shifted in increasing order, the serial dependence also increases. According to appendix-7 two out of five in first, second sixth, ninth and tenth order coefficient are negative. Likewise, five out of five in third order coefficient are negative. While three of the fourth, fifth and seventh order and five out of five in eighth order coefficient have negative value.

The result of daily autocorrelation can also be explained by taking an average among five banks coefficient in different lag period from lag 1 to 10.in an average lag period 1, 2, 5 and 10 shows the positive correlation coefficient where as other shows the negative correlation coefficient. In lag period 1 the highest coefficient is 0.258 of Nabil and the lowest or negative coefficient is of (.132) of NB bank.

However, agreement in the sign among the coefficients for the different securities is not necessary evidence for consistent pattern for dependence. King (1996) has shown the price changes for different securities are related (although not all to the same extent) to the behavior of the market component common to all securities. The autocorrelation coefficient of a given security for any given sampling period will be partly determined by the serial behavior of the market component and partly by the serial behavior of factors pertaining to that security and perhaps also to its industry (Fama, 1965:73-75).since market components are common to all securities its behavior during the sampling period may tend to produce a common sign for the autocorrelation coefficient of all the different securities. Therefore it is desirable to measure the degree of dependence. Both the judgment of coefficient magnitude and statistical significance test of autocorrelation coefficient are required to be performed. Summary result of different taken from appendix-7 are given in table 4.4 which shows the statistically significant and non-significant series for lag 1 to 10.

Table 4.4

Series having significant values of first order to Tenth order Autocorrelation coefficient

Lag days	Series having coefficient<2std error	Series having coefficient>2std error	Series having coefficient>3std error	Total Series
1	2,3,4,5	-	1	5
2	2,3,5	1	4	5
3	1,2,3,4,5	-	-	5
4	1,2,3,4,5	-	-	5
5	1,2,3,4,5	-	-	5
6	1,2,3,4,5	-	-	5
7	1,2,3,4,5	-	-	5
8	1,2,3,4,5	-	-	5
9	2,3,4,5	1	-	5
10	1,2,3,4,5	-	-	5
Total	46	2	2	50

Note: For names of the different price series, please see Appendix-7 and 8

The above table is derived from appendix-7 for the distribution of the statistically coefficient series. The first column indicates the various lag days. Out of the total series, coefficient having less than two times standard error is given in the second column which was considered as statistically non significant. Third column consists of the coefficient having two or more than two times of its computed standard error. The fourth column consists of the coefficient having three or more than three times of its computed standard error. In the end, the last column shows the total number of series covered by the study.

The result based on the table 4.4 and the appendix -7 presents a different picture. Only 4 out of 50 coefficients are dispersed from the expected value zero. It means these 4 coefficients were statistically significant. It indicates that the day to day fluctuations are serially dependent in most of the cases. Out of these 4 coefficients 2 coefficients had the value three or more than three times greater than its computed standard error. Likewise, remaining 2 coefficients had the values twice but not three times greater than its computed standard error. Other 46 correlation coefficients had values less

than two times greater than its computed standard error which was considered as not statistically significant. Those 4 deviated coefficient and other negative values give hint that high degree of autocorrelation exists. These coefficients are also significantly deviated from zero and not statistically significant. It implies that the successive price changes are dependent. Thus, H0 stated in Methodology has been rejected and HA been accepted. This result corroborates with the findings of the previous studies (Pradhan and Upadhyay, 2004 and Paudel, 2005). Therefore, it can be said that price changes are not independent and historical price of the stock provide important information in predicting tomorrows price change.

For these price series, the mean absolute autocorrelation coefficient for lag 1 was 0.0156, which was the highest average coefficient among the 10 different lags. Likewise the least absolute average mean was 0.0114, which was associated with lag 10. Out of 10 lags, 6 mean absolute ha negative value and remaining 4 had positive value. The largest of these autocorrelation coefficients was 0.258 for Nabil Bank. The smallest was 0.009 for BOK also for lag 1. Out of the 5 serial correlation coefficient four of the first order are less than two times the standard error and for another one bank is greater than three times the standard error values. It may also be noted that in the second order coefficient among the 5, three are less than two times the standard error and one of them is greater than two times the error where as one is greater than three times the standard error. In ninth period also four coefficients are greater than two times the error and one is less than two times the error. However, for longer lags the coefficients are relatively small and statistically insignificant and more negative values, thereby implying some little linear independence among the daily changes.

The result of autocorrelation showed that the observed first order coefficients are found to be relatively larger and statistically significant for most of the stocks, except Bank of Kathmandu. It also shows the pre dominance of negative sign. Third and eighth lags exhibit the predominance of negative sign where as lag 1, 2, 9 and10 shows the dominance of positive signs. Since the coefficient has more negative values it means that most of the observed coefficient are departed from zero. Thus we can say that few stocks had mild serial dependence. It can hardly used for predicting their future course in a meaningful manner. From the view of investors, such low order dependence may be enough to increase their expected profit to some extent. All above

evidence related traded stocks indicate small auto dependence among day to day price changes. This evidence support that random walk hypothesis model may not be appropriate to describe the price behavior.

4.3.2 Analysis of the Results of Run Test

A run is defined as the sequence of price changes in the same sign. For the stock price behavior, there are three types of price change pattern namely positive, negative and zero which are known as three types of runs. This test is non parametric in nature and is used to examine independence assumption that the price changes are independent.

Testing the hypothesis of independence, the deviation between the total, actual and the total expected number of runs are analyzed. This hypothesis of independence can be tested by using the equation (3.4), (3.5), (3.6), and (3.7). There should not be significant difference between the actual and the expected number of runs to support the hypothesis of the study. The total number of actual and expected run value of standard error, value of normal variant Z and K are presented in table 4.5

Table 4.5

Computation of Run Test

S.NO	BANKS	No of Observations	Actual Runs(R)	Expected Runs(M)	Standard Error($\pm_m$)	Standard Variable(Z)	R-M/M (K)
1	NBL	205	99	128.87	6.41	-4.58 **	-0.23
2	SCB	199	111	131.81	9.54	-2.13*	-0.16
3	HBL	190	100	121.56	9.72	-2.17*	-0.18
4	NB	212	113	127.59	10.92	-1.29	-0.11
5	BOK	220	126	136.55	10.80	-0.84	-0.08
	Total	1026	549	646.38	47.39	-11.01	-0.76
	Average	205.2	109.8	129.276	9.478	-2.202	-0.152

Source: Calculation of its recorded number based on official record of daily closing price of share transaction in NEPSE (Appendix-1)

As presented in the above table, the expected number of runs (M) was higher than the actual number of runs (R). The value of Z and K of all companies were also negative. The average values were -2.202 and -0.152 respectively. It indicates that the total

actual number of runs fall short of total expected number of runs. However, the absolute amount of dependence in the price change is more important than whether the dependence is positive or negative. Therefore, it is desirable to test the values of standard normal variate Z for significance.

Table 4.6

Names of Companies Having Significant Value of Standard Normal Variate Z at 5% & 1% Level of Significance

S.NO	Name of bank	Level of significance	
		5%	1%
1	NBL	R	R
2	SCB	R	-
3	HBL	R	-
4	NB	R	-
5	BOK	-	-
Total		4	1

Note: R indicates that the hypothesis of independence is rejected

The above table is based on table 4.5. Inspecting the above table, which gives the information regarding the composition of standardized variable, it can be seen that the standard normal variate Z is significant (at 5% and 1%) in respect of five sampled banks. At 5% level of significance, hypothesis of NBL, SCB, HBL, and NB is rejected where as null hypothesis of BOK is accepted. Looking at 1% level of significance hypothesis of NBL is rejected whereas of other 4 banks are accepted. It is notable that this would imply a positive serial dependence among the price change (Dryden, 1970). The serial correlation analysis carried out in earlier section and if the values of autocorrelation is near to zero it is the indication of independence. But if the value departs significantly from zero, in positive and negative direction it causes dependence among the time series data accordingly either direction.

The value of standard normal variate Z is presented in second last column of table 4.5. The average value of Z is /2.02/. The value of percentage difference between actual and expected run are given in last column of Table 4.5. Most of the results are quite

large due to the lower values of actual runs over expected runs values. All values of Z as well as K are in negative sign. The percentage difference varied from lowest 8% and highest 23%. However mean absolute value of K is /0.152/.

Table 4.7

Result of Percentage Difference between the Actual and Expected Number of Runs as Proportion of Expected Number of Runs

Percentage of inequalities and Equalities of K	Number of K
K having percent difference <= 10	1
K having percent difference <=18	3
K having percent difference > 20	1
Total	5

Source: Appendix -1

This table indicates that the percentage difference between actual and expected number of runs are quite higher. Out of five stocks, only one stock is less than or equal to 10%. Three out of five stocks are less than 18%. One stock out of five stocks is greater than 20%. In conclusion, there is significance difference between expected and actual number of runs in the daily price change series. These evidences suggest that the random or weak efficient market hypothesis does not support the daily closing stock of NEPSE. In general, the result shows that there is a significant difference between actual and expected number or runs in the series of price change. Based on these findings, these companies do not follow random walk model, but support the result based on autocorrelation analysis. This result is consistent with the previous result from the studies entitled “Share Price Behavior of listed Companies”, and “The Efficient Market Hypothesis and the Behavior of Share Prices in Nepal”, by Resham Lal Poudel and Radhe S. Pradhan and Basu D Upadhyay.

In conclusion, the both tests, either the autocorrelation or the run test normally do not support the independence assumption of random walk model or weak efficient market hypothesis. It suggests that Nepalese stock market may not be defined as “efficient in weak sense” in pricing the stock where market efficiency is defined as all historical information is reflected in the security prices. This evidence supports the technical

analysis theory and can be useful to some extent as an investment strategy for buying and selling shares in such market situation. The result obtained here suggests that the fundamental analysis is important to test the stock market efficiency in Nepal.

CHAPTER - V

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

The study is conducted to reveal the current status of stock price behavior in Nepal Stock Exchange. This study mainly aims at examining the stock price behavior of commercial banks in Nepal and to test whether successive price changes are dependent or not. Its specific objectives are (i) To analyze the stock price behavior of the commercial banks operating in the present context of Nepal. (ii) To determine whether the present Nepalese stock market is efficient in pricing shares. (iii) To analyze the behavior of those commercial banks index and NEPSE index. (iv) To outline the possible implications and also to recommend for the betterment of stock market.

Only secondary data are used in this study. The required secondary data are collected mainly from the annual report of listed companies and the web page of NEPSE www.nepalstock.com. Other sources of secondary data are the various publications of Securities Board of Nepal and Nepal Stock Exchange Ltd. Review of national and international journals, books as well as masters degree dissertation are discussed in order to make the studies more effective. The study period is from July 16 2006 to July 16 2007 consisting of 1026 observations.

Both the analytical and descriptive research designs are adopted to carry out this study. The stock market performance is examined by analyzing the number of listed companies in NEPSE. Statistical tools as well as the model are used to analyze the behavior of share price of the sampled banks. Run test is used to know whether the movement of market price of stock is random or not. Autocorrelation test is done to find the dependence of the price changes. In short, it analyzes whether the price changes are linearly correlated or not. To this end, the independent assumption examines the successive prices in natural logarithm of shares of five commercial banks listed in NEPSE. The regression, autocorrelation and the run test were adopted as test methodology.

To test the independent assumption, the serial (auto) correlation coefficients were estimated among the first difference of log prices for different lags. The estimated autocorrelation were found significantly deviated from the expected value zero. It means that the log price series of shares were serially dependent. Therefore, the random walk model was not accepted for most of the cases. The run test was also conducted to test the hypothesis of randomness. For this purpose, percentage difference between actual and expected number of runs were examined. The result of run test also supported the result of autocorrelation test. In most of the cases, significant difference between actual and expected number of runs were observed. So, the series was found to be non-random and the evidence did not support the assumption of independence.

The result of serial correlation test and run test did not support the hypothesis of independence. The result, however, demonstrated that the successive price changes are dependent with historical price series. Thus, the hypothesis of randomness was also rejected. It is important to note here that in come cases two tests have different conclusions. Such differences may arise from two ways. Firstly, the autocorrelation tests only claim to investigate whether or not the price changes are linearly correlated. Secondly, the run tests help to find out whether the price changes follow some trend, not necessary linear.

5.2 Major Findings of the Study

The major findings in this chapter are explained below

1. The graph of all the sampled commercial banks shows the upward slope of the trend line and this exhibits the increasing trend in the price of the stock.

2. The computed value of SD and CV indicates the variability and volatility of the stock. The CV of the above share price indicates that all the stocks are low variance as the computed CV is less than 1. The mean shows the average value for each stock price of the sampled banks. The highest average value is of SCB where as the lowest average value is of NB. The standard deviation indicates the amount of variability in stock. Among the computed standard deviation of the sampled banks, the standard deviation

of Nabil is 617.87, which indicates that the most volatile stock is of Nabil. Similarly, the computed SD of NB is 78.08, which conveys that its stock is less volatile. The stocks of SCB, HBL, BOK consecutively volatile.

3. The daily co-movement of the series of indices has exhibited the fluctuation of commercial bank index and NEPSE index. The CV of both the indices NEPSE and commercial bank have same CV that is 14%. This indicates that both the indices have same volatility.

4. Simple regression as well as multiple regressions is shown between NEPSE, amount on public issue, paid up value and annual turnover. The regression coefficients are 0.186, 0.044 and 0.062 respectively and they all are positive. Which indicate that one rupee increase/decrease in the independent variable affects the dependent variable Nepse.

5. The first order autocorrelation coefficient, for most of the equity shares is statistically significant from expected value zero. The evidence pertaining to most of the shares indicates serial dependence. Thus, this evidence suggests that the Nepalese market does not accept random walk hypothesis and some price changes can even predict some valuable information in predicting future price change. Therefore, opportunities for speculation exist for sophisticated investors in Nepalese stock market.

6. The total numbers of actual and expected runs are statistically significant for most of the shares, which implies that price changes are significantly different from random series. Results of run test also support the result of autocorrelation. Therefore, today's price change is dependent on the information of yesterday's price.

7. The mean absolute values of the autocorrelation are lower when lag days are increased. This means the information of past price changes have little role to predict changes for longer days.

8. The result of t-statistic under simple regression indicates that the variable PI and AT have higher explanatory power. Similarly, adjusted R square (R^2) is 0.589, 0.809 and 0.864 respectively. This indicate 58.9%, 80.9% and 86.4% variation in dependent variable NEPSE is explained by independent variables PI, PV and AT respectively. Whereas, the results of t-statistics on multiple regression indicate that none of the selected variable is significant. However adjusted R square is 0.962. this indicate about 96.2% variation is dependent variable NEPSE is explained by independent variable Amount on public issue (PI), Paid up (PV) and Annual Turnover (AT) respectively.

9. There include low order serial dependence, which helps in certain extent to increase investors expected profit.

10. Because the persistence hypothesis has been supported by the result of autocorrelation and the run test, professional investors either individual or institutional can beat the market. Therefore, to make greater profit than 'naïve buy and hold strategy', acute fundamental or other analysis are required which accurately predicts the appearance of the new information in the market that affects the price of shares.

To conclude, results of both test analysis generally suggests that the random walk model can not justifiably used to describe share price behavior in Nepal. Nepalese stock market may not be defined as the weakly efficient in pricing shares. This would mean that above average return may be earned simply from past price knowledge. This study suggests that the fundamental (intrinsic value) analysis becomes useful to make above average return in Nepalese stock market. The charts of past price movements may also have some values as an investment strategy in trading of shares in such market situations.

5.3 Conclusions

Observations of daily stock prices of sampled banks indicate that there is a large variation in their stock prices in the fiscal year 2006/07. They are not doing well in Nepalese stock market. Most of the serial coefficients are significantly deviated from

zero and statistically insignificant. Both the analysis did not support the independent assumption of random walk model. It signifies that the successive price changes are dependent. The dependence in the series of the price changes implies that the price changes in the future will be dependent with the historical prices. Thus, the historical price is helpful to predict the future prices of shares. Therefore sufficient opportunities are available to individuals and institutional investors to make the higher expected profit. Runs test results also shows that the percentage of deviation between the observed and actual number of runs in the series of price changes is significant. It is obvious that the successive price changes are not random. Thus, RWH does not hold true in the context of Nepalese stock market.

5.4 Recommendations

Findings of the study provide important information for those who are directly or indirectly concerned with the stock market activities. Thus, major recommendations are as follows:

1. Observation of volatility indicates that most of the sampled stocks exhibit large variation in their prices. They are not doing well. Therefore, the concerned authorities of sampled banks should monitor the causes of variation. Investors should be educated, self aware and informative regarding the daily stock price behavior. They should be extremely careful before making the investment decision.

2. The computed SD and CV have decided that the index of commercial sectors fluctuates more than NEPSE index. The perfect positive correlation between them is observed. This implies the prosperity in the stock market. The series of commercial bank index indicates the dominance of its position in the co-movement graph. However, there should be clear pattern of index series. For this, the concerned authorities of the stock market should monitor the weaknesses of commercial sector as well as commercial sector.

3. Nepalese stock market is inefficient in pricing shares. Both the tests serial correlation and run test have rejected the RWH in this research. Conclusion of this study collaborates with the previous studies. Therefore it is suggested that

the smart investors should take benefits of the short-term speculation. It is also recommended that the stock market makers should carry out the research work to find out the causes of inefficiency.

4. The randomness of the price movement in the Nepalese market, (shows that) professional traders, either individual or institutional, can beat the market. Thus, it is recommended that the investors should be aware of exploitation through short-term speculation where above average return is possible to some extent from past information.

5. Most of the price series of the shares indicates the serial dependence by the test of autocorrelation. This means the NEPSE market does not accept the Random walk hypothesis. It refers that the past price changes have great value for future price changes. So, it is recommended that the investors should study the past trend and pattern of price series of the stock for prediction of future price change to make safe investment.

6. The tests of both autocorrelation and run tests findings have shown that the successive price changes are dependent with the price of the historical change. So, it is recommended that the investors should consult with the fundamentalist and technical analyst before the investment in any shares of NEPSE market. They can give the fruitful suggestions.

7. This specific research studies only five commercial banks by covering the secondary data. Therefore, the forthcoming researchers should try to cover all the sectors listed in NEPSE. And it is better to study company wise.

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APPENDIX - 1

Daily Share Prices

Date	NBL	SCB	HBL	NB	BOK
16-Jul-2006	2240	3775	1100	199	850
17-Jul-2006	2252	3785		200	850
18-Jul-2006	2265	3785	1110	202	855
19-Jul-2006	2275	3801	1145	206	862
20-Jul-2006	2301	3800	1170	206	862
23-Jul-2006	2305	3850	1171	207	865
24-Jul-2006	2300	3850	1170	211	865
25-Jul-2006	2300	3855	1165	217	859
26-Jul-2006	*	3850	1140	218	844
27-Jul-2006	*	3600	1110	218	834
30-Jul-2006	*	*	*	210	800
31-Jul-2006	*	3419	*	224	735
1-Aug-2006	2142	3350	1002	224	*
2-Aug-2006	*	3058	1005	227.00	699
3-Aug-2006	2035	3065	1010	232.00	717
6-Aug-2006	2035	3250	1035	240	775
7-Aug-2006	2182	3514	1086	245	823
8-Aug-2006	2236	3710	1110	255	850
13-Aug-2006	2250	3750	1120	275	843
14-Aug-2006	2250	3750	1100	255	840
15-Aug-2006	2250	3750	1100	255	840
17-Aug-2006	2240	*	1080	235	825
20-Aug-2006	*	3700	1050	230	*
21-Aug-2006	2200	*	1050	214	820
22-Aug-2006	2160	*	1025	210	816
24-Aug-2006	2160	*	1015	215	815
27-Aug-2006	2135	3675	1020	*	815
28-Aug-2006	2135	*	*	215	815
29-Aug-2006	2135	*	1050	222	810
30-Aug-2006	2135	3650	1060	227	808
31-Aug-2006	2140	3605	1090	229	816
3-Sep-2006	2140	3160	1090	228	815
4-Sep-2006	*	3160	*	228	808
5-Sep-2006	*	*	1050	225	805
7-Sep-2006	2140	3600	1050	228	807
10-Sep-2006	2140	3580	1050	225	805
11-Sep-2006	2140	3580	1045	220	808
12-Sep-2006	2140	3610	1048	220	816
13-Sep-2006	2142		1050	219	817
14-Sep-2006	2140	3625	1045	218	818
18-Sep-2006	2170	3900	1040	217	826
19-Sep-2006	2300	3949	1044	210	837

20-Sep-2006	2300	3950	1046	210	835
21-Sep-2006	2300	3900	1045	200	837
24-Sep-2006	2300	3890	*	*	837
25-Sep-2006	*	3900	*	*	837
26-Sep-2006	*	*	1055	*	840
28-Sep-2006	2300	3900	1075	*	850
8-Oct-2006	2301	3920		*	863
9-Oct-2006	2290	3960	1101	210	865
10-Oct-2006	2290	*	1120	202	861
11-Oct-2006	2300	3960	1115	202	845
12-Oct-2006	2300	4000	1115	205	825
15-Oct-2006	2300	4000	1110	200	840
16-Oct-2006	2290	4000	1102	*	838
17-Oct-2006	2295	4000	1102	200	837
18-Oct-2006	2300	3990	1100	200	835
19-Oct-2006	2340	3995	1120	200	838
26-Oct-2006	*	3995	1120	200	900
29-Oct-2006	*	4000	*	*	980
30-Oct-2006	*	4000	*	*	980
31-Oct-2006	2300	4010	1125	200	1028
1-Nov-2006	2320	4010	1110	200	1025
2-Nov-2006	2346	4210	1175	201	1030
5-Nov-2006	2350	4255	1175	204	1048
6-Nov-2006	2467	4300	1175	210	1038
7-Nov-2006	2575	4300	1180	216	1080
8-Nov-2006	2800	4400	1200	236	1080
9-Nov-2006	2900	4440	1200	*	1130
12-Nov-2006	2890	4550	1220	225	1161
13-Nov-2006	2890	4081	1240	235	1141
14-Nov-2006	*	4250	1245	232	1140
15-Nov-2006	2870	4350	1250	241	1140
16-Nov-2006	*	4355	1262	245	1120
19-Nov-2006	2850	*	1270	247	1122
20-Nov-2006	2780	4300	1275	250	1150
21-Nov-2006	2700	4300	1280	256	1150
23-Nov-2006	2810	4350	1300	263	1232
26-Nov-2006	2850	*	1360	280	1265
27-Nov-2006	3000	*	1400	292	1021
28-Nov-2006	3050	4500	1400	305	1040
29-Nov-2006	3100	4601	1415	334	1120
30-Nov-2006	3050	4600	1350	320	1120
3-Dec-2006	3025	4500	1350	310	1050
4-Dec-2006	3010	4475	*	305	1040
5-Dec-2006	3000	4450	1325	302	1021
6-Dec-2006	3020	4400	1290	286	1025
7-Dec-2006	3028	4425	1300	281	1046
10-Dec-2006	3090	*	1300	265	1075
11-Dec-2006	3150	4550	1301	255	1095

12-Dec-2006	3250	4625	1305	251	1099
13-Dec-2006	3360	4650	1300	260	1102
14-Dec-2006	3300	4650	1300	260	1102
17-Dec-2006	3400	4700	1301	325	1155
18-Dec-2006	3390	4700	*	300	1088
19-Dec-2006	3390	4700	1300	315	1135
20-Dec-2006	3300	4700	*	300	1088
21-Dec-2006	3300	*	*	318	1140
24-Dec-2006	3360	4700	*	329	1135
25-Dec-2006	3300	4690	*	335	1130
27-Dec-2006	3360	4690	*	335	1120
28-Dec-2006	3330	4650	*	328	1095
31-Dec-2006	3330	4650	*	315	
1-Jan-2007	3300	*	*	310	1078
2-Jan-2007	3300	4570	*	305	1075
3-Jan-2007	3250	4500	*	307	1035
4-Jan-2007	3260	4550	*	335	1110
7-Jan-2007	*	4575	*	335	1110
8-Jan-2007	3315	4600	1220	345	1100
9-Jan-2007	3350	4600	1220	360	1081
10-Jan-2007	3375	4600	1220	365	1120
11-Jan-2007	3400	*	1210	360	1100
14-Jan-2007	3400	4600	*	396	*
15-Jan-2007	3400	4600	*	415	1129
17-Jan-2007	3400	4600	1190	445	1120
18-Jan-2007	3400	4600	*	455	1096
21-Jan-2007	3375	4575	1140	410	1090
22-Jan-2007	3350	4575	1140	420	1050
24-Jan-2007	3300	4600	1140	410	1090
25-Jan-2007	3300	4575	*	393	1080
28-Jan-2007	3280	4550	*	375	1050
29-Jan-2007	3280	4500	*	365	1055
31-Jan-2007	3335	4550	1100	329	1065
1-Feb-2007	3340	4550	1105	*	1070
4-Feb-2007	3340	4500	1100	361	1070
5-Feb-2007	3340	4510	1110	*	1051
6-Feb-2007	3340	4480	1110	397	1055
7-Feb-2007	3340	4480	1125	358	1000
8-Feb-2007	3350	4481	1130	375	1075
11-Feb-2007	3340	4500	1145	372	1070
12-Feb-2007	3320	*	1150	375	1055
13-Feb-2007	3320	4500	1150	372	1055
14-Feb-2007	3325	4500	1150	366	1055
15-Feb-2007	3330	4525	1150	*	1055
18-Feb-2007	3320	4525	1125	355	1045
20-Feb-2007	3320	4500	*	335	*
21-Feb-2007	3320	4500	1100	335	1005
22-Feb-2007	3321	4500	1100	325	1012

25-Feb-2007	3320	4500	*	325	1000
26-Feb-2007	3320	4500	*	330	975
27-Feb-2007	*	4450	*	331	975
28-Feb-2007	3320	*	1049	*	950
1-Mar-2007	3318	4350	1045	330	960
4-Mar-2007	3318	4250	*	333	961
5-Mar-2007	3105	4250	1025	331	940
6-Mar-2007	3000	*	985	310	870
7-Mar-2007	2850	4000	*	360	869
8-Mar-2007	3025	4100	980	308	905
11-Mar-2007	3100	4100	1000	323	987
12-Mar-2007	3125	4275	1020	320	960
13-Mar-2007	3130	4250	1020	328	940
14-Mar-2007	3090	4215	1020	335	920
15-Mar-2007	3100	4250	1020	335	921
21-Mar-2007	*	*	1010	315	902
22-Mar-2007	3050	*	1010	313	900
25-Mar-2007	3050	4200	1000	318	901
28-Mar-2007	3030	4150	970	316	*
29-Mar-2007	3030	4130	960	305	880
1-Apr-2007	3240	4400	1056	328	968
2-Apr-2007	3240	4400	1056	328	970
3-Apr-2007	*	4350	1085	334	930
4-Apr-2007	3060	4280	1050	328	901
5-Apr-2007	*	4200	1050	320	910
8-Apr-2007	*	*	1040	*	912
9-Apr-2007	3061	4200	*	320	905
10-Apr-2007	3075	4200	*	312	905
11-Apr-2007	3100	4220	1050	310	915
12-Apr-2007	3150	*	1100	315	935
15-Apr-2007	*	4300	1125	309	940
16-Apr-2007	3200	4300	1131	300	932
17-Apr-2007	3250	4300	1130	303	925
18-Apr-2007	3300	4335	1130	300	933
19-Apr-2007	3400	4400	1130	298	932
22-Apr-2007	3350	4420	1130	301	930
23-Apr-2007	*	4430	1130	300	920
25-Apr-2007	3355	4450	1130	305	916
26-Apr-2007	3435	4460	1140	308	925
29-Apr-2007	3465	4470	1175	308	925
30-Apr-2007	3465	4550	1190	310	925
3-May-2007	3475	*	1190	305	975
6-May-2007	3500	4545	1185	300	969
7-May-2007	3515	4550	1185	300	969
8-May-2007	3530	4550	1180	307	950
9-May-2007	3540	4550	1200	301	950
10-May-2007	3540	4550	1180	306	955
13-May-2007	3535	4550	1200	306	955

14-May-2007	3500	4500	1190	305	*
15-May-2007	3475	4504	1180	305	925
16-May-2007	3470	4510	1180	338	930
17-May-2007	*	*	1180	371	950
20-May-2007	3525	4520	1210	351	958
21-May-2007	3550	*	1210	390	980
22-May-2007	3550	4520	1210	351	958
23-May-2007	3550	4540	1200	360	958
24-May-2007	3550	4550	1195	357	950
28-May-2007	3600	4572	1200	350	950
29-May-2007	3630	4700	1202	355	956
30-May-2007	3680	4750	1272	352	992
31-May-2007	3700	4750	1280	360	991
3-Jun-2007	3675	4725	1265	363	985
4-Jun-2007	3730	4700	1202	355	956
5-Jun-2007	3700	*	1270	382	1000
6-Jun-2007	3710	4750	1300	385	1015
7-Jun-2007	3720	4750	1352	385	1020
10-Jun-2007	3730	4775	1355	380	1055
11-Jun-2007	3750	4775	1390	389	1085
12-Jun-2007	3775	4820	1410	400	1085
13-Jun-2007	3815	4850	1410	425	1110
14-Jun-2007	3790	*	1360	*	*
17-Jun-2007	3800	4825	1359	410	1080
18-Jun-2007	3775	4825	1300	400	1050
19-Jun-2007	3800	4800	1311	385	1055
20-Jun-2007	3825	4896	1325	410	1020
21-Jun-2007	3850	5000	1356	400	1090
24-Jun-2007	3850	4980	*	410	1075
25-Jun-2007	3925	4980	1395	412	1090
26-Jun-2007	3930	5000	1400	435	1100
27-Jun-2007	4001	5000	1425	460	1100
1-Jul-2007	4020	5020	1425	487	1090
2-Jul-2007	4100	5050	1471	490	1090
3-Jul-2007	4175	5101	1475	462	1085
4-Jul-2007	4200	5400	1475	466	1100
5-Jul-2007	4252	5415	1470	477	1135
9-Jul-2007	4255	5415	1472	486	1150
10-Jul-2007	4325	5475	1472	485	1185
11-Jul-2007	4550	5600	1475	480	1185
12-Jul-2007	4768	5600	1500	494	1300
15-Jul-2007	4775	5725	1616	530	1338
16-Jul-2007	5050	5900	1760	550	1375

Source: www.nepalstock.com

Appendix-2

Daily Indices of Commercial Banks and NEPSE

Date	Commercial bank	NEPSE Index
17-Jul-06	439.67	388.16
18-Jul-06	442.15	389.74
19-Jul-06	448.50	393.68
20-Jul-06	451.84	395.89
23-Jul-06	454.69	397.95
24-Jul-06	455.07	398.21
25-Jul-06	453.76	397.35
26-Jul-06	450.23	394.86
27-Jul-06	438.38	387.34
30-Jul-06	437.01	386.50
31-Jul-06	424.28	378.76
1-Aug-06	405.01	366.73
2-Aug-06	391.98	358.69
3-Aug-06	387.37	355.60
6-Aug-06	399.99	363.56
7-Aug-06	428.41	383.14
8-Aug-06	440.82	390.86
13-Aug-06	442.29	391.73
14-Aug-06	439.84	390.29
15-Aug-06	437.89	389.23
17-Aug-06	435.14	387.94
20-Aug-06	429.64	384.79
21-Aug-06	426.16	382.91
22-Aug-06	422.98	380.83
24-Aug-06	421.91	379.93
27-Aug-06	420.00	378.81
28-Aug-06	419.22	378.24
29-Aug-06	420.97	379.27
30-Aug-06	423.44	380.73
31-Aug-06	426.39	382.24
3-Sep-06	426.95	382.63
4-Sep-06	426.91	382.50
5-Sep-06	424.08	380.92
7-Sep-06	424.38	381.47
10-Sep-06	423.80	381.42
11-Sep-06	423.58	381.37
12-Sep-06	425.62	383.60
13-Sep-06	425.24	383.17
14-Sep-06	424.46	382.56
17-Sep-06	*	*
18-Sep-06	432.81	387.59
19-Sep-06	441.40	393.02
20-Sep-06	442.14	393.39
21-Sep-06	440.16	392.09

24-Sep-06	439.79	391.62
25-Sep-06	440.84	392.41
26-Sep-06	441.63	392.73
28-Sep-06	443.78	394.25
8-Oct-06	448.82	397.46
9-Oct-06	451.01	399.10
10-Oct-06	450.98	399.45
11-Oct-06	448.87	397.98
12-Oct-06	449.37	398.88
15-Oct-06	449.48	399.22
16-Oct-06	447.76	398.20
17-Oct-06	448.08	398.44
18-Oct-06	447.90	398.14
19-Oct-06	450.47	399.65
26-Oct-06	452.67	401.07
29-Oct-06	455.62	403.02
30-Oct-06	458.73	405.13
31-Oct-06	463.22	408.38
1-Nov-06	452.12	402.11
2-Nov-06	469.29	413.10
5-Nov-06	472.67	415.14
6-Nov-06	478.33	419.56
7-Nov-06	485.14	424.21
8-Nov-06	504.08	435.88
9-Nov-06	517.28	445.01
12-Nov-06	522.45	448.69
13-Nov-06	508.51	441.00
14-Nov-06	510.02	445.03
15-Nov-06	509.21	448.12
16-Nov-06	508.20	447.43
19-Nov-06	509.45	447.79
20-Nov-06	506.20	445.58
21-Nov-06	507.84	446.48
23-Nov-06	517.39	453.03
26-Nov-06	531.00	463.74
27-Nov-06	539.12	469.51
28-Nov-06	550.86	478.01
29-Nov-06	571.45	492.46
30-Nov-06	562.00	486.19
3-Dec-06	553.28	479.83
4-Dec-06	548.43	476.93
5-Dec-06	545.15	475.01
6-Dec-06	541.85	473.31
7-Dec-06	544.87	476.80
10-Dec-06	550.18	480.95
11-Dec-06	556.71	485.71
12-Dec-06	567.87	494.18
13-Dec-06	577.66	503.02

14-Dec-06	584.68	508.58
17-Dec-06	592.79	514.36
18-Dec-06	593.92	517.00
19-Dec-06	592.79	517.45
20-Dec-06	582.08	511.22
21-Dec-06	586.24	515.39
24-Dec-06	590.02	518.64
25-Dec-06	593.44	520.96
26-Dec-06	593.42	520.78
27-Dec-06	591.85	520.02
28-Dec-06	586.36	517.46
31-Dec-06	582.02	514.42
1-Jan-07	580.23	512.72
2-Jan-07	573.14	508.96
3-Jan-07	565.10	505.25
4-Jan-07	574.13	512.32
7-Jan-07	584.82	521.37
8-Jan-07	588.71	525.27
9-Jan-07	596.28	530.45
10-Jan-07	599.28	532.28
11-Jan-07	596.21	532.33
14-Jan-07	600.72	537.09
15-Jan-07	602.72	538.36
17-Jan-07	603.43	538.53
18-Jan-07	601.20	535.94
21-Jan-07	592.15	529.81
22-Jan-07	588.18	527.05
24-Jan-07	587.71	526.33
25-Jan-07	581.52	523.63
28-Jan-07	576.85	519.92
29-Jan-07	566.28	512.70
31-Jan-07	566.88	513.34
1-Feb-07	574.80	519.05
4-Feb-07	574.55	519.77
5-Feb-07	573.59	520.20
6-Feb-07	574.65	520.65
7-Feb-07	571.52	519.69
8-Feb-07	576.65	523.11
11-Feb-07	578.20	524.79
12-Feb-07	576.90	523.94
13-Feb-07	574.55	525.08
14-Feb-07	575.95	525.86
15-Feb-07	577.02	526.97
18-Feb-07	571.58	525.69
20-Feb-07	566.27	523.20
21-Feb-07	561.37	520.46
22-Feb-07	558.09	519.07
25-Feb-07	555.48	517.79

26-Feb-07	550.89	514.66
27-Feb-07	545.52	511.85
28-Feb-07	544.01	511.81
1-Mar-07	539.43	508.89
4-Mar-07	535.59	505.37
5-Mar-07	524.90	498.26
6-Mar-07	506.89	485.98
7-Mar-07	492.04	476.07
8-Mar-07	509.55	486.81
11-Mar-07	523.56	496.64
12-Mar-07	529.39	500.72
13-Mar-07	527.84	500.12
14-Mar-07	521.91	494.06
15-Mar-07	520.33	493.88
21-Mar-07	517.58	492.32
22-Mar-07	516.05	491.47
25-Mar-07	511.10	488.52
28-Mar-07	502.39	482.52
29-Mar-07	501.00	480.99
1-Apr-07	532.20	502.15
2-Apr-07	541.89	507.46
3-Apr-07	533.75	501.67
4-Apr-07	518.34	491.61
5-Apr-07	514.89	488.93
8-Apr-07	514.02	488.22
9-Apr-07	513.13	487.43
10-Apr-07	512.59	487.01
11-Apr-07	516.87	489.03
12-Apr-07	525.64	494.59
15-Apr-07	531.09	497.73
16-Apr-07	531.45	498.02
17-Apr-07	533.35	498.91
18-Apr-07	536.70	501.27
19-Apr-07	539.80	503.29
22-Apr-07	539.26	502.72
23-Apr-07	537.58	501.53
25-Apr-07	539.27	502.60
26-Apr-07	544.38	506.62
29-Apr-07	549.18	509.62
30-Apr-07	555.20	513.69
3-May-07	557.61	514.65
6-May-07	557.74	514.99
7-May-07	559.06	516.14
8-May-07	560.12	517.42
9-May-07	561.13	518.62
10-May-07	561.30	518.28
13-May-07	559.27	516.80
14-May-07	553.92	513.45

15-May-07	552.01	512.38
16-May-07	555.21	515.20
17-May-07	599.77	518.55
20-May-07	570.54	525.64
21-May-07	570.16	525.15
22-May-07	566.00	522.23
23-May-07	566.29	523.46
24-May-07	567.51	525.05
27-May-07	567.43	524.92
28-May-07	568.72	525.94
29-May-07	577.91	531.96
30-May-07	591.26	540.67
31-May-07	591.03	541.38
3-Jun-07	584.86	537.74
4-Jun-07	590.58	542.14
5-Jun-07	593.40	544.14
6-Jun-07	601.52	549.96
7-Jun-07	604.39	552.06
10-Jun-07	614.65	559.15
11-Jun-07	622.04	564.51
12-Jun-07	634.08	572.72
13-Jun-07	648.93	583.55
14-Jun-07	637.22	575.04
17-Jun-07	628.80	569.45
18-Jun-07	618.35	563.49
19-Jun-07	622.91	567.28
20-Jun-07	639.93	578.81
21-Jun-07	646.01	583.44
24-Jun-07	645.10	584.01
25-Jun-07	651.34	588.21
26-Jun-07	654.18	590.29
27-Jun-07	653.41	591.65
1-Jul-07	655.21	593.65
2-Jul-07	662.27	598.52
3-Jul-07	666.18	602.87
4-Jul-07	677.38	611.08
5-Jul-07	681.89	613.47
9-Jul-07	684.56	615.43
10-Jul-07	692.44	620.61
11-Jul-07	710.57	633.02
12-Jul-07	726.88	643.15
15-Jul-07	748.48	657.47
16-Jul-07	789.21	683.95

Source: www.nepalstock.com

APPENDIX - 3

Names and Number of Observations of the Sampled Company

(From July 16 2006 to July 16 2007)

Based on Daily Closing Price

S.NO	Name of the company	No. of Observations
1	Nabil Bank Limited	205
2	Standard Chartered Bank	199
3	Himalayan Bank Limited	190
4	Nepal Bangladesh Bank	212
5	Bank of Kathmandu	220
	Total	1026

Sources: Based on official records of daily closing price of share transaction in NEPSE

APPENDIX-4

Frequencies

	NABIL	SCB	HBL	NB	BOK
N	205	199	190	212	220
Mean	3102.96	4360.09	1180.02	309.83	981.85
Std. Deviation	617.87	476.68	138.77	78.08	122.17
Variance	381758.78	227221.07	19257.17	6096.14	14924.75
Minimum	2035.00	3058.00	930.00	199.00	699.00
Maximum	5050.00	5900.00	1760.00	550.00	1375.00

APPENDIX-5

Simple Regression
Amount on Public issue
Model Summary

	Model
	1
R	.767(a)
R Square	.589
Adjusted R Square	.451
Std. Error of the Estimate	145.37671
F	4.291

a Predictors: (Constant), AMT

Coefficients (a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	60.598	157.106		.386	.725
	AMT	.186	.090	.767	2.071	.130

a Dependent Variable: NEPSE

Paid up Value
Model Summary

	Model
	1
R	.899(a)
R Square	.809
Adjusted R Square	.745
Std. Error of the Estimate	99.03124
F Change	12.712

a Predictors: (Constant), PAIDUP

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	-386.550	213.160		-1.813	.167
	PAIDUP	.044	.012	.899	3.565	.038

a Dependent Variable: NEPSE

Annual Turnover
Model Summary

	Model
	1
R	.929(a)
R Square	.864
Adjusted R Square	.819
Std. Error of the Estimate	83.60258
F Change	19.047

a Predictors: (Constant), TURNOVER

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	120.515	65.809		1.831	.164
	TURNOVER	.062	.014	.929	4.364	.022

a Dependent Variable: NEPSE

APPENDIX-6

Multiple Regressions

Model Summary

	Model
	1
R	.981(a)
R Square	.962
Adjusted R Square	.849
Std. Error of the Estimate	76.36459
F Change	8.475

a Predictors: (Constant), TURNOVER, AMT, PAIDUP

Coefficients (a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	-775.984	571.622		-1.358	.404
	AMT	-.291	.224	-1.196	-1.295	.419
	PAIDUP	.091	.059	1.862	1.535	.367
	TURNOVER	.015	.033	.221	.450	.731

a Dependent Variable: NEPSE

APPENDIX-7

Daily Autocorrelation coefficient for Lag 1 to 10, having natural log difference 1

Name of the company	Lag days									
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
NABIL	.258	.184	-.066	-.040	.014	.025	.038	-.076	.024	.055
SCB	.125	-.051	-.087	.023	-.018	-.032	-.131	-.010	-.073	-.035
HBL	-.182	.051	-.057	-.046	-.106	-.064	.005	-.014	.039	.016
NB	-.132	.247	-.023	-.014	.008	.014	-.084	-.058	-.056	-.027
BOK	.009	-.087	-.075	.063	-.058	.008	-.039	-.019	.015	.048
Average	0.0156	0.0688	-0.0616	-0.0028	-0.032	-0.0098	-0.0422	-0.0354	-0.0102	0.0114

A. The underlying process assumed is independence (white noise).

B. Based on the asymptotic chi-square approximation.

APPENDIX-8

Distribution of Signs of Coefficients

Lag	Number of +sign	Number of -sign	Total
1	3	2	5
2	3	2	5
3	0	5	5
4	2	3	5
5	2	3	5
6	3	2	5
7	2	3	5
8	0	5	5
9	3	2	5
10	3	2	5
TOTAL	21	29	50

APPENDIX-9

Standard Error (S.E.) of the Stocks

Name of the company	Lag days									
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
NABIL	.070	.067	.065	.064	.065	.065	.065	.064	.064	.065
SCB	.070	.064	.064	.065	.065	.064	.064	.064	.064	.064
HBL	.072	.069	.068	.067	.068	.067	.067	.066	.065	.064
NB	.068	.066	.065	.065	.065	.065	.065	.065	.065	.065
BOK	.067	.065	.065	.065	.065	.065	.065	.065	.065	.065