DAILY SHARE PRICE BEHAVIOR OF COMMERCIAL BANKS IN NEPAL

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RECOMMENDATION

This is to certify that the thesis:

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has been prepared as approved by this Department in the prescribed format of Faculty of Management.
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VIVA-VOCE SHEET

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and found the thesis to be the original work of the student and written according to the prescribed format. We recommend the thesis
to be accepted as partial fulfillment of the requirements for
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ABBREVIATIONS

BOK	Bank of Kathmandu Limited
CV	Coefficient of Variation
DPS	Dividend Per Share
EMH	Efficient Market Hypothesis
EPS	Earning Per Share
HBL	Himalayan Bank Limited
MBA	Master of Business Administration
MBS	Master of Business Studies
NEPSE	Nepal Stock Exchange Limited
NIC	Nepal Industrial and Commercial Bank Limited
PNC	Prithivi Narayan College
RWH	Random Walk Hypothesis
SBI	State Bank of India Limited
SCB	Standard Charter Bank
SD	Standard Deviation
SEBO/N	Securities Board of Nepal
SEC	Securities Exchange Center
SMC	Securities Marketing Center
SPSS	Statistical Program for social Science
S.E.	Standard Error
S & P 500	Standard and Poor Index 500
T. Bills	Treasury Bills
T.U.	Tribhuvan University
NABIL	Nepal Arab Bank Limited

CHAPTER I
INTRODUCTION

1.1 Background

The role of financial system is considered to be the key to economic growth. A well-developed financial system promotes investment by identifying and financing the business opportunities, mobilizing savings, allocating resources efficiently, helping diversity risk and facilitating the exchange of goods and services.[1]

Stock market in Nepal is a recent phenomenon. It is still in early stage of development. The history of securities market began with flotation of shares by Biratnagar Jute Mills Ltd and Nepal Bank Limited. The act of raising funds by issuing shares to the public in Nepal started in 1937. Almost two and half decades later, government issuance of development bond in 1964. But there was no secondary market to provide liquidity for these bonds until the establishment of securities market center in 1976. The Securities Exchange Center (SEC) used to manage and operate primary and secondary markets of long-term government securities and corporate securities. The establishment of securities exchange center under the company act was the first foundation stone for institutional development of the securities market in Nepal.

In 1993, Securities Exchange Act was enacted to regulate and develop the securities transaction and protecting the investors' interest. The Act provide some legal and institutional basis for the securities market development. The remarkable changes came only after the first amendment act in 1993 led to the establishment of Securities Board, Nepal (SEBO) and now SEBON to regulate and manage securities market. The SEC was converted in to Nepal Stock Exchange (NEPSE) with the objective of operating and managing secondary transactions of securities. After this conversion, the open-out cry system of trading among stockbrokers started. The second amendment of the same act was made in 1997. This amendment made provisions for registering securities business persons and submitting semi-annual and annual reports to SBON. It provides licenses to Stock Exchange and securities businesspersons (Stockbrokers, securities dealers, market makers and issue managers). It approves public issues of securities. NEPSE is the market operator and it provides membership to securities

[1] Fredric S. Mishkin 2001. The Economic of Money, Banking and Financial Markets, 6th Ed. New York: Addison Wesley Longman.

businesspersons. Listed companies and securities business persons report their performance to SEBON and NEPSE.

Financial markets play a fundamental role in the economic development of a country. They are the intermediary link in facilitating the flow of funds from savers to investors. By providing an institutional mechanism for mobilizing domestic savings and efficiently channeling them in to productive investments, they lower the cost of capital to investors and accelerate economic growth of the country. Financial intermediation between borrowers and savers is done by commercial banks. This credit market enables debt financing for investments. An alternative method of intermediation is through equity financing. This is possible through the development of capital markets. Capital markets which deal with securities such as stocks and bonds are associated with financial resource mobilization on a long term basis. By raising capital directly from the public, they lower the cost of capital. Capital markets allow for wider ownership among the public, thereby distributing risks and wealth among to smaller investors, they provide an effective vehicle for making investment choices which suit their own preferences of risk and returns based on available information. Capital markets help the economy to generate more savings and productive investments. A basic feature of an efficient capital market is constant liquidity that is an easy mechanism for entry and exit by investors. In developing countries, market instrument is very limited. As a result capital markets are very narrow based. They are constrained by limited investment opportunities and low income and savings rates. Financial sector development is a lengthy, evolutionary process. It is an indicator of the state of economic development of the country, since an efficient well developed financial market is only possible when there is substantial income generation and investment opportunities.

Stock market is a place where shares of listed companies are traded or transferred from one hand to another at a fair price through the organized brokerage system. Stock market refers to the secondary market for securities whereas the primary market is the place for new issues. The main functions of the security market are to provide continuous market for purchases and sales of securities at competitive prices. Stock market promotes the primary issuance of shares. Because investors participate in the issuance of Share Market for they can get back the fund easily. "The primary market is positively and highly elastic with the stock prices and the liquidity in the secondary market."[2] Stock market has got its own pros but the main concern is to be proper materialization it in practice to achieve maximum benefits.

[2] N.H. Sharma (1996). A Relation of Secondary and New Issue Market. Banijya Sansar (XIV):12–14.

"Securities market plays an important role in mobilizing savings and channeling them in to productive investment for the development of commerce and industry of the country."[3] It assists the capital formation and economic growth of the country. Nevertheless, the Nepalese Securities market still could not take its height. The further improvement of this market is crucial.

History indicates there are two basic theories of stock price behavior: the technical analysis theory and fundamental analysis theory. Fundamental analysis evaluates the 'intrinsic value' of a security. It is a stock valuation method that uses financial and economic analysis to predict the movement of security prices. A potential or current investor uses fundamental analysis to examine a company's financial results, its operation and the market(s). The fundamentalists maintain that any point of time every share has an intrinsic value which principle is equal to the present value of the future stream of income from that share discounted at an appropriate risk related rate of interest. Therefore the actual price of security is considered a function of a set of anticipated capitalization rate. To forecast future stock prices, fundamental analysis combines economic, industry and company analysis is to derive a stock's current fair value and forecast future value. If fair value is not equal to the current stock price, fundamental analyst either believe that the stock is over or under valued and the market price will ultimately gravitate towards fair value. Fundamentalists do not notice the advice of the random walkers and believe that markets are weak from efficient. The Random Walk Hypothesis (RWH) emerged from the empirical tests of changes in stock prices dates back to 1900.[4] It states that price changes cannot be predicted from earlier changes in any meaningful manner. In the decade of 1960s, however a "counter theory", first labeled 'Random walk' and later a 'Theory of Efficient Capital Markets' has been advanced to explain share prices fluctuations. Whereas technical analysis is radically different from fundamental analysis. It focuses the changes in security prices is only by the market date. The technical analysts believe that the price of a stock depends on supply and demand in the market place and governed by basic economic and psychological inputs. The technician thinks that the only important information to work from is the picture given by price and volume statistics. The past performance of a stock can then be harnessed to predict the future. The direction of price change is as important as the relative size of the change, with this various tools, the technician attempts to correctly catch the changes in trend and take advantage of them. If the

[3] Jas Bahadur Gurung "Growth and performance of Securities Market in Nepal, *"The Journal of Nepalese Business Studies* 1 (December 2004): 65.

[4] Radhe S. Pradhan and Basu D. Upedhyay. "The Efficient Market Hypothesis and the Behaviour of Share Prices in Nepal, *"The Nepalese Management Review* 12 (Journal 2004): 2.

fundamental analyst believes the market is 90 percent logical and 10 percent psychological, inversely the technical analyst assumes it is 90 percent psychological and 10 percent logical. Technical analysts do not evaluate a large number of fundamental factors relating to the company, the industry and the economy. Instead they analyze internal market data with the help of charts and the graphs. Technical analyst study the price action in securities market. To a technical analyst, profits can be made in any market by positioning oneself in the direction of the price trend. If the price trend is up, then look for opportunities to buy. If the price trend is down, then look for opportunities to sell.

1.2 Statement of the Problem

The major causes of deficiencies in the Nepalese stock market appear to be profitability and good governance of the company, government policy regarding investment, market operation system, investors' knowledge, information disclosures and in efficiency of the market.[5] Investor must able to make rational investment decision rather than blame to others. Most of the investor invest their fund in single security rather investing in portfolio of securities. Some investors are following their broker's advice rather their won decision for hiring and firing the securities. The follower investor will have to loss due to lack of professionalism and became pessimistic toward security market. It is very difficult to examine all these avenues of the stock market. However this research work will try to answer the following questions:

- What is the daily stock price behavior of the sampled commercial banks in Nepal?
- What is and how the behavior of NEPSE and commercial bank index moving on?
- Whether the stock market is efficient in pricing shares or not?
- Whether the RWH apply in Nepalese stock market or not?

1.3 Objectives of the Study

This research study basically focuses to analyze the daily stock price behavior of the sampled commercial banks in Nepal from July 16, 2009 to July 16, 2010. Each and every objective is trying to convince and inform us what the history, today and future of each industry and as a whole about Nepalese stock market and NEPSE index in relation with the commercial banks.

To make study easier, there are following specific objectives:

[5] Pradhan and Upadhyay, "Efficient Market Hypothesis and the Behaviour of Share Prices in Nepal," 1.

- To analyze the daily stock price behavior of the sampled commercial banks in Nepal.
- To analyze the behavior of commercial banks index and NEPSE index.
- To determine whether the Nepalese stock market is efficient in pricing shares.
- To examine whether the RWH apply in Nepalese Stock Market.

1.4 Significance of the Study

The activities of buying and selling securities in the securities markets are extremely important for the allocation of capital within economies. In Nepal, the major constituent of the securities market is the commercial banks. However there is a deficient of research work relating to this sector. This research work is to analyze the daily stock price behavior of the commercial banks in Nepal. Most of the investors want to invest over banks, financial institutions. Investors can obtain the information about the position of Nepalese stock market during study period. This study has importance to concerned authorities, market makers, management bodies, policy making body and importance to speculation.

1.5 Delimitation of the Study

This study has been conducted with certain limitations as others. Detailed study has not been carried out regarding the stock price behavior. This research has studied only daily successive price changes of equity shares. The major delimitations of the study are as follows:

1. This study has confined only to the commercial banking sector though NEPSE has listed other sectors too.
2. It has covered the short period, which is from July 16, 2009 to July 16, 2010.
3. It analyzes the secondary data by using few statistical tools like mean, standard deviation, coefficient of variation, serial correlation test and runs test.
4. The analysis and interpretation is based on available data and information. So the consistency of findings and conclusions strictly depends up on the reliability of secondary data and information.
5. This study lacks the primary data. It is based on secondary data, so it may certain reporting error.

1.6 Organization of the Study

This study is divided in to five chapters.

The first chapter, *Introduction* contains background of the study, Statement of the problem, Objectives of the study, Significance of the study, Delimitation of the study and organization of the study.

The second chapter, *literature Review*, covers the theoretical aspect of the study. It tries to define security markets, its classification and other theoretical review including the Nepalese securities market. Further it explains the research reviews related to international journals, Master's dissertations and Nepalese Journals.

The third chapter, *Research Methodology*, presents the research design, population and sample, sources of data, data collection procedures analyzing tools and limitation of the methodology.

The fourth chapter *Data presentation and analysis*, presents the graphical and statistical analysis of stock price behavior. It also includes analysis of NEPSE and commercial bank indices behavior. It examined the daily stock price behavior of sampled commercial banks by using the statistical tools like mean, standard deviation, coefficient of variation, serial correlation test and runs test. At the end of the chapter, it covers the major findings of the study.

The last chapter, *Summary, Conclusions and Recommendations*, summarizes the whole study, conclusions drawn from the findings and recommendations to the concerned authorities, companies, investors and future researchers.

CHAPTER II
REVIEW OF LITERATURE

This chapter reviews the related literatures of the study. Literature review is divided in to two parts: conceptual review and research review. Theoretical (conceptual) review deals with the theoretical aspects and concepts of basic terms used in the study and research review includes the reviews of International Journals, Master's Dissertations and Nepalese Journals.

2.1 Conceptual Review

This section presents the concept of securities, securities markets with its types and different approach of security analysis.

During the last three decades a number of studies have been conducted to examine and to test the efficient market hypothesis in its weak and semi-strong forms in developed stock market. Efficient market can not be directly tested. Over the years professionals and experts have been concerned with development and testing model of price behavior. It would be very hard to find a completely accepted price formation before describing the efficient market theory.

2.1.1 Concept of Securities

Securities are tradable interests representing financial value. They are often represented by a certificate. They include shares of corporate stock or mutual funds, bonds issued by corporations or governmental agencies, stock options or other options, other derivative securities, limited partnership units and various other formal "investment instruments."[6] A corporation is a legal "person" separate and distinct from its owners and has many of the rights, duties, can sue and be sued, and can enter into contracts. The corporate form's ownership can be readily transferred; life of corporations is not limited. Corporations have the relative ease of transferring ownership, the limited liability for business debts, and the unlimited life of the business. If a corporation needs new equity, it can sell new shares of stock and attract new investors.[7] The largest number of security buyers is that of individual

[6] Security. **Investor Dictionary.com.** July 22, 2010.
<http://www.investordictionary.com/definition/security+(finance).aspx>

[7] Stephen A.Ross, Randoph W. Westerfield and Brodfore D. Jordan, Fundamentals of corporate

investors who seek safety on their commitment and a reasonable certainty of a moderate but regular income. The speculator seeks large profits, even though considerable risk may be involved in it.

A new computer software which helps users communicate using the next-generation mega-net. Filled with entrepreneurial zeal. A college student wants to product Megacomm and set about bringing it to the market. To develop the product he needs to hire programmers, buy computers, and rent office space and so on. Unfortunately he is college student, he combined assets are not sufficient to fund a pizza party, much less a start-up company. He needs what is often referred to as OPM- other people's money. He first thought might be to approach a bank for loan. He would probably discover, however, that banks are generally not interested in making loans to start-up companies with no assets (other than an idea) run by fledgling entrepreneurs with no track record. Instead he search for capital would very likely lead to the pawnbroker. He must leave some items of value as security to borrow money from pawnbroker. If he 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 a profit. The terms of the agreement are recorded on pawn tickets. When someone borrows money to buy computers and the product, the lender usually holds formal title to the computers until the loan is repaid. In the event of default, the lender can repossess the computers and sell it to recover 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 simply 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 asset has 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 loan.

Finally, a firm may promise a right to share in its profit in return for investor's fund. Nothing is pledged, and no binding promises are made. The firm simply pledged whatever it’s the directors deem reasonable from time to time. However, the investor is given the right to participate in the determination of who will be members of the board of directors. The common shareholders have right to vote in the affairs of the company. This right protects the investor against serious malfeasance. A share of common stock and be sold to someone else then he/she will be able to exercise the investor's property right. The holder of common stock

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finance, 7th ed. New York: Mc Graw-Hill Irwin companies, 2006.

is said to be an owner of the company and can exercise the control over its operation through the board of directors. This piece of paper, serving as evidence of property rights, is called a security. It may be transferred to another investor, and with it will go all its rights and conditions. Thus, the term security will be used to refer a legal representation of the right to receive prospective future benefits under stated conditions.[8]

Briefly securities are intangible assets, represented by legal claims to some future benefit or future cash. They give the holders an ownership interest in the assets of a company as well as these have value in exchange. Securities are the term used interchangeably as financial assets or financial instruments.[9]

2.1.2 Securities Markets

The Securities market plays an important role in mobilizing savings and channeling them in to productive investment for the development of commerce and industry in the country. It assists the capital formation and economic growth of the country.[10] The well establishment of securities market cause the large growth of the economy in the U.S. and Eastern European Countries. Easter European Countries create 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 efficient operated security markets. Securities markets are defined a place or places where securities are bought and sold the facilities and people engaged in such transactions, the demand for an availability of securities to be traded and the willingness of buyers and sellers to reach agreement on sales.[11] Secondary markets include over-the-counter markets, the New York Stock Exchange, the Chicago Board of Trade and the American Stock Exchange.

They facilitate trading, the demand for and availability of securities to be traded and the willingness of buyers and sellers to reach agreement on sales. New York, London and Tokyo contain the largest securities markets in the world-all are about in equal in size.[12]

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[8] Willlam F. Sharge Gordon J. Alexander and Jeffery V.Bailyey, Investments 6th ed. (New Delhi: Prentice Hall of India Pvt. Ltd. 2005) 2-3.

[9] Frank J. Faborri and others foundations of financial market and institution, 3rd ed. (Singapore: Pearson Education, Inc. 2002) 2-3.

[10] Keshar J. Baral and Surya Kumar Shrestha. "Daily stock price Behavior of commercial Bank in Nepal," The Journal of Nepalese Business Studies 1 (2006): 100.

[11] Securities Markets. **Investor Dictionary.Com.** July 22, 2010. http://www.investordictionary.com/definition/securities+market.aspx>

[12] Jack clark Francis, *Investments: Analysis and Management* 5th ed. (New York: Mc Graw. Hill Inc. 1991) 68.

Trading goes on 24 hours in a day. Each market conducts trading differently. So that the securities markets should be viewed as components of global markets. In Nepal, the major constituent of the securities market is the share of commercial banks and behavior of price of commercial banks influences the Nepal Stock Exchange (NEPSE) index.

Money Market:

Money market is the market for short-term financial assets that are close substitutes for money usually with maturity of a year or less. The money market is a sub-sector of the fixed income market. It consists of securities that usually are highly marketable. Money market funds are easily accessible to small investors.[13] Money markets include short-term, highly liquid relatively low-risk debt instruments sold by governments, financial institutions and corporations to investors with temporary excess funds to invest. This market is dominated by financial institutions, particularly banks, and governments. The size of the transactions in the money market instruments range from one day to one year and are often less than 90 days.[14] The money market like all securities market provides a channel for the exchange of financial assets for money. It is differ from others in its emphasis up on loans to meet purely short-term cash needs.

Nepalese money market is quite poor in terms of securities traded. Institutions that deal completely on money market instruments are absent. Similarly many of instruments that are popular in developed money market like commercial paper, bankers' acceptances have not entered the Nepalese money market. Structurally, the money market is divisible under two sectors-organized and unorganized. The activities of commercial banks are systematically co-ordinate by the central bank, so called organized market. The unorganized market is largely made of indigenous bankers and money lenders. The institutions that operate in the money market are Nepal Rastra Bank and commercial banks. Instruments dealt are T-Bills and short-term bank loans. Nepal Rastra Bank frequently issues 91 days T-Bills and other taxable government securities in the money market. Banks are using certificate of deposits to create adequate liquidity and marketability. However corporations and public limited companies are not carrying good reputation to win public confidence to raise capital through the issue of commercial paper.

[13]Zvi Bodie, Alex Kane and Alan J Marcus, *Investments*, 2nd Reprint (New Delhi: Tata Mc. Graw Hill Publishing Co.Ltd. 2005) 32.

[14] Charles P. Jones, *Investments Analysis and Management*, 9th ed. (Georgie: John Wiley & sons, Inc. 2004) 28

In brief, money market is the safest of all investment alternatives. It is a large and wholesale market. The minimum denotations of these money market instruments are sufficiently large so that most individuals are excluded from participating in the market for them, the money market mutual funds offers savers a means to indirectly acquire this money market securities.[15]

Capital Market:

The market in which long term financial instruments, such as bonds are raised and traded is called Capital Market. It is belonged to long term securities or instruments traded in the Capital Markets which have maturity of more than one year. The funds available in capital markets are for long term purpose long term instruments such as shares, debenture, long term debt, preferred stock and other are traded at capital markets. It encompasses fixed income and equity securities with maturities greater than a year. Risk is generally much higher than in the money market because of the time to maturity and the very nature of securities sold in the capital markets.

Investment decisions are decided within the framework by the financial institutions and intermediaries comprising the capital market. It provides the mechanism for channeling current savings in to investments. This market enables suppliers and demanders of long-term funds to make bond and stock transactions. The backbone of the capital market is formed by the various securities exchanges to enhance the economic development.[16]

Capital market is more important than the money market in the channeling of long-term funds. It provides some degree of liquidity but not important as money market. The government established SMC in 1976 and enacted Securities Acts in 1963 to promote and regulate the market of open market securities. In spite of some efforts from the government, development of Nepalese capital market is in its infant stage. A large portion of capital market instruments is in the form of negotiated term-loan, which is not saleable in the market.

Primary Market:

The part of the securities markets which deals with the issuance of new securities is called primary market. Companies, government or public sector institutions can obtain funding through the sale of a new stock or bond-issue. The issue of new securities is commonly known as Initial Public Offering (IPO). IPO's are stocks issued by a formerly

[15] Herbert B. Mayo, *Investment an Introduction*, 4th ed. The New York: Dryden Press, 1980)38.
[16]Lawrence J. Gitman, *Principles of Managerial Finance* 2nd Indian Reprint (New Delphi: Saurab Printers Pvt. Ltd, 2004) 25.

private owned company selling stock to the public for the first time. Public offerings of both stocks and bonds typically are marketed by investment bankers, who in this role are called underwriters. Investment banking house is the institution that dominates the primary market and provides a platform for underwriting securities.

The primary market is that part of the capital markets that deals with the issue of new securities. Companies, governments or public sector institutions can obtain funding through the sale of new stock or bond issue. This is typically done through a syndicate of securities dealers. The process of selling new issues to investors is called underwriting. In the case of new stock issue, this sale is an Initial Public Offering (IPO). Dealers earn a commission that is built into the price of the security offering, though it can be found in the prospectus. Primary markets creates long term instruments through which corporate entities borrow from capital market.[17]

The issuer company issues or sale the securities to the public. The public receives the newly issued securities for the cash investment. It is related to issue of securities belongs to long term investment which is in the market at the first time. The volume of new issues depends up on the market conditions. When the market is high or rising, the number of new issues being offered to the public rises, and when the market is low or falling, the market declines. The issue of securities in the primary market leads to direct transfer of money from the savers to the issuers of the securities. Thus the primary market transfers the funds from savers to investors to make the capital available for investments in building, equipment, stock of necessary goods.[18]

Secondary Market:

After securities have been purchased in the primary market or that have already been issued in an initial private or public offering, they can be traded in the secondary market. Secondary market is organized market to enable buyers and sellers to effect their transaction more quickly and cheaply than they could otherwise. Secondary market can refer to the market for any kind of used goods. It is important that the secondary market be liquid and transparent. The majority of all capital market transaction occur in the secondary market do not go the original issuer but to the owners (sellers) of the securities.

The secondary market, also known as the aftermarket, is the financial market where previously issued securities and financial instruments such as stock, bonds, options and

[17] Primary Market .''**Wikipedia, The Free Encyclopedia**. 26 June 2010, 08:02. Wikimedia Foundation, Inc. 30 July 2010. <http://enwikipedia.org/wiki/primary_market>5.

[18] Manohar, K. Shrestha, Rajan B. Paudel and Dipak B. Bhandari, *Fundamental of Investments* (Kathmandu: Buddha Academic Publlishers B. Distributors, Pvt. Ltd. 2003) t>.

futures are bought and sod. [1]. The term "secondary market" is also uned to refer to the market for any used goods or assets or an alternative use for an existing product or asset where the customer base is the second market (for example, corn has been traditionally used primarily for food production and feed stock, but a "second" or "third" market has developed for use in ethanol production). Another commonly referred to usage of secondary market term is to refer to loans which are sold by a mortgage bank to investors such as Fannie Mac and Freddie Mac. With primary issuances of securities or financial instruments, or the primary market, investors purchase these securities directly from issuers such as corporations issuing shares in an IPO or private placement, or directly form the federal government in the case of treasuries. After the initial issuance, investors can purchase from other investor in the secondary market. The secondary market for a variety of assets can vary from loans to stocks, from fragmented to centralized, and from illiquid to very liquid. The major stock exchanges are the most visible example of secondary market-in this case, for stocks of publicly traded companies. Exchange such as the New York Stock Exchange, NASDAQ and the American Stock Exchange provide a centralized, liquid secondary market for the investors who won stocks that trade on those exchanges. Most bonds and structured products trade "Over the Counter," or by phoning the bond desk of one's broker-dealer. Loans sometimes trade online using a Loan Exchange.[19]

The availability of an efficient secondary market for securities is one of the most important factors including investors to acquire new issues of securities. The secondary market facilitates the mobility of funds. It harnesses the resources of the investors, with varying aversions to risk, in support of the primary market. An investor need a place where he/she can sell the securities that has been purchased in the primary market. The secondary market includes Over-the-Counter market which is a part of the secondary market. The phrase "Over-the-Counter" originated in the days when securities were traded over the counters of various dealers. This market is not a central physical market place but a collection of brokers scattered across the country. The market where the securities of the companies not listed in the stock exchange are traded is called "Over-the-Counter" market. The transaction of such securities are made by intermediaries and authorized dealers through negotiated bidding, over a massive network of telephone, fax, internet that links thousand of securities. Today the OTC market is more a way to do business than place. The OTC market competes

[19] Secondary Market '' **Wikipedia, The Free Encyclopedia.** 12 June 2010, 08:08 Wikimedia Foundation, Inc. 30 July 2010. <http://en.wikipedia.org/wiki/secondary_market.

with investment bankers and the organized exchange because OTC dealers can operates in both the primary and the secondary market.[20]

2.1.3 Nepalese Securities Market

Securities market provide an effective way of procuring long-term funds by issuing shares and debentures or bonds for corporate enterprises and government and at the same time provide an investment opportunity for individuals and institutions. Thus, the market place for these financial securities is called securities market which is further sub divided in to the primary market and secondary market. The history of capital market in Nepal dates back to 1936 in which year the shares of Biratnagar Jute Mills Ltd. were floated. In 1937, Tejarath was set up to facilitate loans to government employees and was converted in to Nepal Bank Ltd. HMG Nepal introduced the Company Act in 1964 and the first issue of government bonds made in the same year through Nepal Rastra Bank to collect the developmental expenditures. HMG Nepal announced the Industrial Policy in 1974 and under this policy an institution named Securities Marketing Center (SMC) was established to deal in government securities-development bonds and national savings bonds, and corporate securities of few companies. The government has the virtual monopoly over the security market. Then, Securities Exchange Center (SEC) was established in 1976 with an objective of facilitating and promoting the growth of capital market. Securities Exchange Act came in to force in 1984. Since then, SEC started to operate under this act. SEC had provided facilities to trade the government securities and few of corporate securities like shares and debentures. Only the shares of 10 companies were listed in SEC and there was involvement of no broker and dealer in the securities market. So, SEC itself was undertaking the job of brokering, underwriting, managing public issue, marketing for government bonds and other financial services. The interim government (1990/91) initiated financial reform and two indirect investment vehicles-Citizen's Investment Fund and NIDC capital Markets Ltd. Due to the world whim of privatization and economic liberalization, the operation of SEC was felt to change to make it compatible with the changing economic system. As a result, HMG Nepal brought about change in the structure of SEC by dividing it into two distinct entities-Securities Board, Nepal (SEBO/N) and Nepal Stock Exchange Ltd. (NEPSE) at the policy level in 1993. Since then they are operating as the main constituents of securities market in Nepal.

[20] J.C. Francis, Investments: *Analysis and Management.* 6th ed. (New York : Mc. Graw Hill Inc., 1999) 86.

NEPSE ltd. is non-profit organization, operating under Securities Exchange Act, 1983. The basic objective of NEPSE is to impart free marketability and liquidity to the government and corporate securities by facilitating transactions in its trading floor through market intermediaries such as brokers and market makers, etc. NEPSE opened its trading floor on January 13, 1994 through its newly appointed licensed members and has adopted an "Open Out-Cry" system for the transaction of securities. It means transactions of securities are conducted on the open auction principle on the trading floor. NEPSE has fixed the trading days and hours. Regular trading takes place on Monday and Friday, 11a.m.-12p.m. 2-3p.m from and respectively. However the trading on the floor of the NEPSE is restricted to listed corporate securities and government bonds. At present 177 companies have been listed their securities to make them eligible for trading during the fiscal year 2066/067.

The investors in Nepal have shown their growing interest in shares of the public limited companies, banks and financial institutions. At the same time their interest to price volatility has increasing day by day. Many public limited companies in Nepal are successful in floating the shares in securities market these days. The rising investment consciousness is the direct outcome of the keen interest shown by the general public. Whenever the public limited companies issue new shares the stock market gets busy with crowds of share applicants.[21]

In conclusion, The securities market plays an important role in mobilizing savings, and channeling them into productive investment for the development of commerce and industry of the country. It basically assists the capital formation and economic growth of the country. In many developing countries like Nepal, the undeveloped capital market is still prevailing in the economy. The Nepalese securities market still could not take its height. The further improvement of this market is very crucial. It helps in accumulating even small savings for development activities of the economy otherwise, which would have spent in unproductive areas. But it is true that there is no presence even of organized money market in rural areas, which covers almost 90 percent of the total areas of the country. Thus, the securities market is only confined to the very limited urban areas of Nepal. Despite these truths, an attempt has been made to analyze the growth trends and performance of Nepalese Securities Market.

[21] M.K. Shrestha, Capital Market in Nepal: Changing Dimensions and Strabegies, Nepalese Management Review (1992).

Primary Market:

Primary market of Nepal comprises of retail investors and a very small role of institutional investors. This attributes the limited size of the new issue market and non-availability of risk financing and merchant banking. Primary market is growing in importance as it provides of a good source for corporate financing. The main player in the issue markets are issue managers functioning as professional advisors to the issue and prospectus who take due diligent responsibility on the disclosures and work as registrars to the issue and take a lead role together with the issuer in the allotment of securities. The attraction of the primary market depends up on an efficient stock exchange coupled with efficient clearing and settlement system.[22]

Before the establishment of the SEC in 1976, there was no institutional arrangement to undertake and to manage the new issue of securities. A public limited company could make public offering according to the provisions of the companies' acts. The establishment of SEC in 1976, the enactment of Securities Exchange Act in 1983 and the constitution of SEBON are important milestones in the development of primary market in Nepal. Despite some positive indications, the primary market is still in infant stage.

Secondary Market:

The secondary markets set the levels of the prices of already issued securities, indicating the yields, interest rates, and price/earning levels that must be placed on the new securities in order to float them successfully on the primary market. The secondary market therefore, is an indicator or measuring rod for the costs of new capital funds. It facilitates the rationing of capital for a relatively higher price is set on the securities of industries whose prospectus seem to be promising.[23] The secondary market facilitates the mobility of funds. It harnesses the resources of the investors, with varying aversions to risk, in support of the primary market. An investor need a place where he can sell the securities that has been purchased in the primary market. Secondary markets are divided in to Over The-Counter market and Stock Exchange.

Stock Exchanges in many countries have long history of more than a century. These stock exchanges have faced so many difficulties during this period including sacking of brokers. We must note that just more than a decade is not sufficient to make a history of a

[22] Deepak Raj Kafle, "Primary Market Development in Nepal: Issues & Challenges. SEBON JOURNAL 2 (2005) : 26-27.

[23] Schwartz, corporate Finance. (New York: St. Martins Press, 1962) 384-386.

stock exchange but the NEPSE has created a history. There are changes in the NEPSE since the inception of Open-Out-Cry system of trading in 1993. The noted changes are the shifting of the office from rented house to owned house, the introduction of computer hardware and software systems in the clearance, appointment of two brokers as members of NEPSE Board of Directors, the shifting from T+5 system of settlement to T+3 system and changes in rules and regulations in favor of the market etc.

In our country, investors have shown greater confidence in secondary market during the stock market boom.[24] Since it is the calculative market based on financial information of the listed companies. Secondary markets have direct relation with the economic growth, which comes with more earning capacity, opportunities to save and opportunity to invest.

2.1.4 Security Analysis

Security analysis involves determining the level of risk and expected return of individual financial assets as well as group of financial assets. One who analyzes the securities the securities and makes recommendations is known as security analyst, or financial analyst.

Security analysis is the step of investment process. It involves the examining of several individual securities within the board categories of financial assets. One purpose for conducting such as examination is to identify those securities that currently appear to be missed price. There are two approaches of predicting stock price behavior: the technical analysis and fundamental analysis.

Briefly, technical analysis explains and forecasts changes in security prices by studying the market data. 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 price.[25] Technicians predict the stock price behavior by analyzing the pattern of price and volume of trading. But 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

[24] Monohar K. Shrestha and Deepak B. Bhandari, *Financial Markets and Institutions* (Kathamandu: Asmita Books Publishers and Distributors 2004) 17.

[25] Donald E. Fisher and Ronald J. Jordan, *Security Analysis and Portfolio Management*, 12th ed. Indian Reprint (New Delhi : Printice Hall of India Pvt. Ltd, 2000).

risk related rate of interest.[26] Thus the actual price of security is considered a function of a set of anticipated capitalization rate.

Fundamental Analysis:

Fundamental forecast stock price in the basis of economic, industry and company statistics. This analysis is the examination of the underlying forces that affect the well being of the economy, industry groups and companies. As with most analysis, the goal is to drive a forecast and profit from future price movements. At the company level, fundamental analysis may involve examination of supply and demand forces for the products offered. For the national economy, fundamental analysis might focus on economic data to access the present and future growth of the economy. To forecast future stock prices, fundamental analysis combines economic, industry and company analysis to derive a stock's current fair value and forecast future value. If fair value is not equal to the current stock price, fundamentalist don't need advice of the random walkers and believe that markets are weak from efficient. By believing that prices don't accurately reflect all available information fundamental analysts look to capitalize on perceived price discrepancies.

From the studies, fundamentalists projects a company's future profit and earning capacity with reasonable accuracy. What the price of the company's future profit and earning capacity with reasonable accuracy. What the price of the company's share ought to be? This estimated price is termed as intrinsic value. The intrinsic value of the stock is generally away from its present market value. Thus there is difference or gap between them. Fundamentalist reaches on investment decision by comparing this value with current market value; it is believed that price will rise. In this situation, fundamentalist will acquire shares as this difference presents them with an opportunity to make a profit. Alternatively, if the intrinsic value is lower the market value, the shares is overpriced and is an indication to the fundamentalists to sell. Following this rule, they believe, above average return can be attained, and given that market are inefficient in pricing the shares.

Fundamental analysis of a business involves analyzing its financial statements and health, its management and competitive advantages, and its competitors and markets. When applied to futures and forex, it focuses on the overall state of economy, interest rates, production, earnings and management. When analyzing a stock, future contract or currency using fundamental analysis there are two basic approaches one can use; bottom up analysis

[26]VK. Bhalla, *Investment Management: Security Analysis and Portfolio Management*. 6th ed. (Dew Delhi: Shand & Co. Ltd. 1999).

and top down analysis. Fundamental analysis is performed on historical and present data, but with the goal of making financial forecasts.[27]

Technical Analysis:

Technical analysis is an alternative approach to predict stock price behavior in the literature of investment management. It involves study of the past volume and price date of the stocks to predict future price fluctuations. Technical analysis is the study of the internal stock exchange information as such. The word 'technical' implies the study of the market itself and not of those external factors which are reflected in the market. The technician usually attempts to predict short-term price movement and thus makes recommendations concerning the timing of purchase and sales of either specific stocks or groups of stock (such as industrial) or stock in general.

According to Edwards and Magee the basic assumptions underlying technical analysis are as under:[28]

1) Market value is determined solely by interaction of supply and demand.
2) Supply and demand are governed by many rational and irrational factors.
3) In disregard of minor fluctuations in the stock market, share price tend to move in trends, which persist for an appreciable length of time.
4) Changes in trends are caused by shifts in supply and demand.
5) Shift in supply and demand, no matters why they occur can be defected sooner or later in charts of market action.
6) Some chart patterns tend to repeat themselves.

Technical analysis refers to the study of price action in securities markets. To a technical analyst, If the price trend is up, then look for opportunities to buy. If the price trend is down, then look for opportunities to sell.

Briefly, the effectiveness of technical analysis is debated. Some academics and market participants believe it has no existence. Still many active traders defend the practice and believe it can be profitable. Moreover, some academic researches support the claims of technical analysts. The technician views price changes and their significance mainly through price and volume statistics. His bag of tools and indicators, help him measure price-volume,

[27] "Fundamental Analysis.'' **Wikipedia, The Free Encyclopedia**. 29 July 2010, 18:43. Wikimedia Foundation, Inc. 12 Aug. 2010. <http://en.wikipedia.org/wiki/fundamental_analysis>.

[28] R.D. Edward and John Magee. Technical Analysis of Stock (West Virginia : Apring Fiels Mass. 1958).

supply demand relationships for the overall market as well as for individual stocks. Technicians seldom rely upon a single indicator, as no one indicator is infallible; they place reliance up on reinforcement provided by groups of indicators.

Efficient Market Hypothesis:

The Efficient Market Hypothesis evolved in the 1960s from the Ph.D. dissertation of Eugene Fama. Fama persuasively made the argument that in an active market that includes many well-informed and intelligent investors, securities will be appropriately priced and reflect all available information. The Efficient Market Hypothesis states that at any given time, security prices fully reflect all available information. The implications of the efficient market hypothesis are truly profound. Most individuals that buy and sell securities (stocks in particular), do so under the assumption that the securities they are buying are worth more than the price that they are paying, while securities that they are selling are worth less than the selling price. But if markets are efficient and current prices fully reflect all information, then buying and selling securities in an attempt to outperform the market will effectively be a game of chance rather than skill.

"An 'efficient' market is defined as a market where there are large numbers of rational, profit maximizes actively competing, with each trying to predict future market values of individual securities, and where important current information is almost freely available to all participants. In an efficient market, competition among the many intelligent participants leads to a situation where, at any point in time, actual prices of individual securities already reflect the effects of information based both on events that have already occurred and on events which, as of now, the market experts to take place in the future. In other words, in an efficient market at any point in time the actual price of a security will be a good estimate of its intrinsic value."[29]

An investment theory that states it is impossible to "beat the market" because stock market efficiency causes existing share prices to always incorporate and reflect all relevant information. According to the EMH, stocks always trade at their fair value on stock exchanges, making it impossible for investors to either purchase undervalued stocks or sell stocks for inflated prices. As such, it should be impossible to outperform the overall market through expert stock selection or market timing, and that the only way an investor can

[29] Efficient Market Hypothesis. **Investor Home**. June Aug. 13, 2010. <http://www.investorhome.com/esch.htm.>

possibly obtain higher returns is by purchasing riskier investments. Although it is a cornerstone of modern financial theory, the EMH is highly controversial and often disputed. Believers argue it is pointless to search for undervalued stocks or try to predict trends in the market through either fundamental or technical analysis. Meanwhile, while academics point to a large body of evidence in support of EMH, an equal amount of dissension also exists. For example investors, such as Warren Buffet have consistently beaten the market over long periods of time, which by definition is impossible according to the EMH. Detractors of the EMH also point to events, such as 1987 stock market crash when the Dow Jones Industrial Average fell by over 20% in a single day, as evidence that stock prices can seriously deviate from their fair values.[30]

There are three forms of the efficient market hypothesis.

1) The **"Weak" from** asserts that all past market prices and data are fully reflected in securities prices. In other words, technical analysis is of no use.
2) The **"Semi-Strong" form** asserts that all publicly available information is fully reflected in securities prices. In other words, fundamental analysis is of no use.
3) The **"Strong" form** asserts that all information is fully reflected in securities prices. In other words, even insider information is of no use.

[30]Efficient Market Hypothesis. **Investopedia, Inc.** August 13, 2010. <http://www. investopedia.com/terms/e/efficient market hypotheis.asp>.

Weakly Efficient or Random Walk Hypothesis:

The weak form of Efficient Market Hypothesis (EMH) states that current prices fully reflect the information contained in the historical price movements. The market is efficient in the weak sense if share price fully reflect the information implied by all prior price movements. Price movements in effects are totally independent of previous movements, implying the absence of any price patterns with prophetic significance. So, the past prices have no meaningful fluctuations, which can be used to earn above average return. The movements of future prices are independent to the previous prices or the series of price changes are random phenomenon. Actually, the weak form of EMH is referred to as random walk theory of share price behavior. Weak from of efficient market hypothesis is popularly known as random walk theory. Random Walk Theory gained popularity in 1973 when Burton Malkiel wrote "A Random Walk Down Wall Street," a book that is now regarded as an investment classic. Random Walk is a stock market theory that states the past movement or direction of the price of a stock or overall market can not be used to predict its future movement. Originally examined by Maurice Kendall in 1953, the theory states that stock price fluctuations are independent of each other and have the same probability distribution, but that over a period of time, prices maintain an upward trend. In short, random walk says that stocks take a random and unpredictable path. The chance of a stock's future price going up is the same as it going down. A follower of random walk believes it is impossible to outperform the market without assuming additional risk. Malkiel constantly states that a long-term buy and hold strategy is the best and that individuals should not attempt to time the markets. Attempts based on technical, fundamental or any other analysis are futile. He backs this up with spastics showing that most mutual funds fail to beat benchmark averages like the S & P 500.[31]

The hypothesis does have its detractors Profs. Andrew W. Lo of MIT and A. Craig MacKinlay set about to prove the theory wrong with their paper and synonymous book, "A Non-Random Walk Down Wall St.", published 1999 by the Princeton University Press. They argue that the random walk does not exist and that even the casual observer can look at the many stock and index charts generated over the years and see the trends. If the market were random it is argued, there would never be the many long rises and declines so clearly evident in charts.

[31] Financial concepts: Random Walk Theory. **Investopedia, Inc**. August 13, 2010. (http://www.investopedia.com/university/concepts/concepts 5.asp>

Random Walk says nothing more than that successive price changes are independent. This independence implies that prices at any time will on the average reflect the intrinsic value of the security. Investors active buying and selling of the stock in question will force the price back to its equilibrium position. If there are short-term random deviations from the intrinsic value, the RWH is entirely consistent with an upward or downward movement in price. This hypothesis supports fundamental analysis and certainly does not attack it.[32]

In brief, this is the oldest statement of hypothesis. It holds that past stock prices, trends and volume reflect in the present stock market prices. The knowledge of the past patterns does nothing tells about whether the price tomorrow, next week, or next year will be higher or lower than today's price. In addition, it does not aid value to the investors. If the random walk hypothesis is empirically confirmed, We may assert that the stock market is weak from efficient.[33]

The Semi-Strong Form:

The Semi-Strong Form of Efficient Market Hypothesis (EMH) asserts that security prices reflect all publicly available information. There are no undervalued or overvalued securities and thus, trading rules are incapable of producing superior returns. When new information is released, it is fully incorporated in to the price rather speedily. This hypothesis maintains that as soon as information becomes publicly available, it is absorbed and reflected in stock prices. Even if this adjustment is not the correct one, immediately the market will analyze properly within short period. Thus analyst would have great difficulty in trying to profit using fundamental analysis. Furthermore, even while the correct adjustment is taking place, it will not be possible for analyst to obtain superior returns on a consistent basis. Because the incorrect adjustment will not take place in a consistent manner, sometimes adjustments will not take place in a consistent manner. That is sometimes the adjustment will be over adjustment and sometimes they will be under adjustments. Therefore, an analyst will not be able to develop a trading strategy based on these quick adjustments to new publicly available information. Tests of Semi-Strong form of efficient market hypothesis have tended to provide support for the hypothesis.

[32] Random Walk. Theory. Stocharts.com August 14, 2010. <http://stockcharts.com/help/doku.php?id=chart_school:overview:random_walk_theory>.
[33] Bhalla, *Investment Management: Security Analysis and Portfolio Management*, 394-95

The Strong Form:

The Strong Form suggests that securities prices reflect all available information, even private information. Seyhun provides sufficient evidence that insiders profit from trading on information not already incorporated in to prices. The strongest version of market efficiency states all information in a market, whether public or private, is accounted for in a stock price. Not even insider information could give an investor the advantage. This degree of market efficiency implies that profits exceeding normal returns can not be made, regardless of the amount of research or information investors have access to.

2.2 Research Review

This sub-section is concern with the previous research work done by the different scholars. More specially, the chapter includes the review of international journals, Master's dissertations and Nepalese journals. Journals have been reviewed through the websites like www.blackwell-synergy.com, www.oxfordjournals.org, www.springer.link.com, www.emeraldinsight.com etc. However, Master's dissertations have been reviewed through the Western Regional Library of PNC, Central library of TU and the library of SEBON.

2.2.1 Review of International Journals

Kendall (1953) made significant contribution to advance in the study of the random walk model. He tasted the model on the weekly price changes of the 19 indices of British industrial shares and in the spot price series of cotton (New York) and Wheat (Chicago). He analyzed the data by serial correlation coefficient and concluded that the subsequent stock price movement follows Random Walk.[34]

Roborts (1959) he conducted simulation tests by comparing the simulation of random numbers and the Dow-Jones Industrial Average Index (DJIAI) for about one year. He absorbed the first difference of two series produce the same pattern. He gave a number of methodological suggestions for testing what he calls the chance model. He suggested run analysis for testing independence of price changes he analyzed stock price from New York Stock Exchange (NYSE) using daily log price changes which called Borwain Motion and share prices movements rise to support on Random Walk Hypothesis.[35]

[34] Kendal M.G. (1953). The Analysis of Economic Time. Series. Journal of the Royal Stastical Society (Series A).

[35] H. V. Robort, (1959). Stock Market Patterns and Financial Analysis: Methodological suggestion. Journal of Finance 14.

Solnik (1973) investigated the daily price of 234 common stocks of eight European countries normally France, Italy, UK, Germany, Netherlands, Belgium, Switzerland and Sweden for the time period from March 1966 to April 1971. He calculated the returns for various interval of the each stock and studied the distribution of serial correlation coefficient. He pointed out random walk is more apparent in the European stock price behavior in the American price behavior.[36]

Sharma and Kennedy (1977) tasted the random walk model by run test and spectral analysis against representative stock market indices of Bombay, New York, and London stock exchange during 1963-73. They found that the stocks on Bombay stock exchange obey random walk and are equivalent in sense to the behavior of share price in the market of developed countries.[37]

Gupta (1985) found out comprehensive test of the random walk hypothesis by employing serial correlation and run analysis in two sets of time series data. The two steps of time series data are the first was the economic time index, number of daily share prices and financial express index number of equity prices on a daily and other weekly series and another was a weekend closing price. He concluded on the basis of these test the random walk model share price behavior suggesting in the Indian Stock Exchange were efficient in the weak sense in pricing share.[38]

Laderman (1989), according to him, forget about what the stock market is going to do today, tomorrow and even next year. Instead, think about investing for the longer term, where do you start? First, identify the economic, social and technological forces that will dominate the next decade. Then, determine the trends that point to a treasure trove of stock opportunities, and their after, figure out what kinds of companies could profit from those trends.[39]

Chan, Gup and Pan (1997) have examined the relationship among the stock prices in eighteen national stock markets by using unit root of and co-integration tests for the period 1961-92.[40] All the markets were analyzed individually and collectively in regions to test for

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[36] B.H. Solnik, (1973). Note on the Validity of The Random Walk for European Stock Prices. Journal of Finance 28:1151-1159.

[37] J.L. & Kendey, Sharma, R. (1977). A comparative Analysis of Stock Price Behavior on Bombay, London and New York Exchanges. Journal of Financial and quantitative Analysis 3.

[38] O.P. Gupta (1985). Behavior of Share Price in India: A Test of Market Efficiency. New Delhi: National Publishing House.

[39] Jeffrey Laderman M. (1959). Modern Portfolio Theory. Englewood Cliffs: Prentice Hall.

[40] Kam C. Chan Benron E. Gup and Ming-Shiun Pan, "International Stock Market Efficiency and Integration: A Study of Eighteen Nations,"

market efficiency. The results from unit root tests suggest that the world equity markets are weak form efficient. The co-integration test results show that there are only a small number of significant co-integration vectors over the last three decades. However, the number of significant co-integration vectors increases after the October 1987 stock market crash, a result that is consistent with the contagion effect.

Huang (1998) has tested the overreaction hypothesis by examining the price behavior following daily limit moves. The sample includes all listed firms on the Taiwan Stock Exchange for the period 1971-1993. There are significant price reversals following the limit moves for both the up-limit and the down-limit cases. The price reversals can not be attributed the size effect. When the size effect is adjusted for, the price reversals remain significant.[41]

Blasco, Rio and Santamoria (1997) have tested the RWH in the Spanish stock market using disaggregated daily database spanning the period January 1980 to December 1992.[42] They have found that daily returns are strongly correlated and nonlinear dependent. Furthermore, using the variance-ratio test, that is robust to heterosce dasticity, the result suggests that the rejection of the RWH cannot be attributed completely to the effects of time varying volatilities. In this sense, the price changes can be potentially predictable over, at least, short time spans.

Dahal and Laabas (1999) have examined the behavior of stock prices in four GCC market: Bahrain, Kuwait, Oman and Saudi Arabia.[43] The data consists of weekly stock price indexes from September 1994 to April 1998. Three tests of the weak form of the EMH are applied. The first two, unit root and variance ratio, test the hypothesis that returns follow a random walk. The third regression tests for autocorrelation of returns. In the case of the Kuwaiti market, the results strongly support weak form of efficiency. As to the other three markets, only one of the tests (regression of returns) rejects the weak form of the EMH when

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Journal of Business Finance and Accounting 24, no. 6 (July 1997): 803. Aug. 20, 2010 <http://www.blackwell_synergy_com/doi/obs/10.111/1468-5957.001134 ? Pres search allfield%3A%28 random + walk+hypothesis%29and+%28allfield%3A 28 weak +form of +market+efficiency+test%29%29>.

[41] Yen-Sheng Huang, "Stock Price Reactin to Daily Limit Mouse: Evidence from the Taiwan Stock Exchange." **Journal of Business Finance and Accounting**, 25, no. 3 and 4 (April/May 1998): 153 Aug. 20, 2010. <http://www.blackwell_synergy_com/doi/obs/10.111/1468-5957.00193 ? Pres search allfield%3A%28 random +walk+hypothesis%29and+%28allfield%3A 28 stock + price+behavior%29%29>.

[42] Natividad Blasco, Cristina Del Rio and Ratael Santomaria, "The Random Walk Hypothesis in the Spanish Stock Market: 1980-1992," **Journal of Business Finance and Accounting** 24, no. 5 (June 1997) : 667. Aug. 20,2010 <http://www.blackwell_synergy_com/doi/obs/10.111/1468-5957.001284 ? Pres search allfield%3A%28 efficiency +market+ hypothesist%29>.

[43] R. Dahal and B. Labas, "The behavior of Stock Prices in the GCC Markets/" **Papers, no** 9917 - (1999) : 17 Aug-23, 2010, <http://ideas.repec.org/p/tth/ecrefo/9917.html>.

the total period is considered. However when the sample is split in to two sub-periods, the efficiency hypothesis is not rejected for the second sub period in two of the markets and only by a small margin in the case of the Saudi Arabian market.

Darrat and Zhang (2000) have used two different approaches, the standard variance-ratio test of Lo and McKinley and a model-comparison test that compares the ex-post forecasts from a NAÏVE model with those obtained from several alternative models: Autoregressive Integrated Moving Average (ARIMA), Generalized Autoregressive Conditional Heteroskedasticity (GARCH) and Artificial Neutral Network (ANN).[44] To evaluate ex-post forecasts, they have utilized several procedures including Root Mean Squared Error (RMSE), Mean Absolute Error (MAE), Theil's U, and encompassing tests. The model-comparison approach is quite decisive in rejecting the RWH in both Chinese stock markets of Shanghai and Shenzhen. Moreover, their results provide strong support for the ANN as a potentially useful device for predicting stock prices in emerging markets.

Abeysekera (2001) has examined whether the behavior of stock prices on the Colombo Stock Exchange (CSE) is consistent with the weak form of the EMH.[45] Runs, Autocorrelation and co-integration tests are applied to daily, weekly and monthly CSE index data for the period January 1991 to November 1996. Results of Runs, Correlation and Co-integration tests overwhelmingly reject the serial independence hypothesis, leading to the conclusion that the behavior of stock prices in the CSE is not consistent with the weak form of the EMH. Tests of the-day-of-the-weak effect, however, show that there is no evidence of such a phenomenon on the CSE stock prices. Results of the tests of the-month-of-the-year effect lead to the conclusion that CSE prices do not display any month specific behavior.

Yilmaz (2001) has studied the conjecture that the relationship between market development and efficiency can be possibly captured by the weak-form market efficiency tests applied to moving sub sample windows.[46] The variance-ratio-based Multiple Comparison Test (MCT) is applied to weekly and daily returns for emerging 21stock markets over the 1988 to 2000 period. Tests on both weekly and daily return series indicate that over

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[44] ALi F. Darrat and Maosen Zhong, "On Testing the Random Walk Hypothesis: A Model Comparison Approach, " **Financial Review** 35, no. 3 (August 2000) : 105. Aug. 23, 2010. <http://www. blackwell_synergy_com/doi/obs/10.111/J.1540-6288.2000 tb01423.×? prevsearch=allfield%3A%28random+walk+hypothesis%29>.

[45] Sarath P. Abeysekera, "Efficient Markets Hypothesis and the Emerging Capital Market in Srilanka: Evidence from the Colombo Stock Exchange - A Note." **Journal of Business Finance and Accounting** 28, no. 1-2 (January/March 2001) : 249. August 28, 2010, <http://www. blackwell_synergy_com/doi/obs/10.111/1468-5957.00373? prevsearch = allfield%3A%28 efficiency+market+hypothesis%29>.

[46]Kamil Yilmaz, "Market Development and Efficiency in Emerging Stock Markets," **Working Paper Series**, (June 2001). August 28,2010. <http?//paper.ssrn.com/sol3/papers.cyfm/abstract-id=280889>.

time there is a move toward market efficiency. In those markets that showed rapid development, it becomes difficult to reject the RWH as observations pertaining to earlier periods are dropped from the sample. However, in Mexico and East Asian countries stock price behavior started to diverge from random walk behavior soon after the reversal of portfolio equity flows during the financial crises that affected these countries.

Smith, Jefferis and Ryoo (2001) have identified four categories of formal stock market in South Africa.[47] RWH is tested for five medium sized markets (Egypt, Kenya, Morocco, Nigeria and Zimbabwe) and two small new markets (Botswana and Mauritius) using the multiple variance ratio test of Chow and Denning. The hypothesis is rejected in seven of the markets because of autocorrelation of returns. For the South African market, the stock price index follows a random walk. The paper also suggests factors, which may contribute to whether or not an equity market follows a random walk.

Sunil Poshakwale (2002) has examined the RWH in the emerging Indian stock market using daily data on individual stocks.[48] The statistical evidence in his paper rejects the RWH. The results suggest that daily returns earned by individual stocks and by an equally weighted portfolio show significant non-linear dependence and persistent volatility effects.

Claire and McManus (2003) have examined the existence of weak form efficiency in the equity markets for the period July 1995 through 2000.[49] Univariate and multivariate tests provide some evidence that stock prices indexes exhibit a random walk, which constitutes evidence for weak-form efficiency. This differs in some cases from studies using data for the initial years of these markets. The variance ratio test yields somewhat mixed results concerning the random-walk properties of the indexes. A model comparison test compares forecasts from a NAÏVE model with ARIMA and GARCH alternatives. Results from the model-comparison approach are consistent in rejecting the RWH for the three central European equity markets (the Czech Republic, Hungary, and Poland).

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[47]Graham Smith, Keith Jefferis and Hyun-Jung Ryoo, "African Stock markets: Multiple variance rafio tests of random walks," **Applied Financial Economics** 12, no. 7 (July 02, 2001):475-484.Aug 28, 2010.
<http://taylorancdfrancis.metapress.com/ch2wgy30quli455iltke155)/app/home/contributionasp?referer=parent&backto=issue,3,8:Journals65,106;unking publicationresult,1:101479.1>.

[48] Sunil Poshankwale, "The Random Walk Hypothesis in the Emerging Indian Stock Market," **Journal of Business Finance and Accounting** 29, no.9 and 10 (Nov./Dec.2002):1275., Aug.24, 2010.
<http://www.blackwell_synergy_com/doi/obs/10.111/1468-5957.00469? Pres search allfield%3A%28random+walk+hypothesist%29>

[49] Claire G. Gilmore and Ginette M.. MC Manus, "Random-walk and efficiency tests control European equity markets." **Managerial Finance** 29, no.4 (May 2003). 42-61, Auguest 28, 2010.
<http://www.ingentaconnect.com/content/mcb/oop/2003/00000029/0000000/art00003>.

Tas an Dursunoglu (2005) have tested the weak form market efficiency of Istanbul Stock Exchange (ISE).[50] Daily stock returns over the period from January 1995 to January 2004 were used for the random walk test. They have used National 30 index companies of ISE. They have analyzed runs tests and Dickey-Fuller unit root test. It is concluded that both the results of Dickey-Fuller tests and run tests are similar and rejected random walk in ISE.

2.2.2 Review of Master's Dissertations

Bhattarai (1990) has concluded that majority of the companies displayed lower price-earning ratio.[51] As a result; market prices of the shares are highly skewed. Furthermore, there is a mismatch between calculated and quoted price. Increasing number of financial institutions plus individual investors raised the transaction volume. Speculation of shares is also encouraged.

Aryal (1995) has studied the general behavior of stock market prices.[52] This study covered eight months period from January 13, 1994 to September 13, 1994 and the number of sample is twenty-one stocks listed in the NEPSE. Statistical tools like serial correlation and run tests are used to analyze the data. He has concluded that the assumption of independence according to RWH has been rejected at least for Nepalese stock market. The rejection of hypothesis made clear the knowledge of past information becomes useful in predicting the future movements of stock market prices.

Bhatta (1997) has carried out a study on dynamic of stock market in Nepal.[53] He had employed mean, standard deviation and other essential tools for the study purpose of fourteen companies listed in NEPSE. The prime objective is to analyze the market share price of secondary market. The main conclusion drawn that stock market is regarded as the heart of the capital market. There is high volatility of share prices.

Shrestha (1999) has carried out a study on stock price behavior in Nepal.[54] The data are collected from the thirty companies. The study has examined data from January 13, 1994 until mid July 1998. Run test and serial correlation are used as statistical tools in the study. The main objective is to examine the independence and randomness of the successive daily prices changes of the individual stocks. He has concluded that the serial correlation

[50]Oktay Tas and Salim Dursunoglu, "Testing Random Walk Hypothesis for Istanbul Stock Exchange," **IMF Working Papers**, 142, no. 3. (May 2005) : 22, Aug. 28, 2010. <http://ideas.repec.org/P/imf/imfwpa/o3-142.html>.

[51] Anjani Raj Bhattarai, "Share Market in Nepal" (MBA diss., Tribhuvan University 1990).

[52] Muktu Aryal, "The Behavior of Stock Market Prices" (MBA diss., T.U., 1995).

[53] B.P. Bhatta, "Dynamic of Stock Market in Nepal (MBA diss., Tribhuvan University, 1997).

[54] Surya Chandra Shrestha, "A Study on Stock Price Behavior in Nepal" (MBA diss., T.U., 1999).

coefficient of the daily price changes for 1 and 2 lag days and runs of the series of daily price changes lead to conclude that the successive price changes are dependent. It implies that the information of the past price changes is helpful in predicting future price changes.

Gurung (1999) has conducted a study on share price behavior of listed companies in Nepal.[55] The major objective of the study is to analyze the share price behavior of listed companies. The sample for the study is fifteen companies listed in the NEPSE. Statistical tools like average, correlation coefficient and probable errors are used. He concluded that the number of listed companies has been increasing during the study period. It signifies that there is an expansion of capital market. The overall performance of commercial banks is better than that of trading companies. However, there is uncertainty and instability in the stock market. The market has totally changed in to bearish situation in the later years of study period.

Paudel (2002) has 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 bank's performance in the secondary market.[56] 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 variables. Nepal Stock Exchange (NSE) operated in a weak from of EMH, including that 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 joint venture commercial banks. Therefore, the shares of joint venture banks emerge as a blue chip in the Nepalese Stock Market (NSM).

Mainali (2003) has studied the share price behavior of listed commercial banks.[57] He has analyzed the daily closing price of ten listed commercial banks. The study concludes that the successive daily price changes of commercial banks are dependent.

Neupane (2004) has tried to explore the factors that have significant influence on the stock price.[58] NEPSE is in its primary stage, adopting open out cry system for stock trading and stockbrokers lack professionalism to create investing opportunities in NEPSE. Commercial banking sector has dominated the overall performance of NEPSE. Companies'

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[55] Jas Bahadur Gurung, "Share Price Behavior of Listed companies in Nepal" (MBA diss., Tribhuvan University, 1999)

[56] P.K. Paudel, "Share Price Behavior of Joint Venture Banks in Nepal;; (MBS diss., Tribhuvan University, 2002)

[57] Mahesh Mainali, "A Study on Share Price Behavior of Listed commercial Banks" (MBS diss., Tribhuvan University, 2003).

[58] Apar Neupane, "Determinants of Stock Price in NEPSE" (MBS diss., Tribhuvan University, 2004).

performance earnings, dividend, book value, risk, information disclosed, timely AGM, national economy, demand and supply situation, political instabilities like strike, demonstrations, ceasefire and peace talks (and their outbreak) are the major factors affecting the share price in the NEPSE, according to the respondents of survey. Interest rate, retention ratio, global economy, market liquidity, season, day of the week, size of the firm, change in the management do not significantly affect the price of the share in NEPSE. There is a deficiency of proper laws and policies regarding the capital market. Therefore, shareholders are feeling unsecured to invest in the security markets.

Shrestha (2002) has conducted the study on EMH in the context of Nepal.[59] It focuses on the relevance of EMH to the pricing of shares in the NEPSE. Thirty-five companies are selected as a sample for the study. It analyzes the monthly primary data and secondary data. The study concludes that the NEPSE market is inefficient with respect to any of so-called level of efficiency.

Paudel (2005) has completed the study on share price behavior of listed companies in Nepal.[60] The general objective of the study is to examine price behavior of stock market. Twenty-one listed companies are taken as a sample for a period of July17, 2003 to July 16, 2004 to test the serial correlation and runs test. This study has found that the capital market of Nepal is still in nascent stage. Transactions of the commercial banks are in better position than the other sectors, serial correlation coefficient and run test of successive price changes are dependent; it implies that the investors can predict the future price changes. In other words, in the Nepalese context RWH does not hold true.

Thapa (2006) has studied the behavior of Nepal Stock Exchange (NSE) index.[61] The study endeavors to examine the efficiency of the behavior of NEPSE index. It covers the period of five years from 2000 to 2005 by considering all the sectors. Conclusion said that the growth of the capital market is in slow process. 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.

Shrestha (2006) has studied the behavior of Daily Stock Price of Commercial Banks in Nepal.[62] He has analyzed the daily stock prices in the fiscal year 2005/06. In his study observations of daily stock prices of sampled banks indicate there is a large variation in their

[59] Krishna Shrestha, "Efficient Market Hypothesis in Context of Nepal." (MBS diss., T.U., 2004).
[60] Resham Lal Paudel, " Share Price Behavior of Listed companies in Nepal." (MBS diss., T.U. 2005)
[61] Yam Maya Thapa, "Behavior of Nepal Stock Exchange Index", (MBS diss., T.U. 2006).
[62] Surya Kumar Shrestha,"Daily Stock Price Behave of Commercial Banks in Nepal" (MBS diss., T.U.2006).

stock prices. They are not doing well in Nepalese stock market. Most of the serial coefficients are significantly deviated from zero and statistically insignificant. It signifies that the successive price changes are dependent. Therefore, the Nepalese stock market is inefficient in pricing the shares. Runs test results also show 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.

2.2.3 Review of Nepalese Journals

Ojha (2002) has conducted a mini research on financial performances and common stock pricing.[63] The major findings of the research are; Nepalese stock market is in infant stage, dominant of banking sector is prevalent in the market in comparison to the other industries including finance, insurance and manufacturing companies. He also concluded that people have a misconception about the issuance of the bonus shares and right shares. Because it actually decreases the price and this makes them to invest even at a too high price with expectation of getting the same to increase their overall wealth. Further, he concluded that stock price in Nepal is determined more by other factors rather than the financial performance of the concerned company.

Pradhan and Upadhay have conducted a study on the efficient market hypothesis and behavior of share prices of Nepal.[64] The core objective of the study is to make a comprehensive investigation of "weak" and slightly 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 conducted for the first time in order to find out more subjective facts on share price behavior, which con not be determined by the use of secondary sources of data. Statistical tools like serial correlation, the run tests, 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.

The main conclusion determined from the study is that the Nepalese stock market might not be termed as "Weakly Efficient" in pricing shares. The main factors affecting share prices perceived by the respondents are dividends, retained earnings, bonus shares and right

[63] K.P. Ojha, "Financial Performance and Common Stock Pricing" *A Mini Research Central Department of Management,* T.U. (2002).
[64] Pradhan and Upadhyay, "The Efficient Market Hypothesis and the Behavior of Share Prices in Nepal," 1-27.

issues. The share prices have been found more volatile than the expected dividends. Similarly, publicly available information is useful in indifferent towards makings or non makings of information public. The respondents slightly accepted the weak form of EMH. The study also found that the shareholders in high tax brackets do not prefer retained earning instead of dividend.

CHAPTER III
RESEARCH METHODOLOGY

Research Methodology is a blue print on how researcher achieves the set of objectives of the study. In another word, it is the way from which researcher solve the research problem. This chapter tries to explain research methodology such as research design, population and sample, sources of data, data collection techniques and data analysis tools of the research study. It describes how researcher studying research problem along with the logically and is to be done scientifically.

3.1 Research Design

In this study, researcher has employed the descriptive and analytical research designs. Descriptive design is adopted to analyze the behavior of daily stock price of the sampled banks, NEPSE index and commercial bank index. Similarly analytical research design is adopted to identify the independence and the randomness of the successive stock price movements. Further, it interprets the empirical results.

3.2 Population and Sample

For the test of random walk hypothesis, actively traded commercial banks stocks are used in the study. The study has covered sampled six commercial banks share price for the fulfillment of the objectives of the research. The name of banks and total number of observations used in the study is presented in the table below:

Table 3.1 Total Number of Observations

S.N.	Banks	No. of Observations
1.	Bank of Kathmandu (BOK)	223
2.	Himalayan Bank Limited (HBL)	203
3.	Nepal Arab Bank Ltd. (NABIL)	223
4.	Nepal Industrial & Commercial Bank Ltd. (NIC)	210
5.	Nepal SBI Bank Ltd. (NSBI)	216
6.	Standard Charted Bank Ltd. (SCB)	224
	Total:	1308

Sources: Worked out from Appendix 3.1

3.3 Sources of Data

This research is fully based on the secondary data. The major sources of secondary data are national daily newspapers, annual trading reports of NEPSE & SEBON and their official website like www.nepalstock.com, www.sebonp.com, and www.bm.com.np. However, primary data are also necessary for the support of the study.

3.4 Data Collection Techniques

The required data used in the study are secondary in nature; they are browsed through the official website of NEPSE, i.e. www.nepalstock.com, www.bm.com of business manager. Similarly data are collected from the annual trading reports of NEPSE and SEBON, business magazines and newspapers. Different journals, magazines government publications etc. are also used as the sources of secondary information. In order to collect other required data and information, the researcher has visited the offices of SEBON in Thapathali and NEPSE in Singhadurbar Plaza, Kathmandu.

3.5 Data Analysis Tools

Different statistical tools are used to analyze the data in this study. Statistical tools like Mean (μ), Standard Deviation (SD) and Coefficient of Variation (CV) are used to analyze the volatility of the daily stock prices and indices of commercial banks and NEPSE. Similarly, independence and the randomness in the daily stock prices are measured by statistical tools like serial correlation and runs test. Data are processed in computer through software like SSPS & Ms-Excel. SSPS is used for the calculation of mean, SD, CV and serial correlation and used to determine the Run Tests and Ms-Excel is used for computation of data and drawing of the graphs.

Mean (μ)

Among different measures of central location, the best known and the most widely used is the arithmetic mean. The most common method, generally referred to the average is arithmetic mean. The mean of a set of values is the sum of the values divided by their number.[65] It can be calculated for any set of numerical data, so it is always exists. For a data

[65] J.E. Freund (1984). Modern Elementary Stastics. New Jersey: Prenita Hall, Inc. P. 39.

set, the mean is just the sum of all the observations divided by the number of observations. The mean can be expressed symbolically as,

$$\mu = \frac{\sum X}{N} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(3.1)$$

Where, μ = The population mean

$\sum X$ = Sum of the values of all observations

N = Total number of observations.

Standard Deviation (σ):

The Standard Deviation (SD) of a probability distribution, random variable or population or multi set of values is defined as the square root of the variance.[66] The SD is measured in the same units as the values of the population. The SD is the root mean square (RMS) deviation of the values from their arithmetic mean. It is the most common mea sure of statistical dispersion, measuring how spread out the values in a data set is. If the data points are close to the mean, then the SD is close to zero. If many data points are far from the mean, then the SD is far from zero. If all the data values are equal, then the SD is zero. The practical value of understanding the SD of a set of value is in appreciating how much variation there is away from the mean. Standard deviation can be expressed symbolically as,

$$\sigma = \sqrt{\frac{\sum(X-\mu)^2}{N}} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(3.2)$$

Where, σ = Standard Deviation of Population

x = Value of Observation

μ = Population Mean

N = Total No. of Observations

$\sum$ = Sum of all values $\sum(X-\mu)^2$

Coefficient of Variation (CV):

Coefficient of variation is a relative measure of dispersion which can be obtained by expressing the standard deviation as a percentage of arithmetic mean. In other words the coefficient of variation can be defined as the ratio of standard deviation to the mean

[66] Standard Deviation. "Wikipedia, The Free Encyclopedia.25 Oct. 2010, 00:28 UTC w:Kimedia foundation, Inc. 2 Nov. 2010. <http://en.wikipedia.org/w/index.php?title=standard_deviation&oldid=90120700>.

expressed in percentage. The coefficient of variation is applicable for the comparison of variabilities of two or more distributions.

The CV is also common in applied probability fields such as renewal theory, queuing theory and reliability theory. In these fields, the exponential distribution is often more important than the normal distribution. The CV of an exponential distribution is equal to its mean, so its CV is equal to 1. Distributions with CV<1 are considered low-variance, while those with CV>1 are considered high-variance. It can be expressed symbolically as,

$$CV = \frac{\sigma}{\mu} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(3.3)$$

where, σ = SD of Population

μ = The Population Mean

CV = Coefficient of Variation

Serial Correlation:

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

For given time series, U_t is defined as the change in log price of a given security from the end of day $_{t-1}$ to the end of day $_t$, the serial correlation coefficient for lag (k) is,

$$r_k = \frac{\text{Co Variance } (U_t, U_{t-1})}{\text{Variance } U_t} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(3.4)$$

If the distribution of U_t has finite variance, then in very large samples the Standard Error (S.E.) of r_k is given by:

$$\text{S.E. } (r_k) = \sqrt{1(N-K)} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(3.5)$$

Where, N = Size of the sample

K = Lag period.

The actual tests of serial correlation are not performed on the daily prices themselves but on the first differences of their natural logarithms.

$$R_{i,t} = \frac{P_{i,t}}{P_{i,\,t-1}} = \text{In } P_{i,\,t} - \text{In } P_{i,}\,(t\text{-}1) \ldots\ldots\ldots\ldots\ldots(3.6)$$

Where, $R_{i,t}$ = Price of changes in natural logarithm of stock i

$P_{i,t}$ = Price of security i observed at the end of the day t

$P_{i,(t-1)}$ = Price of security i observed at the end of day t-1.

i = 1, 2, 3 ……n

t = 1, 2, 3 ……n

Serial correlation measures the correlation coefficient among the series of stock prices with lagging number in the same time series data.

Run Test:

Runs test is a non-parametric test that ignores the magnitude of price changes in a given time series. A run is defined as a series of identical observations, which are preceded and followed by different observations or by non at all. Runs may be differing lengths and various numbers of runs can occur in one sample. Statisticians can prove that too many or too few runs in a sample indicate that something other than chance was at work when the items were selected. Runs test can be used effectively in quality control situations. A runs test can detect the kinds of patterns in output quality that are associated with systematic variation.[67]

To calculate the mean and standard error the sampled distribution following formula are used.

Mean of the sampling distribution of the r statistics

$$\mu_r = \frac{2n_1n_2}{n_1 + n_2} + 1 \quad \text{……(3.7)}$$

Similarly, S.E. of the r statistics,

$$\sigma_r = \sqrt{\frac{2n_1n_2\,(2n_1n_2 - n_2)}{(n_1 + n_2)^2\;\;(n_1 + n_2 - 1)}} \quad \text{…… (3.8)}$$

Where, n_1 = number of occurrence of event 1

n_2 = number of occurrence of event 2

If either n_1 or n_2 is greater than 20, the theoretical sampling distribution of r is approximately normal and value of z is calculated as following:

$$z = r - \frac{\mu_r}{r_r} \quad \text{……..(3.9)}$$

The runs test is always being two-tail. When both n_1 and n_2 are equal or less than 20, special tables are needed to interpret the sample results. If the calculated value of z is less than the tabulated value of z (as an accordance of Normal Curve Distribution) null hypothesis is accepted. As long as n_1 or n_2 is greater than 20, the table of Areas of Normal Curve may be

[67] Richord I. Levin and David S. Rubin, Statistics for Management, 7th ed., First Indian Reprint (Delhi: Tan Press (I) Ltd., 2004) 813-17.

used. For comparison, the difference between the actual and expected number of runs as proportions of the expected number of runs

$$K = \frac{r - \mu_r}{\mu_r}$$ is calculated.

3.6 Hypothesis of the Study

For the achievement of the specific objectives of the study, following hypothesis are set:

Null Hypothesis (H_o): The successive or lagged price changes of the stock are independent.

Alternative Hypothesis (H_1): The successive or lagged price changes of the stock are dependent.

3.7 Limitation of the Methodology

This study has no exception regarding the limitations like other studies, though an attempt has been made to carry out a research in an effective manner. Random sampling method itself is not free from bias. Only equity shares of commercial banks are studied though NEPSE information disclosure system of NEPSE made difficulties in the process of data collection. This has led difficulties in the data collection process. Politically instability has influenced the trading days of the stock market as well as to carry research work smoothly. Benefits of the study are limited to those who are directly or indirectly related with the stock market. Different tools and techniques applied in this study may not be applicable to other studies.

CHAPTER IV
PRESENTATION AND ANALYSIS OF DATA

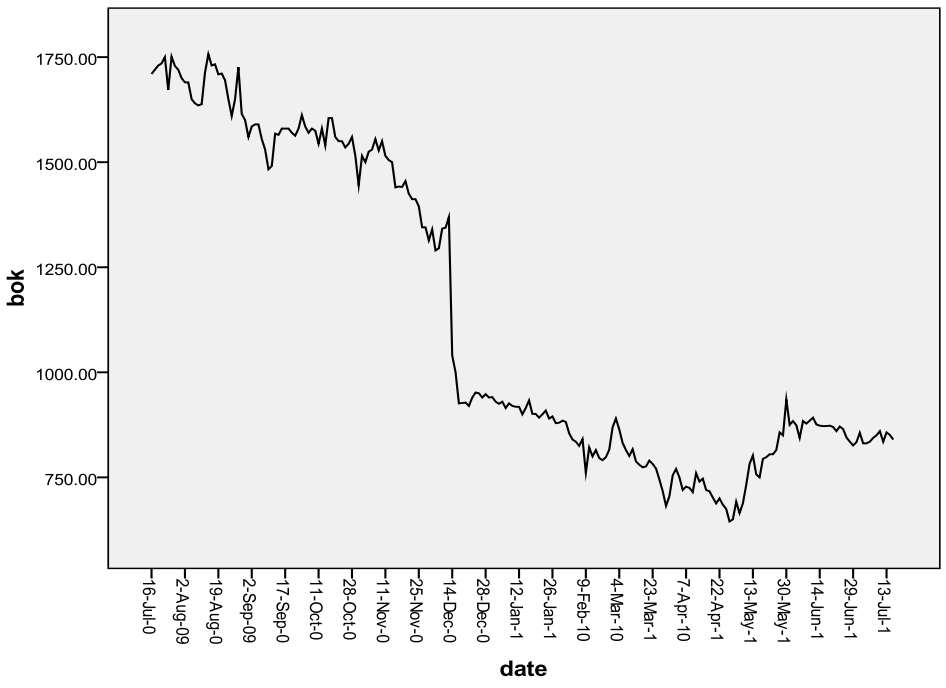
This chapter attempts to analyze and illustrate the collected data using different tools and techniques as per the requirements of the study. It presents the analysis and interpretation of the data related to share price movements and analysis the commercial banks index and the NEPSE index on the basis of points. The first section of this chapter deals with graphical presentation of Daily Share Price Behavior and analysis of the stocks in terms of mean, standard deviation and coefficient of variation. Likewise it imparts the details of serial correlation analysis and runs test analysis. The second section of this chapter presents the major findings of the study.

4.1 Data Presentation and Analysis

4.1.1 Presentation of Daily Share Price Behavior of 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 16, 2009 to July 16, 2010.

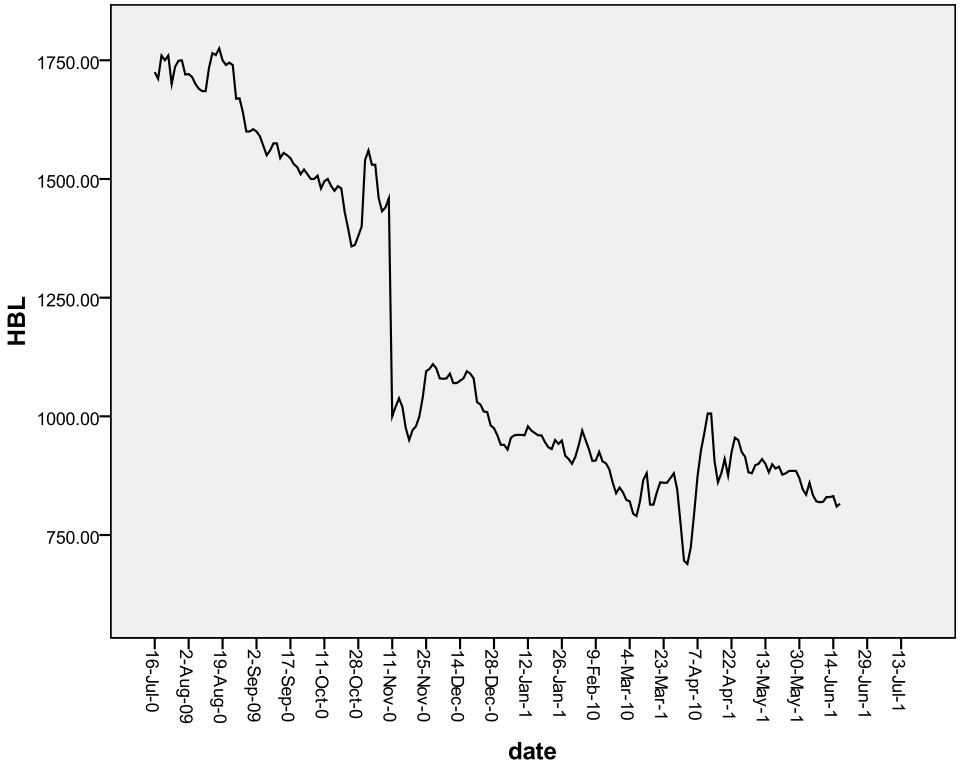
Fig. 4.1: Daily Stock Price Behavior of BOK



Source: Worked out from Appendix 3.1

Fig. 4.1 exhibits the daily stock prices behavior of BOK. The maximum price of the BOK stock is Rs. 1757 in August 16, 2009, the minimum is Rs. 645 in April 27, 2010 and the average price (μ) is Rs. 1127.35. The linear trend shows the sudden drastic fall in the stock price from Rs. 1369 to Rs. 1040 in December 14, 2009. It is a large variation. That is why the slopping trend vastly declines. There is slopping trend till March 30, 2010. After that the coefficient of the linear equation signifies positive changes. The trend line slants up ward slowly.

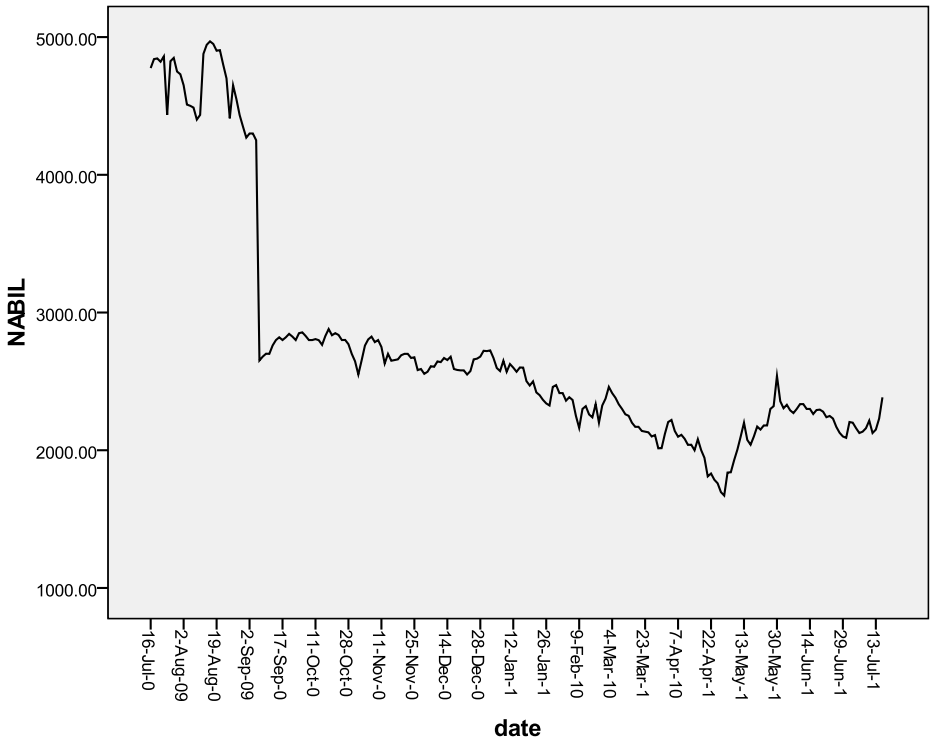
Fig. 4.2: Daily Stock Price Behavior of HBL



Source: Worked out from Appendix 3.1

Fig. 4.2 exhibits the daily variation in the stock prices of Himalayan Bank Limited. The maximum stock price of HBL is Rs. 1775 in August 18, 2009, the minimum is Rs. 689 in April 27, 2010 and the average price is Rs. 1153.37. It means that there is high variation in stock prices during the study period. The linear trend shows the sudden drastic fall in the stock price from Rs. 1459 to Rs. 1000 in November 23, 2009. That is way the slopping trend vastly declines. It is somehow increasing trend at the end of fiscal year.

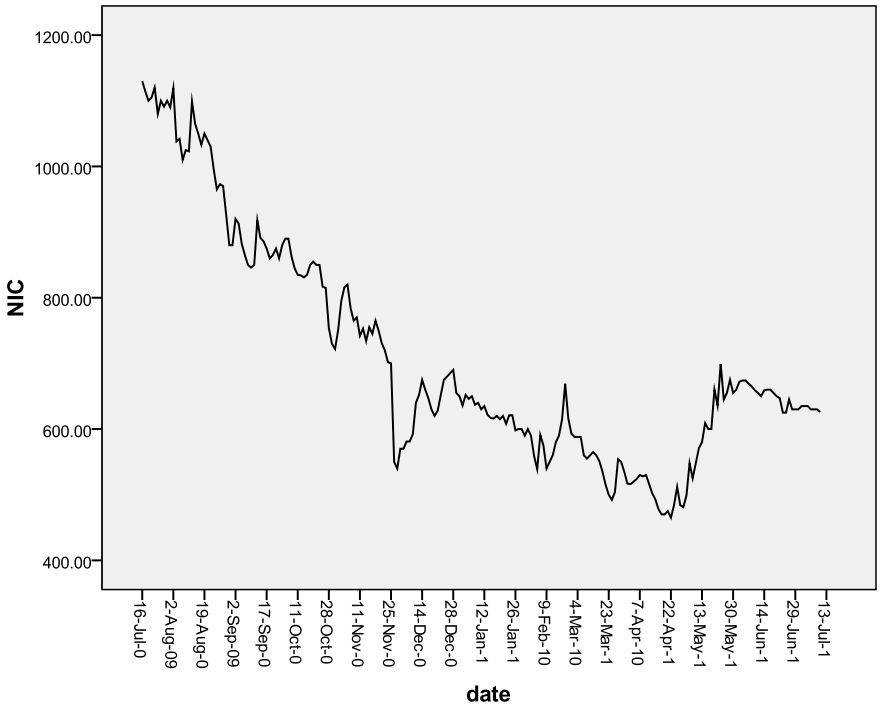
Fig. 4. 3 : Daily Stock Price Behavior of NABIL



Source: Worked out from Appendix 3.1.

The price series in the fig. 4.3 shows that the maximum price of the NABIL stock is Rs. 4969 in August 17, 2009, the minimum is Rs. 1671 in April 28, 2010 and the average price is Rs. 2743.41. The graph exhibits that the stock price of NABIL is the least volatile in nature. The linear trend shows the sudden drastic fall in the stock price from Rs. 4251 to Rs. 2652 in September 8, 2009. That is why the slopping trend vastly declines. The constant and slowly growing up linear equation indicates somehow positive pattern in the stock price of NABIL. This signifies that the position of NABIL stock is very strong in Nepalese stock market.

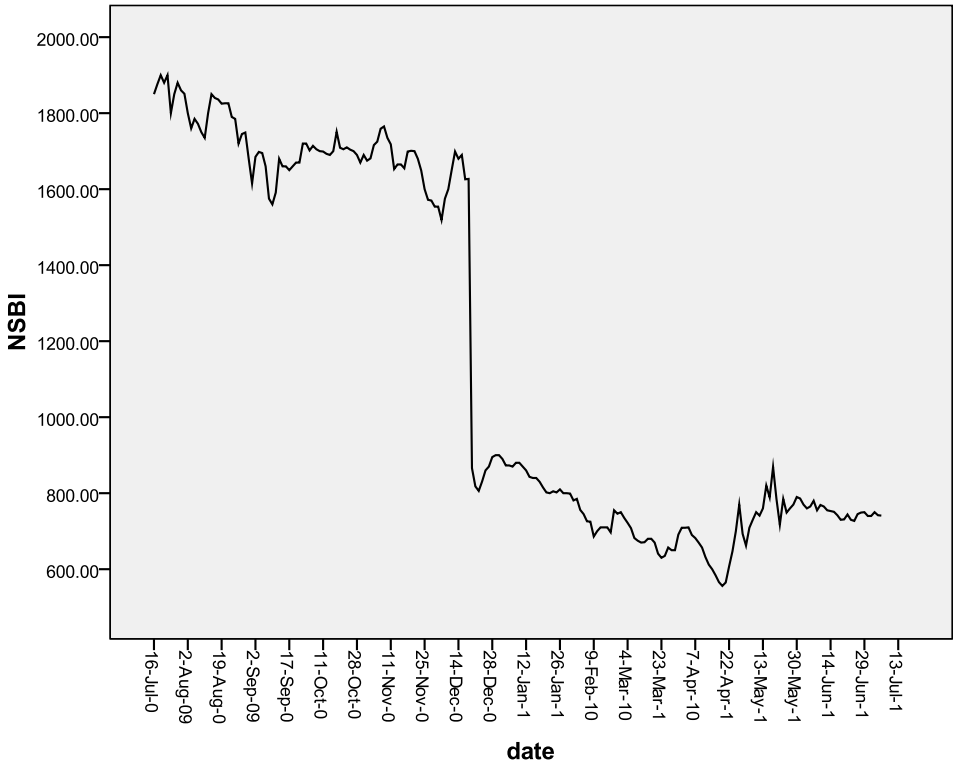
Fig. 4.4: Daily Stock Price Behavior of NIC



Source: Worked out from Appendix 3.1

Fig.4.4 exhibits the daily stock price movement of NIC Bank. The maximum price of the NIC stock is Rs. 1130 in July 16, 2009, the minimum is Rs. 465 in April 27, 2010 and the average price is Rs. 708.78. The graph exhibits that the stock price of NIC is the most volatile in nature. The linear equation shows the erratic pattern between the prices of Rs. 1130 and Rs. 465. The stock price of NIC signifies the negative changes in the future.

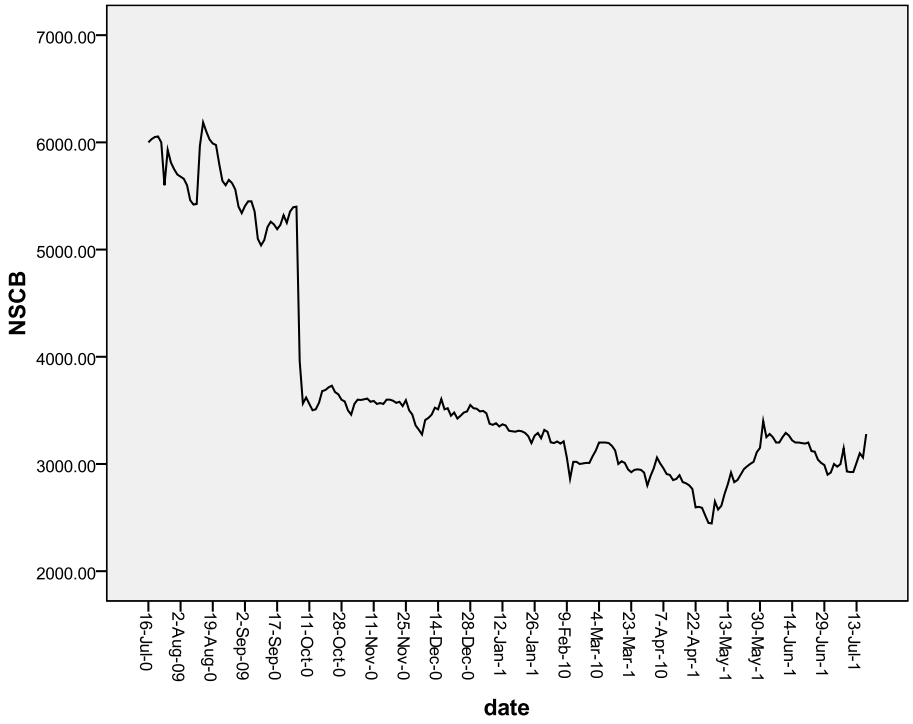
Fig. 4.5: Daily Stock Price Behavior of NSBI



Source: Worked out from Appendix 3.1

Fig. 4.5 demonstrates the daily stock price movement of Nepal SBI Bank Ltd. The maximum price of the stock is Rs. 1900 in August 16, 2009, the minimum is Rs. 556 in April 28, 2010 and the average price is Rs. 1166.9. The linear trend shows the sudden drastic fall in the stock price from Rs. 1627 to Rs. 866 in December 20, 2009. That is why the slopping trend vastly declines. The linear equation shows the erratic pattern between the prices of Rs. 1900 and Rs. 556. The stock price of NSBI signifies the negative changes in the future.

Fig. 4.6: Daily Stock Price Behavior of SCB



Source: Worked out from Appendix 3.1

The stock price series of Standard Charted Bank in fig. 4.6 exhibits the maximum price of the stock is Rs. 6186 in August 16, 2009, the minimum is Rs. 2445 in April 28, 2010 and the average price is Rs. 3711.49. the graph exhibits that the stock price of SCB is less volatile in nature. The linear trend shows the sudden drastic fall in the stock price from Rs. 5400 to Rs. 3960 in October-6, 2009. That is why the slopping trend vastly declines. The constant and slowly growing up linear equation indicates somehow positive pattern in the stock price of SCB. This signifies that the position of SCB stock is the most strong in Nepalese stock market.

4.1.2 Volatility of Daily Stock Prices

Only 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, SD and CV. Based on the analysis of absolute variation (SD) and relative variation (CV), volatility of the daily stock price is determined. Table 4.1 presents the computation of stock volatility.

Table 4.1 : Computation of Stock Volatility

S.N.	Sampled Banks	Average (μ)	SD (σ)	CV (%)
1.	BOK	1127.3453	372.40	33.03
2.	HBL	1153.3744	333.34	28.90
3.	NABIL	2743.4126	842.41	30.71
4.	NIC	708.7763	172.42	24.33
5.	NSBI	1166.9028	486.85	41.72
6.	SCB	3711.4866	1016.63	27.39

Source: Worked out from Appendix 3.1

The computed S.D. of Standard Charted Bank is 1016.63, which indicates that the most volatile stock is of SCB. Similarly the computed S.D. of NIC Bank is 172.42, which conveys that its stock the least volatile. The stocks of NABIL, NSBI, BOK and HBL consecutively volatile. Only measuring the absolute variation is not sufficient to conclude the variation in stocks, if the alternative need relative measure. Therefore, it is essential to analyze the relative variation. The computed values of CV are 27.39% and 24.33% of SCB and NIC bank not supported the result of S.D. The computed CV of NSBI is 41.72% which indicates the most volatile stock is NSBI. The most volatile stock of SCB by S.D. is the second least volatile stock by calculation of the CV. They reveal that absolute measurement is not always true to measure the exact variation. Thus, the result of relative variation indicates that the stocks of BOK and NABIL Banks are under the category of moderate volatile next to the stocks of Nepal SBI Bank.

4.1.3 Comparative Analysis of NEPSE Index and Commercial Banks Index

This part presents the analysis of indices based on the basis points. The basis point is commonly used for calculating changes in interest rates, equity indices and the yield of a fixed income security. However here basis points are computed to determine the variation in indices of the annual NEPSE and commercial equities. For this study, monthly closing index points are extracted from the annual NEPSE trading report 2009/10. Table 4.2 clearly exhibits the computation of basis of points.

Table 4.2 : Computation of Basis of Index Difference

Months	Index		Index Difference	
	Commercial Banks	NEPSE	Commercial Banks	NEPSE
July/August -09	762.13	717.20	*	*
Aug./Sept. -09	627.29	628.34	- 134.84	- 88.86
Sept./Oct. -09	595.63	609.55	- 31.66	- 18.79
Oct./Nov. -09	544.73	566.94	- 50.9	- 42.61
Nov./Dec. -09	527.68	548.61	- 17.05	- 18.33
Dec./Jan. -09/10	506.62	530.96	- 21.06	- 17.65
Jan./Feb. -10	464.86	497.24	- 41.76	- 33.72
Feb./Mar. -10	452.75	481.19	- 12.11	- 16.05
Mar./Apr. -10	418.56	444.76	- 34.19	- 36.43
Apr./May -10	427.43	457.81	8.87	13.05
May/June -10	455.03	476.69	27.6	18.88
June/July -10	456.93	477.73	1.9	1.04

Source: NEPSE Trading Report 2009/10 See Appendix 3.2.

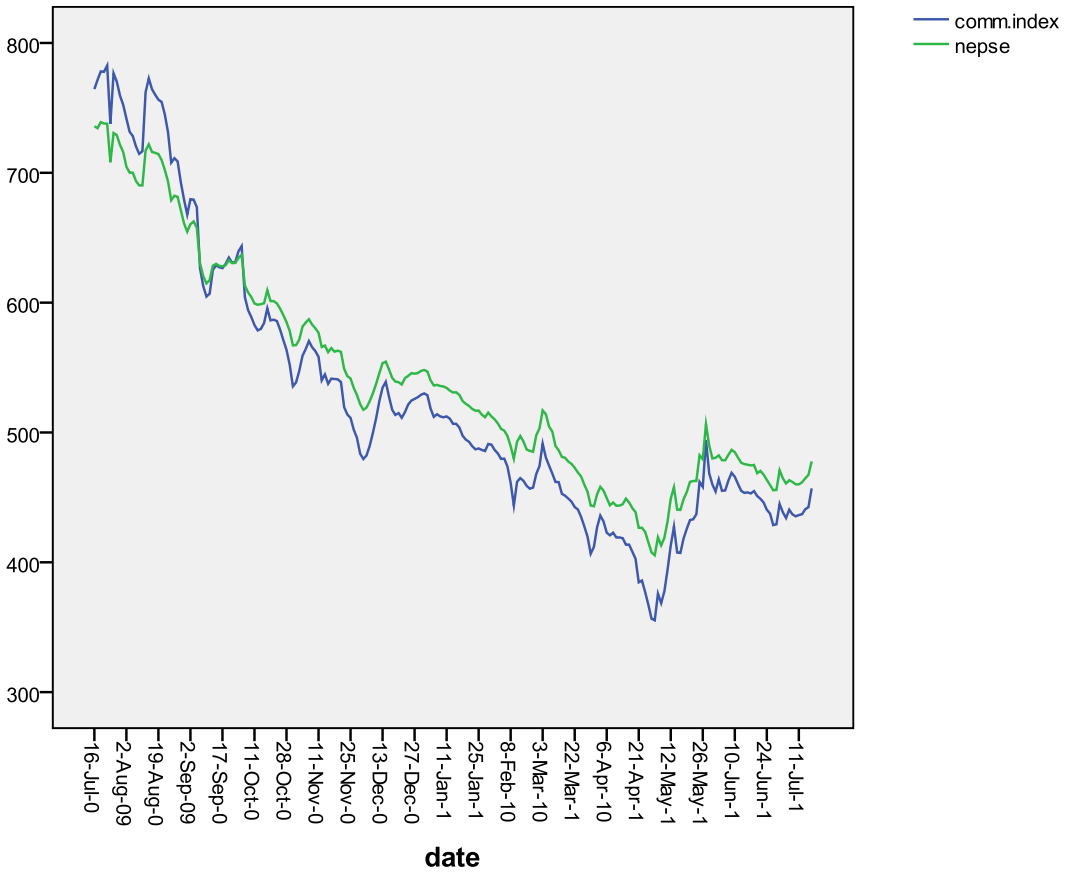
Based on the computation of basis points, variation in the index of commercial banks are larger than that of the NEPSE index points. The peak index point of commercial bank Rs. 762.13 in the first month (July/Aug.) of F.Y. 2009/10. The least value of the index is 418.56 in the month of March/April-2010. The computed basis points of the commercial banks clearly confirm the higher fluctuation. It means the commercial sector is very sensitive in Nepalese stock market.

Similarly, NEPSE index points show the same pattern of commercial banks. The first month July/August-09 shows the index point of 717.20. Basis of points of July/August-2009 to the month March/April-2010 clearly indicate that there is falling trend. Basis point of the month of April/May-2010 presents positive performance of the Nepalese stocks market. Because its index point rises by smaller points, in relationship with the other months. Consecutively, there is sudden decrease in the index point of June/July-2010. The comparative analysis of commercial Banks Index and NEPSE Index signifies the least performance of the stock market. Generally the study period shows there is the worst performance of the Nepalese stock market with political and trading disturbances.

4.1.4 Analysis of Co-Movement of Commercial Banks 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 report 2009-10. Fig. 4.8 clearly exhibits the graph of daily co-movement between commercial banks index and NEPSE index.

Fig, 4.7: Co-Movement between Indices of Commercial Banks and NEPSE



The index series of the commercial Bank index exhibits that the fluctuation is highest than the NEPSE index. The maximum daily index point of the commercial bank is 782.67 in July 23, 2009 and the minimum is 355.34 in April 28, 2010. Similarly, the maximum daily index point of NEPSE is 739.02 in July 20, 2009 and the minimum is 405.45 in April 28, 2010.

The computed values of SD are 107.08 and 86.44 respectively. They convey that the index series of commercial bank and NEPSE are highly volatile. Whereas, the computed values of CV are 11465.78 and 7472.04 respectively. The computed CV of commercial banks is larger than that of the NEPSE index. This implies that the commercial sector is highly

sensitive in the Nepalese stock market. Correlation is significant at the level of significant .01 of two tailed. This implies that both the indices move together throughout the study period.

4.1.5 Serial Correlation Analysis

One of the most basic tests of the market efficiency is the test of serial correlation. When computed, serial correlation for any series of data ranges from + 1 to - 1. Serial correlation of + 1 represents perfect positive correlation and a value of - 1 represents perfect negative correlation. This value can be useful for computing for security analysis.

Serial correlation coefficients for six sampled stocks are computed to determine if any significant correlation on successive changes in log price exist for different lags. If the larger, the size of the coefficient is departed from zero, the greater will be the dependence in the series of the price changes. Large coefficient implies that the changes in the past and present prices have significant influence on the changes in the future prices. If the coefficients are found to be zero or close to zero, it can be concluded that the market is efficient in pricing the shares. It signifies that the independence of the successive changes in prices. Thus, it supports the RWH. If the coefficients are significantly departed from zero, it will indicate that the successive price changes are dependent. This will reject the null hypothesis.

The statistical software called SPSS computed the serial correlation coefficients and their standard Error (S.E.) for six stocks by using the equation 3.4, 3.5 and 3.6 mentioned in the chapter research methodology.

Table 4.3 : Serial Correlation Coefficients of the Stocks

Companies/lag	1	2	3	4	5	6	7	8	9	10
BOK	0.988	0.978	0.966	0.952	0.944	0.934	0.932	0.911	0.900	0.888
HBL	0.982	0.963	0.944	0.925	0.905	0.887	0.869	0.852	0.839	0.826
NABIL	0.974	0.917	0.920	0.894	0.868	0.847	0.820	0.792	0.770	0.745
NIC	0.976	0.954	0.932	0.913	0.891	0.874	0.855	0.837	0.818	0.799
NSBI	0.986	0.971	0.955	0.940	0.925	0.912	0.900	0.888	0.878	0.867
NSCB	0.980	0.956	0.933	0.911	0.889	0.871	0.851	0.833	0.806	0.800

Table 4.3 exhibits the computed serial correlation coefficients of companies with respect to the number of lags. All the lag exhibited the fully predominance of positive sign. Some of the computed serial correlation coefficients are close to zero. As a whole, positive sign has dominated the computed correlation coefficients. It means that the serial correlation

coefficients are significantly departed from zero. Conclusion drawn is that the successive price changes are dependent and the stock market is inefficient in pricing the shares.

We could not bring close decision only from the computed serial correlation-coefficients regarding the dependency of the successive price changes. Therefore, to come in to a meaningful conclusion, the computed coefficients are compared with the computed SE.

Table 4.4 : Series Having Significant Values of First to Tenth Order Serial Correlation Coefficients

Lag	Series Having Coefficient < 2 S.E.	Series Having Coefficient < 2 S.E.>3 S.E.	Series Having Coefficient > 3 S.E.	Series
1	0	0	1,2,3,4,5 and 6	6
2	1,2,3,4,5 and 6	0	0	6
3	1,2,3,4,5 and 6	0	0	6
4	1,2,3,4,5 and 6	0	0	6
5	1,2,3,4,5 and 6	0	0	6
6	1,2,3,4,5 and 6	0	0	6
7	1,2,3,4,5 and 6	0	0	6
8	1,2,3,4,5 and 6	0	0	6
9	1,2,3,4,5 and 6	0	0	6
10	1,2,3,4,5 and 6	0	0	6
Total	54	0	6	60

Source: Worked out from Appendix 4.1 and 4.2

The first column of table 4.4 exhibits the lag periods. The second column shows the number of series having the coefficient less than or equal to two times of its S.E. Similarly, the third column shows the series having coefficient greater than two but less than three times of its S.E. Fourth column shows the number of series having coefficient equal to three or greater than the three times of its S.E. respectively.

Out of the 60 computed serial correlation coefficients, most of the number of coefficients fall in the category of less than or equal to two times of S.E. These coefficients are significantly deviated and not statistically significant. It implies that the successive price changes are dependent. Thus, the null hypothesis of the study has been rejected. This result corroborates with the previous findings from the studies entitled "Share Price Behavior of listed Companies" by Resham Lal Poudel.

4.1.6 Runs Test Analysis

Runs test is one of the non-parametric tests. It determines whether the series of price changes is random or not. It tests the randomness of the successive price changes in the price index. This is a simple analysis method. Consistent runs test result support the serial correlation results.

This test is based on the number of runs observed (r) in the sample as compared with the expected number of runs (μ_r) that might result under random conditions. For comparison of the actual and expected number of runs, percentage of K or r -$\mu r/\mu_r$ is computed. The deviation between the observed and expected number of runs is analyzed with the irrespective of the signs. To prove RWH of the study, there should be no significant variation between observed and expected number of runs. Thus, we can conclude that the stock market is efficient.

Table 4.5: Computation of Runs Test

Runs Test

	bok	HBL	NABIL	NIC	NSBI	NSCB
Test Value[a]	918.00	975.00	2555.00	650.00	860.00	3319.00
Cases < Test Value	111	101	111	106	107	112
Cases >= Test Value	112	102	112	113	109	112
Total Cases	223	203	223	219	216	224
Number of Runs	8	8	6	18	6	6
Z	-14.027	-13.298	-14.296	-12.528	-14.049	-14.331
Asymp. Sig. (2-tailed)	.000	.000	.000	.000	.000	.000

Source: Worked out from Appendix 3.1

Table 4.5 exhibits the result of runs test. Negative sign has dominated the computed values of Z, standardized abnormal variants. The negative results are due to the reason of higher expected number of runs over the observed number of runs. The percentage of deviation is significant between the observed and actual number of runs. By using NPar Tests the stated level of significance 0.05 is exceed the calculated Z value (-14.027) Asymp. Sig. (2-tailed) Zero. It leads to the rejection of null hypothesis. Thus, it has cleared that successive price changes are not random.

Out of six equity shares, Z value are less than the five percent In general result shows that there is a significant difference between the expected and actual number of runs in the

series of price changes. It implies that, the RWH does not exist in the Nepalese stock market. This evidence too, corroborates with the previous results from the studies entitled "Share Price Behavior of Listed Companies" by Resham Lal Poudel.

4.2 Major Findings of the Study

4.2.1 The series of SCB Bank Stock Price has exhibited the graph with the most volatile behavior. Similarly NIC, Himalayan Bank and Bank of Kathmandu have displayed the moderate volatile. Nabil and Nepal SBI Bank indicated the least volatile among the other sampled banks. The graph and the average percent shows the above position of sampled banks stock price. However, all the banks has indicated the down ward slope of the trend line. Thus implies that the stock prices of the banks are deteriorating day by day.

4.2.2 The computed value of SD of SCB is 1016.63 which represent there is the highest variation in the stocks of SCB. But there is second least variation in calculation of CV which is 27.39%. The most volatile stock is Nepal SBI bank. 41.72% of CV represents the most volatile nature among sampled banks. The SD and C.V. of NIC are 172.42 and 24.33% respectively. They have supported to the graph, the stock of NIC is the least volatile. The S.D. of NABIL, NSBI, BOK and HBL are 842.41, 486.85, 372.40 and 333.34 respectively. The computed CV of BOK, NABIL, HBL and SCB are 33.03%, 30.71%, 28.9% and 27.39% respectively. This implies that the relative variation measurement has categorized the volatility of the sampled banks stocks different in comparison with the absolute variation measurement.

4.2.3 Variation in the index points is examined through the computation of basis points. The peak index point of commercial bank is 762.13 in the month of July/August-2009. The least value of the index is 418.56 in the month of March/April-2010. The computed basis points of the commercial banks index has higher variation than the NEPSE index. it means the commercial sector is sensitive in the Nepalese stock market.

4.2.4 The daily co-movement of the series of the indices has exhibited the variation. In the co-movement graph, the fluctuation of the commercial banks index series is higher than that of NEPSE index series. The computed values of SD and CV of commercial banks index are 107.08 and 11465.78% respectively. Similarly, the computed values of SD and CV of NEPSE index are 86.44 and 7472.04% respectively. They imply the

index behavior of commercial banks is more volatile than the NEPSE index. Thus, the commercial sector is highly sensitive than the NEPSE index. Next aspect is that the correlation computed between the commercial banks index and NEPSE index is 0.996 ≅ 1, that is perfectly correlated. This implies that both the indices move together in the Nepalese stock market.

4.2.5 Most of the serial coefficients are significantly deviated from zero and statistically insignificant. It implies that the successive price changes are dependent. Thus, the Nepalese Stock market is inefficient in pricing the shards.

4.2.6 Runs test results have revealed that there is a significant difference between the observed and actual number of runs in the series of price changes. It is obvious that the successive price changes are not random. This implies that the RWH does not exist in Nepalese stock market during the study period. Thus, conclusions from the serial correlation test and runs test have corroborated with the previous related studies regarding the independence and the randomness of the successive stock price changes.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This is the fifth or final chapter. It covers one of the most important parts of the study. It includes summary, conclusion and recommendations for the future research work in the related topic.

5.1 Summary

The development of Nepalese securities market could not be a national policy for long time even though the act of raising funds by issuing shares to the public in Nepal started in 1937. However, the formal institutionalization began only after the establishment of securities exchange center in 1976. Introduction of companies Act 1964, and introduction of the securities Act, 1983 were other important past initiative for the development of securities market in Nepal. With the establishment of Securities Board of Nepal (SEBON) in 1993 as an apex regulator of securities market, securities exchange center was converted into Nepal Stock Exchange (NEPSE), which started secondary trading of securities with the introduction of stockbrokers. The major regulatory framework for the securities market is provided by securities act 2006, which has given authority to SEBON for the regulation of securities market.

At present context, banking sector has major influence in Nepalese securities market as per the volume of trade and transaction. Computed value of CV, the stock of SCB is termed less volatile stock because of its comparatively lowest coefficient of variation.

The comparative analysis has been done based on the basis of points difference. Analysis has found that commercial banks index fluctuate more than the NEPSE index. Analysis of the daily co-movement of the indices has found that the commercial sector clearly exhibits higher fluctuation than the NEPSE index. The computed SD conveys that the index of commercial bank is highly volatile. Whereas, the computed CV suggests that the index behavior of commercial bank is more volatile than NEPSE index. This implies that the commercial sector is highly sensitive in the Nepalese stock market. The correlation between these two index series is perfectly correlated. This implies that both the indices move together throughout the study period.

The stocks of sampled commercial banks found serial correlation coefficient relatively close to zero. As a whole, positive sign has computed the serial correlation coefficients. These coefficients are significantly deviated from zero and statistically insignificant. Conclusion drawn is that the successive price changes are dependent and the stock market is inefficient in pricing the shares. Runs test result shows that there is a significant difference between the expected and actual number of runs in the series of price changes. It implies, the RWH does not exist in the Nepalese stock market.

The conclusions drawn from the analysis of serial correlation and analysis of runs test corroborate with the previous conclusions from the studies entitle "Share Price Behavior of Listed Companies," "The Efficient Market Hypothesis and the Behavior of Share Prices in Nepal.

5.2 Conclusions

5.2.1 Graphical variation is observed. The series of NIC stock prices has exhibited the graph with the least volatile behavior. Similarly, the graphs of NABIL, NSBI, BOK, HBL consecutively volatile. The trend line of all the sampled banks slants downward. It indicates that stock prices of all the sampled banks are in decreasing trend day by day.

5.2.2 Volatility observed through the computation of SD and CV. The computed value of SD of SCB represent there is the highest variation in the stocks of SCB. But there is second least variation in calculation of CV. The most volatile stock is Nepal SBI bank. The CV of NSBI represents the most volatile nature among sampled banks. The SD and C.V. of NIC have supported to the graph, the stock of NIC is the least volatile. The S.D. of NABIL, NSBI, BOK and HBL are 842.41, 486.85, 372.40 and 333.34 respectively. The computed CV of BOK, NABIL, HBL and SCB are 33.03%, 30.71%, 28.9% and 27.39% respectively. This implies that the relative variation measurement has categorized the volatility of the sampled bank stocks different in comparison with the absolute variation measurement.

5.2.3 Deviation in the index points is examined through the computation of basis points difference. The computed basis have shown that the commercial banks index has higher variation than the NEPSE index. It means the commercial sector is more sensitive than the NEPSE index.

5.2.4 The daily co-movement of the series of the indices has exhibited the variation. In the co-movement graph, the fluctuation of the commercial banks index series is higher than that of NEPSE index series. The computed values of SD and CV have pointed out that commercial banks index is more volatile than the NEPSE index. Thus, the commercial sector is highly sensitive in the Nepalese stock market. The correlation computed between the commercial banks index and NEPSE index is perfectly correlated.

5.2.5 Most of the serial correlation coefficients are significantly deviated from zero and statistically insignificant. It signifies that the successive price changes are dependent. Therefore, the Nepalese stock market is inefficient in pricing the shares.

5.2.6 Runs test result shows that the percentage of deviation is significant of runs in the series price changes. It is obvious that the successive price changes are not random. Conclusion is that RWH does not exit in the Nepalese stock market during the research period. Conclusion from the serial correlation test and runs test have corroborated with the pervious related studies.

5.1 Recommendations

The findings of this research work will definitely help to the investors, the concerned authorities, the market makers and the prospective researchers. Based on the findings, recommendations are listed below:

5.3.1 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 the sampled banks should be monitored 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.

5.3.2 Analysis found that commercial sector is more sensitive than the NEPSE index. Therefore, it is recommended to the concerned authorities of the NEPSE and the commercial sector that this sector should be developed properly to maintain its strong position. Loopholes should be removed to improve its present situation.

5.3.3 The computed SD and CV have decided that index of the commercial sector fluctuates more than the NEPSE index. The perfect positive correlation between them is observed. However, there should be clear pattern of index series. For this, the

concerned authorities of the stock market should be monitored the weaknesses of the stock market as well as the commercial sector.

5.3.4 Nepalese stock market is inefficient in pricing the shares. Both the tests, serial correlation and runs test have rejected the RWH in this research. Conclusions of this study corroborate with the previous studies. Therefore, it is suggested that the smart investors should take benefit 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.

5.3.5 This research studies only six commercial banks by covering the secondary data. Therefore, the forthcoming researchers should try to study all the listed sector in the NEPSE. It is even better to study company wise. They should consume more time to obtain better empirical results.

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APPENDIX – 1
Name List of Commercial Banks in Nepal

S,N.	Name of the Banks	Listed Date	Phone	Address	Website
1.	Nabil Bank Ltd.	2042-09-08	4429546	Pob.3729, Kamaladi, Ktm.	www.nabilbank.com.np
2.	Nepal Invstment Bank Ltd.	2042-08-05	4228229 4242530	Durbarmarga, Ktm.	www.nibl.com.np
3.	Standard Charted Bank Ltd.	2045-03-20	4782333	Gpo. 3990 New Baneshor, Ktm.	www.standardchartered.com/np
4.	Himalayan Bank Ld.	2050-03-21	4250201 4227749	Pob.20590 Thamel, Ktm.	www.himalayanbank.com
5.	Nepal SBI Bank Ltd.	2051-10-03	4435516 4435613	Hattisar, Ktm.	www.nepalsbi.com.np
6.	Nepal Bangladesh Bank, Ltd.	2052-09-09	4783975 4783972	Bijulibazar, Ktm.	www.nbbl.com.np
7.	Everest Bank Ltd.	2052-12-25	4443377	Pob.13384 Lajimpat	www.everestbankltd.com
8.	Bank of Kathmandu	2054-04-02	4414541	Pob.9044, Kamaladi, Ktm.	www.bokltd.com
9.	Nepal Industrial & Co. Bank	2057-02-31	4262277	Pob. 7367 Kamaladi, Ktm.	www.nicbank.com.np
10.	Machhachapuchhre Bank Ltd.	2060-02-14	4443681	Pob. 12427 Putalisadak, Ktm.	www.machabank.com
11.	Laxmi Bank Ltd.	2061-01-08	4444685	Hattisar, Ktm.	www.laxmibank.com
12.	Kumari Bank Ltd.	2061-04-14	4232112 4232113	Pob. 21128 Putalisadak, Ktm.	www.kumaribank.com
13.	Lumbini Bank Ltd.	2061-07-25	4243165 4243158	Durbarmarga, Ktm.	www.lumbinibankltd.com
14.	Nepal Crdedit & Com. Bank	2062-10-18	4246991	Bagbajar, Ktm.	www.nccbank.com.np
15.	Siddhartha Bank Limited	2063-11-02	4442919 4442920	Kamaladi, Ktm.	www.siddharthabankltd.com
16.	NMB Bank Limited	2058-03-12	4246160	Pob. 11543, Ktm.	www.nmb.com.np
17.	DCBL Bank Ltd.	2059-02-30	4231120 4231490	Pob. 7716 Kathmandu Plaza	www.dcbl.com.np
18.	Global Bank Ltd.	2065-12-13	209070	Pob. 19327 Panipokharai, Ktm.	www.globalbanknepal.com
19.	KIST Bank Ltd.	2061-09-13	4232500	Pob. 8975 Anamnagar	www.kistfinance.com.np
20.	Citizen Bank International Ltd.	2066-02-11	4262699 4221799	Sharada Sadan, Kamaladi	www.ctznbank.com
21.	Bank of Asia Nepal Ltd.	2066-02-11	4263212 131618	Tripureswor, Kathmandu	www.bankofasia.com.np
22.	Prime Commercial Bank Ltd.	2066-05-27	4233388	Newroad, Ktm.	www.eprimebank.com
23.	Sunrise Bank Ltd.	2066-05-27	4444116 4444180	Gairidhara, Ktm.	www.sunrisebank.com.np

Source: NEPSE Annual Report – 2009/10

APPENDIX – 2.1

Computation of Average Stock Price, SD and CV

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
bok	223	645.00	1757.00	1127.3453	372.39666
HBL	203	689.00	1775.00	1153.3744	333.33763
NABIL	223	1671.00	4969.00	2743.4126	842.40976
NIC	219	465.00	1130.00	708.7763	172.41818
NSBI	216	556.00	1900.00	1166.9028	486.84711
NSCB	224	2445.00	6186.00	3711.4866	1016.63061
Valid N (listwise)	203				

Descriptive Statistics

	N	Minimum	Maximum	Mean		Std. Deviation	Variance
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic
bok	223	645.00	1757.00	1127.3453	24.93752	372.39666	138679.272
HBL	203	689.00	1775.00	1153.3744	23.39572	333.33763	111113.978
NABIL	223	1671.00	4969.00	2743.4126	56.41193	842.40976	709654.207
NIC	219	465.00	1130.00	708.7763	11.65094	172.41818	29728.028
NSBI	216	556.00	1900.00	1166.9028	33.12575	486.84711	237020.107
NSCB	224	2445.00	6186.00	3711.4866	67.92649	1016.63061	1033537.803
Valid N (listwise)	203						

APPENDIX – 2.2

Computation of Average Index, SD and CV

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Variance
comm.bank	225	355.34	782.67	525.8110	107.07835	11465.774
nepse	225	405.45	739.02	541.5167	86.44096	7472.040
Valid N (listwise)	225					

APPENDIX – 3.1

Daily Stock Prices of the Sampled Companies during Fiscal Year 2066/067 (July 16, 2009 to July 16, 2010)

Date	BOK	HBL	NABIL	NIC	NSBI	SCB
16-Jul-09	1710	1725	4775	1130	1850	6000
19-Jul-09	1720	1711	4840	1114	1876	6030
20-Jul-09	1730	1760	4845	1100	1900	6050
21-Jul-09	1735	1750	4821	1105	1880	6055
23-Jul-09	1750	1760	4860	1120	1900	6000
26-Jul-09	1672	1700	4435	1080	1800	5600
27-Jul-09	1751	1736	4825	1100	1850	5930
28-Jul-09	1729	1749	4849	1091	1880	5812
29-Jul-09	1720	1750	4750	1100	1860	5749
30-Jul-09	1700	1720	4730	1090	1851	5700
2-Aug-09	1690	1721	4650	1119	1800	5680
3-Aug-09	1690	1715	4510	1038	1760	5660
4-Aug-09	1650	1700	4501	1042	1785	5600
9-Aug-09	1640	1690	4488	1010	1772	5460
10-Aug-09	1635	1685	4401	1025	1750	5420
11-Aug-09	1638	1685	4435	1023	1735	5425
12-Aug-09	1713	1734	4878	1099	1800	5967
16-Aug-09	1757	1765	4944	1065	1850	6186
17-Aug-09	1730	1761	4969	1050	1840	6100
18-Aug-09	1733	1775	4950	1033	1836	6027
19-Aug-09	1709	1750	4901	1050	1825	5990
20-Aug-09	1711	1740	4905	1040	1826	5975
23-Aug-09	1695	1745	4800	1030	1826	5800
24-Aug-09	1650	1740	4700	995	1790	5640
25-Aug-09	1610	*	4410	965	1785	5600
26-Aug-09	1650	1669	4650	973	1720	5650
27-Aug-09	1726	1670	4550	970	1745	5620
30-Aug-09	1615	1640	4433	926	1749	5560
31-Aug-09	1600	1600	4350	880	1680	5400
1-Sep-09	1560	*	4270	880	1615	5340
2-Sep-09	1585	1600	4300	920	1685	5406
6-Sep-09	1590	1605	4300	913	1698	5450
7-Sep-09	1590	1600	4251	882	1695	5450
8-Sep-09	1555	1590	2652	865	1660	5355
9-Sep-09	1530	1570	2680	850	1575	5100
10-Sep-09	1483	1550	2701	846	1560	5039
13-Sep-09	1491	1560	2700	850	1591	5089

Contd. Appendix 3.1

14-Sep-09	1568	1575	2761	918	1680	5210
15-Sep-09	1565	1575	2800	891	1660	5260
16-Sep-09	1580	1544	2820	886	1660	5235
17-Sep-09	1580	1555	2800	875	1650	5190
20-Sep-09	1580	1550	2820	860	1660	5230
22-Sep-09	1570	*	2845	865	1670	5320
23-Sep-09	1563	1544	2825	875	1670	5250
24-Sep-09	1580	1531	2800	860	1720	5354
4-Oct-09	1612	1525	2850	880	1720	5395
5-Oct-09	1585	*	2856	890	1702	5400
6-Oct-09	1570	1510	2830	890	1714	3960
7-Oct-09	1580	1520	2800	863	1705	3564
8-Oct-09	1575	1510	2800	845	1700	3620
11-Oct-09	1544	1500	2807	835	1699	3560
12-Oct-09	1580	1500	2799	834	1693	3501
13-Oct-09	1540	1507	2765	831	1690	3510
14-Oct-09	1605	1480	2830	835	1700	3571
15-Oct-09	1605	1495	2880	*	1751	3680
21-Oct-09	1560	1500	2835	850	1709	3690
22-Oct-09	1550	1485	2850	855	1705	3715
25-Oct-09	1550	1475	2837	850	1710	3730
25-Oct-09	1535	1485	2800	850	1704	3670
27-Oct-09	1544	1480	2801	817	1700	3650
28-Oct-09	1560	1430	2770	815	1690	3599
29-Oct-09	1515	1396	2700	754	1670	3583
1-Nov-09	1445	1358	2646	730	1690	3500
2-Nov-09	1515	1361	2550	722	1675	3460
3-Nov-09	1500	1380	2653	751	1681	3560
4-Nov-09	1525	1400	2760	795	1716	3600
5-Nov-09	1530	*	2805	816	1725	3597
8-Nov-09	1555	1540	2825	820	1759	3603
9-Nov-09	1528	1560	2785	784	1765	3610
10-Nov-09	1550	1530	2800	765	1735	3580
11-Nov-09	1515	1530	2750	770	1718	3588
12-Nov-09	1505	1460	2630	742	1653	3560
15-Nov-09	1500	1432	2700	753	1665	3568
16-Nov-09	1440	1440	2650	734	1665	3560
17-Nov-09	1442	1459	2655	755	1655	3600
18-Nov-09	1441	*	2660	745	1699	3600
19-Nov-09	1455	*	2690	765	1701	3590
22-Nov-09	1425	*	2700	750	1700	3570
23-Nov-09	1412	1000	2700	731	1680	3580

Contd. Appendix 3.1

24-Nov-09	1412	*	2670	720	1649	3540
25-Nov-09	1395	1020	2675	702	1600	3595
26-Nov-09	1345	1038	2582	700	1572	3501
30-Nov-09	1345	1020	2590	*	1570	3460
1-Dec-09	1314	975	2555	550	1554	3360
3-Dec-09	1340	950	2570	540	1554	3320
6-Dec-09	1290	971	2610	570	1519	3275
7-Dec-09	1295	979	2606	570	*	3410
8-Dec-09	1342	1000	2645	581	1575	3430
9-Dec-09	1344	1040	2640	581	1600	3460
10-Dec-09	1369	1095	2670	592	1650	3525
13-Dec-09	*	1100	2655	640	1699	3510
14-Dec-09	1040	1110	2679	652	1680	3605
15-Dec-09	1000	1101	2590	675	1690	3510
16-Dec-09	926	1080	2583	660	1626	3520
17-Dec-09	927	1079	2580	647	1627	3450
20-Dec-09	928	1080	2580	630	866	3480
21-Dec-09	920	1090	2550	620	818	3424
22-Dec-09	940	*	2575	*	806	3450
23-Dec-09	952	1070	2660	628	831	3480
24-Dec-09	950	1070	2665	*	860	3490
27-Dec-09	940	1075	2680	652	870	3550
28-Dec-09	948	*	2722	675	895	3520
29-Dec-09	940	1080	2720	680	900	3515
31-Dec-09	941	1095	2725	685	900	3490
2-Jan-10	*	*	*	*	*	*
3-Jan-10	930	1090	2670	690	890	3495
4-Jan-10	925	1080	2597	655	873	3473
5-Jan-10	930	1030	2575	650	873	3375
6-Jan-10	915	1025	2650	636	870	3365
7-Jan-10	926	1010	2570	652	880	3380
10-Jan-10	920	1009	2626	646	880	3350
11-Jan-10	918	*	2600	650	870	3370
12-Jan-10	918	*	2570	637	860	3359
13-Jan-10	900	981	2601	640	843	3310
14-Jan-10	915	975	2600	630	840	3305
17-Jan-10	933	960	*	635	840	3301
18-Jan-10	901	940	2502	622	830	3310
19-Jan-10	901	*	2470	617	815	3305
20-Jan-10	892	940	2500	616	802	3290
21-Jan-10	900	930	2420	620	800	3260
24-Jan-10	909	955	2400	615	805	3195

Contd. Appendix 3.1

25-Jan-10	890	960	2366	620	802	3264
26-Jan-10	895	961	2340	608	810	3289
27-Jan-10	879	961	2325	621	800	3240
28-Jan-10	880	960	2460	621	800	3318
31-Jan-10	885	979	2473	598	799	3300
1-Feb-10	882	970	2415	600	781	3202
2-Feb-10	855	965	2415	600	785	3195
3-Feb-10	840	960	2360	590	756	3210
4-Feb-10	835	960	2385	600	745	3190
7-Feb-10	825	946	2365	590	726	3211
8-Feb-10	841	935	2250	559	725	3060
9-Feb-10	761	931	2162	539	686	2861
10-Feb-10	821	950	2300	591	700	3020
11-Feb-10	800	942	2320	575	710	3020
15-Feb-10	815	949	2260	540	710	3000
16-Feb-10	796	917	2239	550	710	3005
17-Feb-10	791	910	2335	560	697	3010
18-Feb-10	798	900	2200	580	*	3010
1-Mar-10	816	915	2325	590	*	3072
2-Mar-10	869	940	2375	615	*	3125
3-Mar-10	890	970	2460	669	755	3200
4-Mar-10	864	950	2415	616	746	3200
7-Mar-10	832	930	2381	593	750	3200
9-Mar-10	815	906	2334	588	735	3195
10-Mar-10	801	907	2300	588	722	3169
11-Mar-10	817	925	2261	588	708	3126
14-Mar-10	788	905	2250	560	682	3000
16-Mar-10	780	901	2200	555	675	3025
17-Mar-10	774	888	2170	560	670	3010
18-Mar-10	776	860	2170	565	*	2950
22-Mar-10	790	838	2140	560	671	2923
23-Mar-10	782	850	2135	551	680	2945
25-Mar-10	771	840	2130	535	680	2950
28-Mar-10	745	824	2100	515	670	2945
29-Mar-10	717	821	2110	500	641	2920
30-Mar-10	682	795	2014	492	630	2800
31-Mar-10	705	790	2015	504	635	2888
1-Apr-10	755	820	2119	554	657	2960
4-Apr-10	770	866	2205	550	650	3060
5-Apr-10	750	880	2220	535	650	3005
6-Apr-10	720	814	2140	517	691	2960
7-Apr-10	728	814	2098	516	709	2906

Contd. Appendix 3.1

8-Apr-10	725	840	2112	520	709	2898
11-Apr-10	715	861	2083	524	*	2850
12-Apr-10	760	860	2039	530	710	2860
13-Apr-10	740	860	2040	528	690	2895
15-Apr-10	747	870	2000	530	682	2831
18-Apr-10	720	*	2080	516	670	2820
19-Apr-10	717	*	2001	502	657	2801
20-Apr-10	702	880	1945	493	632	2767
21-Apr-10	688	846	1810	478	612	2595
22-Apr-10	700	*	1831	470	600	2600
25-Apr-10	685	773	1786	470	584	2591
26-Apr-10	675	696	1760	475	566	2519
27-Apr-10	645	689	1696	465	*	2450
28-Apr-10	650	724	1671	484	556	2445
29-Apr-10	692	796	1838	512	*	2650
9-May-10	665	*	1840	484	565	2575
10-May-10	688	874	1927	481	607	2610
11-May-10	732	928	2005	*	647	2721
12-May-10	782	965	2100	499	700	2810
13-May-10	802	1006	2200	548	770	2920
16-May-10	757	1006	2075	525	693	2830
17-May-10	750	*	2040	548	662	2850
18-May-10	794	906	2100	571	709	2900
19-May-10	798	861	2172	580	730	2952
20-May-10	805	880	2150	609	750	2978
23-May-10	805	910	2180	600	741	3001
24-May-10	815	875	2180	600	760	3020
25-May-10	857	924	2300	660	820	3109
26-May-10	850	955	2320	636	789	3150
30-May-10	935	*	2540	699	869	3400
31-May-10	875	950	2356	645	785	3250
1-Jun-10	884	925	2305	655	717	3280
3-Jun-10	874	915	2330	675	785	3250
6-Jun-10	844	882	2290	655	749	3200
7-Jun-10	884	880	2270	660	760	3200
8-Jun-10	878	897	2300	672	770	3250
9-Jun-10	885	900	2335	674	790	3290
10-Jun-10	892	910	2335	674	786	3265
13-Jun-10	876	900	2300	669	770	3220
14-Jun-10	873	882	2300	665	760	3200
15-Jun-10	872	899	2263	659	765	3200
16-Jun-10	872	890	2292	655	780	3195

Contd. Appendix 3.1

17-Jun-10	873	894	2295	650	755	3190
20-Jun-10	870	877	2280	659	769	3200
21-Jun-10	860	880	2240	660	765	3120
22-Jun-10	871	885	2249	660	755	3115
23-Jun-10	865	885	2230	655	753	3040
24-Jun-10	845	885	2170	650	751	3010
28-Jun-10	835	870	2127	647	742	2990
29-Jun-10	826	846	2100	625	730	2900
30-Jun-10	834	835	2090	625	731	2920
1-Jul-10	856	860	2205	645	744	3000
4-Jul-10	831	834	2200	630	730	2975
5-Jul-10	831	821	2160	630	727	2998
6-Jul-10	835	819	2125	630	745	3146
7-Jul-10	844	820	2135	635	749	2930
8-Jul-10	850	830	2160	635	750	2925
11-Jul-10	860	*	2215	635	740	2925
12-Jul-10	835	830	2125	630	740	3012
13-Jul-10	857	832	2150	630	750	3100
14-Jul-10	851	810	2230	630	742	3060
15-Jul-10	840	816	2384	626	741	3279

Source : NEPSE Trading Report 2009/2010, Daily Newspapers, * Not Traded

www.nepalstock.com Note : Total Market Days = 225

APPENDIX – 3.2

Commercial Bank Index and NEPSE Index during Fiscal Year 2066/2067

(July 16, 2009 to July 16, 2010)

Date	Commercial Bank Index Points	NEPSE Index Points
16-Jul-09	764.48	735.87
19-Jul-09	771.62	734.34
20-Jul-09	778.10	739.02
21-Jul-09	777.75	737.97
23-Jul-09	782.67	737.84
26-Jul-09	737.82	708.11
27-Jul-09	776.62	730.64
28-Jul-09	770.21	729.05
29-Jul-09	759.46	721.49
30-Jul-09	752.33	716.01
2-Aug-09	741.87	704.71
3-Aug-09	731.64	700.16
4-Aug-09	728.26	700.01
9-Aug-09	720.26	693.64
10-Aug-09	714.57	690.32
11-Aug-09	716.56	690.22
12-Aug-09	762.13	717.20
16-Aug-09	772.70	721.95
17-Aug-09	764.36	716.01
18-Aug-09	760.13	715.35
19-Aug-09	756.31	714.40
20-Aug-09	754.61	709.82
23-Aug-09	744.94	702.22
24-Aug-09	731.24	693.34
25-Aug-09	707.82	678.87
26-Aug-09	711.26	682.31
27-Aug-09	708.75	681.54
30-Aug-09	692.66	671.15
31-Aug-09	679.40	661.03
1-Sep-09	667.81	654.63
2-Sep-09	679.69	660.40
6-Sep-09	679.32	662.57
7-Sep-09	673.51	657.53
8-Sep-09	626.31	630.11
9-Sep-09	612.73	620.39
10-Sep-09	604.65	614.79
13-Sep-09	606.88	617.34
14-Sep-09	625.29	628.44
15-Sep-09	628.62	629.88
16-Sep-09	627.29	628.34
17-Sep-09	626.56	627.97
20-Sep-09	629.88	628.90
22-Sep-09	634.75	632.70
23-Sep-09	630.76	630.45

24-Sep-09	631.21	630.55
4-Oct-09	639.49	634.44
5-Oct-09	643.52	636.87
6-Oct-09	604.24	613.18
7-Oct-09	594.24	607.86
8-Oct-09	588.96	604.37
11-Oct-09	582.76	599.33
12-Oct-09	578.61	598.37
13-Oct-09	579.75	598.80
14-Oct-09	584.29	599.50
15-Oct-09	595.63	609.55
21-Oct-09	586.33	601.21
22-Oct-09	586.88	601.16
25-Oct-09	585.84	599.43
26-Oct-09	579.26	595.33
27-Oct-09	571.23	590.44
28-Oct-09	563.63	585.04
29-Oct-09	552.19	578.19
1-Nov-09	535.52	567.06
2-Nov-09	538.56	567.27
3-Nov-09	547.57	571.58
4-Nov-09	559.04	581.55
5-Nov-09	564.29	584.64
8-Nov-09	570.39	587.21
9-Nov-09	565.65	583.10
10-Nov-09	562.69	580.23
11-Nov-09	558.27	576.80
12-Nov-09	540.10	565.86
15-Nov-09	544.73	566.94
16-Nov-09	537.51	561.82
17-Nov-09	541.46	564.98
18-Nov-09	541.18	562.22
19-Nov-09	540.94	563.01
22-Nov-09	538.86	562.11
23-Nov-09	519.50	549.03
24-Nov-09	513.83	543.41
25-Nov-09	511.21	541.55
26-Nov-09	502.19	534.32
30-Nov-09	495.92	528.89
1-Dec-09	483.65	521.77
3-Dec-09	479.54	517.45
6-Dec-09	482.31	519.16
7-Dec-09	489.85	524.18
8-Dec-09	499.88	530.35
9-Dec-09	511.13	537.57
10-Dec-09	524.13	545.66
13-Dec-09	534.51	553.40
14-Dec-09	539.00	554.54
15-Dec-09	527.68	548.61
16-Dec-09	517.53	542.10
17-Dec-09	513.49	539.21
20-Dec-09	514.90	538.68
21-Dec-09	511.31	536.93

22-Dec-09	515.73	541.86
23-Dec-09	521.53	543.57
24-Dec-09	524.60	545.66
27-Dec-09	525.83	545.27
28-Dec-09	527.17	545.73
29-Dec-09	529.01	547.41
31-Dec-09	530.09	548.11
3-Jan-10	528.73	546.96
4-Jan-10	518.37	540.12
5-Jan-10	511.99	536.18
6-Jan-10	514.03	536.63
7-Jan-10	512.38	535.81
10-Jan-10	511.69	535.41
11-Jan-10	512.35	534.34
12-Jan-10	510.64	532.26
13-Jan-10	506.67	530.81
14-Jan-10	506.62	530.96
17-Jan-10	503.72	528.90
18-Jan-10	497.51	524.19
19-Jan-10	494.47	522.05
20-Jan-10	492.80	520.42
21-Jan-10	489.45	518.11
24-Jan-10	487.01	516.77
25-Jan-10	487.68	516.82
26-Jan-10	486.56	513.71
27-Jan-10	485.67	511.70
28-Jan-10	491.14	515.24
31-Jan-10	490.62	512.34
1-Feb-10	486.54	510.10
2-Feb-10	483.84	507.02
3-Feb-10	479.63	502.79
4-Feb-10	479.85	501.40
7-Feb-10	473.81	497.34
8-Feb-10	461.16	489.40
9-Feb-10	443.72	479.73
10-Feb-10	462.00	492.88
11-Feb-10	464.86	497.24
15-Feb-10	462.76	493.02
16-Feb-10	458.86	486.82
17-Feb-10	456.69	485.82
18-Feb-10	457.54	485.14
1-Mar-10	468.07	497.86
2-Mar-10	474.15	503.12
3-Mar-10	491.33	517.00
4-Mar-10	480.68	514.04
7-Mar-10	474.45	504.52
9-Mar-10	468.39	500.71
10-Mar-10	461.90	489.61
11-Mar-10	461.76	486.25
14-Mar-10	452.75	481.19
16-Mar-10	451.29	480.49
17-Mar-10	449.11	477.62
18-Mar-10	446.70	475.80

22-Mar-10	442.57	472.82
23-Mar-10	440.67	469.14
25-Mar-10	434.99	466.09
28-Mar-10	427.70	459.87
29-Mar-10	419.85	454.43
30-Mar-10	406.60	443.73
31-Mar-10	411.88	443.17
1-Apr-10	427.06	452.46
4-Apr-10	435.99	458.13
5-Apr-10	431.47	455.26
6-Apr-10	422.82	449.49
7-Apr-10	420.76	443.89
8-Apr-10	422.80	446.03
11-Apr-10	419.14	443.54
12-Apr-10	419.14	443.66
13-Apr-10	418.56	444.76
15-Apr-10	413.57	449.04
18-Apr-10	413.59	446.05
19-Apr-10	408.15	441.73
20-Apr-10	402.74	438.64
21-Apr-10	384.57	426.54
22-Apr-10	385.97	426.57
25-Apr-10	377.07	423.41
26-Apr-10	367.38	415.47
27-Apr-10	356.56	407.60
28-Apr-10	355.34	405.45
29-Apr-10	375.84	419.28
9-May-10	368.53	413.02
10-May-10	377.59	418.77
11-May-10	394.40	431.56
12-May-10	412.98	449.08
13-May-10	427.43	457.81
16-May-10	407.53	440.54
17-May-10	407.19	440.34
18-May-10	418.34	448.60
19-May-10	425.81	454.12
20-May-10	432.50	461.99
23-May-10	433.11	462.57
24-May-10	437.05	462.63
25-May-10	461.92	482.44
26-May-10	458.15	479.40
30-May-10	493.81	506.35
31-May-10	468.56	490.08
1-Jun-10	459.94	479.98
2-Jun-10	454.55	480.48
3-Jun-10	463.89	482.34
6-Jun-10	455.03	478.64
7-Jun-10	455.34	478.61
8-Jun-10	462.98	482.76
9-Jun-10	468.92	486.60
10-Jun-10	465.86	484.82
13-Jun-10	460.30	480.62
14-Jun-10	455.03	476.69

Contd. Appendix 3.2

15-Jun-10	453.48	475.65
16-Jun-10	453.83	475.17
17-Jun-10	453.04	474.63
20-Jun-10	454.86	474.99
21-Jun-10	451.00	468.61
22-Jun-10	448.88	470.40
23-Jun-10	446.06	467.60
24-Jun-10	440.47	463.45
28-Jun-10	437.52	459.52
29-Jun-10	428.63	455.48
30-Jun-10	429.25	455.75
1-Jul-10	444.92	470.91
4-Jul-10	438.52	464.69
5-Jul-10	434.08	460.70
6-Jul-10	440.54	463.24
7-Jul-10	436.92	461.87
8-Jul-10	435.42	460.07
11-Jul-10	436.39	460.02
12-Jul-10	437.01	461.62
13-Jul-10	440.88	464.65
14-Jul-10	442.46	467.33
15-Jul-10	456.93	477.73

Source : NEPSE Trading Report 2009/2010 Note : Total Market days = 225

APPENDIX – 4.1

Distribution of Signs of Coefficients

Lag	Number of + Sign	Number of — Sign	Total
1	6	0	6
2	6	0	6
3	6	0	6
4	6	0	6
5	6	0	6
6	6	0	6
7	6	0	6
8	6	0	6
9	6	0	6
10	6	0	6
Total	60	-	60

APPENDIX – 4.2

Standard Error (S.E.) of the Stocks

Comp./Lag	1	2	3	4	5	6	7	8	9	10
BOK	0.067	0.066	0.066	0.066	0.066	0.066	0.066	0.066	0.065	0.065
HBL	0.070	0.069	0.069	0.069	0.069	0.069	0.069	0.068	0.068	0.068
NABIL	0.067	0.066	0.066	0.066	0.066	0.066	0.066	0.065	0.065	0.065
NIC	0.067	0.067	0.067	0.067	0.066	0.066	0.066	0.066	0.066	0.066
NSBI	0.068	0.067	0.067	0.067	0.067	0.067	0.067	0.066	0.066	0.066
SCB	0.066	0.066	0.066	0.066	0.066	0.066	0.065	0.065	0.065	0.065