Chapter I
Introduction

1.1 Background of the study

The development of an economic of any country requires the productivity activity, which is turn, is the result of investment venture in productive enterprises which needs huge amount of fund and environment to establish these enterprises. The existing enterprises and companies need the both short- term and long-term capital investment for their existence, smooth growth, operation and development within the economy to be the productive enterprises. Therefore, the required short-term and long-term capital for the productive enterprises can be procured family from security markets and security markets are mechanism created to bring together the buyers and sellers of securities. There are two types of securities market. Firstly, securities markets are primary market and secondary market on the basis of securities traded and secondly, money and capital market on the basis of life-span of securities. Both capital and money market are financial market. So, financial market is a mechanism by which saving in our sector of the national economy invests to another sector of the economy where there is lack of the capital for investing. Therefore, for effectively mobilization of financial resources, financial market plays an intermediately role to bridge funds from surplus units to deficit units. Securities market implies that the mobilization of the funds through issuance of the securities by corporate sector and government.

Capital market investment plays major role in the development of the country. In the past, investment was not in a disciplined sector. With the development of the modern financial equipment advancement and human activities developed investment sector in a disciplined manner. Many corporate bodies are raising their capital by issuing different and convertibles features. The corporate capital initially issued by the help of underwriting. The underwriters are the prime facilitator for the process of investment.

"The development in securities market has been an indicator of the economic development of a country. Therefore securities and securities market have been the reality of business world and a subject of business education" *(Baral, 1999).*

"The most widely accepted objective of a firm is to maximize the value of the firm and to maximize shareholder wealth. in general there are three types of financial

decisions which might influence the value of a firm: investment decisions, financial decisions and dividend decisions. These three decisions are interdependent in a number of ways. The investments made by a firm determine the future earning and future potential dividends; and dividend policy influence the equity capital in a firm's capital structure and further influence the cost of capital. In making these interrelated decisions, the goal is to maximize shareholder wealth*".(Labuan bulletin of international business and finance:2007)*

"Stock market price itself on being a barometer of the future rather than thermometer of the resent, but in the absence of other information, investors perhaps tend to base the validation of companies. Excessively in recent past performance" (*Winfield and curry,1995:6)*. It has become more relevant to focus on developing a credible market when banking sector is under its way of meaningful reform and pressure for integration to the world and the regional markets are mounting. There are also sufficient reasons to be enthusiastic for the growth of the private sector and subsequently argue in favour of vast potential of the growth of the stock market in Nepal. However realizing such potential sis possible only when supported by requisite changes in the legal and institutional infrastructure. Telecom and Aviation sector, new mega-investment hydro and physical infrastructure projects are likely to come up and absorb huge investment resources. Furthermore, some well performing closely held companies are also showing interest to come to the capital market. These potential investment sectors can play a catalytic role to trigger further market growth. It believes that the limited fund deployment needs in the domestic market and limited investment avenues are temporary phenomena that will get rectified as the economy becomes confident to come out form the prevailing conflict situation. Some basic reforms in the capital markets are already taking shape in Nepal. Effective regulation of products and intermediaries, market operations and transparent standards are some of the key reform agendas. Further, the Intra -structural developments including information dissemination and order routing mechanism, trading system linkages and settlement and clearing arrangement fundamental to a well functioning market have been visualized.

A stock exchange is a place to regulate and perform the activities of stock (equity) market. It is considered as a “barometer” of the economy, because of its immediate and visible reaction on the news and transactions of economic importance. Capital market and monetary policy are closely interrelated as they are determined jointly

by the supply of money, interest rates and liquidity position. One cannot ignore the monetary side effects in survey of capital market behavior and forecasting. The linkage between the macroeconomic targets and financial and material growth in the different sectors of stock exchange is indispensable for a balanced economic growth.

In Nepal the listing of shares in stock exchange center (SEC) and their trading in the stock market is the recent phenomenon. 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 investors. *(Pradhan ,1993).*

1.2 Focus of the Study

In Nepalese stock or security markets the market price of share moves upwards and downwards daily. So what factors affects the market price of share? How the market price of share determine the secondary market, finding the solutions of this problem, a case study of the securities market in Nepal is essential. Generally, accuses of price movement may be signaling effect, low return and high risk, lack of adequate knowledge about share market, low income of the investor's and high price of the shares. So, there is close relationship between the share price and volume of the share traded, i.e. high price, low volume and low price, high volume.

Investors invest their money with the hope of getting good return in their investable fund but due to many reasons they lose their hard earning. While investment made without analyzing the stock. Many times investors blindly invest their funds by just reading the prospectus availed by the issuing companies and many times they purchase share any analysis. So, the study is focused to stock to stock price behaviour of financial companies trading at NEPSE.

This study is mainly focused to know the effect of prices trend, volume of stock traded, market behaviour and impact of signaling factors on NEPSE index.

1.3 Statement of the Problem

Today stock market has global phenomenon however, the stock market in Nepal is still in infancy stage. The history and securities market began with the flotation of shares by Biratnagar jute mills Ltd. and Nepal bank Ltd.

Stock market behaviour is the backbone of investment sector of the country. So by promoting the stock market in sizeable economic sector gives raise the economic developments by mobilizing swing into productive sector by making suitable investment for investment environment different element like price trend, NEPSE index, volume of stock traded, rate of listing and signaling factor should be analyzed.

Usually the price of common stock in primary market is par value but in secondary market may be any price. The long securities processing cycle has restricted to the development of securities market. The investors shave to wait for long time for the securities in hand. The long time has restricted them to take many opportunities. Low prices and low trading volume of companies have directly related to market value of firm. Due to lack of sound dividend policy, most of the companies have not been able to maximizing the volume of a firm in secondary market. Lack of sufficient information dissemination to investor and lack of transparency has another problem the exists in Nepalese stock market. It mainly affects position of the company market information system and corporate government of the company. Talking about market in Nepal there is no way to justify that it is perfect. Being an imperfect market the floor price of the listed company's shares cannot represent their true value. The option remained are undervalued or overvalued stocks. There might exit situations where stocks are too overvalued or undervalued.

There are various visible problems in the capital market. It is possible to address all the problems. Considering this and the focus of the study in mind, this study has attempted to seek the answers of the following issue.

a. What is the stock price behavior of listed companies?
b. Whether the dividend per share determine the change in stock Price?
c. Does the change in EPS explain the behaviour of stock price?
d. Do the interest rate affect the stock price of listed companies?

e. Do the firm specific financial variables like profitability, liquidity, leverage etc affect the behaviour stock price?

These are the burning issue regarding stock price determination of secondary market in Nepal.

1.4 Objectives of the Study

The main objectives of the study are to find out and analyze the stock price behavior of listed companies in NEPSE. The other objectives of the study are as follows.

a. To examine stock price trend and volume of stock traded on the secondary market.
b. To examine the relationship of book value per share and market price per share of selected companies.
c. To examine the share price behavior of the selected companies.
d. To assess the movement of stocks prices in Nepalese capital market.
e. To evaluate the relation of DPS and stock price behavior.

1.5 Limitation of the Study

This study has limited scope, as only some samples of listed companies have been taken for study. Similarly, the study areas are also mainly focused on determining factors of share price behavior in Nepalese capital market. Thus the study areas are be very specific. This study is dependent on both the primary and secondary data published from the related companies. So, accurate and reliable data may not be obtained. The following limitations during the course of research are:

a. The study is limited only in the capital market of Nepal.
b. The study is backed common stock (Shares).
c. The constraints of financial resources.
d. The study only covers the ten-year's data of the selected companies.

e. For the evaluation of qualitative factors, individual investors, stockbrokers and listed companies are selected.

1.6 Organization of the Study

This study has been divided into five chapter-introductions, review of literature research methodology, data presentation and analysis and conclusion and recommendations.

Chapter I: This chapter deals with the introduction part of the study. It includes background, statement of the problem, objective of the study, limitation of the study and organization of the study.

Chapter II: This chapter with the review of available literature available in the field of the study conducted through different books, journals, unpublished dissertation which includes the theories of the concerned through different books, journals, unpublished dissertation which includes the theorems of the concerned topic and other empirical studies conducted inside or outside the county.

Chapter III: This chapter is the most important part of the study. It explains the researcher design population and sample, methodology employed to conduct the study and tools techniques used in analysis of the data as well.

Chapter IV: Fourth chapter is devoted to the data presentation, analysis interpretation and scoring the empirical finding out of the study. This chapter attempts to analyzes and evaluate data with the help of analytical tools and interprets the results obtained and this chapter is the main body of the text hence assumes higher places significance.

Chapter V: Fifth chapter of the study, which provides summary and conclusion, suggestions and recommendations. Besides these bibliography and appendices are also presented at the end thesis work.

CHAPTER II
REVIEW OF LITERATURE

Review of literature is one of the most important parts of the thesis writing. Study various books, journals, newspaper, magazine, old thesis, dissertation and very useful suggestion of the investigators and experts of the related field have systematically and effectively done this review. For this study prospectus, articles, and memorandum of the selected sampled of listed companies are also considered, referenced and reviewed. For studying the "Stock price behaviour of listed companies in Nepal" Various available books in investment analysis and management, capital structure management and other financial sectors has given idea about the study. Here are the different categories of review of literature.

2.1 Conceptual Framework

2.1.1 Concept of Common Stock

Capital market is a financial relationship by a number of institutions and arrangements that allows the suppliers and demands of the long - term funds to make transactions. Capital market can be further divided into security market and non-security market. The term securities include long-term financial tools, which are used by the companies to gather that needed long term fund.

Capital Market Includes:

1. Activities relating to the organization, distribution and trading of securities
2. Organization which facilities this activities
3. Individuals and institutions which buy and sell securities
4. Rules and regulations, customs and practices that control the organization and conduct of the business in the market.

A share of stock is the smallest unit of ownership in a company. If any body owns a share a company's stock then he / she is a part owner of the company. Common stocks represent ownership interest in the corporation and the majority of stock held by the public also. It is a source of long-term financing. Common stock certificates are legal documents that evidence ownership for equity in a company that organized as a corporation. They are also marketable financial instruments. Common stock is a share of ownership in a company that can be easily sold by its holders. Common stock is that they are also marketable financial instruments. Common stock is that they are highly liquid for the most part. Small and obscure company way not trade frequently, but most of the higher/larger companies traded daily creating an opportunity to buy or sell shares.

"Common stockholders of a corporation are its residual owners, their claim to income and assets comes after creditors and preferred stockholder have been paid in full. As a result, stockholders return on investment is less certain than return to a lender or to a preferred stockholder. On the other hand, the return to a common stockholder is not bounded on the upside, as are return to the other. A share of stock-can be authors. A share of stock-can is authorized either with or without par value. The par value of stock is merely a stated figure in the corporate charter and is of little economic significance. A company should not issue stock at a price less than its par value, because stockholders who bought stock for less than par value would be liable for the difference between below and the par price they paid the par value" *(Van-Horne, 1997:85)*

"The main objectives of security market are to create opportunity for maximum numbers of people to get benefits from the return obtained by directing the economy towards the productive sector by mobilizing the long term capital" (Ojha, 2001).the objectives can be fulfilled only by the rational and accountable behavior relating to the three factors of the capital market such as intuition, mediator and investor.

Common stock is the cost of raising and using funds from long term sources of financing. It is the minimum required rate of return that the firm must earn to

satisfy all the investors required rate of return. The concept of common stock is used in investment decision, finacing decision and dividend policy decision.

The prime motive for buying stock is to sell it subsequently at a higher price. In many cases dividend will be expected also from buying of stock. Dividends and price changes are the principal ingredients in what investors may be transferred to a new owner with the assistance of either the issuing carnation or more commonly its designated transfer agent. This agent will cancel the old stock certificate and issue a new one in its place, made out to the new owner *(Sharpe, 1998: 501).*

Value of the Common Stock:

There are mainly three types of value of the common stock. Which are given below.

a. **Face Value:** The face value of the stock is mentioned in article of association and memorandum book of the company. The face value does not charges until there is a stock split or other such initiative by the board of directors, the par value of new issue always Rs. 100, as directed by the company act, 1993. When a corporation is first chaptered it is authorized to issue up to a stated number of shares of common stock each of which will often carry a specified par value. Legally a corporation may be preculated form making payments to common stockholders if doing so would reduce the balance the balance sheet value of stockholder's equity below the amount represented by the par value of outstanding stock. For this par value is typically low relative to the price for which the stock is initially sold (*Sharpe, 1998: 501*).

b. **Book Value:** Book value re-presets the assets value per share after entire obligation of the corporation is met. Book value can be calculated by the following.

$$\text{Book value} = \frac{Total\ Common\ Equity}{Number\ of\ stock\ \ Outs\tan ding}$$

Here, total common equity is on the balance sheet. In other words, the sum of the cumulative retained earning and other entries such as "Common stock" and "Capital

contributed in excess of par - value" under the stockholders equity is the book value of the equity. The book value per share is obtained by dividing the book value of the equity by the number of shares outstanding (*Sharpe, 1998: 506).*

c. Market value: Market value of the common stock is the market forces such as demand and supply. So, these values are determined by the demand and supply factors and reflect the negotiation between investor and seller for the transaction. The market value of the share is influenced by various internal and external factors like economic and industry condition, expected earnings and dividends, speculations and other signaling effects like major events inside the country, governments stability etc.

2.1.2 Financial market

The financial is still in infancy in Nepal. Since, the financial market plays an important role in the efficient distribution and utilization of resources . financial market is extremely important in a capital- poor country like Nepal. Hence, a financial market is defined as mechanism for trading the financial assets or claims. "Financial markets provide a firm in which suppliers of funds and demanders of loans and investments of institutions are made without the direct knowledge of the suppliers of funds." Suppliers in the financial markets do not know where their funds are being invested. Two financial markets are the money market and the capital market. Transactions in short-term funds of firm are raised from money market and long and middle term funds of firms are raised from secondary market. This can be presented below.

Money Market

Money market is defined as short-term financial market. So, money market is the act of supplying short- term debt or working capital needed for business, industries or other sectors etc. in generally money market trade various bills, papers like as government Treasury bill, commercial papers, short-term funds, which has maturities of one year or less" (*Gitman, 1988: p.31*) Therefore a money market

brings together the supplier and demeaned of short-term liquid funds. The money market instruments include short-term marketable, liquid and low- risk securities. Further, the money market instruments sometimes are also called cash equivalents of just cash.

Capital Market

Capital market proved to be one of the important of the economy since it facilitates and provides better institutional arrangements for the borrowing and lending of long- term funds. So capital market is the general barometer that measures the proper collection and channelization of savings for investments in productive and income generating assists. Although capital market is the mechanism designed to facilities the exchange of financial assets by orders buyers and sellers of securities together, similarly, capital market plays a crucial role in mobilization a constant follow of saving and changing these financial resource for expanding productive capacity in the countries. In other words, capital market mobilizes the market flows: capital to invests on the corporate sectors by the means of securities. Then, the capital market is also a financial relationship created by a number of financial institutions and arrangement that allows the suppliers and demands of long-term funds, the funds with the maturities of more than one year to make transactions. In the capital market different types of the financial securities are traded, like as ordinary and preference shares, treasury bills and debentures. In broad sense, capital market can be classified into two types of markets, which are described below:

a. Securities market: Under the securities market, all types of securities such as share debenture and bond are traded by the government and ruptured organizations. There are also six types of markets under the securers market, primary market and secondary market. The secures market is a broad term embracing a number of markets in which securities are bought and sold. Securities market includes how an individual investor goes about the business of placing and y order to buy or sell, how the order is executed, and the process of setting the payment and transfer costs, and one hope the

payment of federal personal income taxes on the profits from the transactions. *(Fischer, and Jordan, 1995: 16)*. These securities market can also be classified into two parts.

1. **Primary market:** The new secures are issued by the company to trade in the capital market. Here the securities of large business firms issued for the first time are bought and sold. It other words, the original issuance of the financial instruments of a company is traded in the primary market and the company should sell its approved share through the authorized issue and sales agent. The company has to register its shares in the SEBON to get the legal authority to the issuance of the shares. Primary market provides an important allocate function by channeling the funds to those who can market the best use of them presumably, the most productive. Further described on the issued such securities may directly sell through private placement without underwriting to the investors. Besides, the securities may be sold after being made understanding by the securities may be sold after being made understanding by the institution like investment banking. The issue company collects amount and invest in the productive sector to earn the profit. In the primary market, price of stock always is in par value so there is no problem of share price determination.
2. **Secondary Market:** Secondary market provides the liquidity and marketability opportunity to the stock market. Stocks are traded secondary time in the agreement of buyer and seller in the stock market. Stock market may be either OTC market or registered stock market. Usually, those buying the securities for the first time went to see the securities with in a short period. The secondary market also can be sub- divided in to OTC market and registered stock market. Further in the

secondary market, existing securities are traded and thus enabling disposal these securities whenever the owner's wish.

An activities secondary market is therefore condition for an effective primary market, as to investor wants to feel locked in to investment.

OTC Market

The full name of the OTC market is the over- the counter market. The market where the not listed securities of the companies in the stock exchange are trade in known as over-the - counter market. Further, "the OTC exchange is not an organization but an intangible market for the purchased and sellers of securities no listed by organized, exchanges. It is a formal exchange like organized stock exchanges. It nether requires membership for neither trading of securities nor listing of securities are not necessary in the OTC market. A sophisticated telecommunication network times active trader in this market. Then at which securities are traded "over the counter are determined by competitive bids and negotiation. The OTC, in addition to creating a resale market for outstanding securities, is a primary market in which new public issues are sold. Therefore OTC market competes with investment bankers and the organized exchanges because OTC dealers can operate in both the primary and secondary markets. National association of securities dealers' automation quotation system is an example of an OTC market. OTC market is the computer linked network for the trading of OTC securities. It was initiated in 1971. It provides immediate information on a computer linked system of bid prices for stocks offered by various dealers. The bid price is that at which a dealer is willing to purchase a security and asked price is that at which the dealer is willing to sell a security.

The over - the counter market is broader in scope than stock exchanges. it will be recalled that stock exchanges limited their activities to trading or securities already issued. In contrast, the over- the counter market handles both secures already issued and new securities being sold to the public where as the stock exchanges are action markets, the over- the - counter market buy securities with the hope of being able to resell them at higher prices. This process resembles any merchandising activity in which the traders buyer price. *(Bhattrai, 2005 : 24)* .

a. Non-securities market:

Non- securities market is that type of capital market where fincial tractions are carried out between the lender and borrower for a longer period without issuing securities in the form of shares, debentures and bonds. Financial transactions between the lending institution such as development banks and the business house or individuals, between the contractual saving institutions and individuals or business houses etc. come under non- securities market.

2.1.3 Relationship between Primary and Secondary Market

There is a symbolic relationship between the primary market and secondary market. The primary creates long-term securities, while the secondary market provides liquidity through marketability of these institutions. At the time of issues, fresh capital issues are influenced by the level of trend in stock prices. In reality, new issue activity in the primary market adds depth to the secondary market by enlarging the supply instruments for trading and investment in the secondary market. Therefore, stocks prices in turns are indispensable ingredients of the capital market and is the basis to meet the financial requirements of corporate bodies. Although regulatory system of both primary and secondary market is inter- related by legal provisions also.

Most of the investors are wise to invest their saving funds in stocks with the expectation of future cash inflow as dividends and maximization of value of their holdings in the market. The dividends and value of the firm are linked with the earnings power of the firms, which ultimately affects the market price of shares. So brief discussion have been presented in the following paragraphs.

Earnings per Share (EPS)

Accenting earnings that represent the different between revenue and expenses, including the expenses associated with non-Equity source of funds (Such as interest to debt, dividend to preferred share) is also known as total earnings available for common stock. If this portion of income is divided by number of

outstanding shares, we get earnings per share. *(Sharpe, Alexander and Bailey, 2001:622).*

Retained Earning

The balance sheet accounting, which indicates the total amount of earnings, the firm has not paid out as dividends thought its history; these earning have been reinvested in the firm.

Dividend per Share (DPS)

The percentage of earning the firm pays in cash to its shareholders is known as dividend. The dividends, of course, reduce the amount of earnings retained in the firm and affect the total amount of internal financing.(*Van Horne, 2000:305*). Krishhaman opines that of two stocks with identical earnings record and prospect, but the and paying a large dividend than other, the former will undoubtedly command a higher price merely because stockholders prefer present to future values. Stockholders often act upon the principle that a bird in the hand is worth tow in the bush and for this reason, which are willing to pay a premium for the stock with the higher dividend rate. *(Pandey, 1993: 681).*

Nothing is more important than dividends to stockholders. They buy shares of firm with the hope of sharing profits earned by firms. The sold motive of stockholder is to receive return on their investment; nothing pleases them more than knowing the firm's earning and more profits means more dividends coming in *(Pradhan, 1996: 375-376.)*

Market price per Share (MPS)

The market price of any asset, indeed, depends on the future earning power of the asset and the value of an asset depends on the future cash flows that the assets in expected to generate.

Once the shares, issued in the primary market are listed in the stock exchange, investors are able to buy sell the shares among themselves with the help of brokerage firm. Generally, the prices of shares are determined by demand and

supply preferences. Due to the market imperfection and uncertainty, shareholder may give a higher value to the near dividends and capital gains. Thus payment of dividend may significantly affect the market price of shares. Higher devidends increase the value of share and low dividends reduce the value". *(Pandey, 1993: 681).*

The price of firm's stock reflects expectation about its future earnings and dividends *(Western and Copeland, 1992:1113).*

2.1.4 Common Stock Valuation

The Common stockholders expect to be rewarded through periodic cash dividends and an increasing or at least on declining share value. Like current owners; prospective owners and security always frequently estimate the firm's value. They purchase the stock where they believe that it is undervalued that its true value is greater than its market price. They sell the stock when they fell that it is overvalued that its market price is greater than its true value. *(Gitman, 299).*

2.1.5 Stock Exchange

The stock exchange is an institution where quoted securities are exchanged between buyers and sellers. They stock exchange provides market in the wide range of traded securities', generally of medium to long term to maturities, issued by companies, government and organizations *(Winfield, 1985:22).*

Most of the investors are attracted to the equity shares because of its marketability and liquidity. On may like to buy more shares or selling existing shares from time to time when he is in need of money or when he is in need of money or when he wants to shuffle his portfolio. Since the stock exchange is a place where a large number of buyers and sellers Congregate, one can, by and large, easily find his counterpart for sale or purchase of shares. The investor can convert his shares into cash at the prevailing market prices readily. The existence of a stock exchange facilities all these functions with which it is almost impossible to do so.

The key function of securities exchange is to create a continues market for securities at a prices that is not very different from the prices at which they were previously sold. The continuity of securities market provides the liquidity necessary to attract investor's funds. Without exchanges, investors might have to hold debt securities to maturity and equity securities indefinitely. It is doubtful the many people would be willing to invest under such conditions. A continuous market also reduces the volatility of security prices further enhancing liquidity *(Gitman, 1992:458).*

The securities exchanges help to allocate scare fund to the best uses. That is by disclosing the price behavior of securities and requiring the disclosure of certain corporate financial data: they allow investors to access the securities risk and return and to move their fund into the promising investments. An efficient market is one that allocates fund to the most productive uses. Along with this, there is lot of functions of security exchange such as ready market and continuous market, evaluation of securities, safety of transaction, canalization of savings and widening the share ownership etc. however, besides these functions, there are there things a security exchange must do:

1. Determine a fair price for the securities it trades or price discovery function.
2. Enable transaction to be made at as low cost as possible or minimization of transaction cost.

Main Function of stock exchange: price discovery

Security is a legal representation of the right to receive Future benefits under conditions. Its value depends on expectation of the amount of those benefits and evaluation of risk involved. Expectation and evaluation reflect both the information available and the conditions people draw from the information. Since the market may quite big, no single buyer or seller can influence the price of a share to any significant extent.

Price discovery is the process of arriving at fair prices for securities. Far price indicates the compromise between far offer price (highest price any well informed buyer is willing to pay). Different markets do this in different way and different ways of organizing a market affect how closely the market approaches the ideal of fair prices. However, a very important fact that should not e forgotten is the concept of fair prices. However, a very important fact that should not be forgotten is the concept of ideal market or market efficiency, which also the necessary pre-condition for approaching to the fair price. In an ideal market value of securities equal its price of securities and prices reflects all available information about the market.

In the securities market there is a great importance of demand and supply for price fixation. The price of a given stock is determined exclusively by the interacting forces of supply and demand converting on such stock at a given time, that the price and volumes of its past transactions are meaningful indications of the probable relationship of the future and demand pressure it is likely to encounter in the market and that such relationship is the most important element in determining the probable direction the price movements.

The stock exchange produces, through its continuous process of evaluation, practices of securities, as closes as possible to investment value based on present and future income yielding prospects of various enterprises, capitalized at national rate of interest' the rate which will prevvail if and when al the liquid saving are employed into productive purchases. *(Gupta, 1981: 148)*

2.1.6 Price Determination

The share price is determined in the floor by the interaction of market forces i.e. demand and supply. the prices is determined by the point of aquarium between supply and demand, the shifting of this balance results in incessant adjusting of price in search of the ever- changing new equilibrium. The market price moves upward and downward. There are many other reasons that causes the stock price functions, major of them are economic, non- economic and market factors.

Dividend is the most important factors on the determination of stock price. Dividends are strongly influenced by the earnings power of the firm. There is a very close correlation between corporate earning & dividends. Earning power, in turn, is strongly influenced by interest rates. In this way the most fundamental factor is stock price fluctuation lies in changes in contribute to making up the economic factors influencing stock price.

The next influencing factors are non-economic factors, including changes in political conditions, such as administrative changes, change in weather and other natural conditions, and changes in cultural conditions, such as technological advance and the like. Similarly the other influencing factors are market factors, or internal factors of the market, considering of the tone of the market and supply-demand relations, may be cited as the third category, that influences the stock prices. Besides these factors the stock prices are influenced by the corporate performance of the company. Company's policy regarding the capitalization on earrings as well as government rules and signaling effect of the market.

2.1.7 Theory of Price Behaviour

The forces of supply and demand interact to determine a stock market price. If demand is high and supply is low then the price of stock goes up and vice versa. There are essentially two schools of thought to explain the stock price behaviour. They are:

1. Inefficient market theory.
2. Efficient market theory

Inefficient market theory

Conventional approach has considered that market is inefficient, which includes technical analysis theory. "prior to development of the efficient market theory, investors were generally divided into two groups, fundamentals and technicians."
(Reilly, 1986: 347) the two groups are analyzed as follows:

Technical analysis

Technical analysis is based on the widely accepted premise that security prices are determined by the supply of and demand for securities. The tools of technical analysis are therefore designed to measure supply and demand. Typically, technical analysts record historical financial data on charts, study these charts in an effort to find meaningful patterns to predict future price. Some charting techniques are used to predict the movements of a signal security: some are used to predict the movements of a market index: and some are used to predict both the action of individual securities and the market action. The basic assumptions underlying technical analysis are listed below:

1. Market value is determined solely by the interaction of supply and demand.
2. Supply and demand is government by numerous factors, both rational and irrational.
3. Aside from the effects of minor flections in the market, stock price tend to move in trend that persist for appreciable lengths of time.
4. Changes in trends are caused by shifts are caused by shifts in supply and demand.
5. Shifts in supply and demand, on matter why they occur, can be detected sooner or latter in charts of market action.
6. Some chart patterns tend to recur, and these recurring patterns can be used to forecast price movements.

Technical theory involves study of the past volume and price data of the securities to predict future price fluctuations. technical analysis theory of share price behavior is based on past market information. On the assumption that history tends to repeat itself, it is believed that knowledge of past patterns of share price will help to predict future prices under similar circumstances. It involves the study of past market behavior with reference to various financial and economic variables are to forecast the future. The changes occur in financial and economic variables are to be adjusted in called, believe that they can discern pattern in price of volume

movements, and that by observing and studying then past behavior patterns of given stocks, they can use this accumulated historical information to predict the future price movements in the security. Technical analysis comprises many different subjective approaches, but all have one thing in common that is, belief that these past movements are very useful in predicting future movements. Technical analyst believes. In the theory behind chart formations and patterns. They read charts much like ancient astrologers read the stars, looking for" Head and shoulders" formations. These, they believe, reflect the patterns of buying and selling, accumulation and distribution, or market psychology. Stock price always move in trend because of an imbalance between supply and demand. When the supply of a stock is greater than the demand, the trend will be down as there are more sellers than buyers: when demand exceeds supply, the trend will be up as buyers " bid up" the price : and if the forces of supply and demand are nearly equal, the market will move sideways in what is called a " trading range" eventually, new information will enter the market and the market will begin to trend again either up or down, depending on whether the new information is taken as positive or negative. Trend which are very brief are called minor trends: those lasting a few weeks are known as intermediate trends: and trends lasting for a period of months are major trends. By analyzing trend lines we can determine what trend is in force. It helps us to act safe in market both in bullish and bearish market.

Price moves in tends. A trend indicates there exist an inequality between the forces of supply and demand. Such changes in the forces of supply and demand are usually readily identifiable by the action of the market itself as displayed in the prices. Certain patterns or formations that appear on the charts have a meaning and can be interpreted in terms of probable future trend development.

Dow Theory

The Dow theory is one of the oldest and most famous technical tools and was originated by Charles Dow, who founded the Dow- Jones company and was the editor of the wall street journal around 1900. The Dow Theory is used to predict

traversal and trends in the market as a whole or for individual securities. According to Charles Dow, the market is always considered as having three movements, all going at the same time. The first is the narrow movement from day to day. the second is the short swing, running from two weeks to a month or more: the third is the main movement covering at lest four years in duration.

1. **Primary trends:** they are commonly called bear or bull markets. Delineating primary trends is the primary goal of the Dow theorists.
2. **Secondary movements :** Secondary movements are sometimes called correction which last only a few months.
3. **Tertiary movements :** these are simply the daily flections. The Dow theory asserts that daily functions are essentially meaningless random wiggles. Nonetheless, the chartists should plot the asset's price or the market average each day in order to trace out the primary and secondary trends (*Francis, 1986: 524).*

Fundamental analysis

Fundamental analysis approach involves working to analyze different factors such as economic influences, industry factor, government action, firms financial statement, its competitor and pertinent company information like product demand, earning, dividends and management in order to calculate an intrinsic value for firms securities. The analyst who believes on fundamental facts to determine the intrinsic value of stock is popularly known as fundamental analyst or fundamentalist.

Fundamentalists forecast stock price on the basis of economic, industry and company statistic. The principal decision variables ultimately take form of earnings and value with as risk return framework based upon earning power and the economic environment. Fundamental analysts believe into companies, earnings, their management, economic outlook, firms, competitor's market conditions and many other factors.

"The objective of fundamental security analysis is to appraise the intrinsic value of a security. The intrinsic value is the true economic work of financial assets." the fundamentalists maintain that any points of time every stock has an intrinsic value,

which should in principle be equal to the present value of the future stream of income from the stock discounted at an appropriate risk related rate of interest" *(Bhalla, 1983:283*). Therefore the actual price of security is considered to be a function of a set of anticipation. In other words : a new piece of news is released, securities market prices will adjust towards the new values,

"The value of common stock is simply the present value of all the future income which the owner of the share will receive" (*Francis, 1986:398).* And the actual price should reflect intrinsic value of the stock i.e. good anticipation of cash flows and capitalization rate corresponding to future time period. But in practice, first it is not know in advance what the appropriate discount rate should be for a particular of all matters that is relevant to company. There are various models developed by fundamentalists to reflect the price of the securities. Some of them are as follows:

Capital Assets Pricing Model (CAPM)

The basic foundation of the theory was laid down in the microeconomics studies of mean variance choice by *Malkiel, Burton G. (1981*). The critical extension to equilibrium in the capital market, and the development of the CAPM, was accomplished, Link the portfolio models of Markowitz and Tobin, the sharpe-Linter asset pricing model assumes a market of risk- averse consumers who can make portfolio decisions on the basis of the means and standard deviations of one period portfolio returns, implicitly assuming that standard deviations exist (*Fama, 1971:30).* The subs tainted the idea that increase with their risk, by showing that the determining influence on risk premium is the covariance between the asset and the market portfolio, rather the own or intrinsic risk of the asset. The equation for the CAPM is

$$r_i = r_f + [(r_m) - r_f]_i$$

Where,

r_i = the expected return for an asset,

r_f = the risk- free rate

(r_M) = the expected market return

$_i$ = the asset's beta.

CAPM is concerned with two key questions:

1. What is the relationship between risk and return for an efficient portfolio ?
2. What is the relationship between risk and return for an individual security?

The CAPM is based on the following assumptions:

1. Individuals are risk averse
2. Individuals have homogeneous expectations they have initial subjective estimates if the means, variances and co- variances among returns, expected returns and standard deviations:
3. Individuals can borrow and tend freely at a risk free rate of interest.
4. The market is perfect : there are no transaction costs, securities are completely divisible : the market is competitive.
5. The quality of risk securities in the market is given.

Gorden's Model

As per the Gorden's model about relationship of dividend policy and stock price, investors are not indifferent between the current dividends and retention of earnings.As increase in dividend payout ratio leads to increase in the stock prices for the reason that the investors consider the dividend yield is less risky than the expected capital gain. Similarly, investors require rate of return increases as the amount of dividend decreases. This means that there exists a positive relationship between amount of dividend and the stock prices. The model is based on the following assumptions:

1. The firm is an all- equity firm.
2. No external financing is available.
3. Internal rate of return (r), appropriate discount rate (k) are constant.
4. The firm and its stream of earning are perpetual.
5. The corporate tax does not exist.
6. The retention ratio once decided upon is constant. Thus the growth rate is constant forever.

7. The discount rate is greater than the growth rate.

As per the model, the relationship between the stock price and dividend varies on the following stages.

a. **Growth firm (r>K) :** In case of growth firm the share price tends to decline in correspondence with increase in dividend payout ratio or decrease in payout ratio order decrease in retention ratio. It means high dividend leads to increase in share price. There dividends and stock price are negatively correlated in such firm.
b. **Normal firm (r = k):** The price of share remains constant regardless of change in dividend. It means dividend and stock price are free form each other in normal firm.
c. **Declining Firm (r<k):** The share price tends to rise in correspondents with rise in dividend payout ratio. it means dividend and stock prices are positively correlated with each other in a declining firm.

J.E. Walter's model

As per the study of J.E. Walter on the relationship of dividend and stock price, dividend policy of a firm affects its stock price. The relationship between firm's internal rate of return and cost of capital are the determining factors to retain profits or return profits or distribution of dividend. The stock price will be increased with the increase with the increase in the retention ratio of the firm when the internal rate of return is greater than the cost of capital. Thus, as per Walter zero dividend policy will maximize the market value of share for growth firms. The following are the assumption of Walter model:

1. Retained earning constitute the exclusive sources of financing. The firm does resort to debt or equity financing.
2. The firm internal rate of return and its cost of capital are constant.
3. Value of earning per share and dividend per share are remain constant.
4. The Firm has partial life.
5. The firm distributes its entire earnings or retains it for immediate re investment.

The relationship between stock price and dividend varies on the following sages:

a. **Growth firm** (r>k) : if the firm's internal rate of return exceeds the cost of dividend and stock price is negative on such firms. It means that more market value of shares for such growth firms.

b. **Normal firms (r=k):** if the firm internal rate of return and cost of capital are such firm's stock price. Dividend payout ratio does not affect the value of share whether the firm retains the profit or distributes dividend on such firm's stock price. Dividend payout ratio does not affect the value of share whether the firm retains the profit or distributes dividend.

c. **Declining firm (r<k) :** if the firm's internal rate of return is less than cost of capital, such firms are known as declining firms. The relationship between dividend and stock price is positive that is increase in dividend per share leads to increase in stock price of such firms.

Thus, Walter concluded that when the firm is in growth stage then dividend is negatively correlated with price of share. Similarly, in normal firm there is no relationship between dividend and stock price. In the same way, there is positive relationship between dividend and price of stock in declining stage of firm.

Efficient market Theory:

In a competitive market, the equilibrium price of any goods or services at a particular movement in time is such that the available supply is equated to the aggregate demand. This price represents a consensus of the members trading in the market about the true worth of the good or service, based on all public available information. soon as a new piece of relevant information becomes available. It is analyzed and interpreted by the market. The result is a possible change in the existing equilibrium price. The new equilibrium price will hold until yet another bit of information is available for analysis and interpretation. " the role of information

is available for analysis and interpretation. " the role of information is two- fold:

a. To aid in establishing a set of security prices, such that there is exist and optional allocation of resources among firms and an optimal allocation of securities among investors.
b. To aid the individual investor who faces a given set of prices, in the selection of an optimal portfolio of securities." (*Sharma, 1996:27*)

The word "efficiency" as applied to securities market has unfortunately been used to represent a variety to logically distinct concepts. In particular in means: a exchange efficiency (b) production efficiency and (c) information efficiency. In this study, it is concerned only with informational efficiency. "in an efficient market security price' fully reflect available information " (*Fama, 1976:133*). Regular less of the form of information, it is the key to the determination of stock prices: therefore, it is the central issue of efficient market concept.

An efficient market can exist if the following events occur:

1. A large number of rational, profit maximizing investors exist who actively participate in the market by analyzing, valuing and trading stocks. These investors are price takers: that is, one participant alone can not affect the price of a security.
2. Information is free of cost and widely available to market participants at approximately the same time.
3. Information is generated in a random fashion such that announcements are basically independent of one another.
4. Investors react quickly and accurately to the new information, causing stock prices to adjust accordingly. (*Charles, 1943:725*).

In such a market, the current prices of a security obviously " Fully Reflect" all available information. Similarly, "in a perfect and competitive economy compared of rational individual with homogeneous beliefs about future prices, by any

meaningful definition present security prices must fully reflect all available information about future price. " (*Rubinstein, 1975:812)*

In a efficient market, market participants, acting in their own self- interest. Use available information to attempt to secure more desirable (higher return. Ceteris paribus) portfolio position. In doing so they collectively ensure that price movements in response to new information are instantaneous and unbiased and will 'fully reflect' all relevant information. Competition among participants to secure useful information will drive security prices from one equilibrium level to another so that the change in price in response to new information will be independent of the prior change in price. Price change will be random walk in response to the information.

"In an idle efficient market, everyone knows all possible- to know information simultaneously, interprets it similarly, and behaves rationally." *(Bhalla 1974:2).* In such a world, the only price change that would is due to the result from new information." An initial and very important premise of an different market is that there are large numbers of knowledge and profit maximizing investors adjust the information rapidly." *(Reilly, 1986:166)* " the degree of market efficiency has important implications for the economy that security prices provide accurate signals that can be used to allocate capital resources correctly. Miss- priced security result in incorrect allocation of capital. " *(Cheney, 1997:746).*

In such a market, all prices are correctly stated and there are no " bargains" in the stock market. " Efficiency in this context means the ability of the capital markets to function so that prices of securities react rapidly to new information. Such efficiency ell produce price that are appropriate in terms of current knowledge e, and investors wolfed less likely to discover great bargains and thereby earn extraordinary high rates of returns." *(Bhalla, 1983:3).*

The conclusion is that - " in an efficient market there are neither free lunches nor expensive dinners. It is not possible to systematically gain or lose abnormal profits form trading on the basis of available information . "(*Weston and Copland, 1996:394).* No one can consistently do better than the average. " efficient market theorists believe that some do better then average because of luck. In fact they suggest that the 'traders' - those who buy and sell their stocks frequently- do less well than the stock market averages by an amount equal to the commissions that pay *(Rubinstien, 1975:815)* On set of market efficiency examines the information efficiency of security prices. Existing model of efficient markets imply that all relent information regarding given stock is reflect in its current market price. This notion of market efficiency can be dividend into three categories based on type of information used in making market.

a. **Weak from Market Efficiency:** "Weak form market efficiency hypothesizes that today's security prices fully reflect all information contained in historical security prices. This implies that no investor can earn excess return information" *(Weston and Copland, 1996:94)*
b. **Semi-Strong form market efficiency :** it says that security prices fully reflect all publicly available information. Thus, no investors could earn excess return using publicly available resources such as corporate annual reports, NEPSE price information or published investment advisory reports. NEPSE price information or published investment advisory reports. It contains all publicly available data such as earnings, dividends, Stock split announcements, market that quickly incorporates al such information into price is said to be semi-strong efficient." If the semi- strong hypothesis is true, then only a few than what could be earned by using a naive by - and hold strategy. " *(Francies, 1986:608)*

c. **Strong form market efficiency: "** The most stringent form of market efficiency is the strong form, which asserts that prices fully reflect all information, public and non public." *(Jones, 1943:429)* in such kind of

market, no group or investors should be able to earn, over a reasonable period of time, excess rates of return by using publicly available information in a superior manner. An extreme version of the strong from holds that all non public information, including information that may be retroacted to certain groups such as corporate insiders and specialists on the exchanges. Is immediately reflected in prices. In effect this version refers to monopolistic access to information by certain market participants.

2.2 Review of Related Studies

2.2.1 A Review of Major Studies in Nepal

The stock market of Nepal has been subjective to investment research than their counterparts elsewhere. Most of the researches that are related with the investigation of effect for certain financial variables on the studies have been available regarding the impact of stock market on economic development and vice-versa.

For instance, Pradhan, (1993) addressed " Stock Market Behaviour in small Capital Market in Nepal" he an attempt to assess the stock market behaviour in Nepal, he examines the relationship of market equity, market value to book, value, price earning and leverage assets turnover and interest coverage. The study is based on pilled cross sections data of 10 enterprises whose stock are listed in stock larger price earning ratio. Larger ratios of market value to book value are equity and smaller dividends. Larger stocks also have higher liquidity, higher leverage and lower profitability, lower assets turnover interest coverage but these are more variable for smaller stock than for larger sticks. Stock with larger market value book value ratios have lower liquidity, higher dividends have higher liquidity, lower leverage, higher earning, and higher turnover and higher interest coverage.

Later in 1994, he studied stock market behaviour in Nepal which concludes that the positive relationship between the ratio dividend per share to market per share and interest coverage.

Shrestha, (2004) expressed that capital market proved to be one of the important segments of the economy since it facilitates and provides better institutional arrangements for the borrowing and lending of long term funds. Capital market is the general barometer that measures the proper collection and canalization of savings for investment in productive and income generating assets. The allocative-efficiency in the funds is the basis for measuring the performance of capital market. In this way, he tries to study the impact of regulation on capital market in Nepal. But what Matters crucial is the effective regulation of security market. However, experience in the number of advanced and developing countries shows that regulation of securities market became a felt necessity as a result of manipulative practices and dishonest security dealings. He further describes even in our country, the Get-Quick-Rich traders in securities market turned logical idea into a noxious growth. And there is playing on public money by public limited companies by issuing with rosy prospectus to mislead investors in the absence of appropriate control and supervision through strong enforcement of the regulation. In the last few years, there has been a remarkable experience of stock market boom and bust cycles in Nepal's growing small stock market transactions *(Five years strategic plan, 1998-2002, SEBON)*. Five years performance review shows that the initial Phase of development of SEBON a securities market regulator and developer with the restructuring of NEPSE as a sole market operator. At the same time, the irrational behaviour of the investors in stock market together with the operation non professionally orientated brokers are responsible for having the birth of small Harsh Mehta in Nepal's stock market in the absence of effective regulation, monitoring and supervision of the stock market activities. The imperfect characters of the market with the poor performance of the most of manufacturing companies that consist of more than 50 percent of the listed companies and also some trading companies have undermined the confidence of investors in sock market. The influence of mass psychology despite having universal madness of crowds laid down by Theory of speculation also operates in Nepal.

2.2.2 Review of Different Master's Thesis

We can easily find numerous studies conducted for the partial fulfillment of master's Degree. But we can't review all the studies. So, some of them, which studies are Relevant to this study, are reviewed in the following way.

Paudyal (2005) studied on " A study on share price movements of joints venture commercial banks in Nepal" is under taken by using taken by using financial and statistical tools (standard deviation, correlation, beta, t- test etc.). He said in this thesis to examine Nepal stock exchange market and to Judge whether the market shares of different Banking Indicators (BVPS and major financial ratio). He also analyze the scenario why the shear of selected banks emerge as blue chips to the potential investors and to make a conclusion the basis of the financial ratios analysis. Finally, He concluded that the beta coefficient which measures the riskiness of individual security in relative term, suggests that none of shares of light sampled banks are risky.

Dahal (2006) conducted the study entitled "stock market behaviour of listed joint venture company" describes the Nepalese stock market. from this thesis, Dahal said that examine and analyze the stock market behaviour. He also said that analyze stock price trend and volume of stock traded on the second any market. Finally he concluded the study and analyzed the rate of listing of new companies and maintenance of listed company in Nepal stock exchange. Similarly, he analyzed the investors views regarding the decision on stock price with the help of NEPSE index. From the view of Dahal, he said the stock market is the backbone of investment sector of the country. Nepal stock exchange is not providing facilities for investors such as general awareness about investment.

Panta (2008) conducted the study on "A study on stock price behavior "using serial correlation analysis and runs test on daily closing prices of 25 stocks. He concluded theoretical movements of stock market price changes of an individual common

stock as a whole. This thesis showed develop the empirical probability distribution of successive Price changes of an individual common stock market and its independent of each other .He also further concludes that the securities in the past here in correctly prices either over or under valued as actual market prices of securities and the general stock market of Nepal for the initial period appeared to be inefficient in incorporating the possible appearances of information in to the successive prices changes.

Rijal (2009) conducted study on "A study on valuation of stock market in Nepal". She concluded that determine whether the sequence of price changes are consistent with changes are consistent with change of the series of random number expected under the independent process and examine the efficiency of stock market of Nepal. She also further concludes that the stock brokers and market are not being much active to create investment environment in stock market . Lack of the capital market may be one of the reasons for determination of share price by excessive speculation. Lack of effective laws and effective implication of the existing laws are the contributing factors or elements for the less development of the capital market. She determined the efficiency of the stock market through the theoretical model of "efficient market hypothesis" in the stock market. The poor regulatory system and supervision of SEBO/N and NEPSE is another responsible factors of her study. Finally, she has concluded that poor governance, political instability, lack of strict, lack of awareness of investors are affecting the overall stock market in Nepal.

Tuladhar (2009) Studied on "Stock Price Behaviour and Investment decision in Nepal" He was assumed that the stock price is influenced with the changes in EPS, DPS and MPS. He also determined the magnitude of the independent variables to the dependent variable and identify whether it is possible to increase the Market value of the stock changing dividend policy or payout ratio. From this thesis showed test the difference between dividends per share. The stock market rises and mobilizes the investment resources of finance to long term large project in the economy. The investors are invested in their resources in the shares of corporate

sector through the stock market is not functioning well in Nepal. Finally he concluded the stock market and economic activities move in similar direction.

2.2.3 Research gap

Capital market is not only the output of the rules and regulations imposed by the regulators. Banks, financial institution, insurance company, manufactoring company, hotels and others sectors are included in thesis. In this regard, this research has tried pretty more to reflect the self governance practices adopted by the sample companies in their market price. The stock price was up and downwards frequently. At the ending time of 2009AD, economic crisis was emerged. So that time, Nepalese stock market was also affected heavily. For eg. Nepal telecom's share price fell down from Rs. 1100 to near about Rs. 300.

A number of empirical studies on stock prize behaviour has been conducted in the case of Nepalese Capital market. The earlier studies focused highly on the behaviour of stock prize in relation to variation of financial variables like EPS, DPS and other firm specific factors but this study also includes the macro economic variable interest for explaining the behaviour of stock price.

Hence, this study is significantly different from previous study. Effort on this particular subject will be found properly genuine and it will be recognized valuable study in this particular subject.

CHAPTER III
RESEARCH METHODOLOGY

3.1 Research Design

Research design is a plan, structure, and answer to research question and to control variance. in other words, research design is the strategy for conducting research work, which describes the general framework for collection, analysis and evolution of identifying data. it also provides the basis about what the researcher wants to know and what has to be dealt with in order to obtain required information.

3.2 Population and Sample

The judgmental purposive sampling technique is taken for this study and two from commercial bank, two from financial companies, two from insurance companies, one form manufacturing and processing companies and one from trading companies. While choosing the samples only average items are considered and extreme items tried omit. Only individual investors, stock brokers and listed companies in NEPSE are included in the focus group for effective and efficient data presentation and it will help to generalize the feeling and thought of shareholders regarding fluctuation of market share price in capital market. In this study eight sample companies are taken into consideration out of 198 listed companies in NEPSE and 50 investors, 5 stock brokers and 25 listed companies are selected for evaluating the qualitative factors.

Table: 3.1: Listed Companies at the End at the End of the FY 2009/10

S.N.	Sectors	Number of Listed Company	Percent
1	Commercial Bank	31	15.35
2	Development Bank	42	22.77
3	Finance Company	62	30.69
4	Insurance company	17	8.42
5	Hotel	4	1.98
6	Manufacturing and processing company	29	14.36
7	Trading company	8	3.96
8	Others	5	2.48
		198	100

Source : SEBON : Annual Report of 2009/10

From the above table following sampled company has been taken for analyzing the secondary data:

1. Commercial Bank
   a . Nabil Bank Ltd.
   b. Lumbini Bank Ltd.
2. Financial company
   a. Narayani National Finance Co. Ltd.
   b. NIDC capital Markets Limited (NCML)
3. Insurance Company
   a. National Life Insurance Company Ltd
   b. Prime Insurance Company Ltd.
4. Manufacturing and processing Company
   a. Nepal Lube Oil Ltd.
5. Trading Company
   a. National- trading Corporation Ltd.

3.3 Nature and Sources of Data

The major sources of secondary data are the books, annual reports of AGM-reports, magazines, journals and website of the listed companies and other related materials, which show the relationship between variable e.g. earning, book value and share price. Annual report, SEBON annual report, publication of different authorities, newspaper and unpublished thesis report were the sources of secondary data. To find out the major factors which affect the share price, the questionnaire was applied to the general investors, stock brokers and listed companies to collect the facts, knowledge and opinions regarding the fluctuation of share price in Nepal. The respondents have shared their ideas feeling through questionnaire.

3.4 Variables

In this study, market price of the share is the dependent variable and other factors that affect to the share price in the market are the independent variables i.e. earning per share (EPS), Dividend per share (DPS), economic condition of the Nation , political situation, interest rate etc.

3.5 Data Collection Techniques

Data collection also known as the fieldwork, which is the implementation of research design. in this study, both primary and secondary data have been used. for the primary data collection, the questionnaire method is adopted to collect the data form the three different respondent groups of Nepalese capital market. For the secondary data, annual reports of sampled companies are used. Annual reports, books, journals, magazines and website of the listed companies and other related materials were also review to collect the data of the sampled company. A systemic process directed towards investigating problems, practices and view on existing issues is the beauty of the good researcher. The research problem is expressed in the form of interrogative sentences. In this study, facts, figures, knowledge and opinions have been collected through questionnaire schedule method. To reduce the time, cost researcher used in indirect method with the respondents.

3.6 Data Analysis Tools

To obtain the above mentioned objectives, the primary and secondary data were collected from the respondents groups with asking some questions concerning the market price share and the annual report of the sampled companies, journals, published and unpublished research book, report of NEPSE also etc. Then the following statistical and financial tools are use as required by the study.

3.6.1 Statistical Tools

Data collection from secondary sources of data were analyzed by using the analytical tools like correlation and regression analysis, trend analysis etc. then the following tactical tool are taken, which are given below:

a. Mean (Average)

An average is a single value or observation related from a group of value or observations to present them. i.e. a value is supposed to stand for whole group. There are also different types averages like arithmetic mean, weighted mean, geometric mean, harmonic mean, median and mode are the major types of averages. The widely and popular used mean is arithmetic mean. Adding together all the items and dividing this total by the number of items can calculate the value of arithmetic mean. Mathematically, it can be presented below:

Arithmetic Mean (AM) = $\frac{\sum x}{n}$

Or, $\bar{x} = \frac{\sum x}{n}$

Where, $\overline{X}$ = Arithmetic mean

$\sum X$ = Sum of all the values of the variables x

n = Number of observations

b. Standard Deviation

Standard deviation is a statistical measure of the variability of a distribution of return around its mean. So, the standard deviation measures the absolute dispersion. In other words, it is the square root of the variance and measures the unsystematic risk on stock investment. Than the greater the standard deviation grate her deviation greater will be magnitude of the deviation of the values from the mean. Small standard deviation means a degree of uniformity of the observations as well as homogeneity of a series ad vice versa. Mathematically, it is presented below:

$$\text{Standard deviation } (\pm) = \sqrt{\frac{\sum x^2}{n} - \left(\frac{\sum x}{n}\right)^2} \quad \text{or} \quad \sqrt{\frac{\sum \left(R_M - \overline{R}_M\right)^2}{n-1}}$$

The standard deviation is absolute measure of dispersion but the coefficient of variation is a relative measure. To compare the variability between two or more series, CV is more appropriate tactical tool. In other words, CV is the ratio of standard deviation of return to the mean of that distribution. It is a measure of relative risk. The higher the coefficient of variation, the higher the relative risk of the investment. Symbolically, it is presented below:

$$\text{CV} = \frac{\pm}{R} x100 \quad or\, CV = \frac{\pm}{x} x100$$

c. Correlation coefficient(r)

One of the widely used statistical tools of calculating the correlation coefficient between two variables is Karl Pearson's correlation coefficient. It is also known as Pearson's correlation coefficient is denoted by r.

Mathematically,

$$r = \frac{n\sum x_1 x_2 - \sum x_1 . \sum x_2}{\sqrt{n\sum x1^2 - (\sum x_1)^2}\sqrt{n\sum x_2^2 - (\sum x_2)^2}}$$

d. covariance

Mathematically, covariance between two variables is calculated by following formula;

$$COVr_m, r_i = \frac{\sum [r_m - \bar{r}_m][r_i - \bar{r}_i]}{n} \text{ or } \frac{\sum (R_J - \bar{R})(R_M - \bar{R}_M)}{n-1}$$

3.6.2. financial Tools

To conclude the findings, some financial tools have been used in this study. The major financial tools are as follows:

Beta coefficient ( )

Beta is considered as a measure of undiversified risk. It measured the systematic risk of a company's stock. It assumes that total market is equal to 1. Beta indicates the risk associated with the company's stock in comparison with the market risk. If the beta is positive, it indicates that the company's risk and return rends to move positively with the market risk, and return with calculated percentage. Similarly, if beta is negative, it indicates that the company's risk and return tends to move negatively with the market risk and return with calculated percentage. The beta is denoted by .

Mathematically, $_i = \frac{COV(R_m, R_i)}{\pm_m^2}$ or $\frac{Covariance(R_J, R_M)}{Var.R_M}$

Where, $i = Beta\ coefficient$

Cov (R_i R_M) = Covariance between the returns of security i and market.

$\pm_m^2$ = Variance of market return.

Market Price per Share (MPS)

The market price is the amount in which a share of the stock is traded in the market. Records of high, low and closing prices are studied for the purpose of this study. Since the calculation of real average price is constrained by lack of adequate information regarding volume and price of each transaction throughout the year, the closing price has been used as market price of share.

Mathematically,

$$\text{MPS} = \frac{Total\ Market\ Capitalization}{No.of outs\tan ding\ Shares}$$

Dividend per share (DPS)

The dividend per share is the amount paid as dividend to the shareholders of the stock mathematically,

$$\text{DPS} = \frac{TotalDividend\ paid}{No.of\ outs\tan ding\ Shares}$$

Earning per Share (EPS)

The earning per share (EPS) is the share of a stock on the earning of the company during the period.

Mathematically,

$$\text{EPS} = \frac{Total\ Erning\ of\ Company}{No.of\ Outs\tan dingshares}$$

Return on Market Index (R_M) = $\frac{NI_t - NI_{t-1}}{NI_{t-1}}$

Expected return on market Index $\overline{R}_M = \frac{\sum R_M}{n}$

Where,

$\overline{R}_M$ = Expected return on Market Index

$\sum R$ = Sum of return on Market Index

n = Number of years.

CHAPTER IV
DATA PRESENTATION AND ANALYSIS

4.1 Introduction

This chapter, data analysis and interpretation is major part of the study. In this part, the analytical exploration and manipulation of data has been attempted with in the frame of the research methodology and then analyzed data are presented with appropriate form like tables, graphs and diagrams. In this chapter, relevant and and available data of eight listed companies, which had been taken as sample from the categorized sectors by NEPSE and an attempt has been made to the study.

4.2 Presentation and Analysis of Secondary Data

This part of the study provides analysis and interpretation of Secondary data provided by the NEPSE, SEBON and the required companies. Price and volume traded in the NEPSE index has been analyzed. Similarly, the signaling factors like as major events happening in the country also affect the NEPSE indeed. Therefore, the first section of this study analyzes the market sensitivity with the help of beta coefficient, correlation coefficient. For doing presentation and analysis of secondary data statistical and financial tools are used.

4.2.1 Trend Analysis of NEPSE Index

The trend analysis has been attempt in this section based on past 10 years NEPSE index as published in Annual Report of SEBO/N 2009/10.

$y_c = a + bx$

$\sum x = 0$

$$a = \frac{\sum y}{n} = \frac{4550.52}{10} = 455.05$$

$$b = \frac{\sum xy}{\sum x^2} = \frac{5046.52}{82.50} = 61.17$$

Table 4.1: Trend Analysis of NEPSE index

FY	years (t)	NEPSE INDEX (Y)	deviation from years x =(T-A)	xy	x^2	trend value y_c
2000/01	1	348.43	-4.5	(1567.94)	20.25	179.79
2001/02	2	227.54	-3.5	(796.39)	12.25	240.96
2002/03	3	2047.86	-2.5	(512.15)	6.25	302.13
2003/04	4	222.04	-1.5	(333.06)	2.25	363.30
2004/05	5	286.67	-0.5	(143.34)	0.25	424.47
2005/06	6	386.67	0.5	193.42	0.25	458.64
2006/07	7	386.83	1.5	1025.94	2.25	546.81
2007/08	8	683.96	2.5	2408.40	6.25	607.98
2008/09	9	749.10	3.5	2621.85	12.25	669.16
2009/10	10	477.73	4.5	2449.79	20.25	730.32
		$\sum y = 4550.52$	$\sum x = 0$	$\sum xy = 546.52$	$\sum x^2 = 82.50$	

Source: SEBON, Annual report of 2009/10 and Appendix I

From the above table it is observed that the trend line of the NEPSE index is in fluctuating order. The NEPSE index of, 2000/01, 2001/02, 2002/03, 2003/04, 2004/05, 2005/06, 2006/07, 2007/08, 2008/09 and 2009/10 are 348.43, 227.54, 204.04, 286.67, 386.83, 683.96, 963.36, 749.10 and 477.73 respectively. But the calculated trend values are 179.79, 240.96, 302.13, 363.30, 424.47, 485.64, 546.81, 607.98, 669.16 and 730.32 respectively

At last, it is concluded that the NEPSE index is lower than trend value in these fiscal year because demand and supply of share price of the listed companies.

4.2.2 Trend Analysis of Number of Listed Companies in NEPSE

Another technique for the analysis of share price of the listed companies in NEPSE is the trend analysis of the growth rate of the listed companies. So the analysis of

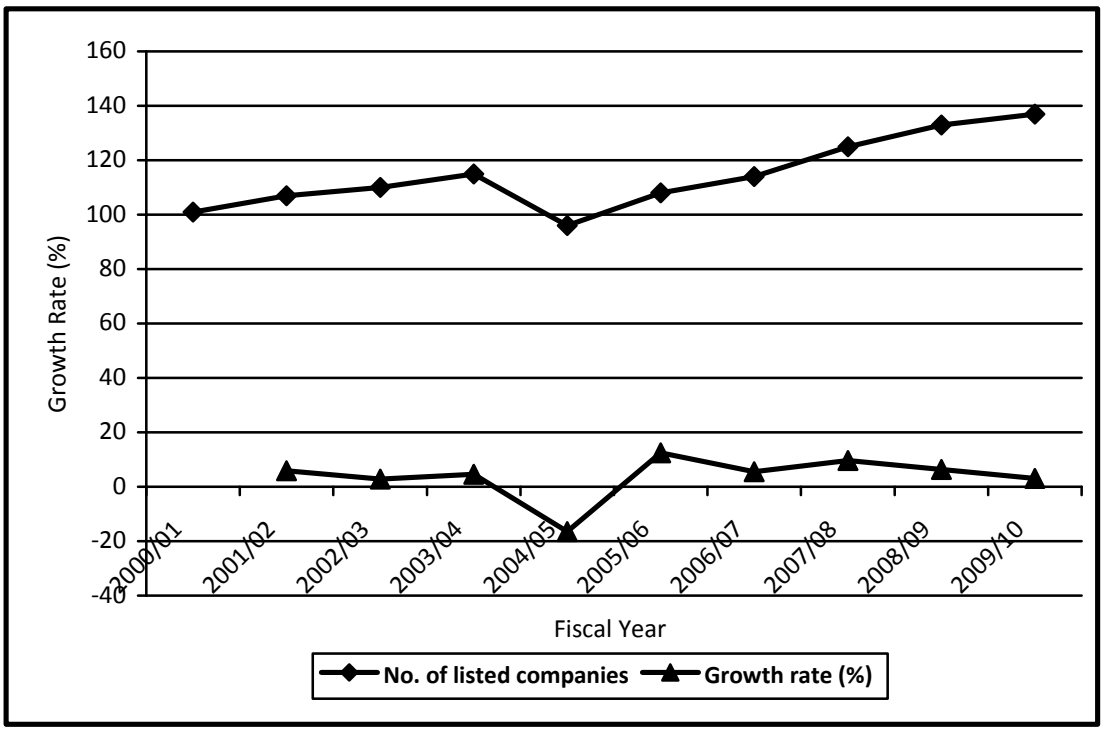
the growth rate of the listed companies, number of the listed companies and growth rate in percentage is taken and which is presented by the table and graph as below:

Table 4.2 : Growth Rate of Number of Listed Companies NEPSE for Ten years

years	No. of listed companies	Growth rate (%)
2000/01	101	-
2001/02	107	5.9406
2002/03	110	2.8037
2003/04	115	4.5455
2004/05	96	(16.5217)
2005/06	108	12.5
2006/07	114	5.5556
2007/08	125	9.6491
2008/09	135	6.4
2009/10	140	3.0075

Source: SEBON, Annual report of 2009/10

Figure4.1: Trend line of growth rate listed companies



4.2.3 Trend analysis of the number of transacted companies in NEPSE

Number of transacted companies in NEPSE is another tool for better analyzing the determination of the capital market. For this objectives, number of transacting companies during the ten years period and growth rate in percentage in taken. For this objective, tabular and graphical measures are presented below:

Table 4.3 Growth Rate of Number of Transacting Companies in NEPSE for Ten Years

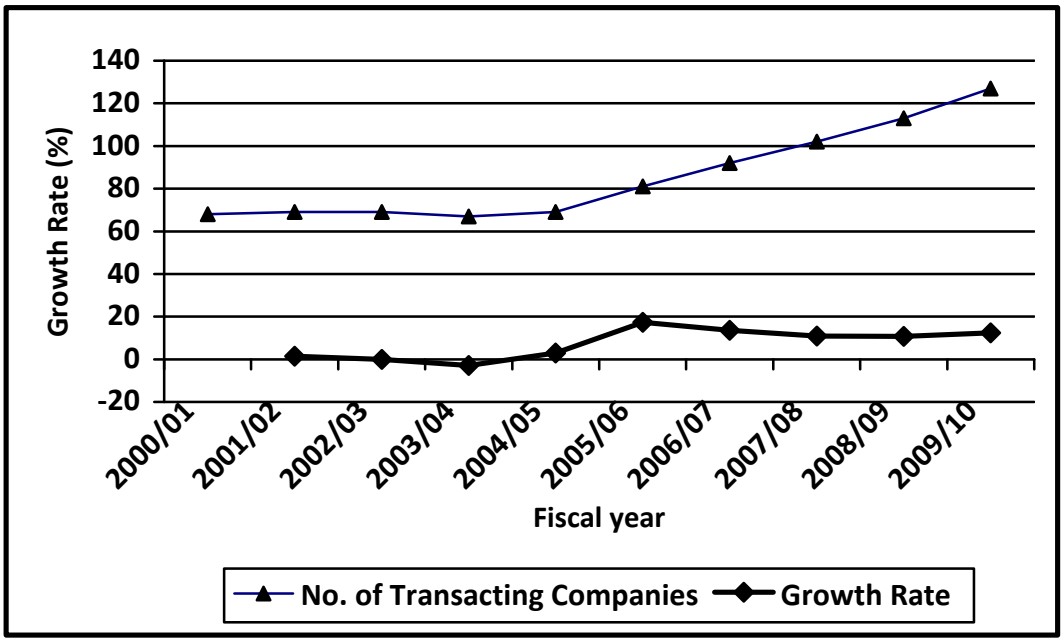
Years	No. of transacting Companies	Growth rate (%)
2000/01	68	-
2001/02	69	1.4706
2002/03	69	0.0000
2003/04	67	(2.8986)
2004/05	69	2.9851
2005/06	81	17.3913
2006/07	92	13.5802
2007/08	102	10.8696
2008/09	113	10.7843
2009/10	127	12.3894

Source: Annual Report of SEBON.

From the above table it shows that the number of transacting companies is in increasing order from the fiscal year 2000/01. The number of transacting companies is also equal in the fiscal year 2001/02 and 2002/03. It means there is no any change occurs during the fiscal year 2001/02 to 2002/03 in the number of transacting companies.similarily, after the fiscal year 2002/03, the number of transacting company is also described to 68 in the fiscal year 2003/04. It may be due to the less year 2003/07, the number of transacted companies has started to increases and at last, during the fiscal year 2009/10 reached to 127. From the above table, it is also seen that the growth rate of transacting companies is higher in the fiscal year 2005/06 i.e. 17.3913 Percent and lower in the fiscal year 2003/04 with

negative value of 2.8986 percent. But the number of transacting companies is Higher in the fiscal year 2009/10 i.e. 127 and lower in the fiscal year 2000/01 i.e. 67.

Figure 4.2: Trend Line of Growth Rate Transacting Companies



From the above presented figure, it is seen that the percentage of the transacting companies are given in above table4.3.it is also concluded that the growth rate of the transacting companies is decreased with negative rate in the fiscal year 2002/03.after that decreased point growth of the transacted companies started to increase up to fiscal year 2004/05i.e.17.39 percent. Again, it started to decrease and reached to 10.87 percent during the fiscal year 2009/010. At last it is concluded that the number of transacting companies in NEPSE is in the fluctuating order.

4.3 Relationship of MPS with Earning price per share (EPS) and Dividend per share (DPS)

This study is assumed that the MPS might be affected by changing of EPS and DPS in the Nepalese capital market.so, the market price of a company will be higher than other company if the company declares and describes the dividend to their stockholders at the right time. Similarly, if net worth and Eps of the company

increases, the market price per share of that company also will be increased. In this way, EPS and DPS are the main determining factors for market price of the share. Therefore, to know the degree of relationship of MPS with EPS and DPS, here MPS is taken as dependent variable and other remaining factors like EPS and DPS are taken as the independent variables. The effects of EPS and DPS to the MPS are tested in all company taken as sampled. The simple correlation and coefficient of determination are calculated for knowing the relationship of MPS with EPS and DPS. To determine the magnitude of the effect of the independent variable to the dependent variables, simple regression analysis are made and then magnitude is identified.

4.3.1 Correlation coefficient Analysis of NABIL Bank ltd.

Table 4.4: Synopsis of performance Indicators of NABIL Bank Ltd.

Years	MPS (x_1)	DPS (x_2)	EPS (x_3)
2000/01	600	50	69.33
2001/02	822	30	33.76
2002/03	1401	50	53.68
2003/004	1150	0	33.18
2004/005	760	30	33.60
2006/006	795	20	39.56
2006/07	940	15	51.7
2007/08	800	12.50	39.31
2008/09	960	16.20	44.80
2009/010	1090	25	49.05
Sum	9318	248.70	447.97
Mean	931.80	24.87	44.80
S.D	219.41	12.08	10.89
C.V	0.2355	0.4857	0.2431

Table 4.5 : Relationship of MPS with EPS and DPS

Variables	R	r^2
rx_1x_2	-0.0447	0.0020
rx_1x_3	-0.0503	0.0025

Source : Appendix-II

The table 4.3.1 shows the relationship of MPS with DPS over the view of last nine her data.

r= Correlation coefficient

rx_1x_2 = Correlation coefficient of MPS and DPS

rx_1x_2 = Correlation coefficient of MPS and DPS

r^2 = Coefficient of determination

S.D = Standard Deviation

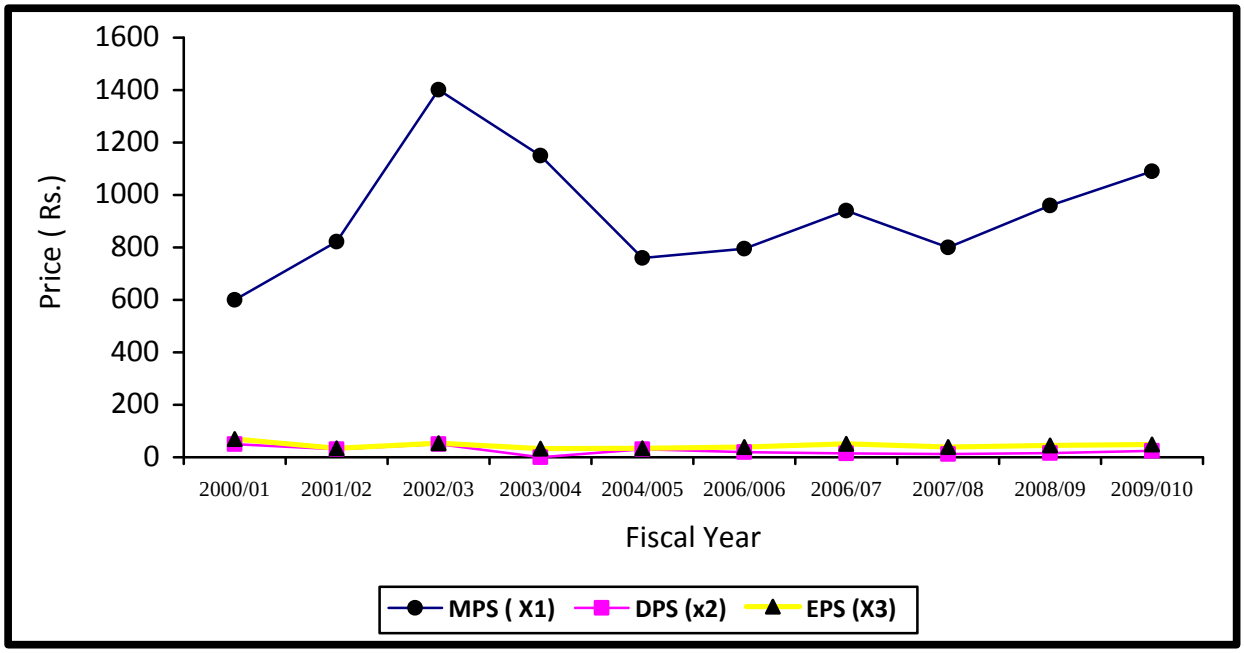
C.V = Coefficient of Variation

Average = Mean (i.e. Arithmetic. mean)

The coefficient of variation CV indicates that fluctuation occurs in the variables during the period of observations. So, the higher CV indicates the higher volatile and lower CV indicates the lower volatile. Therefore, the CV of MPS is 23.55 percent. It means MPS is more volatile. But the CV of DPS is higher than other variables like MPS and EPS. So, CV of DPS and EPS are 48.57 percent and 24.31percent.So, DPS of this Nabil bank is maximum volatile than independent variable like MPS and EPS. The simple correlation coefficient shows the relationship between on dependent variable and other two independent variable. The above table shows, MPS is negatively correlated with DPS and EPS. The meaning of that if the changed in DPS and EPS, the MPS also move in same direction. But the magnitude of correlation, of MPS with DPS and EPS are -0.0447 and -0.0503 respectively. The coefficient of determination shows that 0.0020 of the change in MPS is explained by DPS and 0.0025 change in explained by EPS. Even the MPS is negatively correlated insignificant. At last it is concluded that the MPS is more negatively correlated with EPS and DPS.

The Liner Relationship of MPS, DPS with EPS can be presented in following figure:

Figure 4.3: Relationship of MPS with DPS and EPS of Nabil Bank Ltd.



4.3.2 Correlation coefficient Analysis of Lumbini Bank Ltd.

Table 4.6: Synopsis of Performance Indicators of Lumbini Bank Ltd.

Years	MPS (x_1)	DPS (x_2)	EPS (x_3)
2000/01	184	0	20.86
2001/02	107	15	21.03
2003/03	980	20	34.39
2003/04	750	0	31.56
2004/05	430	20	32.91
2005/06	445	20	29.90
2006/07	680	20	45.58
2007/08	870	20	37.54
2008/09	995	20	40.46
2009/10	1130	20	46.03
Sum	6571	155	340.26
Mean	657.10	15.50	34.026
S.D	334.60	7.89	8.35
C.V	0.5092	0.5090	0.2455

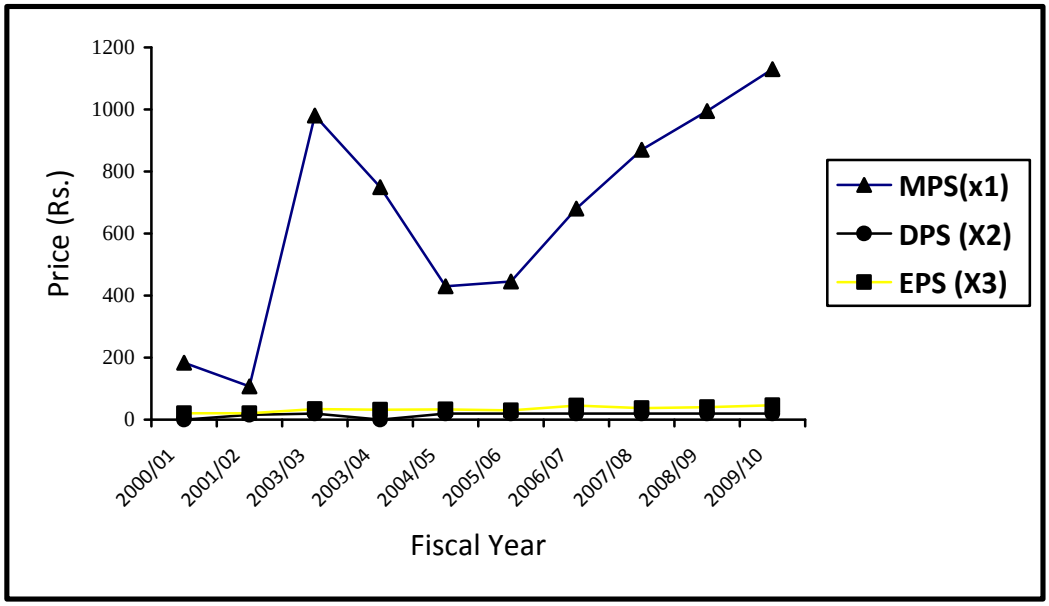
Table 4.7 : Relationship of MPS with DPS and EPS

Variables	R	r^2
Rx_1x_2	0.3922	0.1538
Rx_1x_3	0.8320	0.6922

Source: Appendix - III

MPS, DPS and EPS are taken as the major performance indicators of lumbini Bank Ltd. The above table shows that there is fluctuation in MPS during the observed period. The MPS of lumbini Bank Ltd. is only 184 in the year 2000/01 and it is decreased 107 in the year 2001/02. The highest MPS of lumbini Bank Ltd. is 1130, it was recorded in the fiscal year 2009/10.this Banks is moved up and down, and reaches up to 1130 in the fiscal year 2009/10. The coefficient of variation indicates the realities in the variables during the period of observation,. So, higher CV indicates the higher volatile and lower CV indicates the lower volatile. Therefore, CV of MPS is 50.92 percent, which has lower CV than other remaining variables. It means MPS is less volatile. But he CV of DPS and EPS are 50.90 percent and 24.55 respectively. In this way, CV of DPS is higher than other variables like MPS and EPS. Then DPS of Lumbini Bank Ltd is maximum volatile. The simple correlation shows that the relationship between one dependent variable and other two independent variable. The above table shows that MPS of Lumbini bank is Positively correlated with its DPS and EPS. The meaning of that, if the value of DPS and EPS changed then value of MPS also changes. The magnitude of correlation of MPS with DPS and EPS 0.3922 and 0.8320 respectively. The coefficient of determination shows that 0.1538 of the change in MPS is described by DPS and 0.6922 of the change in MPS is described by EPS. It seems and concluded that the effect of independent variables to dependent variables has insignificant figure even then MPS is positively correlated with DPS and EPS. The linear relationship of MPS with DPS and EPS can be presented in following figure.

Figure 4.4 Relationship of MPS With DPS and EPS of Lumbini Bank Ltd.



4.3.3 Correlation coefficient Analysis of Narayani National Finance co. Ltd.

Table 4.8: Synopsis of performance indicators of Narayani National Finance co. Ltd.

Years	MPS (x_1)	DPS (x_2)	EPS (x_3)
2000/01	95	12	70.00
2001/02	98	16	21.30
2003/03	295	20	31.25
2003/04	321	23	37.55
2004/05	305	12	37.05
2005/06	235	50	33.85
2006/07	205	0	2.77
2007/08	138	10	17.97
2008/09	168	30	19.33
2009/10	193	25	24.17
Sum	2053	198	242.24
Mean	205.30	19.80	24.224
S.D	78.74	12.95	10.35
C.V	0.3835	0.6542	0.4273

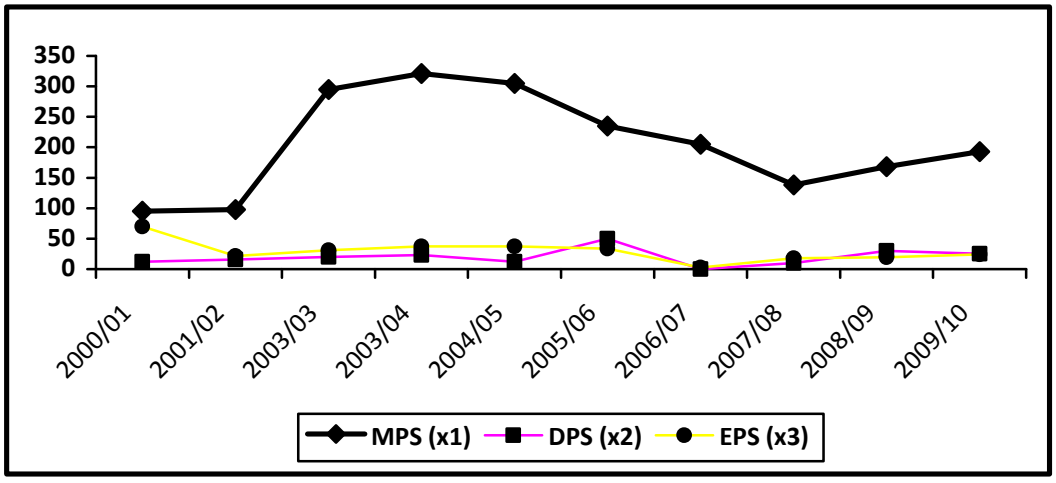
Table 4.9 : Relationship of MPS with DPS and EPS

Variables	R	r^2
rx_1x_2	0.1958	0.0383
rx_1x_3	0.6656	0.4430

Source: Appendix - IV

MPS, DPS and EPS are taken as the major performance indicators of Narayani National fiancé co. ltd. The coefficient of variation, CV indicates that the volatility of the Narayani National finance Co. ltd. The coefficient of variation, CV indicates that the volatility of the performance indicators during the period of time. The higher CV indicates the lower volatility. So, CV of DPS, MPS and EPS are 38.35%, 65.42% and 42.73% respectively. But, the CV of MPS is lower than other two indictors DPS and EPS.therefore MPS is less volatile. Similarly, CV of DPS is 65.42%. it means DPS is more volatile than two indicators MPS and EPS of Narayani National finance co. ltd.the simple correlation coefficient shows that the relationship between one dependent variable and other two independent variable. From the above table it seems that MPS is positively correlated with DPS and EPS. The meaning of that the if the changes occurs in DPS and EPS, The MPS also changes in same direction. The magnitude of correlation of MPS with DPS is less than EPS are 0.1958 and 0.6656 It means magnitude of correlation of MPS with DPS is less than EPS. So, MPS is significantly correlated with EPS due to its higher magnitude of correlation. The coefficient of determination shows that 0.0383 Change in MPS is described by DPS and 0.4430 percentage I MPS is described by EPS.

Figure No. 4.5 Relationship of MPS with DPS and EPS of Narayani National Finance Co. Ltd.



4.3.4 Correlation coefficient analysis of NIDC Capital Market Ltd

Table 4.10 Synopsis of performance indicators of NIDC Capital Market Ltd.

Years	MPS (x_1)	DPS (x_2)	EPS (x_3)
2000/01	82	0	14.55
2001/02	100	15	29.30
2003/03	415	15	20.95
2003/04	600	15	25.95
2004/05	175	15	2.52
2005/06	125	0	(9.93)
2006/07	107	0	25.07
2007/08	145	15	20.02
2008/09	185	0	19.42
2009/10	205	0	23.35
Sum	2139	75	171.20
Mean	213.90	7.50	17.12
S.D	165.97	7.50	13.22
C.V	0.7759	1.00	0.7722

Table 4.11 : Relationship of MPS with DPS and EPS

Variables	R	r^2
rx_1x_2	0.4557	0.2169
rx_1x_3	0.2747	0.0755

Source: Appendix - V

Over the last ten years data, the table shows the relationship of MPS with DPS and EPS. MPS, DPS and EPS are taken as the major performance indicators of NIDC capital Market Ltd. The coefficient of variation indicates the fluctuation of indicators (Variables) during the period of time. The higher CV indicates the higher volatility and lower CV indicates the lower volatility. So, CV of MPS, DPS and EPS are 77.59 percent, 100 percent and 77.22 percent respectively. But the CV of

MPS is lower than other two indicators DPS and EPS. Is lower than other two indicators DPS and EPS. therefore, MPS is less volatile. Similarly, CV of DPS is 100 percent, which is the higher CV than MPS and EPS. Therefore, DPS of NIDC capital market Ltd. is more volatile. The simple correlation coefficient shows that the relationship between one dependent variable and other two independent variables. From the above table. It seems that MPS is positively correlated with DPS and EPS. The meaning of that if the change occurs in DPS and EPS, the MPS also changes in the same direction. The magnitude of correlation of MPS with DPS and EPS are 0.4657 and 0.2774 respectively. It means the magnitude of correlation of MPS with DPS is higher than EPS. So MPS is significantly correlated with DPS due to its higher magnitude of correlation. The coefficient of determination shows that 0.2169 change in MPS in described by DPS and 0.755 described by EPS but remaining percentage change in MPS is described by other variables.

4.3.5 Correlation coefficient Analysis of Prime Insurance Company Ltd.

Table 4.12: Synopsis of performance indicators of Prime Insurance Company Ltd

Years	MPS (x_1)	DPS (x_2)	EPS (x_3)
2000/01	122	10	18.07
2001/02	125	10	19.17
2003/03	250	10	19.70
2003/04	220	13	27.37
2004/05	170	10	28.73
2005/06	192	0	19.90
2006/07	210	5	25.13
2007/08	210	10	46.68
2008/09	240	10	30.32
2009/10	260	13	20.18
Sum	1999	91	255.25
Mean	199.90	9.10	25.525
S.D	45.80	3.67	8.21
C.V	0.2291	0.4036	0.3216

Table No. 4. 13 : Relationship of MPS With DPS and EPS

Variables	R	r^2
rx_1x_2	0.1594	0.0254
rx_1x_3	0.2210	0.0488

Source: Appendix - VI

Over the last in ten years data, the table shows the relationship of MPS with DPS and EPS.

MPS, DPS and EPS are taken as major performance indicators of prime insurance company (Nepal) Ltd. The coefficient of variation indicates that the fluctuation of indicators (variables) during the period of time. Theoretically, The higher CV indicates the higher volatility and lower CV indicates the lower Volatility. So, CV of MPS,DPS and EPS are 22.91percent, 32.16 percent which is moderate volatile comparison with DPS. The simple correlation coefficient show that the relationship between on dependent variable and other tow independent variables. From the above table, it seems that MPS is negatively correlated with DPS and positively correlated with EPS. The meaning of that is the change occurs in DPS then MPS also changes in opposite direction. The magnitude of correlation of MPS with DPS and EPS are 0.1594 and 0.2210 respectively. It means the magnitude of correlation of MPS with EPS is higher than DPS. So MPS is significantly correlated with EPS. The coefficient of determination shows that 0.254 change in MPS is described by DPS and 0.488 percent change in MPS is described by EPS, but remaining percentage change in MPS is described by other variables.

4.3.6 Correlation coefficient Analysis of National life insurance co. Ltd.

Table No. 4.14: Synopsis of performance indicators of National life Insurance Company Ltd.

Years	MPS (x_1)	DPS (x_2)	EPS (x_3)
2000/01	115	0	9.87
2001/02	140	10	10.69
2003/03	270	10	19.61
2003/04	181	10	23.28
2004/05	182	0	19.14
2005/06	130	0	12.12
2006/07	112	0	8.20
2007/08	95	0	3.01
2008/09	120	15	9.20
2009/10	150	15	15.40
Sum	1495	60	130.52
Mean	149.50	6.0	13.052
S.D	48.45	6.24	5.88
C.V	0.3241	1.0400	0.4507

Table No. 4. 15: Relationship of MPS With DPS and EPS

Variables	R	r^2
rx_1x_2	0.3272	0.1071
rx_1x_3	0.8087	0.6540

Source: Appendix – VII

MPS, DPS and EPS are taken as the major performance indicators of National life Insurance co. Ltd. The coefficient of variation indicates the fluctuation of indicators (Variables) during the period of time. The higher CV indicates the higher volatility and lower CV indicates, the lower volatility. So, CV of MPS, DPS and EPS are 32.41 percent, 104.00 percent and 45.07 percent respectively. But the CV of MPS is lower than other tow indicators DPS is 104 %, which is the higher CV than other variables. Therefore DPS of National Insurance Ltd. Is more volatile. The simple correlation coefficient shows that relationship between one dependent variables. Form the above table, is seems that MPS is positively correlated with DPS and EPS. The meaning of that if the change occurs in DPS and EPS, the MPS also change in the same direction. The magnitude of correlation of MPS with DPS and

EPS is 0.3272 and 0.8087 respectively. It means the magnitude of correlation of MPS with EPS in higher than DPS. So MPS is significantly correlated with EPS. The coefficient of determination shows that 0.1071 change in MPS is described by DPS and 0.6540 change in MPS is described by EPS but the remaining percentage change in MPS is described by other variables.

4.3.7 Correlation coefficient analysis of Nepal lube oil ltd.

Table 4.16: Synopsis of performance indicators of Nepal lube oil ltd.

Years	MPS (x_1)	DPS (x_2)	EPS (x_3)
2000/01	315	15	31.84
2001/02	300	15	47.70
2003/03	420	15	23.60
2003/04	584	10	(10.84)
2004/05	480	5	30.63
2005/06	400	15	20.89
2006/07	350	0	20.89
2007/08	350	15	20.89
2008/09	320	10	30.63
2009/10	380	10	23.90
Sum	3899	110	240.13
Mean	389.90	11.00	24.013
S.D	82.86	4.90	13.98
C.V	0.2125	0.4455	0.5821

Table 4.17: Relationship of MPS with DPS and EPS

variables	R	r^2
rx_1x_2	0.2153	0.04640
rx_1x_3	0.9473	0.8973

Source: Appendix-VIII

MPS, DPS and EPS are taken as the major permance indicators of Nepal lude oil ltd.the fluctuation occurs in this indicates is described by coefficient of variable. The coefficient variation indicates the fluctuation of indicates (variables) during the period of time. The higher CV indicates the higher volatility and lower CV

indicates the lower volatility. So, CV of MPS ,DPS and EPS are 21.25%,44.45% and 58.21% respectively. But the CV of MPS is lower than CV of other two indicators DPS and EPS.therefore MPS of Nepal lube oil ltd. is less volatile. similarly, CV of EPS is highest than other. It means EPS of Nepal lube oil ltd. is higher and CV of DPS is relatively volatile due to its less CV than MPS and more than MPS. The simple correlation coefficient shows that, the relation ship between one dependent variable and other two independent variables. From the above table, it seems that MPS is negatively correlated with DPS,MPS is Positively correlated with EPS are 0.2153 and 0.9473 respectively. The coefficient of determination shows that 0.464 changes in MPS is described by DPS and 0.8973 change in MPS is described by EPS. it seems that the effect of DPS to MPS has significant figure. Even effect of EPS to MPS has significant figure.

4.3.8 Correlation coefficient analysis of National trading corporation ltd.

Table 4.18: Synopsis of performance indicators of National trading corporation ltd.

Years	MPS (x_1)	DPS (x_2)	EPS (x_3)
2000/01	325	20	31.60
2001/02	405	20	21.31
2003/03	400	25	(61.47)
2003/04	330	25	42.58
2004/05	300	30	107.60
2005/06	300	20	202.80
2006/07	315	20	294.70
2007/08	315	20	201.03
2008/09	325	20	246.50
2009/10	405	15	267.82
Sum	3420	215	1354.47
Mean	342.0	21.5	135.447
S.D	41.24	3.91	116.64
C.V	0.1206	0.1816	0.8611

Table 4.19: Relationship of MPS with DPS and EPS

Variables	R	r^2
rx_1x_2	(0.3136)	0.0983
rx_1x_3	(0.3536)	0.1250

Source: Appendix-IX

MPS, DPS and EPS are taken as the major performance indicators of National trading corporation ltd. the above table shows, there is huge fluctuation occurred in MPS. The highest MPS is National trading corporation is 405 in 2000/01 and 2009/10 during ten years period. therefore, the MPS of National trading corporation is being decreasing gradually .the above table also shows that there is no any changed in MPS during the fiscal year 2004/04 and 2005/06.the coefficient of variation indicates that the volatility in the variable during the period of observations time. So, the higher cv indicates the higher volatility and lower CV indicates the lower volatility. Therefore, CV of MPS is 12.06 %,which is lower than other two variable. It means MPS is less volatile. but, the CV of DPS and EPS are 18.16% and 86.11% respectively. In this way, CV of EPS is higher than other variables like MPS and DPS, then EPS of National trading corporation ltd. is maximum volatile. The simple correlation coefficient shows that the relationship between one dependent variable and other two independent variable. The above table shows that MPS is negatively correlated with DPS and EPS .the meaning of that if the value is changed in DPS and EPS, the value of MPS decreases. The magnitude of correlation of MPS with DPS and EPS are 0.31.36 and 0.3536 respectively. The coefficient determination shows that 0.0983 of the changes in MPS is described DPS, 0.1250 of the changes in MPS is described by EPS.

4.3.9 Aggregate result of Correlation Coefficient analysis of Eight Sample Companies.

Table 4.20 : Synopsis of Performance Indicators of Eight Sample Companies

Years	MPS (X_1)	DPS (X_2)	EPS (X_3)
Aggregate Correlation	30894	1333.30`	3182.04
Mean	386.18	16.67	39.78
S.D	302.10	7.01	56.41
C.V	0.7823	0.4205	1.4180

Table 4.21: Relationship of MPS with DPS and EPS for Eight Sample Co.

variables	R	r^2
rx_1x_2	0.0487	0.0024
rx_1x_3	0.1140	0.0130

Source: Appendix-x

The coefficient of variation (CV) indicates that fluctuation occurs in the variables during the period of the observation. So, the higher CV indicates the higher volatile and lower CV indicates the lower volatile. Therefore, the CV of EPS is 141.80 percent. It means EPS is more Volatile. But the CV of EPS is higher than other variables like MPS and DPS. So, CV of MPS and DPS are 78.23 percent and 42.05 percent. The DPS of these combined companies is maximum volatile than independent Variable like MPS and EPS. The Correlation coefficient shows the relationship between on dependent variable and other two independent variable. The above table shows, MPS is positively correlated with DPS and EPS. the correlation of MPS with DPS and EPS are 0.487 and 0.1140 respectively. The coefficient of determination shows that 0.0024 of the change in MPS is explained by DPS and 0.0130 percent change in explained by EPS. At last It is concluded that the effect of independent variables to dependent variables has insignificant figure even than MPS is positively correlated with DPS and EPS.

4.4 Analysis of stock market sensitivity

Beta coefficient has been taken to analyze the sensitivity of the stock market. Beta Coefficient is considered as a measure of systematic risk.so; beta coefficient is also called as an index of systematic risk and used to rank the assets. Beta of the market return equal to one (1).if beta is greater than 1, then the asset is more volatile than the market is called aggressive beta. if the beta is less than 1,then the price fluctuation of assets is less volatile than the market is called defensive beta.

4.4.1 Beta coefficient of sampled companies

From different types of organizations here are taken only eight companies as a sample. Beta coefficient of the sampled companies is calculated on the basis of MPS and DPS, EPS.

$$BetaCoefficient(\ \ i) = \frac{Cov(r_{J,}\ r_i)}{\pm^{2}_{m}}$$

where,

Cov. (r_J, r_M) = Covariance between the returns of security i and market

$\pm^{2}_{m}$ = Variance of market return

Table 4.22: Beta coefficient of the sample companies

Name of the sample companies	**Beta coefficient ( )**
Nabil Bank ltd.	-0.3381
Lumbini Bank ltd.	-1.866
Narayani National finance co. Ltd.	-4.5343
NIDC capital market Ltd.	-6.7268
Prime insurance co. Ltd.	-1.7774
National life insurance co. Ltd.	-5.1570
Nepal lube oil Ltd.	-1.6257
National trading corporation Ltd.	-15977

Source : Appendix - XI

Beta coefficient is taken as measure of systematic risk which measures the sensitivity of the return of the company to the return of the market. From the above table it is observed that the beta coefficient of all sampled companies is less than one, it means <1.if the beta coefficient is less than one, it is considered that risk

adjustedment factor will be less than risk adjustedment factor for the market. The Beta Cofficient of Nabil Bank Ltd., Lumbani Bank Ltd., Narayani National Finance Co.Ltd., NIDC capital market Ltd., Prime Insurance Co. Ltd., Narayani Life Insurance Co. Ltd, Nepal Lube Oil Ltd. and National trading corporation Ltd. are -0.3381,-1.8666,-4.5343,-6.7268,-1.7774,-5.1570,-1.6257 and -1.5977 respectively.

4.5 Empirical Analysis

An empirical investigation was conducted to evaluate the qualitative factors affecting on the determination of market price of common stocks from the experience of the real world. The major tools used for this study is an opinion questionnaires which was distributed to more than 125 respondents, out of which only 90 responses were received from them. The respondents selected for this study were individual investors, stock brokers and listed companies. But there are large numbers of stakeholders in the capital market of Nepal. The total major 12 variables that could play the vital role to fluctuate or determine the market price of stock of companies in NEPSE were identified. The views of respondents were collected from Kathmandu valley only. Questions were proved with tow or more alternatives information collected from the respondents were tabulated in to the separated format and they were expressed the respondents were tabulated into the separate from the they were expressed in terms percentage of total number and then have been analyzed into descriptive ways. The numbers of respondents by

Table No. 4.23: Responses by Groups

S.N	Group of Respondents	Sample Size	Percentage
1	Individual investors (Shareholders)	50	55.55
2	Stock Brokers	15	16.67
3	Listed Companies in NEPSE	25	27.78
Total		90	100

Source : Opinion Survey

The results obtained from the opinion survey have been analyzed separately according to their respective groups.

4.5.1 Higher the EPS higher the Share price

To know the view of the respondents about higher the EPS higher the share price a question was asked, " Is there higher the EPS higher the share price?" The responses of the different respondent groups are as follows:

Table 4.24: Higher the EPS Higher the Share price

Respondent groups	Yes		No		Don't Know		Total	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent
Individual investors	35	38.89	4	4.44	11	12.22	50	55.55
Stock brokers	9	10	4	4.44	2	2.22	15	16.67
Listed companies	19	21.11	6	6.67	0	0	25	27.78
Total	63	70.00	14	15.55	13	14.44	90	100.00

Source: Opinion Survey

The above table shows that 70 percent have agreed with higher the EPS higher the share price. However 15.55 percent of the respondents showed their disagreement to this view and 14.44 percent of the respondents who were unknown about it. Among those respondents who showed their agreement to this vies, 38.89 percent were individual investors, 10 percent were stockbrokers and 21.11 percent were listed companies. So, it is concluded that higher the EPS of the company higher will be the market price of share in the capital market.

4.5.2 Higher the Cash Dividend Higher the Share Price

To know the view of the respondents about higher the cash dividend higher the share price a question was asked, " Are you agree with statement that higher the

cash dividend higher the share price?" The different responses received from the respondents are tabulated as follows:

Table 4.25: Higher the Cash Dividend Higher the Share Price

Respondent groups	Yes		No		Don't Know		Total	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent
Individual investors	25	27.78	5	5.55	20	22.22	50	55.55
Stock brokers	8	8.89	5	5.55	2	2.22	15	16.67
Listed companies	13	14.44	8	8.89	4	4.44	25	27.78
Total	46	51.11	18	19.99	26	28.89	90	100.00

Source: Opinion Survey

From the above table it is observed that higher the cash dividend higher will be the share price. It is observed that out of total 110 samples collected, 51.11 percent of the respondents felt that higher the cash dividend higher the share price whereas 19.99 percent of respondents were not agree and 28.89 percent of respondents were not known with the statement that higher the cash dividend higher the share price. So, it is concluded that cash dividend is also the determining factors of the share price. In this way, increase in cash dividend increase in the market price of share and vice-versa as opinioned by the 51.11 percent respondent groups.

4.5.3 Relationship between Growth Rate and Share Price

To know the view of the respondents about relationship between growth rate and share price a question was asked, "Is there positive relationship between growth rate and share price?" the responses of the different respondent groups are as follows:

Table 4.26: Relationship between Growth Rate and Share Price

Respondent groups	Yes		No		Don't Know		Total	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent
Individual investors	22	24.44	11	12.22	17	18.88	50	55.55
Stock brokers	12	13.33	3	3.33	0	0	15	16.67
Listed companies	18	20	7	7.77	0	0	25	27.78
Total	52	57.77	21	23.32	17	18.88	90	100.00

Source: Opinion Survey

From the above table, it is found that 57.77 percent respondents accept that the growth rate of the company increase the share price of the company. However, 23.32 percent respondents didn't accept and 18.88 percent respondents have given the response of unknown. Among those respondents who showed their acceptance to this view, 24.44 percent were individual investors, 13.33 percent were stockbrokers and 20 percent were listed companies. So it is concluded that there is positive relationship between growth rate and share price of the company.

4.5.4 Relationship between Net worth and share price

to know the view of the respondents about the relationship between interest rate and share price a question was asked," is there positive relationship between interest rate and share price?" the response of the different respondent group are as follows:

Table 4.27: Relationship between net worth and share price

Respondent groups	Yes		No		Don't Know		Total	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent
Individual investors	35	38.89	8	8.89	7	7.78	50	55.56
Stock brokers	10	11.11	6	6.67	4	4.44	20	22.22
Listed companies	13	14.44	7	7.78	0	0.00	20	22.22
Total	58	64.44	21	23.34	11	12.22	90	100.00

Source: Opinion Survey

From the above table, it is found that 64.44 percent respondents accept that the net worth of the company increase the share price of the company. However, 23.34 percent respondents didn't accept and 12.22 percent respondents have given the response of unknown there. among those respondents who showed their acceptance to this view.38.89 percent were individual investors,11.11 percent were stockbrokers 14.44 percent were listed companies .so it is concluded that there is positive relationship between net worth and share price of the company.

4.5.5 Relationship between required rate of return (ke) with MPS

To know the view of the respondents about relationship between required rate of return and MPS a question was asked, "is there positive relationship between required rate of return and MPS?" the response of the different respondents groups are as follows:

Table 4.29: Relationship between required rate of return (ke) with MPS

Respondent groups	Yes		No		Don't Know		Total	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent
Individual investors	25	27.18	12	13.33	10	11.11	47	52.22
Stock brokers	13	14.45	8	8.89	0	0.00	21	23.33
Listed companies	10	11.11	53.34	28	14	15.55	90	100.00

Source: Opinion Survey

From the above table, it is found that 53.34 percent respondents accept that the required rate of return (Ke) of the company increase the MPS of the company. However 31.11 percent respondents didn't accept and 15.55 percent respondents have given the response of unknown. Among those respondents who showed their acceptance to this view. According to acceptable basis, 27.78 percent were individual investors, 14.45 percent were stock brokers and 11.11 percent were listed companies. So, it is concluded that there is positive relationship between required rate of return (Ke) and Mps.

4.5.6 Relationship between interest rate and share price

To know the view of the respondents about the relationship between interest rate and share price a question was asked, "is there positive relationship between interest rate and share price?" the response of the different respondent group are as follows:

Table 4.29: Relationship between interest rate and share price

Respondent groups	Yes		No		Don't Know		Total	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent
Individual investors	32	35.55	11	12.22	7	7.77	50	55.55
Stock brokers	4	4.44	11	12.22	0	0	15	16.67
Listed companies	18	20	5	5.55	2	2.22	25	27.78
Total	54	59.99	27	29.99	9	9.99	90	100.00

Source:-opinion survey

From the above table it is observed that 59.99% respondents accepts that there is positive relationship between interest rate and share price.however,29.99 percent respondents did not agree to this view and 9.99 percent respondents have given their respondents of 'Don't know'. Among those responses that did show their acceptance t this view, 35.55 percent were individual investors, 4.44 percent were stockbrokers and 20 percent were listed companies. So, it is concluded that increase rate increase in share price and vice- versa.

4.5.7 Strikers, Political Instability Reduces the Share Price

To know the view of the respondents about strikes, political instability of government reduces the share prices a question was asked, "Do you agree that stakes, political instability and instability of government reduces the share price?" The response of the different respondent groups are as follows:

Table 4.30 : Strikes, Political Instability Reduces the Share price

Respondent groups	Yes		No		Don't Know		Total	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent
Individual investors	35	38.89	8	8.88	7	7.79	50	55.55
Stock brokers	12	13.33	3	3.33	0	0	15	16.67
Listed companies	25	27.78	0	0	0	0	25	27.78
Total	72	80.00	11	12.21	7	7.79	90	100.00

Source:-opinion survey

From the above table it is observed that 80 percent respondents did agree that strikes, political instability direct affects in the capital market and ultimately it reduce the share price. However, 12.21 percent respondents did not agree to this view and 7.79, respondents also have given responses of don't know. Among these responses that did show their agreement to this view, 38.89 percent were individual investors, 13.33 percent were stockbrokers and 27.78 percent were listed companies. So, it is concluded that share price of the company is directly influenced by the strikes, political instability and instability of government in the capital market of Nepal.

4.5.8 Lower Tax Rate Reduce the Share Price

To know the view of the respondents about the lower tax rate reduces the share price a question was asked " Is lower tax rate reducing the share price? The responses of the different respondents groups are as follows:

Table 4.31 : Lower Tax Rate Reduces the Share Price

Respondent groups	Yes		No		Doesn't Know		Don't Know		Total	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent
Individual investors	12	13.33	20	22.22	6	6.67	12	13.33	50	55.55
Stock brokers	2	2.22	11	12.22	3	3.33	0	0	15	16.67
Listed companies	10	11.11	6	6.67	4	4.44	5	5.56	25	27.78
Total	24	26.66	37	41.11	13	14.44	17	18.89	90	100.00

Source:-opinion survey

From the above table it is observed that 41.11 percent respondents did not accept that lower tax rate reduces the share price. However, 26.66 percent respondents did show their acceptance to this view, 14.44 percent respondents have given responses of 'Doesn't affect' and 18.89 percent respondents also have given responses of 'Don't know' about this view, 13.33 percent were individual investors, 2.22 percent were stock brokers and 11.11 percent were listed companies. So, by studying the view of the respondents it is concluded that, lower tax rate doesn't reduce the share price.

4.5.9 Better the National Economic Condition better the Share Price

To Know the view of the respondents about relationship between national economic condition and share price a question was asked, " Do you agree with this statement that better the national economic condition better the share price in

capital market?" The responses of the different respondent groups are tabulated as follows:

Table 4.32 : Better the National Economic Condition better the share price

Respondent groups	Yes		No		Don't Know		Total	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent
Individual investors	39	43.33	3	3.33	8	8.89	50	55.55
Stock brokers	13	14.44	2	2.22	0	0	15	16.67
Listed companies	15	16.67	8	8.89	2	2.22	25	27.78
Total	67	74.44	13	14.44	10	11.11	90	100.00

Source:-opinion survey

From the above table it is observed that 7.44 percent respondent respondents did show their agreement that better national economic condition better the share price in capital market. It means better national economic condition shows the potentiality of increasing in market share price of the listed companies. However, 14.44 percent respondents did not agree and 11.11 percent respondents have given the responses of 'Don't know' about it. In total individual investors 55.55 percent, stock brokers 16.67 percent and listed companies 27.78 percent. So, by studying the view of the responses it is concluded that market price of share is determined by the national economic condition.

4.5.10 Impact of Market Demand and Supply of Share price Determination

To know the view of the respondents about the impact of demand and supply to share price determination a question was asked, "Is share price affected by market

demand and supply?" The responses of the different respondent groups are tabulated as follows:

Table 4.33: Impact of Market Demand and Supply to Share Price Determination

Respondent groups	Yes		No		Don't Know		Total	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent
Individual investors	31	34.44	5	5.56	15	16.17	50	55.55
Stock brokers	13	14.44	2	2.22	0	0	15	16.67
Listed companies	21	23.33	4	4.44	0	0	25	27.78
Total	65	72.21	11	12.22	15	16.17	90	100.00

Source:-opinion survey

From the above table it is observed that is observed that 72.21 percent respondents did show their acceptance that market price of share is affected and determined by market demand and supply. However, 12.22 percent respondents did not show their acceptance and 16.67 percent respondents have given their responses of don't about it. So, by studying the view of the responses it is concluded that share price is determined by the market demand and supply. In this way, higher the demand higher will be share price and vice-versa. Among those responses that did show their acceptance to this view, 34.34 percent were individual investors, 14.44 percent were stockbrokers and 23.33 percent were listed companies.

4.5.11 Appropriateness and Effectiveness of the present Regulatory System of the Nepalese Capital Market

To know the view of the respondents about effectiveness of the present regulatory system of the Nepalese capital market a question was asked, "present

regulatory system of the capital market is appropriate and effective. Do you agree with this statement? The response of the different respondents of the different respondents groups are tabulated as follow:

Table 4.34: Appropriateness and Effectiveness of the present Regulatory System of the Nepalese Capital Market

Respondent groups	Yes		No		Don't Know		Total	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent
Individual investors	35	38.89	10	11.11	5	5.56	50	55.55
Stock brokers	14	15.56	1	1.11	0	0	15	16.67
Listed companies	16	17.78	9	10	0	0	25	27.78
Total	65	72.23	20	22.22	5	5.56	90	100.00

Source:-opinion survey

From the above table it is observed that 72.23 percent respondents agree that present regulatory system of the capital market is appropriate and effective. However, 23.33 percent respondents didn't agree to this view and 5.56 percent respondents have expressed their responses of ' Don't know' about it. Among those responses that didn't agree to this view, 38.89 percent were individual investors, 15.56 percent were stockbrokers and 17.78 percent were also listed companies. Among those response that agree to this view,38.89 percent were individual inverters, 15.56 percent were stockbrokers and 17.78 percent were also listed companies. So, by studying view of the responses it is concluded that present regulatory system of the capital market is not appropriate and effective for the expansion and development of the capital market. So it is necessary to improve the present regulatory system in the context of the economic liberalization and globalization.

4.5.12 Open out- Cry Trading System Discourage the Stock Brokers

To know the view of the respondents about open-out cry trading system discourage the stockbrokers a question was asked, "Does and open- out-cry trading system discourages the stock brokers in capital market? The responses of respondents groups are tabulated as follows:

Table 4.35 : Open out- Cry Trading System Discourage the Stock Brokers

Respondent groups	Yes		No		Don't Know		Total	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent
Individual investors	30	33.33	15	16.67	5	5.55	50	55.55
Stock brokers	7	7.78	8	8.89	0	0	15	16.67
Listed companies	10	11.11	15	16.67	0	0	25	27.78
Total	47	52.24	38	42.23	5	5.55	90	100

Source:-opinion survey

From the above table it is observed that 52.24 percent respondents accept that an open-out-cry trading system discourages the stockbrokers. However, 42.23 percent respondents did not accept to this view and 5.55 percent respondents have given the responses of the 'Not known'. Among those responses that accept to this view, 33.33 percent respondents were individual investors, 7.78 percent were stockbrokers and 11.11 percent were listed companies. So, by studying view of the responses it is concluded that the open-out-cry trading system in NEPSE doesn't discourage the stockbrokers. So there is no need to change the open-out-cry system.

4.5.13 Communication and Information Technology Affects the Share price

]To know the view of the respondents about the communication and information technology affects the market price of share a question was asked as, "Is share price affected by communication and information technology?" the responses of the different respondent groups are tabulated as below:

Table 4.36: Communication and Information Technology Affects the Share price

Respondent groups	Yes		No		Don't Know		Total	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent
Individual investors	41	45.56	2	2.2	7	7.78	50	55.55
Stock brokers	15	16.67	0	0	0	0	15	16.67
Listed companies	21	23.33	4	4.44	0	0	25	27.78
Total	77	85.56	6	6.66	7	7.8	90	100

Source:-opinion survey

From the above table it is observed that 85.56 percent respondents did accept that communication and information and information technology affects the share price. However, 6.66 percent respondents did not accept to this view and 7.78 percent respondents have given the response of the not known about it. Among those response that did accept to this view, 45.56 percent were individual investor, 23.33 percent were stockbrokers and 23.33 percent were the listed companies. So, studying view of the response, it is concluded that communication and information technology help to determine the market price of share in the capital market.

4.5.14 Transparency in the performance of the listed Companies

To know the view of the respondents about transparency in the performance of the listed companies a question as asked, as " Is there transparency in the performance of the listed companies?" the responses of the different respondent groups are tabulated as follows:

Table 4.37 : Transparency in the performance of the listed Companies

Respondent groups	Yes		No		Don't Know		Total	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent
Individual investors	7	7.78	38	42.22	5	5.56	50	55.55
Stock brokers	9	10	4	4.44	2	2.22	15	16.67
Listed companies	19	21.11	6	6.67	0	0	25	27.78
Total	35	38.89	48	53.33	7	7.78	90	100.00

Source:-opinion survey

From the above table it is observed that 53.33 percent respondents has given their responses that there is not transparency in there is not transparency in the performance of the listed companies. However, 38.89 percent respondent gave their responses that there is transparency in the performance of the listed companies, 42.22 percent were individual investors, 4.44 percent were stock brokers and 6.67 percent were listed companies. So, by studying view of the responses it is concluded that there is necessary to make the performance of the listed companies transparent.

4.6 Major Findings of the Study

On the presenting and analyzing the secondary data, the following important findings are observed:

1. From the trend analysis of the NEPSE index; it is found that NEPSE index is in fluctuating trend. This indicates that NEPSE index is not going to increase consistently. But now a day the NEPSE index is in increasing trend due to the political and economics stability.

2. MPS of NABIL bank ltd. positively correlated with DPS and EPS. The MPS is more volatile rather than DPS and EPS. But the DPS and EPS are less volatile and constant trend. But MPS and EPS are in increasing trend.

3. The MPS of the Lumbini Bank Ltd. Is negatively with DPS and EPS. The MPS is less volatile rather than DPS and EPS. But the DPS is more volatile and decreasing trend. MPS and EPS are in fluctuating order.

4. The MPS of the Narayani national finance co. ltd. is positively correlated with DPS and EPS. The MPS is less volatile and increasing trend also. The EPS is also in increasing trend.

5. The MPS of the NIDC capital Market is positively correlated with DPS and EPS. The EPS is less volatile than other indicators and in fluctuating trend. But the DPS is more volatile and in constant and zero trend. The EPS is in also fluctuating order.

6. The MPS of the prime Insurance company (Nepal) Ltd. is positively correlated with DPS. The MPS is less volatile and averagely increasing trend. The DPS is more volatile and increasing and constant trend. The EPS is increasing trend also.

7. The MPS the Prime Insurance Ltd. is positively corralled with DPS and EP

   S. The MPS is less volatile and averagely increasing trend. The DPS is more volatile and constant and zero trend. The EPS is increasing.

8. The MPS of the Nepal Oil Ltd. is negatively correlated with DPS and EPS. The MPS is less volatile rather than other indicator and averagely increasing trend. The EPS is more volatile and decreasing trend. The DPS is in increasing and constant trend.
9. The MPS of the National Trading Corporation Ltd. is positively correlated with DPS and EPS. The MPS is less volatile. The DPS is in constant trend but the EPS is more volatile and increasing trend.
10. Dividend per share, Earning per share and growth rate are the major indicators to measure the performance of the listed companies. These indicators play significant role to determine the share price in capital market. So, these indicators affect MPS.
11. Present numbers of the stockbrokers existing in Nepalese capital market are not adequate to serve the large number of investors.
12. There is positive relationship between interest rate market price of the share. So, increase in interest rate ultimately increases the share prices.
13. It is seen that NEPSE index is in fluctuating trend. It means that NEPSE is not going to increase consistently.
14. No. of listed companies in NESP also is in increasing trend. Similarly, no. of transacting companies is going to increase in NEPSE.
15. There is no consistent performance in the relationship of MPS with DPS and EPS among the eight sampled companies. It means these companies have

positive correlation coefficient between the MPS and DPS, EPS whereas some have negative correlation.

16. It is also seen that MPS of all the companies is less volatile and DPS is maximum volatile. In some cases, DPS and EPS increased by 1 percent then MPS also increased but this situation does not exist in all cases of the sampled companies.

CHAPTER V
SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Summary

Capital market is that market meant for long-term securities issued by the government or corporation. There are various instruments or securities used in the stock market like as share of stock, bonds or debentures, etc. efficient capital market helps to mobilize the financial resources and provides efficient channel to productive investment. So, development and expansion of capital market is essential for the rapid growth of the country. But, in the context of Nepal the concept of capital market is neither very old nor very complex. It is still in the beginning stages and different efforts have been made for the development of capital market since 1936 to till now. But also, Nepalese capital market got a proper structure only in the year 1993 when the securities board established as a regulatory body and stock trading commenced through the member brokers adopting open - out- cry auction system. When the NEPSE opened its trading floor n 13th january 1994, after that NEPSE has listed more than 198 public companies till now. Capital market proved to be one of the important segments of the national economy since it facilities and provides better institutional arrangements for the borrowing and lending of long term funds. Capital market is the general barometer that measures the proper collection and channelization of savings for investment in productive and income generating assets. The allocative efficiency in the use funds is the basis for measuring the performance of capital market.

Market efficiency is reflected by the efficient market hypothesis. In the real world of stock market, only the semi-strong and week form of market efficiency exist. All the currently available information is captured in the semi-strong form of market but in the weak form of market, the stock price movement shows no definite pattern. The stock price efficiency takes an important palace in the stock market. If there is imperfect competition in the stock markets, a wise investors attempt to utilize this opportunity to achieve a better return. But this perception has no

relational significance in the world of stock market where shares are efficiently priced. In the efficiency market, share price should move randomly upward and downward with the disclosure of new information. The value of share is determined by the demand and supplies factors and reflects the negotiation between investors and sellers for the transaction. The market value of share is also affected by various factors like expected earnings and dividends, interest rate, communication and information technology, economic condition of the nation, speculations, awareness of the investors, government rules and regulation regarding the stock market and other signaling effects like major events happened inside the country, strikes, political instability etc, in the context of Nepalese capital market, government is not able to create the basic infrastructure, sound polices and laws and their effective is not able to created the basic infrastructure, sound policies and laws and their effective implementation. Result of that there is not transparency in the performance of the listed companies. The stock investors have not got proper education and information to speculate the share price. So, the government should given high priority to develop the capital market in Nepal.

The present is based on both primary and secondary sources of data. Total eight listed companies are taking as sample from 130 total listed companies such as two commercial banks, two finance companies, two insurance companies, one manufacturing and one trading organization.

To meet the purpose of this, the quantitative variables are indicated and analyzed by correlation and regression analysis of secondary data of the eight sampled companies. To evaluate the qualitative factors that affects on the MPS, the study focused to collect the opinions from the three respondent groups through research questionnaires.

From the secondary data analysis, it is seen that NEPSE index is in fluctuating trend. It means that NEPSE is not going to increase consistently. number of listed companies in NESPE also is in increasing trend. Similarly, number of transacting companies is going to increase in NEPSE. There is no consistent performance in the relationship of MPS with DPS and EPS among the eight sampled companies. It means these companies have positive correlation coefficient between the MPS and DPS, EPS whereas some have negative correlation. It is also seen that MPS of all the companies is less volatile and DPS is maximum volatile. In some cases, DPS

and EPS increased by 1 percent then MPS also increased but this situation does not exist in all cases of the sample companies. The beta coefficient of the eight sample companies is less than one i.e. <1. It means eight companies are not sensitive to the market.

At last it is summarized that due t the lack of the adequate knowledge of individual investors and their unwillingness to use the service of the stock brokers and lack of assessing information regarding to share price of market in accurate manner, the real market price of share can't be reflected in almost cases in Nepal stock market.

5.2 Conclusion

The identification and analysis of affecting variables to the MPS has been attempted from the three respondent's group's i.e. individual investors, stock brokers and listed companies. In their opinion, dividend earning and growth rate of the organization affect MPS significantly in the capital market. Whereas present number of the stock brokers existing in capital market are not adequate to serve the large number of investors and increases in interest rate ultimately increased the share price. The factors related the environmental forces instability of the government, strike, communication, information technology have significant affect not he MPS of the listed companies. The most of the listed companies are serious towards shareholder's interest. It is also concluded that lower tax rate doesn't reduce the share price. The performance of the listed companies transparent so, there is necessary to make the performance of the listed companies transparent. The present regulatory system of the Nepalese capital market is not appropriate and effective. Similarly, the open-out-cry trading system has not discouraged the stock brokers in the floor of NEPSE.

It is concluded that the determining factors of the MPS are not only DPS, and EPS but there are other several factors which determines the MPS like BPS, ratio etc. to generalize the response of the different respondent groups, the market price of share is affected by DPS, EPS, demand and supply, instability of government, strikes , economic conduction of the nation, growth rate of the organization, communication and information technology. on other hand the MPS is not affected by low tax rate and open- cut- cry system has not discouraged the stock brokers in their service. From the above analysis, it is also concluded that the NEPSE index, no. of listed

companies and no. of transacted companies in Nepalese capital market are in increasing trend. This trend shows that there is possibility of growing the Nepalese capital market in future positive due to the present favorable condition of the Nepalese business environment.

5.3 Recommendation

The Nepalese capital market has grown in the country as an important base for the collection, mobilization and utilization of needed funds in the listed public companies. Still now, the numbers of listed companies in the NEPSE are not enough in comparison of other developing counters. To increase the number of listed companies in the NEPSE and improve the behavior of the individual investors towards the investment in the securities. The following recommendations are made on the basics of findings and conclusion.

1. Investors are also responsible for facing losses from capital market especially when they behave irrationally without applying careful and prudential judgment in their investment decision. Investors at present are not vigilante and very much consciousness enough to invest in securities. So, investors should be to their invested decision and what will be helpful t determine the MPS through demand and supply forces. Before taking investment decision in stock market, investors should always be aware of the daily share price; volume stock traded rules and regulation of the stock market and related listed companies. In other hand, most of the investors hesitate to get the adequate information from the listed companies and accept the decision whatever the management of the companies decided. In this way, it is suggested that the investors should try to analyze the market situation on the basis of the risk and return analysis.
2. In the context of Nepalese stock market, there is necessary to make a better information disclosure system. Listed companies should submit their financial transactions reports timely. There should transparency in the performance of the listed companies. Listed companies should disclose the information timely and frequently on the basis of actual performance by means of communication and information technology to the stockbrokers. Listed companies should also organize their Annual General Meeting (AGM) and audit within specified time. But, in the opinions of the

respondents it is found that listed companies are serious towards shareholder's interest.

3. Stockbrokers are the financial intermediates between the investors and listed companies. They have a significant role; responsibility and duties to created and operate the capital market opportunities. But professional ethnics of the brokers are questioned in different public gathering and investor's forum. There is no clear- cut laws or professional code of conduct to curb the unfair trading practices of the brokers. So SEBO/N should formulate the guidelines for professional code of conduct of stock brokering companies in order to make stock brokering business more credible and transparent along with specifying clearly the duties and responsibilities of the stockbrokers towards their clients, other financial intermediaries and regulatory bodies. For contributing the development of capital market it is suggested that, the stockbrokers should provide their kindly, friendly, relation and adequate advices to their investors and increase their knowledge and professionalism. The existing present number of the stockbrokers is not adequate to serve the large number of investors. So, there should increase the number of stockbrokers to some extent.

4. The representation of investors in securities Board is necessary to represent common investor's interest. Moreover, there should be investor's representation in NEPSE board.

5. Timely and accurate flow of information as provisioned in law needs to be followed strictly followed to inform the investors about what is happening in the company. The parities of providing false statement in prospectus should be discouraged.

6. SEBO/N should establish enforceable action committee to compensate the investors suffering from losses caused by investment done on the basis of frauds detected in prospectus.

7. NEPSE has to open stock exchange in out-sided the Katmandu valley to provide the opportunity to all investors and facilitate and promote public transactions. In other words there should expand securities exchange

facilities in other places of the country considering its feasibility for the savers residing there.

8. The MPS is affected by the economic condition of the nation. So, the government should give property to develop the economic infrastructure.
9. The MPS is also affected by the communication and information technology. So the government should give priority and increase the investment in the development, expansion and promotion of communication and information technology.

10. The MPOS is reduced by strikes, political instability and other events happening inside the country. So, there should be political stability and eliminated the strikes culture.

11. There should make the securities trading process and financial statement of the issuer companies more credible and transparent

12. There should develop clear regulatory benchmarking of SEBON and NEPSE.

13. There should provide training education on different aspects of the stock market and make institution arrangement for regular study and research

14. False financial statement of listed companies should be properly identified by concern authority.

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Dear respondents,

I am a student of MBS and conduction a study on " Stock Price Behavior in Nepalese Capital Market" in the partial fulfillment of the requirement for the degree of master in Business studies (MBS) I need your help in this Endeavour. All the information obtained from the questionnaire would be strictly kept confidential and used only for the purpose of this study in this matter.

Name : Age : Occupation :

Academic qualification:

1. How do you consider investment in shares as an investment opportunity?
   a. Yes
   b. No
   c. Don't Know
2. How many of your family members have know about share market?
   a. Your self
   b. Children
   c. Other family members
3. ' Is there higher the FPS higher the share price" do you agree with it?
   a. Yes
   b. No
   c. Don't Know
4. The two different taxes that government impose are capital gain and dividend gain tax. Does this tax effect your interest?
   a) Yes
   b) No
   c) Don’t know
5. Are you agree with statement that higher the cash dividend higher the share price?
   a. Yes
   b. No
   c. Don’t know
6. Is there positive relationship between growth rate and share price?

a. Yes b. No c. Don't Know

7. Is these positive relationship between interest rate and share price?
    a. Yes
    b. No
    c. Don’t Know
8. Do you agree that strikers, political instability and instability of government reduces the share price ?
    a. Yes
    b. No
    c. Don't Know
9. Do you agree with this statement that better the national economic condition better the share price in capital market?
    a. Ye
    b. No
    c. Don't Know
10. " Is share price affected by market demand and supply" do you agree with it ?
    a. Yes
    b. No
    c. Don't Know
11. " Present regulatory system of the capital market is appropriate and effective, Do you agree with this statement?
    a. Yes
    b. No
    c. Don't Know
12. Does the open out cry trading system discourages the stock brokers in capital market?
    a. Yes
    b. No
    c. Don't Know

13. Is there price affected by communication and information technology?
    a. Yes
    b. No
    c. Don't Know
14. "Is there transparency in the performance of the listed companies" do you agree with it ?
    a. Yes
    b. No
    c. Don't Know
15. Which is the group of Respondents get highest percentage?
    a. Individual investors
    b. stock brokers
    c. Listed companies in NEPSE
16. "Is there positive relationship between Net worth and stock price" Do you agree with it?
    a. Yes
    b. No
    c. Don't Know
17. " Is there positive relationship between Required rate of return (Ke) and MPS" do you agree with it ?
    a. Yes
    b. No
    c. Don't Know

I appreciate your valuable co-operation and information that provided with at which I could not complete My study. I express my sincere grated to all respondents who help a lot in my work.

"Thank you very much"

APPENDIX – I

For 2000/01, Y_c = a+bx
= 455.05+61.17x(4.5)
= 179.79

For 2001/02, Y_c = a+bx
= 455.05+61.17x(3.5)
= 240.96

For 2002/03, Y_c = a+bx
= 455.05+61.17x (2.5)
= 302.30

For 2003/04, Y_c = a+bx
= 455.05+61.17x (1.5)
= 363.30

For 2004/05, Y_c = a+bx
= 455.05+61.17 x (0.5)
= 424.47

For 2005/06, Y_c = a+bx
= 455.05+61.17x0.5
= 485.64

For 2006/07, Y_c = a+bx
= 455.05+61.17x1.5
= 546.81

For 2007/08, Y_c = a+bx
= 455.05+61.17x2.5
= 607.98

For 2008/09, Y_c = a+bx
= 455.05+61.17x3.5
= 669.16

For 2009/10, Y_c = a+bx
= 455.05+61.17x4.5
= 730.32

Source : SEBON, Annual Report of 2009 / 2010

APPENDIX – III

For MPS (X_1)

$$\pm = \sqrt{\frac{\sum x^2}{n} - \left(\frac{\sum x}{n}\right)^2}$$

$$= \sqrt{\frac{5437355}{10} - \left(\frac{6541}{10}\right)^2}$$

$$= \sqrt{111955.90}$$

$$=334.60$$

$$CV = \frac{\pm}{\bar{x}} \times 100$$

$$= \frac{334.60}{657.10} \text{ x } 100$$

$$= 0.5092$$

For DPS (X_2)

$$\pm = \sqrt{\frac{\sum x^2}{n} - \left(\frac{\sum x}{n}\right)^2}$$

$$= \sqrt{\frac{3025}{10} - \left(\frac{155}{10}\right)^2}$$

$$= \sqrt{302.50 - 240.25}$$

$$= \sqrt{62.25}$$

$$=7.89$$

$$CV = \frac{\pm}{\bar{x}} \times 100$$

$$= \frac{7.89}{15.50} \text{ x } 100$$

$$= 0.5090$$

For DPS (X_2)

$$\pm = \sqrt{\frac{\sum x^2}{n} - \left(\frac{\sum x}{n}\right)^2}$$

$$= \sqrt{\frac{3025}{10} - \left(\frac{155}{10}\right)^2}$$

$$= \sqrt{302.50 - 240.25}$$

$$= \sqrt{62.25}$$

$$=7.89$$

$$CV = \frac{\pm}{\bar{x}} \times 100$$

$$= \frac{7.89}{15.50} \text{ x } 100$$

$$= 0.5090$$

For EPS (X_3)

$$\pm = \sqrt{\frac{\sum x^2}{n} - \left(\frac{\sum x}{n}\right)^2}$$

$$= \sqrt{\frac{12275.74}{10} - \left(\frac{340.26}{10}\right)^2}$$

$$= \sqrt{1227.57 - 1157.77}$$

$$= \sqrt{69.80}$$

$$= 8.35$$

$$CV = \frac{\pm}{\bar{x}} \times 100$$

$$= \frac{8.35}{34.026} \text{ x } 100$$

$$= 0.2455$$

Calculation of correlation of MPS with DPS and EPS

$$r_{x_1x_2} = \frac{n\times\sum x_1x_2 - \sum x_1 \times \sum x_2}{\sqrt{n\times\sum x_1^{\,2} - \left(\sum x_1\right)^2}\sqrt{n\times\sum x_2^{\,2} - \left(\sum x_2\right)^2}}$$

$$= \frac{10\times 112205 - 6571\times 155}{\sqrt{10\times 5437355 - (6571)^2}\sqrt{10\times 30250 - (155)^2}}$$

$$= 0.3922$$

$$r_{x_1x_3} = \frac{n\times\sum x_1x_3 - \sum x_1 \times \sum x_3}{\sqrt{n\times\sum x_1^{\,2} - \left(\sum x_1\right)^2}\sqrt{n\times\sum x_3^{\,2} - \left(\sum x_3\right)^2}}$$

$$= \frac{10\times 246843.25}{\sqrt{10\times 5437355 - (6541)^2}\sqrt{10\times 12275.74 - (3402)^2}}$$

$$= 0.8320$$

Calculation of Different Sum

x_1	x_2	x_3	x_1^2	x_2^2	x_3^2	$x_1.x_2$	$x_1.x_3$
184	0	20.86	33856.00	0	435.14	0.0000	3838.24
107	15	21.03	11449.00	225	442.26	1605.00	2250.21
980	20	34.39	960400.00	400	1182.67	19600.00	337022.00
750	0	31.56	562500.00	0	996.03	0.0000	23670.00
430	20	32.19	184900.00	400	1083.07	8600.00	14151.00
445	20	29.90	198025.00	400	894.01	8900.00	13305.50
680	20	45.58	462400.00	400	2077.54	13600.00	30994.40
870	20	37.54	756900.00	400	1409.25	17400.00	32659.50
995	20	40.46	990025.00	400	1637.01	19900.00	40257.70
1130	20	46.03	1276900.00	400	2118.76	22600.00	52013.90
$\sum x_1 =$ 6571	$\sum x_2 =$ 155	$\sum x_3 =$ 340.26	$\sum x_1^2 =$ 5437355	$\sum x_2^2 =$ 3025	$\sum x_3^2 =$ 12275.74	$\sum x_1 x_2 =$ 112205.00	$\sum x_1 x_3 =$ 246843.25

Source:- SEBON

APPENDIX – II

For MPS (X_1)

$$\pm = \sqrt{\frac{\sum x^2}{n} - \left(\frac{\sum x}{n}\right)^2}$$

$$= \sqrt{\frac{9163910}{10} - \left(\frac{9318}{10}\right)^2}$$

$$= \sqrt{916391 - 862851.24}$$

$$= 219.41$$

$$CV = \frac{\pm}{\bar{x}} \times 100$$

$$= \frac{219.41}{931.80} \text{ x } 100$$

$$= 0.2355$$

For DPS (X_2)

$$\pm = \sqrt{\frac{\sum x^2}{n} - \left(\frac{\sum x}{n}\right)^2}$$

$$= \sqrt{\frac{8468.69}{10} - \left(\frac{248.7}{10}\right)^2}$$

$$= \sqrt{764.37 - 618.52}$$

$$= 12.08$$

$$CV = \frac{\pm}{\bar{x}} \times 100$$

$$= \frac{12.08}{24.87} \text{ x } 100$$

$$= 0.4857$$

For EPS (X_3)

$$\pm = \sqrt{\frac{\sum x^2}{n} - \left(\frac{\sum x}{n}\right)^2}$$

$$= \sqrt{\frac{21253.90}{10} - \left(\frac{447.97}{10}\right)^2}$$

$$= \sqrt{2125.39 - 2006.77}$$

$$= 10.89$$

$$CV = \frac{\pm}{\bar{x}} \times 100$$

$$= \frac{10.89}{44.80} \text{ x } 100$$

$$= 0.2431$$

Calculation of correlation of MPS with, DPS and EPS

$$rx_1x_2 = \frac{n \times \sum x_1x_2 - \sum x_1 \times \sum x_2}{\sqrt{n \times \sum x_1^2 - \left(\sum x_1\right)^2}\sqrt{n \times \sum x_2^2 - \left(\sum x_2\right)^2}}$$

$$= \frac{10 \times 203312 - 9318 \times 248.70}{\sqrt{10 \times 9163910 - (9318)^2}\sqrt{10 \times 846869 - (248.70)2}}$$

$$= -0.0447$$

$$rx_1x_3 = \frac{n \times \sum x_1x_3 - \sum x_1 \times \sum x_3}{\sqrt{n \times \sum x_1^2 - \left(\sum x_1\right)^2}\sqrt{n \times \sum x_3^2 - \left(\sum x_3\right)^2}}$$

$$= \frac{10 \times 416215.90 - 9318 \times 447.97}{\sqrt{10 \times 9163910 - (9318)^2}\sqrt{10 \times 21253.90 - (447.97)^2}}$$

$$= \frac{-12025.46}{2194.08 \times 108.91}$$

$$= -0.0503$$

Calculation of Different Sum

x_1	x_2	x_3	x_1^2	x_2^2	x_3^2	$x_1.x_2$	$x_1.x_3$
600	50	69.33	360000	2500	4806.65	300	41598.00
822	30	33.76	675684	900	1139.74	24660	27750.72
1401	50	53.68	1962801	2500	2881.54	70050	75205.68
1150	0	33.18	1322500	0	1100.91	0	38157.00
760	30	33.60	577600	900	1128.96	22800	25536.00
795	20	39.56	632025	400	1564.99	15900	31450.20
940	15	51.70	883600	225	2672.89	14100	48598.00
800	12.5	39.31	640000	156.25	1545.28	100000	31448.00
960	16.2	44.80	921600	262.44	2007.04	15552	43008.00
1090	25	49.05	1188100	625	2405.90	27250	53464.50
$\sum x_1 =$ 9318	$\sum x_2 =$ 248.70	$\sum x_3 =$ 447.97	$\sum x_1^2 =$ 9163910	$\sum x_2^2 =$ 8468.69	$\sum x_{3^1}^2 =$ 21253.90	$\sum x_1 x_2 =$ 203312	$\sum x_1 x_3 =$ 416215.70

Source:- SEBON

APPENDIX – IV

Calculation of S.D (±)

For MPS (x_1)

$$\pm = \sqrt{\frac{\sum x^2}{n} - \left(\frac{\sum x}{n}\right)^2}$$

$$= \sqrt{\frac{483487}{10} - \left(\frac{2053}{10}\right)^2}$$

$$= \sqrt{48348.70 - 42148.09}$$

$$= 78.74$$

$$CV = \frac{\pm}{\bar{x}} \times 100$$

$$= \frac{78.74}{205.30} \text{ x } 100$$

$$= 0.3835$$

For DPS (X_2)

$$\pm = \sqrt{\frac{\sum x^2}{n} - \left(\frac{\sum x}{n}\right)^2}$$

$$= \sqrt{\frac{5598}{10} - \left(\frac{198}{10}\right)^2}$$

$$= \sqrt{559.80 - 392.04}$$

$$= 12.95$$

$$CV = \frac{\pm}{\bar{x}} \times 100$$

$$= \frac{12.95}{19.80} \text{ x } 100$$

$$= 0.6542$$

For EPS (X_3)

$$\pm = \sqrt{\frac{\sum x^2}{n} - \left(\frac{\sum x}{n}\right)^2}$$

$$= \sqrt{\frac{6939.20}{10} - \left(\frac{242.24}{10}\right)^2}$$

$$= \sqrt{693.92 - 586.80}$$

$$= 10.35$$

$$CV = \frac{\pm}{\bar{x}} \times 100$$

$$= \frac{10.35}{24.224} \text{ x } 100$$

$$= 0.4273$$

Calculation of correlation of MPS with, DPS and EPS

$$r_{x_1x_2} = \frac{n \times \sum x_1x_2 - \sum x_1 \times \sum x_2}{\sqrt{n \times \sum x_1^2 - \left(\sum x_1\right)^2}\sqrt{n \times \sum x_2^2 - \left(\sum x_2\right)^2}}$$

$$= \frac{10 \times 42646 - 2053 \times 198}{\sqrt{10 \times 483487 - (2053)^2}\sqrt{10 \times 5598 - (198)2}}$$

$$= \frac{19966}{787.44 \times 129.52}$$

$$= 0.1958$$

$$r_{x_1x_3} = \frac{n \times \sum x_1x_3 - \sum x_1 \times \sum x_3}{\sqrt{n \times \sum x_1^2 - \left(\sum x_1\right)^2}\sqrt{n \times \sum x_3^2 - \left(\sum x_3\right)^2}}$$

$$= \frac{10 \times 55189.66 - 2053 \times 242.24}{\sqrt{10 \times 483487 - (2053)^2}\sqrt{10 \times 6936.20 - (242.24)^2}}$$

$$= \frac{54167.28}{787.44 \times 103.35}$$

$$= 0.6656$$

Calculation of Different Sum

x_1	x_2	x_3	x_1^2	x_2^2	x_3^2	$x_1.x_2$	$x_1.x_3$
95	12	17.00	9025	144	289	1140	1615.00
98	16	21.30	9604	256	453.69	1568	2087.70
295	20	31.25	87025	400	976.56	5900	9218.75
321	23	37.55	103041	529	1410.00	7383	12053.55
305	12	37.05	93025	144	1372.70	3660	11300.25
235	50	33.85	55225	2500	1145.82	11750	7954.75
205	0	2.77	42025	0	767	0	567.85
138	10	17.97	19044	100	322.92	1380	2479.86
168	30	19.33	28224	900	373.65	5040	3247.44
193	25	24.17	37249	625	584.19	4825	46.64.81
$\sum x_1 =$ 2053	$\sum x_2 =$ 198	$\sum x_3 =$ 242.24	$\sum x_1^2 =$ 483487	$\sum x_2^2 =$ 5598	$\sum x_3^2 =$ 6936.20	$\sum x_1 x_2 =$ 42646	$\sum x_1 x_3 =$ 55189.66

Source:- SEBON

APPENDIX – V

Calculation of S.D (±)

For MPS (x_1)

$$\pm = \sqrt{\frac{\sum x^2}{n} - \left(\frac{\sum x}{n}\right)^2}$$

$$= \sqrt{\frac{703923}{10} - \left(\frac{2139}{10}\right)^2}$$

$$= \sqrt{70392.30 - 45753.21}$$

$$= 156.97$$

$$CV = \frac{\pm}{\bar{x}} \times 100$$

$$= \frac{.156.97}{213.90} \text{ x } 100$$

$$= 0.7759$$

For DPS (X_2)

$$\pm = \sqrt{\frac{\sum x^2}{n} - \left(\frac{\sum x}{n}\right)^2}$$

$$= \sqrt{\frac{1125}{10} - \left(\frac{75}{10}\right)^2}$$

$$= \sqrt{112.50 - 56.25}$$

$$= 7.50$$

$$CV = \frac{\pm}{\bar{x}} \times 100$$

$$= \frac{7.50}{7.50} \text{ x } 100$$

$$= 1.0000$$

For EPS (X_3)

$$\pm = \sqrt{\frac{\sum x^2}{n} - \left(\frac{\sum x}{n}\right)^2}$$

$$= \sqrt{\frac{4679.37}{10} - \left(\frac{171.20}{10}\right)^2}$$

$$= \sqrt{467.94 - 293.09}$$

$$= 13.22$$

$$CV = \frac{\pm}{\bar{x}} \times 100$$

$$= \frac{13.22}{17..12} \text{ x } 100$$

$$= 0.7722$$

Calculation of correlation of MPS with, DPS and EPS

$$rx_1x_2 = \frac{n \times \sum x_1x_2 - \sum x_1 \times \sum x_2}{\sqrt{n \times \sum x_1^2 - \left(\sum x_1\right)^2}\sqrt{n \times \sum x_2^2 - \left(\sum x_2\right)^2}}$$

$$= \frac{10 \times 21525 - 2139 \times 75}{\sqrt{10 \times 703923 - (2139)^2}\sqrt{10 \times 1125 - (75)2}}$$

$$= \frac{54825}{1569.68 \times 75}$$

$$= 0.4657$$

$$rx_1x_3 = \frac{n \times \sum x_1x_3 - \sum x_1 \times \sum x_3}{\sqrt{n \times \sum x_1^2 - \left(\sum x_1\right)^2}\sqrt{n \times \sum x_3^2 - \left(\sum x_3\right)^2}}$$

$$= \frac{10 \times 41551.94 - 2139 \times 171.20}{\sqrt{10 \times 703923 - (2139)^2}\sqrt{10 \times 4239.12 - (171.20)^2}}$$

$$= \frac{49322.60}{1569.68 \times 114.38}$$

$$= 0.2747$$

Calculation of Different Sum

x_1	x_2	x_3	x_1^2	x_2^2	x_3^2	$x_1.x_2$	$x_1.x_3$
82	0	14.55	6724	0	211.70	0	1193.10
100	15	29.30	10000	225	858.49	1500	2930.00
415	15	20.95	172225	225	438.90	6225	8694.25
600	15	25.95	360000	225	673.40	9000	15570.00
175	15	2.52	30625	225	6.35	2625	441.00
125	0	(9.93)	15625	0	95.60	0	(1241.25)
107	0	25.07	11449	0	1229.90	0	2682.49
145	15	20.02	21025	225	196.56	2175	2902.90
185	0	19.42	34225	0	420.25	0	3592.70
205	0	23.35	42025	0	545.22	0	4786.75
$\sum x_1 =$ 2139	$\sum x_2 =$ 75	$\sum x_3 =$ 171.20	$\sum x_1^2 =$ 703923	$\sum x_2^2 =$ 1125	$\sum x_2^2 =$ 4239.12	$\sum x_1 x_2 =$ 21525	$\sum x_3^2 =$ 41551.94

Source:- SEBON

APPENDIX – VI

Calculation of S.D (±)

For MPS (x_1)

$$\pm = \sqrt{\frac{\sum x^2}{n} - \left(\frac{\sum x}{n}\right)^2}$$

$$= \sqrt{\frac{420573}{10} - \left(\frac{19999}{10}\right)^2}$$

$$= \sqrt{42057.30 - 39960.01}$$

$$= 45.80$$

$$CV = \frac{\pm}{x} \times 100$$

$$= \frac{45.80}{199.90} \text{ x } 100$$

$$= 0.2291$$

For DPS (X_2)

$$\pm = \sqrt{\frac{\sum x^2}{n} - \left(\frac{\sum x}{n}\right)^2}$$

$$= \sqrt{\frac{963}{10} - \left(\frac{91}{10}\right)^2}$$

$$= \sqrt{96.30 - 82.81}$$

$$= 3.67$$

$$CV = \frac{6}{x} \times 100$$

$$= \frac{3.67}{9.10} \text{ x } 100$$

$$= 0.4036$$

For EPS (X_3)

$$\pm = \sqrt{\frac{\sum x^2}{n} - \left(\frac{\sum x}{n}\right)^2}$$

$$= \sqrt{\frac{7189.71}{10} - \left(\frac{255.25}{10}\right)^2}$$

$$= \sqrt{718.97 - 651.53}$$

$$= 8.21$$

$$CV = \frac{\pm}{\bar{x}} \times 100$$

$$= \frac{8.21}{25.525} \text{ x } 100$$

$$= 0.3216$$

Calculation of correlation of MPS with, DPS and EPS

$$rx_1x_2 = \frac{n \times \sum x_1x_2 - \sum x_1 \times \sum x_2}{\sqrt{n \times \sum x_1^2 - \left(\sum x_1\right)^2}\sqrt{n \times \sum x_2^2 - \left(\sum x_2\right)^2}}$$

$$= \frac{10 \times 18460 - 1999 \times 91}{\sqrt{10 \times 420573 - (19999)^2}\sqrt{10 \times 963 - (91)2}}$$

$$= \frac{2681}{457.96 \times 36.73}$$

$$= 0.1594$$

$$rx_1x_3 = \frac{n \times \sum x_1x_3 - \sum x_1 \times \sum x_3}{\sqrt{n \times \sum x_1^2 - \left(\sum x_1\right)^2}\sqrt{n \times \sum x_3^2 - \left(\sum x_3\right)^2}}$$

$$= \frac{10 \times 51855.79 - 1999 \times 255.25}{\sqrt{10 \times 420573 - (1999)^2}\sqrt{10 \times 7189.71 - (255.25)^2}}$$

$$= \frac{8313.15}{457.96 \times 82.13}$$

$$= 0.2210$$

Calculation of Different Sum

x_1	x_2	x_3	x_1^2	x_2^2	x_3^2	$x_1.x_2$	$x_1.x_3$
122	10	18.07	14884	100	326.52	1220	2204.54
125	10	19.17	15625	100	367.49	1250	2396.25
250	10	19.70	62500	100	388.09	2500	4925.00
220	13	27.37	48400	169	749.12	2860	6021.40
170	10	28.73	28900	100	825.41	1700	4884.10
192	0	19.90	36864	0	396.01	0	3820.80
210	5	25.13	44100	25	631.52	1050	5277.30
210	10	46.68	44100	100	2179.02	2100	9802.80
240	10	30.32	57600	100	919.30	2400	7276.80
260	13	20.18	67900	169	407.23	3380	5246.80
$\sum x_1 =$ 1999	$\sum x_2 =$ 91	$\sum x_3 =$ 255.25	$\sum x_1^2 =$ 420573	$\sum x_2^2 =$ 963	$\sum x_3^2 =$ 7189.71	$\sum x_1 x_2 =$ 18460	$\sum x_1 x_3 =$ 51855.79

Source:- SEBON

APPENDIX – VII

Calculation of S.D (±)

For MPS (x_1)

$$\pm = \sqrt{\frac{\sum x^2}{n} - \left(\frac{\sum x}{n}\right)^2}$$

$$= \sqrt{\frac{246979}{10} - \left(\frac{1495}{10}\right)^2}$$

$$= \sqrt{24697.90 - 22350.25}$$

$$= 48.45$$

$$CV = \frac{\pm}{\bar{x}} \times 100$$

$$= \frac{48.45}{149.50} \text{ x } 100$$

$$= 0.3241$$

For DPS (X_2)

$$\pm = \sqrt{\frac{\sum x^2}{n} - \left(\frac{\sum x}{n}\right)^2}$$

$$= \sqrt{\frac{750}{10} - \left(\frac{60}{10}\right)^2}$$

$$= \sqrt{75.00 - 36.00}$$

$$= 6.24$$

$$CV = \frac{\pm}{\bar{x}} \times 100$$

$$= \frac{6.24}{6.00} \text{ x } 100$$

$$= 1.0400$$

For EPS (X_3)

$$\pm = \sqrt{\frac{\sum x^2}{n} - \left(\frac{\sum x}{n}\right)^2}$$

$$= \sqrt{\frac{2049.54}{10} - \left(\frac{130.52}{10}\right)^2}$$

$$= \sqrt{204.95 - 170.35}$$

$$= 5.88$$

$$CV = \frac{\pm}{x} \times 100$$

$$= \frac{5.88}{13.052} \text{ x } 100$$

$$= 0.4507$$

Calculation of correlation of MPS with, DPS and EPS

$$rx_1x_2 = \frac{n \times \sum x_1x_2 - \sum x_1 \times \sum x_2}{\sqrt{n \times \sum x_1^2 - \left(\sum x_1\right)^2}\sqrt{n \times \sum x_2^2 - \left(\sum x_2\right)^2}}$$

$$= \frac{10 \times 9960 - 1495 \times 60}{\sqrt{10 \times 246979 - (1495)^2}\sqrt{10 \times 750 - (60)2}}$$

$$= \frac{9900}{484.53 \times 62.45}$$

$$= 0.0272$$

$$rx_1x_3 = \frac{n \times \sum x_1x_3 - \sum x_1 \times \sum x_3}{\sqrt{n \times \sum x_1^2 - \left(\sum x_1\right)^2}\sqrt{n \times \sum x_3^2 - \left(\sum x_3\right)^2}}$$

$$= \frac{10 \times 21817.46 - 1495 \times 130.52}{\sqrt{10 \times 246979 - (1495)^2}\sqrt{10 \times 2049.54 - (130.52)^2}}$$

$$= \frac{23047.20}{484.53 \times 58.82}$$

$$= 0.8087$$

Calculation of Different Sum

x_1	x_2	x_3	x_1^2	x_2^2	x_3^2	$x_1.x_2$	$x_1.x_3$
115	0	9.87	13225	0	97.42	0	1135.05
140	10	10.69	19600	100	114.12	1400	1496.60
270	10	19.61	72900	100	384.55	2700	5294.70
181	10	23.21	32761	100	541.96	1810	4213.68
182	0	19.17	33124	0	366.34	0	3483.48
130	0	12.12	16900	0	146.89	0	1575.60
112	0	8.20	12544	0	67.24	0	918.40
95	0	3.01	1925	0	9.06	0	285.95
120	15	9.20	14400	225	84.64	1800	1104.00
150	15	15.40	22500	225	237.16	2250	2310.00
$\sum x_1 =$ 1495	$\sum x_2 =$ 240.60	$\sum x_3 =$ 130.52	$\sum x_1^2 =$ 246979	$\sum x_2^2 =$ 750	$\sum x_3^2 =$ 2049.54	$\sum x_1 x_2 =$ 9960	$\sum x_1 x_3 =$ 21817.46

Source:-SEBON

APPENDIX – VIII

Calculation of S.D (±)

For MPS (x_1)

$$\pm = \sqrt{\frac{\sum x^2}{n} - \left(\frac{\sum x}{n}\right)^2}$$

$$= \sqrt{\frac{158881}{10} - \left(\frac{3899}{10}\right)^2}$$

$$= \sqrt{158888.10 - 152022.01}$$

$$= 82.86$$

$$CV = \frac{6}{\bar{x}} \times 100$$

$$= \frac{82.86}{389.90} \text{ x } 100$$

$$= 0.2125$$

For DPS (X_2)

$$\pm = \sqrt{\frac{\sum x^2}{n} - \left(\frac{\sum x}{n}\right)^2}$$

$$= \sqrt{\frac{1450}{10} - \left(\frac{110}{10}\right)^2}$$

$$= \sqrt{145.00 - 121.00}$$

$$= 4.90$$

$$CV = \frac{6}{\bar{x}} \times 100$$

$$= \frac{4.90}{11.00} \text{ x } 100$$

$$= 0.4455$$

For EPS (X_3)

$$\pm = \sqrt{\frac{\sum x^2}{n} - \left(\frac{\sum x}{n}\right)^2}$$

$$= \sqrt{\frac{7720.33}{10} - \left(\frac{240.13}{10}\right)^2}$$

$$= \sqrt{772.03 - 576.62}$$

$$= 13.98$$

$$CV = \frac{6}{\bar{x}} \times 100$$

$$= \frac{13.98}{24.013} \text{ x } 100$$

$$= 0.5813$$

Calculation of correlation of MPS with, DPS and EPS

$$rx_1x_2 = \frac{n \times \sum x_1x_2 - \sum x_1 \times \sum x_2}{\sqrt{n \times \sum x_1^2 - \left(\sum x_1\right)^2}\sqrt{n \times \sum x_2^2 - \left(\sum x_2\right)^2}}$$

$$= \frac{10 \times 42015 - 3899 \times 110}{\sqrt{10 \times 158881 - (3899)^2}\sqrt{10 \times 1450 - (110)2}}$$

$$= \frac{-8740}{828.62 \times 48.99}$$

$$= -0.2153$$

$$rx_1x_3 = \frac{n \times \sum x_1x_3 - \sum x_1 \times \sum x_3}{\sqrt{n \times \sum x_1^2 - \left(\sum x_1\right)^2}\sqrt{n \times \sum x_3^2 - \left(\sum x_3\right)^2}}$$

$$= \frac{10 \times 104599 - 3899 \times 240.13}{\sqrt{10 \times 158881 - (3899)^2}\sqrt{10 \times 7720.33 - (240.13)^2}}$$

$$= \frac{109723.13}{828.62 \times 139.79}$$

$$= 0.9473$$

Calculation of Different Sum

x_1	x_2	x_3	x_1^2	x_2^2	x_3^2	x_1x_2	x_1x_3
315	15	31.84	99225	225	1013.79	4725	10029.
300	15	47.70	90000	225	2275.29	4500	14310.
420	15	23.60	176400	225	556.96	6300	9912.0
584	10	(10.84)	341056	100	117.51	5840	13782.
480	5	30.63	230400	25	938.20	2400	14702.
400	15	20.89	160000	225	436.39	6000	8356.0
350	0	20.89	122500	0	436.39	0	7311.5
350	15	20.89	122500	225	436.39	5250	7311.5
320	10	30.63	102400	100	938.20	3200	9801.6
380	10	23.90	144400	100	571.21	3800	9082.0
$\sum x_1 =$ 3899	$\sum x_2 =$ 110	$\sum x_3 =$ 240.13	$\sum x_1^2 =$ 1588881.00	$\sum x_2^2 =$ 1450	$\sum x_3^2 =$ 7720.33	$\sum x_1 x_2 =$ 42015.00	$\sum x_1 x_3$ 104599

Source:- SEBON

APPENDIX – IX

Calculation of S.D (±)

For MPS (x_1)

$$\pm = \sqrt{\frac{\sum x^2}{n} - \left(\frac{\sum x}{n}\right)^2}$$

$$= \sqrt{\frac{1186650}{10} - \left(\frac{3420}{10}\right)^2}$$

$$= \sqrt{118665 - 116964}$$

$$= 41.24$$

$$CV = \frac{6}{\bar{x}} \times 100$$

$$= \frac{41.24}{342.00} \text{ x } 100$$

$$= 0.1206$$

For DPS (X_2)

$$\pm = \sqrt{\frac{\sum x^2}{n} - \left(\frac{\sum x}{n}\right)^2}$$

$$= \sqrt{\frac{4775}{10} - \left(\frac{215}{10}\right)^2}$$

$$= \sqrt{477.50 - 462.50}$$

$$= 3.91$$

$$CV = \frac{6}{\bar{x}} \times 100$$

$$= \frac{3.91}{21.50} \text{ x } 100$$

$$= 0.1816$$

For EPS (X_3)

$$\pm = \sqrt{\frac{\sum x^2}{n} - \left(\frac{\sum x}{n}\right)^2}$$

$$= \sqrt{\frac{319500.00}{10} - \left(\frac{1354.47}{10}\right)^2}$$

$$= \sqrt{31950.09 - 18345.49}$$

$$= 116.64$$

$$CV = \frac{6}{\bar{x}} \times 100$$

$$= \frac{116.64}{135.447} \text{ x } 100$$

$$= 0.8611$$

Calculation of correlation of MPS with, DPS and EPS

$$rx_1x_2 = \frac{n \times \sum x_1x_2 - \sum x_1 \times \sum x_2}{\sqrt{n \times \sum x_1^2 - \left(\sum x_1\right)^2}\sqrt{n \times \sum x_2^2 - \left(\sum x_2\right)^2}}$$

$$= \frac{10 \times 73025 - 3420 \times 215}{\sqrt{10 \times 1186650 - (3420)^2}\sqrt{10 \times 4775 - (215)2}}$$

$$= \frac{-5050}{412.43 \times 39.05}$$

$$= -.0.3136$$

$$rx_1x_3 = \frac{n \times \sum x_1x_3 - \sum x_1 \times \sum x_3}{\sqrt{n \times \sum x_1^2 - \left(\sum x_1\right)^2}\sqrt{n \times \sum x_3^2 - \left(\sum x_3\right)^2}}$$

$$= \frac{10 \times 446218.50 - 3420 \times 1354.47}{\sqrt{10 \times 1186650 - (3420)^2}\sqrt{10 \times 319500.85 - (1354.47)^2}}$$

$$= \frac{-170102.40}{412.43 \times 1166.37}$$

$$= -0.3536$$

Calculation of Different Sum

x_1	x_2	x_3	x_1^2	x_2^2	x_3^2	$x_1.x_2$	$x_1.x$
325	20	31.60	105625	400	998.56	6500	1
405	20	21.31	164025	400	454.12	8100	86
400	25	(61.47)	160000	625	3778.56	10000	(24
330	25	42.58	108900	625	1813.03	8250	14
300	30	107.60	90000	900	11577.76	9000	32
300	20	202.80	90000	400	41127.84	6000	60
315	20	294.70	99225	400	868448.09	6300	92
315	20	201.03	99225	400	40413.06	6300	63
325	20	246.50	105625	400	60762.25	6500	80
405	15	267.82	164025	225	71727.55	6075	108
$\sum x_1 =$ 3420	$\sum x_2 =$ 215	$\sum x_3 =$ 1354.47	$\sum x_1^2 =$ 1186650	$\sum x_2^2 =$ 4775	$\sum x_3^2 =$ 319500.85	$\sum x_1 x_2 =$ 73025	$\sum$ 44

Source:- SEBON

APPENDIX – X

Calculation of S.D (±)

For MPS (x_1)

$$\pm = \sqrt{\frac{\sum x^2}{n} - \left(\frac{\sum x}{n}\right)^2}$$

$$= \sqrt{\frac{19231758}{80} - \left(\frac{30894}{80}\right)^2}$$

$$= \sqrt{240396.98 - 149131.13}$$

$$= 302.10$$

$$CV = \frac{6}{\bar{x}} \times 100$$

$$= \frac{302.10}{386.18} \times 100$$

$$= 0.7823$$

For DPS (X_2)

$$\pm = \sqrt{\frac{\sum x^2}{n} - \left(\frac{\sum x}{n}\right)^2}$$

$$= \sqrt{\frac{26154.60}{80} - \left(\frac{1333.30}{80}\right)^2}$$

$$= \sqrt{326.93 - 277.76}$$

$$= 7.01$$

$$CV = \frac{6}{\bar{x}} \times 100$$

$$= \frac{7.01}{16.67} \text{ x } 100$$

$$= 0.4205$$

For EPS (X_3)

$$\pm = \sqrt{\frac{\sum x^2}{n} - \left(\frac{\sum x}{n}\right)^2}$$

$$= \sqrt{\frac{381165.39}{80} - \left(\frac{3182.04}{80}\right)^2}$$

$$= \sqrt{4764.57 - 1582.09}$$

$$= 56.41$$

$$CV = \frac{6}{\bar{x}} \times 100$$

$$= \frac{56.41}{39.78} \text{ x } 100$$

$$= 1.4180$$

Calculation of correlation of MPS with, DPS and EPS

$$rx_1x_2 = \frac{n \times \sum x_1x_2 - \sum x_1 \times \sum x_2}{\sqrt{n \times \sum x_1^2 - \left(\sum x_1\right)^2}\sqrt{n \times \sum x_2^2 - \left(\sum x_2\right)^2}}$$

$$= \frac{80 \times 523148 - 30894 \times 1333.30}{\sqrt{80 \times 19231758 - (30894)^2}\sqrt{80 \times 26154.60 - (1333.30)2}}$$

$$= \frac{660869.80}{24168.19 \times 560.96}$$

$$= 0.0487$$

$$rx_1x_3 = \frac{n \times \sum x_1x_3 - \sum x_1 \times \sum x_3}{\sqrt{n \times \sum x_1^2 - \left(\sum x_1\right)^2}\sqrt{n \times \sum x_3^2 - \left(\sum x_3\right)^2}}$$

$$= \frac{80 \times 1384291.30 - 30894 \times 3182.04}{\sqrt{80 \times 19231758 - (30894)^2}\sqrt{80 \times 381165.39 - (3182.04)^2}}$$

$$= \frac{12437360.24}{24168.19 \times 4513.08}$$

$$= 0.1140$$

Correlation of MPS, DPS and EPS of Sample Companies

x_1	x_2	x_3	x_1^2	x_2^2	x_3^2	$x_1.x_2$	$x_1.x_3$
NABIL Bank Ltd.							
600	50	69.33	360000	2500	4806.65	300	41598.00
822	30	33.76	675684	900	1139.74	24660	27750.72
1401	50	53.68	1962801	2500	2881.54	70050	75205.68
1150	0	33.18	1322500	0	1100.91	0	38157.00
760	30	33.60	577600	900	1128.96	22800	25536.00
795	20	39.56	632025	400	1564.99	15900	31450.20
940	15	51.70	883600	225	2672.89	14100	48598.00
800	12.5	39.31	640000	156.25	1545.28	100000	31448.00
960	16.2	44.80	921600	262.44	2007.04	15552	43008.00
1090	25	49.05	1188100	625	2405.90	27250	53464.50
LUMBINI Bank Ltd.							
184	0	20.86	33856.00	0	435.14	0.0000	3838.24
107	15	21.03	11449.00	225	442.26	1605.00	2250.21
980	20	34.39	960400.00	400	1182.67	19600.00	337022.00
750	0	31.56	562500.00	0	996.03	0.0000	23670.00
430	20	32.19	184900.00	400	1083.07	8600.00	14151.00
445	20	29.90	198025.00	400	894.01	8900.00	13305.50
680	20	45.58	462400.00	400	2077.54	13600.00	30994.40
870	20	37.54	756900.00	400	1409.25	17400.00	32659.50
995	20	40.46	990025.00	400	1637.01	19900.00	40257.70
1130	20	46.03	1276900.00	400	2118.76	22600.00	52013.90
NARAYANI NATIONAL FINANCE Co. Ltd.							
95	12	17.00	9025	144	289	1140	1615.00
98	16	21.30	9604	256	453.69	1568	2087.70
295	20	31.25	87025	400	976.56	5900	9218.75
321	23	37.55	103041	529	1410.00	7383	12053.55
305	12	37.05	93025	144	1372.70	3660	11300.25

235	50	33.85	55225	2500	1145.82	11750	7954.75
205	0	2.77	42025	0	767	0	567.85
138	10	17.97	19044	100	322.92	1380	2479.86
168	30	19.33	28224	900	373.65	5040	3247.44
193	25	24.17	37249	625	584.19	4825	46.64.81
NIDC Capital Market Ltd.							
82	0	14.55	6724	0	211.70	0	1193.10
100	15	29.30	10000	225	858.49	1500	2930.00
415	15	20.95	172225	225	438.90	6225	8694.25
600	15	25.95	360000	225	673.40	9000	15570.00
175	15	2.52	30625	225	6.35	2625	441.00
125	0	(9.93)	15625	0	95.60	0	(1241.25)
107	0	25.07	11449	0	1229.90	0	2682.49
145	15	20.02	21025	225	196.56	2175	2902.90
185	0	19.42	34225	0	420.25	0	3592.70
205	0	23.35	42025	0	545.22	0	4786.75
PRIME INSURANCE Co. Ltd.							
122	10	18.07	14884	100	326.52	1220	2204.54
125	10	19.17	15625	100	367.49	1250	2396.25
250	10	19.70	62500	100	388.09	2500	4925.00
220	13	27.37	48400	169	749.12	2860	6021.40
170	10	28.73	28900	100	825.41	1700	4884.10
192	0	19.90	36864	0	396.01	0	3820.80
210	5	25.13	44100	25	631.52	1050	5277.30
210	10	46.68	44100	100	2179.02	2100	9802.80
240	10	30.32	57600	100	919.30	2400	7276.80
260	13	20.18	67900	169	407.23	3380	5246.80

NATIONAL LIFE INSURANCE Co. Ltd.							
115	0	9.87	13225	0	97.42	0	1135
140	10	10.69	19600	100	114.12	1400	1496
270	10	19.61	72900	100	384.55	2700	5294
181	10	23.21	32761	100	541.96	1810	4213
182	0	19.17	33124	0	366.34	0	3483
130	0	12.12	16900	0	146.89	0	1575
112	0	8.20	12544	0	67.24	0	918
95	0	3.01	1925	0	9.06	0	285
120	15	9.20	14400	225	84.64	1800	1104
150	15	15.40	22500	225	237.16	2250	2310
NEPAL LUBE OIL Ltd.							
315	15	31.84	99225	225	1013.79	4725	1002
300	15	47.70	90000	225	2275.29	4500	1431
420	15	23.60	176400	225	556.96	6300	9912
584	10	(10.84)	341056	100	117.51	5840	1378
480	5	30.63	230400	25	938.20	2400	1470
400	15	20.89	160000	225	436.39	6000	8356
350	0	20.89	122500	0	436.39	0	7311
350	15	20.89	122500	225	436.39	5250	7311
320	10	30.63	102400	100	938.20	3200	9801
380	10	23.90	144400	100	571.21	3800	9082
NATIONAL TRADING CORPORATION Ltd.							
325	20	31.60	105625	400	998.56	6500	102
405	20	21.31	164025	400	454.12	8100	8630
400	25	(61.47)	160000	625	3778.56	10000	(24588
330	25	42.58	108900	625	1813.03	8250	1405
300	30	107.60	90000	900	11577.76	9000	32280
300	20	202.80	90000	400	41127.84	6000	60840
315	20	294.70	99225	400	868448.09	6300	92830

315	20	201.03	99225	400	40413.06	6300	6332
325	20	246.50	105625	400	60762.25	6500	8011
405	15	267.82	164025	225	71727.55	6075	10846
$\sum x_1 =$ 30894	$\sum x_2 =$ 1333.30	$\sum x_3 =$ 3182.04	$\sum x_1^2 =$ 19231758	$\sum x_2^2 =$ 26154.60	$\sum x_3^2 =$ 381165.39	$\sum x_1 x_2 =$ 523148	$\sum x_1 x_3$ 13842

APPENDIX -XI

Calculation of NEPSE Index

FY	NEPSE INDEX	$R_M = \frac{NIt - NIt-1}{NIt-1}$	$\left(R_M - \overline{R}_M\right)$	$\left(R_M - \overline{R}_M\right)^2$
2000/01	348	-	-	-
2001/02	228	-0.34	0.43	0.1849
2002/03	205	-0.10	0.19	0.0361
2003/04	222	0.08	-0.01	0.0001
2004/05	287	0.29	0.20	0.0400
2005/06	387	0.35	0.26	0.0676
2006/07	684	0.77	0.68	0.4624
2007/08	983	0.41	0.32	0.1024
2008/09	749	-0.22	-0.31	0.0961
2009/10	478	0.36	0.45	0.2025
		$\sum R_M = 0.88$		$\sum\left(R_M - \overline{R}_M\right)^2 = 1.1921$

Source : SEBON

$$\overline{R}_M = \frac{\sum R_M}{n} = \frac{0.88}{10} = 0.9$$

$$\text{Var. } R_M = \frac{\sum\left(R_M - \overline{R}_M\right)^2}{n-1} = \frac{1.1921}{10-1} = 0.1325$$

$$\text{S.D}(\pm) = \sqrt{Var.R_M} = \sqrt{0.1325} = 0.3639$$

$$\text{CV} = \frac{\overline{R}_M}{\pm} \times 100 = \frac{0.09}{0.3639} \times 100 = 0.2418$$

Calculation of Beta Coefficient

For NABIL Bank Ltd.

FY	MPS	$R_J = \frac{MPS_t - MPS_{t-1}}{MPS_{t-1}}$	$\left(R_J - \overline{R}_J\right)$	R_M	$\left(R_M - \overline{R}_M\right)$	$\left(R_J - \overline{R}_J\right)\left(R_M - \overline{R}_M\right)$
2000/01	600	-	-	-	-	-
2001/02	822	-0.37	0.027	-0.34	0.43	-0.1161
2002/03	1401	0.70	0.60	-0.10	0.19	-0.1140
2003/04	1150	-0.18	-0.28	0.08	-0.01	0.0028
2004/05	760	-0.34	-0.44	0.29	0.20	-00880
2005/06	795	0.05	-0.05	0.35	0.26	0.0130
2006/07	940	0.18	0.08	0.77	0.68	0.0544
2007/08	800	-0.15	-0.25	0.41	0.32	-0.0800
2008/09	960	0.20	0.10	-0.22	-0.31	-0.0310
2009/10	1090	0.14	0.40	-0.36	0.45	-0.0180
		$\sum R_J = 0.97$		$\sum R_M = 0.88$		$\sum\left(R_J - \overline{R}_J\right)\left(R_M - \overline{R}_M\right) = -0.4029$

Source : SEBON

$$\overline{R}_J = \frac{\sum R_J}{n} = \frac{0.97}{10} = 0.10$$

$$\text{Var. } R_M = \frac{\sum\left(R_J - \overline{R}_J\right)\left(R_M - \overline{R}_M\right)}{n-1} = \frac{-0.4029}{10-1} = -0.0448$$

$$\text{Beta Coefficient} = \frac{Covariance\left(R_J, R_M\right)}{Var.R_M} = \frac{-0.0448}{0.1325} = -0.3381$$

For Lumbini Bank Ltd.

FY	MPS	$R_J = \frac{MPS_t - MPS_{t-1}}{MPS_{t-1}}$	$\left(R_J - \overline{R}_J\right)$	R_M	$\left(R_M - \overline{R}_M\right)$	$\left(R_J - \overline{R}_J\right)\left(R_M - \overline{R}_M\right)$
2000/01	184	-	-	-	-	-
2001/02	107	0.42	1.24	-0.34	0.43	-0.5332
2002/03	980	8.16	7.34	-0.10	0.19	-1.3946
2003/04	750	-0.23	-1.05	0.08	-0.01	0.0105
2004/05	430	-0.43	-1.25	0.29	0.20	-0.2500
2005/06	445	0.03	-0.79	0.35	0.26	0.2054
2006/07	680	0.53	-0.29	0.77	0.68	-0.1972
2007/08	870	0.28	-0.54	0.41	0.32	-0.1728
2008/09	995	0.14	-0.68	-0.22	-0.31	0.2108
2009/10	1130	0.14	-0.68	-0.36	0.45	0.3060
		$\sum R_J = 8.20$		$\sum R_M = 0.88$		$\sum\left(R_J - \overline{R}_J\right)\left(R_M - \overline{R}_M\right) = -2.2259$

Source : SEBON

$$\overline{R}_J = \frac{\sum R_J}{n} = \frac{8.20}{10} = 0.82$$

$$\text{Var. } R_M = \frac{\sum\left(R_J - \overline{R}_J\right)\left(R_M - \overline{R}_M\right)}{n-1} = \frac{-2.2259}{10-1} = -0.2473$$

$$\text{Beta Coefficient} = \frac{Covariance\left(R_J, R_M\right)}{Var.R_M} = \frac{-0.2473}{0.1325} = -1.8666$$

For Narayani National Finance Co. Ltd.

FY	MPS	$R_J = \frac{MPS_t - MPS_{t-1}}{MPS_{t-1}}$	$\left(R_J - \overline{R}_J\right)$	R_M	$\left(R_M - \overline{R}_M\right)$	$\left(R_J - \overline{R}_J\right)\left(R_M - \overline{R}_M\right)$
2000/01	95	-	-	-	-	-
2001/02	98	0.03	-0.21	-0.34	0.43	0.0903
2002/03	295	2.01	1.77	-0.10	0.19	-0.3363
2003/04	321	0.2309	-0.15	0.08	-0.01	0.0015
2004/05	305	-0.05	-0.29	0.29	0.20	-0.0580
2005/06	235	-0.23	0.47	0.35	0.26	-0.1222
2006/07	205	-0.13	-0.37	0.77	0.68	-0.2516
2007/08	138	0.33	0.09	0.41	0.32	0.288
2008/09	168	0.22	-0.02	-0.22	-0.31	0.0062
2009/10	193	0.15	-0.09	-0.36	0.45	0.045
		$\sum R_J = 2.42$		$\sum R_M = 0.88$		$\sum\left(R_J - \overline{R}_J\right)\left(R_M - \overline{R}_M\right) = -0.6008$

Source: SEBON

$$\overline{R}_J = \frac{\sum R_J}{n} = \frac{2.42}{10} = 0.24$$

$$\text{Var. } R_M = \frac{\sum\left(R_J - \overline{R}_J\right)^2\left(R_M - \overline{R}_M\right)}{n-1} = \frac{-0.6008}{10-1} = -0.0668$$

$$\text{Beta Coefficient} = \frac{Covariance\left(R_J, R_M\right)}{Var.R_M} = \frac{-0.668}{0.1325} = -0.5042$$

For NIDC Capital Market Ltd.

FY	MPS	$R_J = \frac{MPS_t - MPS_{t-1}}{MPS_{t-1}}$	$\left(R_J - \overline{R}_J\right)$	R_M	$\left(R_M - \overline{R}_M\right)$	$\left(R_J - \overline{R}_J\right)\left(R_M - \overline{R}_M\right)$
2000/01	82	-	-	-	-	-
2001/02	100	0.22	-0.12	-0.34	0.43	0.0516
2002/03	415	3.15	2.81	-0.10	0.19	-0.5339
2003/04	600	0.45	0.11	0.08	-0.01	-0.011
2004/05	175	-0.71	-1.05	0.29	0.20	0.2100
2005/06	125	-0.29	-0.63	0.35	0.26	-0.1638
2006/07	107	-0.29	-0.48	0.77	0.68	-0.3264
2007/08	145	-0.14	0.02	0.41	0.32	0.0064
2008/09	185	0.36	-0.06	-0.22	-0.31	0.0186
2009/10	205	0.28	-0.23	-0.36	0.45	0.1035
		$\sum R_J = 3.43$		$\sum R_M = 0.88$		$\sum\left(R_J - \overline{R}_J\right)\left(R_M - \overline{R}_M\right) = -0.89913$

Source : SEBON

$$\overline{R}_J = \frac{\sum R_J}{n} = \frac{3.43}{10} = 0.34$$

$$\text{Var. } R_M = \frac{\sum\left(R_J - \overline{R}_J\right)\left(R_M - \overline{R}_M\right)}{n-1} = \frac{-0.8913}{10-1} = -0.0990$$

$$\text{Beta Coefficient} = \frac{Covariance\left(R_J, R_M\right)}{Var.R_M} = \frac{-0.0990}{0.1325} = -0.7474$$

For Prime Insurance Co. Ltd.

FY	MPS	$R_J = \frac{MPS_t - MPS_{t-1}}{MPS_{t-1}}$	$\left(R_J - \overline{R}_J\right)$	R_M	$\left(R_M - \overline{R}_M\right)$	$\left(R_J - \overline{R}_J\right)\left(R_M - \overline{R}_M\right)$
2000/01	122	-	-	-	-	-
2001/02	125	0.02	-0.09	-0.34	0.43	0.0387
2002/03	250	1.00	0.89	-0.10	0.19	-0.1691
2003/04	220	-0.12	-0.23	0.08	-0.01	0.0023
2004/05	170	-0.23	-0.34	0.29	0.20	-0.0680
2005/06	192	0.13	0.02	0.35	0.26	0.0052
2006/07	210	0.09	-0.02	0.77	0.68	-0.0136
2007/08	210	0.00	-0.11	0.41	0.32	-0.0052
2008/09	240	0.14	0.03	-0.22	-0.31	-0.0093
2009/10	260	0.08	-0.03	-0.36	0.45	0.0135
		$\sum R_J = 3.43$		$\sum R_M = 0.88$		$\sum\left(R_J - \overline{R}_J\right)\left(R_M - \overline{R}_M\right) = -0.2355$

Source : SEBON

$$\overline{R}_J = \frac{\sum R_J}{n} = \frac{1.11}{10} = 0.11$$

$$\text{Var. } R_M = \frac{\sum\left(R_J - \overline{R}_J\right)\left(R_M - \overline{R}_M\right)}{n-1} = \frac{-0.2355}{10-1} = -0.0262$$

$$\text{Beta Coefficient} = \frac{Covariance\left(R_J, R_M\right)}{Var.R_M} = \frac{-0.0262}{0.1325} = -0.1975$$

For National Life Insurance Co. Ltd.

FY	MPS	$R_J = \frac{MPS_t - MPS_{t-1}}{MPS_{t-1}}$	$\left(R_J - \overline{R}_J\right)$	R_M	$\left(R_M - \overline{R}_M\right)$	$\left(R_J - \overline{R}_J\right)\left(R_M - \overline{R}_M\right)$
2000/01	115	-	-	-	-	-
2001/02	140	0.22	0.14	-0.34	0.43	-0.060.2
2002/03	270	0.93	0.85	-0.10	0.19	-0.1615
2003/04	181	-0.33	-0.41	0.08	-0.01	0.0041
2004/05	182	0.01	-0.07	0.29	0.20	-0.0140
2005/06	130	-0.29	-0.37	0.35	0.26	-0.0962
2006/07	112	- 0.14	-0.22	0.77	0.68	-0.1496
2007/08	95	-0.15	-0.23	0.41	0.32	-0.0736
2008/09	120	0.26	0.18	-0.22	-0.31	-0.0558
2009/10	150	0.25	0.17	-0.36	0.45	-0.0765
		$\sum R_J = 0.76$		$\sum R_M = 0.88$		$\sum\left(R_J - \overline{R}_J\right)\left(R_M - \overline{R}_M\right) = -0.6833$

Source: SEBON

$$\overline{R}_J = \frac{\sum R_J}{n} = \frac{0.76}{10} = 0.08$$

$$\text{Var. } R_M = \frac{\sum\left(R_J - \overline{R}_J\right)\left(R_M - \overline{R}_M\right)}{n-1} = \frac{-0.6833}{10-1} = -0.0759$$

$$\text{Beta Coefficient} = \frac{Covariance\left(R_J, R_M\right)}{Var.R_M} = \frac{-0.0759}{0.1325} = -0.5730$$

For Nepal Lube Oil Ltd.

FY	MPS	$R_J = \frac{MPS_t - MPS_{t-1}}{MPS_{t-1}}$	$\left(R_J - \overline{R}_J\right)$	R_M	$\left(R_M - \overline{R}_M\right)$	$\left(R_J - \overline{R}_J\right)\left(R_M - \overline{R}_M\right)$
2000/01	315	--	-	-	-	-
2001/02	300	-0.05	-0.09	-0.34	0.43	0.0387
2002/03	420	0.40	0.36	-0.10	0.19	-0.0684
2003/04	584	0.39	0.35	0.08	-0.01	-0.0035
2004/05	480	-0.18	0.14	0.29	0.20	0.0280
2005/06	400	-0.17	-0.21	0.35	0.26	-0.0546
2006/07	350	-0.13	-0.17	0.77	0.68	-0.1156
2007/08	350	0.00	-0.04	0.41	0.32	-0.0128
2008/09	320	-0.09	-0.13	-0.22	-0.31	0.0403
2009/10	380	0.19	0.15	-0.36	0.45	-0.0675
		$\sum R_J = 0.76$		$\sum R_M = 0.88$		$\sum\left(R_J - \overline{R}_J\right)\left(R_M - \overline{R}_M\right) = -0.6833$

Source : SEBON

$$\overline{R}_J = \frac{\sum R_J}{n} = \frac{0.36}{10} = 0.04$$

$$\text{Var. } R_M = \frac{\sum\left(R_J - \overline{R}_J\right)\left(R_M - \overline{R}_M\right)}{n-1} = \frac{-0.2154}{10-1} = -0.0239$$

$$\text{Beta Coefficient} = \frac{Covariance\left(R_J, R_M\right)}{Var.R_M} = \frac{-0.0239}{0.1325} = -0.1806$$

For National Trading Corporation Ltd.

FY	MPS	$R_J = \frac{MPS_t - MPS_{t-1}}{MPS_{t-1}}$	$\left(R_J - \overline{R}_J\right)$	R_M	$\left(R_M - \overline{R}_M\right)$	$\left(R_J - \overline{R}_J\right)\left(R_M - \overline{R}_M\right)$
2000/01	325	-	-	-	-	-
2001/02	405	0.25	0.22	-0.34	0.43	-0.0946
2002/03	40	-0.01	-0.04	-0.10	0.19	0.0076
2003/04	330	-0.18	-0.12	0.08	-0.01	0.0021
2004/05	300	-0.09	-0.12	0.29	0.20	-0.0240
2005/06	300	0.00	-0.03	0.35	0.26	-0.0078
2006/07	315	0.05	0.02	0.77	0.68	0.0136
2007/08	315	0.00	-0.03	0.41	0.32	-0.0096
2008/09	325	003	0.00	-0.22	-0.31	0.00
2009/10	405	0.25	0.22	-0.36	0.45	-0.0990
		$\sum R_J = 0.30$		$\sum R_M = 0.88$		$\sum\left(R_J - \overline{R}_J\right)\left(R_M - \overline{R}_M\right) = -0.2117$

Source : SEBON

$$\overline{R}_J = \frac{\sum R_J}{n} = \frac{0.30}{10} = 0.03$$

$$\text{Var. } R_M = \frac{\sum\left(R_J - \overline{R}_J\right)\left(R_M - \overline{R}_M\right)}{n-1} = \frac{-0.2117}{10-1} = -0.0235$$

$$\text{Beta Coefficient} = \frac{Covariance\left(R_J, R_M\right)}{Var.R_M} = \frac{-0.0235}{0.1325} = -0.1775$$