IMPACT OF DIVIDEND POLICY ON MARKET PRICE OF SHARE

(With Special Reference to Commercial Banks)

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RECOMMENDATION

This is to certify that the thesis

Submitted by:

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(With Special Reference to Commercial Banks)

has been prepared as approved by this Department in the prescribed format of the Faculty of Management. This thesis is forwarded for examination.

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VIVA-VOCE SHEET

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DECLARATION

I hereby declare that the work reported in this thesis entitled "**Impact of Dividend Policy on Market Price of Share (With Special Reference to Commercial Banks)**" submitted to Office of the Dean, Faculty of Management, Tribhuvan University, is my original work done in the form of partial fulfillment of the requirement for the degree of Master of Business Studies (MBS) under the supervision of **Asso. Prof. Achyut Raj Bhattarai** and **Pitri Raj Adhikari** of Shanker Dev Campus, T.U.

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Needless to say 'to err is human' and I cannot to the expectation. For any remaining error in the calculation and the description reported in this thesis are, of course, entirely my responsibilities. I hope the possible errors would be covered by the subsequent studies in this field in this future.

Saraswati Kandel

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ABBREVIATIONS

B.O.D	:	Board of Directors
B.S.	:	Bikram Sambat
BOKL	**:**	**Bank of Kathmandu**
BVPS	:	Book Value Per Share
CBB	:	Cash and Bank Balance to Current Assets Ratio
Cov	:	Co-Variance
Cr	:	Current Ratio
CV	:	Coefficient Of Variance
DP	:	Dividend Percentage
DPPC	:	Dividend Percentage On Paid-Up Capital
DPR	:	Dividend Payout Ratio
DPS	:	Dividend Per Share
Dr	:	Doctor
DY	:	Dividend Yield
EBL	**:**	**Everest Bank Limited**
EPS	:	Earning Per Share
EY	:	Earning Yield
F/Y	:	Fiscal Year
INV	:	Investment
HBL	**:**	**Himalayan Bank Limited.**
JVBS	:	Joint Venture Banks

Ltd.	:	Limited
MM	:	Modigliani and Miller
MPS	:	Market Price Per Share
NABIL	**:**	**Nepal Arab Bank Limited**
NEPSE	:	Nepal Stock Exchange
NGBL	:	Nepal Grindlays Bank Limited
NIBL	**:**	**Nepal Investment Bank Limited**
NP	:	Net Profit
NW	:	Net Worth
P.E	:	Probable Error
P/E	:	Price Earning
Rs.	:	Rupees
S.D.	:	Standard Deviation
S.E.E.	:	Standard Error of Estimation
SCBNL	**:**	**Standard Chartered Bank Nepal Limited**
Viz	:	Namely
Vol.	:	Volume

CHAPTER - I
INTRODUCTION

1.1 Background of the Study

In any economy, the importance of financial sector in general and banking sector in particular cannot be undetermined. Banking sector definitely plays pivotal role in the overall development of an economy. The economic reforms initiated by the Government more than a decade ago have changed the landscape of several sectors of the Nepalese economy. The Nepalese banking sector is no exception. This sector is going through major changes as a consequence of economic reforms. The changes affect the ownership Pattern of banks, regulatory aspects, availability of funds, the cost of funds as well as opportunities to earn, range of services (fee-based and fund based),and management of priority sector lending. As a consequence of liberalization in interest rates and cutthroat competition, banks are operating on reduced spread. Development financial Institutions will have a lesser impact on the Nepalese economy. Consumerism is here to stay. Non–banking product, like insurance is going be a tremendous opportunity for banking sector.

The Nepalese banking sector is at an exciting point in its development. The opportunities to enter new business and new markets and to deliver higher levels of customer service are immense. As the Nepalese banks position themselves as financial service providers, banking business is getting redefined. Technology is unsetting the earlier business processes and customer behavior is undergoing considerable changes. These have enhanced the forces of competition. As compared to earlier regime, Nepalese banks have adopted better operational strategies and upgraded their skills.

It is said that the banking sector mirrors the large economy. Its linkages to all sectors make it a proxy for what is happening in the economy as a whole. So the banking sector plays an important role in the economic development of the country. Commercial Banks are one of the vital aspects of this sector, which deals in the process of channelizing the available resources in the needed sectors. It is the intermediary between the deficit and surplus of financial resources. Financial system

contains two components viz., depository financial institutions and non-depository financial institutions. Commercial Banks, Development Banks and Finance Companies (in Nepalese context) are the example of depository financial institutions whereas Employee Providence Fond, Insurance Companies etc. are the example of non-depository financial institutions. All the economic activities are directly or indirectly channeled through these banks. People keep their surplus money as deposits in the banks and hence banks can provide such funds to finance the industrial activities in the form of loans and advances.

Among these circumstances, capital market and its extensions also play great roles. Capital Market generates and liquidates the security as per the requirement. But unfortunately, Nepalese capital market has no efficient communication network even today .It has made capital market less efficient and effective resulting in the risk. Even though, it is hope that Nepalese capital market will be moving towards efficiency in the day to come. In the capital market, all firms operate in order to generate earnings Shareholders make investment in equity capital with the expectation of making earnings either directly in the form of dividend or indirectly in the form of capital gain in future. The sole objective of each and every business is to maximize the shareholder's wealth; the fundamental guide line of every managerial decision is to increaser the value of shares. Nowadays owners of almost all the business entities are the numerous shareholders who hold limited obligation to the face value of the shares they own.

Financial Management is the heart of the management and the number of decision is made by the financial decision-maker in order to run the company smoothly. Generally, three types of decision namely the Investment decision, Financing decision and Dividend decision are pronounced as major functions of the finance executive .Among these major financial decision, dividend decision is the most controversial one, which requires a lot of expertise knowledge as well as the intuition power in such decision-maker .Once a company makes a profit it should decide; what should be done with the profit. It could continue to retain the profit within the company or it could pay out the profit of owners the company in the form of dividend. Dividends are payments made to the stockholders from a firm's earnings in return to their investment, whether those earnings were generated easy in the current period or in

previous periods and policy refers to the decision about how much earnings, at what form should be distributed to the shareholders and the amount to be retained or reinvested in the firm.

The price of share is highly influenced by the company's dividend policy and the dividend decision itself is also affected by other financial variables as well. the expected dividend of a company paying higher dividends is higher ;eventfully the share price of the company goes up .but contradictorily , a company paying higher cash dividends can suffer from the scarcity a founds or financing the corporate growth , as a result the share price comes down. Dividend policy may affect the areas such as financial structure of the firm ,funds flow, stock prices, investors satisfaction growth of the firm etc. like other major decisions of the firm is that ,investment and financing decision , the dividend decision has major role in any organization .it remains a source of controversy despite years of theoretical and empirical research, including one aspect of dividend policy ; the linkage between dividend policy and stock price risk *(Allen and Rachim ,1996).* Paying large dividend reduces risk and thus influenced stock price (Gordon, 1963) and is a proxy for future earring *(Baskin, 1989).* A number of theoretical mechanism have been suggested that cause dividend yield and pay out ratios to vary inversely with commons stock volatility .these are duration effect ,rate of return effect ,arbitrage pricing effect and information effect .duration effect implies that high dividend yield provides more near term cash flow .if dividend is stable high dividend stocks will have a shorter duration .Gordon Growth model can be use predict that high dividend will be less sensitive to fluctuations in discount rates and thus ought to display lower price volatility .

Agency cost argument, as developed by (Jensen an Meckling, 1976) proposed that dividend payments reduced cost and increase cash flow , that is payment of dividend motivates managers to discard cash rather than investing at below the cost of capital or wasting it an organizational inefficiencies (Rozeff, 1982 and Eastebrppl 1984). Some authors have stressed the importance of information content of dividend (Asquith and Mullin,1983);(Born, mostr and officer 1983),Miller and Rock (1985) suggested that dividend announcement provide the missing pieces of information about the firm and allows the market to estimate the firm's current earnings. Investor may greater confidence that reported earning a reflect economic profit when

announcements are accompanied by sample dividends. If investor is more certain in their opinions, they may react less to questionable sources of information and their expectation of value may be insulted from irrational influence.

Rate of Return effect, as discussed by Gordon(1963),is that a firm with low payout and low dividend yield may deed to be valued more in terms of future investment opportunities *(Donaldson,1961).* Consequently, it stock price may be more sensitive to changing estimates rates of return over distant time period. Thus expanding firms although may have lower payout ratio and dividend yield, exhivit price stability. This may be because dividend yields and payout ratio serves as prosiest for the amount of projected growth opportunities are less reliable than forecasts of returns on assets in place, firms with low payout and low dividend yield may have greater price volatility. According to duration effect and arbitrage effect, the dividend yield and not the payout ratio is the relevant measure. The rate of return effect implies that both dividend yield and payout ratio matters. Dividend policy may serve as a proxy for growth and investment opportunities. Both the duration effect and the rate of return effect assume differentials in the timing of underlying cash flow of the divided policy remains after controlling for growth, this would suggest evidence of either the arbitrage or information effect.

1.2 Focus of the Study

Economic development of a country largely depends upon the effective mobilization on the internal resources. Banks and other financial institutions play vital role in this regard banks have the objective of collecting the scattered resources and mobilize them in productive sectors. In this context, dividend policy is the key instrument, which reflects the firm's ability of internal financing. The dividend decision affects the overall financing decision of the firm and also affects the shareholders perception to the firm. The earning power, dividend and retention have a significant impact on market price of share. So, the main focus of the study is the commercial bank's about the impacts of dividend policy on market price of share. For these purpose different other studies are going to be done i.e. comparison of earning per share(EPS),dividend per share (DPS),market price per share (MPS) and others as per the requirement with

respect to the sample firm. The relationship between different variables will be individually and combine analyzed in this study

1.3 Statements of the Problem

Dividend policy is not straight forward and simple aspect of corporate finance it is more technical area of finance in the sense that is a complex one having numerous implications for the firm .But Nepalese Commercial Bank have not satisfactory result about dividend decision. Different government rules and regulations are the main factors that act and react in the banking operations. But there is no limit to the identification of the problem about dividend policy that is visible in Nepalese Commercial Bank.

Many empirical studies have been carried out in the developed capital market to analyze the relationship between dividend and stock prices like Linter (1956),Modigliani and Miller (1961), Gordon (1964), Friend and Pocket(1964), Walter(1961), Black and Scholes (1974), Lichtenberger and Ramaswamy (1982), Chawla and Srinivasan (1987). However no conclusive relationship exists between the amounts paid out as dividend and the market price of share. There is still a controversy concerning the relationship between dividend and market price of shares. There is no controversy that when a firm got much earning then the shareholders would expect much dividend. But earnings are also treated as financing sources for the firm. If the firm retains the earnings, its repercussion can be seen in many factors such as decreased leverage ratio, expansion of activates and increase in profit in succeeding years where as if the firm pays dividends it may need to raise capital through capital market which may dilutes the ownership control of the existing shareholders. On condition the firm takes loan or raises debenture it will affect on risk characteristics of the firm .Therefore, there are many dimensions to be considered on dividend theories, policies and practices.

The capital market is an important part of corporate development of a country. Even though the capital market is in the early stage of development in Nepal, Nepalese investors have heavily made investment on newly established companies, especially in the financial sector. This trend will remain to continue until the investors are

satisfied by the decision made by the management of these companies. Dividend is the most inspiring aspect for the investment in the share various companies for and investor. Even if dividends affected the firm's value, unless management knows exactly how they affect value, there is no mach that they can do to increase the shareholder's wealth .So, it is necessary for the management to understand gown the dividend policy affects the market value of the firm or market price of the stock or the wealth position of the shareholders.

The present study work is directed towards the exploration of the dividend as well as the stock price behavior of the leading public sector commercial banks. The research work will try to solve the following set of questions.

- What are attitudes of Commercial Banks towards dividend policy?
- What are the factors affecting dividend policy of Banks in Nepal?
- Is there relationship between dividend policy and market price of the share?
- What are the affects of bonus share issue on dividend change?
- Do Commercial Banks in Nepal have the target payout ratio?
- What types of dividend policy do Commercial Banks in Nepal follow?
- What are the factors affecting dividend yield and dividend payout ratio?
- Is there significance difference between financial variables affecting dividend policy?

1.4 Objectives of the Study

This study work attempts to accomplish the objective of analyzing the dividend policy behavior in the context to Nepalese commercial Banks. The major accomplishment of this study will be the exploration of the fact dealing about how far the stock prices of the leading commercial banks are affected by the dividend policies adopted by such banks in different fiscal periods. Fourth more, the objective of this study is to find some relationship taking MPS and DPS as dependent variable each.

The major objective of the study to obtain in depth knowledge about the impact of dividend policy adopted by the firm to its market price of share as well as the overall valuation of the firm.

Some of the important objectives of the study can be listed as follows:

- To explain and highlight the dividend policy and practice of Nepalese Commercial Banks.
- To analyze of the factors that affecting dividend yield and dividend payout ratio.
- To see the opinion of shareholders and corporate executives on dividend policy and practice.
- To examine the relationship between dividend with EPS, MPS and DPR.

1.5 Significance of the Study

Dividend policy decision is one of the major decisions of financial management because it affects the financial structure, the flow of funds corporate liquidity and investors attitudes. This might serve to be important information for these respective firms taken as sample. People are attracted to invest in shares for the purpose of getting more return as was as to maximize their wealth. So the dividend policy has become an effective way to attract new investors, to keep present investors happy and to maintain goodwill of the company. When any new company floats shares through capital market, very big congregation gathers to apply for owner's certificate. It indicates people's expectation on higher return of investment in shares. The major significance of the studies is as follows;

- The study helps to the management and policy maker in setting and making a suitable dividend policy.
- The dividend policy of the banking sector plays vital role for socio-economy development in the nation, that is way the study of dividend policy of these sector is needed so far as possible.
- To raise public awareness about dividend policy and market price of share relation in other to help them for rational decision of their investment.

1.6 Limitation of the Study

The major limitation of the study is as follows;

- This study is only based on secondary data, like annual report of selected banks, Journals, Published as well as unpublished thesis work, financial reports published by Nepal stock Exchange, Newspapers, Magazine and internet etc.

- Time and financial constraints are the major limitation of the study. The report has to submit within the time period.
- The study covered only six commercial banks for six fiscal years.
- Only commercial banks are chosen for the studies although there are other organizations that are involved in distributing the dividend to the shareholders.
- Among many commercial banks only six banks are selected for the study i.e. Bank of Kathmandu Limited, Everest Bank Limited, Nabil Bank Limited, Nepal Investment Bank Limited, Standard Chartered Bank Limited.

1.7 Organization of the Study

This study is dividend into five chapters, which are as follows;

Chapter – I Introduction

The first chapter, introduction deals with general introduction, statement of the problem, objective of the study, importance or significance of the study and limitation of the study.

Chapter – II Review of Literature

The second chapter, Literature review deals with different literatures, which are closely related to these study. It provides information about the various aspects of the dividend.

Chapter – III Research Methodology

The third chapter, research methodology deals with the detail research method that is planned for conducting this study.

Chapter – IV Data Presentation and Analysis

The fourth chapter, presentation and analysis of data are concerned with the application of defined research method on the collected data and information the generated results after the application of research method on data are analyzed and interpreted in this chapter.

Chapter – V Summary, Conclusion and Recommendation

The fifth chapter, Summary, Conclusion and Recommendation part deals with the summary and conclusion of the analysis. Brief conclusions from the analysis are drawn and necessary recommendations are made through this chapter. Finally bibliography and appendixes are included at the end.

CHAPTER - II
REVIEW OF LITERATURE

The aims of this study is analyze the impact of dividend policy on market price of the shares of Joint venture Commercial banks, which are Bank of Kathmandu, Everest Bank Limited, Himalayan Bank Limited, Nabil Bank Limited, Nepal Investment Bank Limited and Standard Chartered Bank Limited .For this purpose, it needs to review related literatures in this concerned area which will help researcher to get the clear cut ideas, opinions and other concepts. What other has said? What other has done? And what other has written? These all and other related questions are reviewed which has provided useful inputs in this research work this chapter emphasizes about the literatures which were concerned in this connections. Therefore ,in this chapter conceptual frameworks given by different authors and intellectuals of this area, books, journals research work and previous thesis related to dividend, dividend policy and impact of dividend policy are reviewed .Moreover, rules regarding to dividend policy are reviewed and attempts has been made to present them properly.

2.1 Conceptual Framework

2.1.1 Dividend

Dividend is a periodic payment made to the share holders to compensate them for the use of and rick of their investment funds."Dividend refers to that portion of firm's net earning, which are paid out to the shareholders" *(Bhattrai; 2002:12).* Dividends are generally paid in the form of cash. So the payment of dividend reduces the cash balance of the company as well as the amount of retained earnings. In the theory of finance, dividend decision plays a very crucial as well as controversial area of managerial finance. It is more technical area of finance in the sense that it is compels on having numerous implications for the firm. Dividend policy may affect the area such as financial structure of the firm, flow of funds, corporate liquidity stock price, investor's satisfaction, and growth of firms i.e. investing and financing decision, the dividend decision has major role in all business organizations.

Dividend policy is the policy of any firm organization\company regarding the division of its profit between shareholders as dividend policy includes all aspects

related to the payment of dividend. There is inverse relationship between cash dividend and the amount retained. In other words, it the company pays more dividends to its shareholders, there will be fewer amounts refrained for making investment and Vice-versa. "Dividend policy determines the division of earning between payments to stockholders and reinvestment in the firm. Retained earnings are one of the most significant sources of funds for financing corporate growth, but dividends constitute the cash flows that accrue to stockholder*" (Western & Copland; 1990: 29-30)*. Thus the dividend payout reduces the amount of earning retained in the firm and affect total amount of internal financing. Dividend decision is one of three major decision of managerial finance. The firm has to choose between distributing profits as dividend to the shareholders of reinvesting the profit into the business for more profitable opportunities. It is better to pay the dividend if the payment will lead to the wealth maximization. It not it is better to retain them for financial investment. Thus the relationship between divided and value of the firm is considered as the criterion for decision making.

Shareholders of a company always aim to maximize their wealth. The shareholders wealth includes not only the market price of the stock but also the current dividend the company pays to them. But the dividend payout reduces the total amount of financing. Thus the dividend policy should be concerned with the well-being of the Shareholders, which can be partially measured, by dividend received but more accurately measured in terms of the market value of the stock.

Most of the shareholders want to maximize their wealth in two forms i.e. capital gain and cash dividend. Capital gain is the profit resulting from sale of the common stock where as dividend is the share in profit of the company. The shareholders in one hand they also expect an increase in market price of the share and in the other hand they also expect distribution of firms earning in the forms of dividend. From the firm having stable image in the market the investors expect regular dividend. Thus this priority takes over the desire to retain earning for financial expansion and growth, shareholders expectation can be fulfilled either through capital gain or dividends.

Since dividend would be more attractive to stockholder one might think that there would be a tendency for corporation to increase distribution dividends but one might

equally pressure that gross dividend would be reduced. Somewhat with an increase in net after tax dividends still available to stockholders and increase in retained earnings for the corporation. It is thus very important to maintain balance between the shareholders interest and corporate growth resulting form internal financing is amount retained. “Financial Management is therefore concerned with the activities of the corporation that affect the well being of stockholders. That well being can be partially measured by the dividend received but more accurate measure is the market value of stock” *(William; 1973: 33)*. Thus dividend decision is one of the central bad nadir decision area related to the policies seeking to maximize the value of firms common stock as well as the wealth of shareholders.

2.1.2 The Dividend Payment Process

Firms in the United States generally pay dividends every quarter, whereas firms in other countries typically pay dividends on a semi-annual or annual basis. Look at the time line associated with dividend payment and define different types of dividends.

Dividend in publicly traded firm are usually set by the board of directors and paid out to stockholders a few weeks later. There are several key dates between the times the board declares the dividend until the dividend is actually paid.

- The first date of note is the dividend declaration date, the date on which the board of director declares the dollar dividend that will be paid for that quarter. This date is important because by announcing its intent to increase, decrease, or maintain dividend, the firm conveys information to financial markets. Thus, if the firm changes its dividends, this is the date on which the market reaction to the change is most likely to occur.
- The next date of note is the ex-dividend date, at which time investors have to have bought the stock in order to receive the dividend. Since the dividend is not received by investors buying stock after the ex-dividend date, the stock price will generally fall on that day to reflect that loss.
- At the close of the business a few days after the ex-dividend date, the company closes its stock transfer books and makes up a list of the shareholders to date on the holder of-record date. These shareholders will receive the dividends. There should be generally being no price effect on this date.

- The final step involves mailing out the dividend checks on the dividend payment date. In most cases, the payment date is two to three weeks after the holder of record.

2.1.3 Theories of Dividend

There are two fundamental theories regarding to dividend:

1. Residual theory
2. Wealth maximization theory

Residual Theory

Residual theory is that, in which the first priority is given to the profitable investment opportunities. If there are profitable opportunities, the firm invests in those and residual income (if any) is distributed to the stockholders. Residual theory of dividends means, "A theory that suggests that the dividend paid by the firm should be the amount left over after all acceptable investment opportunities have been undertaken" *(Gitman; 1988).* Using this approach the firm would treat the dividend decision in three steps as follows:

Step 1

Determine the optimum level of capital expenditure which would be the level generated by the point of intersection of the investment opportunities schedule (IOS) and weighted cost of capital (WMCC) function,

Step 2

Using the optimal capital structure proportion, it would estimates the total amount of equity financing needed to support the expenditures generated in step 1,

Step 3

Because the cost of retained earnings, K_r, is less than the cost of new common stocks, K_n, retained earnings would be used to meet the equity requirement determined in step 2. If retained earnings are inadequate to meet these needs, new common stock would be sold. If the available retain earnings are in excess to this needs, the surplus amount would be distributed as dividends.

(ii) Wealth Maximization Theory

Under wealth maximization theory, larger dividends is announced and distributed to shareholders. Basically, it is applicable for those companies, which are just established and to those companies it will be beneficial whose financial profits are in decreasing trends. The main purpose of the wealth maximization theory of dividend is to make assurance to the stockholders that they are interesting in the firm, which has not better market value.

Keeping these theories into considerations, dividend can be paid in different forms. Among them some are discuss below:

2.1.4 Major Forms of Dividend

Depending upon the objectives and policies, they implement, the firm can give various type of dividend to the shareholders. Before adopting any dividend, the firm must ensure the smooth growth of the firm as well as satisfy the expectation of the shareholders. There should be consistency in dividend policy and financial plans, shareholders preference and attitude of the directors (*Bhattarai; 1996:24).*

The corporations in Nepal are in the early stage of development due to which they need to pay extensive concentration in the dividend. The empirical observation in case of public limited companies in Nepal shows that only few corporations are paying dividend to the government due to suffering from regular losses and not having risk of ownership transfer. Some of the major forms of dividends the corporations cash adopt are discussed below:

a. Cash Dividend

Cash dividend is simply the dividend paid in cash of the proportion of net earnings, which are distributed to shareholders, as cash in proportion to their shares of company is known as cash dividend. Actually, it is most popular and widely used form of dividend, all over the globe.

Generally, stockholders have strong preference for cash dividend. Both the total assets and net worth of the company are reduced by same amount, when the cash dividend is Announced or distributed. Moreover, the share price will fall (or may not)

after the cash dividend. Therefore, the need is that, the firm should have sufficient fund for the distribution of the cash dividend among shareholders or if the firm does not have sufficient fund for the distribution; it should borrow from any source. For the better cash dividend stability cash planning, budgeting and control mechanism are suggested or required. Cash dividend has the direct impact on the shareholders, it is one of the most interesting matters of the study, and the volume of the cash dividend depends upon earning of the firm and on the management attitude or policy. Cash dividend has the psychological value for stockholders. Each and everyone like to collect their return in cash rather than non-cash means. So cash dividend is not only a way to earnings distributions but also a way of perception improvement in the capital market. The objectives of the cash dividend are:

- To distribute the earnings to shareholders, as they hold the proportion of the shares.
- To build an image in the capital market so as to create favorable condition to raise the fund at the needs,
- To make distribution easy and to account easily.

B. Stock Dividend & Stock Split

It is the dividend in which the firm issues additional shares of its own stock to stockholders in proportion to the numbers of the shares held in lieu of the cash dividend. Stock Dividend: A payment of additional shares of stock to share holders often used in place of or in additional to cash dividend. (Van Horne, 2000:328) Stock dividend is known as bonus shares too. An issue of bonus share represents a distribution of shares in addition to the cash dividend (known as stock dividend in U.S.A.) the existing shareholders *(Pander; 1995:705).*

The payment of stock dividend does not change earning neither position of the form nor ownership of the stockholders is changed. A stock dividend is paid in additional shares of the stock instead of in cash and simply involves a book keeping transfer from retain earning to stock accounts *(Weston; 1991:680).* The net effect of the stock dividend would be an increase in numbers of shares of current stockholders to represent the same interest as it was before using the stock dividend. Practically, if the stock dividend is issued, the par value of the share remains constant. In case of stock

split the par value of the share does not remain constant, therefore the common stock, paid-in-capital and retain earnings account also remain same. Except in accounting treatment the stock dividend and stock split are very similar. A stock split however is usually reversed for occasion when a company wishes to achieve a substantial reduction in the market price of the shares *(Van Horne;2000:328).*

In any case, the concern of the management is the positive effect on the stock price. The stock dividend must not be issued if it caused the stock price decline. The effect of the stock dividend can be outline into the following points:

- The issuer of the stock dividend increases the numbers of the outstanding shares.
- The issue of stock dividend transfers retained earnings to the capital account.
- The net worth and the par value of the company do not change with the issue of stock dividend.
- The issue of the stock dividend does not affect the stock holders' proportional ownership,
- The earnings per share (EPS) will decrease if the total profit does not increase.

An analysis of all benefits and cost of stock dividends depicts the net effect on the value of stock, and provides a basis to issue or not to issue stock dividend *(Pradhan; 1992:384).* In stock split there is no change in the capital account: instead a large numbers of the shares of the common stock are issued. In two-for-one stock split, stockholders receive two shares for each one previously held. The book value per share is cut in a half and par or stated, value per share is similarly changed *(Prasad; 200:14).* Practically accepted behavior of the stock dividend and split hold some differences. The New York Stock Exchange consider, any distribution of the stock totaling than 25% of outstanding stock to be a stock dividend and any distribution of 25% or more a stock split. A stock split has the following effects:

- A stock split increases the number of outstanding stocks,
- It increases the par value and the market price of the stock,
- It does not change the proportional ownership of stockholders,
- It does not change the capital account nor the net worth of the company,

- Unless the total earning is increased, the stock split causes a dilution of EPS. Decision regarding the stock split depends on the expected increase in the price/earning (P/E) ratio and the stock value. What matters is the increase in the stock price as the result of the decision *(Pradhan;2001: 385).*

The accounting treatment portrayed holds for what is known as small percentage. Stock dividend is usually a distribution of 20 % or less of the number of common shares already outstanding. Because larger common stock dividends will materially reduce share price, the accounting authorities usually require that capitalization change be in terms of the par value of the additional share issued.

Practically if the stock is issued, the par value remains constant. In case of stock split the par value of the share does not remain constant, therefore the common stock, paid –in- capital and retain earnings account also remain same. Except in accounting treatment, the stock dividend and stock split are very similar. A stock split however is usually reversed for occasions when a company wishes to achieve a substantial reduction in the market price per share.

A stock dividend pays additional stock to stockholders. Theoretically, it is not a thing of value to the stockholders unless cash dividends per share remain unchanged or are increased. Stock dividends may serve to keep the market price per share in a popular trading range. A more effective device for reducing market price per share is stock split. Both stock dividends and stock splits appear to have informational of signaling effect. When other things are held constant, share price tends to rise around the time of announcement, consistent with positive signal *(Van Horne; 2000:328).*

The integral part of dividend policy of a firm is the use of *bonus shares* and the stock splits. Both involves issuing new shares on a pro-rata basis to the current share holders while firms assets, its earning, the risk bearing assumed and the investors percentage ownership in the company remain unchanged. The only definite results from either bonus share or share split are the increase in the number of shares outstanding *(Khan & Jain; 1995:588).*
In practice, it is observed that the immediately after the announcement of bonus issue, the market price of the company changes depending on the investors' expectations.

Sometimes a sharp decline in the share price may be observed if the bonus issue falls short of the investors' expectations.

It may be emphasized that the market value of share may improve as the result of bonus issue if it is followed by increased dividends in the immediate future. If the dividends do not increase, it is likely that the market price may fall *(Gupta; 1973:7).*

Advantage of Stock Dividend

Stock dividend tends to increase so many advantages to the firm:

i) Tax Advantage

In case of bonus share received by investors they can have tax enjoyment than that in cash dividend. It is because the cash is added in his/her original income and that is taxed at ordinary income tax rate but stock dividend is tax free.

ii) Higher Future Profits

Bonus share actually indicates the probability higher future profits in the investors' point of view. Company issues, the bonus share when it is expected the rise in earning to offset the additional outstanding shares and this practice build up the belief of investors that bonus share will/may give the higher profits in future.

iii) Cash Conversion

Bonus share have dual satisfaction between investors' as well as company. These shares are issued in place of cash dividend that means company can retain money for most probable investment opportunities. Similarly it satisfies the shareholders, as they will have increased numbers of shares. Increased number of shares will produce both capital gain and accumulated dividend; investors think accordingly.

iv) Possibility of Future Dividend Increase

Bonus shares or stock dividend will accumulate the dividend for investor; if the company has the fixed dividend policy. Similarly the increase in dividend may have significant impact on market price of share (hoped increase).

V) Financial Difficulty & Contractual Restriction

Bonus share become only means to company when they have to replace the cash dividend even though company's intention is not to retain earnings. It exists while company facing the crisis. Moreover, bonus issue is declared when the restriction to pay cash dividend are put under loan agreement.

vi) Psychological Value

Bonus shares or stock dividend increases the total shares volume of every shareholders and it makes them feeling the real owner of the company. Similarly, they could sell the additional stock only to have capital gain or return replacement of dividend. This facility forces investor to accept stock dividend positively and it could also be able to create the environment of market price of shares rise.

vii) Attractive Share Price

Stock dividend reduces the price of share and it is attractive when share price are very high. High price attracts only the big investors therefore trading activities may not incur voluminously. But the issue of bonus shares reduces the price and it will attract even the small investors. After then, volume of trading begins to improve as expected.

a. Constraints of Bonus Shares Issue

The fact of the bonus shares is that it can't affect the value of shareholders' wealth. It is only a means to capitalizing the post earning of the shareholders. Bonus share, in fact, divides the total ownership into small units therefore it does not give benefit only to shareholders. Moreover, bonus share administration is also complicated than cash dividend.

b. Consideration in Bonus Shares Issue

This is a practice and theoretical framework while issuing the bonus shares. A company is not allowed to declare bonus share unless partially paid-up-shares have been converted into fully paid-up share. Bonus share can be issued once in a year. A resolution approving the proposal of bonus issue, the company's shareholders should pass clearly indication the rate of dividend payable on the increased capital.

c. Scrip Dividend

Scrip dividend means payment of dividend in scrip or promissory notes. Because of temporary cash shortage, sometimes the firm needs cash generated by business earnings to meet the different requirements. For those requisites, scrip dividend is issued promising the payment will be made in future.

- This type of dividend does not change the total numbers of the stock but issued promissory note in the proportion of share held by the stockholders.
- Scrip dividend has relatively low psychological value in the stockholders' perception than other forms of the dividends.

d. Property Dividend

If the company pays the dividend in the forms of assets to its stockholders other than the cash is known as property dividend. In this practice, assets, which are superfluous for the company, are distributed as dividend to the stockholders, and in some cases the company pays (as dividend) the subsidiary company's shares. But the shares have to be owned by the company. Property dividends are also least used practice and used when extra-ordinary circumstances exist. Property dividend may have the following natures:

- It should match the requirements of the shareholders or it reduces the charming of cash dividend replacement,
- Perception value of property dividend cannot be as same as cash dividend
- Property dividend is very least applied means to dividend; therefore sometimes it may have (not need) positive response of the investors.

Even though this type of dividend is paid in the extra-ordinary situation, it is less attractive in the point of view of the investors in any cases. Similarly the payment of the subsidiary company's shares in place of cash dividend could result the negative impact of '*this is not better than that'*. The shareholder may feel the shares that are paid to them are of less value therefore they paid.

e. Bond Dividend

With the theory and concept of scrip dividend, if dividends are paid in the form of bond (to shareholders), promising that it will nature in the future date is known as bond dividend. Therefore the intention and purpose of bond dividend is also the

postponement of dividend payment for some time. The only difference between bond and scrip dividend is that bond carries relatively longer maturity date than scrip dividend. Bonds used to pay carry interest and it means that the company assumes the fixed obligation of interest payment annually and principal amount of bond at maturity date. Bond dividend posses the following characteristics:

- Bond dividends are the means to dividend postponement for a while but more it is obligation.
- It couldn't bring back the psychological value as the cash dividend,
- Bond and scrip dividend are same, only the difference between these are maturity time i.e. scrip has relatively less maturity time than bond dividend.

f. Split and Reverse Split

Stock split as already mentioned would be the adjustable cash dividend replacement. It helps to satisfy the following three reasons:

- To make the share more attractive stock split may be practices by the company,
- Stock split would increase the transaction value of share,
- Stock split is itself the indication of higher profit in future.

When the market price of share of a company is falling gradually, the company may adopt reverse split which may increase the market price per share and help to maintain efficient situation of the company. The reduction of the numbers of outstanding shares by increasing per share value is known as a reverse split.

g. Stock Repurchase

It is the process of repurchasing back outstanding shares of any company. A corporation's repurchase of its stock can serve as a tax advantages substitute for dividend payout. Repurchases have the effect of raising share prices so that shareholders can be taxed at the capital gain rate instead of ordinary dividend rate on cash dividend. Company can repurchase its shares in two ways:

- Open Market Repurchase
- Tender (Offer) Repurchase

Open market repurchases usually (but not always) involve gradual programs to buy back shares over a period of time. In tender offer, the company usually specifies the number of shares it is offering to repurchase, a tender price, and a period of time during which the offer is in effect. If the number of shares actually tendered by the shareholders exceeds the maximum number specified by the company, the purchases are usually made on a pro-rata basis. Alternatively, if the tender offer is under subscribed the firm may decide to cancel the offer or extend the expiration date. Share tendered during the extension may be purchased on either pro-rata or FCFS (First Come First Served) basis *(Weston;1999: 682-683).*

The repurchase of stock holds major three reasons i.e. for stock option, for acquisition, and for retiring the stocks. However, Nepalese company acts 1997, section 47 has prohibited company for repurchasing its own shares. It states that no company shall purchase its own shares or supply loans against the security of its own shares.

Stock is repurchased specially when the firm has abnormally high profits and is not in a position to effectively utilize surpluses. By repurchasing stocks, the remaining stockholders receive future benefits instead of current high dividend. The point to be noted whether the benefits of repurchase out weights the portion of profits the remaining stockholders are to give up for repurchasing stocks. The repurchase effects are as follows:

- The stock repurchases reduce the number of outstanding stocks.
- It increases EPS and also DPS if the payout ratio is not changed.
- It increases the proportional ownership of existing stockholders.
- It increases the stock price as net worth per share increases.

2.1.5 Dividend Policy

Dividend policy determines the division of earnings between payments to stockholders and reinvestment in the firm. Retain earnings are one of the most significant sources of fund for financing corporate group, but dividends constitute the cash flow that accrue to stockholders.

The third major decision of the firm is its dividend policy, the percentage of earnings it pays in cash to its stockholders. Dividend payout, of course, reduces the amount of earnings retain in the firm and affect the total amount of internal financing. The dividend payout ratio obviously depends on the way earnings are measured for ease of explosion, we use account net earnings but assume that these earnings can form true economic earnings. In practice, net earnings may not conform and may not be an appropriate major of the ability of firm to pay dividends *(Van Horne; 2000:305).* Dividend policy refers to the issue of how much of the total profit a firm should pay to its stockholders and how much to retain for investment so that the combined present and future benefits maximize the wealth of stockholders. The dividend policy, however, not only specifies the amount of dividend, but also form of dividend, payment procedure etc. In general, dividend policy is concerned with the following matters:

- Amount of dividend to be paid-the policy outlines the basis to determine the amount of dividend to be paid,
- Form of dividend- Cash dividend and / or stock dividend,
- Payment procedure
- Stock repurchase and stock splits *(Pradhan; 1992:376)*

Dividend policy according to the application could be categorized as following:

a. Constant Dividend Per Share

According to this form of stable dividend policy, a company follows a policy of paying a certain fixed amount per share as dividend. The fixed dividend amount would be paid year after year, irrespective of the fluctuation in the earnings. In other words, fluctuations in earnings would not affect the dividend payment. In fact, when a company follows such a dividend policy it will pay dividends to the shareholders even when it suffers losses. It should be clearly noted that this policy does not imply that the dividend per share or dividend rate will never be increase. The dividend per share is increased over the years when the company reaches new levels of earnings and expects to maintain it. Of course, if the increase is expected to be temporary, the annual dividend per share is not changed and remains at the existing level. It is easy to follow this policy when earnings are stable. If the earnings pattern of a company

shows wide fluctuations, it is difficult to maintain such a policy. Investors who have dividends as the only source of their income prefer the constant dividend policy.

b. Constant Payout Ratio

Constant/target payout ratio is another form of stable dividend policy followed by some companies. The term payout ratio refers to the ratio of dividend to earnings or the percentage share of earnings used to pay dividend. With constant/target payout ratio, a firm pays a constant percentage of net earnings as dividend to the shareholders. In other words, a stable dividend payout ratio implies that the percentage of earnings paid out each year fixed. Thus, amount of dividend will fluctuate in direct proportion to earnings and are likely to be highly volatile in the wake of wide fluctuations in the earrings of the company. This policy is related to a company's ability to pay dividends. If the company incurs losses, no dividend shall be paid regardless of the desires of shareholders. Internal financing with retained earnings is automatic when this policy is followed. At any given payout ratio the amount of dividends and the additions to retained earnings increase with increased earnings and decrease with decreased earnings. This policy simplifies the dividend decision, and has the advantage of protecting a company against over and under payment of dividend. It ensures that dividends are paid when profits are earned, and avoided when it incurs losses.

c. Stable Rupee Dividend Plus Extra Dividend (or Low Regular Dividend Plus Extras)

A policy of paying a low regular dividend plus a yearend extra in good years is a compromise between the previous two policies. Under this policy, a firm usually pays fixed dividend to the shareholders and in years of marked prosperity additional or extra dividend is paid over and above the regular dividend. As soon as normal conditions return, the firm cuts the extra dividend and pays the normal dividend per share. It gives the firm flexibility, but it leaves investors somewhat uncertain about what their dividend income will be. If a firm's earnings and cash flows are quite volatile, however, this policy may well be the best choice.

2.1.6 Factor Influencing Dividend Policy

Dividend policy is concerned with deciding the part of profit to be distributed to the shareholders. While establishing a dividend policy in any organization, various factors should be taken into consideration. Dividend is that decision, which is influenced by many internal as well as external factors. Management has to consider both economic and non-economic factors before establishing any dividend policy. In practice, the financial executives consider the following factors when approaching a dividend decision.

a. Stability of Earnings

A firm that has relatively stable earnings is often able to anticipate approximately what its future earnings will be. Such a firm is therefore more likely to pay out a higher percentage of its earning than a firm with fluctuating earnings. The unstable firm is not certain that in succeeding years the anticipated earnings will be realized, so it is likely to retain a higher proportion of current earnings. A lower dividend will be easier to sustain if earnings fall off in the future.

b. Profit Rate

The expected rate of returns on assets determines the relative attractiveness of paying out earnings in form of dividend to the shareholders who will use them elsewhere or using them in the present venture.

c. Past Dividends

A firm with record of past dividend payments strive to maintain the same in the future. Dividends are habit forming. If the market does not receive its expected dosage, the stock price will suffer. The majority of firms surveyed indicated they would maintain their current dividend payments even if they were operating at a net loss for an interim period. Furthermore, Baker, Farrell and Edelman (1985) find that managers strongly agree with the statement that a firm should attempt to maintain a persistent record of dividend payments.

d. Liquidity Position

One of the major factors to be considered in making the dividend decisions is the availability of cash or liquidity position of a company. As dividend symbolize cash

outflow, the greater the cash position and overall liquidity of a company, the greater its ability to pay a dividend regularly. Even a company that is growing and profitable may not be liquid, for its funds may go into investment opportunities, fixed assets and permanent current assets. Thus, even if a firm has a record of earning, it may not be able to pay cash dividends because of its liquidity position. In deed, a growing firm even a very profitable one typically has a pressing need for funds. In such a situation the firm may elect not to pay cash dividend.

e. Need to Repay Debt

When a firm has issued debt to finance expansion or to substitute for other form of financing, it is faced with two alternatives. It can refund the debt at maturity by replacing it with another form of security or it can make provision of paying off debt. If the decision is to retire the debt; this will generally require the retention of earning. In such case also the dividend decision will be affected.

f. Restrictions in Debt Contracts

Debt contracts, especially when long-term debt is involved, often confine a firm's ability to pay cash dividends. In other words the protective covenants in bond indenture or loan agreement often include a restriction on payment of dividends. The restriction is employed by the lenders to conserve the company's ability to service debt. Generally it is particulate as maximum percentage of earnings. Similarly preferred stock agreements generally state that no cash dividends can be paid on the common stock until all accrued preferred dividends have been paid. These types of limitations persuade the dividend policy of the firm.

g. Tax of Shareholders

The tax position of the corporation's owners greatly influences the desire for dividends. For example, a corporation closely held by a few tax payers in high income tax brackets is likely to pay a relatively low dividend. The owners are interested in taking their income in the form of capital gains rather than as dividends which are subject to higher personal income tax rates. However, the stockholders of a large widely held corporation may be interested in a high dividend payout.

h. Rate of Asset Expansion

There is need of more financing if a firm is growing rapidly. The greater the future need of funds, the more likely the firm is to retain its earning rather than pay them out in form of dividends. But if earnings are paid out as dividend and are subjected to high personal income tax rates only portion of them will be available for reinvestment.

i. Access to the Capital Market

A large and well-established firm with a record of profitability and stability of earning have easy access to capital markets and other forms of external financing. In contrast a small and new firm is riskier for potential investors. Its ability to raise equity or debt funds from capital market are restricted. So it must retain more earning to finance its operation. Thus a well-established firm have higher payout ratio than that of a new or small firm.

j. Legal Restrictions

Legal rules constrain dividend payment on certain conditions as follows:

- Capital impairment rule states that dividend should not be paid out of paid-up capital, which causes adverse effect on security of creditors and preference shareholders. The firm should not pay cash dividend greater than the current net profit plus accumulated balance of retained earnings. Accumulated loss should be recouped out of current earnings. This rule is violated by some of Nepalese companies due to management intention and government intervention.
- Insolvent firms i.e. liabilities exceeding assets or unable to pay bills are prohibited for paying cash dividend to protect creditors of the firm.
- If the firm has retained earning to provide opportunity to shareholders for capital gain and thereby evade tax liability of income, under such condition the firm may be forced to pay dividends.

k. Control

With a liberal dividend policy, there may be need of raising fresh capital in future. If the current shareholders cannot or do not subscribe the new shares, new stockholders can dilute their controlling interest in the firm. Thus shareholders who are very sensitive to a potential loss of control prefers a low dividend payout policy.

l. Inflation

Inflation also play decisive role in dividend decision. In price rise, the company may have to retain high percentage of earning because of inadequate funds generated from depreciation to replace equipments

2.2 Legal Provisions Regarding Dividend Practices in Nepal

There are no clear-cut legal provisions regarding dividend policy in Nepal. Commercial Bank Act, 2031 has made some provision for distributing dividend. According to this section, before providing the whole expenses by the bank for preliminary expenses, loss incurred in last year, capital reserve, risk beard fund and reserve fund the bank shall not be declare and distribute the dividend to shareholders. Similarly, Company Act-2063 has made some legal provisions regarding dividend payment. These provisions are as under:

- Section 2 (M) states that bonus shares (stock dividends) means shares issued in the form of additional shares to shareholders by capitalizing the surplus from the profits or the reserve fund of a company. The term also denotes an increase in the paid up values of the shares after capitalizing surplus or reserve funds.
- Section 47 has prohibited company from purchasing its own shares. This section states that no company shall purchase its own shares or supply loans against the security of its own shares.
- Section 137 Bonus Shares and Sub Section (1) states that the company must inform the Office before issuing bonus shares, under Sub Section (1), this may be done only according to a special resolution passed by the general meeting.
- Section 140: Dividends and Sub Sections of this Section are as follows: Sub Section (1): Except in the following circumstances, dividends shall be distributed among the shareholders within 45 days from the date of decision to distribute them,
  - In case any law forbids the distribution of dividends.
  - In case the right to dividend is disputed.
  - In case dividends cannot be distributed within the time-limit mentioned above owing to circumstances beyond anyone's control and without any fault on the part of the company.

Sub Section (2): In case dividends are not distributed within the time-limit mentioned in Sub Section (1), this shall be done by adding interest at the prescribed rate.
Sub Section (3): Only the person whose name stands registered in the register of existing shareholder at the time of declaring the dividend shall be entitled to it.

Similarly, following are the major decision regarding dividend payment by the government corporation dated 2063.

i. Dividend should be paid in profitable year. Even though there are cumulative losses, dividend is to be paid if cash flow is sufficient to distribute dividend.
ii. In case of unaudited accounts, interim dividend should be paid on the basis of provisional financial statement.
iii. Decision regarding distribution of annual net profit shall not be made without prior acceptance of Ministry of Finance. All incentives, except those to be paid by law, shall not be distributed unless the amount of dividend is not paid to government.
iv. Concerned BOD and top management will be held responsible for implementation of these dividend policies.
v. Ministry of Finance will make necessary arrangements regarding fixation of dividend percentage coordinating all concerned corporation and ministries.

2.3 Review of International Studies

As we mentioned earlier, there have been so many studies made by the different persons and institutions for dividend policy and stock price. There are two opinions regarding to dividend payout and market price/value of the shares. One point of view is that dividends are irrelevant and the amount of dividend payout does not affect the market value of the share. The other is dividends are relevant and the amount of dividend paid affect the market price/value of the shares.

Always a critical and confused question are arose, whether dividend policy affect the market value of the shares or not. To put light in these matter different studies made by different international scholars and researchers should be overviewed. Therefore some of the main researchers are going to be discussed below:

Gordon (1962) has developed another popular and important model relating to the stock valuation using the dividend capitalization approach. Gordon concludes that dividend policy does affect the value of shares even when the return on investment and required rate of return are equal. He explains that investors are not indifferent between current dividend and retention of earnings with the prospect of future dividends, capital gain and both. The conclusion of this study is that investors have a strong preference for present dividends to future capital gains under the condition of uncertainty. It is assumed that current dividend is less risky than the expected capital gain. His argument stresses that an increase in dividend payout ratio leads to increase in the stock price for the reason that investors consider the dividend yield (D1/Po) is less risky than the expected capital gain.

Gordon's model is also described as "a bird in hand argument". It supports the arguments, which is popularly known as a bird in hand is worth two in the bush. What is available at present is preferable than what may be available in the future. That is to say current dividends are considered certain and risk-less. So it is preferred by rational investors as compared to deferred dividend in future. The future is uncertain. The investors would naturally like to avoid uncertainty. So the current dividends are given more weight than expected future dividend by the investors. So the value per share increases if dividend payout ratio increases. This means there exist positive relationship between the amount of dividend and stock prices.

Basic assumptions of this model are as follows.

- The firm uses equity capital only.
- Internal rate of return (r) and cost of capital (key) are constant.
- The firm and its stream of earnings are perpetual.
- There are no taxes on corporate income.
- The retention ratio (b) once decided upon is constant. Thus the growth rate,
- (g = bra) is constant forever.
- 'Ke' must be greater than g (br) to get meaningful value.
- The source of financing for new investment is only retained earnings. No external financing is available.

Gordon's model is also known as Growth Model. The formula for finding out the market value per share, proposed by Gordon is given below.

$$P = \frac{E(1-b)}{Ke-br} = \frac{E(1-b)}{Ke-g}$$

Where,

P = Price of share/market value per share

E = Earning per share

b = Retention ratio/percentage of retained earning

1-b = Dividend payout ratio (i.e., percentage of earning distributed as dividend)

Ke = Capitalization rate/cost of capital

br = g or growth rate in r, (i.e., rate of return on investment of anall equity firm)

1st Case: Growth Firms (r > k)

In the case of growth firm, the value of a share will increase as the retention ratio (b) increases and the value of a share will decrease as the retention ratio (b) decreases. i.e. high dividend corresponding to earnings leads to decrease in share prices and low dividend corresponding to earning leads to increase in share prices. So, dividends and stock prices are negatively correlated in growth firm i.e., **r > k** firm.

2nd Case: Normal Firms (r = k)

Dividend payout ratio does not affect the value of share in normal firm. In other words, share value remains constant regardless of changes in dividend policies. It means dividend and stock price are free from each other in normal firm i.e., **r = k** firm.

3rd Case: Decline Firms (r<k)

In case of declining firms, share price tends to enhance with increase in payout ratio (1-b), or decrease in retention ratio (b). So, dividends and stock prices are positively correlated with each other in decline firm i.e., **r < k** firm.

Modigliani and Miller (1961) for the first time in the history of finance advocated that dividend policy does not affect the value of the firm, i.e., dividend policy has no effect on the share price of the firm. They argued that the value of the firm depends

on the firm's earnings which depend on its investment policy. Therefore, as per MM Theory, a firm's value is independent of dividend policy.

According to MM, dividend policy of a firm is irrelevant, as it does not affect the wealth of the shareholders. They argue that the value of the firm depends on the earning power of the firm's assets or its investment policy.

In general, the argument supporting the irrelevance of dividend valuation is that dividend policy of the firm is a part of its financing decisions. As a part of the financing decision of the firm, the dividend policy of the firm is a residual decision and dividends are passive residual.

The MM approach of irrelevance dividend is based on the following critical assumptions:

- The firms operate in perfect capital market where all investors are rational. Information is freely available to all. Securities are infinitely divisible and no investor is large enough to influence the market price of securities.
- There are no flotation costs. The securities can be purchased and sold without payment of any commission or brokerage etc.
- Taxes do not exist.
- The firm has a definite (fixed) investment policy, which is not subject to change.
- Risk of uncertainty does not exist. Investors are also able to forecast future prices and dividends with certainty, and one discount rate is appropriate for all securities and all time periods. Thus **r = k = kt** for all time.

M-M provides the proof in support of their argument in the following manner.

Step-One

The market price of a share of the firm in the beginning the period is equal to the present value of dividends paid at the end of the period plus the market price of the share at the end of the period.

Symbolically,

$P_0 = D_1 + p$ …….(1)

Where,

P_0 = Current market price of a share (market price at the beginning or at the zero period)

K_e = The cost of equity capital (Assumed constant)

D_1 = The dividend per share to be received at the end of the period one.

P_1 = The market price of the share at the end of the period one.

Step-Two

Multiply both sides of equation (1) by the number of shares outstanding (n) to obtain the total value of the firm if no new financing exists.

$$np_0 = \frac{n(D_1 + P_1)}{1+K_e} \text{ ……..(2)}$$

Where,

n = no. of outstanding shares at zero period.

Step-Three

If the firm issues (sells) number of new shares (m) to finance the new investment needs of the fund at a price of P1, the value of the firm at time zero will be:

$$np_0 = \frac{nD_1 + (n+m) - mp_1}{1+k_e} \text{ ……(3)}$$

Where,

n = no. of shares at the beginning (no. of outstanding shares at zero period.)

m = no. of equity shares issued at the end of the period.

Step-Four

If the investment proposals of a firm in a given period of time can be financed either of retained earning or the issuance of new shares or both. Thus amount of new issued will be,

$mP_1 = I - (E - nD_1)$

Or, $mp_1 = I - E + nD_1$…… (4)

Where,

I = Investment needs

E = Earning available.

Step-Five

By substituting the value of mp1 from equation (4) to equation (3), we get,

$nP_0 = \frac{nD_1 + P_1(n+m) - 1 + E\,nD_1}{1+K_e}$

or, $\frac{nD_1 + mp_1 - I + E - nD_1}{1+K_e}$

Or, $nP_0 = \frac{P1(n+m) - 1 + E}{1+Ke}$

Step-Six

Conclusions:

Since dividend does not appear directly in expression and E, I, (n+m)p1 and ke are assumed to be independent of dividend.

In other words, MM conclude that dividend policy is irrelevant and dividend policy has no effect in the value of the firm. A firm that pays dividends will have to raise funds externally to finance its investment plans. MM hold that when the firm pays dividends, external financing offsets its advantage.

It does not seem so relevant to apply MM approach in Nepalese Context because when we apply this approach, the assumptions supposed by MM are significantly deviated. In Nepal, we are unable to find the rational investors as well as perfect capital market, which are considered by MM. It does not seem so sound to neglect the flotation cost, transaction cost and tax effect on capital gain as neglected by MM. Arbitrage arguments as explained by MM applies only when there are very sensitive investors and which are lacking in Nepal. A conscious investor always finds different between dividend and retained earning. Thus, MM proposition is not relevant in the case of Nepal.

Walter (1966) conducted a study on dividend and stock prices in 1966. He proposed a model for share valuation. According to him, the dividend policy of the firm affects the value of the shares. So, the dividends are relevant. He argues that the choice of dividend policies always affect the value of enterprise.

His study shows clearly the importance of the relationship between internal rate of return (R) and its cost of capital (K) in determining the dividend policy.

The assumptions of the Walter's model are as follows:

i. The firm finances all investment through retained earnings. The external funds (i.e. debt, new equity) are not used for new investment.
ii. All earning on the firm's investment (R) and the cost of capital (k) are constant.
iii. All earnings are either distributed as dividend or reinvested internally.
iv. The values of EPS and DPS are assumed to remain constant forever in determining a given value.
v. The firm has a perpetual or infinite life. Based on these above assumptions, Walter has given following formula of valuation of equity share.

$$P = \frac{DPS}{ke} + \frac{r/Ke(EPS-DPS)}{ke}$$

$$\text{Or, } P = \frac{DPS+r.ke(EPS-DPS)}{Ke}$$

Where,

P = Market value of an equity share (Market price per share)
DPS = Dividend Per Share
EPS = Earnings Per Share
r = The rate of return on the firm's investment.
Ke = Cost of capital/capitalization rate

According to Walter's model, the optimum dividend policy depends on the relationship between the firm's internal rate of return (r) and its cost of capital (k). Walter referred different dividend policy for different types of the firm, which can be summarized as follows.

Growth Firm (r > k)

Growth firms are those firms, which expand rapidly. Because of ample investment opportunities yielding return (r) is higher than the opportunity cost of capital (k). So, firms having **r > k** is referred as growth firms which are able to reinvest earnings at a rate, which is higher than the rate expected by shareholders. They will maximize the value per share if they follow a policy of retaining all earnings for internal investment. Thus, the correlation between dividend and stock price is negative, and the optimum payout ratio for a growth firm is zero. The market value per share (P), increases, as payout ratio declines when **r > k.**

Normal Firm (r = k)

If the internal rate of return is equal to cost of capital, the dividend payout does not affect the value of share, i.e. dividends is indifferent from stock prices. In other words, there is no role of dividends on stock prices. Such a firm can be called as a normal firm. Whether the earnings are retained or distributed as dividend, it is a matter of indifference for a normal firm. The market price of share will remain constant for different dividend payout ratio from zero to 100. Thus, there is no unique optimum payout ratio for a normal firm. One dividend policy is good as other and the market value per share is not affected by the payout ratio when **r = k.**

Declining Firm (r < k)

If the internal rate of return (R) is less than cost of capital (k), it indicates that the shareholders can earn a higher return by investing elsewhere. In such a case for maximizing the value of shares, dividend also should be maximized. By distributing the entire earning as dividend, the value of share will be at optimum value. In other words, the market value per share of a declining firm with **r < k** will be maximum when it does not retain earnings at all. The relation between dividends and stock price is positive. The optimum payout ratio for a declining firm is 100 percent and the

Declining Firm (r < k)

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Criticism of Walter's Model

(I) No external financing

This model is based on assumption that the investment opportunities of the firm are financed by retained earnings finance the investment opportunities of the firm only no external financing i.e., debt or equity is used for the purpose. When such a situation exists either the firm's investment or its dividend policy or both will be sub-optimum. (Francis, Jack Clark 1972)

(ii) Constant rate of return (R) and opportunity cost of capital (K)

This model assumes that rate of return (R) and opportunity cost of capital or discount rate (k) are constant. In fact, rate of return (R) changes with increase and decrease of investment. i.e., R decreases as more investment occurs and cost of capital (k) changes directly with the risk borne by the firms.

Van Horne and Mc-Donald (1971) conducted a comprehensive study on dividend policy and new equity financing. The purpose of this study was to investigate the combined effect of dividend policy and new equity financing decision on the market value of the firm's common stocks.

Empirical tests were performed with year-end 1968 cross sections for two industries, using a well-known valuation model. For there investigation, they employed two samples of firms viz. the 86 electric utilities in the continental U.S. which were included on the **COMPUSTAT** utility data tape; and 39 companies in the electronics and electric component industries as listed on the **COMPUSTAT** industrial data tape in 1968.

They performed empirical study by testing two regressions for the electric utilities and one regression model for electronics and electronic components industry.

The First Model was,

$P0/E0 = a_0 + a_1 (g) + a_2 (D_0/E_0) + a_3 (Lev) + u$

Where,

$P_0\backslash E_o$= Closing market price in 1968 divided by average EPS for 1967 &1968.

G= Expected growth rate, measured by the compound annual rate of growth in assets per share for 1960 through 1968

D_0/E_0 = Dividend payout, measured by cash dividend in 1968 divided by earnings in 1968.

Lev= Financial risk, measured by interest charges divided by the difference of operating revenues and operating expenses.

U = Error term.

The Second Model was,

$P0/E0 = a_0 + a_1 (g) + a_2 (D_0/E_0) + a_3 (Lev) + a_4 (Fa) + a_5 (Fb) + a_6 (Fc) + a_7 (Fd) + u$

Where,

Fa, Fb, Fc, and Fd are dummy variables corresponding to "new issue ratio" (NIR) groups A through D.

It is noted that they had grouped the firms in five categories A, B, C, D and E by NIR. For each firm the value of dummy variables representing its NIR group is one and the values of remaining dummy variables are zero.

Again, they tested the following regression equation for electronics-electronic components industry.

$P_0/E_0 = a_0 + a_1 (g) + a_2 (D_0/E_0) + a_3 (Lev) + a_4 (OR) + u$

Where,

Lev = Financial risk, measured by long term debt plus preferred stock divided by net worth as of the end of 1968.

OR = Operating risk, measured by the standard error for the regression of operating earnings per share on time for 1960 through 1968, and rest are as in First Model above.

By using these models, they compared the result obtained for the firms which both pay dividend and engage in new equity financing with other firms in an industry sample. They concluded that for electric utility firms in 1968, share value was not adversely affected by new equity financing in the presence of cash dividends, except for those firms in the highest new issue group and it made new equity a more costly form of financing than the retention of earnings. They also indicated that the payment of dividend through excessive equity financing reduces share prices. For forms in the electronics-electronic component industry, a significant relationship between new equity financing and value was not demonstrated.

Friend and Puckett (1964) have conducted a study about the relationship between dividends and stock prices through the regression analysis on the data of 110 firms from five industry samples, viz., chemicals (n=20), electronics (n=20), electric utilities (n=25), foods (n=25), and steels (n=20), in each of two years, 1956 and 1958. The industries were selected to permit a distinction to be made between the results for growth and non-growth industries and to provide a basis for comparison with results by other authors for earlier years. Both cyclical and non-cyclical industries were covered. The periods covered include a boom year for the economy when stock prices leveled off after a substantial rise (1956) and a somewhat depressed year for the economy when stock prices, however, rose strongly (1958).

They used two-regression model of price function and dividend supply function. In price function, dividends, retained earnings & price earnings ratio are independent variables, whereas, earnings, last year's dividends and price earning ratio are independent variables in dividend supply function. Symbolically, their price function and dividend supply function can be written as:

Price Function; $P_t = a + b D_t + c R_t + d (E/P)_{t-1}$

Where,

P_t = Per share price at time t D_t = Dividends at time t

R_t = Retained earnings at time t $(E/P)_{t-1}$ = Lagged earnings price ratio

and,

Dividend Supply Function; $Dt = e + f\ Et + g\ D\ t\text{-}1 + h(E/P)\ t\text{-}1$

Where,

Et = Earnings per share at time t

Pt-1 = Last year dividend

The followings were the basic assumptions of their study.

1. Dividends do react to year-to-year fluctuations in earnings.
2. Price does not contain speculative components.
3. Earnings fluctuations may not sum zero over the sample.

The regression $Pt = a + b\ Dt + c\ Rt$ presents the usual simple linear relationships between average prices and dividends and retained earnings to show with the data. They found the customary strong dividend and relatively weak retained earnings effect in three of five industries i.e., chemicals, foods, and steels.By adding lagged earnings price ratio to the above equation, they got the following results.

$Pt = a + b\ Dt + c\ Rt + d\ (E/P)\ t\text{-}1$

They tested this equation and found the following results.

Dividends have a predominant influence on stock prices in the same three out of five industries but the differences between the dividends and retained earnings coefficients were not quite significant as in the first set of regressions. The dividends and retained earnings coefficients were closer to each other for all industries in both years except for steels in 1956, and the correlations were higher, again except for steels.

They also calculated the dividend supply equation, i.e.,

$Dt = e + f\ Et + g\ D\ t\text{-}1 + h\ (E/P)\ t\text{-}1$ and derived price equation for four industry groups in 1958.The derived price equation show no significant changes from those obtained from the single equation approach as explained above, reflecting the fact that stock price, or more accurately the price earnings ratio, does not seem to have a significant effect on dividend payout. On the other hand, they noted that, in three of the four cases tested, the retained earnings effect was increased relatively. Moreover, their result suggested that price effects on dividend supply are probably not serious sources of bias in the customary derivation of dividend and retained earnings effects

on stock prices, though such a bias might be masked if the distributing effects of short run income movements are sufficiently great.

Further, they used lagged price as a variable instead of lagged earnings price ratio. They found that retained earnings received greater relative weight than dividends in the majority of the cases. The only exceptions were steels and foods in 1958. Chemicals, electronics, and utilities were considered as growth industries and the retained earnings effect was larger than the dividend effect for both years covered. For the other two industries (steels and foods) there no longer seems to be any significant systematic differences between the retained earnings and dividend coefficients.

Similarly, they tested the regression of Pt = a + b Dt + c Rt by using normalized earnings again. They obtained normalized retained earnings by subtracting dividends from normalized earnings. That normalization procedure was based on the period 1950-61. Again, they added prior year's normalized earnings price variable and they compared the result. Comparing the result, they found that there was significant role of normalized earnings and retained earnings but an effect of normalized price earnings ratio was constant. After examining the later equation, they found that the difference between dividend and retained earnings coefficients disappeared. Lastly, they come to a conclusion that management might be able to increase prices somewhat by raising dividends in foods and steel industries. At last, Friend and Puckett concluded that, it is possible that management might be able, at least in some measure, to increase stock prices in non-growth industries by raising dividends and in growth industries by greater retention, i.e. smaller (lower) dividends.

2.4 Review of Nepalese Context

Due to the lack of information and expertise, no sufficient studies have been carried out in regards to the dividend policy. However, recent developments in the field of capital markets have shown some rays of hope for the future. Some of the studies done in the field of dividend policy and stock prices have been reviewed hereunder.

Katawal (2001), in his study, *"A Comparative Study of Dividend Policy in Commercial Bank"*, has the main objective to find out the dividend policy in CBs. The other specific objectives of this study are:

a. To find out the impact of dividend on share prices.
b. To analyze the relationship of financials indicators.
c. To examine if there is any uniformity among DPS, EPS and DPR on the six sample banks.

The major findings of this study are:

a. Average EPS and DPS for the period covered by the study of all concerned banks are satisfactory.
b. Analysis of coefficient of variance indicates that there is large fluctuation in EPS and DPS and other are relatively more consistent.
c. The analysis of DPR shows that none of the sample banks have consistent dividend policy.
d. The market value of shares in market in fluctuating in all sample banks.
e. The most important decision is that no specific dividend payment strategy is followed by these banks. Payment of cash dividend and stock dividend are made without wise managerial decision due to unstable and adequate dividend and unequal payout ratio.

Ghimire (2002), in his study, *"Dividend Policy of Listed Companies with Reference to Banks, Finance and Insurance Companies"*, has the main objective to examine the dividend policy of listed companies. The other specific objectives of the study are;

a. To identify the regularity of divided distribution of different listed companies.
b. To identify the relationship between dividend policy and other financial indicators.
c. To find out whether dividend policy affect the value of the firm or not.
d. To analyze the relationship between DPS and MPS.
e. To provide suggestion for the improvement of sample companies dividend policy on the basis of findings.

The major findings of the study are:

a. The average dividend per share of the banks is satisfactory compared to finance and insurance companies.
b. The average earning per share of the bank is also more satisfactory than finance and insurance companies.
c. DPS of the finance companies are more fluctuating in comparison to banks among them HBL has more fluctuation and NGBL being consistent.
d. Dividend yield of the finance and insurance are higher than banks and more consistent too.
e. Banks are following aggressive dividend policy due to higher DPR whereas finance and insurance companies implemented moderate dividend policy.

Adhikari (2003), in his study, *"Corporate Dividend Practices in Nepal"*, has the main objective to analyze the dividend practices in Nepal. The other specific objectives of the study are;

a. To analyze the properties of portfolios formed on dividend.
b. To examine the relationship between dividend and stock prices.
c. To test the impact of earning on dividend distribution.

The major findings of this research are:

a. Financial position of high dividend paying companies is comparatively better than that of low dividend paying companies.
b. Market price of stock of both finance and non finance and non finance sectors are affected by dividends.
c. There is a positive relationship between dividend and stock price
d. There is a negative relationship between dividend payout and earnings before tax to net worth
e. Stocks with larger ratio of DPS to book value per share have higher profitability. These profitability ratios of stocks paying larger dividends are also more variable as compared to stocks paying smaller dividends.

Budhathoki (2006), in his study, *"The study of Dividend Policy of the commercial Banks in Nepal"*, has the main objective to examine the dividend policy in banks. The other specific objectives of the study are;

a. To compare the dividend policy followed by different commercial banks chosen.
b. To analyze the relationship of dividend on other financial indicators.
c. To provide the sample banks with some fruitful suggestion that can be implemented easily and possible guideline to overcome various issues and gaps based on the findings of the analysis.

The major findings of this study are:

a. The average earning per share (EPS) of the banks under study shows a positive result. But the coefficient of variation indicates that there is no consistency of EPS.
b. The average dividend per share (DPS) shows that there is no regularity in dividend payment.
c. The analysis of DPR shows that the Dividend Payout Ratio (DPR) of the banks is not stable.
d. The average market price shows that there is quite high level of fluctuation.

Karki (2006), in his study, *"A Study on Dividend Policy in Finance Companies"*, has the main objective to examine the dividend policy followed by finance companies. The other specific objectives of the research are;

a. To compare the dividend paid by Annapurna Finance Company Ltd. and Butwal Finance Ltd.
b. To examine the relationship between DPS with EPS, MPS and BPS.
c. To predict DPS in future years.

The major findings of the study are;

a. The shareholders of AFCL enjoyed higher DPS than those of BFL.
b. AFCL made more EPS than BFL. However, DPR of BFL is higher than DPR of AFCL, which indicates that BFL has concentrated on attracting new

shareholders by distributing more portion of its earning while AFCL focused on retaining earning for internal financing.

c. There is high positive relationship between DPS and EPS of AFCL and the relationship is statistically significant. However, the relationship between DPS and EPS of BFL is positive but the relationship is insignificant.
d. The correlations coefficient indicates that MPS increases with the increase in DPS of each bank and the relationship is positively significant.
e. The regression analysis indicates that the MPS of both banks is highly dependent on the DPS and EPS of corresponding banks.
f. The trend analysis depicts that the DPS of AFCL in the fiscal year 2005/06 and 2006/07 will be Rs.12.76 and Rs.14.85 respectively, whereas the DPS of BFL will be Rs.9.82 and Rs.10.15 in the fiscal year 2005/06 and 2006/07 respectively.

Khatiwada (2008), in his study, *"A comparative study of Dividend Policy in Nepal Investment Bank Ltd. and Standard Chartered Bank Ltd."*, has the main objective to identify the dividend policy in SCBNL and NIBL. The other specific objectives of the research are;

a. To examine the relationship between earning and dividend distribution.
b. To evaluate the impact of dividend on share price.
c. To examine the relationship of DPS with other financial indicators.

The major findings of the study are;

a. The shareholders of SCBNL received comparatively very high DPS than the shareholders of NIBL. On average, SCBNL paid Rs. 110 DPS, whereas NIBL paid Rs. 14.50 DPS.
b. SCBNL remained more successful than NIBL in generating earning per share. On average, SCBNL earned Rs. 155.84 per share, while NIBL earned only Rs. 50.54.
c. The DPR of SCBNL is also very high compared to that of NIBL. The average DPR of SCBNL is 70.59% and that of NIBL is 28.69%.
d. DPS has high influence on the price rise/fall of share. Both MPS and BPS are highly dependent on the DPS of corresponding banks.

e. The prime objective to invest in bank is to earn dividend. About 78% of the respondents stated that dividend is the most alluring factor in share investment.
f. There exists high correlation between DPS and EPS, DPS and MPS and DPS and BPS of both banks.

Concluding Remarks

There have been many national and international studies in the field of dividend policy to date. All the concepts and practices of foreign author's model about dividend practices are not used in our Nepalese dividend policy. Those studies have tried to find out the relationship between dividend policy and market price of the stock. But as the Nepalese Capital market is in the early stage of development, the conclusion made by the international studies may not relevant in the Nepalese context. So, it is recommended to devote some efforts and think how to use those foreign model dividend practices in Nepalese dividend policy.

So far the Nepalese studies are considered, there are some studies done, which can be considered to be landmark in the field of dividend policy. But many more changes have taken place in Nepalese capital market in last few years and the validity of the past result is doubtful in the present context. Besides this some researchers have taken different firms of different firms of different sector, so the results drawn from those studies may not be accurate to represent the present practices and efforts made in the Nepalese capital markets.

Research Gap

Those studies have tried to find out the relationship between dividend policy and market price of the stock. But, as the Nepalese capital market is in the early stage of development, the conclusion made by the international studies may not be relevant in the Nepalese context. So far the Nepalese studies concerned, there are some studies done, like which can be considered to be landmark in the field of dividend policy; but many more changes have taken place in Nepalese capital market in last few years and the validity of the past results are doubtful in the present context. Besides this, some researchers have taken only few firms of the same sector as sample and so, the results drawn from those studies may not be accurate to represent the present practices and

efforts made in the Nepalese capital markets. So, it is necessary to carry out a fresh study related to dividend pattern of Nepalese companies.

In this study, it is tried to carry out the distinct from other previous studies in items of sample size, nature of the sample firms, and methodology used. The study has covered 6 banks. Six years data have been analyzed with due consideration of EPS, DPS, DPR and MPS. Analyses of financial indicators, standard deviation, regression analysis etc. are used as the main models in the study with a view to obtain the relevant and accurate results. So, it has been believed that this study will be different than earlier one.

CHAPTER – III

RESEARCH METHODOLOGY

3.1 Introduction

Research methodology describes the method and process employed in the entire aspect of the study. It also focuses used in the present study. Research work requires a scientific methodology of the study. In other words, research methodology refers to the various sequential steps to be adopted by a researcher in studying a problem with certain objectives in view *(Kothari; 1978: 19).* Research Methodology' is a way for systematically solving the research problem. So, it is the methods, Steps and guidelines which are to be followed in analysis and it is a way of analysis.

The main purpose of this chapter is to discuss the research methodologies which are to be followed in analysis, and it is a way of presenting the collected data with meaningful analysis. The main purpose of this chapter is to discuss the research methodology such as research design, population and sample, data collection technique and analytical tools of the research study. It is widely accepted that research is simply the process of arriving at dependable solution to problem through the planned and systematic collection analysis and interpretation of data. It is most important tool for advancement of knowledge and accomplishment of purpose

3.2 Research Design

Research design is a conceptual structure within which a research is conducted. Research design is the plan, structure and strategy of investigation conceived so as to obtain answers to research question and to control variance *(Wolf and Pant; 2002:74).* .The research design refers to the conceptual structure within which the research is conducted *(Kothari;1978:22).* Collection and analysis of data in manner that aims to combine relevance to the research purpose with economy in procedure *(Selltnz;1962:50).* Fred N. Krelinges has defined it in his book Foundation of Behavioral Research as "Research Design" is the plan structure and strategy of investigation concerned so as to obtain answers to research. It is purposeful scheme of action proposed to be carried out in a sequence during the process of research.

Research design helps researcher to enable him to keep track of action and to know whether he was moving in the right direction to achieve his goal.

This study is designed so as to find out the impact on the market price of common stock of a company when dividend is paid to shareholders and also how the market price responds when dividend is not paid to the shareholders. In other words, the study is closely related to the dividend policy and its impact on the share price and wealth position of the shareholders. Therefore, the descriptive as well as the analytical approaches are adopted here .To makes the analysis more effective, financial statements, statistical tools and testing models are also used.

3.3 Nature and Source of Data

The research is mainly depending upon the secondary data of the selected commercial banks which has been downloaded the official website of Nepal Stock Exchange Limited i.e.www.nepalstock.com. Besides the research may include the Annual Reports of the banks under the study, Economic Report Published by Nepal Rastra Bank, the stock price of the whole year listed in the Nepal Stock exchange (NEPSE), Economic Survey published from Nepal Ministry of Finance. Final status report published from World Bank .Similarly, the required data have also been acquired from various articles, central library and Shankar Dev Campus Library. Besides above the indirect and informal talks to concerned field have also been made.

After collecting the necessary data relevant facts and figure have taken and tabulated under the different heading. Such table and formats are subjected to interpretation and explanation as necessary. Scientific calculator and simple microcomputer has been used to compute data.

3.4 Population and Sample

Until 2010, 28 Commercial banks (including government owned, private and Joint venture are operating in Nepal, hence it does not seem reasonable to study all the banks regarding the study topic. Due to the limited time and resource factors too. It is not possible to study all of them; so sampling has been done. There should be no confusion with parameters and size of the companies since the topic is not related to

comparison of sizes, but the dividend policy and its effect on market price of shares or simply, the valuation of shares.

All of the 28 commercial banks regarding the list as follow:

Table 3.1

List of Licensed Commercial Banks

S.No	Name of Bank	Operation Date
1	Nepal Bank Ltd	1937/11/15
2	Rastriya Banijya Bank Ltd	1966/01/23
3	Agricultural Development Bank Ltd	1968/01/02
4	NABIL Bank Ltd	1984/07/16
5	Nepal Investment Bank Ltd	1986/02/27
6	Standard Chartered Bank Nepal Ltd	1987/01/30
7	Himalayan Bank Ltd	1993/01/18
8	Nepal SBI Bank Ltd	1993/07/07
9	Nepal Bangladesh Bank Ltd	1993/06/05
10	Everest Bank Ltd	1994/03/12
11	Bank of Kathmandu Ltd	1995/03/12
12	Nepal credit and Commerce Bank Ltd	1996/10/14
13	NMB Bank Ltd	1996/11/26
14	Lumbini Bank Ltd	1998/07/17
15	Nepal Industrial and Commerce Bank Ltd	1998/01/21
16	Machapuchhre Bank Ltd	2000/10/03
17	Development Credit Bank Ltd	2001/01/23
18	Kumari Bank Ltd	2001/04/03
19	Laxmi Bank Ltd	2001/04/03
20	Sidhartha Bank Ltd	2002/12/24
21	Global Bank Ltd	2007/01/02
22	Citizen Bank International Ltd	2007/06/21
23	Prime Commercial Bank Ltd	2007/09/24
24	Sunrise Bank Ltd	2007/10/12
25	Bank of Kathmandu	2007/10/12
26	KIST Bank Ltd	2009/05/07
27	Janata Bank Ltd.	2010
28	Mega Bank Ltd.	2010

Out of above listed Commercial Banks that are operating their activities in Nepal; The following major 6 Commercial Banks have been selected for the study.

1. Standard Chartered Bank Nepal Limited
2. Nabil Bank Limited

3. Nepal Investment Bank Limited
4. Himalayan Bank Limited
5. Bank of Kathmandu Limited
6. Everest Bank Limited

The samples so selected are the major leading joint venture banks in Nepal which are actively declaring dividend declaration. The trends and practices of declaration of dividend of the banks and its impact on stock price can request overall trend of dividend declaration of joint venture banks of a small country like Nepal.

3.5 Tools and Techniques of Analysis

Data collected from various sources have been properly organized, analyzed and presented in appropriate tables and formats. Such tables and formats are subjected to interpretation and explanation as necessary. Specific Financial tools and Statistical tools are used to analyze various. Mainly, the analysis has been done using following tools and methods:

3.5.1 Financial Tools

Financial tools are those which help to study the financial position of the firms .The financial tools used in this study are as follows.

3.5.1.1 Earning Per Share (EPS)

The income of per common share is known as Earning per share. It measures the profitable of the shareholders investment .The higher earning per share indicates the better achievements in term of Profitability of the Banks of Mobilizing their funds and vice versa respectively. In other words, the EPS indicates the strength and weakness of the Banks. EPS computed by dividing the earning available to common shareholders by the total numbers of common stocks outstanding. Thus,

$$\text{Earning Per Share (EPS)} = \frac{\text{Earning available to common stockholders}}{\text{No. of common stock outstanding}}$$

.

3.5.1.2 Dividend Per Share (DPS)

Dividend Per Share indicates the rupees earnings distributed to common stockholders per share hold by them. It measures the dividend distribution to each Equity shareholders. Dividend per share shows the portion of earning distribution to the shareholders on per share basis. Generally the portion of earning distribution to the shareholders is on per share basis. Generally the higher DPS creates positive attitude of the shareholders towards the bank is common stock which consequently helps to increase the market value of the shares. And it also works as the indicator of better performance of the bank management. It is calculated by the following formula,

$$\text{Dividend Per Share (DPS)} = \frac{\text{Total Amount of Dividend Paid to Ordinary}}{\text{No. of Ordinary Shares Outstanding}}$$

3.5.1.3 Dividend Payout Ratio (DPR)

Dividend Payout Ratio is the proportion of earning paid in the form of dividend. This ratio shows what percentage of profit is retained as reserve and what percentage is retained as reserve and surplus for the growth of the company depends upon the earnings made by it. Higher earning enhances the ability to pay more dividends and vice versa.

There is an inverse relationship between dividends and retained earnings. The higher dividend payout ratio, the lower will be the proportion of retained earnings and vice versa. The capacity of internal financing of the firm is checked by the retention ratio. DPR is calculated by dividing DPS by EPS .Thus,

$$\text{Dividend Payout Ratio (DPR)} = \frac{\text{Dividend Per Share}}{\text{Earning Per Share}}$$

3.5.1.4 Price Earning Ratio (P\E)\Earning Multiplier

Price Earning Ratio is also called the Earning Multiplier. Price Earning Ratio is the ratio between market price per share and earning per share. In other words, this represents the amount which investors are willing to pay for each rupee of the firm's earnings.

The P\E Ratio measures investor's expectation and market appraisal of the performance of the firm. The higher P\E Ratio implies the market share price of a stock given the earning per share and the greater confidence of investor in the firm's future. This ratio computed by dividing earning per share to market price per share. Thus,

Price Earning Ratio (P\E Ratio) $= \frac{\text{Market Price Per Share}}{\text{Earning Per Share}}$

3.5.1.5 Dividend Yield (DY)

Dividend yield is a percentage of dividends per share on market price per share. It measures the dividend in relation to market value of share. So dividend yield is the dividend received by the investors as a percentage of market prices in the stock market.

This ratio highly influences the market price per share because a small change in dividend per share can bring effective change in the market value of the share. The share with higher dividend yield is worth buying. Thus the price of higher dividend yields increase sharply in the market. Dividend has important guidance to commit funds for the buying of shares in the secondary market. The ratio calculated by dividing dividend per share by market price of the stock. Thus,

Dividend Yield (DY) $= \frac{\text{Dividend per share}}{\text{Market price per share}}$

3.5.1.6 Earning Yield (EY)

Earning Yield is the percentage of earning per share to market price per share in the stock market. In other words, it is a financial ratio relating to earning per share to the market price per share at a particular time it measures the earning in relation to market

Value of share. It gives some idea of how much an investor is earning for his money. The hare with higher earning Yield is worth buying .It is calculated as,

Earning Yield (YE) $= \frac{\text{Earning per share}}{\text{Market price per share}}$

3.5.2 Statistical Tools

Besides the financial tools, various statistical tools have been used to conduct this study. The pattern of available data is a major determinant to analyze the data. So analysis of data will be done according to pattern of available data. The result of analysis has been properly tabulated, compared, analyzed and interpreted. In this study, the following statistical tools are used to analyze the relationship between dividend and other variables.

3.5.2.1 Arithmetic Mean or Average

An average is the value, which represents a group of values. It depicts the characteristic of the whole group. It is an envoy of the entire mass of homogeneous data. Generally the average value lies somewhere in between the two extremes, i.e. the largest and the smallest items. It is calculated as follows:

$$\text{Arithmetic Mean} = \frac{X1+X2+X3.....+Xn}{N}$$

$$\text{Or } X = \frac{\sum X}{N}$$

Where,

ΣX = sum of the sizes of the items

N = number of items

3.5.2.2 Standard Deviation (σ)

Karl Pearson first introduced the concept of standard deviation in 1983. "It is the most usual measure of dispersion and it represents the square root of the variance of a group of numbers, i.e. the square root of the sum of the squared differences between a group of numbers and their arithmetic mean". Standard deviation is the positive square root of the arithmetic average of the squares of all the deviations measured from the arithmetic average of the series. The standard deviation measures the absolute dispersion of a distribution. The greater the amount of dispersion the greater the standard derivation, i.e. greater will be the magnitude of the deviations of the values from their mean. A small standard deviation means a high degree of

uniformity of the observation as well as homogeneity of a series. It is denoted by a Greek letter 'σ' (Sigma) and is calculated as follows:

Standard Deviation **(σ)** = $\sqrt{\frac{1}{n} \times (\sum X - \bar{X})^2}$

Where,

N = Number of items in the series.

X= Mean

X = Variable

3.5.2.3 Coefficient of Variation (C.V.)

It is the measurement of the relative dispersion developed by Karl Pearson. It is used to compare the variability of two or more series. The series with higher coefficient of variation is said to be more variable, less consistent, less uniform, less stable and less homogenous. On the contrary the series with less coefficient of variation is said to be less variable, more consistent, more uniform, more stable and more homogenous. It is denoted by C.V. and is obtained by dividing the standard deviation by arithmetic mean. Thus,

Coefficient of Variation (C.V.) = $\frac{S.D}{Mean} \times 100 = \frac{\sigma}{\bar{X}} \times 100$

Where,

σ = Standard Deviation

$\bar{X}$ = Mean

3.5.2.4 Coefficient of Correlation

According to Richard I. Levin, Correlation analysis is the statistical tools that we can used to describe the degree to which are variable is linearly related to another". The correlation analysis is the technique used to measure the closeness of the relationship between the variables. It helps us in determining the degree of relationship between two or more variables. It describes not only the magnitude of correlation but also its direction. The coefficient of correlation is a number, which indicates to what extent

two variables are related with each other and to what extent variations in one leads to the variations in the other.

The value of coefficient of correlation always lies between +1. A value of –1 indicates a perfect negative relationship between the variables and a value of +1 indicates a perfect positive relationship. A value of zero indicates that there is no relation between the variables.

The zero correlation coefficient means the variables are uncorrelated. The closer r is to +1 or –1, the closer the relationship between the variables and closer r is to zero (o), the less close relationship. The algebraic sign of the correlation coefficient indicates the direction of the relationship between two variables, whether direct or inverse, while the numerical value of the coefficient is concerned with the strength, or closeness of the relationship between two variables.

Thus, in this study, the degree of relationship between market price and other relevant financial indicators such as dividend per share, earning per share, dividend payout ratio etc is measured by the correlation coefficient. The correlation coefficient can be calculated as:

$$r = \frac{Cov(XY)}{\sigma X \sigma Y}$$

or,

$$r = \frac{\sum(X-\bar{X})(Y-\bar{Y})}{N\sigma X\sigma Y}$$

$$r = \frac{N\sum XY - \sum X \sum Y}{\sqrt{\sum Nx^2 - (x)^2}\sqrt{\sum Ny^2 - (y)^2}}$$

Where,

σX, σY are the standard deviation of the distributions of X and Y values respectively.

Cov (X,Y) = covariance of X,Y value Under this study, the correlation between the following variables are analyzed :

a) Market Price Per Share and Earning Per Share

b) Market Price Per Share and Dividend Per Share

c) Market Price Per Share and Dividend Percent

d) Market Price Per Share and Dividend Payout Ratio

e) Market Price Per Share and Price Earning Ratio

f) Market Price Per Share and Earning Yield

g) Market Price Per Share and Dividend Yield

h) Market Price Per Share and 'MPS to BVPS' Ratio

i) Market Price Per Share and Net Worth Per Share

j) Earning Per Share and Dividend Per Share

k) Earning Per Share and Dividend Payout Ratio

l) Dividend Per Share and Dividend Payout Ratio

m) Dividend Per Share and Net Worth Per Share

n) Earning Yield and Dividend Yield

3.5.2.5 Coefficient of Determination (r^2)

The coefficient of determination is the primary way to measure the extent, or strength, of the association that exists between two variables, X and Y. "Coefficient of determination measures only the strength of a linear relationship between two variables." It refers to a measure of the total variance in a dependent variable that is explained by its linear relationship to an independent variable. The coefficient of determination is denoted by R2 and the value lies between zero and unity. The closer to unity, the greater the explanatory power. A value of one can occur only if the unexplained variation is zero, which simply means that all the data points in the scatter diagram fall exactly on the regression line. The R2 is always a positive number. It can't tell whether the relationship between the two variables is positive or negative. The R2 is defined as the ratio of explained variance to the total variance.

Thus,

Coefficient of determination $(r^2) = \frac{\text{Explained Variance}}{\text{Total Variance}}$

or, R2 = 1 - $\frac{\text{Unexplained Variance}}{\text{Total Variance}}$

3.5.2.6 Regression Analysis

Francis Galton was the first person to introduce the concept of regression. Regression refers to an analysis, which is involving the fitting of an equation to a set of data points, generally by the method of least square. In other words the regression is a statistical method for determining relationships between the variables by the establishment of an approximate functional relationship between them. It is used to determine that whether the dependent variable is influenced by the given independent variable or not. It is considered as a useful tool for determining the strength of relationship between two (Simple Regression) or more (Multiple Regression) variables. It is also used to predict value of one variable given the value of other variables.

Simple linear regression analysis is used to find the relationship between two variables. In this study, the following simple regressions have been analyzed.

i) Market Price Per Share on Earning Per Share

$$Y = a + bX$$

Where,

Y = Market Price Per Share

a = Regression Constant

b = Regression Coefficient of Market Price Per Share on Earning Per Share

X = Earning Per share

This model has been constructed to examine the relationship between market price per share (dependent variable) and earning per share (independent variable).

ii) Market Price Per Share on Dividend Per Share

$$Y = a + bX$$

Where,

Y = Market Price Per Share

a = Regression Constant

b = Regression Coefficient of Market Price Per Share on Dividend Per Share

X = Dividend Per share

This model has been constructed to examine the relationship between market price per share (dependent variable) and dividend per share (independent variable).

iii) Market Price Per Share on Dividend Percent

$$Y = a + bX$$

Where,

Y = Market Price Per Share

a = Regression Constant

b = Regression Coefficient of Market Price Per Share on Dividend Percent

X = Dividend Percent

This model has been constructed to examine the relationship between market price per share (dependent variable) and dividend percent (independent variable).

iv) Market Price Per Share on Dividend Payout Ratio

$$Y = a + bX$$

Where,

Y = Market Price Per Share

a = Regression Constant

b = Regression Coefficient of Market Price Per Share on Dividend Payout Ratio

X = Dividend Payout Ratio

This model has been constructed to examine the relationship between market price per share (dependent variable) and dividend payout ratio (independent variable).

v) Market Price Per Share on Dividend Yield

$$Y = a + bX$$

Where,

Y = Market Price Per Share

a = Regression Constant

b = Regression Coefficient of Market Price Per Share on Dividend Yield

X = Dividend Yield

The relationship between market price per share (dependent variable) and dividend yield (independent variable) can be explained through this model.

vi) Dividend Per Share on Earning Per Share

$$Y = a + bX$$

Where,

Y = Dividend Per Share

a = Regression Constant

b = Regression Coefficient of Dividend Per Share on Earning Per Share

X = Earning Per Share

The relationship between dividend per share (dependent variable) and earning per share (independent variable) can be explained through this model.

i) Regression Constant (a)

The value of constant is the intercept of the model, when the independent variable is zero; it indicates the average level of dependent variable. In other word, it is better to understand that 'a' (constant) indicates the mean or average effect on dependent variable if all the variables omitted from the model.

ii) Regression Coefficients (b)

The regression coefficient of each independent variable shows the relationship between that variable and value of dependent variable, holding the effects of all other independent variables of the regression model constant. In other words, these coefficients explain how changes independent variables affect the values of dependent variables estimate.

3.5.2.7 Standard Error of Estimate (S.E.E.)

Practically, the perfect prediction is not possible with the help of regression equation. Standard Error of Estimate is used to measure the reliability of the estimating equation. It measures the variability or scatter of the observed values around the regression line. It also measures the reliability of the estimating equation, indicating the variability of the observed values differ from their predicted values on the regression line.

The larger the value of S.E.E., the greater the scattering or dispersion of points around the regression line, conversely, if S.E.E. is equals to zero, then, there is no variation about the line and the correlation will be perfect. So, we expect the estimating equation to be a 'perfect' estimator of the dependent variable. In that case, all the data points would lie directly on the regression line and no points would be scattered around it. Similarly, the smaller the S.E.E., the closer will be the dots to the regression line and the better the estimates based on the equation for this line. Thus, with the help of standard error of estimate, it is possible for ascertaining how well and representative the regression line is as a description of the average relationship between two series.

S.E. = $\frac{\sigma_x}{\sigma_y} \times \frac{\sqrt{1-r^2}}{\sqrt{N}}$

3.5.2.8 Trend Analysis

Trend analysis of ratios indicates the direction of change over a period of time. It informs about expected future returns, future achievement of the bank, future credit worthiness of bank; financial capability of the bank and much other information which would be helpful to concerned parties of bank. In this study, “The method of least square” is selected as a statistical tool for the analysis of selected banks EPS trend.

3.6. Limitation of the Methodology

The analysis on the secondary data is obtained from financial statement provided by NEPSE through website. The regression analysis along with other remaining analysis is based on the polled data from the mentioned source. The reliability of the statistical tools used and lack of experience is primary limitation of the research work. Besides the dividend has been referred only to the cash dividend. The computer has been used for statistical calculation, therefore, technical error possibly may exist with least chance.

CHAPTER - IV

PRESENTATION AND ANALYSIS OF DATA

Presentation and Analysis of data is the major part of this study. Using various financial and statistical tools discussed in 'Research Methodology', the data are analyzed to achieve the specified objective of the study. This study is highly supported the dividend distribution practice of joint venture Commercial Bank.

4.1 Analysis of Financial Indicators

4.1.1 Earning per share

Earning per share refers the rupee amount earned per share of common stock outstanding. It measures the profitableness of the shareholders investment. The earning per share shows the profitability of the banks on a per share basis. The higher earning indicates the better achievements of the profitability of the banks by mobilizing their funds and vice versa. The earning per share of the banks under study is tabulated as follows:

Table 4.1

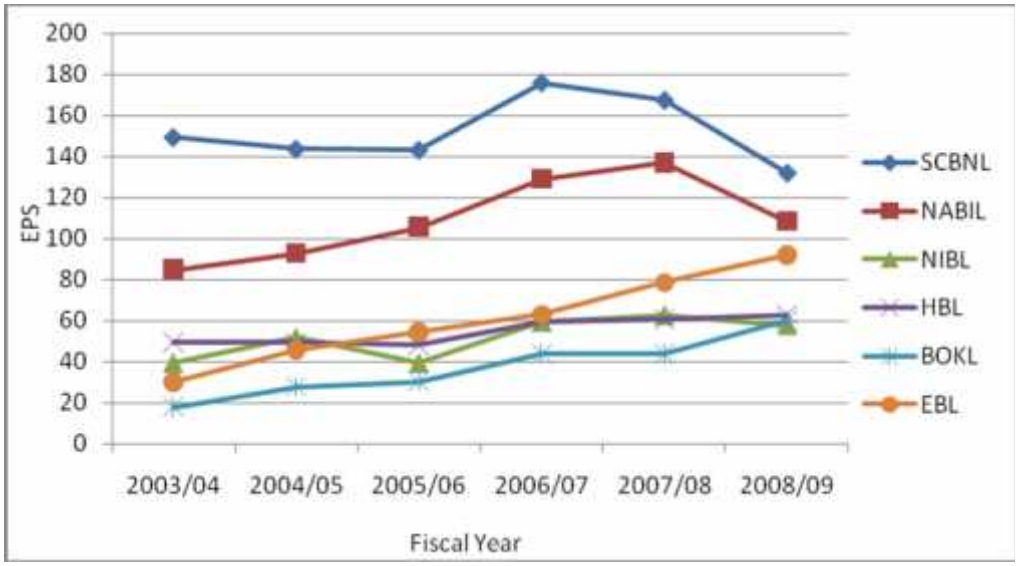
Earning Per Share of Concern Banks

Year	SCBNL	NABIL	NIBL	HBL	BOKL	EBL
2003/04	149.30	84.66	39.56	49.45	17.72	29.90
2004/05	143.55	92.61	51.70	49.05	27.50	45.58
2005/06	143.14	105.49	39.50	47.91	30.10	54.20
2006/07	175.84	129.21	59.35	59.24	43.67	62.80
2007/08	167.37	137.08	62.57	60.66	43.50	78.40
2008/09	131.92	108.31	57.87	62.74	59.94	91.82
Mean	151.85	109.56	51.76	54.84	37.07	60.45
SD	15.08	18.57	9.23	6.14	13.68	20.43
CV	9.93	16.95	17.83	11.20	36.90	33.80

Source:www.nepalstock.com

Figure 4.1

Earning Per Share of Concern Banks



The EPS of SCBNL range between Rs. 175.84 to Rs 131.92 during the period of study. During this period, the average EPS is Rs151.85.The standard deviation of the EPS under the period of the study is 15.08. The C.V of 9.93% indicates that there is a moderate fluctuation of 9.93% in the EPS of SCBNL during the period of study.

The average of EPS of NABIL Bank Limited, during this period of study is Rs109.56.It stayed within the range of Rs 137.08 to 84.66.The standard deviation of the EPS is 18.57 whereas the coefficient of variation is 16.95%. The CV indicates a Moderate fluctuations in the EPS of the bank.

Nepal Investment Bank Ltd (NIBL), within the period of study has an average EPS of Rs 51.76 range between Rs 62.57 to Rs 39.50. The standard deviation is 9.23 and the fluctuation is 17.83% in the EPS is seen during this period, which is shown by the coefficient of variance of the bank.

During the period of the study Himalayan Bank Limited (HBL) has an average EPS of Rs 54.84 with standard deviation of 6.14.The EPS range between Rs 62.75 to 47.91.The coefficient of variation shows that there is a fluctuation of 11.20% in EPS of HBL.

The EPS of BOKL range between Rs 59.94 to 17.72 during the period of study. During this period, the average EPS is Rs 37.07. The standard deviation of the EPS under the period of study is 13.68. The CV of 36.90 % indicates that there is a fluctuation of 36.90% in the EPS of BOKL, during this period.

Everest Bank Ltd has the EPS range between Rs 91.82 to Rs 29.90 during the period of the study. An average of Rs 60.90 is noted during this period. The standard deviation of the EPS is 20.43.The CV of 33.80%. The CV indicates that there is a fluctuation of 33.80% in EPS during the period of the study.

From the above analysis, it can be seen that the average EPS of SCBNL is the highest and that of BOKL is lowest. The EPS range of the bank under study during this period this between Rs 175.84 and Rs 17.72.Similarly the standard deviation of EBL is highest and HBL is the lowest .The coefficient of variation of these banks shown that there is fluctuation in the EPS. If compared, SCBNL has the most consistent EPS among all sample Banks.

4.1.2 Dividend per Share (DPS)

Dividend Per Share is the rupee earnings distributed per share to common stockholders. Dividend per Share shows the portion of earning distributed to the shareholders on per share basis. Generally, the higher DPS creates positive attitude among the shareholders toward the bank, which accordingly helps to increase the market value of shares. It also works as the indicator of better performance of the bank's management. The dividend per share of the banks under study in the table below:

Table 4.2

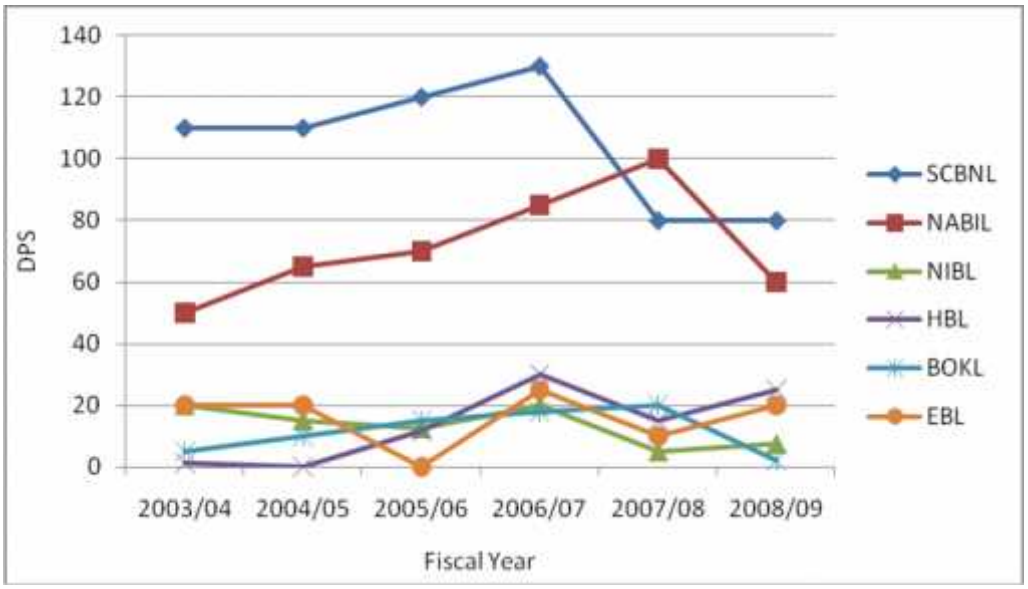
Dividend Per Share (DPS) of Concerned Banks

Year	SCBNL	NABIL	NIBL	HBL	BOKL	EBL
2003/04	110	50	20	1.32	5	20
2004/05	110	65	15	0	10	20
2005/06	120	70	12.5	11.58	15	0
2006/07	130	85	20	30	18	25
2007/08	80	100	5	15	20	10
2008/09	80	60	7.50	25	2.11	20
Mean	105	71.67	13.33	13.82	11.68	15.83
SD	18.93	16.50	5.71	11.11	6.57	8.37
CV	18.03	23.O2	42.84	80.39	56.25	52.87

Source:www.nepalstock.com

Figure 4.2

Dividend Per Share (DPS) of Concerned Banks



The average DPS of SCBNL is Rs 105 with the standard deviation of 18.93.The highest and lowest DPS are Rs 130 and Rs 80 respectively. The coefficient of variation is 18.03%.Which indicates that there is low fluctuation in the DPS of SCBNL duration the period of study.

NABIL bank Limited has an average DPS of Rs 71.67. The highest DPS is Rs 100 and lowest is Rs 60. The standard deviation is 16.50 and coefficient of variation is

23.02%.The coefficient of variation indicates that the fluctuation of DPS during the period of study.

Nepal Investment Bank Limited (NIBL) has an average Rs 13.33, ranging between Rs 20 to Rs 5 during the period of study. The standard deviation is 5.71 and the fluctuation is 42.84 in the DPS is seen during this period.

Himalayan Bank ltd (HBL) has an average DPS of Rs13.82.The highest DPS is Rs 30 whereas it has not paid dividend in the years 2003/04. The standard deviation of SPS is 11.11 and coefficient of variation is 80.39%.The coefficient of variation indicates that the fluctuation of DPS of HBL.

The average DPS of Bank of Kathmandu limited (BOKL) during the period of study is Rs11.68.It is within the range of Rs 20 to Rs 5. The standard deviation of DPS is 6.57 whereas the coefficient of variation is 56.25%.Which indicates that the fluctuation nature of DPS in BOKL.

Everest Bank Limited (EBL) paid the highest DPS is Rs 25. Whereas it has not paid dividend in the year 2004/05.An average DPS of Rs 15.83 has been noted during the study period. The standard deviation of DPS is 8.37.The coefficient of variation is 52.87%.

From the above calculations, SCBNL has the highest average DPS and BOKL has the lowest. The coefficient of variation indicates that among the banks under the during period of study, SCBNL has the highest consistency in paying dividend whereas the DPS of HBL is highly fluctuation.

4.1.3 Dividend Payout Ratio (DPR)

The ratio shows the amount of dividend as a percentage of earning available for equity share. The dividend payout ratio obviously depends on earning, greater the earning more ability of company to pay dividend. The comparison of payout ratio reflects the management attitude towards treatment of profit in respect to distribution of dividend and retained earnings. The DPR of the banks under study are stated in the table and graph is as follows:

Table 4.3

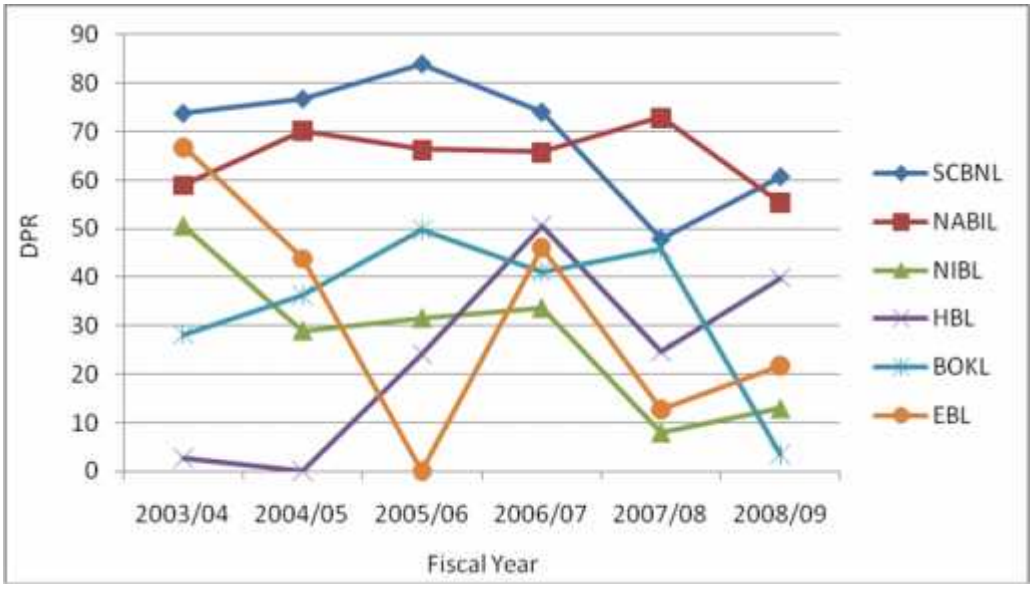
Dividend Payout Ratio of Concern Banks

Year	SCBNL	NABIL	NIBL	HBL	BOKL	EBL
2003/04	73.68	59.06	50.56	2.64	28.22	66.89
2004/05	76.63	70.19	29.01	0	36.36	43.88
2005/06	83.83	66.36	31.64	24.17	49.83	0
2006/07	73.93	65.78	33.70	50.64	41.22	46.12
2007/08	47.80	72.95	8.00	24.72	45.98	12.75
2008/09	60.64	55.40	12.96	39.84	3.52	21.78
Mean	69.42	64.96	27.65	23.67	34.19	31.90
SD	11.85	6.05	13.07	18.22	15.3	22.57
CV	17.o7	9.31	47.27	76.98	44.75	70.75

Source:www.nepalstock.com

Figure 4.3

Dividend Payout Ratio of Concern Banks



The average DPS of SCBNL is 69.42%. It means that SCBNL generally pays 69.41%of its net earning as dividend to its shareholders. The standard deviation of DPR is 11.85.The coefficient of variation is 17.07%. This value elucidate that there is only about 17.07% fluctuations in the DPR of the bank over the years.

NABIL bank limited an average 64.96% during the period of study. It means that is generally pays 64.96% of its earning to its shareholders in form of dividend. The

standard deviation of DPR is 6.05 whereas the coefficient of variation is 9.31% indicates the nominal fluctuation nature of DPR in NABIL Bank Ltd.

An average DPR of 27.65% is noted during the period of study for Nepal Investment Bank Limited .The standard deviation of DPR is 13.07.The coefficient of variation of 47.27% shows the fluctuation behavior of dividend payment by Nepal Investment Bank Limited.

An average DPR of 23.67% of Himalayan Bank Limited. Which indicates that HBL generally pays out 23.67% of its earning as dividend. The standard deviation is 18.22 and coefficient of variation is 76.98% which indicates that the DPR of HBL is fluctuation by 76.98% during the period of study.
Bank of Kathmandu limited(BOKL) has an average DPR of 34.19% which indicates the BOKL generally paying 34.19% of its earning as dividend to its shareholders. The standard deviation of DPR is 15.3.The coefficient of variation of 44.75% indicates that a moderate fluctuation behavior of dividend payment by Bank of Kathmandu Limited.

An average DPR of 31.90% is noted during the study period for Everest Bank Limited. The standard deviation of the DPR is 22.57%. The coefficient of variation of 70.75% shows a high fluctuations behavior of dividend payment by Everest Bank Limited.

The above calculation shows that SCBNL has a high DPR whereas HBL has lowest DPR among all banks under the study period.HBL has the highest coefficient of variation whereas NABIL has the lowest coefficient of variation among all banks. It shows that NABIL has the uniform dividend payment. Generally there are three categories of DPR as conservative (0-20%), moderate (21-50%), and aggressive (51-100%). If we analysis the above data using this criteria, SCBNL has adopted most aggressive dividend policy in 2002/03, 2003/04, 2004/05and 2005/06 but year 2006/07 SCBNL adopted moderate dividend policy. Again 2007/08 this bank has adopted aggressive dividend policy .HBL has adopted conservative dividend policy in first two years of study period and moderate dividend policy in remaining four years of the study period .NABIL has aggressive dividend policy throughout the study

period.EBL has adopted aggressive dividend policy in 2002/03,moderate dividend policy in 2003/04, 2005/06 and 2007/08,conservative dividend policy in 2004/05, 2006/07.Nepal Investment Bank Limited has adopted moderate dividend policy in first four years and conservative dividend policy in last two years of study period.

4.1.4 Market Price per Share(MPS)

MPS is that value of stock which can be obtained by a firm from the sale of a share in the market. The capital market determines MPS. The following table shows the market price of the sample firms as indicated in NEPSE index.

Table 4.4

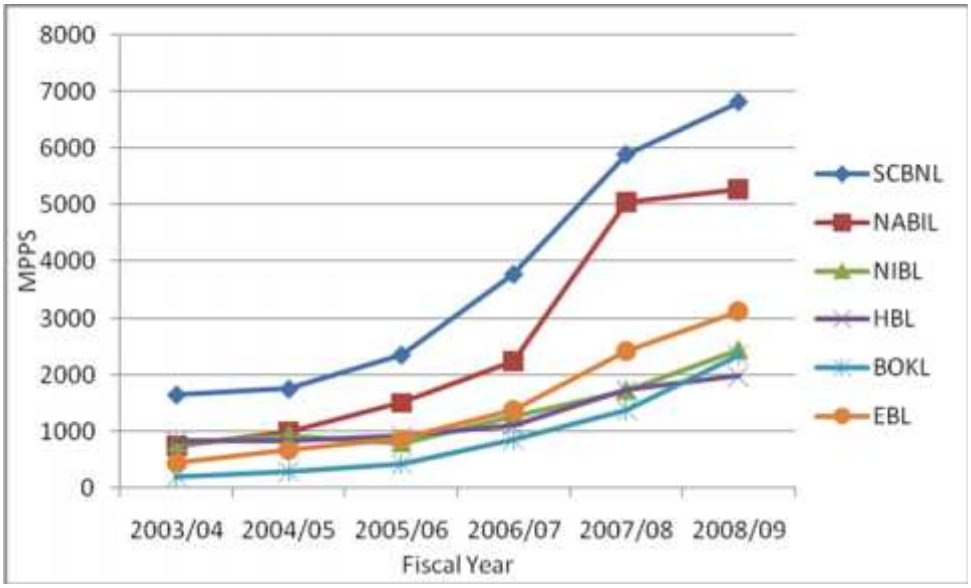
Market Price Per Share of Concern Banks

Year	SCBNL	NABIL	NIBL	HBL	BOKL	EBL
2003/04	1640	740	795	836	198	445
2004/05	1745	1000	940	840	295	680
2005/06	2345	1505	800	920	430	870
2006/07	3775	2240	1260	1100	850	1379
2007/08	5900	5050	1729	1740	1375	2430
2008/09	6830	5275	2450	1980	2350	3132
Mean	3705.83	2635	1329	1236	916.33	1489.33
SD	2022.54	1848.38	596.90	455.10	753.74	976.78
CV	54.58	70.15	45.02	36.82	82.26	65.59

Source: www.nepalstock.com

Figure 4.4

Market price Per Share of Concern Banks



The average of closing MPS of Standard Chartered Bank Limited(SCBNL) during the period of study is Rs 3705.83 with standard deviation of 2022.54 and a coefficient of variation is 58.13. During the period of study, NABIL Bank limited has an average closing MPS of Rs 2635 with standard deviation of 1848.38.The coefficient of variation shows that there is a fluctuation of 70.15% in closing MPS of NABIL bank limited.

The average of closing MPS of Nepal Investment Bank Limited (NIBL) during this period of study is Rs 1329.It stayed within the range of Rs2450 or Rs795.The standard deviation of closing MPS is 596.90 whereas the coefficient of variation is 45.02%. The coefficient of variation indicates a fluctuation in the closing MPS of the bank.

During the period of the study, Himalayan Bank Limited (HBL) has an average closing MPS of Rs1236 with standard deviation of 455.10.The coefficient of variation shows that there is a fluctuation of 36.82% in closing MPS of HBL.

Bank of Kathmandu Limited (BOKL), within the period of studying has an average closing MPS OF Rs 916.33 ranging between Rs 2350 to RS198. The standard deviation is 753.74 and the fluctuation of 82.26% in the closing MPS is seen during this period of study.

Everest Bank Limited (EBL) has the closing MPS range between Rs 3132 to Rs445 during the period of study. An average closing MPS of Rs 1489.33 is noted during this period of study. The standard deviation of the closing MPS is 976.78 and the fluctuation of 65.59% indicates that there is a moderate fluctuation of closing MPS of EBL during the period of study.

From the above calculation and data it can be seen that the average closing MPS of SCBNL is the highest and that of BOKL is the lowest. Similarly the standard deviation of SCBNL is the highest whereas HBL is the lowest .The coefficient of variation of these banks shows that there is an above moderate level of fluctuation in the MPS.

4.1.5 Price Earning Ratio (P/E Ratio)

Price Earning Ratio is the ratio between market price per share and earning per share. It is also called earning multiplier. The price-earning ratio of the banks under study is presented in table as follows.

Table 4.5

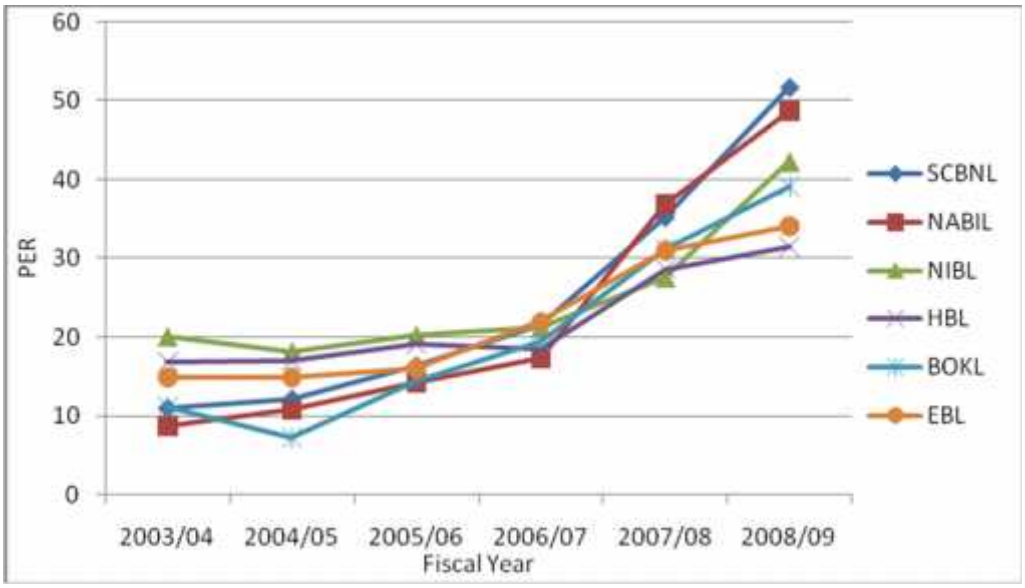
Price Earning Ratio of Concern Banks

Year	SCBNL	NABIL	NIBL	HBL	BOKL	EBL
2003/04	10.98	8.74	20.10	16.90	11.17	14.88
2004/05	12.16	10.80	18.18	17.12	7.20	14.92
2005/06	16.38	14.27	20.25	19.20	14.29	16.00
2006/07	21.47	17.34	21.23	18.57	19.46	22.00
2007/08	35.25	36.84	27.63	28.69	31.16	31.00
2008/09	51.77	48.70	42.33	31.56	39.12	34.10
Mean	24.67	22.78	24.95	22.00	20.40	22.15
SD	14.55	14.79	8.31	5.85	11.28	7.78
CV	58.98	64.93	33.31	26.60	55.29	35.12

Source: www.nepalstock.com

Figure 4.5

Price Earning Ratio of Concern Banks



The average P/E Ratio during the period of study is 24.67 of Standard Chartered Bank Nepal Limited (SCBNL). It is within the range of 51.77 to 10.98. The standard deviation of P/E Ratio is 14.55 whereas the coefficient of variation of 58.98% indicates that the moderate fluctuation nature of PE Ratio in SCBNL.

NABIL Bank Limited has an average P/E Ratio of 22.78.The standard deviation is 14.79 and coefficient of variation is 64.93%.The coefficient of variation indicates that the P/E Ratio of NABIL Bank Ltd is quite fluctuation.

Nepal Investment Bank Limited (NIBL) has the highest P/E Ratio is 42.33 in fiscal year 2007/08. An average P/E Ratio of 24.95 has been noted during the study period. The standard deviation of the P/E Ratio is 8.31.The coefficient of variation of 33.31% which indicates that there is low fluctuation in the P/E Ratio of NIBL.

Himalayan Bank Ltd (HBL) has an average P/E Ratio of 22.00, ranging between 31.56 to 16.90, during the period of study. The standard deviation is 5.85 and the fluctuation of 26.60 in the P/E Ratio is seen during this period of Himalayan Bank Limited.

The average P/E Ratio of Bank of Kathmandu Limited (BOKL) is 20.40 with standard deviation of 11.28. The coefficient of variation is 55.29% which indicates that the bank has the fluctuation in P/E Ratio of BOKL.

Everest Bank Limited (EBL) has the highest P/E Ratio is 34.10 in fiscal year 2007/08. An average P/E Ratio is 22.15 which has been noted during the study period. The standard deviation of P/E Ratio is 7.78. The coefficient of variation is 35.12% of EBL during the period of study.

From the above calculation, NIBL has the highest average P/E Ratio and BOKL has the lowest. The coefficient of variation indicates that among the banks under study period NIBL has the highest consistency in P/E Ratio whereas the P/E Ratio of NABIL is highly fluctuation.

4.1.6 Earning Yield

Earning Yield is the percentage of earning per share to market price per share in the secondary market. It gives an idea of how much an investor might get for his money. The share with higher earnings yield is worth buying. Earning Yield of the banks under study is presented in the table and graph is as follows:

Table 4.6

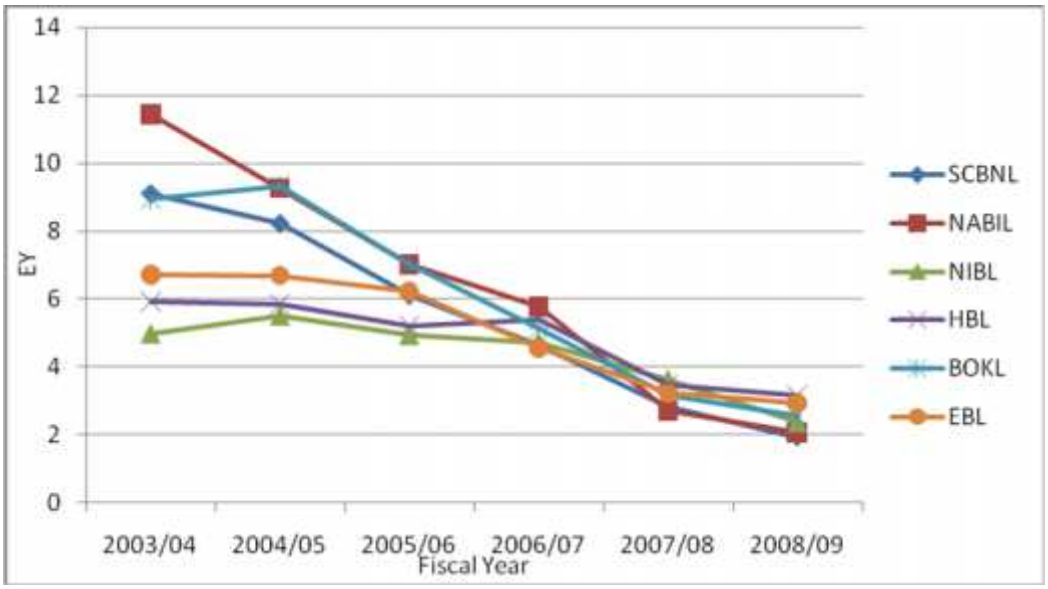
Earning Yield of Concern Banks

Year	SCBNL	NABIL	NIBL	HBL	BOKL	EBL
2003/04	9.10	11.44	4.97	5.91	8.94	6.72
2004/05	8.22	9.26	5.50	5.83	9.32	6.70
2005/06	6.10	7.00	4.93	5.20	7.00	6.23
2006/07	4.65	5.76	4.71	5.38	5.13	4.55
2007/08	2.83	2.71	3.62	3.48	3.16	3.22
2008/09	1.93	2.05	2.36	3.16	2.55	2.93
Mean	5.47	6.37	4.35	4.83	6.02	5.06
SD	2.62	3.34	1.05	1.10	2.63	1.58
CV	47.90	52.43	24.22	22.77	43.69	31.25

Source: www.nepalstock.com

Figure 4.6

Earning Yield of Concern Banks



The average EY of 5.47% with the standard deviation of 2.62 is seen for Standard chartered Bank Nepal limited (SCBNL).The highest and lowest E/Y are 9.10%and 1.93% respectively. The coefficient of variation is 47.90%, during the period of study.

NABIL Bank Limited has an average E/y of 6.37%. The standard deviation is 3.34 and coefficient of variation is 52.43%. The coefficient of variation indicates that the E/Y of NABIL Bank Ltd moderate fluctuation.

Nepal Investment Bank Ltd has an average E/Y of 4.35% ranging between5.50% to 2.36% during the period of study. The standard deviation is 1.o5 and the fluctuation of 24.22% in the E/Y is seen during this period.

Himalayan Bank Limited (HBL) has an average E/Y of 4.83%. The standard deviation is 1.10 and the coefficient of variation is 22.77%. The coefficient of variation indicates that the E/Y of HBL is less fluctuation.

The average E/Y of Bank of Kathmandu Limited (BOKL), during this period of study is 6.02% within the range between 9.32% to 2.55%. The standard deviation of E/Y is 2.63. Whereas the coefficient of variation is 43.69% which indicates that there is a quite fluctuation in the E/Y of BOKL.

For Everest Bank Limited (EBL) has an average E/Y of 5.06% was noted during the period of study. The standard deviation of E/Y is 1.58.The coefficient of variation of 31.25% indicates that there is a moderate fluctuation in the E/Y of Everest bank Limited.

From the above calculations, NABIL has the highest average e/Y and NIBL has lowest. The coefficient of variation indicates that among the banks under studying period, HBL has the highest consistency in its earning Yield whereas the earning yield of NABIL is highly fluctuation.

4.1.7 Dividend Yield (DY)

Dividend Yield is the percentage of DPS no MPS. It measures the dividend in relation to market value of share. It is the dividend received by the investors as a percentage of market prices per share in the sock market. This ratio highly influences the market price per share because a small change in dividend per share can bring effective change in the market value of the share. The dividend Yield of the banks under study is presented in the table and graph is as follows;

Table 4.7

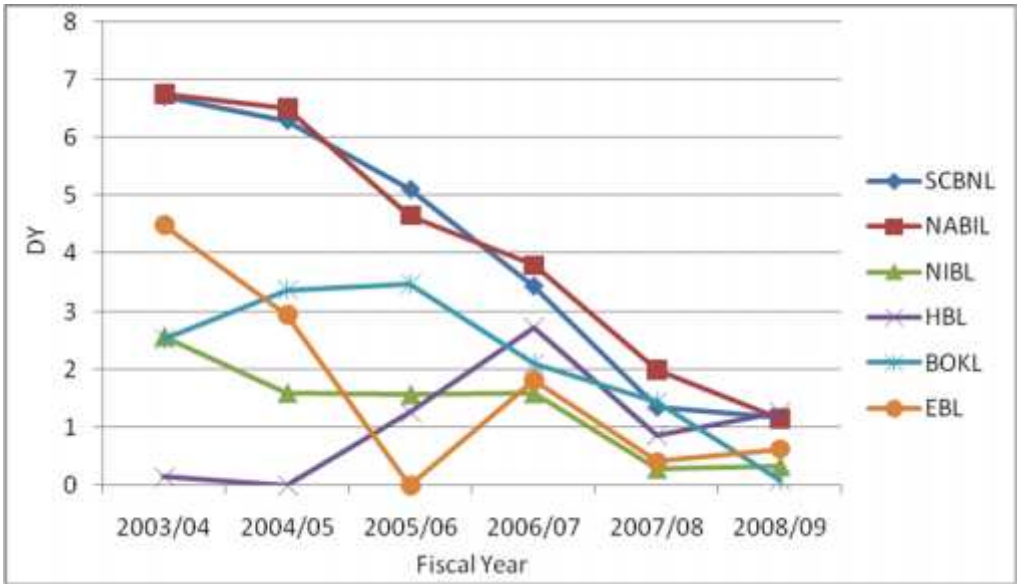
Dividend Yield of Concern Banks

Year	SCBNL	NABIL	NIBL	HBL	BOKL	EBL
2003/04	6.71	6.75	2.56	0.15	2.52	4.49
2004/05	6.30	6.50	1.59	0	3.38	2.94
2005/06	5.11	4.65	1.56	1.25	3.48	0
2006/07	3.44	3.79	1.58	2.72	2.11	1.81
2007/08	1.35	1.98	0.28	0.86	1.45	0.41
2008/09	1.17	1.14	0.33	1.26	0.09	0.63
Mean	4.01	4.14	1.32	1.04	2.17	1.71
SD	2.21	2.10	0.80	0.90	1.17	1.58
CV	55.11	50.72	60.60	86.54	53.92	92.40

Source: www.nepalstock.com

Figure 4.7

Dividend Yield of Concern Banks



The D/Y of Standard Chartered Bank Nepal Limited (SCBNL) ranges between 6.71% to 1.17% during the period of study. During this period, the average D/Y is 4.01%. The standard deviation of the D/Y under this period of study is 2.21. The coefficient of variation of 55.11% indicates that the fluctuation in D/Y of SCBNL.

The average D/Y of NABIL Bank Limited during this period of study is 4.145. It stayed within the range of 6.75% to 1.14%. The standard deviation of D/Y is 2.10 whereas the coefficient of variation is 50.72% .The coefficient of variation indicates that the moderate fluctuation in the D/y of the NABIL Bank Ltd.

Nepal Investment Bank Limited (NIBL), within the period of study, has an average D/Y of 1.325 ranging between 2.56% to o.28%. The standard deviation is 0.80 and the fluctuation of 60.60% in the D/Y during the period of study.

The D/Y of Bank of Kathmandu Limited (BOKL) ranges between3.48% to 0.09% during the period of study. During this period, the average D/Y is 2.17%. The standard deviation of D/Y under the period of study is 1.17. The coefficient of variation of 53.925 indicates that the fluctuation of D/Y of BOKL.

Everest Bank limited (EBL) has the D/Y ranges between 4.49% to 0% during the period of study. An average D/Y of 1.17% is noted during this period. The standard deviation lf the D/y is 1.58. The coefficient of variation of 92.40% indicates that there is a fluctuation of 92.40% in the d/y of EBL during the period of study, which is significantly high.

From the above data and calculations, it can be seen that the average D/y of NABIL Bank is the highest and that of HBL is the lowest. The D/Y range of the banks under the study during the period is between 6.75% to 0%. Similarly the standard deviation of SCBNL is the highest and NIBL is the lowest .The coefficient of variation of these banks shows a high level of fluctuation in the D/Y.

4.2 Statistical Analysis

4.2.1 Simple Correlation and Regression Analysis

1. Simple correlation and regression analysis between EPS and DPS

Table 4.8

Simple Correlation and Regression Analysis Between EPS and DPS

Bank	Regression model	a	b	$S.E_e$	r	r^2	S.E (r)	P.E (r)	6×P.E
SCBNL	Y=a+bx	47.30	0.38	11.03	0.31	0.10	0.37	0.25	1.5
NABIL		-19.26	0.83	3.59	0.93	0.86	0.06	0.04	0.24
NIBL		1.68	-0.29	13.61	-0.46	0.22	0.32	0.22	2.76
HBL		12.72	0.02	6.77	0.80	0.64	0.14	0.10	4.8
BOKL		11.75	-0.002	4.03	0.0034	0.000012	0.41	0.28	1.68
EBL		17.04	-0.002	5.12	-0.04	0.0016	0.41	0.28	1.68

The above table 4.8 has contained the different indicator (see appendix2) helpful to analyze the simple correlation and regression between EPS and DPS of the observed six commercial banks. Where EPS is independent Variable and DPS is the dependent variable with the help of these indicators. We can come to the following conclusion.

SCBNL

The regression constant or intercept coefficient (a) is 47.30 which shows that the average DPS would be Rs 47.30 if the EPS were zero. The result shows that the slope of the regression line (b) is 0.38, which indicates that positive correlation exit between EPS and DPS of SCBNL. One rupee increase in EPS causes Rs 0.38 increase in the dividend per share distributed by the bank. The coefficient of determination (r2) is 0.10, which indicates that 10% of the variation in DPS is affected or determined by the explanatory variables EPS. The simple correlation coefficient (r) between EPS and DPS of SCBNL is 0.31. Here since 6P.E. > r>P.E., 1.5>0.31>0.25. We can say that there is nothing can be concluded.

NABIL

The regression constant or intercept coefficient (a) is -19.26, which shows that the average DPS would be Rs -19.26 if the EPS were zero. The result shows that the slope of the regression line (b) is 0.83 which indicates that positive correlation exists

between EPS and DPS of NABIL bank. One rupee increase in EPS causes Rs 0.83 increase in the dividend per share distributed by the bank. The coefficient of determination (r2) is 0.86, which indicates that 86% of the variation in DPS is affected of determined by the explanatory variable EPS. The simple correlation coefficient (r) between EPS and DPS is 0.93 which indicates that there is a strong positive relationship between WPS and DPS of NABIL bank. Here 'r' is greater than 6* P.E=6*0.04=0.24. The value of 'r' is highly significant.

NIBL

The regression constant or intercept coefficient (a) is 1.68, which shows that the average DPS would be Rs 1.68 if the EPS were zero. The result shows that the slope of the regression line (b) is -0.29 which indicates that negative correlation exists between EPS and DPS of NIBL bank. One rupee increase in EPS causes Rs -0.29 increase in the dividend pre share distributed by the bank. The coefficient of determination (r2) is 0.22, which indicates that 22% of the variation in DPS is affected of determined by the explanatory variable EPS. The simple correlation coefficient (r) between EPS and DPS is -0.46, which indicates that there is moderate negative relationship between WPS and DPS of NIBL bank. Here 'r' is less than P.E=-0.46<0.22. We can say that there is insignificant.

HBL

The regression constant or intercept coefficient (a) is 12.72, which shows that the average DPS would be Rs 12.72 if the EPS were zero. The result shows that the slope of the regression line (b) is 0.02 which indicates that positive correlation exists between EPS and DPS of HBL bank. One rupee increase in EPS causes Rs 0.02 increase in the dividend pre share distributed by the bank. The coefficient of determination (r2) is 0.64, which indicates that 64% of the variation in DPS is affected of determined by the explanatory variable EPS. The simple correlation coefficient (r) between EPS and DPS is 0.80, which indicates that there is strongly positive relationship between EPS and DPS of HBL bank. Here 6P.E > r >P.E, 4.8>0.8>0.10. We can say that there is nothing can be concluded.

BOKL

The regression constant or intercept coefficient (a) is 11.75, which shows that the average DPS would be Rs 11.75 if the EPS were zero. The result shows that the slope of the regression line (b) -0.002 which indicates that negative correlation exists between EPS and DPS of BOKL bank. One rupee increase in EPS causes Rs -0.002 increases in the dividend pre share distributed by the bank. The coefficient of determination (r2) is 0.000012, which indicates that only 0.0012% of the variation in DPS is affected of determined by the explanatory variable EPS. The simple correlation coefficient (r) between EPS and DPS is 0.0034 ≅ 0, which indicates that there is no relationship between EPS and DPS of BOKL bank. Here 'r' is less than P.E=0.0034<0.28. We can say that there is insignificant.

EBL

The regression constant or intercept coefficient (a) is 17.04, which shows that the average DPS would be Rs 17.04 if the EPS were zero. The result shows that the slope of the regression line (b) is -0.02 which indicates that negative correlation exists between EPS and DPS of EBL bank. One rupee increase in EPS causes Rs -0.02 increase in the dividend pre share distributed by the bank. The coefficient of determination (r2) is 0.0016, which indicates that0.16% of the variation in DPS is affected of determined by the explanatory variable EPS. The simple correlation coefficient (r) between EPS and DPS is -0.04, which indicates that there is a low negative relationship between EPS and DPS of EBL bank. Here 'r' is less than P.E= -0.04<0.28. We can say that there is insignificant.

2. Simple Correlation and Regression Analysis between MPS and DPS

Table 4.9

Simple Correlation and Regression Analysis Between MPS and DPS

Bank	Regression model	A	B	$S.E_e$	r	r^2	S.E(r)	P.E(r)	6×P.E
SCBNL	Y=a+bx	130.94	-0.0070	7.70	-0.75	0.56	0.18	0.12	0.72
NABIL		34.82	0.01	21.62	0.56	0.31	0.28	0.19	1.14
NIBL		22.10	-0.0066	2.54	-0.69	0.48	0.21	0.14	0.84
HBL		1.46	0.01	5.92	0.59	0.35	0.27	0.18	1.08
BOKL		13.33	-0.0018	3.94	0.21	0.04	0.39	0.26	1.56
EBL		15.23	0.0004	5.13	0.05	0.0025	0.41	0.28	1.68

The above table 4.9 has contained the different indicator (see appendix 3) helpful to analyze the simple correlation and regression between MPS and DPS of the observed six commercial banks. Where MPS is independent variable and DPS is dependent variable with the help of these indicators. We came to the following conclusion.

SCBNL

The regression constant or intercept coefficient (a) is 130.94, which shows that the average DPS would be Rs 130.94 if the MPS were zero. The result shows that the slope of the regression line (b) is -0.0070 which indicates that negative correlation exists between MPS and DPS of SCBNL bank. One rupee increase in MPS causes Rs -0.0070 increase in the dividend pre share distributed by the bank. The coefficient of determination (r2) is 0.56, which indicates that 56% of the variation in DPS is affected of determined by the explanatory variable MPS. The simple correlation coefficient (r) between MPS and DPS is -0.75, which indicates that there is negative relationship between MPS and DPS of SCBNL bank. Here 'r' is less than P.E= -0.75<0.12. We can say that there is insignificant.

NABIL

The regression constant or intercept coefficient (a) is 34.82, which shows that the average DPS would be Rs 34.82 if the MPS were zero. The result shows that the slope of the regression line (b) is 0.01 which indicates that positive correlation exists

between MPS and DPS of NABIL bank. One rupee increase in MPS causes Rs 0.01 increase in the dividend pre share distributed by the bank. The coefficient of determination (r2) is 0.31, which indicates that 31% of the variation in DPS is affected of determined by the explanatory variable MPS. The simple correlation coefficient (r) between MPS and DPS is 0.56, which indicates that there is positive relationship between MPS and DPS of NABIL bank. Here 6P.E.> r > P.E., 1.14 > 0.56 > 0.19. We can say that there is nothing can be concluded.

NIBL

The regression constant or intercept coefficient (a) is 22.10, which shows that the average DPS would be Rs 22.10 if the MPS were zero. The result shows that the slope of the regression line (b) is -0.0066 which indicates that negative correlation exists between MPS and DPS of NIBL bank. One rupee increase in MPS causes Rs-0.0066 increase in the dividend pre share distributed by the bank. The coefficient of determination (r2) is 0.48, which indicates that 48% of the variation in DPS is affected of determined by the explanatory variable MPS. The simple correlation coefficient (r) between MPS and DPS is -0.69, which indicates that there is negative relationship between MPS and DPS of NIBL bank. Here 'r' is less than P.E= -0.69 < 0.14. We can say that there is insignificant.

HBL

The regression constant or intercept coefficient (a) is 1.46, which shows that the average DPS would be Rs 1.46 if the MPS were zero. The result shows that the slope of the regression line (b) is 0.01 which indicates that positive correlation exists between MPS and DPS of HBL bank. One rupee increase in MPS causes Rs 0.01 increase in the dividend pre share distributed by the bank. The coefficient of determination (r2) is 0.35, which indicates that 35% of the variation in DPS is affected of determined by the explanatory variable MPS. The simple correlation coefficient (r) between MPS and DPS is 0.59, which indicates that there is positive relationship between MPS and DPS of HBL bank. Here 6P.E > r >P.E, 1.08 > 0.59 > 0.18. We can say that there is nothing can be concluded.

BOKL

The regression constant or intercept coefficient (a) is 13.33, which shows that the average DPS would be Rs 13.33 if the MPS were zero. The result shows that the slope of the regression line (b) is -0.0018 which indicates that negative correlation exists between MPS and DPS of BOKL bank. One rupee increase in MPS causes Rs -0.0018 increase in the dividend per share distributed by the bank. The coefficient of determination (r2) is 0.04, which indicates that 4% of the variation in DPS is affected of determined by the explanatory variable MPS. The simple correlation coefficient (r) between MPS and DPS is 0.21, which indicates that there is positive relationship between MPS and DPS of BOKL bank. Here 'r' is less than P.E= 0.21< 0.26. We can say that there is insignificant.

EBL

The regression constant or intercept coefficient (a) is 15.23, which shows that the average DPS would be Rs 15.23 if the MPS were zero. The result shows that the slope of the regression line (b) is 0.0004 which indicates that positive correlation exists between MPS and DPS of EBL bank. One rupee increase in MPS causes Rs 0.0004 increase in the dividend per share distributed by the bank. The coefficient of determination (r2) is 0.0025, which indicates that 0.25% of the variation in DPS is affected of determined by the explanatory variable MPS. The simple correlation coefficient (r) between MPS and DPS is 0.05, which indicates that there is positive relationship between MPS and DPS of EBL bank. Here 'r' is less than P.E=0.05<0.28. We can say that there is insignificant.

3. Simple Correlation and Regression Analysis between MPS and EPS;

Table 4.10

Simple Correlation and Regression Analysis Between MPS and EPS

Bank	Regression model	A	b	$S.E_e$	r	r^2	S.E(r)	P.E(r)	6×P.E
SCBNL	Y=a+bx	150.81	0.00028	9.25	0.04	0.0016	0.14	0.28	1.68
NABIL		92.17	0.0066	8.57	0.65	0.42	0.24	0.16	0.96
NIBL		50.30	0.0011	5.49	0.72	0.52	0.20	0.13	0.78
HBL		53.36	0.0012	3.61	0.88	0.77	0.0094	0.0063	0.0375
BOKL		35.51	0.0017	6.23	1.18	1.39	-0.16	-0.11	0.66

EBL		30.66	0.02	3.42	0.97	0.94	0.024	0.016	0.096

The above table 4.10 has contained the different indicator (see appendix 4) helpful to analyze the simple correlation and regression between MPS and EPS of the observed six commercial banks. Where MPS is independent variable and EPS is dependent variable with the help of these indicators. We came to the following conclusion.

SCBNL

The regression constant or intercept coefficient (a) is 150.81, which shows that the average EPS would be Rs 150.81 if the MPS were zero. The result shows that the slope of the regression line (b) is 0.00028 which indicates that positive correlation exists between MPS and EPS of SCBNL bank. One rupee increase in MPS causes Rs 0.0028 increase in the dividend pre share distributed by the bank. The coefficient of determination (r2) is 0.0016, which indicates that 0.16% of the variation in EPS is affected of determined by the explanatory variable MPS. The simple correlation coefficient (r) between MPS and EPS is 0.04, which indicates that there is positive relationship between MPS and DPS of SCBNL bank. Here 'r' is less than P.E= 0.04<0.28. We can say that there is insignificant.

NABIL

The regression constant or intercept coefficient (a) is 92.17, which shows that the average EPS would be Rs 92.17 if the MPS were zero. The result shows that the slope of the regression line (b) is 0.0066 which indicates that positive correlation exists between MPS and EPS of NABIL bank. One rupee increase in MPS causes Rs 0.0066 increase in the dividend pre share distributed by the bank. The coefficient of determination (r2) is 0.42, which indicates that 42% of the variation in EPS is affected of determined by the explanatory variable MPS. The simple correlation coefficient (r) between MPS and EPS is 0.65, which indicates that there is positive relationship between MPS and DPS of NABIL bank. Here 'r' is less than 6P.E> r > P.E, 0.96> 0.65> 0.16. We can say that there is nothing can be concluded.

NIBL

The regression constant or intercept coefficient (a) is 50.30, which shows that the average EPS would be Rs 50.30 if the MPS were zero. The result shows that the slope

of the regression line (b) is 0.0011 which indicates that positive correlation exists between MPS and EPS of NIBL bank. One rupee increase in MPS causes Rs 0.0011 increase in the dividend pre share distributed by the bank. The coefficient of determination (r2) is 0.52, which indicates that 52% of the variation in EPS is affected of determined by the explanatory variable MPS. The simple correlation coefficient (r) between MPS and EPS is 0.72, which indicates that there is positive relationship between MPS and DPS of NIBL bank. Here 'r' is less than 6P.E> r > P.E, 0.78> 0.72> 0.13. We can say that there is nothing can be concluded.

HBL

The regression constant or intercept coefficient (a) is 53.36, which shows that the average EPS would be Rs 53.36 if the MPS were zero. The result shows that the slope of the regression line (b) is 0.0012 which indicates that positive correlation exists between MPS and EPS of HBL bank. One rupee increase in MPS causes Rs 0.0012 increase in the dividend pre share distributed by the bank. The coefficient of determination (r2) is 0.77, which indicates that 77% of the variation in EPS is affected of determined by the explanatory variable MPS. The simple correlation coefficient (r) between MPS and EPS is 0.88, which indicates that there is positive relationship between MPS and DPS of HBL bank. Here 'r' is greater than P.E, 0.88> 0.0063. We can say that there is significant.

BOKL

The regression constant or intercept coefficient (a) is 35.51, which shows that the average EPS would be Rs 35.51 if the MPS were zero. The result shows that the slope of the regression line (b) 0.0017 which indicates that positive correlation exists between MPS and EPS of BOKL bank. One rupee increase in MPS causes Rs 0.0017 increase in the dividend pre share distributed by the bank. The coefficient of determination (r2) is 1.39, which indicates that 139% of the variation in EPS is affected of determined by the explanatory variable MPS. The simple correlation coefficient (r) between MPS and EPS is 1.18, which indicates that there is positive relationship between MPS and DPS of BOKL bank. Here 'r' is greater than P.E, 1.18> -0.11. We can say that there is significant.

EBL

The regression constant or intercept coefficient (a) is 30.66, which shows that the average EPS would be Rs 30.66 if the MPS were zero. The result shows that the slope of the regression line (b) is 0.02 which indicates that positive correlation exists between MPS and EPS of HBL bank. One rupee increase in MPS causes Rs 0.02 increase in the dividend pre share distributed by the bank. The coefficient of determination (r2) is 0.94, which indicates that 94% of the variation in EPS is affected of determined by the explanatory variable MPS. The simple correlation coefficient (r) between MPS and EPS is 0.97, which indicates that there is positive relationship between MPS and DPS of HBL bank. Here 'r' is greater than P.E, 0.94> 0.096. We can say that there is significant.

4. Simple Correlation and Regression Analysis between MPS and DPR

Table 4.11

Simple Correlation and Regression Analysis Between MPS and DPR

Bank	Regression model	A	B	$S.E_e$	r	r^2	S.E(r)	P.E(r)	6×P.E
SCBNL	Y=a+bx	87.95	-0.005	7.00	-0.81	0.66	0.14	0.09	0.54
NABIL		65.75	-0.0003	3.68	-0.08	0.0064	0.41	0.28	1.68
NIBL		54.23	-0.02	4.92	-0.80	0.64	0.15	0.10	0.60
HBL		-1.05	0.02	9.56	0.53	0.28	0.29	0.20	1.20
BOKL		43.36	-0.01	7.81	-0.63	0.40	0.24	0.16	0.96
EBL		46.79	-0.01	12.23	-0.48	0.28	0.31	0.21	1.26

The above table 4.11 has contained the different indicator (see appendix 5) helpful to analyze the simple correlation and regression between MPS and DPR of the observed six commercial banks. Where MPS is independent variable and DPR is dependent variable with the help of these indicators. We came to the following conclusion.

SCBNL

The regression constant or intercept coefficient (a) is 87.95, which shows that the average DPR would be Rs 87.95 if the MPS were zero. The result shows that the slope of the regression line (b) is -0.005 which indicates that negative correlation exists between MPS and DPR of SCBNL bank. One rupee increase in MPS causes Rs

-0.005 increase in the dividend pre share distributed by the bank. The coefficient of determination (r2) is 0.66, which indicates that 66% of the variation in DPR is affected of determined by the explanatory variable MPS. The simple correlation coefficient (r) between MPS and DPR is -0.81, which indicates that there is negative relationship between MPS and DPR of SCBNL bank. Here 'r' is less than P.E= -0.08< 0.54. We can say that there is insignificant.

NABIL

The regression constant or intercept coefficient (a) is 65.75, which shows that the average DPR would be Rs 65.75 if the MPS were zero. The result shows that the slope of the regression line (b) is -0.0003 which indicates that negative correlation exists between MPS and DPR of NABIL bank. One rupee increase in MPS causes Rs -0.0003 increase in the dividend pre share distributed by the bank. The coefficient of determination (r2) is 0.0064, which indicates that 0.64% of the variation in DPR is affected of determined by the explanatory variable MPS. The simple correlation coefficient (r) between MPS and DPR is -0.08, which indicates that there is negative relationship between MPS and DPR of NABIL bank. Here 'r' is less than P.E= -0.08 < 0.28. We can say that there is insignificant.

NIBL

The regression constant or intercept coefficient (a) is 54.23, which shows that the average DPR would be Rs 54.23 if the MPS were zero. The result shows that the slope of the regression line (b) is -0.02 which indicates that negative correlation exists between MPS and DPR of NIBL bank. One rupee increase in MPS causes Rs -0.02 increase in the dividend pre share distributed by the bank. The coefficient of determination (r2) is 0.64, which indicates that 64% of the variation in DPR is affected of determined by the explanatory variable MPS. The simple correlation coefficient (r) between MPS and DPR is -0.80, which indicates that there is negative relationship between MPS and DPR of NIBL bank. Here 'r' is less than P.E= -0.80 < 0.10. We can say that there is insignificant.

HBL

The regression constant or intercept coefficient (a) is -1.05, which shows that the average DPR would be Rs -1.05 if the MPS were zero. The result shows that the slope

of the regression line (b) is 0.02which indicates that positive correlation exists between MPS and DPR of HBL bank. One rupee increase in MPS causes Rs 0.02 increase in the dividend pre share distributed by the bank. The coefficient of determination (r2) is 0.28, which indicates that 28% of the variation in DPR is affected of determined by the explanatory variable MPS. The simple correlation coefficient (r) between MPS and DPR is 0.53, which indicates that there is positive relationship between MPS and DPR of HBL bank. Here 6P.E. > r > P.E., 1.20>0.53>0.20. We can say that there is nothing can be concluded.

BOKL

The regression constant or intercept coefficient (a) is 43.36, which shows that the average DPR would be Rs 43.36 if the MPS were zero. The result shows that the slope of the regression line (b) is -0.01 which indicates that negative correlation exists between MPS and DPR of BOKL bank. One rupee increase in MPS causes Rs -0.01 increase in the dividend pre share distributed by the bank. The coefficient of determination (r2) is 0.40, which indicates that 40% of the variation in DPR is affected of determined by the explanatory variable MPS. The simple correlation coefficient (r) between MPS and DPR is -0.63, which indicates that there is negative relationship between MPS and DPR of BOKL bank. Here 'r' is less than P.E= -0.63 < 0.16. We can say that there is insignificant.

EBL

The regression constant or intercept coefficient (a) is 46.79, which shows that the average DPR would be Rs 46.79 if the MPS were zero. The result shows that the slope of the regression line (b) is -0.01 which indicates that negative correlation exists between MPS and DPR of EBL bank. One rupee increase in MPS causes Rs -0.01 increase in the dividend pre share distributed by the bank. The coefficient of determination (r2) is 0.28, which indicates that 28% of the variation in DPR is affected of determined by the explanatory variable MPS. The simple correlation coefficient (r) between MPS and DPR is -0.48, which indicates that there is negative relationship between MPS and DPR of EBL bank. Here 'r' is less than P.E= -0.48 < 0.21. We can say that there is insignificant.

4.3 Major Findings

1. From the study it can be seen that the average EPS of SCBNS is the highest and that of BOKL is Lowest. The EPS range of the bank under study during this period this between Rs. 175.84 and Rs 17.72.
2. The number of cash dividend paying companies listed at NEPSE is seen function since last six fiscal year. The DPS of all Banks range between Rs.130 to Rs. 5 SCBNL has the highest average DPS and BOKL has the lowest.
3. From this study in case of DPS it can say that these is no constant about policy.
4. Every year EPS and MPS seen highly function. These short of fluctuating cause no faith from public towards the companies.
5. There is lack of rules and regulating that bind companies to pay dividend every year. Not only the companies to not have dividend policy but also the government does not have any clear policy towards dividend.
6. In case of DPR it can say that SCBNL has a high DPR where as HBL has lowest DPR among all banks under the study period. HBL has the highest coefficient of variation whereas NABIL has the lowest coefficient of variation among all banks. It shows that NABIL has the uniform dividend payment.
7. From the study it seems that all the firms must accept one major fact that EPS is to be considered for deterring dividend amount. The analysis shows the condition of not being able to say either significant or insignificant relationship between EPS and DPS in average. It is important to consider earning rather than neglecting it while making dividend decision.
8. Shareholders in taking the advantage of unconscious shareholders, the company management does not show the commitment promised in prospectors while raising capital. Promoters lure investor mentioning to pay attractive dividends, when company makes profit. However in reality, most of the companies are deviated from their statement as promised in prospectus.
9. Government does not have any clear policy towards dividend and to improve the efficiency of the companies. The number of companies cannot earn enough profit and bureaucrats accused the cause of the efficiency to managers, which is not sound.

10. There is lack of rules and regulations that bind companies to pay dividend every year. Not only the companies do not have dividend policy but also the government does not have any clear policy towards dividend.

CHAPTER - V

SUMMARY, CONCLUSION AND RECOMMENDATIONS

This chapter focuses on summarizing the study held with the researcher's conclusion. The next attempt in this chapter will be made for the recommendations on the basis of findings. For this whole purpose the chapter is sub divided into summary, conclusion and recommendation as following.

5.1 Summary

Every investor expects handsome earnings on his/her share capital investment. The firm that is not able to distribute fair dividend, will not be able to raise further equity capital from capital market. The total earning that a shareholder can gain from share investment may be classified into dividend yield and capital gain yield. The company therefore needs to device a proper balance between retention and dividend distributions.

Dividend policy decision is one of the three major decisions of financial management. The dividend policy decision affects on the operation and prosperity of the organization because it has the power to influence other two decisions of the organization i.e. capital structure decision and investment decision. An investor expects two types of return namely capital gain and dividend by investing in equity capital or ordinary share. So, payment of dividend to shareholders is an effective way to attract new investors and maintain present investors. It is important to have clearly

defined and effectively managed dividend policy so as to fulfill the shareholders' expectations and corporate growth.

In Nepal, only a few listed companies are paying regular dividends to their shareholders. These companies are also not following the stable dividend payout policy. However, paying dividend can be taken as an important tool to attract new investors. Besides this, the payment of dividend shows the good financial health of the organization in the market. The division of earnings between dividend payout and retention ratio the market price of the share may also be affected, which is also crucial for the organization. So, the funds that could not be used due to the lack of investment opportunities would be better as dividend, since shareholders have investment opportunities elsewhere.

Dividend paying banks have been analyzed to show the implication of dividend policy they have adopted in their market price per share. Even if market price is governed by various factors, this study is made to analyze one of the important factor i.e. Dividend. The study covers five joint venture commercial banks (SCBNL, NABIL, NIBL, HBL, BOKL and EBL) and only for the last six fiscal years from 2003/04 to 2008/09. The available secondary data have been analyzed using various financial and statistical tools. So, the reliability of the conclusions of this study is determined on the accuracy of secondary data. The shareholders in Nepal don't seem to be investing their capital on the basis of financial performances of the financial institution as such. The main reason behind this statement is that market price of the shares don't seem to be more or less dependent upon earnings per share and dividend per share.

5.2 Conclusion

In this section, the gaps perceived in this study are presented as conclusions. The issues related to dividend and other relevant factors found while analyzing the variables are also presented here. Then, possible causes to perceive this gap will be summarized as far as possible.

Every year EPS and MPS seem highly fluctuating. Similarly market prices per share are also fluctuating. These short of fluctuation cause no faith from public towards the companies.

Shareholders in Nepal are not conscious. Taking the advantage of unconscious shareholders, the company management does not show the commitment promised in prospectors while raising capital. Promoters lure investor mentioning to pay attractive dividends, when company makes profit. However in reality, most of the companies are deviated from their statement as promised in prospectus.

There is lack of rules and regulations that bind companies to pay dividend every year. Not only the companies do not have dividend policy but also the government does not have any clear policy towards dividend.

Dividend payout ratio does not show any stability and co-ordination with other variables. These banks don't have any strategic dividend policy. There seems instability and consistency in dividend payment by the banks.

Government does not have any clear policy towards dividend and to improve the efficiency of the companies. The number of companies cannot earn enough profit and bureaucrats accused the cause of the efficiency to managers, which is not sound.

5.3 Recommendations

1. The legal rules and regulation must be in favor of investors to exercise the dividend practice and to protect the shareholders rights.
2. Banks should have long term vision regarding earnings and dividend payments that helps to cope with challenging competitive situation of present world. Various internal and external factors should be considered before taking decision.
3. Shareholders should be given option to choose between stock dividend and cash dividend instead of declaring stock or cash arbitrary. For this dividend deceleration should be proposed to the annual general meeting of shareholders for approval.

4. It is necessary to enact legal rules that bind. Companies‟ today dividend the legal rule for the treatment of dividend is most for the smooth growth of the enterprises as well as growth of national economy. For this purpose Nepal Government, NEPSE, SEBON and other concerned parties should work together.
5. Each and every company should provide the information regarding their activities and performance, so that investor can analyze the situation and invest their money in the best company.
6. Although the payout ratio of the sample firm is fluctuating from year to year, there is no rational approach in deciding the pay out. The entire firm should analyze the internal rate of return and the cost of capital in deciding DPR, which helps to maximize the shareholder's wealth.
7. Bank should have target rate of earning and target payout ratio that will help companies to build good image in stock market and investors will be ease on making investment decision.
8. All the firms must accept one major fact that EPS is to be considered for determining dividend amount. The analysis shows the condition of not being able to say either significant or insignificant relationship between EPS and DPS in average. It is important to consider earning rather than neglecting it while making dividend decision.
9. The government should encourage for the establishment of organization to promote and to protect activities in favor of investors. There are not any other organizations fully devoted to protect investor's interest.

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APPENDICES

Appendix-1

Earning Per Share of Concern Banks

Year	SCBNL	NABIL	NIBL	HBL	BOKL	EBL
2003/04	149.30	84.66	39.56	49.45	17.72	29.90
2004/05	143.55	92.61	51.70	49.05	27.50	45.58
2005/06	143.14	105.49	39.50	47.91	30.10	54.20
2006/07	175.84	129.21	59.35	59.24	43.67	62.80
2007/08	167.37	137.08	62.57	60.66	43.50	78.40
2008/09	131.92	108.31	57.87	62.74	59.94	91.82

Dividend Per Share (DPS) of Concerned Banks

Year	SCBNL	NABIL	NIBL	HBL	BOKL	EBL
2003/04	110	50	20	1.32	5	20
2004/05	110	65	15	0	10	20
2005/06	120	70	12.5	11.58	15	0
2006/07	130	85	20	30	18	25
2007/08	80	100	5	15	20	10
2008/09	80	60	7.50	25	2.11	20

Dividend Payout Ratio of Concern Banks(DPS/EPS)

Year	SCBNL	NABIL	NIBL	HBL	BOKL	EBL
2003/04	73.68	59.06	50.56	2.64	28.22	66.89
2004/05	76.63	70.19	29.01	0	36.36	43.88
2005/06	83.83	66.36	31.64	24.17	49.83	0
2006/07	73.93	65.78	33.70	50.64	41.22	46.12
2007/08	47.80	72.95	8.00	24.72	45.98	12.75
2008/09	60.64	55.40	12.96	39.84	3.52	21.78

Market Price Per Share of Concern Banks

Year	SCBNL	NABIL	NIBL	HBL	BOKL	EBL
2003/04	1640	740	795	836	198	445
2004/05	1745	1000	940	840	295	680
2005/06	2345	1505	800	920	430	870
2006/07	3775	2240	1260	1100	850	1379
2007/08	5900	5050	1729	1740	1375	2430
2008/09	6830	5275	2450	1980	2350	3132

Price Earning Ratio of Concern Banks

Year	SCBNL	NABIL	NIBL	HBL	BOKL	EBL
2003/04	10.98	8.74	20.10	16.90	11.17	14.88
2004/05	12.16	10.80	18.18	17.12	7.20	14.92
2005/06	16.38	14.27	20.25	19.20	14.29	16.00
2006/07	21.47	17.34	21.23	18.57	19.46	22.00
2007/08	35.25	36.84	27.63	28.69	31.16	31.00
2008/09	51.77	48.70	42.33	31.56	39.12	34.10

Earning Yield of Concern Banks(EPS/MPS)

Year	SCBNL	NABIL	NIBL	HBL	BOKL	EBL
2003/04	9.10	11.44	4.97	5.91	8.94	6.72
2004/05	8.22	9.26	5.50	5.83	9.32	6.70
2005/06	6.10	7.00	4.93	5.20	7.00	6.23
2006/07	4.65	5.76	4.71	5.38	5.13	4.55
2007/08	2.83	2.71	3.62	3.48	3.16	3.22
2008/09	1.93	2.05	2.36	3.16	2.55	2.93

Dividend Yield of Concern Banks(DPS/MPS)

Year	SCBNL	NABIL	NIBL	HBL	BOKL	EBL
2003/04	6.71	6.75	2.56	0.15	2.52	4.49
2004/05	6.30	6.50	1.59	0	3.38	2.94
2005/06	5.11	4.65	1.56	1.25	3.48	0
2006/07	3.44	3.79	1.58	2.72	2.11	1.81
2007/08	1.35	1.98	0.28	0.86	1.45	0.41
2008/09	1.17	1.14	0.33	1.26	0.09	0.63

Appendix-2

Simple Correlation and Regression Analysis between EPS and DPS

1) FOR SCBNL Bank Ltd

Year	X(EPS)	Y(DPS)	XY	X^2	Y^2	$(X-\bar{X})^2$
2003/04	149.30	110	16423	22290.49	12100	6.50
2004/05	143.55	110	15790.5	20606.60	12100	68.89
2005/06	143.14	120	17176.8	20489.05	14400	75.86
2006/07	175.84	130	22859.20	30919.70	16900	575.52
2007/08	167.37	80	13389.60	28012.72	6400	240.87
2008/09	131.92	80	10553.60	17402.88	6400	397.20
Total	911.12	630	96192.7	139721.44	68300	1364.84

N= 6
Mean,

$\bar{X}$=151.85 and $\bar{Y}$=105

Coefficient of correlation(r) $= \frac{n\sum xy - \sum x \sum y}{\sqrt{n\sum x^2 - (\sum x)^2 . n\sum y^2 - (\sum y)^2}}$

$= \frac{6 \times 96192.7 - 911.12 \times 630}{\sqrt{6 \times 139721.44 - (911.12)^2 . 6 \times 68300 - (630)^2}}$

$= \frac{3150.6}{\sqrt{8188.99 \times 12900}} = 0.31$

Coefficient of determination(r2)$= (0.31)2 = 0.10$

Standard Error of correlation coefficient,(SE)$= \frac{1-r^2}{\sqrt{6}}$ $= \frac{1-0.10}{\sqrt{6}}$ =0.37

Probable error of correlation coefficient, P.E. (r)$=0.6745 \times \frac{1-r^2}{\sqrt{6}}$ =0.25

I. Regression equation of Y on X, Y= a+ b X

Where,
a = regression constant
b = Regression coefficient (slope of the regression line)

According to the principle of least square, two normal equations for estimating numerical constant a and b are given by,

$\sum y = n.a + b\sum x \quad and \quad \sum xy = a\sum x + b\sum x^2$

Solving two normal equation, we get

b$= \frac{n\sum xy - \sum x \sum y}{n\sum x^2 - (\sum x)^2}$ $= \frac{6 \times 96192.7 - 911.12 \times 630}{6 \times 139721.44 - (911.12)^2}$ =0.38

a$= \bar{y} - b\bar{x}$ =105-0.38$\times$ 151.85 =47.30

Standard Error of Estimation (S.E.E)

$= \sqrt{\frac{\sum Y^2 - a\sum Y - b\sum XY}{n-2}} = \sqrt{\frac{68300 - 47.30 \times 630 - 0.38 \times 96192.7}{6-2}}$ =11.03

6×P.E= 6×0.25 = 1.50

2) FOR NABIL Bank Ltd

Year	X(EPS)	Y(DPS)	XY	X^2	Y^2	$(X-\bar{X})^2$
2003/04	84.66	50	4233	7167.31	2500	620.01
2004/05	92.61	65	6019.65	8576.61	4225	287.30
2005/06	105.49	70	7384.30	11128.14	4900	16.56
2006/07	129.21	85	10982.85	16692.64	7225	386.12
2007/08	137.08	100	13708	18790.92	10000	757.35
2008/09	108.31	60	6498.60	11731.05	3600	1.56
n=6	657.36	430	48826.4	74086.67	32450	2068.9

Mean,

$\bar{X}$=109.56

$\bar{Y}$=71.67

Coefficient of Determination (r2)=$\frac{n\sum xy - \sum x \sum y}{\sqrt{n\sum x^2 - (\sum x)^2 . n\sum y^2 - (\sum y)^2}}$

$= \frac{6 \times 48826.4 - 657.36 \times 430}{6 \times 74086.67 - (657.36)^2 . 6 \times 32450 - (430)^2}$

$= \frac{10293.60}{\sqrt{12397.85 \times 9800}} = 0.93$

Standard Error of correlation coefficient, S.E. (r)= $\frac{1-r^2}{\sqrt{n}} = \frac{1-0.86}{\sqrt{6}} = 0.057$

Probable error of correlation coefficient, P.E. (r)= $0.6745\frac{1-r^2}{\sqrt{6}}$ =0.04

Regression equation of Y on X, Y= a+ b X

Where,
a = regression constant
b = Regression coefficient (slope of the regression line)

According to the principle of least square, two normal equations for estimating numerical constant a and b are given by,

$$\sum y = n.a + b\sum x \quad and \quad \sum xy = a\sum x + b\sum x^2$$

Solving two normal equation, we get

b= $\frac{n\sum xy - \sum x \sum y}{n\sum x^2 - (\sum x)^2} = \frac{6 \times 48826.4 - 657.36 \times 430}{6 \times 74086.67 - (657.36)^2}$ = 0.83

a= $\bar{y} - bx$

= 71.67-0.83×109.56

= -19.26

Standard Error of Estimation (S.E.E)

$$= \sqrt{\frac{\sum Y^2 - a\sum Y - b\sum XY}{n-2}} = \sqrt{\frac{32450 - (-19.26)\times 430 - 0.83\times 48826.40}{6-2}} = 3.59$$

6×P.E= 6×0.04 = 0.24

3) FOR NIBL Bank Ltd

Year	X(EPS)	Y(DPS)	XY	X^2	Y^2	$(X-\bar{X})^2$
2003/04	39.56	20	791.20	1564.10	400	148.84
2004/05	51.70	15	775.50	2672.89	225	0.0036
2005/06	39.50	12.5	493.75	1560.25	156.25	150.31
2006/07	59.35	20	1187	3522.42	400	57.61
2007/08	62.57	5	312.85	3915	25	116.86
2008/09	57.87	7.50	434.03	3348.93	56.25	37.33
Total	310.56	80	3994.33	16583.59	1262.50	510.95

n=6

Mean,

$\bar{X}$=51.76

$\bar{Y}$=13.33

Coefficient of correlation (r) $= \frac{n\sum xy - \sum x\sum y}{\sqrt{n\sum x^2 - (\sum x)^2 . n\sum y^2 - (\sum y)^2}}$

$$= \frac{6\times 3994.33 - 310.56\times 80}{\sqrt{6\times 16583.59 - (310.56)^2 . 6\times 1262.5 - (80)^2}}$$

$$= \frac{-878.82}{\sqrt{3054.03\times 1175}} = -0.46$$

Coefficient of Determination (r2) = $(-0.46)^2$ = 0.21

Standard Error of correlation coefficient, S.E. (r)= $\frac{1-r^2}{\sqrt{n}} = \frac{1-0.21}{\sqrt{6}}$ = 0.32

Probable error of correlation coefficient, P.E. (r)= $0.6745\frac{1-r^2}{\sqrt{6}}$ = 0.22

Regression equation of Y on X, Y= a+ b X

Where,

a = regression constant

b = Regression coefficient (slope of the regression line

According to the principle of least square, two normal equations for estimating numerical constant a and b are given by,

$$\sum y = n.a + b\sum x \quad and \quad \sum xy = a\sum x + b\sum x^2$$

Solving two normal equation, we get

$b = \frac{n\sum xy - \sum x \sum y}{n\sum x^2 - (\sum x)^2} = \frac{6 \times 3994.33 - 310.56 \times 80}{6 \times 16583.59 - (310.56)^2} = -0.29$

$a = \bar{y} - b\bar{x}$ = 13.33-(-0.29)×51.76 = 1.68

Standard Error of Estimation (S.E.E)

$= \sqrt{\frac{\sum y^2 - a\sum y - b\sum xy}{n-2}} = \sqrt{\frac{1262.5 - 1.68 \times -(-0.46) \times 3994.33}{6-2}}$ = 13.61

6×P.E= 6×0.46 =2.76

4) FOR HBL

Year	X(EPS)	Y(DPS)	XY	X^2	Y^2	$(X-\bar{X})^2$
2003/04	49.45	1.32	65.27	2445.30	1.72	29.05
2004/05	49.05	0	0	2405.90	0	33.52
2005/06	47.91	11.58	554.80	2296.36	134.09	48.02
2006/07	59.24	30	1777.2	3509.37	900	19.36
2007/08	60.66	15	909.9	3679.63	225	33.87
2008/09	62.74	25	1568.5	3936.30	625	62.41
Total	329.05	82.90	4875.67	18272.86	1885.84	226.23

n=6

Mean,

$\bar{X}$=54.84 and $\bar{Y}$=13.82

Coefficient of correlation (r) $= \frac{n\sum xy - \sum x \sum y}{\sqrt{n\sum x^2 - (\sum x)^2 . n\sum y^2 - (\sum y)^2}}$

$= \frac{6 \times 4875.67 - 329.05 \times 82.9}{\sqrt{6 \times 18272.86 - (329.05)^2 . 6 \times 1885.84 - (82.9)^2}}$

$= \frac{1975.78}{\sqrt{1363.26 \times 4442.63}}$ = 0.80

Coefficient of Determination (r2)= $(0.80)^2$ = 0.64

Standard Error of correlation coefficient, S.E. (r) = $\frac{1-r^2}{\sqrt{n}} = \frac{1-0.64}{\sqrt{6}}$ = 0.145

Probable error of correlation coefficient, P.E. (r)= $0.6745\frac{1-r^2}{\sqrt{6}}$ = 0.10

Regression equation of Y on X, Y= a+ b X

Where,

a = regression constant

b = Regression coefficient (slope of the regression line

According to the principle of least square, two normal equations for estimating numerical constant a and b are given by,

$\sum y = n.a + b\sum x$ and $\sum xy = a\sum x + b\sum x^2$

Solving two normal equation, we get

$b = \frac{n\sum xy - \sum x \sum y}{n\sum x^2 - (\sum x)^2} = \frac{6 \times 487.67 - 829.05 \times 82.9}{6 \times 18272.86 - (182.9)^2}$ = 0.02

$a = \bar{y} - b\bar{x}$ = 13.82-0.02×54.84 = 12.72

Standard Error of Estimation (S.E.E)

$= \sqrt{\frac{\sum y^2 - a\sum y - b\sum xy}{n-2}} = \sqrt{\frac{1885.84 - 12.72 \times 82.9 - 0.02 \times 4875.67}{6-2}}$ = 6.77

6×P.E= 6×0.80 = 4.80

5) FOR BOKL

Year	X(EPS)	Y(DPS)	XY	X^2	Y^2	$(X-\bar{X})^2$
2003/04	17.72	5	88.6	313.10	25	374.42
2004/05	27.50	10	275	756.25	100	91.58
2005/06	30.10	15	451.5	906.01	225	48.58
2006/07	43.67	18	786.06	1907.07	324	43.56
2007/08	43.50	20	870	1892.25	400	41.34
2008/09	59.94	2.11	126.47	3190.80	4.45	523.04
Total	222.43	70.11	2597.63	8965.48	1078.45	1122.52

n=6

Mean,

$\bar{X}$=37.07 and $\bar{Y}$=11.69

Coefficient of correlation (r) $= \frac{n\sum xy - \sum x \sum y}{\sqrt{n\sum x^2 - (\sum x)^2 . n\sum y^2 - (\sum y)^2}}$

$= \frac{6 \times 2597.63 - 222.43 \times 70.11}{\sqrt{6 \times 8965.48 - (222.43)^2 . 6 \times 1078.45 - (70.11)^2}}$

$= \frac{-8.79}{\sqrt{4317.78 \times 1555.29}}$ = -0.0034

Coefficient of Determination (r2)= $(-0.0034)^2$ = 0.00001156

Standard Error of correlation coefficient, S.E. (r)= $\frac{1-r^2}{\sqrt{n}}$=0.41

Probable error of correlation coefficient, P.E. (r)= $0.6745\frac{1-r^2}{\sqrt{6}}$ =0.28

Regression equation of Y on X, Y= a+ b X

Where,

a = regression constant

b = Regression coefficient (slope of the regression line

According to the principle of least square, two normal equations for estimating numerical constant a and b are given by,

$$\sum y = n.a + b\sum x \quad and \quad \sum xy = a\sum x + b\sum x^2$$

Solving two normal equation, we get

$b = \frac{n\sum xy - \sum x \sum y}{n\sum x^2 - (\sum x)^2} = \frac{6\times2597.63 - 222.43\times70.11}{6\times8965.48 - (222.43)^2} = -0.002$

$a = \bar{y} - b\bar{x} = 11.68 - (-0.002)\times37.07 = 11.75$

Standard Error of Estimation(S.E.E)

$= \sqrt{\frac{\sum y^2 - a\sum y - b\sum xy}{n-2}} = \sqrt{\frac{1078.45 - 11.75\times\times70.11 - (0.002)\times2597.63}{6-2}} = 4.03$

$6\times P.E = 6\times0.28 = 1.68$

6) FOR EBL

Year	X(EPS)	Y(DPS)	XY	X^2	Y^2	$(X-\bar{X})^2$
2003/04	29.90	20	598	894.01	400	933.30
2004/05	45.58	20	911.60	2077.53	400	221.12
2005/06	54.20	0	0	2937.64	0	39.06
2006/07	62.80	25	1570	3943.84	625	5.52
2007/08	78.40	10	784	6146.56	100	322.20
2008/09	91.82	20	1836.40	8430.91	400	984.08
n=6	362.7	95	5700	24430.49	1925	2505.28

Mean,

$\bar{X}$=60.45

$\bar{Y}$=15.83

Coefficient of correlation (r) $= \frac{n\sum xy - \sum x \sum y}{\sqrt{n\sum x^2 - (\sum x)^2 . n\sum y^2 - (\sum y)^2}}$

$= \frac{6\times5700 - 362.7\times95}{\sqrt{6\times24430.49 - (362.7^2).6\times1925 - (95)^2}}$

$= \frac{-256.5}{\sqrt{15031.65\times2525}} = -0.0416$

Coefficient of Determination (r2)= $(-0.0416)^2 = 0.0016$

Standard Error of correlation coefficient, S.E. (r)= $\frac{1-r^2}{\sqrt{n}} = \frac{1-0.0016}{\sqrt{6}}$

Probable error of correlation coefficient, P.E. (r)= $0.6745\frac{1-r^2}{\sqrt{6}}$

Regression equation of Y on X, Y= a+ b X

Where,
a = regression constant
b = Regression coefficient (slope of the regression line

According to the principle of least square, two normal equations for estimating numerical constant a and b are given by,

$$\sum y = n.a + b\sum x \quad and \quad \sum xy = a\sum x + b\sum x^2$$

Solving two normal equation, we get

b= $\frac{n\sum xy - \sum x\sum y}{n\sum x^2 - (\sum x)^2}$ = $\frac{6\times 5700 - 362.7\times 95}{6\times 24430.49 - (362.7)^2}$ = -0.02

a= $\bar{y} - b\bar{x}$=15.83-(-0.02)×60.45= 17.04

Standard Error of Estimation(S.E.E)

= $\sqrt{\frac{\sum Y^2 - a\sum Y - b\sum xy}{n-2}}$ = $\sqrt{\frac{1925 - 17.04\times 95 - (-0.02)\times 5700}{6-2}}$ = 5.12

6×P.E= 6×0.28 = 1.68

Appendex-3

Simple Correlation and Regression Analysis Between MPS and DPS

1) FOR SCBNL

Year	X(MPS)	Y(DPS)	XY	X^2	Y^2	$(X-\bar{X})^2$
2003/04	1640	110	180400	2689600	12100	4267653.59
2004/05	1745	110	191950	3045025	12100	3844854.29
2005/06	2345	120	281400	5499025	14400	1851858.29
2006/07	3775	130	490750	14250625	16900	4784.49
2007/08	5900	80	472000	34810000	6400	4814381.99
2008/09	6830	80	546400	46648900	6400	9760438.19
Total	22235	630	2162900	106943175	68300	24543970.84

n=6

Mean,

$\bar{X}$=3705.83 and $\bar{Y}$=105

Coefficient of correlation (r) = $\frac{n\sum xy - \sum x\sum y}{\sqrt{n\sum x^2 - (\sum x)^2 . n\sum y^2 - (\sum y)^2}}$

= $\frac{6\times 2162900 - 22235\times 630}{\sqrt{6\times 106943175 - (22235)^2 . 6\times 68300 - (630)^2}}$

= $\frac{12977400 - 14008050}{\sqrt{147263825\times 12900}}$ = -0.75

Coefficient of Determination (r2)= $(-0.75)^2$ = 0.56

Standard Error of correlation coefficient, S.E. (r)= $\frac{1-r^2}{\sqrt{n}}$ = $\frac{1-0.56}{\sqrt{6}}$ = 0.18

Probable error of correlation coefficient, P.E. (r)= $0.6745\frac{1-r^2}{\sqrt{6}}$ = 0.12

Regression equation of Y on X, Y= a+ b X

Where,

a = regression constant

b = Regression coefficient (slope of the regression line

According to the principle of least square, two normal equations for estimating numerical constant a and b are given by,

$$\sum y = n.a + b\sum x \quad and \quad \sum xy = a\sum x + b\sum x^2$$

Solving two normal equation, we get

$b = \frac{n\sum xy - \sum x \sum y}{n\sum x^2 - (\sum x)^2}$ = $\frac{6\times 2162900 - 22235\times 630}{6\times 106943178 - (22235)^2}$ = -0.0070

$a = \bar{y} - b\bar{x}$ = 105-(-0.0070)×3705.83 = 130.94

Standard Error of Estimation(S.E.E)

$= \sqrt{\frac{\sum Y^2 - a\sum Y - b\sum xy}{n-2}}$ = $\sqrt{\frac{68300 - 130.94\times 630 - (-0.007)\times 2162900}{6-2}}$ = 7.70

6×P.E= 6×0.012 = 0.72

2) FOR NABIL Bank Ltd.

Year	X(MPS)	Y(DPS)	XY	X^2	Y^2	$(X-\bar{X})^2$
2003/04	740	50	37000	547600	2500	3591025
2004/05	1000	65	65000	1000000	4225	2673225
2005/06	1505	70	105350	2265025	4900	1276900
2006/07	2240	85	190400	5017600	7225	156025
2007/08	5050	100	505000	25502500	10000	5832225
2008/09	5275	60	316500	27825625	3600	6969600
n=6	15810	367	1219250	62158350	32450	20499000

Mean,

$\bar{X}$=2635

$\bar{Y}$=61.17

Coefficient of correlation (r) = $\frac{n\sum xy - \sum x\sum y}{\sqrt{n\sum x^2 - (\sum x)^2 . n\sum y^2 - (\sum y)^2}}$

$= \frac{6\times 1219250 - 15810\times 367}{\sqrt{6\times 62158350 - (15810)^2 . 6\times 32450 - (367)^2}}$

$= \frac{7315500 - 5802270}{\sqrt{122994000\times 60011}}$ = 0.56

Coefficient of Determination (r2)= $(0.56)^2$ = 0.31

Standard Error of correlation coefficient, S.E. (r)= $\frac{1-r^2}{\sqrt{n}}$ = $\frac{1-0.31}{\sqrt{6}}$ = 0.28

Probable error of correlation coefficient, P.E. (r)= $0.6745\frac{1-r^2}{\sqrt{6}}$ = 0.19

Regression equation of Y on X, Y= a+ b X

Where,

a = regression constant

b = Regression coefficient (slope of the regression line

According to the principle of least square, two normal equations for estimating numerical constant a and b are given by,

$$\sum y = n.a + b\sum x \quad and \quad \sum xy = a\sum x + b\sum x^2$$

Solving two normal equation, we get

$b = \frac{n\sum xy - \sum x \sum y}{n\sum x^2 - (\sum x)^2} = \frac{6\times1219250 - 15810\times367}{6\times62158350 - (15810)^2} = 0.01$

$a = \bar{y} - b\bar{x}$=61.17-0.01×2635 = 34.82

Standard Error of Estimation(S.E.E)

$= \sqrt{\frac{\sum Y^2 - a\sum Y - b\sum xy}{n-2}} = \sqrt{\frac{32450 - 34.82\times367 - 0.01\times1219250}{6-2}}$ = 21.62

6×P.E= 6×0.19 = 1.14

3) FOR NIBL

Year	X(MPS)	Y(DPS)	XY	X^2	Y^2	$(X-\bar{X})^2$
2003/04	795	20	15900	632025	400	285156
2004/05	940	15	14100	883600	225	151321
2005/06	800	12.5	10000	640000	156.25	279841
2006/07	1260	20	25200	1587600	400	4761
2007/08	1729	5	8645	2989441	25	160000
2008/09	2450	7.50	18375	6002500	56.25	1256641
n=6	7974	80	92220	12735166	1262.50	2137720

Mean,

$\bar{X}$=1329

$\bar{Y}$=13.33

Coefficient of correlation (r) $= \frac{n\sum xy - \sum x\sum y}{\sqrt{n\sum x^2 - (\sum x)^2 . n\sum y^2 - (\sum y)^2}}$

$= \frac{6\times92220 - 7974\times80}{\sqrt{6\times12735166 - (7974)^2 . 6\times1262.5 - (80)^2}}$

$= \frac{-84600}{\sqrt{12826320\times1175}}$ = -0.6891

Coefficient of Determination (r2)= $(-0.69)^2$ = 0.48

Standard Error of correlation coefficient, S.E. (r)= $\frac{1-r^2}{\sqrt{n}} = \frac{1-0.48}{\sqrt{6}}$ = 0.21

Probable error of correlation coefficient, P.E. (r)= $0.6745\frac{1-r^2}{\sqrt{6}}$ = 0.14

Regression equation of Y on X, Y= a+ b X

Where,

a = regression constant

b = Regression coefficient (slope of the regression line

According to the principle of least square, two normal equations for estimating numerical constant a and b are given by,

$$\sum y = n.a + b\sum x \quad and \quad \sum xy = a\sum x + b\sum x^2$$

Solving two normal equation, we get

b= $\frac{n\sum xy-\sum x\sum y}{n\sum x^2-(\sum x)^2}$ = $\frac{6\times92220-7974\times80}{6\times12735166-(7974)^2}$ = -0.0066

a= $\overline{y} - b\overline{x}$ = 13.33-(-0.0066) X1329 = 22.10

Standard Error of Estimation(S.E.E)

= $\sqrt{\frac{\sum Y^2-a\sum Y-b\sum xy}{n-2}}$ = $\sqrt{\frac{1262.5-22.10\times80-(-0.0066)\times92220}{6-2}}$ = 2.54

6×P.E= 6×0.14 = 0.84

4) FOR HBL

Year	X(MPS)	Y(DPS)	XY	X^2	Y^2	$(X-\overline{X})^2$
2003/04	836	1.32	1103.52	698896	1.74	160000
2004/05	840	0	0	705600	0	156816
2005/06	920	11.58	10653.60	846400	134.09	99856
2006/07	1100	30	33000	1210000	900	18496
2007/08	1740	15	26100	3027600	225	254016
2008/09	1980	25	49500	3920400	625	553536
Total	7416	82.9	120357.12	10408896	1885.84	1242720

n=6

Mean,

$\overline{X}$=1236 and $\overline{Y}$=13.82

Coefficient of correlation (r) = $\frac{n\sum xy-\sum x\sum y}{\sqrt{n\sum x^2-(\sum x)^2.n\sum y^2-(\sum y)^2}}$

= $\frac{6\times120357.12-7416\times82.9}{\sqrt{6\times10408896-(7416)^2.6\times1885.84-(82.9)^2}}$

= $\frac{714786.422142.72-6}{\sqrt{7456320\times4442.63}}$ = 0.59

Coefficient of Determination (r2)= $(0.59)^2$ = 0.35

Standard Error of correlation coefficient, S.E. (r)= $\frac{1-r^2}{\sqrt{n}}$ = $\frac{1-0.35}{\sqrt{6}}$ = 0.27

Probable error of correlation coefficient, P.E. (r)= $0.6745\frac{1-r^2}{\sqrt{6}}$ = 0.18

Regression equation of Y on X, Y= a+ b X

Where,
a = regression constant
b = Regression coefficient (slope of the regression line
According to the principle of least square, two normal equations for estimating numerical constant a and b are given by,

$$\sum y = n.a + b\sum x \quad \text{and} \quad \sum xy = a\sum x + b\sum x^2$$

Solving two normal equation, we get

$$b = \frac{n\sum xy - \sum x\sum y}{n\sum x^2 - (\sum x)^2} = \frac{6\times 120357.12}{6\times 10408896 - (7416)^2} = 0.01$$

$$a = \bar{y} - b\bar{x} = 13.82 - 0.01\times 1236 = 1.46$$

Standard Error of Estimation(S.E.E)

$$= \sqrt{\frac{\sum Y^2 - a\sum Y - b\sum xy}{n-2}} = \sqrt{\frac{1885.84 - 1.46\times 82.9 - 0.01\times 120357.12}{6-2}} = 5.92$$

6×P.E= 6×0.18 = 1.08

5) FOR BOKL

Year	X(MPS)	Y(DPS)	XY	X^2	Y^2	$(X-\bar{X})^2$
2003/04	198	5	990	39204	25	515997.99
2004/05	295	10	2950	87025	100	386050.97
2005/06	430	15	6450	184900	225	236516.87
2006/07	850	18	15300	722500	324	4399.67
2007/08	1375	20	27500	1890625	400	210378.17
2008/09	2350	2.11	4958.5	5522500	4.45	2055409.67
Total	5498	70.11	58148.5	8446754	1078.45	3408753.34

n=6
Mean,
$\bar{X}$=916.33
$\bar{Y}$=11.69

Coefficient of correlation (r) $= \frac{n\sum xy - \sum x\sum y}{\sqrt{n\sum x^2 - (\sum x)^2 . n\sum y^2 - (\sum y)^2}}$

$$= \frac{6\times 58148.5 - 5498\times 70.11}{\sqrt{6\times 8446754\times - (5498)^2 . 6\times 1078.45 - (70.11)^2}}$$

$$= \frac{348891 - 385464.78}{\sqrt{20452520\times 1555.29}} = -0.2051$$

Coefficient of Determination (r2)= $(-0.21)^2$ = 0.04

Standard Error of correlation coefficient, S.E. (r)= $\frac{1-r^2}{\sqrt{n}} = \frac{1-0.04}{\sqrt{6}} = 0.39$

Probable error of correlation coefficient, P.E. (r)= $0.6745\frac{1-r^2}{\sqrt{6}}$ = 0.26

Regression equation of Y on X, Y= a+ b X
Where,
a = regression constant
b = Regression coefficient (slope of the regression line

According to the principle of least square, two normal equations for estimating numerical constant a and b are given by,

$$\sum y = n.a + b\sum x \quad \text{and} \quad \sum xy = a\sum x + b\sum x^2$$

Solving two normal equation, we get

$$b = \frac{n\sum xy - \sum x\sum y}{n\sum x^2 - (\sum x)^2} = \frac{6\times 58148.5 - 5498\times 70.11}{6\times 8446754 - (5498)^2} = -0.0018$$

$$a = \bar{y} - b\bar{x} = 11.68-(-0.0018)916.33 = 13.33$$

Standard Error of Estimation(S.E.E)

$$= \sqrt{\frac{\sum Y^2 - a\sum Y - b\sum xy}{n-2}} = \sqrt{\frac{1078.45 - 13.33\times 70.11 - (-0.0018)\times 58148.5}{6-2}} = 3.94$$

6×P.E= 6×0.26 = 1.56

6) FOR EBL

Year	X(MPS)	Y(DPS)	XY	X^2	Y^2	$(X-\bar{X})^2$
2003/04	445	20	8900	198025	400	1090625.15
2004/05	680	20	13600	462400	400	655015.05
2005/06	870	0	0	756900	0	383569.65
2006/07	1379	25	34475	1901641	625	12172.71
2007/08	2430	10	24300	5904900	100	884860.05
2008/09	3132	20	62640	9809424	400	2698364.73
Total	8936	95	143915	19033290	1925	5724607.34

n=6
Mean,
$\bar{X}$=1489.33 and $\bar{Y}$=15.33

Coefficient of correlation (r) = $\frac{n\sum xy - \sum x\sum y}{\sqrt{n\sum x^2 - (\sum x)^2 . n\sum y^2 - (\sum y)^2}}$

$$= \frac{6\times 143915 - 893\times 6\times 95}{\sqrt{6\times 19033290 - (8936)^2 . 6\times 1925 - (95)^2}}$$

$$= \frac{863490 - 848920}{\sqrt{34347644\times 2525}} = 0.0495$$

Coefficient of Determination (r2)= $(0.05)^2$ = 0.0025

Standard Error of correlation coefficient, S.E. (r)= $\frac{1-r^2}{\sqrt{n}} = \frac{1-0.0025}{\sqrt{6}} =$ 0.41

Probable error of correlation coefficient, P.E. (r)= $0.6745\frac{1-r^2}{\sqrt{6}}$ = 0.28

Regression equation of Y on X, Y= a+ b X

Where,
a = regression constant
b = Regression coefficient (slope of the regression line

According to the principle of least square, two normal equations for estimating numerical constant a and b are given by,

$$\sum y = n.a + b\sum x \quad \text{and} \quad \sum xy = a\sum x + b\sum x^2$$

Solving two normal equation, we get

$b = \frac{n\sum xy - \sum x\sum y}{n\sum x^2 - (\sum x)^2} = \frac{6X143915 - 8936X95}{6X19083290 - (8936)^2}$ = 0.0004

$a = \bar{y} - b\bar{x}$ = 15.83-0.0004×1489.33 = 15.25

Standard Error of Estimation(S.E.E)

$= \sqrt{\frac{\sum Y^2 - a\sum Y - b\sum xy}{n-2}} = \sqrt{\frac{1925 - 15.23\times95 - 0.0004\times143915}{6-2}}$ = 5.13

6×P.E= 6×0.28= 1.68

Appendix-4

Simple Correlation and Regression Analysis Between MPS and EPS

1) FOR SCBNL

Year	X(MPS)	Y(EPS)	XY	X^2	Y^2	$(X-\bar{X})^2$
2003/04	1640	149.30	244852	2689600	22290.49	4267653.59
2004/05	1745	143.55	250494.75	3045025	20606.60	3844854.29
2005/06	2345	143.14	335663.30	5499025	20489.05	1851858.29
2006/07	3775	175.84	663796	14250625	30919.70	4784.49
2007/08	5900	167.37	987483	34810000	28012.72	4814381.99
2008/09	6830	131.92	901013.60	46648900	17402.88	9760438.19
Total	22235	911.12	3383302.65	106943175	139721.44	24543970.84

n=6
Mean,
$\bar{X}$=3705.83 and $\bar{Y}$=151.85

Coefficient of correlation (r) = $\frac{n\sum xy - \sum x\sum y}{\sqrt{n\sum x^2 - (\sum x)^2 . n\sum y^2 - (\sum y)^2}}$

$= \frac{6X3383302.65 - 22235X911.12}{\sqrt{6\times106943175 - (22235)^2 . 6\times139721.44 - (911.12)^2}}$

$$= \frac{20299815.9 - 20258753.2}{\sqrt{147263825 \times 8188.99}} = 0.0374$$

Coefficient of Determination (r2)= $(0.04)^2 = 0.0016$

Standard Error of correlation coefficient, S.E. (r)= $\frac{1-r^2}{\sqrt{n}} = \frac{1-0.0016}{\sqrt{6}} = 0.41$

Probable error of correlation coefficient, P.E. (r)= $0.6745\frac{1-r^2}{\sqrt{6}} = 0.28$

Regression equation of Y on X, Y= a+ b X

Where,
a = regression constant
b = Regression coefficient (slope of the regression line

According to the principle of least square, two normal equations for estimating numerical constant a and b are given by,

$$\sum y = n.a + b\sum x \quad and \quad \sum xy = a\sum x + b\sum x^2$$

Solving two normal equation, we get

b= $\frac{n\sum xy - \sum x\sum y}{n\sum x^2 - (\sum x)^2} = \frac{6\times3383302.65 - 22235\times911.12}{6\times10694317.5 - (22235)^2} = 0.00028$

a= $\bar{y} - b\bar{x}$ = 151.85-0.0028×3705.83 = 150.81

Standard Error of Estimation(S.E.E)

= $\sqrt{\frac{\sum Y^2 - a\sum Y - b\sum xy}{n-2}} = \sqrt{\frac{139721.44 - 150.81\times911.12 - 0.0028\times3383302.65}{6-2}} = 9.25$

6×P.E= 6×0.28 = 1.68

2) FOR NABIL

Year	X(MPS)	Y(EPS)	XY	X^2	Y^2	$(X-\bar{X})^2$
2003/04	740	84.66	62648.40	547600	7167.31	3591025
2004/05	1000	92.61	92610	1000000	8576.61	2673225
2005/06	1505	105.49	158762.45	2265025	11128.14	1276900
2006/07	2240	129.21	289430.40	5017600	16692.64	156025
2007/08	5050	137.08	692254	25502500	18790.92	5832225
2008/09	5275	108.31	571335.25	27825625	11731.05	6969600
Total	15810	657.36	1867040.5	62158350	74086.67	20499000

n=6
Mean,
$\bar{X}$=2635 and $\bar{Y}$=109.56

Coefficient of correlation (r) = $\frac{n\sum xy - \sum x\sum y}{\sqrt{n\sum x^2 - (\sum x)^2 . n\sum y^2 - (\sum y)^2}}$

$$= \frac{6\times1867040.5 - 15810\times657.36}{\sqrt{6\times62158350 - (15810)^2 . 6\times74086 - (657.36)^2}}$$

$$= \frac{80938.14}{\sqrt{122994000\times12397.85}} = 0.65$$

Coefficient of Determination (r2)= $(0.65)^2$ = 0.42

Standard Error of correlation coefficient, S.E. (r)= $\frac{1-r^2}{\sqrt{n}}$ = $\frac{1-0.42}{\sqrt{6}}$ = 0.24

Probable error of correlation coefficient, P.E. (r)= $0.6745\frac{1-r^2}{\sqrt{6}}$ = 0.16

Regression equation of Y on X, Y= a+ b X

Where,
a = regression constant
b = Regression coefficient (slope of the regression line

According to the principle of least square, two normal equations for estimating numerical constant a and b are given by,

$$\sum y = n.a + b\sum x \quad and \quad \sum xy = a\sum x + b\sum x^2$$

Solving two normal equation, we get

b= $\frac{n\sum xy-\sum x\sum y}{n\sum x^2-(\sum x)^2}$ = $\frac{6\times1867040.5-15810\times657.36}{6\times62158350-(15810)^2}$ =0.0066 a= $\bar{y} - b\bar{x}$ =109.56- .0066×2635 = 92.17

Standard Error of Estimation(S.E.E)

= $\sqrt{\frac{\sum Y^2-a\sum Y-b\sum xy}{n-2}}$ = $\sqrt{\frac{74086.67-92.17\times657.36-0.0066\times1867040.5}{6-2}}$ = 8.57

6×P.E= 6×0.16 = 0.96

3) FOR NIBL

Year	X(MPS)	Y(EPS)	XY	X^2	Y^2	$(X-\bar{X})^2$
2003/04	795	39.56	31450.20	632025	1564.10	285156
2004/05	940	51.70	48598	883600	2672.89	151321
2005/06	800	39.50	31600	640000	1560.25	279841
2006/07	1260	59.35	74781	1587600	3522.42	4761
2007/08	1729	62.57	108183.53	2989441	3915	160000
2008/09	2450	57.87	141781.50	6002500	3348.93	1256641
Total	7974	310.56	436394.23	12735166	16583.59	2137720

n=6

Mean,

$\bar{X}$=1329

$\bar{Y}$=51.76

Coefficient of correlation (r) $= \frac{n\sum xy - \sum x \sum y}{\sqrt{n\sum x^2 - (\sum x)^2 . n\sum y^2 - (\sum y)^2}}$

$= \frac{6\times 436394.23 - 7974\times 310.56}{\sqrt{6\times 12735166 - (7974)^2 . 6\times 16583.59 - (310.56^2)}}$

$= \frac{2618365.38 - 2476405.44}{\sqrt{12826320\times 3054.03}} = 0.7173$

Coefficient of Determination (r2)= $(0.72)^2$ = 0.52

Standard Error of correlation coefficient, S.E. (r)= $\frac{1-r^2}{\sqrt{n}} = \frac{1-0.52}{\sqrt{6}} = 0.20$

Probable error of correlation coefficient, P.E. (r)= $0.6745\frac{1-r^2}{\sqrt{6}}$ = 0.13

Regression equation of Y on X, Y= a+ b X

Where,

a = regression constant

b = Regression coefficient (slope of the regression line

According to the principle of least square, two normal equations for estimating numerical constant a and b are given by,

$\sum y = n.a + b\sum x \quad and \quad \sum xy = a\sum x + b\sum x^2$

Solving two normal equations, we get

$b = \frac{n\sum xy - \sum x \sum y}{n\sum x^2 - (\sum x)^2} = \frac{6\times 436394.23 - 7974\times 310.56}{6\times 12785166 - (7974)^2} = 0.0011$ $a = \bar{y} - b\bar{x} = 51.76 - 0.0011\times 1329 = 0.30$

Standard Error of Estimation (S.E.E)

$= \sqrt{\frac{\sum Y^2 - a\sum Y - b\sum xy}{n-2}} = \sqrt{\frac{16583.59 - 50.30\times 310.56 - 0.0011\times 436394.23}{6-2}} = 5.49$

$6\times P.E = 6\times 0.13 = 0.78$

4) FOR HBL

Year	X(MPS)	Y(EPS)	XY	X^2	Y^2	$(x-\bar{x})^2$
2003/04	836	49.45	41340.20	698896	2445.30	160000
2004/05	840	49.05	41202	705600	2405.90	156816
2005/06	920	47.91	44077.20	846400	2296.36	99856
2006/07	1100	59.24	65164	1210000	3509.37	18496
2007/08	1740	60.66	105548.40	3027600	3679.63	254016
2008/09	1980	62.74	124225.20	3920400	3936.30	553536
Total	7416	329.05	421557	10408896	18272.86	1242720

n=6

Mean,

$\bar{X}$=1236

$\bar{Y}$=54.84

Coefficient of correlation (r) $= \frac{n\sum xy - \sum x \sum y}{\sqrt{n\sum x^2 - (\sum x)^2 . n\sum y^2 - (\sum y)^2}}$

$= \frac{6\times 421657 - 7416\times 329.05}{\sqrt{6\times 10408896 - (7416^2).6\times 18272.86 - (329.05)^2}}$

$= \frac{2529342 - 2440234.8}{\sqrt{7456320\times 1363.26}} = 0.88$

Coefficient of Determination (r2)= $(0.88)^2$ = 0.77

Standard Error of correlation coefficient, S.E. (r) = $\frac{1-r^2}{\sqrt{n}} = \frac{1-0.77}{\sqrt{6}} = 0.0094$

Probable error of correlation coefficient, P.E. (r)= $0.6745\frac{1-r^2}{\sqrt{6}} = 0.0063$

Regression equation of Y on X, Y= a+ b X

Where,

a = regression constant

b = Regression coefficient (slope of the regression line

According to the principle of least square, two normal equations for estimating numerical constant a and b are given by,

$$\sum y = n.a + b\sum x \quad and \quad \sum xy = a\sum x + b\sum x^2$$

Solving two normal equations, we get $b = \frac{n\sum xy - \sum x \sum y}{n\sum x^2 - (\sum x)^2}$ $= \frac{6\times 421557 - 7416\times 329.05}{6\times 10408896 - (7416)^2}$ = 0.0012

$a = \bar{y} - b\bar{x}$ =54.84-0.0012×1236 = 53.36

Standard Error of Estimation(S.E.E)

$= \sqrt{\frac{\sum y^2 - a\sum y - b\sum xy}{n-2}}$ $= \sqrt{\frac{19272.86 - 53.36\times 329.05 - 0.0012\times 421557}{6-2}}$ = 3.61

6×P.E= 6×0.0063 = 0.0375

5) FOR BOKL

Year	X(MPS)	Y(EPS)	XY	X^2	Y^2	$(X-\bar{X})^2$
2003/04	198	17.72	3508.56	39204	313.10	515997.99
2004/05	295	27.50	8112.50	87025	756.25	386050.97
2005/06	430	30.10	12943	184900	906.01	236516.87
2006/07	850	43.67	37119.5	722500	1907.07	4399.67
2007/08	1375	43.50	59812.5	1890625	1892.25	210378.17
2008/09	2350	59.94	140859	5522500	3592.80	2055409.67
Total	5498	222.43	262355.06	8446754	9367.48	3408753.34

n=6

Mean,

$\bar{X}$=916.33 and $\bar{Y}$=37.07

Coefficient of correlation (r) $= \frac{n\sum xy - \sum x\sum y}{\sqrt{n\sum x^2 - (\sum x)^2 . n\sum y^2 - (\sum y)^2}}$

$= \frac{6\times 262355.06 - 5498\times 222.43}{\sqrt{6\times 8446754 - (5498)^2}\sqrt{6\times 9368.40 - (222.43)^2}} = \frac{1574130.36 - 1222920.14}{\sqrt{20452520\times 6729.76}}$ = 0.94

Coefficient of Determination (r2)= $(0.94)^2$ = 0.88

Standard Error of correlation coefficient, S.E. (r)= $\frac{1-r^2}{\sqrt{n}} = \frac{1-0.88}{\sqrt{6}}$ = 0.05

Probable error of correlation coefficient, P.E. (r)= $0.6745\frac{1-r^2}{\sqrt{6}}$ =0.033

Regression equation of Y on X, Y= a+ b X

Where,

a = regression constant

b = Regression coefficient (slope of the regression line

According to the principle of least square, two normal equations for estimating numerical constant a and b are given by,

$$\sum y = na + b\sum x \quad and \quad \sum xy = a\sum x + b\sum x^2$$

Solving two normal equation, we get b= $\frac{n\sum xy-\sum x\sum y}{n\sum x^2-(\sum x)^2}$ = $\frac{6\times262355.06-5498\times222.43}{6\times5446754-(5498)^2}$ = 0.0017

a= $\bar{y} - b\bar{x}$ = 37.07-0.0017×916.33 = 35.51

Standard Error of Estimation(S.E.E)

= $\sqrt{\frac{\sum Y^2 - a\sum Y - b\sum xy}{n-2}}$ = $\sqrt{\frac{8965.48-35.51\times222.43-0.0017\times262355.06}{6-2}}$ = 6.23

6×P.E= 6×0.11 = 0.66

6) FOR EBL

Year	X(MPS)	Y(EPS)	XY	X^2	Y^2	$(x-\bar{x})^2$
2003/04	445	29.90	13305.50	198025	894.01	1090625.15
2004/05	680	45.58	30994.40	462400	2077.53	655015.05
2005/06	870	54.20	47154	756900	2937.64	383569.65
2006/07	1379	62.80	86601.20	1901641	3943.84	12172.71
2007/08	2430	78.40	190512	5904900	6146.56	884860.05
2008/09	3132	91.82	287580.24	9809424	8430.91	2698364.73
Total	8936	362.7	656147.34	19033290	24430.49	5724607.34

n=6

Mean,

$\bar{X}$=1489.33

$\bar{Y}$=60.45

Coefficient of correlation (r) = $\frac{n\sum xy-\sum x\sum y}{\sqrt{n\sum x^2-(\sum x)^2 n\sum y^2-(\sum y)^2}}$

= $\frac{6\times656147.34-8936\times362.7}{\sqrt{6\times19033290-(8936)^2 6\times24430.49-(362.7)^2}}$

= $\frac{3936884.04-3241087.2}{\sqrt{34347644\times15031.65}}$ = 0.97

Coefficient of Determination (r2)= $(0.97)^2$ = 0.94

Standard Error of correlation coefficient, S.E. (r)= $\frac{1-r^2}{\sqrt{n}}$ = $\frac{1-0.94}{\sqrt{6}}$ = 0.024

Probable error of correlation coefficient, P.E. (r)= $0.6745\frac{1-r^2}{\sqrt{6}}$ = 0.016

Regression equation of Y on X, Y= a+ b X

Where,
a = regression constant
b = Regression coefficient (slope of the regression line

According to the principle of least square, two normal equations for estimating numerical constant a and b are given by,

$$\sum y = n.a + b\sum x \quad \text{and} \quad \sum xy = a\sum x + b\sum x^2$$

Solving two normal equation, we get

$$b = \frac{n\sum xy - \sum x \sum y}{n\sum x^2 - (\sum x)^2} = \frac{6\times 656147.34 - 8936\times 362.7}{6\times 19033290 - (8936)^2} = 0.02$$

$$a = \bar{y} - bx = 60.45 - 0.02 \times 1489.33 = 30.66$$

Standard Error of Estimation(S.E.E)

$$= \sqrt{\frac{\sum Y^2 - a\sum Y - b\sum xy}{n-2}} = \sqrt{\frac{24430.49 - 30.66\times 362.7 - 0.02\times 656147.34}{6-2}} = 3.42$$

$6 \times P.E = 6 \times 0.016 = 0.096$

APPENDIX-5

Simple Correlation and Regression Analysis between MPS and DPR

1) FOR SCBNL

Year	X(MPS)	Y(DPR)	XY	X^2	Y^2	$(X-\bar{X})^2$
2003/04	1640	73.68	120835.20	2689600	5428.74	4267653.59
2004/05	1745	76.63	133719.35	3045025	5872.16	3844854.29
2005/06	2345	83.83	196581.35	5499025	7027.47	1851858.29
2006/07	3775	73.93	279085.75	14250625	5465.64	4784.49
2007/08	5900	47.80	282020.00	34810000	2284.84	4814381.99
2008/09	6830	60.64	414171.2	46648900	3677.21	9760438.19
Total	22235	416.51	1426412.85	106943175	29756.06	24543970.84

n=6

Mean,

$\bar{X}$=3705.83 and $\bar{Y}$=69.42

Coefficient of correlation (r) $= \frac{n\sum xy - \sum x \sum y}{\sqrt{n\sum x^2 - (\sum x)^2 . n\sum y^2 - (\sum y)^2}}$

$= \frac{6X1426412.85 - 22235 X 416.51}{\sqrt{6\times 106943175 - (22235)^2 . 6\times 29756.06 - (416.51)^2}}$

$= \frac{855877.1 - 9261099.85}{\sqrt{147263825 \times 5055.78}} = -0.8143$

Coefficient of Determination (r2)= $(-0.81)^2 = 0.66$

Standard Error of correlation coefficient, S.E. (r)= $\frac{1-r^2}{\sqrt{n}} = \frac{1-0.66}{\sqrt{6}} = 0.14$

Probable error of correlation coefficient, P.E. (r)= $0.6745 \frac{1-r^2}{\sqrt{6}} = 0.09$

Regression equation of Y on X, Y= a+ b X

Where,

a = regression constant

b = Regression coefficient (slope of the regression line

According to the principle of least square, two normal equations for estimating numerical constant a and b are given by,

$$\sum y = n.a + b\sum x \quad and \quad \sum xy = a\sum x + b\sum x^2$$

Solving two normal equation, we get

b= $\frac{n\sum xy - \sum x \sum y}{n\sum x^2 - (\sum x)^2} = \frac{6X1426412.85 - 222.35416.5}{6\times 106943175 - (22235)^2}$ =-0.005

a= $\bar{y} - b\bar{x}$ =69.42-(0.005) X3705.83 =87.95

Standard Error of Estimation(S.E.E)

$= \sqrt{\frac{\sum Y^2 - a\sum Y - b\sum xy}{n-2}} = \sqrt{\frac{29756.06 - 71.27\times 416.51 - (0.005\times 1426412.85)}{6-2}} = 7.00$

6×P.E= 6×0.09 =0.54

2) FOR NABIL

Year	X(MPS)	Y(DPR)	XY	X^2	Y^2	$(X-\overline{X})^2$
2003/04	740	59.06	43704.40	547600	3488.08	3591025
2004/05	1000	70.19	70190	1000000	4926.64	2673225
2005/06	1505	66.36	99871.80	2265025	4403.65	1276900
2006/07	2240	65.78	147347.20	5017600	4327	156025
2007/08	5050	72.95	368397.50	25502500	5321.70	5832225
2008/09	5275	55.40	292235	27825625	3069.16	6969600
Total	15810	389.74	1021745.9	62158350	25536.23	20499000

n=6
Mean,
$\overline{X}$=2635 and $\overline{Y}$=64.96

Coefficient of correlation (r) $=\frac{n\sum xy-\sum x\sum y}{\sqrt{n\sum x^2-(\sum x)^2.n\sum y^2-(\sum y)^2}}$

$=\frac{6\times1021745.9-15810\times389.74}{\sqrt{6\times62158350-(15810)^2.6\times25536.23-(389.74^2)}}$

$=\frac{6130475.4-6161789.4}{\sqrt{12\,2994000\times1320.11}}$ = -0.08

Coefficient of Determination (r2)= $(-0.08)^2$ = 0.0064

Standard Error of correlation coefficient, S.E. (r)= $\frac{1-r^2}{\sqrt{n}}=\frac{1-0.0064}{\sqrt{6}}$ =0.41

Probable error of correlation coefficient, P.E. (r)= $0.6745\frac{1-r^2}{\sqrt{6}}$ =0.28

Regression equation of Y on X, Y= a+ b X

Where,
a = regression constant
b = Regression coefficient (slope of the regression line

According to the principle of least square, two normal equations for estimating numerical constant a and b are given by,

$$\sum y = n.a + b\sum x \quad and \quad \sum xy = a\sum x + b\sum x^2$$

Solving two normal equation, we get

b= $\frac{n\sum xy-\sum x\sum y}{n\sum x^2-(\sum x)^2}=\frac{6\times1021745.9-15810\times389.74}{6\times62158350-(15810)^2}$ = -0.0003

a= $\overline{y}-b\overline{x}$ = 64.96-(-0.0003) $\times$ 2635 = 65.75

Standard Error of Estimation(S.E.E)

$$= \sqrt{\frac{\sum Y^2 - a\sum Y - b\sum xy}{n-2}} = \sqrt{\frac{25536.23 - 65.75\times 389.74 - (-0.0003)\times 1021745.9}{6-2}} = 3.68$$

6×P.E= 6×0.28 = 1.68

3) FOR NIBL

Year	X(MPS)	Y(DPR)	XY	X^2	Y^2	$(X-\bar{X})^2$
2003/04	795	50.56	40195.20	632025	2556.31	285156
2004/05	940	29.01	27269.40	883600	841.58	151321
2005/06	800	31.64	25312	640000	1001.10	279841
2006/07	1260	33.70	42462	1587600	1135.70	4761
2007/08	1729	8.00	13832	2989441	64.00	160000
2008/09	2450	12.96	31752	6002500	167.96	1256641
Total	7974	165.87	180822.60	12735166	5766.65	2137720

n=6
Mean,
$\bar{X}$=1329 and $\bar{Y}$=27.64

$$\text{Coefficient of correlation (r)} = \frac{n\sum xy - \sum x\sum y}{\sqrt{n\sum x^2 - (\sum x)^2}\sqrt{n\sum y^2 - (\sum y)^2}}$$

$$= \frac{6\times 180822.6 - 7974\times 165.87}{\sqrt{6\times 12735166 - (7974)^2}\sqrt{6\times 5766.65 - (165.87)^2}}$$

$$= \frac{-237711.78}{\sqrt{12826320\times 7087.04}} = -0.80$$

Coefficient of Determination (r2)= $(-0.80)^2$ = 0.64

Standard Error of correlation coefficient, S.E. (r)= $\frac{1-r^2}{\sqrt{n}} = \frac{1-0.64}{\sqrt{6}}$ = 0.15

Probable error of correlation coefficient, P.E. (r)= $0.6745\frac{1-r^2}{\sqrt{6}}$ = 0.10

Regression equation of Y on X, Y= a+ b X

Where,
a = regression constant
b = Regression coefficient (slope of the regression line

According to the principle of least square, two normal equations for estimating numerical constant a and b are given by,

$$\sum y = n.a + b\sum x \quad and \quad \sum xy = a\sum x + b\sum x^2$$

Solving two normal equation, we get

$b = \frac{n\sum xy - \sum x \sum y}{n\sum x^2 - (\sum x)^2} = \frac{6\times 180822.6 - 7974\times 165.87}{6\times 12735166 - (7974)^2}$ = -0.02

$a = \bar{y} - b\bar{x}$ = 27.65-(-0.02) × 1329 = 54.23

Standard Error of Estimation(S.E.E)

$= \sqrt{\frac{\sum Y^2 - a\sum Y - b\sum xy}{n-2}} = \sqrt{\frac{5766.65 - 54.23\times 165.87 - (-0.02)\times 180822.6}{6-2}}$ = 4.92

6×P.E= 6×0.10 =0.6

4) FOR HBL

Year	X(MPS)	Y(DPR)	XY	X^2	Y^2	$(X-\bar{X})^2$
2003/04	836	2.67	2232.12	698896	7.13	160000
2004/05	840	0	0	705600	0	156816
2005/06	920	24.17	22236.40	846400	584.19	99856
2006/07	1100	50.64	55704	1210000	2564.41	18496
2007/08	1740	24.72	43012.80	3027600	611.08	254016
2008/09	1980	39.84	78883.20	3920400	1587.22	553536
Total	7416	142.04	202068.52	10408896	5354.03	1242720

n=6

Mean,

$\bar{X}$=1236 and $\bar{Y}$=23.6

Coefficient of correlation (r) $= \frac{n\sum xy - \sum x \sum y}{\sqrt{n\sum x^2 - (\sum x)^2 . n\sum y^2 - (\sum y)^2}}$

$= \frac{6\times 202068.52 - 7416\times 142.04}{\sqrt{6\times 10408896 - (7416)^2 . 6\times 5354.03 - (142.04)^2}}$

$= \frac{1212411.12 - 1053368.64}{\sqrt{745632.0\times 11948.82}}$ = 0.5328

Coefficient of Determination (r2)= $(0.53)^2$ = 0.28

Standard Error of correlation coefficient, S.E. (r)= $\frac{1-r^2}{\sqrt{n}}$ = $\frac{1-0.28}{\sqrt{6}}$ = 0.29

Probable error of correlation coefficient, P.E. (r)= $0.6745\frac{1-r^2}{\sqrt{6}}$ = 0.20

Regression equation of Y on X, Y= a+ b X

Where,

a = regression constant

b = Regression coefficient (slope of the regression line

According to the principle of least square, two normal equations for estimating numerical constant a and b are given by,

$$\sum y = n.a + b\sum x \quad and \quad \sum xy = a\sum x + b\sum x^2$$

Solving two normal equation, we get

b= $\frac{n\sum xy - \sum x \sum y}{n\sum x^2 - (\sum x)^2}$ = $\frac{6\times 202068.52 - 7416\times 142.04}{6\times 10408896 - (7416)^2}$ = 0.02

a= $\bar{y} - b\bar{x}$ =23.67-0.02× 1236 = -1.05

Standard Error of Estimation (S.E.E)

= $\sqrt{\frac{\sum Y^2 - a\sum Y - b\sum xy}{n-2}}$ = $\sqrt{\frac{5354.03 - (-1.05)142.04 - 0.02\times 202068.52}{6-2}}$ =9.56

6×P.E= 6×0.20 = 1.2

5) FOR BOKL

Year	X(MPS)	Y(DPR)	XY	X^2	Y^2	$(X-\bar{X})^2$
2003/04	198	28.22	5587.56	39204	796.37	515997.99
2004/05	295	36.36	10726.20	87025	1322.05	386050.97
2005/06	430	49.83	21426.90	184900	2483.03	236516.87
2006/07	850	41.22	35037	722500	1699.09	4399.67
2007/08	1375	45.98	63222.5	1890625	2114.16	210378.17
2008/09	2350	3.52	8272	5522500	12.39	2055409.67
Total	5498	205.13	144272.16	8446754	8427.09	3408753.34

n=6

Mean,

$\bar{X}$=916.33 and $\bar{Y}$=34.19

Coefficient of correlation (r) = $\frac{n\sum xy - \sum x \sum y}{\sqrt{n\sum x^2 - (\sum x)^2 . n\sum y^2 - (\sum y)^2}}$

= $\frac{6\times 144272.16 - 5498\times 205.13}{\sqrt{6\times 8446754 - (5498)^2 . 6\times 8427.09 - (205.13^2)}}$

= $\frac{865632.96 - 1127804.74}{\sqrt{20452520\times 8484.22}}$ = -0.63

Coefficient of Determination (r2)=(- 0.63)^2 = 0.40

Standard Error of correlation coefficient, S.E. (r)= $\frac{1-r^2}{\sqrt{n}}$ = $\frac{1-0.40}{\sqrt{6}}$ = 0.24

Probable error of correlation coefficient, P.E. (r)= $0.6745\frac{1-r^2}{\sqrt{6}}$ = 0.16

Regression equation of Y on X, Y= a+ b X

Where,

a = regression constant
b = Regression coefficient (slope of the regression line

According to the principle of least square, two normal equations for estimating numerical constant a and b are given by,

$$\sum y = n.a + b\sum x \quad and \quad \sum xy = a\sum x + b\sum x^2$$

Solving two normal equation, we get

$b = \frac{n\sum xy - \sum x \sum y}{n\sum x^2 - (\sum x)^2} = \frac{6 \times 144272.16 - 5498 \times 205.13}{6 \times 8446754 - (5498)^2}$ = -0.01

$a = \bar{y} - bx$ =34.20-(-0.01) $\times$ 916.33 =43.36

Standard Error of Estimation (S.E.E)

$= \sqrt{\frac{\sum Y^2 - a\sum Y - b\sum xy}{n-2}} = \sqrt{\frac{8437.09 - 43.36 \times 205.13 - (-0.01) \times 144272.16}{6-2}}$ = 7.81

6×P.E= 6×0.16 =0.96

6) FOR EBL

Year	X(MPS)	Y(DPR)	XY	X^2	Y^2	$(X-\bar{X})^2$
2003/04	445	66.89	29766.05	198025	4474.27	1090625.15
2004/05	680	43.88	29838.40	462400	1925.45	655015.05
2005/06	870	0	0	756900	0	383569.65
2006/07	1379	46.12	62215.90	1901641	2127.05	12172.71
2007/08	2430	12.75	30982.50	5904900	162.56	884860.05
2008/09	3132	21.78	68214.96	9809424	474.37	2698364.73
Total	8936	191.42	221017.81	19033290	9163.70	5724607.34

n=6
Mean,
$\bar{X}$=1489.33
$\bar{Y}$=31.90

Coefficient of correlation (r) $= \frac{n\sum xy - \sum x \sum y}{\sqrt{n\sum x^2 - (\sum x)^2 . n\sum y^2 - (\sum y)^2}}$

$= \frac{6 \times 221017.81 - 8936 \times 191.42}{\sqrt{6 \times 19033290 - (8936)^2 . 6 \times 9163.7 - (191.42)^2}}$

$= \frac{1326106.86 - 1710525.12}{\sqrt{34347644 \times 18340.58}}$ = -0.48

Coefficient of Determination (r2)= $(-0.48)^2$ =0.23

Standard Error of correlation coefficient, S.E. (r)= $\frac{1-r^2}{\sqrt{n}} = \frac{1-0.23}{\sqrt{6}}$ = 0.31

Probable error of correlation coefficient, P.E. (r)= $0.6745\frac{1-r^2}{\sqrt{6}}$ = 0.21

Regression equation of Y on X, Y= a+ b X
Where,
a = regression constant
b = Regression coefficient (slope of the regression line

According to the principle of least square, two normal equations for estimating numerical constant a and b are given by,

$$\sum y = n.a + b\sum x \quad and \quad \sum xy = a\sum x + b\sum x^2$$

Solving two normal equation, we get

$b = \frac{n\sum xy - \sum x \sum y}{n\sum x^2 - (\sum x)^2} = \frac{6\times 221017.81 - 8936\times 191.42}{6\times 19033290 - (8936)^2}$ =-0.01

$a = \overline{y} - bx$ = 31.90-(-0.01) ×1489.33 =46.79

Standard Error of Estimation(S.E.E)

$= \sqrt{\frac{\sum Y^2 - a\sum Y - b\sum xy}{n-2}} = \sqrt{\frac{9163.7 - 46.79\times 191.42 - (-0.01)\times 221017.81}{6-2}}$ =12.29

6×P.E= 6×0.21 =1.26