

**MARKET PRICE EFFICIENCY OF
COMMERCIAL BANKS OF NEPAL**

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RECOMMENDATION

This is to certify that the thesis

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COMMERCIAL BANKS OF NEPAL**

*has been prepared as approved by this Department in the prescribed format of
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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 requirement for the degree of

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DECLARATION

I hereby declare that the work reported in this thesis entitled "**Market price Efficiency of Commercial Banks of Nepal**" submitted to Office of the Dean, Faculty of Management, Tribhuvan University, is my original work done in the form of partial fulfillment of the requirement for the degree of Master of Business Studies (MBS) under the supervision of **Dr. Shilu Manandhar Bajracharya** of Shanker Dev Campus, T.U.

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Finally, I hoped this is could be useful for further researcher and investors, stock analyst and others who analyze the stock price. I am also sole responsible for any errors present in this thesis study and extend warm welcome to any comments and suggestions.

Sunil Paudel

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ABBREVIATIONS

AT	:	Annual Turnover
BOK	:	Bank of Kathmandu Limited
CV	:	Coefficient of Variation
d.f.	:	Degree of Freedom
EMH	:	Efficient Market Hypothesis
EMT	:	Efficient Market Theory
HBL	:	Himalayan Bank Limited
L_n	:	Natural Logarithms
LOG	:	Logarithms
NABIL	:	Nabil Bank Limited
NBB	:	Nepal Bangladesh Bank Limited
NEPSE	:	Nepal Stock Exchange
NRB	:	Nepal Rastra Bank
NSM	:	Nepalese Stock Market
OTC	:	Over the Counter Market
PI	:	Amount on Public Issue
PV	:	Paid Up Value
RWH	:	Random Walk Hypothesis
SCB	:	Standard Chartered Bank Limited
SEBO/N	:	Security Board of Nepal
SEC	:	Security Exchange Center
SPSS	:	Statistical Package for Social sciences
TU	:	Tribhuvan University
UK	:	United Kingdom
USA	:	United States of America

CHAPTER - I

INTRODUCTION

1.2 Background of the Study

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

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

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

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

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

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

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

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

History indicates that there are two basic theories of stock price behavior: the technical analysis theory and fundamental analysis theory. Briefly, the technical analysts believe that the forces of supply and demand are reflected in the patterns of price and volume of trading while fundamental analysts do that economic environment and earning power are reflected in the pattern of market prices (*Fischer and Jordan; 2000:37*). Whereas the fundamentalists predict the stock price behavior by analyzing earning power and the economic environment in the risk-return framework. The fundamentalists believe that at any point in time, every share has an intrinsic value which should be in principle be equal to the present value of the future stream of income from that share discounted at an appropriate risk related rate of interest (*Bhalla; 1999:128*). Thus, the actual price of the security is considered a function of a set of anticipated capitalization rate. The present study represents an effort to improve on shortcomings of the past studies in the hope that the “Behavior of Stock price” can easily be understood.

Shareholders are the prime constituent of any company. Shareholders are the investors to tie their fortune with the fortune of the company in which they invest. So, there is no doubt regarding a company should maximize the wealth of its shareholders. This means a company should provide increment in shareholders’ wealth or must create something of value to their shareholders that they can not do for themselves (*Van Horne; 2004:3*). The more accurate and simple way to measure whether shareholders’ wealth is maximized or not is look for the return that the company is providing to their shareholders. This return comprises both of dividend yields and capital gain. Hence in this inflationary world investment is actually a blessing which can mitigate the effects of inflation. However, there are several investment instruments available from real to financial assets. Real investment includes investment in real estates, gold, silver, commodities etc. Financial instruments on the other hand range from money market instruments like treasury bills, commercial paper, certificates of deposit, banker’s acceptance, repurchase agreements, short-term municipal securities etc. to capital market instruments like stocks, bonds, preference shares, mortgage loans, derivatives etc. Among these the prime concern is with stocks or equity shares. And the only capital market where this security is traded is NEPSE.

Nepal Stock Exchange (NEPSE) is the only stock exchange for trading securities in Nepal which was established in January 13, 1994. However, over-the-counter (OTC) market is started from June 4, 2008; it is yet to take full operational form. This means Nepalese shareholders have to trade securities on NEPSE through its brokers for maximizing their wealth and counter any other phenomenon like inflation that prevents from wealth maximization.

1.2 Nepalese Commercial Banks

The history of commercial banking in Nepal started with the establishment of Nepal Bank Limited in 1994 B.S., with 51% government and 49% general public ownership. Later on, Rastriya Banijya Bank was established in 2022 B.S. with 100% government ownership. Nepalese commercial banking took yet another turn from 2041B.S. onwards with the establishment of series of joint venture commercial banks. Till day there are at least 26 commercial banks operating in Nepal. But only 21 of them have been listed in NEPSE for transaction, and the oldest bank Nepal Bank Limited has been delisted because of its internal problems. Till day there are 21 commercial banks listed in NEPSE for transaction (SEBON, 2008/09) as shown in the table 1.1.

Further commercial banks constitute the major chunk of NEPSE index. The visible dominance of commercial banks over NEPSE can be seen both volume-wise and transaction-wise which account for more than 70% each. Further, NEPSE sensitive index compose of commercial banks. Also, the highest rupees per unit of share traded are recorded for commercial banks. Investors were ready enough to pay more than Rs.8000 for a unit of share of SCB. Not only in secondary market is the investors' preference over commercial bank shares, this case is also same in primary market. The IPOs of commercial bank shares are oversubscribed several times higher than that of other group shares. So, all these things provided impetus to the researcher to study whether the investors' behavior is logical to act in such a way or at least returns from commercial bank investment can compensate these shareholders against inflation.

Table 1.1
Commercial Banks in Nepal

Name	Operation Date (A.D.)	Listing Date (A.D.)
Nepal Bank Limited	1937/11/15	
Rastriya Banijya Bank	1966/01/23	
NABIL Bank Limited	1984/07/16	1985/11/24
Nepal Investment Bank Limited	1986/02/27	1986/07/22
Standard Chartered Bank Nepal Limited	1987/01/30	1988/07/04
Himalayan Bank Limited	1993/01/18	1993/07/05
Nepal SBI Bank Limited	1993/07/07	1995/01/17
Nepal Bangladesh Bank Limited	1993/06/05	1995/12/24
Everest Bank Limited	1994/10/18	1996/04/07
Bank of Kathmandu Limited	1995/03/12	1997/07/17
Nepal Credit and Commerce Bank Limited	1996/10/14	2005/01/31
Lumbini Bank Limited	1998/07/17	2004/11/10
Nepal Industrial and Commercial Bank Limited	1998/07/21	2000/06/13
Machhapuchhre Bank Limited	2000/10/03	2003/05/28
Kumari Bank Limited	2001/04/03	2004/07/29
Laxmi Bank Limited	2002/04/03	2004/04/20
Siddhartha Bank Limited	2002/12/24	2006/02/24
Agriculture Development Bank Limited	2006/03/16	
Global Bank Limited	2007/01/02	2009/03/26
Citizens Bank International Limited	2007/06/21	2009/05/25
Prime Commercial Bank Limited	2007/09/24	
Sun Rise Bank Limited	2007/10/12	
Bank of Asia Nepal Limited	2007/10/12	2009/05/25
Kist Bank Limited	2003/02/21	2004/12/28
NMB Bank	1996/11/26	2001/06/20
DCBL Bank	2001/01/23	2002/06/13
Mega Bank Limited		
Commerz And Trust Bank Limited		

Source: Banking and Financial Statistics, No.53, Mid-July 2009 (NRB); and Annual Report (Securities Board of Nepal), Fiscal year 2008/09

1.4 Statement of the Problem

The technical analysis theory assumes that the historical behavior of a security is rich in information and that can be used to predict future behavior (Fama, 1965). Technical analysis uses most of the anomalies to extract information on future price movements from historical data. The theory of Random Walk Hypothesis (RWH) or

Weak Efficient Market Hypothesis (EMH) attempts to analyze statistically underlying share price behavior. This study is concerned mainly with above mentioned theory, which is the most illustrious hypothesis in the field of share price behavior. The Efficient Market Hypothesis (EMH) states that three forms of stock market prevail in theory. They are Weak, semi-strong and strong.

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

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

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

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

The major causes of the deficiencies in Nepalese stock market appeared to be the profitability and the good governance of the company, government policy regarding investment, market operation system, investors' knowledge information disclosures and inefficiency of the market.

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

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

1.4 Objectives of the Study

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

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

1.5 Significance of the Study

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

1.6 Limitation of the Study

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

-) Since the data covers only for five years period, the findings may not be a complete picture of the Nepalese stock market.
-) The other limitations are time constraints, resource constraints, and lack of research experience.
-) The regression equations are based on five years data whereas the some tests are done on the basis of daily stock price from July 16 2008 to July 15 2009.
-) The major portions of analysis and interpretation have been done on the basis of the available data and information. So the consistency of finding and conclusion is strictly dependent upon the reliability of secondary data and information.
-) This study is done for the partial fulfillment for MBS degree in management. So, it is not a comprehensive study.
-) The data has been collected from NEPSE for its official records and the data are not verified.

1.7 Organization of the Study

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

Chapter -I: Introduction

Chapter –II: Review of Literature

Chapter- III: Research Methodology

Chapter- IV: Data presentation and Empirical Analysis

Chapter-V: Summary, Conclusion and Recommendations.

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

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

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

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

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

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

CHAPTER - II

1.1.1 REVIEW OF LITERATURE

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

2.1 Conceptual Review

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

2.1.1 Concept of Securities

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

A corporation may conveniently issue each class of securities in the market. There is a class of investors for each class of securities because of their varying preferences of risk, income and control. There are various class of buyers such as the stock holders, employers, customers and creditors of the corporation and traders in the capital market (*Kulkarni; 1992*). The largest number of security buyers is that of individual investors who seek safety on their commitment and reasonable certainty of a moderate

but regular income. The speculator seeks large profits, even though considerable risk may be involved in it.

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

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

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

In general, only a piece of paper represents the investors' right to certain prospects or property and the conditions under which she/he may exercise those rights. This piece of paper, serving as evidence of property rights is called the security. It may be transferred to other investors and with it will go all its rights and conditions. Thus, everything from pawn ticket to a share of common stock is the security. Hence, the term of security can be understood as a legal representation of the right to receive prospective future benefits under conditions. The primary tasks of security analysis is to identify misplaced securities by determining these prospective future benefits, the conditions under which they will be received and the likelihood of such conditions (*Francis; 2002:37*).

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

2.1.2 Security Market

In recent years, globalization, deregulation, and advances in technology have contributed to a dramatic reshaping of global capital markets. Central banks play a pivotal role in financial markets by setting monetary policy and regulating financial institutions. Central bank operations have major impact on money and capital markets.

Stock markets are essential to economic development. The stock market provides a place where corporations can go to raise long-term capital to finance a multitude of projects. Stocks also offer investors the opportunity to obtain capital gains from ownership of business enterprises, as well as to receive current dividend income. Stock ownership has expanded dramatically in the past decade as individuals have assumed more responsibility for providing for their retirements. In addition, low-cost online trading has opened the world of equities to millions of people who might not have otherwise considered investing in the stock market. Corporations issue stocks in the primary market. In the secondary market investors express their opinions, based on certain valuation techniques, about the future profitability of a company through the trades that they make. The aggregate of these trades gives the market consensus about the price of the stock. Investors use several approaches to determine the value

of a stock, including fundamental analysis, technical analysis, and the efficient market hypothesis.

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

The growth of the US economy has been due in large part to the strength and efficiency of its security markets (*Cheney and Moses; 1997: 64*). The importance of an efficient broadly based security market for a country's economy is demonstrated by the fact that one of the top priorities of emerging eastern European countries is the establishment of security markets. In converting from centrally planned economy to a market based system, the eastern European countries are establishing an environment in which business can operate. This includes, creating a new framework of commercial law, setting up autonomous and decentralized system of wholesale and retail distribution, establishing a banking system and providing sources of debt and equity capital for business through efficiently operated security market.

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

The security market can be defined as a mechanism for bringing together buyer and seller of financial assets to facilitate trading. Security market is classified into two: the market in which new securities are sold known as the primary market and the market

in which the securities are resold known as secondary market. Brokers, dealers, and market makers create secondary market. Brokers bring buyer and seller together without themselves actually buying and selling does not take place; dealer sets price at which they themselves are ready to buy and sell (bid and ask price respectively). Broker and dealer come together in organized market of stock exchange (*Gitman; 1994*).

New York, London, Tokyo contain the largest securities market in the world-all are about equal in size (*Francis; 2002:45*). Trading goes on 24 hours in a day. Each market conducts trading differently, So that the securities market should be viewed as components of a global market.

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

) Primary Market

The primary market is that part of securities market that deals with the issuance of new securities. Companies, governments or public sector institutions can obtain funding through the sale of new stock or bond issue. The issue of new securities is commonly known as an Initial Public Offering (IPO). Issuers usually retain investment banks to assist them in finding buyers for these issues, and in many cases, to buy any remaining interests themselves. This arrangement is known as underwriting.

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

) Secondary Market

After the securities have been purchased in the primary market, they can be traded in the secondary market. The secondary market is an organized market to enable buyers

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

As the stock exchange typically deals in existing securities rather than in new issues, it has greater economic significance may be misunderstood. Because an increase in volume of securities trading in the stock market does not represent an increase in the economy's aggregate saving, every purchase of an existing security being exactly offset by the sale of the security. The availability of an efficient secondary market for securities is one of the more important factors including investors to acquire new issues of securities. The basic economic function is to provide marketability for long-term investments, thereby reducing the personal risk incurred by investors, broadening the supply of equity and long-term debt capital for the financing of business enterprise. Thus, the secondary market is vital to an efficient and modern securities market (*Bhalla; 1993:76*).

Stock Exchanges vs. Over-the-Counter-Market

The transactions among investors in the secondary market take place at organized exchanges or in the OTC market. The organized exchanges have trading floors where traders execute buy and sell orders for their clients. The OTC market does not have a trading floor; instead, traders execute transactions through a computerized telecommunications networks (*Liaw; 2004:55*).

Stockholders Wealth

Shareholders are the owners of the corporation, and they purchase the stocks because they want to earn a good return on their investment without undue risk exposure. Management's primary goal is stockholder wealth maximization, which translates into maximizing the price of the firm's common stocks. Stock price maximization is the most important goal for most corporations (*Brigham; 1996:13*).

What kinds of actions can managers take to maximize a firm's stock price? What determines stock prices? In a nutshell, it is a company's ability to generate cash flows now and in the future. Three important facts that must be considered for maximizing the shareholders wealth are:

-) Any financial assets, including a stock is only valuable if it generates cash flows.
-) Timing of cash flows matters.
-) Investors generally are averse to risk.

So if managers, enhance their firm's stock prices by increasing the size of the expected cash flows by speeding up their receipts, and by reducing their risky ness, can maximize shareholders' wealth. And keeping in mind the above factors, managers need to make investing, financing and dividend decisions.

It should be however kept in mind that increasing cash flows (present or future) may be sometimes in contrary to maximizing current profits or EPS (especially with increasing future cash flows).

All boats rise with the tide, but the same does not hold for stock market-regardless of trend some individual stocks make huge gains while others experience losses. The value of stock is determined using the time value of money concept. Further there are two special features of common stock. First, it entitles its owner to dividends, but only if the company has earnings out of which dividends can be paid, and only if management chooses to pay dividends rather than retaining and reinvesting all the earnings. And the other, stocks can be sold at some future date. A stock's value is the present value of the expected future cash flow streams. This expected cash flow consists of the dividends expected in each year and the price investors expect when they sell the stock.

The present value model used to determine the price of a security, which is as follows:

$$\text{Present Value}_0 = \text{cashflow}_1 / (1+K)^1 + \text{cashflow}_2 / (1+k)^2 + \dots + \text{cash flow}_n / (1+k)^n$$

Time Value of Money is the very base for the calculation of the stock value. And the essence of this is: “a dollar in hand today is worth more than a dollar to be received in the future because, if you had it now, you could invest it, earn interest and end up with more than one dollar in the future”. Dollars that are paid and received at two different points in time are different and this difference is recognized and accounted for by time value of money (TVM) analysis.

Another most important factor in determining the stock price is obviously cost of capital, K. Two important things governing the cost of capital are:

-) That investors provide managers with the necessary funds or capital to undertake projects, and
-) Managers, if they are good stewards of the money entrusted to them, invest only in projects that produce rates of return at least as high as the return investors could get elsewhere. The return investors could get elsewhere is their opportunity cost of capital, also called their required rate of return.

Three basic ways can be applied to calculate the firm’s cost of capital so that it can be further used to calculate the firm’s stock value.

1. The CAPM Approach: $K_s = K_{RF} + (K_M - K_{RF}) b_i$
2. Bond-yield-plus-risk-premium approach: $K_s = \text{Bond yield} + \text{risk premium}$
3. Dividend-yield-plus-growth rate, or discounted cash flow approach: $K = \frac{D_1}{P_0} + g$

Another most similar interpretation for the composition of the cost of capital is given by the determination of market interest rates, which is as follows:

$$\begin{aligned} \text{Quoted interest rate} = K &= K^* + IP + DRP + LP + MRP \\ &= K_{RF} + DRP + LP + MRP \end{aligned}$$

Where,

K^* = real risk free rate with zero inflation were expected.

K_{RF} = quoted risk-free rate of interest on a security which is very liquid and also free of market risks.

IP = average expected inflation rate over the life of the security.

DRP = the possibility that the issuer will not pay interest or principal at the stated time and in the stated amount.

LP = liquidity or marketability premium to reflect the fact that some securities can not be converted to cash on short notice at a reasonable price.

MRP = exposure to risk of price declines.

The expression on the above equation for calculating the cost of capital clearly shows the inclusion of risk element. And also discussion of return would not be complete if risk is not taken into consideration. Webster's Dictionary: "a hazard, a peril; exposure to loss or injury, chance that some unfavorable event will occur. No investment will be undertaken unless the expected rate of return is high enough to compensate the investor for the perceived risk of the investment. Investment risk then is related to the probability of actually earning less than the expected return. The greater the chance of low or negative return, the riskier the investment.

2.1.3 Growth of Nepalese Security Markets

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

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

The remarkable changes came only after the initiation to reform the market in 1993, when SEC was converted into the Nepal Stock Exchange Ltd. (NEPSE) and new market mechanism was introduced providing membership to market intermediaries and allowed to participate in the transaction of securities. Then the government established Securities Board of Nepal (SEBO/N) as an apex regulatory body under the

security exchange act, 1983 (second amendment) to regulate and monitor both the markets in 1997. The act has authorized to SEBO/N to supervise, regulate and monitor the activities of the NEPSE and other companies related to securities business.

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

The basic objective of NEPSE is to impart free marketability and liquidity to the government and the corporate securities by facilitating transactions in its trading floor through members, market intermediaries, such as brokers, market makers etc. NEPSE opened its trading floor on 13th January 1994. NEPSE the only Stock Exchange in Nepal introduced fully automated screen based trading since 24th August, 2007. The NEPSE trading system is called 'NEPSE Automated Trading System '(NATS) is a fully automated screen based trading system, which adopts the principle of an order driven market. The growth pattern of Nepalese Securities for the last five years is shown in table 2.1.

Table 2.1
Growth Pattern of Nepalese Securities Market from 2004/05 to 2008/09

(Rs in Million)

Year	Number. of listed companies	Number of public issue	Amount Issued (Rs)	Paid up value (Rs)	Annual turnover	Market capitalization	NEPSE index
2004/05	125	14	1626.8	16771.9	4507.70	61365.90	286.67
2005/06	135	29	2443.3	19958.0	3415.40	96763.70	386.83
2006/07	135	34	2295.5	21798.8	8360.10	186301.30	683.95
2007/08	142	64	10668.2	29465.0	22820.80	366247.50	963.36
2008/09	159	64	16828.5	61140.0	21681.44	512939.07	749.10

Sources: SEBO/N Annual reports .(2006/07-2008/09)

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

2.1.4 Role of Stock Exchange

Stock exchange is the market where second hand securities are bought and sold for investment or speculative purposes. It provides facilities for trading in listed securities. In recent years the role of stock exchange is being increasingly recognized by the authorities (*Mahat; 1981:73*). Stock exchange as the market for securities gives everybody access to a number of different opportunities for as many buyers and sellers of securities as possible. From a general economic point of view, the stock exchange constitutes the core of capital market.

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

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

Thus institution plays a notable role in the economic life of the country acting a free market for securities, where price are determined by the forces of supply and demand. The function of stock exchange is not only to provide a market for securities but also in raising funds for government and industry. Thus, a free and active market in stock and share has become a prerequisite for the mobilization and distribution of the nations saving as to support modern business (*Mahat; 1981:79*).

In this way, we can say that stock exchange have a vital role to play in helping industries to raise necessary finance. They have a supremacy function to perform in developing a stock capital and to enable government to raise loans. Their services are

indispensable in the operation by the authority for the regulation of the country's credit play. It is generally thought that a stock exchange serves only those who have money to invest and securities to sell. In fact this is not true. A stock exchange benefits the whole community in many ways such as it enables producers to raise capacity thereby creating opportunity for employment to the millions of people and helps consumers in creating and accumulating wealth.

2.1.5 Theories of Share Price Behavior

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

) Technical Analysis Theory

The word technical implies the study of the market itself excluding all those external factors, which are reflected in the market. In simple term, "Technical Analysis" is a general term for a number of investigating techniques that attempt to forecast securities prices by studying past prices and related statistics. Charles Dow is the greatest protagonist of this theory. The technicians usually attempt to predict the term price movements and thus make recommendation concerning the timing of purchase and sales of either specific stock or group of stocks in general. However a large part of the methodology of technical analysis lacks a strictly logical explanation. Technical analysis is useful for timing a buy or sells order. Investors put off the buy a share if technicians predict that stock prices are further dropping in future. Conversely, investors postpone the selling order if technicians predict that prices further are increasing in near future.

) Fundamental Analysis Theory

Fundamental analysis approach involves working to analyze different factors such as economic influences, industry factors, governmental action, firms financial statement, its competitors and pertinent company information like product demand, earnings,

dividends in order to calculate an intrinsic value for firms securities. The analysts who believe on fundamental facts to determine intrinsic value of the stock is popularly known as fundamentalist.

Fundamentalist forecast stock price on the basis of economic industry and company statistic. The principal decision variables ultimately take form of earning and value with a risk-returns framework based upon earning power and the economic environment. Fundamental analysts delve into company's earnings, their management, economic outlook, firm's competitors, market condition and many other factors (*Francis; 1991:114*).

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

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

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

J **Efficient Market Theory**

An efficient market is one where shares are correctly priced. An efficient financial market exists when a security price reflects all available public information about economic, financial markets and all about the specific company involved (Van Horne, 1998:312). An efficient capital market is one in which it is impossible to earn abnormal return by trading on the basis of publicly available information.

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

2.2 Research Review

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

2.2.1 Review of Foreign Context

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

Fama’s (1965) study on *random walk model* was considered to be one of the most definitive studies. He analyzed the daily proportionate price changes of 30 blue chip stocks in the DJII for the period of late 1957 to 26th September 1962. He followed standard statistical tools such as serial correlation and run tests to examine whether any dependency exists in any lag price change. He found that the serial correlation coefficient for daily price change were very small and average was 0.03, which is close to zero, but the correlation coefficient of 11 stocks out of 30 were more than twice of their computed standard errors. He used serial correlation coefficient for

differentiating intervals stronger evidence of dependence. It leads Fama to conclude that the evidence produced by the serial correlation model seems to indicate that dependence in successive price changes is either extremely, slight or non-existence.

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

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

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

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

Dorner (2005) conducted a research by using a computer-based content analysis of qualitative data. He took the data from a Swedish real estate firm during the period 1991-1996. The main objective was to examine the response of stock price to financial announcement. He found the positive correlation between the stock price and the following information categories: net assets value, occupancy rates, cash flow

and overall capitalization rate. The main contribution of the study was to support the assumption that public financial information has an impact on stock market behavior. The review of the above mentioned studies carried out in foreign countries shows many interesting findings on share price behavior. However the question arises as to what extent these findings are pertinent for the context of Nepal? They all may not be applicable for Nepalese stock market where stock market is small and underdeveloped.

2.2.2 Review Related Studies in Nepal

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

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

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

Shrestha (1992) has the studied on “*Capital Market in Nepal*”. He had attempted to highlight mainly on three aspects: conceptual rationale of the capital market, achievement of the Nepalese capital market and the possible scenarios to improve the

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

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

2.2.3 Review of Unpublished Masters Dissertations

There are many dissertations written by various researchers in past years. Among them some dissertations are reviewed here for analysis of literature.

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

transaction of commercial banks. Data used in this study that is the monthly closing price was not enough to predict the stock prices

Timilsina (2006) Conducted research on the topic of “*Dividend and Stock Price*”. The study was carried out by the data for 16 enterprises from 2001 to 2005. The objectives of the study were as follows:

-) To test the difference between dividends per share and stock prices.
-) To determine the impact of dividend policy on stock price
-) To identify whether it is possible to increase the market value of the stock changing dividend policy or payout ratio.
-) To explain the price behavior, the study used simultaneous equation model.

The main findings of his study were as follows:

-) The difference between dividend per share and stock prices is positive in the sample companies.
-) Dividend per share affects the share prices variedly in different sectors.
-) Changing the dividend policy or dividend per share might help to increase the market price of share.
-) The difference between Prices and retained earnings per share is not prominent.
-) The difference between stock prices and lagged earnings ratio is negative.
-) Though there were above-mentioned studies in the context of Nepal, it has overcome necessary to find out whether their findings are still valid.

Timilsina's study was based on 45 observations the number of companies included the sample was only 16, which is quite low. Studies on dividends conducted in the context of Nepal are based on secondary data only. No study has been conducted on dividends by using primary data as yet. There is a need to conduct a survey of financial executives in order to find out more qualitative facts on dividends which can not be determined though the use of secondary data (Timilsina, 1997: 80-92).

Joshi (2006) Conducted research on the topic of “*Dynamics of Stock Market in Nepal*”. The objectives of the research were as follows:

-) To analyze the trend of the Nepalese stock market.
-) To diagnose and compare sector-wise financial status of the stocks in Nepalese stock market.

-) To analyze the market share prices of Nepalese stock market.
-) To find out the impact of secondary on primary market and vice versa.
-) To recommend for the improvement of stock market in Nepal.

The main conclusion of his research was:

The stock market and economic activities move in similar direction. They influence each other. The development of the former is reflected in the latter. The stock market raises and mobilizes the invest-able resources to finance the long-term large projects in the economy. The stock market, therefore, can be regarded as a heart of economy.

The investors are interested to invest their resources in the shares of corporate sector through the stock market in the Nepalese economy. It is necessary to develop the entrepreneurship and encourage the entrepreneurs to start the productive venture as soon as possible. Management capability of the entrepreneurs is a key for better performance of the firms. Government should launch programs to enhance management capability of the entrepreneurs, which may contribute to raise the return from the investment.

Development of the manufacturing sector is the backbone of an economy, which, in turn, assists to foster banking, finance and insurance sectors. Unfortunately, the manufacturing sector does not have a good performance in Nepalese economy. Almost all firms in this sector have a sustained loss.

The secondary aspect of the stock market is not also functioning well in Nepal. There is almost no liquidity in the stock market for shares except that of banking and some finance and insurance sector.

Although it has become late to take steps to overcome such problems of the Nepalese stock market in order to make it active and supportive, the stock market has good prospect for the resource mobilization to finance the productive enterprises in Nepalese economy.

Shrestha (2007) Conducted research on the topic of “*Stock Price Behavior in Nepal*” this study aims to examine the efficiency of the stock market in Nepal. The specific objectives of the study were:

-) To examine the serial correlation of the successive daily price changes of the individual stocks.
-) To determine whether the sequence of price changes is consistent with changes of the series of random numbers expected under the independent Bernoulli process.
-) To determine the efficiency of the stock market through the theoretical model of efficient market hypothesis in the Nepalese stock market.
-) To provide feedback policy input towards institutional development of efficient market.

The main findings of the study were:

The serial correlation coefficients 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 not independent random variable for the 30 sample stocks listed in the Nepal stock exchanges ltd. (NEPSE). Therefore, the random walk theory is not a suitable description for the stock market price behavior in Nepal.

The dependence in the series of price changes observed imply that the price changes in the future market will not be independent from the price changes of the previous days. It implies that the information of the past price changes is helpful in predicting future price changes in a way that the speculation through technical analysis can make higher expected profit than they would be under native buy-and-hold policy (i.e. average market return). Therefore, opportunities are available to sophisticated (both institutional and individual) investors to earn higher return in the market. The existence and participation of the sophisticated investors have not been realized from the findings of this study. It is realized that mostly the native investors have dominated in the market that can cause prices to diverge significantly from intrinsic values because the very existences of the sophisticated traders cause to erase the opportunities of persistence in prices which establish independence of successive price changes.

He analyzed 30 listed companies' stock price and found that the successive price changes are dependent. He finally concluded that the NEPSE is not efficient in pricing shares even in its weak form. Shrestha too had used autocorrelation and run test to detect the dependence among the stock price series. The outcomes of both the models were found to be similar and rejecting the null hypothesis that the successive price changes is independent. Though his research was not based on the total market return movement, the result drawn from analyzing the movement of major stocks traded in the market can be generalized for efficiency level of overall NEPSE. Moreover this research work with the analysis of total market return and banking sector stock return will be useful to verify his findings as well.

Sherpa (2007) Conducted research on the topic of “*Corporate Information Disclosure and its Effect on Share Price*”. The primary objectives of this study were to obtain an insight on corporate information disclosure with special reference to Nepalese stock market and its listed companies. To attain the mentioned objectives, the following specific objectives were set.

-) To highlight the corporate disclosure practice in Nepal
-) To identify the extent of disclosure of each of the item of information and to develop the information disclosure index.
-) To check the quality of corporate disclosure of Nepalese listed companies measured by company characteristic namely asset size, number of shares outstanding and earning margin.
-) To see the relationship between corporate information disclosure and stock prices.

His research study began with the construction of disclosure index for which he collected 59 informational items, classified according to their importance and calculated mean value after the collection of primary data. Thereafter, he selected 33 listed companies, used their annual reports and calculated disclosure scores, which was followed by use of various statistical tools like regression, correlation etc. to attain the mentioned objectives.

From the detail analysis, he found that most of companies do not disclose adequate and qualitative information on their annual reports, and most of disclosed information consisted of only relationship between disclosure scores and variables like earning margin, asset size etc. The important finding of his research is that there is positive relationship between market price of share and disclosure score. In other words, the company having greater disclosure score had the higher prices of stock.

Baral (2008) Conducted research on the topic of “*Current Problems and Prospects of Securities Market In Nepal*” the trend of the Nepalese stock market and present state of primary and secondary market as well as problems and prospects of Nepalese stock market.

The main findings of her study were:

-) The development of stock market primarily depends on program and their implementation.
-) In Nepal, the overall policy environment has not been conducive to the development of stock market. Therefore, it is difficult to develop more efficient secondary market, trading system for both equity and debt security.
-) Lack of investor's confidence in stock market since many listed companies resulted not trading on regular basis or hold AGM.
-) Restriction on foreign portfolio investment hindered market development.
-) NEPSE does not have appropriate policies, memberships and fee structure to attract member outside the Kathmandu.
-) In Nepal, banks dominate primary market in government debt instruments, OTC trading is not permitted; therefore, secondary market is totally inactive.
-) Lack of necessary provisions in the laws and regulation for the privatization and automatics of stock exchange as well as for the establishment of central depository of securities (CDS).

She did point out the transparency and openness of transaction, quality professional services, in adequate corporate financial disclosures and improved legal, regulatory, and supervisory framework are the urgent needs of Nepalese stock market. Therefore, it is important that the basic assumption in any effort for

protecting investors interest or boosting their confidence or developing the stock market is that business, which should be able to operate in an environment that remains conducive to growth and expansion but complete replication of any tailor made model, as applied anywhere, may not work because the specific in Nepalese stock market is different from other developed market.

Regarding political instability, she was absent to indicate the Maoist activities which have made the status / condition of country very poor. These activities have not only affected the political environment but also have affected the tourism; hotel management etc. or we can say that all financial as well and non-financial activities within the country are very poor.

Joshi (2008) Conducted research on the topic of “*Role of Nepal Stock Exchange in the Secondary Market*”. The main objectives of this study were:

-) To assess the past and present behaviour of business operation in the Nepal Stock Exchange Market.
-) To forecast the future trends of business and economic activity in the NEPSE in terms of quality, value and volume.
-) To prescribe ways and means by which secondary market would be more effective and meaningful.

The main recommendations in her study were:

-) NEPSE should introduce digital technology and online marketing in its trading procedure.
-) The rules and regulations should be up to date.
-) Privatization process needs to be carried out effectively in order to develop Nepalese stock market.
-) Tax system should be reformed which should encourage and stimulate capital formation.

2.3 Research Gap

Very few studies have been conducted in the field of share price behavior. The government policy to reform capital market under the extended structural program

(ESAP) and modern system of open-cry-cut in F/Y 1993/94 had significantly positive impact on stock market development. After the restoration of democracy, the government has launched liberalization policy, which builds the expectation for the establishment of multinational companies. But unfortunately, because of lack of proper implementation stock market development seems useless. Various studies have been conducted related to share price considering it as a crucial phenomenon in the stock market. New laws are being established to control stock market price. But it is clearly realized that share price are fluctuating abnormally and there is lack of appropriate researches to find out the volatility of share price of commercial banks in the stock market.

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

CHAPTER - III

RESEARCH METHODOLOGY

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

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

-) Research Design
-) Population and Sample
-) Nature and Sources of Data
-) Data Processing and Analysis.

3.1 Research Design

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

identify the independence and the randomness of the successive stock prices further, it interprets the empirical results.

3.2 Population and Sample

There are altogether twenty eight commercial bank listed as per the data available on the website of Nepal Rastra Bank (NRB) and SEBON. Out of these, 28 commercial banks are regarded as population and among those 5 commercial banks were selected randomly. The total number of listed companies for trading in the NEPSE is 149, which is categorized into 11 groups i.e. commercial banks, development banks, finance companies, insurance companies, hotels, manufacturing and processing companies, trading companies, Hydro power, mutual fund, preferred stock and others.. All these however do not provide the population for the study because the study is specifically concentrated in banking sector. So, the listed commercial banks provide the population of the study which stands 21 (SEBON Annual Report, 2008/09).The list of sample commercial banks considered for the study is as follows:

Table 3.1
Sample Commercial Banks

Sample No.	Commercial Banks
1	BOK
2	HBL
3	NBB
4	NABIL
5	SCB

3.3 Nature and Sources of Data

This research is fully based on secondary data. However, primary data are also necessary for the support of the study. For the collection of the secondary data, various published and unpublished materials available in the aforementioned libraries have been referred. More specifically, Annual Reports of respective sample banks, SEBON Annual Reports, NEPSE Trading Reports, Economic Survey, Budget Speech, Monetary Policy, Statistical Year Book of Nepal, NRB Bulletins, Journals, and various magazines and newspaper have been extensively used. Further, persuasion, politeness and frequent visits to these sources were some of the methods employed for collecting secondary data.

The mixes of observation, interview and questionnaire technique have been used for collecting primary data. More specifically, questionnaires have been collected from the investors encountered in 5 broker offices. And interview techniques have been used to know the perceptions of authorities of SEBON, NRB, Banks, and Securities Businesspersons.

3.4 Data Processing and Analysis

In this study, Statistical as well as financial tools are used to analyze the data. For processing and analysis of data, they have been edited, coded, classified, tabulated, and presented in figures, graphs and charts. The mixes of financial and statistical tools have been applied. Help from several descriptive and inferential statistics have been used for analyzing data. Moreover, for analyzing secondary data parametric statistics have been mostly used and for primary data non parametric statistics have been used. Specifically the following data processing and analysis tools have been employed:

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

3.4.1 Statistical Tools

) Expected Return (Arithmetic Mean)

The most common method, generally referred to the average is the arithmetic mean. In descriptive statistics, the arithmetic mean is the average of set of values or distribution. Expected return is the arithmetic average of the historical returns forecasted for next period.

The most popular and widely used measure of representing the entire data by one value is what most laymen call an average and what the statisticians call the Arithmetic mean (*Gupta; 2000*) for a data set, the mean is just the sum of all the observations divided by the number of observations. It is obtained by dividing the sum total of the return by the number of the observations. In probability distribution,

the expected return is obtained as the weighted average of the probability and the forecasted return.

Symbolically,

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

Where,

μ = the population means variable 'X'

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

N = the total number of observations

) **Standard Deviation**

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

Symbolically,

$$\sigma = \sqrt{\frac{\sum (X - \bar{X})^2}{N}}$$

Where,

σ = Standard deviation

X = Observation

\bar{X} = population mean for observed value of 'X'

N = total number of observations

= sum of all values of $(X - \bar{X})^2$

) **Coefficient of Variation**

The coefficient of variation (CV) is the measure of dispersion of a probability distribution in probability theory and statistics. It is defined as the ratio of the SD to

mean. It is dimensionless number that allows comparison of the variation of populations that have significantly different mean values. The CV of the exponential distribution is often more important than the normal distribution. The CV of an exponential distribution is equal to its mean, so its CV is equal to 1. Distribution with $CV < 1$ are considered low-variance, while those with $CV > 1$ are considered high-variance.

Symbolically,

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

Where,

σ = SD of population

μ = Population Mean

) **Regression Analysis**

The regression analysis is used estimate the likely value of one variable from the known value of the other variable i.e. in regression analysis we establish a kind of average irreversible functional relationship between the two variables. The cause and effect relationship is clearly indicated through regression analysis than by correlation. In other words, regression analysis is a mathematical measure of the average relationship two or more variables in terms of original units of data. The main objective of regression analysis is to predict or estimate the value of dependent variable corresponding to a given value of independent variable.

Regression equation of Y on X (Simple Regression Analysis)

It is the line which gives the best estimates for the values of Y for any specified values of X.

Regression equation of Y on X is given by

$$Y = a + bX$$

Where,

Y= Dependent variable

X= Independent variable

a= Intercept of the line

b= Slope of the line (it measures the average change in the value of Y as a result of one unit change in value of X). It is also called regression coefficient of Y on X. In other words, it measures the rate of relationship.

The values of the constants band a can be determined by solving following two normal equations (applying principle of method of least squares).

$$\sum Y = \sum na + \Gamma b \sum X \dots\dots\dots(i)$$

$$\sum XY = \sum Xa + \Gamma b \sum X^2 \dots\dots\dots(ii)$$

Multiple Regression Analysis

Multiple regression analysis consists of the measurement of the relationship between the dependent variable and two or more independent variables. The procedure is similar to that for simple regression, with a difference that other independent variables are added to the regression equation.

Multiple Regression equation is the algebraic relationship between one dependent variable and two or more independent variables. This relationship is used to estimate the value of dependent variable for the given values of independent variables. In this chapter, we shall limit our discussion to one dependent variable X1 and two independent variables X2 and X3 so that the multiple regression equation for the observed data is given by,

$$X_1 = Xa + \Gamma b_1 X_2 + \Gamma b_2 X_3 \dots\dots\dots(1)$$

Where,

a = Point of intercept on Y- axis = the value of X1 when X2=X3=0

b1 X slope of X1 with variable X2 holding variable X3 constant = Corresponding change in X1 for each unit change in X2 while X3 is held constant = the partial regression coefficient of X1 on X2 keeping X3 constant.

b2 X slope of X1 with variable X3 holding variable X2 constant = Corresponding change in X1 for each unit change in X3 while X2 is held constant = the partial regression coefficient of X1 on X3 keeping X2 constant.

The values of constants a , b_1 and b_2 are determined by solving simultaneously following three normal equations obtained by the method of least squares.

$$X_1 X_2 X_3 a + \Gamma b_1 X_2 + \Gamma b_2 X_2^2 - X_2 \dots \dots \dots (1)$$

$$X_1 X_2 X_3 a + \Gamma b_2 X_2^2 + \Gamma b_2 X_2 X_3 - X_2 X_3 \dots \dots \dots (2)$$

$$X_1 X_3 X_3 a + \Gamma b_1 X_2 X_3 + \Gamma b_2 X_3^2 - X_3^2 \dots \dots \dots (3)$$

3.4.2 Test Model

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

$$R_{j,t} = \frac{X \ln \frac{P_{i,j}}{P_{j,(t-1)}}}{X \ln(P_{j,t}) - X \ln[P_{j,(t-1)}]} \dots \dots \dots 3.1$$

Where;

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

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

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

j = 1, 2, 3, 4, n

t = 1, 2, 3, 4, n

L_n = natural log

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

There are three main reasons for using changes in log price rather than simple price changes (*Fama; 1965*). First, the changes in the log price are the yield, with continuous compounding, from holding the security for that day. Second, Moore

(1962) has shown that the variability of simple price changes for a given stock is an increasing function of the price level of the stock. Third, for changes less than (±) 15 percent the changes in log price is very close to the percentage price changes. Similarly, Roberts (*Roberts; 1959*) suggested that it is wiser to analyze changes of logarithms or square root of level. However, the other non-parametric test i.e. run tests have been performed on the arithmetic first differences.

3.4.3 Test Methodology

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

) Autocorrelation

) Serial Correlation/ Autocorrelation

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

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

$$r_k = \frac{\text{Covariance}(e_t, e_{t-k})}{\text{Variance}(e_t)} \dots\dots\dots 3.2$$

$$= \frac{\sum_{t=1}^n e_t \cdot e_{t-k}}{\sum_{t=1}^n e_t^2}$$

[..variance(e_t, e_{t-k})]

Where,

r_k =Auto correlation coefficient

e_t =Price changes in natural logarithm of given stock from the end of day (t-k) to the end of day (t)

k=lagged variables (1, 2, 3.....n)
 t= time variable (1, 2, 3.....n)

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

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

$$S.E.(r_k) \times \sqrt{\frac{1}{N Z k}} \dots\dots\dots 3.3$$

Where,

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

N=Sample size

k= lag period

3.5 Limitation of the Methodology

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

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

CHAPTER - IV

DATA PRESENTATION AND ANALYSIS

This chapter presents the graphs of stock price behavior and volatility analysis of sampled stocks. Similarly it presents the comparative analysis of the commercial banks index and the NEPSE index.

4.1 Data Presentation and Analysis

The data have been collected for 5 years from year 2004/05 to 2008/09 and this seems justifiable because the relationship between stock returns and inflation may be affected by fluctuations in the state of economy and other related variables. So, in an attempt to account such fluctuation, 5 years data have been collected.

Table 4.1

Market Capitalization, No. of Listed Companies and NEPSE Index

Year	Market Capitalization (Rs. in million)	No. of listed Companies	NEPSE Index
2004/05	61365.9	125	286.67
2005/06	96763.7	135	386.83
2006/07	186301.3	135	683.95
2007/08	366247.50	142	963.36
2008/09	512939.07	159	749.10

Source: SEBON Annual Reports (2006/07-2008/09)

As shown in the above tables, the market capitalization, no. of listed companies, and NEPSE Index increases in each consecutive years and finally touched the height of 512939.07 millions, 159, and 749.10 in the year 2008/09 respectively and NEPSE Index decreased in year 2008/09 as compared to previous year.

4.1.1 Stock Price Behavior of Sampled Commercial Banks.

Table 4.2

Stock Price of Sampled Commercial Banks

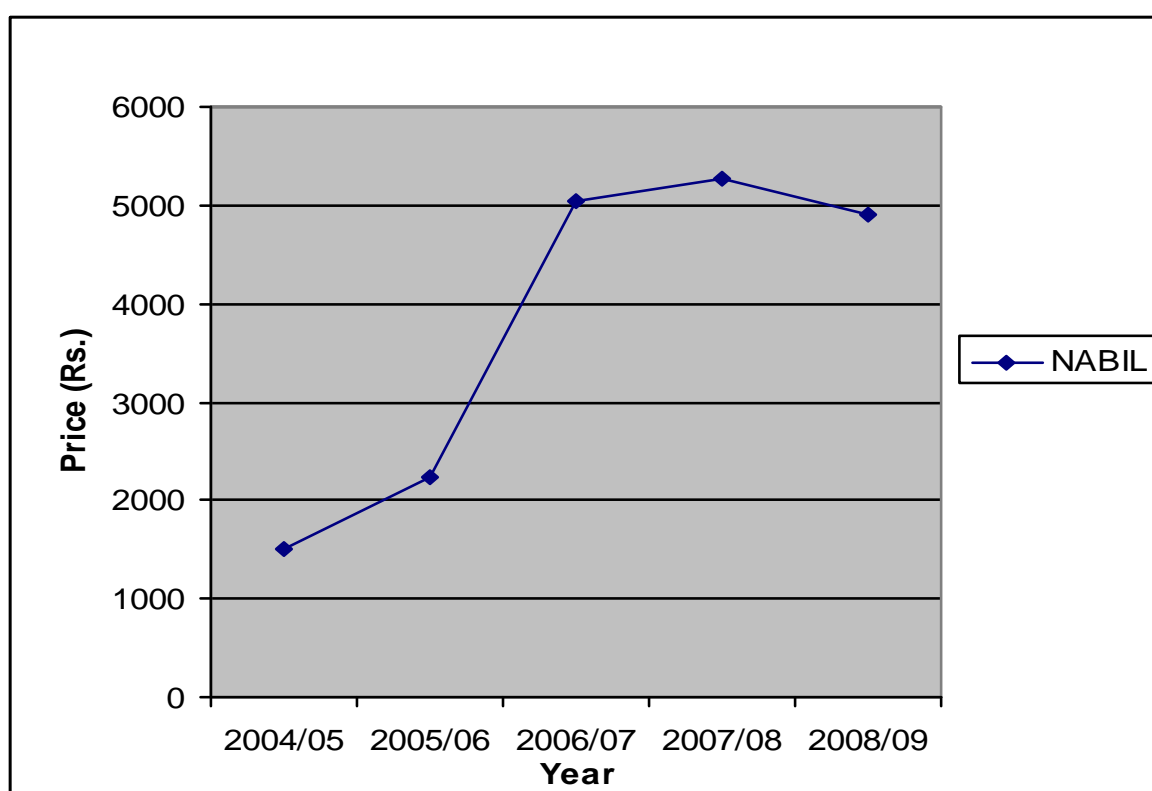
Year	NABIL	SCB	HBL	NBB	BOK
2004/05	1505	2345	920	265	430
2005/06	2240	3775	1100	199	850
2006/07	5050	5900	1760	550	1375
2007/08	5275	6830	1980	1001	2350
2008/09	4899	6010	1760	280	1750

Source: SEBON Annual Reports (2006/07-2008/09)

This part presents the individual graphs of sampled commercial banks. Graphs clearly exhibit the series of stock price behavior. The series represents the yearly data covering from 2004/05 to 2008/09. In the figures below line represents the price of share.

Figure 4.1

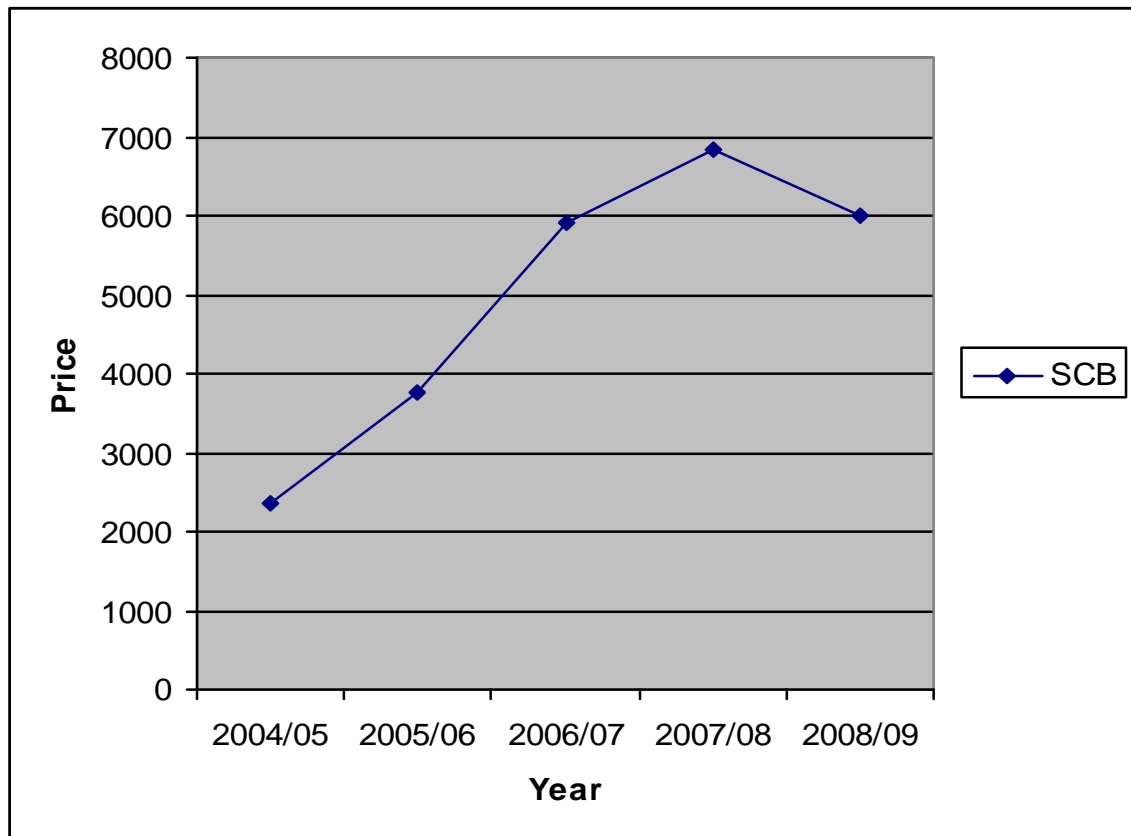
Stock Price Behavior of NABIL



Source: Table 4.2

Figure 4.1 exhibits the stock price behavior of Nabil from 2004/05 to 2008/09. The maximum price of Nabil is Rs 5275 in 2007/08 and the minimum is Rs 1505 in 2004/05 and the average price is Rs.3793.80. There is great change and variation in the price of the stock of NABIL.

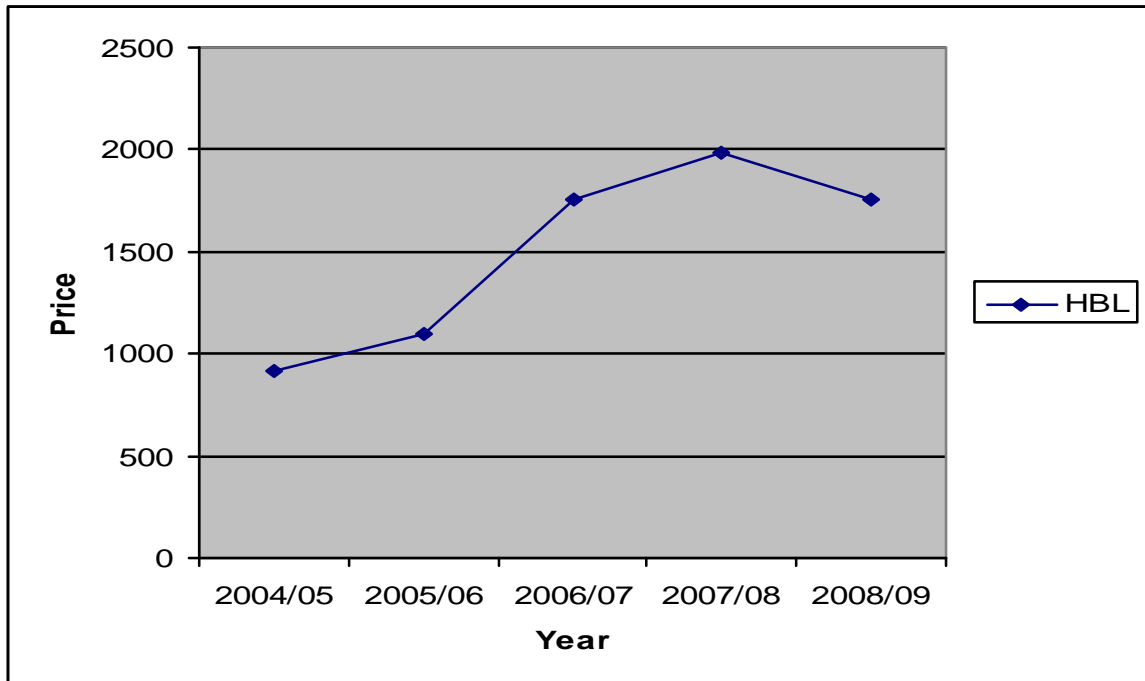
Figure 4.2
Stock Price Behavior of SCB



Source: Table 4.2

Fig 4.2 exhibits the stock price behavior of SCB. The maximum price of SCB is Rs 6830.00 in 2007/08 and the minimum is Rs 2345.00 in the year 2004/05 and the average price is Rs.4972. Figure 4.2 shows the upward and downward trend of the share price of SCB.

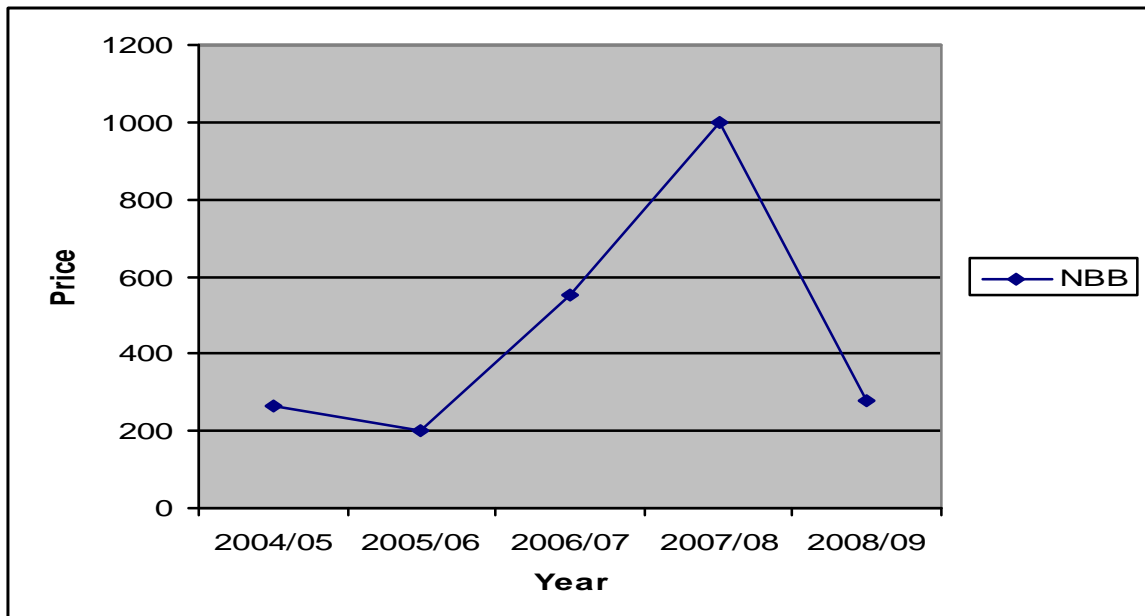
Figure 4.3
Stock Price Behavior of HBL



Source: Table 4.2

Figure 4.3 exhibits the yearly stock price behavior of HBL. The maximum price of HBL is Rs 1980 in 2007/08 and the minimum is Rs 920 in the year 2004/05 and the average price is Rs1504.

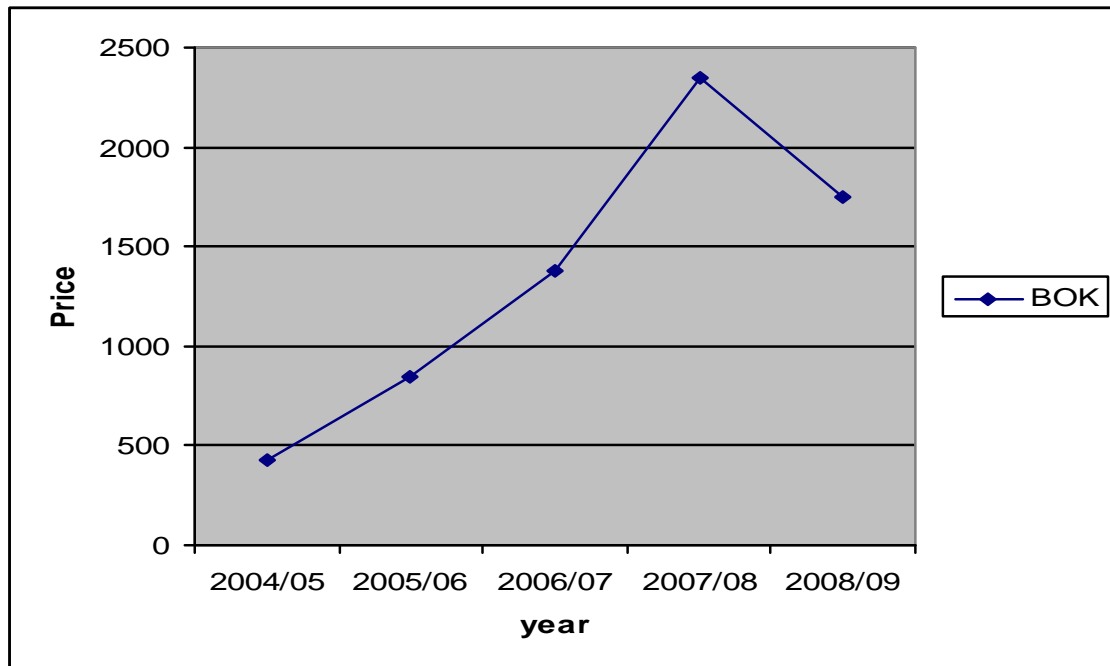
Figure 4.4
Stock Price Behavior of NB



Source: Table 4.2

Figure 4.4 exhibits the yearly stock price behavior of NBB from fiscal year 2004/5 to 2008/09. The maximum price of NBB is Rs.1001.00 in the year 2007/08 and the minimum is Rs 199.00 in 2005/06 and the average price is Rs 459. The stock price seems to be in the fluctuation state and even in the decreasing trend.

Figure 4.5
Stock Price Behavior of BOK



Source: Table 4.2

Figure 4.5 exhibits the stock price behavior of BOK. The maximum price of BOK is Rs 2350.00 in the year 2007/08 and the minimum is Rs. 430.00 in 2004/05 and the average price is Rs 1351.

4.1.2 Volatility of Stock Prices

Only the graphical presentation is not sufficient. To gain the actual knowledge, some statistical tools are used to analyze the stock price behavior. Therefore, this part presents the computation of average prices (mean), standard deviation (SD) and coefficient of variation (CV). Based on the analysis of absolute variation (SD) and relative Variation (CV), volatility of daily stock price is determined. The computation of stock volatility is shown in table 4.3. To calculate mean, Standard deviation and coefficient of variation and other statistical calculation **SPSS 17.0** software is used.

Table 4.3
Computation of Stock Volatility

Banks	Mean	Std. Deviation	C.V
NABIL	3793.80	4185.32	1.10
SCB	4972	5267.46	1.05
HBL	1504	1527.52	1.01
NBB	459	540.40	1.17
BOK	1351	1552.18	1.14

Source: Table-4.2 (No. of Observation for all Banks is 5)

Based on Closing Price of the Stock from 2004/05 to 2008/09

The mean shows the average value for each stock price of the sampled banks. The highest average value is of SCB where as the lowest average value is of NB. The standard deviation indicates the amount of variability in stock. Among the computed standard deviation of the sampled banks, the standard deviation of SCB is 5267.46, which indicates that the most volatile stock is of SCB. Similarly, the computed SD of NB is 540.40, which conveys that its stock is less volatile. The stocks of NABIL, HBL, BOK consecutively volatile. Only measuring the absolute variation is not sufficient to conclude the variation in the stock, the alternative of this is relative measure. The computed values of CV indicate the variance in the stock. CV, which is equal to 1, is considered as an exponential distribution whereas; CV with the distribution less than 1 is considered low variance. In the above computation all those stocks can be considered as high variance.

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

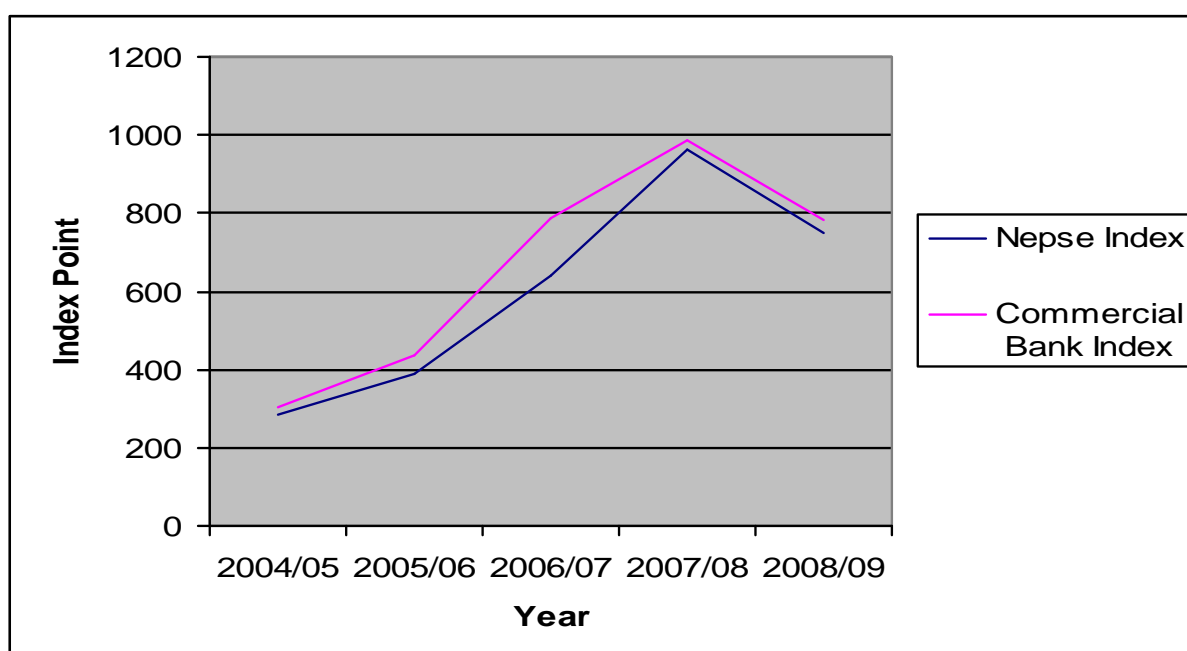
This part presents the graph exhibiting the co-movement between commercial bank index and NEPSE index. Based on the index series, variation is compared between them. For this observation, closing index points are extracted from the annual NEPSE trading reports. Fig 4.9 clearly exhibits the graph of yearly co-movement between commercial bank index and NEPSE index.

Table 4.4
Yearly Closing NEPSE and Commercial Bank Index

Year	Nepse Index	Commercial Bank Index
2004/05	286.67	304.64
2005/06	386.83	437.49
2006/07	638.95	789.21
2007/08	963.36	985.65
2008/09	749.1	780.87

Source: SEBON Annual Reports (2006/07-2008/09)

Figure 4.6
Co- movement between Indices of NEPSE and Commercial Bank



Source: Table 4.4

In the figure 4.6 index points describes the commercial index and NEPSE index. The index series of the commercial bank clearly exhibits that the fluctuation is higher than the NEPSE index. The maximum daily point of the commercial bank is 985.65 on 2007/08 where as the minimum point is 304.64 on 2004/05. In case of index series of Nepse the maximum point is 963.36 on 2007/08 and the minimum point is 286.67 on 2004/05. From the above figure we can see that the index point of commercial bank as well as NEPSE is in decreasing trend.

4.2 Descriptive Analysis

The explanation below provides the summary of descriptive statistics with respect to both dependent and explanatory variables. This shows the average indicators of variables computed from the financial statements. The regression equation is calculated using **SPSS 17.0** software program as shown in appendix-4

4.2.1 Simple Regression Equation

The next aspect of the study is devoted to analyzing how NEPSE is related to Amount to public issue, Paid up value and Total turnover. For the purpose, the average slopes were computed from linear regressions of return on NEPSE on various measures such as Amount to public issue (PI), Paid up value (PV) and Annual turnover (AT). NEPSE has been specified as the dependent variable and the independent variables are specified as PI, PV and AT. The results are presented in table 4.3.

The results are based on time series data of 5 banks for the period of 2004/05 to 2008/09 by using simple regression equation. The model is, $NEPSE = a + B_1$ (independent variable) + E. Results for various subsets of independent variables are presented as well.

Table 4.5

Estimated Relationship between NEPSE and Fundamental Variables

Independent Variable	Constant (a)	Regression Coefficient	R²	SEE	F
Amt(PI)	424.710 (2.715)	.028 (1.620)	.467	223.47802	2.624
Paid up(PV)	385.494 (1.496)	.008 (1.009)	.253	275.01654	1.019
Turnover(AT)	296.586 (2.608)	.026 (3.394)	.793	144.69163	11.518

Notes: Figures in parentheses are t- values

Source: Appendix IV

With respect to the computed regression equations shows that all the beta coefficients have priori expected signs. Above table shows the simple regression analysis between NEPSE and other independent variables. Paid up Value (PV), Amount of public issue (PI) and Annual Turnover (AT) are all positively related. The result of t-statistic

indicate that the variable PI, PV and AT have higher explanatory power. Similarly, adjusted R square (R^2) is 0.467, 0.253 and 0.793 respectively. This indicate 46.7%, 25.3% and 79.3% variation in dependent variable NEPSE is explained by independent variables PI, PV and AT respectively.

4.2.2 Multiple Regression Equation

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

For the purpose, the average slopes were computed from linear regressions of NEPSE on various measures such as Amount to public issue (PI), Paid up value (PV) and Annual turnover (AT). NEPSE has been specified as the dependent variable and the independent variables are specified as (PI), (PV) and (AT). This model is developed to unravel the separate influence of the various variables on NEPSE and the results are presented in table 4.4. The model is:

$$\text{NEPSE} = a + B_1\text{PI} + B_2\text{PV} + B_3\text{AT} + E$$

With respect to the computed multiple regression equations shows that all the beta coefficients have priori expected signs. However, only a few beta coefficients are found to be significant. The positive regression coefficient indicates that there is an increase in the PV and AT. The regression constant in multiple regression NEPSE on PI, PV and AI is 26.144. The results of t-statistics indicate that none of the selected variable is significant. However adjusted R square is 0.930. this indicate about 93.0% variation is dependent variable NEPSE is explained by independent variable Amount on public issue (PI), Paid up (PV) and Annual Turnover (AT) The values of R squared range from 0 to 1. Here, R square being 0.930 indicates that the independent variables do explain the dependent variable NEPSE. The result of multiple regression analysis presented that, the relationship between NEPSE (the dependent variable) is negative with Amount in public issue where as it has positive relation with Paid up Value and Annual turnover.

The results are based data related to the securities market as a whole for the period of 2004/05 to 2008/09 by using multiple regression models stated above. Results for various subsets of independent variables are presented as well.

Table 4.6

Estimated Relationships between NEPSE and Fundamental Variables

Model	Constant (a)	Regression Coefficients of			R ²	SEE	F
		AMT	Paid Up	Turn Over			
1	26.144 (.073)	-.088 (-1.033)	.014 (.690)	.064 (2.051)	.930	146.00 677	4.419

Notes: Figures in parentheses are t- values

Source: Appendix V

4.3 Test of Random Walk Hypothesis

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

4.3.1 Analysis of the Results of Serial Correlation (Autocorrelation)

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

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

The results of autocorrelation coefficient for daily price series have been computed for lag 1 to 10. The 1st, 5th, 6th, and 7th order coefficient shows the small serial dependence. It means if the order shifted in increasing order, the serial dependence also increases. According to appendix-7, two out of five, in 1st and 5th order coefficient are negative. Only one out of five in 6th & 7th order coefficient is negative. Likewise three out of five in 2nd, 3rd, 4th, 9th & 10th order coefficients are negative. While four out of five in 8th order coefficient have negative value.

The result of daily autocorrelation can also be explained by taking an average among five banks coefficient in different lag period from lag 1 to 10. In an average lag period 1, 4, 6 and 7 shows the positive correlation coefficient where as other shows the negative correlation coefficient. In lag period 1 the highest coefficient is 0.133 of SCB and the lowest or negative coefficient is of (.003) of BOK bank.

However, agreement in the sign among the coefficients for the different securities is not necessary evidence for consistent pattern for dependence. King (1996) has shown the price changes for different securities are related (although not all to the same extent) to the behavior of the market component common to all securities. The autocorrelation coefficient of a given security for any given sampling period will be partly determined by the serial behavior of the market component and partly by the serial behavior of factors pertaining to that security and perhaps also to its industry (*Fama; 1965:73-75*). Since market components are common to all securities its behavior during the sampling period may tend to produce a common sign for the autocorrelation coefficient of all the different securities. Therefore it is desirable to measure the degree of dependence. Both the judgment of coefficient magnitude and statistical significance test of autocorrelation coefficient are required to be performed. Summary result of different taken from appendix-6 are given in table 4.7 which shows the statistically significant and non-significant series for lag 1 to 10.

Table 4.7
Series having significant values of first order to
Tenth Order Autocorrelation coefficient

Lag days	Series having coefficient < 2std error	Series having coefficient > 2std error	Total Series
1	1,3,4,5	2	5
2	1,2,3,4,5	-	5
3	1,2,3,4,5	-	5
4	1,2,3,4,5	-	5
5	1,2,3,4,5	-	5
6	1,2,3,4,5	-	5
7	1,2,3,4,5	-	5
8	1,2,3,4,5	-	5
9	1,2,3,4,5	-	5
10	1,2,3,4,5	-	5
Total	49	1	50

Note: For names of the different price series, please see Appendix-6

The above table is derived from appendix-6 for the distribution of the statistically coefficient series. The first column indicates the various lag days. Out of the total series, coefficient having less than two times standard error is given in the second column which was considered as statistically non significant. Third column consists of the coefficient having two or more than two times of its computed standard error. In the end, the last column shows the total number of series covered by the study.

The result based on the table 4.7 and the appendix -6 presents a different picture. Only 1 out of 50 coefficients are dispersed from the expected value zero. It means this 1 coefficient is statistically significant. It indicates that the day to day fluctuations are serially dependent in most of the cases. Only one coefficient has the values two times greater than its computed standard error. Other 49 correlation coefficients had values less than two times greater than its computed standard error which was considered as not statistically significant. This 1 deviated coefficient and other negative values give hint that high degree of autocorrelation exists. These coefficients are also significantly deviated from zero and not statistically significant. It implies that the successive price changes are dependent. Thus, Ho stated in Methodology has been rejected and H1 been accepted. This result corroborates with the findings of the previous studies

(Pradhan and Upadhyay; 2004 and Paudel; 2005). Therefore, it can be said that price changes are not independent and historical price of the stock provide important information in predicting tomorrow's price change.

For these price series, the mean absolute autocorrelation coefficient for lag 6 was .0568, which was the highest average coefficient among the 10 different lags. Likewise the least absolute average mean was 0.0014, which was associated with lag 4. Out of 10 lags, 6 mean absolute have negative value and remaining 4 had positive value. The largest of these autocorrelation coefficients was 0.133 for SCB. The smallest was 0.016 for NBB also for lag 7. In 1st period four coefficients are less than two times of the standard error and one is greater than two times the standard error. However, for longer lags the coefficients are relatively small and statistically insignificant and more negative values, thereby implying some little linear independence among the daily changes.

Thus we can say that few stocks had mild serial dependence. It can hardly be used for predicting their future course in a meaningful manner. From the view of investors, such low order dependence may be enough to increase their expected profit to some extent. All above evidence related traded stocks indicate small auto dependence among day to day price changes. This evidence supports that random walk hypothesis model may not be appropriate to describe the price behavior.

4.4 Major Findings of the Study

The major findings in this chapter are explained below

1. The graph of all the sampled commercial banks shows the upward and downwards slopes of the trend line and this exhibits the fluctuation trend in the price of the stock.
2. The computed value of SD and CV indicates the variability and volatility of the stock. The CV of the above share price indicates that all the stocks are high variance as the computed CV is higher than 1. The mean shows the average value for each stock price of the sampled banks. The highest average value is of SCB whereas the lowest average value is of NB. The standard deviation indicates the amount of variability in stock. Among the computed standard

deviation of the sampled banks, the standard deviation of SCB is 5267.46, which indicates that the most volatile stock is of SCB. Similarly, the computed SD of NBB is 540.40, which conveys that its stock is less volatile. The stocks of NABIL, HBL and BOK consecutively volatile.

3. The daily co-movement of the series of indices has exhibited the fluctuation of commercial bank index and NEPSE index. This indicates that both the indices have almost same volatility.
4. Simple regression as well as multiple regressions is shown between NEPSE, amount on public issue, paid up value and annual turnover. The regression coefficients are 0.028, 0.008 and 0.026 respectively and they all are positive. Which indicate that one rupee increase/decrease in the independent variable affects the dependent variable NEPSE.
5. The first order autocorrelation coefficient, for most of the equity shares is statistically significant from expected value zero. The evidence pertaining to most of the shares indicates serial dependence. Thus, this evidence suggests that the Nepalese market does not accept random walk hypothesis and some price changes can even predict some valuable information in predicting future price change. Therefore, opportunities for speculation exist for sophisticated investors in Nepalese stock market.
6. The mean absolute values of the autocorrelation are lower when lag days are increased. This means the information of past price changes have little role to predict changes for longer days.
7. The result of t-statistic under simple regression indicates that the variable PI and AT have higher explanatory power. Similarly, adjusted R square (R^2) is 0.467, 0.253 and 0.793 respectively. This indicate 46.7%, 25.3% and 79.3% variation in dependent variable NEPSE is explained by independent variables PI, PV and AT respectively. Whereas, the results of t-statistics on multiple regression indicate that none of the selected variable is significant. However adjusted R square is 0.930. this indicate about 93.0% variation is dependent variable NEPSE is explained by independent variable Amount on public issue (PI), Paid up (PV) and Annual Turnover (AT) respectively.
8. There include low order serial dependence, which helps in certain extent to increase investors expected profit.

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

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

4.5 Excerpt of Interviews with Regulatory Authorities, Bankers and Securities Businesspersons

Semi-structured interviews have been conducted with regulatory authorities, bankers and securities businesspersons to know the present situation of the Nepalese investors in the context of Nepalese investment environment. The list of questions has been presented in the appendix. The summary of the interviews are as follows:

The prospect or future of sound Nepalese investors are good and of those who base their investment decisions on rumors may not be good. Those who trade securities with long run benefits ultimately will receive their goal. But abnormal high returns as experienced in past few years or months is not possible. So, investors making decision taking into fundamental factors in their analysis like book income, quality of management etc. will be benefited.

Further, they indicated that there are no other better investment options than financial investment. However, in comparison with real estate investment the return from such may be higher than stock returns but this perspective is only in Kathmandu valley and one should also keep in mind that these investments are relatively illiquid and does not have organized market for trading as financial assets do.

Those investors who take into account the company's performance along with national and global macroeconomic factors and political development into their investment decisions are likely to outperform those who do not. They also indicated that global financial crisis which started from USA may also enter Nepal if no proactive measures are taken.

Moreover, market would also automatically correct arbitrage or abnormal returns and it was with the case of shares of Nepal Telecom.

The returns provided by banking sector certainly outperformed other sectors and NEPSE is essentially about commercial banks as it constitutes about 60 to 70 % of NEPSE index volume-wise and also same proportion transaction-wise. And these banking returns which stand at around 20-25% is certainly enough to compensate against inflation prevailing. However, this return of being hedge against inflation was not planned but is simply resultant effect; as the present bitter situation in Nepal is lack of coordination among governing bodies (regulatory authorities).

And finally to overcome imperfect market situation of making the market unaffected by single investor, proper coordination among NRB, SEBON, ICAN, Company Registrars Office, Insurance Board is prerequisite to make investor friendly environment in Nepal that would adequately compensate informed investors.

CHAPTER - V

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

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

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

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

To test the independent assumption, the serial (auto) correlation coefficients were estimated among the first difference of log prices for different lags. The estimated autocorrelation were found significantly deviated from the expected value zero. It

means that the log price series of shares were serially dependent. Therefore, the random walk model was not accepted for most of the cases. The result of serial correlation test did not support the hypothesis of independence. The result, however, demonstrated that the successive price changes are dependent with historical price series. Thus, the hypothesis of randomness was also rejected. The autocorrelation tests only claim to investigate whether or not the price changes are linearly correlated.

The research design has been the mixed i.e. descriptive, exploratory and analytical as per the demand of the situation. Both secondary and primary data have been collected. The major sources of secondary data are libraries, various annual reports, e.g. annual report of SEBO, Economic Surveys, Statistical year Book, Annual reports of respective banks, NRB Bulletins etc. And the sources of primary data are investors, brokers' offices, regulatory authorities, bankers etc.

Data collection methods for primary data have been investors' response collected through questionnaire in various broker offices. Further interview have also been conducted with the authorities of NRB, SEBO, Bankers, Security Businesspersons etc. For secondary data various annual report have been collected from SEBO, respective commercial banks, Economic Survey, Statistical Year Book of Nepal, Monetary policy, NRB Bulletins, and various newspapers and magazines.

Data have been presented in charts and diagrams and analyzed with several descriptive and inferential statistics.

And finally analysis of primary data has been carried out. Twelve close-ended questions collected through questionnaire have been studied to know the option of investors regarding available investment options, the type of financial assets they possess, their trading habit, their possession of investment with regard to groups categorized by NEPSE, preference towards commercial banks, their perception towards returns of commercial banks, then ranking commercial bank in terms of stock returns, their perception towards inflation, their belief that whether stock returns is affected by inflation and state of the economy and their preferences in doing to reduce the effects of inflation.

Finally the primarily analysis section ends with excerpts of interview with regulatory authorities, bankers, securities businesspersons, and investors.

5.2 Conclusions

Observations of daily and yearly stock prices of sampled banks indicate that there is a large variation in their stock prices in the fiscal year 2008/09. They are not doing well in Nepalese stock market. Most of the serial coefficients are significantly deviated from zero and statistically insignificant. Both the analysis did not support the independent assumption of random walk model. It signifies that the successive price changes are dependent. The dependence in the series of the price changes implies that the price changes in the future will be dependent with the historical prices. Thus, the historical price is helpful to predict the future prices of shares. Therefore sufficient opportunities are available to individuals and institutional investors to make the higher expected profit. It is obvious that the successive price changes are not random. Thus, RWH does not hold true in the context of Nepalese stock market.

5.3 Recommendations

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

1. Observation of volatility indicates that most of the sampled stocks exhibit large variation in their prices. They are not doing well. Therefore, the concerned authorities of sampled banks should monitor the causes of variation. Investors should be educated, self aware and informative regarding the daily stock price behavior. They should be extremely careful before making the investment decision.
2. The computed SD and CV have implied that the index of commercial sectors fluctuates more than NEPSE index. The perfect positive correlation between them is observed. This implies the prosperity in the stock market. The series of commercial bank index indicates the dominance of its position in the co-movement graph. However, there should be clear pattern of index series. For this, the concerned authorities of the stock market should monitor the weaknesses of commercial sector as well as non-commercial sector.

3. Nepalese stock market is inefficient in pricing shares. The tests serial correlation has rejected the RWH in this research. Conclusion of this study collaborates with the previous studies. Therefore it is suggested that the smart investors should take benefits of the short-term speculation. It is also recommended that the stock market makers should carry out the research work to find out the causes of inefficiency.
4. The randomness of the price movement in the Nepalese market, (shows that) professional traders, either individual or institutional, can beat the market. Thus, it is recommended that the investors should be aware of exploitation through short-term speculation where above average return is possible to some extent from past information.
5. Most of the price series of the shares indicates the serial dependence by the test of autocorrelation. This means the NEPSE market does not accept the Random walk hypothesis. It refers that the past price changes have great value for future price changes. So, it is recommended that the investors should study the past trend and pattern of price series of the stock for prediction of future price change to make safe investment.
6. The test of autocorrelation findings has shown that the successive price changes are dependent with the price of the historical change. So, it is recommended that the investors should consult with the fundamentalist and technical analyst before the investment in any shares of NEPSE market. They can give the fruitful suggestions.
7. This specific research studies only five commercial banks by covering the secondary data. Therefore, the forthcoming researchers should try to cover all the sectors listed in NEPSE. And it is better to study company wise.

Avenues for Future Research

As the research is a process of studying again and again, this study entitled “Market Price Efficiency” leaves some area for future research. Further, due to the limitations previously stated, all potential areas have not been covered. This leaves some avenues for future research in this field. One of this might be to take into account all the listed companies in NEPSE. Other might be to take longer timer horizon for the study so that horizon specific results could be avoided.

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