CHAPTER – I

INTRODUCTION

1.1 Background of the Study

Commercial banks are those financial institutions mainly dealing with activities of trade, commerce, industry and agriculture that seek regular financial and other help from banks for growing and flourishing. The main objective of commercial bank is to mobilize idle resources in particular productive users after collecting them from scattered sources. Commercial bank as financial institution transfer monetary sources from saver to users. They furnish necessary capital required for savings of the individual and institution. Normally banks play at public money therefore, they should pay more attention whether their money is properly utilized or not and running at profit or loss. For the existence of business firm, profit is the basic factor. A business firm becomes unable to provide its facilities in the long run if there is no profit. This profit can be distributed among the owners as dividend.

Every firm after making profit either retains the money for further investment of distribute it among the shareholders. The profit made by the firm which is distributed to the shareholders as dividend. The people who invest money in the business expect return form investment basically, the firm which is running in profit is capable to pay dividend so the most important thing to attract the people to invest in business is dividend. It should be adequate to meet the normal expectations of shareholders.

Dividend policy is one of the major decisions of financial management because it affects the financial structure of the firm. "Financial management is therefore concerned with the activities of corporation that affect the well being shareholders. That well being can be partially measured by the dividend received, but a more

accurate measured is the market value of stock." "By the dividend policy we mean some kind of consistent approach to the distribution versus retention decision rather than making the decision on the purely adhoc basis from period to period (Pearson, et.al, 1972:405). All aspects and question related to payment of dividend are contained in the dividend policy. It is a major decision of the firm under which it is determined that what percentage of the earnings of the firm is distributed to its shareholders and what of the earnings is retained in the firm which is desirous for the growth of the firm. It is therefore, a wise policy to maintain a balance between shareholders interest with that of corporate growth from internally generated funds.

Dividends are Payments made by a Corporation to its Shareholder Members. It is the Portion of Corporate Profits paid out to Stockholders. When Corporation earns a Profit or Surplus, that money can be put to two uses, it can either be re-invested in the business (called Retained Earnings),or it can be paid to the shareholders as a dividend. Many Corporations retain of their earnings and pay the remainder as a dividend.

The concept of the banking has developed in England with the effort of ancient goldsmiths who possessed strongest safe values where valuable goods such as gold, silver and diamonds could be kept safely. Depositors obtained receipts form goldsmith for their deposit. At that time it was found that deposit with goldsmiths could serve as money. Gradually, it was found that all deposited money was not withdrawn at once. Hence they started ending on interest to people. In this way bank was originated. The first modern banking institution was established in Venice in 1157 A.D. and spread all over world. In Nepal under the prime minister ship of Ranodeep Singh "the Tejarath Adda" was established to give loan from there. The first banking institution was established in 1994 B.S. in the name of "The Nepal Bank Limited" under Nepal bank Act 1993. In the mid 1980‟s government permitted of the establishment of foreign joint venture banks there is new trend for distributing dividend, which has brought new hopes for productive mobilization of fund. That is why: the important decision of the firm is its dividend policy.

1.2 Statement of the Problem

Dividends are profits the company distributes to shareholders. The companies don't do this out of the Kindness of their hearts- this is what a Company is all about: making money for the owners. Dividends usually don't represent all of a Company's Profits. The Company retains some portion for Future use- in acquisitions or to retire debt, For example, Most Companies pay dividends in the form of cash, although you may hear of occasions when a company uses stock instead. Many investors are attracted to stocks with a good history of paying dividends. These companies are usually well established and profitable, but may not offer much in the way of growth potential.

Dividend decision is a crucial as well as a controversial area of managerial finance. Corporate dividend policy is not clearly under stood by a large segment of the financial community. Dividend, the most inspiring factor for the investment on sharers of the company is thus desirable for the stockholders point of view. However commercial bank is Nepal has no satisfactory result about dividend decision. Different government rules and regulations are the main factors that act and react in banking operations. But there is no limit to the identification of the problem about dividend policy that is visible in Nepalese commercial bank. While keeping this in mind selected problem of commercial banks with regard to dividend policy are taken. There may be proper matching in dividend policy and earnings in the banks. Earnings of the firm are taken as financing source. When the firm retains its earnings it will decreasing leverage ratio, expanding activities and increasing profit in succeeding years. Where as if the firm pays dividend, it may need to raise capital through capital market which reduces ownership control of the existing shareholders. In this condition the firm takes loan or raises debentures. It will affect on risk characteristic of the firm. In Nepal, there are only a few companies, especially joint venture banks have sufficient earning and are capable to pay dividend. But they are not following clearly defined dividend policies. While earning

is low they pay high dividend and sometime when earning is high they pay low dividend. Besides, the above matter following are the purpose of the study:

i. Are the sample banks able to pay appropriate dividend or attribute to pay dividend?

ii. What are the prevailing practices of the sample banks regarding their dividend policies?

iii. Is there any uniformity among the three banks in dividend distribution?

iv. What is the relationship between dividend with earning per share, market price of share, book value of share, net profit and net worth of the company?

v. Is it possible to increase the value of stock by changing dividend policy?

1.3 Objectives of the Study

The main objective of the dividend policy should be to maximize return of shareholders equity. This study is aimed at assessing the prevailing practices of Nepalese listed commercial banks regarding dividend. The specific objectives of this study are:

i. To analyze the prevailing dividend practices of sample banks.

ii. To analyze and evaluate the application of dividend decision in the selected banks.

iii. To analyze the relationship of dividend with earning per share, net worth, net profit, market price and book value per share.

iv. To provide useful suggestions for further improvements.

1.4 Significance of the Study

Getting more return from the limited source of investment is the essential part for every investor while they seek to invest in different sector on portfolio. Now a days people are very attracted to invest in share for the purpose of getting greater return. So dividend policy has become an effective way for attracting the large number of investors and maintaining goodwill of the company. Despite investors high expectation there are almost none of the firm adopting clear dividend policy in Nepal. Therefore this study of the divided policy of the selected commercial banks in Nepal may be rewarding. Other significance of the study is as follows.

i. This study will be very helpful for the further researcher to find more details on the same topic.

ii. It will be very useful to the concerned people like shareholders, managers and policy makers.

iii. It may be useful to government for policy making, controlling, and supervision and monitoring.

iv. It covers the partial fulfillment of M.B.S.

1.5 Limitation of the Study

This study will be limited by the following factors.

i. The study is mainly conducted on the secondary data. So the result depends on the reliability of secondary data.

ii. The study covers a period of five fiscal data.

iii. Only three commercial banks are taken as sample due to lack of time.

iv. This study covers only dividend related factors.

v. The data available in the internet, websites and published annual report is assued to be correct and true.

vi. Due to the unavailability of the latest data the study has a limited significance from the practical viewpoint.

1.6 Organization of the Study

This study has been organized in to five chapters.

Chapter first deals with the subject matter of the study consisting introducing significance of the study, limitation of the study the problems and objectives of the study. Chapter second deals with review of literature. It includes a discussion on the conceptual framework on dividend policy. It also includes major studies relating with dividend decision. Chapter third explains the Research Methodology used to evaluate dividend practices of commercial banks in Nepal. It consists of research design, source of data, population and sample statistical tools and financial tools. Chapter four deals with analysis and presentation of data and information through a definite course of research Methodology and major findings. Ultimately, chapter five deals with summary, conclusion and recommendation.

CHAPTER –II

REVIEW OF LITERATURE

The introduction part of this study has been presented in the first chapter. In this chapter an attempt has been made to review the various relevant literatures in relation to support the study to receive some ideas for developing a research design.

2.1 Conceptual Framework

In simple words, dividend refers to a portion of earning, which is distributed to shareholders in return of their investment in share capital. Dividend policy of a firm is one of the third major decision making areas of financial management. It is regarded as a tool to determine the appropriate allocation of profits between dividend payments and the amount to be retained in the firm. It deals with how much should pay to shareholders from the earnings. Dividend payout reduces the amount of earnings retained in the business which affects the internal financing of the firm.

Dividend policy can be defined as % of dividend (D/P ratio), should be one which maximize the wealth of its owners in the "long run." Dividend policy becomes a problem especially on public limited companies. A firms dividend policy has the effect of dividend, its net earnings in to two parts; retained earnings and dividend. The retained earning provides funds to finance the firms long term growth. It is one of the most significant sources of financing for the firm in terms of raising funds to undertake investment. On the other hand, dividends are desirable from the shareholders point of view as it tends to increase their current wealth. Dividends are generally paid in cash. Therefore the percentage of earnings is paid in cash to stock holders. Dividend payout of course reduces the amount of earnings retained in the firm and affect the firms internal financing (Sharma, 2001:334). Dividend policy involves the decision to payout verses retaining them for reinvestment in the firm.

Any change in dividend policy has both favorable and unfavorable effects on the firms stock price. Higher the dividends means higher the immediate cash flows to investors, which is good, but lower future growth which is bad. The dividend policy should be optimal which balances the opposing forces and maximizes stock price (Thapa and Gautam, 2004:1).

If the company pays the earning as a dividend, they are beneficial directly and if company retains in the business to finance the business opportunities they are benefited indirectly through the investment of market price of share i.e. capital gain. In both of the case shareholders get benefit. But how much should be retained in business in not a simple question. Since dividends would be more attractive to shareholder, one might not hesitate to say that dividends weight more than retention in the perception of the shareholders. But one might equally pressure that gross dividend would be reduced somewhat with an increase in net after tax dividend. Because tax dividend still a major decision of financial manager available to shareholders so it would be wise policy to maintain balance between shareholders interest with that of corporate growth from initially generated fund. So in conclusion it can be said that dividend decision is a major decision of financial management. Thus this study aims to focus on all the relevant factors, prevailing practice and policies of selected banks regarding dividend, dividend policy and their payment.

2.1.1 Major Forms of Dividend

Corporations need to follow various types of dividend in view of the objectives and policies, which they implement (Thapa and Gautam, 2004:9.5). In Nepalese context, most of the corporations are paying cash and stock dividend (Bonus Shares). The types of dividend that corporations follow are partly a matter of various circumstances and financial constraints that bound corporate plans and policies (Thapa and Gautam, 2004:9.5). According to changing needs to corporations, dividend is distributed in several forms. They are as follows:

i. Cash Dividend: Cash dividend is the dividend which is distributed to the share holders in cash out of earnings of the company. When cash dividend is distributed both total assets and net worth of the company decrease as cash by the amount of cash dividend distributed.

ii. Stock Dividend (Bonus Shares): If additional shares are issued to existing shareholders instead of cash dividend is known as stock dividend. "A stock dividend simply is the payment of additional stock to stockholders nothing more than a recapitalization of the company; a stock holders proportional ownership remains unchanged." (Van Horne, 1998:334). It is also called bonus share. This has the effect of increasing the number of outstanding shares of the company. The declaration of the stock dividend will increase the paid up share capital but reduces the reserves and surplus of the firm. It doesnt affect the ownership of the company.

iii. Property Dividend: If payments are made in the form of property or assets rather than cash, it is called property dividend. Whenever the firms have assets that are no necessary in the operations of the business, this method of paying dividend may be used. This method of paying dividend is rarely used.

Iv.Bond Dividend: Bond dividend is a dividend that is distributed to the shareholders in form of bond. When the company generates more profit for a long time, it is better to issue bonds. These are given when the company firms unable to take the burden of interest of loan. In other words, corporation declares dividend in form of its own bond with a view to avoid cash outflows. If is issued for existing shareholders.

v.Interim Dividend: Generally dividend is declared in the last of the financial year. This is called regular dividend. If dividend is declared before the end of financial year that is called interim dividend.

vi. Special Dividend: When directors of the company do not want to change the dividend separately and the companies have good cash and reserves, this dividend but separately.

2.1.2 Theories of Dividend

Residual Theory of Dividend

Residual dividend policy is based on the premise that investors prefer to have a firm retain and reinvest earnings rather than pay them out in dividends if the rate of return the firm can earn on reinvested earnings exceeds the rate of return investors can obtain for themselves on the other investments of comparable risk. This theory states that profit should be used first in all profitable investment plans which reflect equal or higher rate of return. Further it is less expensive for the firm to use retained earnings than is to issue new common stock (Gautam and Thapa, 2004:9.5).

Stability of Dividend

Stability or regularity of dividend is considered as a desirable policy by the management of most companies in practice. Stability of dividend refers to the amount paid out regularly. Though amount of dividend may fluctuate from year to year and may not be related with earning. Shareholders also generally favor this policy and value stable dividends higher than fluctuating ones. All other things being the same, stable dividends have a positive impact on the market price of the share

(Sharma, 2001:338-339). There are some reasons to believe that a stable dividend policy does lead to higher stock prices. First investors can be expected to value more highly dividends that they are surer of receiving since fluctuating dividends are riskier than stable ones. Accordingly, the same average amount of dividend received under a fluctuating dividend policy is likely to have a higher discount factor applied to it than is applied to dividends under a stable dividend policy. This means that a company with a stable dividend will behave a lower required rate of return or cost of equity capital than one whose dividend fluctuated. Second many stockholders live on income received in the form of dividends. These stockholders are greatly inconvenienced by fluctuating dividends and they will likely to pay a premium for a stock with a relatively assured minimum dollar dividend. These stock holders are greatly inconvenienced by fluctuating dividends and they will likely to pay a premium for a stock with a relatively assured minimum dollar dividend. Third from the stand point of both the corporation and its stockholder is the requirement of legal listing.

Even though most firms seem to have a policy of paying stable cash dividends, this is not the only policy. The three distinct forms of such stability of dividend payments are as follows:

1) Constant Payout Ratio: The ratio of dividend to earnings is known as payout ratio. Paying a fixed percentage of net earning every year is called constant payout ratio. With this policy the amount of dividend will fluctuate in direct proportion to earning. It ensures that dividends are paid when profits are earned and avoided when it incurs losses. Management generally adopts this type of policy since it is directly related to the company ability to pay dividend.

2) Stable Cash amount per share: This payout scheme is called constant dividend per share or dividend rate. According to this policy, a company pays a fixed a rupee

dividend in each period. This policy is generally preferred by those persons and institutions that depend upon the dividend income to meet their living and operating expenses. This policy doesn't imply that the dividend per share will never increase. When the company each new level of earnings and expects to maintain it, the annual dividends per share may be increased. It is easy to follow when earning is stable. If the earning pattern of a company shows wide fluctuations it is difficult to maintain such policy.

3) Low Regular Dividend plus extras dividend: Low regular dividend per share plus extra dividend is a compromise between the first two. According to this policy the low regular dividend can usually be maintained even when earnings decline and extra dividend can be paid when excess funds are available. It gives the firm flexibility but it leaves investors somewhat uncertain about what their dividend income will be. This policy may be the best policy, if the firm's earning is quite volatile.

2.1.3 Conflicting theories on Dividends

Under this conflicting theory on dividends, two basic schools of thought on dividend policy have been expressed in the theoretical literature of finance. First school of holds that dividend policy can affect the value of a firm through investor's preferences. Myron Gordon, John Linter and Walter are the theorists of this school of thought. These theorists argue that investor's required rate of return increases as the dividend payout in reduced because investors are more use of receiving dividends payments than income from capital gains that presumably result from retained earnings. These theorists suggest that earnings of a firm with a low payment ratio are typically capitalized at higher rates than the earnings of a high payout firm (Thapa and Gautam, 2004:9.8-9.11).

The other school associated with Professor Mettro Miller and Franco Modigliani holds that investors are indifferent to dividend and capital gains and so dividends have no effect on the wealth of shareholders. They argue that the value of the firm depends on the income produced by its assets, not on how this income is split between dividends and retained earnings. According to them value of the firm depends on the firm's earnings, which depends on dividend on its investment policy. The manner in which earnings are dividend into dividend and retained earnings does not affect the value of the firm.

2.1.4 Factors affecting Dividend policy

The financial manager must understand the various conflicting factors which influence the dividend policy before deciding allocation of its company's earnings to dividend and retained earnings. Many considerations that may affect a firm's decision its dividend are as follows (Sharma, 2001:336-337).

i) Legal Rules: The dividend policy of the firm has to evolve with the legal framework and restrictions. Certain legal rules may limit amount of dividends that a firm may pay. First statutory restrictions may prevent a company from paying dividends while specific limitations vary by state, generally a company may not pay dividend.

a. If the firm's liabilities exceeds its assets.

b. If the amount of dividend exceeds the accumulated profits (retained earnings) and

c. If dividend is being paid from capital invested in the firm. Legal rules are significant in what they provide the framework within which dividend policies can be formulated.

ii) Liquidity position: Cash or liquidity position of the firm influences its ability to pay dividend. Greater the cash position and over all liquidity of a company shows its ability to pay dividend.

iii) Need to Repay Debt: The need to repay debt also influences ability of cash flow to pay dividend. When a firm issues debt capital, it must be refunded in maturity in order to retire debt, retention of earning is essential. So the dividend policy is affected by retained earnings.

iv) Restriction on loan Agreement: Restriction on loan agreement directly affects on dividend policy of a firm. Such restrictions are designed to protect the position of lender and preference shareholders. Restrictions on debt contracts may specify that dividend may be paid out of earning generated after signing the loan amount agreement and only when net working capital is above a specified amount certain amount of earning to reinvest as well.

v) Rate of Assets Expansion: The more rapidly a firm is growing greater its need for financing assets expansion. The greater the future need for fund, there is more likely to retain earnings rather than pay them out consequently shareholders will get minimum dividend.

vi) Profit Rate: The rate of return on assets determines the relative attractiveness of paying out earning in the form of dividend to stockholder. If other things remain same high profit rates is the indicator of high dividend payout.

vii) Access to the Capital Market: All firms do not have equal access to the capital market. A large well established firm with record of profitability and stability of earning has easy access to capital markets and other forms of external financing. Easy accessibility to the capital market provides flexibility to the management in paying dividend as well as in meeting the corporate obligation. Thus a fast growing firm having tight liquidity position will not face any difficulty in paying dividends if it has access to the capital market.

viii) Control: For many small firms and certain large ones, maintain the controlling vote is very important. These owners would prefer the use of debt and retained profit to finance new investments rather than issue new stock. As a result dividend payout will be reduced.

ix) Tax Position of Stock Holder: Because of difference among investor's tax rate, certain investor preference for dividend versus capital gain have been observed in the market. Corporations owned by large tax payers in high income tax brackets tend toward lower dividend payout where as corporations owned by small investors tend toward higher dividend payout.

x) Stability in Earning: A firm that has a stable earnings trend will generally pay larger portion of its earnings as dividend. The unstable firm is not certain that in subsequent years the hoped for earning will be resized. So it is likely to retain a high proportion of current earnings.

2.1.5 Rules regarding Dividend practices

There is nothing stated in Nepal company Act 2021 regarding dividend practice. According to the security exchange Act 1983, Nepal stock exchange limited is the single body to safe guard the investor's interest. But this organization is not so able to safe guard the investor's interest since interest and attitude of board of directors play dominant role in management of public limited companies and they are generally in majority who are nominated of public limited companies and they are generally in majority who are nominated by government in 1997, Nepal company Act 2001 has been amended company ordinance 2005 has made some legal provision for dividend payment; these provision are as follows:

Section 179 (1): Bonus shares may be issued by a company to its shareholders out of the amount available for the distribution of this affect in the general meeting.

Sub-section (2): The Company shall inform the office before issuing bonus shares under sub-section (1).

Section 182 (1): Except in the following circumstances the dividend shall be distributed to the shareholders within 45 days from the date of resolution approving the payment of dividend.

a. If any low has prohibited the disbursement of dividends.

b. If the right to receive the dividend is subject to any dispute.

c. If the dividends cannot be disbursed within the said period due to any event beyond the control of the company or any other reason.

Sub-section (2): A company wholly or partially owned His Majesty's Government shall distribute dividend only with prior approval of His Majesty's Government and His Majesty's Government may issue necessary directives in relation to distribution of such dividend.

Sub-section (3): If dividend is not paid within the period stipulated in sub section (1) the same shall be paid together with interest at the rate as prescribed.

Sub-section (4): The shareholder in whose name share is registered in the shareholder at time of deceleration of the dividend or his successor shall be entitled for the payment of the dividend.

Sub-section (5): A company shall not pay or distribute dividend except from profits allocated for the purpose.

Sub-section (6): A company shall eliminate pre-incorporation expenses, deduct the amount of depreciation as per the accounting standard prescribed by the competent authority under the law in force and allocate any amount to be allocated or paid out of profit under the law in force and eliminate the accumulated loss in the preceding years before the payment or distribution of dividend out of the profit in a particular years to certain reserves fund under the law in force, dividend shall not be distributed, unless such amount is transferred to reserve fund.

Sub-section (7): Subject to the provisions made in this section that the board of directors of company may distribute interim dividend out of the profit of previous years in the following conditions:-

a. If there is provision in the articles of association on the distribution of interim dividend.

b. If the board directors has approved the annual financial statement certified by the auditor for the relevant financial years on which interim dividend shall be distributed out of the net profit.

Sub-section (8): A company shall not make payment or distribute any benefit in cash or other to its shareholders except in the form of dividend approved by the general meeting.

Sub-section (9): The dividend which remains unclaimed for more than five years after its declaration shall be transferred to investor's protection fund established under section 183.

Sub-section (10): The company shall while unclaimed dividend pursuant to sub-section(9) in the fund established under section 183, published a notice in a national daily newspaper giving at least one month notice to collect the unclaimed dividend at least one month to the expiry of period as mentioned in sub-section (9):

Sub-section (11): The Company shall create a separate account for depositing the amount of dividend with in forty five days of its deceleration and shall distribute the dividend form such account and shall not utilize such amount for any other purpose.

2.2 Review of Related studies

The section is devoted to the review of the major studies in general concerning dividends. Therefore now the researcher is going to review the various studies conducted in different places by the different experts an authors.

Linter's study (1956)

Linter conducted a study in 1956 which is focused in the behavioral aspect of dividend policy. He investigated dividend pattern of 28 different companies of America and found that firms generally predetermines the desired payout and tries to achieve it and rarely considers other factors. The model developed from his research is as follows

$$D^*_t = P.EPS_t$$

$$D_t - D_{t-1} = a + b(D^*_t - D_{t-1}) + e$$

Where,

D^*_t = Desired Dividend

EPS_t = Earnings Per Share

P = Targeted payout Ratio

A = Constant related to dividend growth

B = Adjustment factor relating to previous period‟s dividend and desired level of

dividend ($b>1$)

Major findings of the study are as follows

Firm generally prefer desired proportion of earning to be paid as dividend.

Investment opportunities are not considered for modifying the pattern of dividend behavior.

Firms generally have target payout ratios in view while determining change in dividend per share.

Modigliani and Miller's Study (1961)

The most comprehensive argument for the irrelevance of dividend has been made by Frano Modigliani and Metro-Miller in 1961 A.D. They argue that value of the firm depends on the income produced by this assists, not on how this income is split between dividends and retained earnings and here growth.

Professor Modigliani and Miller hold that investors are indifferent to dividend and capital gains so dividends have no effect on the wealth of stakeholders. According to them it is the investment policy of the firm which increases earnings of firm and there by value of the firm. The manner in which earnings are divided into dividends and retained earnings does not affect this value. The assumption made by them goes such (Gautam and Thapa, 2004:9.8-9.9).

a. Perfect capital market in which all investors are rational.

b. An absence of flotation costs on securities issued by the firm.

c. A world of no taxes.

d. A given investment policy for the firm not subject to change.

e. Perfect certainty by every investor as to future investments and profits of the firm. (MM drop this assumption later).

Modigliani and Miller provided following model to prove their theory (Niroala, 2003:25-26).

Market value of share

The market value of a share at the beginning of the period is equal to the value of dividend paid at the end of period.

Symbolically,

$$P0 = \frac{D1 + P1}{1 + Ke} \text{ ---------- (i)}$$

Where,

P0= Market price of shre at the beginning of the period.

D1=Dividend per share at the end of the period.

P1= Market price per share at the end of the period

Ke=Cost of Equity capital

If no new external financing exists the market value of firm can be computed by multiplying both sides by the no of the outstanding shares as follows:

$$nP0 = \frac{n(D1 + P1)}{1 + Ke} \text{ ---------- (ii)}$$

Where,

n=No of outstanding shares.

New shares

If retained earnings are not sufficient to finance the investment opportunities, issuing new shares is the other alternative. Assuming that *n* is the number of newly issued equity share at the price of P1, the value of firm at time 0 will be:

$$nP1 = \frac{nD1 + P1(n+m) - mP1}{1+Ke} \text{ -- ---------- (iii)}$$

Where,

N=No. of shares at the beginning

M= No of shares issued at the end of the period.

Total number of shares

A firm can pay dividends and raise funds to undertake the optimum investment policy. If the firm finances all investment opportunities either by issue of new equity of retained earnings, the total number of new shares can be computed on the following way:

MP1=I-(E- n D1) ---------- (iv)

Where,

MP1= Amount obtained from the sale of new shares.

I = Amount required for new investment during the period.

E = Total earnings during the period.

E - = Total dividend paid.

Substituting the value of *MP1* of the equation (iv) to equation (iii) we get,

$$\text{nP0} = \frac{nD1 + P1(n+m) - I + E - nD1}{1 + Ke}$$

A firm which pays dividends will have to raise funds externally to finance its investment plans. MM's argue that dividend policy does not affect the wealth of shareholder, implies that when the firm pays dividends, its advantage is offset by external financing. This means that the terminal value of the share at the first period if the holding period is one year declines when the dividends are paid, the wealth of the shareholders- dividends + terminal price unchanged. As a result the present value per share after dividend and external financing is equal to the present value per share before the payment of dividends. Thus the shareholders are indifferent between payment of dividends and retention of earnings (Gautam and Thapa, 2004:9.8-9.9).

Gordon's Model (1962)

Myron J. Gordon conducted a research in 1962 regarding the interesting approach relating the market value of the firm to dividend policy. He holds that investors have a strong preference for present dividends to future capital gains under the condition of uncertainty.

This is relevant theory similar to the Walter's model. In this study, he explained that "the investors prefer present dividend rather than future capital gains." According to him market value of a share is equal to the present value an infinite stream of dividends to be received by the shareholders.

Gordon's model is based on the following assumptions. (Pandey, 1995; 745-746)

1. The firm is an all-equity firm.

2. No external financing is available consequently retained earnings would be used to finance any expansion.

3. The internal rate of return (r) of the firm is constant. This ignores the diminishing marginal efficiency of investment.

4. The appropriate discount rate (k) for the firm remains constant. Thus Gordon‟s model also ignores the effect of a change in the firm‟s risk class and its effect on k.

5. The firm and its stream of earnings are perpetual.

6. The corporate taxes do not exist.

7. The retention ratio (b) once decided upon is constant. Thus the growth rate g= r, is constant forever.

8. K > br =g. If this condition is not fulfilled, we cannot get meaning value for the share.

According to Gordon's dividend capitalization model, the market value of the share is equal to the present value of an infinite stream of dividends to be received by the share. Thus,

$$P0 = \frac{P1}{(1+k)} + \frac{P2}{(1+k)2} + ... + \frac{Pn}{(1+k)n}$$

Gordon has further developed the following equation for the computation of market value of stock.

$$P0 = \frac{EPS(1-b)}{Ke - br}$$

Where,

P = Market price per share

EPS = Earning Per Share

b = Retention ratio

Ke = Cost of capital

1-b = Payout Ratio

br = Growth rate

According to this model following facts are revealed

Growth Firm: In case of growth firm i.e. r > Ke, share price tends to decline in corresponding with increase in payout ratio or decrease in retention ratio i.e. b. Therefore dividend and stock price are negatively correlated in growth firm. Normal Firm: Firms having r = Ke are referred as normal firm. In case of normal firm share price remain constant regardless of change in dividend policies. Declining Firm: In case of declining firm i.e. r < Ke, show price tends to rise in correspondence with raise in dividend payout ratio. It shows that dividend and stock prices are positively

correlated with each other in a decline firm. In this way Walter's conclusion about dividend policy are similar to the conclusion of Gordon's model. This is due to similarities in assumptions, but the assumptions of this model are far from the reality. Therefore their models are called relevance theory in the literature of finance.

Van Horne and Mc- Doland's study (1971)

Van Horne and Mc-Donald conducted a more comprehensive study in dividend policy and new equity financing. The main objective of the study is to highlight the combined effect of dividend policy and new equality financing decision on the market value of the firm's common stocks. For the purpose of study two industries viz.86 electric utility firms included on the computing utility database and 39 firms in the electronics and their electric component industries listed on the computing industrial data tape in 1968 were selected. They employee-regression model for electric utilities and one regression model for electronic components industry (Chitrakar, 2004:23-24).

First model was:

$P0 / E0 = a0 + a1 (g) + a2(D0 / E0) + a3(lev) + u$

Where,

P0 / E0=Closing market price in 1968 dividend by average EPS for 1967 and 1968.

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

D0 / E0=Dividend payout measured by cash dividend in 1968 dividend by earnings in 1968

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

u = error term

$P0 / E0 = a0 + a1 (g) + a2(D0 / E0) + a3(lev) + a4(Fa) + a5(Fb) + a6(Fc) + a7(Fd) + u$

Where,

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

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 equation for electronics components industry.

$P0 / E0 = a0 + a1 (g) + a2(D0 / E0) + a3(lev) + a4(or) + u$

Where,

Lev =Financial leverage measured by long term debt plus preferred stock dividend bye net worth 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 different methodology, they compared the results obtained for firms which both pay dividends and engage in new equity financing with other firms in an industry sample. They concluded that for electric utility firm in 1968, share value is not adversely affected by the new equity financing in the presence of cash dividend, except for those firms in the highest new issue group and it makes new equity a more costly form of financing than the retention of earnings.

Deepak Chawla and G.Srinivasan's study (1987)

Chawla and Srinivasan studied the impact of dividend and retention on share price. They took 18 chemical and 13 sugar companies and estimated cross section relationship for the year 1969 and 1973. The required were collected from the official directory of Bombay stock exchange. The basic objectives of the study were (chawla and Srinivasan, 1984, 137-140).

- To estimate a model to explain share price, dividend and retained earning relationship.

- To test the divided, retained earning hypothesis.

- To examine the structural changes in the estimated relations overtime.

1. Price function,

$Pt = [Dt . Rt . (P/E)t-1]$

2. Dividend supply function

$Dt = [Et, Dt-1 , (P/E)t-1]$

3. Identify

$Et = Dt + Rt$

Where,

P = Market price per share

D = Dividend per share.

R= retained earnings per share

E=Earning per share

P/E=Deviation from the sample average of price earnings ratio

t = Subscript for time

They use two stage least square technique of estimation and in case of chemical industry they found the estimated co-efficient had the correct sign and co-coefficient of determination of all the equations was very high. It implies that the stock price and dividend supply variation can be explained by their independent variables. But in case of sugar industry they found sign for retained earnings in negative. Finally they concluded that dividend hypothesis holds well in the chemical industry. Both dividend and retained earnings significantly explain the variation in share price in chemical industry.

Walter's Study (1996)

Professor James E. Walter conducted a research in 1966 regarding dividend policies and a stock price argues that the choice of dividend affects the value of the firm. According to him, firm's cost of capital an internal rate of return are the determining factors that decide upon the dividend policy. The main point which he emphasized is that there is a significance relationship between the internal rate of investment project and market rate demanded by the investor. This study emphasized that dividend policy can be used to maximize the wealth position of stockholders. Walter's model is based on the following assumptions (Panday, 1975:741).

1. The firm finances all investment through retained earnings. That is debt or new equity is not issued.

2. The firm's internal rate of return (r) and cost of capital (k) are constant.

3. All earnings are either distributed as dividends or reinvested internally immediately.

4. Beginning earnings and dividends never change. The values of the earnings per share (EPS) and dividend per share (DPS) may changed in the model to determine results, but any given values EPS and DPS are assumed to remain constant forever in determining a given values.

5. The firm has a very long or infinite life. Walter's formula for determining the market price per share is as follows:

$$P = \frac{Div}{K} + \frac{r(EPS - Div)/K}{K}$$

$$= \frac{Div + r(EPS - Div)/k}{k}$$

Here,

P = Market price per share.

DIV = Dividend per share

EPS = Earnings per share

R = Internal rate of return (average)

K = Cost of capital or Capitalization rate

In 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's view on the optimum dividend payout ratio can be summarized as follows:

Growth Firms: Firm having r > k may be referred as growth firm 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 Firms: Firm having r=k may be referred as normal firm. There is no unique optimum payout ratio for a normal firm. One dividend policy is as good as other. The market value per share is not affected by the payout ratio when r = k.

Declining Firms: Firm having r < k may be referred as declining firm. The optimum payout ratio for a declining firm is 100%. Market value per share (P) increases as payout ratio increases when r < K.

Thus, according to Walter, when the firm is in growth stage, then dividends are negatively correlated with stock price. In the declining firm, dividends are positively correlated with stock price; there is no relationship between dividend and stock prices in the normal firm. Thus, dividend policy is a financing decision when dividend policy is treated as a financing decision the payment of cash dividend is a passive residual (Solomon, Ezra: 1963, 139-140).

2.3 Review of Journals and Articles

In this regard there are very few articles published in Nepal under this subsection. The two major studies are reviewed as follows:

Shrestha's Study (1981)

One article, "Public enterprises: Have they divided paying ability?" Was published in 1981 by professor Dr. Manohar Krishna Shrestha which gives short glimpse of the dividend performance of some public enterprise of that time in Nepal.

Dr.Shrestha has highlighted following issues in his article:

- HMG Expects two things from the public enterprises:(i) They should be in a position to pay minimum dividend and (ii) The public enterprises should be self supporting in financial matters in future years to come but none of these two objectives are achieved by the public enterprises.

- One reason for this efficiency is caused by excessive government interference in day-to-day affairs. On the other hand, high-ranking officials of HMG appointed on directors of Board do nothing but simply show their bureaucratic personalities. Bureaucracy has been the enemy of efficiency and Lead Corporation to face losses. Losing corporations are therefore not in position to pay dividend to government.

- Another reason is the lack of self criticism and self-consciousness. The lack of favorable leaders is one of the biggest constraints to institution building moreover corporate leadership comes managers of corporations have not been able to identify themselves regarding what they can contribute as manager of corporations. So HMG must be in a position to drop a financial target in corporate investment by imposing financial obligation.

- The article point out irony of government biasness that government has not allowed banks to follow an independent dividend policy and HMG is focused to have pressurized on dividend payment in case of Nepal Bank Ltd, regardless of profit. But it has let off Rastrya Bajijya Bank from dividend obligation in spite of considerable profit.

The improvements suggested are as follows:

1. Adopt a criteria-guided policy to drain resources from corporations through the medium of dividend payment.

2. Realization by managers about the cost of equity and dividend obligation. If HMG wants to tap resources through dividend the following criteria should be followed:

3. Circulating the information to all the public enterprises about the minimum rate of dividend.

4. Proper evaluation of public enterprises in term of capability of paying dividend should be made through corporation coordination committee.

5. Imposition of fixed rate of dividend by government to financially sound public enterprises.

6. Specifying performance criteria such as profit target in terms of emphasis, priorities, timing and plans. Developing a strategic plan which is not just a statement of corporation aspiration but must be done to convert the aspiration into reality.

7. Identification of corporation objectives in corporation Act, company Act or special character so as to clarify the public enterprise managers regarding their financial obligation to dividend to HMG.

Pradhan's Study (1993)

Radhe S. Pradhan;s conducted on a comprehensive study on stock market behavior in a small capital market: A case study of Nepal was based on the data collected from 17 enterprises form 1986-1990.

The followings were objectives of the study:-

- To assess the stock market behavior in Nepal.
- To examine the relationship of market equity. Market value of book value, price earnings and dividend with liquidity, profitability, leverage, assets turnover and interest coverage.

The employed equation was:

$V=b_0+b_1LIQ+b_2LEV+b_3EARN+b_4TURN+b_5COV+U_1$

Where,

The dependent variable V chosen for the study has been specified as under:-

- Market equity (ME)-Market Value of equity to its book value (MV/BV)
- Price Earnings ratio (P/E)
- Dividend per share to market price per share (DPS/MPS)
- Dividend per share to earnings per share (DPS/EPS)

LIQ = Current Ratio (CR) or Quick Ratio (QR)

LEV = Long-time debt to total assets (LTD/TA) or Long-term debt to total capitalization (LTD/TC)

EARN = Return on assets that is earning before tax to total assets (EBT/TA) or earning before tax to net worth (EBT/NW)

TURN = Fixed assets turnover that is sales to average fixed assets (S/FA) or total assets turnover that is sales to average total assets (S/TA)

COV = Interest coverage ratio that is earning before tax to interest.

U1 = Error term.

Some findings of his study among others were as follows:

- Higher the earnings on stocks, larger the ratio of dividend per share to market price per share.

- Dividend per share and market price per share was positively correlated.

- Positive relationship between the dividend per share to market price per share and inters coverage.

- Positive relationship between dividend payout and liquidity.

- Positive relationship between dividend payout and profitability.

- Positive relationship between dividend payout and turn over ratios.

- Positive relationship between dividend payout and interest coverage.

- Liquidity and leverage ratios are more variable for the stock paying lower dividend.

- Earning, assets turnover and interest coverage are more variable for the stock paying higher dividends.

2.4 Review of Thesis

Prior to this thesis some students have conducted several thesis work out of them some studies are supported to be relevant for this study have been reviewed in this section.

Buddhi Sagar Timalsina's Study

Buddhi Sagar Timilsina conducted a study on "Dividend policy: comparative study between NGBL and NIBL". The analysis concludes as follows:-

- Dividend per share is positively correlated with earning per share, net profit, market price per share and net worth. (Except market price per share of NIBL in both banks.)

- There is no stable dividend paid by both the bank over years. They are paying fluctuating dividends.

- The pattern of dividend payout ratio of both the banks shows the conservative dividend policy followed by banks.

- Relationships of earnings and dividend payment are matching with growth and expansion of program of the banks.

Gautam's Study (1998)

Mr. Rishi Raj Gautam conducted a comparative study of divided policy of commercial banks by using the secondary data in 1996. He concluded that:

- Commercial banks represent a robust body of profit earning organization in comparison to the other sectors such as manufacturing trading etc.

- In spite of the good earning and earning potentials, commercial banks do not seem to be guided by a clearly defined dividend policy.

- Shares of financial institution are actively traded and market prices are increasing.

Anjani Raj Bhattarai's Study

Anjani Raj Bhattarai‟s carried out a thesis "Share market in Nepal" in 1990. He concluded that:

- Many companies were paying less than expected cash dividend. Some of them were paying higher than average cash dividend per share while some company were paying regular dividend with higher amount. Thus taking as a

whole most company were undertaking the expansion of investor and they are by resulting low marketing of shares on the trading floor of stock exchange.

- Dividend declared by the majority of the companies is less than risk free rate of return plus risk premium.
- Majority of the companies are displaying lower earning ratio indicates the erosion of believers of investors on shares of listed companies. As a result, market price of the share is highly skewed.
- Calculated price of shares do not match with quoted price.
- The author suggests that listed company should be bounded to pay minimum rupees of divided regularly and extra in the years of good earnings and are strongly watched. They should be monitored on whether they are able to achieve it each year or not.

M. Bhattarai's Study (2002)

An MBS thesis entitled "Dividend policy and its impact on market price of stock" was prepared by Mr. Manoj Bhattarai with the data taken from two commercial banks and two insurance companies in 2002. He analyzed the data of five years form 1955-2000 using simple and multiple regression equations.

The major findings of the study are as follows:

- There is not any consistency in divided policy in the sample firms.

- Most of the Nepalese firm from the very past did not have profit planning and investment strategy which has imbalanced the whole position of the firms. It means there is no consistency even in the earnings.

- The MPS is affected by the financial position and dividend paid by the firms. In this regards the MPS of the sample firms is seen to be fluctuated. It denoted that Nepalese investors are not treated fairly.

- Lack of financial knowledge and market inefficiency has affected the market price of the share in all firms.

Sarsowti Kharel's Study (2006)

An MBS thesis entitled "Dividend policy commercial banks with respect NABIL, BOK and HBL" was prepared by Ms. Sarswati Kharel's with the data taken from three commercial banks in 2006. She analyzed the data of five years and concluded as:

- 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 government does not have any clear policy towards dividend policy.
- Shareholders in Nepal are not conscious.
- There seems instability and inconsistency in dividend payment by the banks.

Mana Maharjan's study (2008)

An MBS thesis entitled "Dividend policy of listed commercial banks" was presented by Mana Marharjan's with the data taken from commercial banks in 2008. He analyzed the data of five years and concluded as:

- Almost all banks have increasing EPS except NBBL and SCBNL has the highest average EPS and lowest variation in EPS during review period.

- SCBNL have the highest amount of dividend paid per share while NBBL have paid the least amount. NABIL bank has continuously paid the dividend in the five year study period while in the case of other banks, irregularity in paying dividends.

Research Gap

There have been many national and international studies in the field of dividend policy to date. All 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 be relevant in the Nepalese context. So it is recommended to devote some efforts and think foreign model dividend practices in Nepalese dividend Policy. So far the Nepalese studies are concerned some studies like Pradhan's, Manandhar's which can be considered as landmark in the field of dividend policy. But many more changes have taken place in Nepalese capital market in last few years. So it is necessary to carry out a fresh study related to dividend pattern of commercial banks of Nepal.

This is distinct study form previous studies in terms of sample size, nature of the sample firms and methodology used. The study has covered only three commercial banks. Latest five years data have been analyzed with due consideration of EPS, DPS, DPR, MPS and Net Worth. Taking in mind for more elaborate and extensive analysis, company wise analysis has been made. In order to assess the impact of dividend on market price of share available information from concerned banks were reviewed and analyzed. Regression analysis has been done assuming market price of share as dependent variable and other variables like DPS, EPS and D/P ratio as independent variable. At last testing of hypothesis has been done. So it is believed that this study is quite different.

CHAPTER - III

RESEARCH METHODOLOGY

3.1 Introduction

A brief introduction of this study has been already presented in the first chapter. Besides review of literature with possible reviews of ideas, theories and research finding have also been presented in second chapter. Now it is important to have choice of research methodology that helps to make analysis meaningful. So this chapter deals with the methodology for the study.

"Research Methodology refers to the various sequiensnal steps to be adopted by the researcher in studying a problem with certain object in view." In this study research methodology has been paid due attention to achieve the objectives of the study.

3.2 Research design:

The research design is the specification of methods and procedure for acquiring the information needed to structure of solve problems. In another word it is the conceptual framework within which research is conducted. The analytical as well as descriptive research designs have therefore been included in the present study. For the analytical purpose the annual reports, financial and other relevant materials of the companies will be studied. The research design refers to the conceptual structure within which the research is conducted (Kothari, 1978:22).

It 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.

3.3 Nature and sources of Data

In this study, data have been gathered especially form the secondary sources, the data of different financial variables related with dividend of sample banks have been collected basically form the "Trading report" both published by Nepal stock exchange Ltd, supplementary data and information are also collected from the annual reports published by concerned government and on-governmental organization. Besides the data have been acquired from the various sources like,

- Annual reports
- Https/www.nepalstock.com
- Nepal Stock Exchange Limited
- Security Board of Nepal
- Concerned banks

3.4 Procedure of Data collection

The relevant data have been collected from the concerned banks and Nepal Stock Exchange. Similarly the required data have also been acquired from various articles, American library Centre, Central Library and Shanker Dev campus Library. Besides above, the indirect and informal talks to concerned field have also been made.

3.5 Data processing technique

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.

3.6 Population and sample selection

Until May 2009, 25 commercial banks (including government owned, private and joint venture) are operating in Nepal. Due to the limited time and resources factors too, it is not possible to study all of them, so sampling has been done. Among them following banks are taken as follows: Out of 25 Commercial banks that are operating their activities in Nepal, only 3 of commercial banks are chosen for the study.

They are as follows:

- Nepal Industrial and Commercial Bank Ltd (NIC)
- Nabil Bank Ltd (NABIL)
- Bank of Kathmandu Ltd (BOK)

3.7 Method of Analysis

The data has been analyzed according to the pattern of data available. Wide verities of methodology have been applied according to the reliability and consistency of data. Before using the analytical tools to compare result, the data containing in the financial statements have been grouped and rearranged so as to make comparison easy. For the data of five years were taken as sample from 2003/04-2007/08. The data were analyzed in ways as:

- Financially

- Statistically

The results and the findings from the findings from the two types of analysis were jointly interpreted.

Financial Tools

a. Earning per share (EPS): EPS is ratio of net profit after taxes to number of equity shares outstanding. It measures return on each equity shareholders. It reveals whether the banks earning power per share basis have changed over the period.

$$\text{Earning per Share} = \frac{Net\ \text{Pr}\ ofit}{\text{No of share outstanding}}$$

b. Dividend per share (DPS): DPS is defined as the ratio of net profit after interest and preference. Dividend paid to ordinary share holders to number of common stock outstanding.

$$\text{DPS} = \frac{\text{Total dividend to ordinary shareholder}}{\text{No of common stock outstanding}}$$

c. Dividend payout ratio (D/P Ratio): It is the percentage of profit i.e. distributed as dividend. This ratio indicates what percentage of profit is distributed as dividend and what percentage of profit is retained for the growth of the company. It is calculated as follows:

$$\text{D/P ratio} = \frac{\text{Dividend per share}(DPS)}{\text{Earning per Share}EPS)}$$

d. Dividend percentage on paid up capital: It is percentage of dividend per share on paid up value of share. It is calculated as:

$$\text{Dividend percentage on Paid} = \frac{\text{Dividend per share}(DPS)}{\text{Paid Value per share}}$$

e. Dividend yield ratio: This ratio indicates the relationship between dividend per share and market value per share. It is calculated as:

$$\text{Dividend yield ratio} = \frac{\text{Dividend per share}(DPS)}{\text{Market Value per share}(MVPS)}$$

Statistical Tools

Statistics (as used in sense of data) are numerical statement of facts capable of analysis and interpretation and the science of statistics is a study of the principles and method used in collection, presentation analysis and interpretation of numerical data in any sphere of inquiry. (Elhance, 1994:16) in the present study following statistical tools have been used to draw one meaningful conclusion.

a. Mean or Average ($\overline{X}$)

b. An average is value which represents a group of values. It shows the characteristics of the whole group. Generally the average value lies somewhere in between the two extremes, i.e. the largest and the smallest items. It is also known as simple average.

$$(\overline{X}) = \frac{X1 + X2 + X3 + ... + Xn}{N}$$

Or, $$(\overline{X}) = \frac{\sum X}{N}$$

Where,

$\sum X$ =sum of sizes of the item

N= Number of items.

b. Standard deviation (±)

Standard deviation measures scatter, spread and provides idea of homogeneity or heterogeneity of the distribution. Out of various methods of studying dispersions

such as; range, quartile deviation, mean deviation; standard deviation and variance are the most popular method.

$$\text{S. D.} = \sqrt{\frac{1}{N}} X \sum (X - \overline{X}) 2$$

Where,

N = Number of observations/time periods

$\overline{X}$ = Expected return of the historical data

X= variable

c. Coefficient of variation (C.V)

It is the measurement of the relative dispersion by Karl person. 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 homogeneous. 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 as

$$\text{C.V.} = \frac{\text{Standard deviation}}{Mean} x100$$

$$\text{C.V} = \frac{\pm}{\overline{X}} x100$$

Where,

± = standard deviation.

$\overline{X}$ = mean

d. Cross sectional Analysis

This method is used to determine the position of the bank among the selected banks for the study. Each annual figure will be compared with yearly average carried out summing up figure of each company by dividing by the no. of company.

e. Correlation Analysis

Correlation analysis is the statistical tools that can be used to describe the degree to which one variable is linearly related to another. In the present study both simple correlation and multiple correlations have been used. Correlation co-efficient between the following financial variables have been calculated and interpreted.

f. Simple correlation coefficient between

- DPS and EPS
- DPS and Net Profit
- DPS and Net Worth
- DPS and MPS
- DPR and MPS
- Multiple correlation coefficients between EPS, DPS and MPS
- Multiple correlation coefficients between DPR, DPS and MPS

g. Probable Error [PE(r)]

The probable error of the coefficient of correlation helps in interpreting its value. It helps to determine the reliability of the value of coefficient. To cross check the validity of the result, we can take help of following formula:

$$\text{P. E (r)} = 0.6745 \text{ x } \frac{1-r2}{\sqrt{n}}$$

Where;

P. E (r) = Probable error of r.

r = correlation coefficient between X and Y

If the value of r is less than 6 times, the probable error i.e. r < 6 P.E (r). There is no significant relation between X and Y.

If the value of r is more than 6 times the probable error i.e. r > 6 P.E (r), there is most significant correlation between X and Y.

If P.E (r) < 6 P.E(r), there is moderate relation between X and Y.

In the present study, probable error has been calculated to determine the reliability of coefficient of EPS and DPS, DPS on Net Profit and DPS and Net worth.

h. Regression analysis

Correlation analysis tells the direction of movement but it does not tell the relative movement in the variables under study. Regression analysis helps to know the relative movement in the variables. Regression analysis of the following variables have been calculated and interpreted in the present study.

i. Simple Regression Analysis

Dividend per share on Earning per share

The model: $Y= a + b X$

Where,

Y = Market price per share

a = Regression constant

b = Regression coefficient

X = Earnings per share

This model enables us to know whether EPS is the influencing factor of dividend per share or not.

j. DPS on Net Profit

$Y= a + b X$

Where,

Y = Dividend per share

a = Regression constant

b = Regression coefficient

X = Net Profit

This model indicates the dependency of DPS on Net Profit.

k. Market price per share on Dividend payout Ratio:

$Y= a + b X$

Where,

Y = Market price per share

a = Regression constant

b = Regression coefficient

X = Dividend Payout ratio

This model has been constructed to examine the relationship between market price per share and Dividend payout ratio.

l. Market price per share on DPS

$Y= a + b X$

Where,

Y = Market price per share

a = Regression constant

b = Regression coefficient

X = Dividend per share.

This analysis tests the dependency of market price per share on dividend per share.

m. Net Worth on DPS

$$Y = a + b X$$

Where,

Y = Net Worth

a = Regression constant

b = Regression coefficient

X = Dividend per share.

This analysis tests the dependency of Net worth DPS.

n. Multiple Regression Analysis

Market price of share on Earning per share and dividend per share

$$Y = a_1 + b_1 X_1 + b_2 X_2$$

Where,

a_1= Regression constant

b_1 = Regression coefficient of variable 1st

b_2= Regression coefficient of variable 2nd

X_1=Earning per share

X_2 =Dividend per share

This model helps to predict in what extend EPS and DPS affect market price of share.

Market price of share on Dividend payout ratio and dividend per share

$$Y= a_1 + b_1 X_1 + b_2 X_2$$

Where,

a_1= Regression constant

b_1 = Regression coefficient of variable 1st

b_2= Regression coefficient of variable 2nd

X_1=Dividend payout ratio

X_2 =Dividend per share

This model helps to predict in what extend DPR and DPS affect market price of share.

o. Coefficient of correlation

Correlation analysis is the statistical tools that we can use to describe the degree to which one variable is linearly related to another. The correlation analysis is technique used to measure closeness of the relationship between the variables. It helps us in determining 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 number which indicates to what extent two variables are related with each other and to what extent variations in one leads to variation to the other.

The value of coefficient of correlation always lies between -1 to +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 relationship between the variables.

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

$$r = \frac{n\sum XY - \sum X.\sum Y}{\sqrt{n\sum X2 - (\sum X)2}.\sqrt{n\sum Y2 - (\sum Y)2}}$$

Under this study the correlation between the following variables are analyzed.

- Dividend per share and Earning per share
- Dividend payout ratio and Market price per share
- Dividend payout ratio and Net worth.
- Dividend per share and Market price per share.
- Dividend payout ratio and Net profit

p. Coefficient of Determination (R2)

The coefficient of determination is the primary way we can measure the extend, or strength of association that exists between two variables. It is the measure of degree of linear association between variables one of which happen to be independent and other being dependent variable. It measures the percentage total variation in dependent variable explained by independent variables. The coefficient of determination value can be ranging from zero to one. If regression line is perfect estimator, R2 is zero when there is no correlation. In this study coefficient of determination is calculated to know the degree of correlation of dividend per share with earning per share, net profit, market price per share and net worth.

q. Regression constant (a)

The regression constant (a) which is the intercept of the model represents the average level of dependent variable when independent variable has a value of zero. In other words it indicates the mean or average effect on dependent variable if all the variables omitted from the model. This term has partial meaning only if a zero value for the independent variable is possible.

r. Regression coefficient (b)

The regression coefficient (b) is a parameter which indicates the marginal relationship between independent variable values of dependent variable holding constant effect of all other independent variables in the regression model. The coefficient specifies a part of change in the dependent variable regarding part of change in the independent variables.

s. Standard Error of Estimate (SEE)

Standard error of estimate measures the dispersion about an average line for measurement of accuracy in estimated line. It is used to predict better fit of regression line. Smaller SEE is better to estimate and vice-versa. By the help of SEE, it is possible to ascertain how well and representative to regression line is as description of the average relationship between two series.

t. 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.

u. T-statistics

To test the validity of our assumption, "if sample size is less than 30, t-test is used. For applying t-test in the context of small sample, the value of „t' is calculated first and compared with the table value of „t' at a constant level of significance for given degree of freedom (Kothary, 1994:143). If the calculated value of „t' is greater than tabulated value in certain level of significance and given degree of freedom we conclude that there is significantly different. If the calculated value is less than the tabulated value, we conclude that the different is not significant.

v. Test of hypothesis

The statement of the relationship between two or more variable is called hypothesis. Hypothesis statement should be able to show the relationship between variables. At the same time they should carry clear implications for testing the stated relations. The research on thesis strongly holds the hypothesis criteria. In this research work, it has been tried to find whether the independent variables have statistically significant relationship with dependent variable or not. The test is based on the pooled average data of five years of the sample banks. The hypothesis of this research work is as following;

Hypothesis test- I

Null Hypothesis (H_0): $b_1=b_2=0$ (The regression equation of X_1 on X_2 and X_3 is not significant. In other words, there is no relationship between dependent variable X_1 (MPS) and independent variables X2 (EPS) and X3 (DPS)

Alternative Hypothesis (H_1): $b_1\neq b_2\neq 0$ (i.e. at least on $b_1\neq 0$). The regression equation of X_1 on X_2 and X_3 is significant. In other words, there is a relationship between dependent variable X_1 (MPS) and independent variable X_2 (EPS) and X_3 (DPS)

Hypothesis test- II

Null Hypothesis (H_0): $b_1=b_2=0$ (i.e. the regression equation of X_1 on X_2 and X_3 is not significant. In other words, there is no relationship between dependent variable X_1 and independent variables X_2 and X_3.

Alternative Hypothesis (H_1): $b1\neq b_2\neq 0$ (i.e. at least on $b_1\neq 0$). The regression equation of X_1 on X_2 and X_3 is significant. In other words, there is a relationship between dependent variable X_1 and independent variable X_2 and X_3..

CHAPTER - IV

PRESENTATION AND ANALYSIS OF DATA

In this chapter the relevant data and information on dividend policy of the selected banks are presented and analyzed comparatively keeping objectives of the study in mind. From the point of view of the study, this chapter is the focal part of the study. Using the various financial tools and statistical tools mentioned in chapter three, we analyze the data to achieve the objective of the study.

4.1 Analysis of Dividend payment Practices of the selected banks

As already mentioned in the first chapter (in objective of the study), one of the objective of this study is to assess the prevailing practice of the company regarding dividend. In this section an attempt has been made to analyze the financial indicators that are relevant directly or indirectly to the dividend payments of the banks. This helps to understand the dividend practices of these banks in the absence of complicated information. This analysis includes as;

a. Dividend per share

b. Dividend payout ratio

c. Percentage of cash dividend on paid up capital

d. Dividend yield

e. Earning per share

4.1.1 Dividend per share

Dividend per share indicates the proportion of earning distributed to owner (shareholder) on per share basics. Generally the higher DPS creates positive attitude among the shareholders towards bank, which accordingly helps to increase the market value of share. The following table shows the details relating to dividend per share.

Table 4.1

Dividend per share (%)

Bank/Y	2004/05	2005/06	2006/07	2007/08	2008/09	Avg	S.D.	C.V.(%)
NIC	10.00	0.53	1.05	1.05	0.79	2.684	3.663	136.68
NABIL	70.00	85.00	100.00	60.00	35.00	70	22.136	31.623
BOK	15.00	18.00	20.00	2.11	7.37	12.496	6.745	70.95
Composite bank Avg						28.393		
Yearly Avg	31.67	34.51	40.35	21.05	14.39			

(Source: Annual reports of commercial banks.)

In above table, it is seen that NABIL bank has paid highest cash dividend of Rs 100 each F.Y 2006/07. In F.Y.2008/09 the bank has paid only Rs 35 which is least.

On average the bank has highest DPS paid i.e. Rs 70. The bank seems in the first position among selected banks. Standard Deviation (S.D) of DPS is 22.136. The

coefficient of Variation (C.V) is 31.623 which show NABIL has paid less fluctuating dividend. Cross-sectional analysis shows that the bank has paid dividend above yearly average in all years. NIC bank Ltd. (NIC) has paid highest dividend of Rs 10 in F.Y.2004/05. The average DPS of Rs 2.684 has been noted during the study period. The S.D of DPS is 3.663. The C.V of 136.68% indicates that there is high fluctuation in the DPS of NIC. Cross-sectional analysis shows that the bank has paid below the yearly average in all years except in F.Y.2004/05. Bank of Kathmandu Ltd. (BOK) has paid the highest dividend of Rs 20 in F.Y.2006/07 and lowest of Rs 2.11 in F.Y.2007/08. The average dividend of BOK during the study period is Rs 12.496. The S.D is 6.745 and C.V is 70.95%. The C.V indicates that DPS of BOK is highly fluctuating. Cross-sectional analysis shows that the bank has paid dividend below yearly average in all years except in F.Y.2005/06 and F.Y.2006/07. From the above analysis it is seen that only one bank i.e. NABIL has paid dividend over the composite bank average DPS as Rs 28.393. NABIL is paying average DPS of Rs.70. Thus taking as a whole due to lack of sustainable strategic dividend policy, the dividend payments of the most companies are fluctuating. We can better present the comparative DPS of the banks with the help of bar diagram and graph as follows:

Figure 4.1 (A)

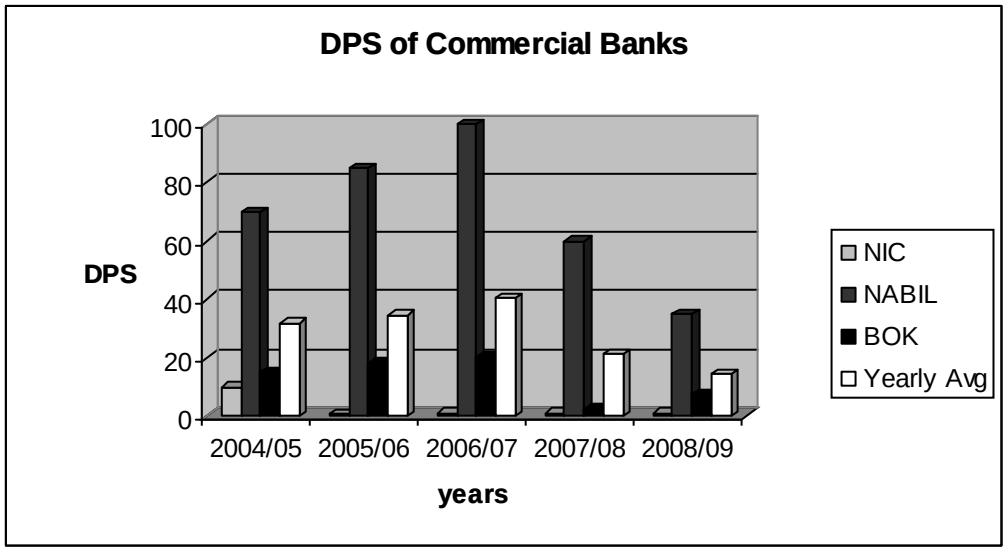
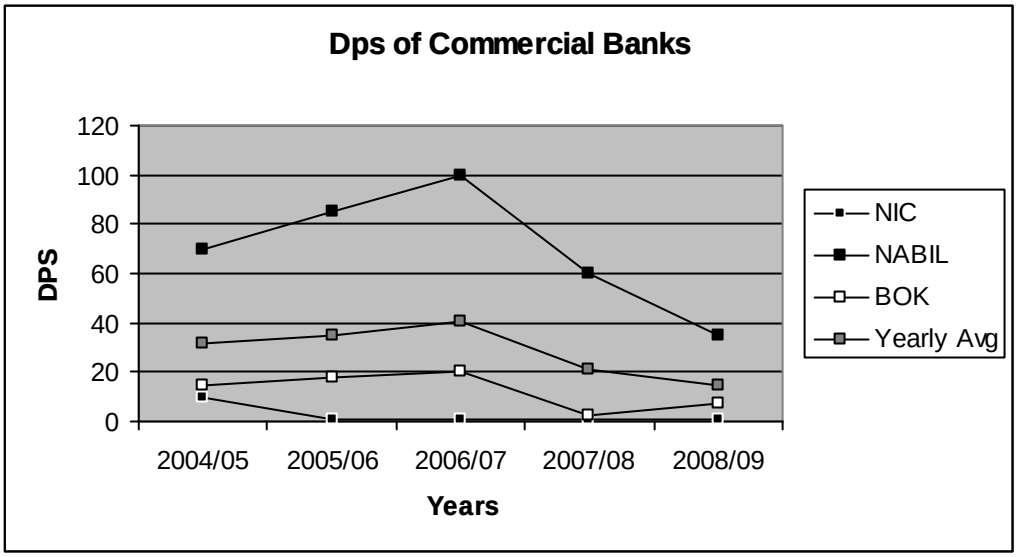


Figure 4.1



4.1.2 Dividend payout ratio

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.

Table 4.2

Dividend Payout Ratio (DPR)

Bank/Year	2004/05	2005/06	2006/07	2007/08	2008/09	Avg	S.D.	C.V.(%)
NIC	43.96	3.29	4.37	4.08	2.84	11.71	16.135	137.79
NABIL	66.36	65.78	72.95	55.39	32.78	58.65	14.104	24.05
BOK	49.83	41.22	45.98	3.52	13.48	30.81	18.681	60.63
Composite bank Avg						33.72		
Yearly Avg	53.38	36.76	41.10	20.99	16.37			

(*Source: Annual reports of commercial banks.)*

NABIL has the highest average DPR of 58.65. The bank has maintained the average DPR in F.Y.2004/05 and F.Y.2006/07. The maximum DPR is 72.95% in F.Y.2006/07. The S.D of DPR is 14.104. The C.V is 24.05% which indicates less

fluctuating nature of DPR in NABIL. The cross-sectional analysis shows that the bank is above yearly average in all the years during the study period.

NIC bank has an average DPR of 11.71% during the study period. It means NIC generally pays 11.71% of its total earning as dividend to its shareholders. The S.D of DPR is 16.135. The C.V of 137.79% shows high fluctuating nature of DPR of NIC bank. Cross-sectional analysis shows that the NIC bank is below the yearly average except in F.Y.2004/05.

BOK has an average DPR of 30.81% during the study. The S.D of DPR is 18.68. The C.V of 60.63% shows fluctuating nature of DPR in BOK. The cross-sectional analysis shows that the bank is above yearly average except in F.Y.2003/04 and F.Y.2007/08.

From the above analysis, the composite companies average DPR seems to be 33.72%. Out of three banks, it is seen that NABIL's DPR is above than composite company average. It is paying 58.65% of its earning as dividend. We can better present the comparative DPR of sample banks during the study with the help of following diagram and graph.

Figure 4.2 (A)

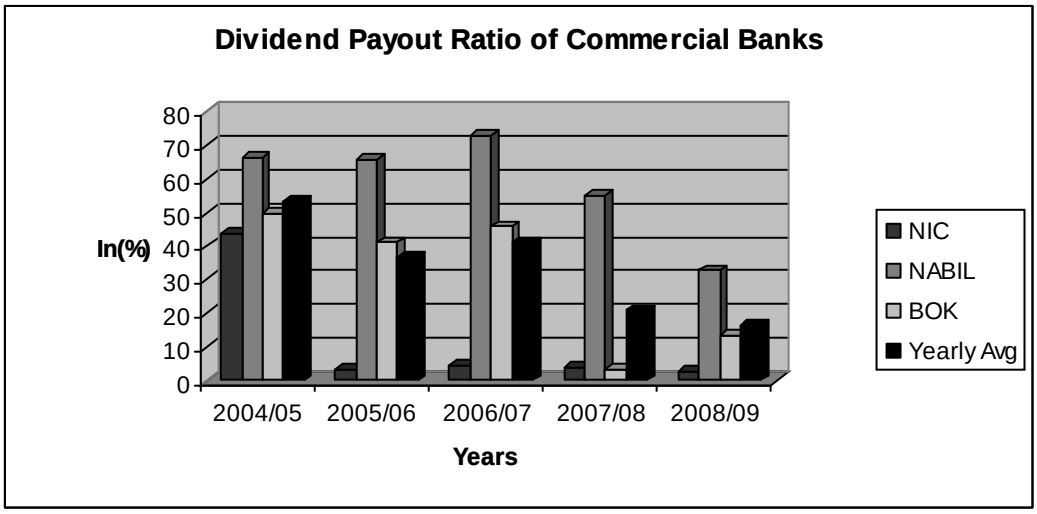
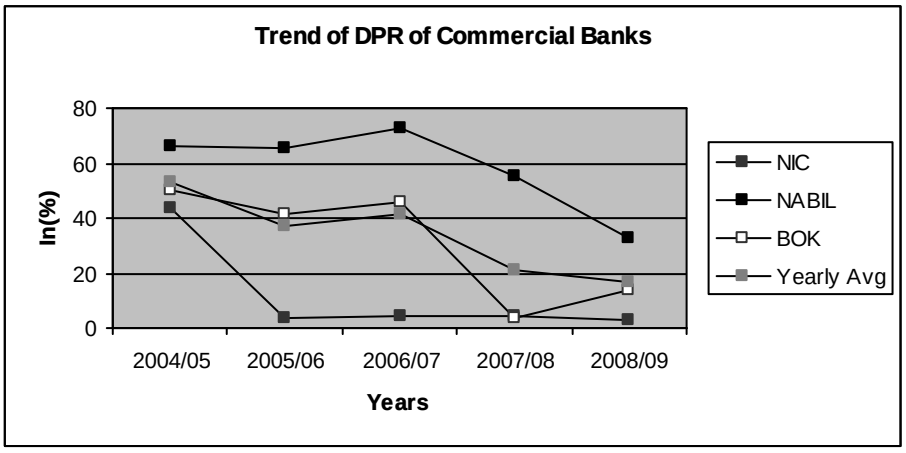


Figure 4.2(B)



4.1.3 Percentage of cash dividend on paid up capital (POCDPC)

The variables show the percentage of dividend per share on its paid up value. From analyzing the percentage of cash dividend on paid up capital the researcher can see the management attitude towards the divided declaration. The analysis is done on the basis of following table.

Table 4.3

Percentage of cash dividend on paid up capital (%)

Bank/Year	2004/05	2005/06	2006/07	2007/08	2008/09	Avg	S.D.	C.V.(%)
NIC	10	0.53	1.05	1.05	0.79	2.68	3.63	135.45
NABIL	70	85	100	60	35	70	22.14	31.63
BOK	15	18	20	2.11	7.37	12.50	6.74	53.92
Composite bank Avg						28.39		
Yearly Avg	31.67	34.67	40.35	21.05	14.39			

(*Source: Annual reports of commercial banks.)*

NABIL has average Percentage of cash dividend on paid up capital (POCDPC) capital is 70% which is the highest percentage among the selected banks. It has maintained its POCDPC in F.Y.2004/05, F.Y.2005/06 and F.Y.2006/07 respectively. The maximum POCDPC is 100%. The S.D of POCDPC is 22.14 where as C.V is 31.63%.

The C.V indicates moderate fluctuation in POCDPC of the bank. Applying cross-sectional analysis the bank is above yearly average in all the years.

The POCDPC of NIC bank is 2.68% which is the lowest among the selected banks. It has not maintained its average POCDPC except in F.Y.2004/05. The S.D of POCDPC of NIC is 3.63 whereas its C.V is 135.45%. The C.V of NIC bank during the study period indicates that there is very fluctuation in POCDPC of the bank. The cross-sectional analysis shows that the bank is below yearly average in all the years.

During period of the study, the BOK has an average of 12.50% of POCDPC with S.D of 6.74. The bank has maintained its average POCDPC except in F.Y.2007/08 and F.Y.2008/09. The C.V of 53.92% during the study period indicates that there is high fluctuation in POCDPC of BOK while applying cross-sectional analysis; it shows that the POCDPC of the bank is below the yearly average in all years.

From the above analysis composite bank average POCDPC seems to be 28.39%. Comprising the overall performance of banks in respect to POCDPC only NABIL has found to be maintained above composite bank average the comparative POCDPC of sample banks shows clear picture with the help of bar diagram and graph.

Figure 4. 3(A)

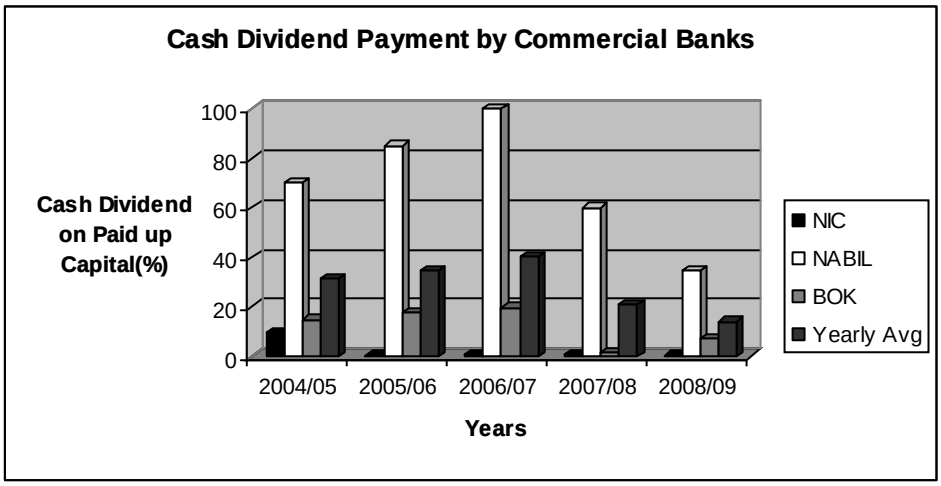
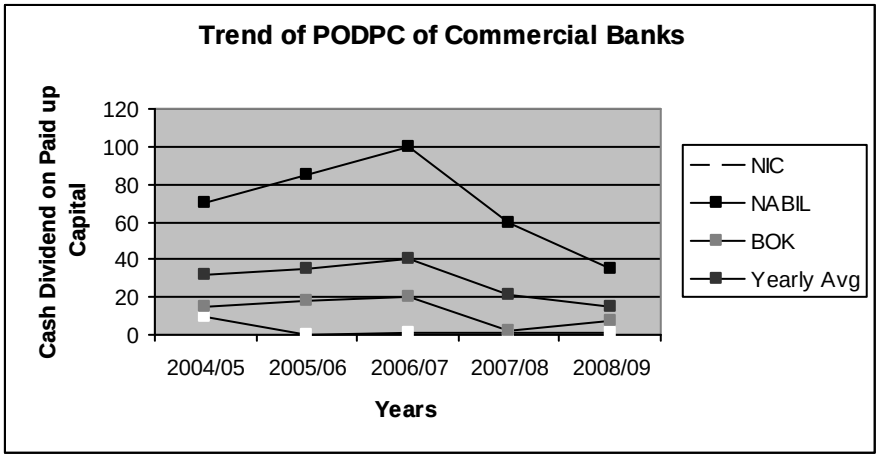


Figure 4. 3(B)



4.1.4 Dividend Yield Ratio

Dividend yield ratio is the percentage of dividend per share to market value per share. It is highly influenced by the market value per share and dividend per share because a small change in dividend per share can bring a small change in market value of the share. Therefore before allocation of fund market scenario and price fluctuation is to be studied and evaluated for the long run survival of company. The dividend yields of the banks under study are presented in the table given below:

Table 4.4

Dividend Yield Ratio (%)

Bank/Year	2004/05	2005/06	2006/07	2007/08	2008/09	Avg	S.D.	C.V.
NIC	2.98	0.11	0.11	0.08	0.07	0.67	1.158	172.84
NABIL	4.65	3.8	1.98	1.9	0.71	2.61	1.842	70.57
BOK	3.49	2.12	1.45	0.09	0.40	1.51	1.228	81.324
Composite Bank Avg						1.60		
Yearly Avg	3.71	2.01	1.18	0.69	0.39			

(*Source: Annual reports of commercial banks.)*

From the above table average yield of NABIL is 2.61% which has been maintained by the bank except in F.Y.2006/07, F.Y.2007/08 and 2008/2009 repectively. The

maximum Dividend Yield (DY) is 4.65%. The S.D of DY is 1.842 whereas C.V is 70.57%. The C.V indicates a moderate fluctuation of DY in the bank. From the analysis of these figures DY of the bank does not seem to be encouraging. It shows that investor have not obtained handsome return on their market value of share. Cross-sectional analysis revels that the bank is above yearly average except the F.Y.2006/07 and F.Y. 2007/08. Average DY of NIC bank is 0.67% which has been maintained only in F.Y.2004/05. Maximum DY is 2.98%. The S.D of DY is 1.158 whereas the C.V is 172.89%. The C.V indicates that there is very high fluctuation in DY of the bank. Cross-sectional analysis shows that the bank is below yearly average except than F.Y.2004/05.

BOK has an average DY of 1.51% with the S.D of 1.228. The maximum DY is 3.49% in F.Y.2004/05. The C.V of DY is 81.324% indicates that there is a fluctuation in DY of BOK. The bank failed to maintain the average DY in F.Y.2007/08 and F.Y. 2008/2009. Applying cross-sectional analysis, it shows that the DY, only the NABIL out of three banks is found positive average DY whereas average composite bank DY is 1.60% and DY of NABIL is 2.61%.

Finally DY of the above banks does not show any encouraging figure. The data of DY shows that investors have not got reasonable return on their market value of share. The above data of DY can be represented by diagram and graph as follows.

Figure 4.4 (A)

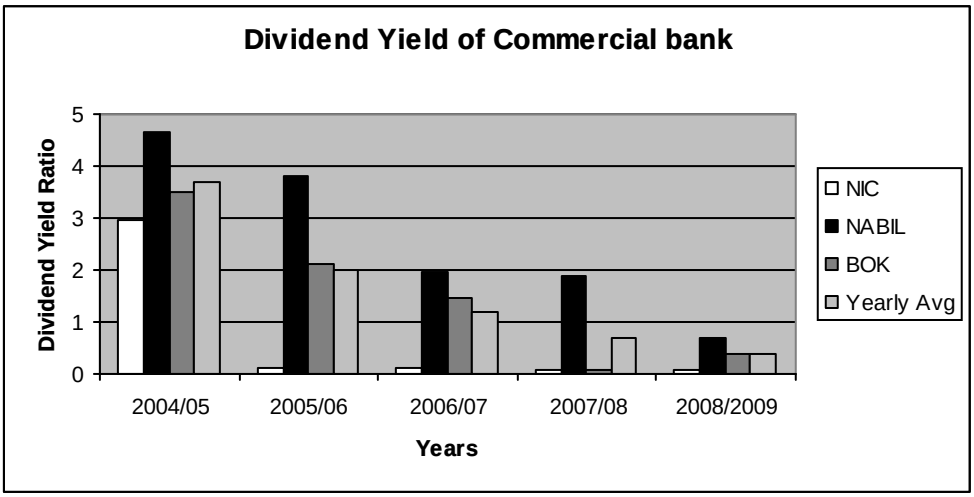
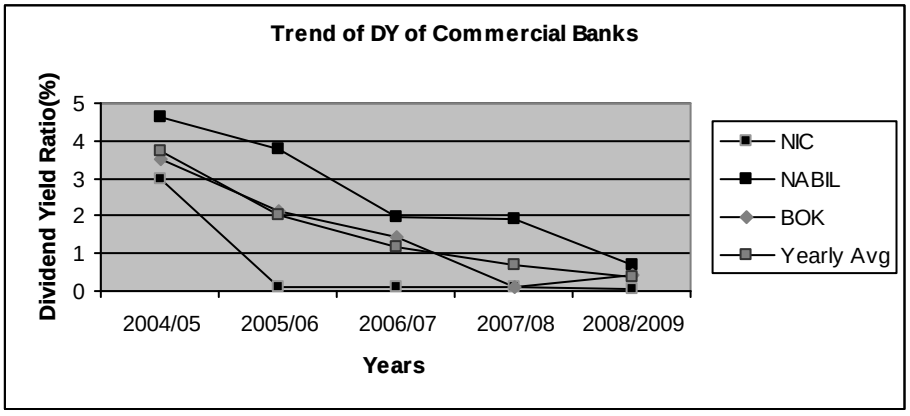


Figure4.4(B)



4.1.5 Earning per share (EPS)

Normally the performance and achievement of business organization are measured in terms of earning capacity to generate earning. Higher earning shows the higher strength while lower earning shows weaker strength of business organization. EPS is the amount of earning of the share invested in the company. So higher the EPS better the position is seen in stock market. The earning per share of the bank under study is tabulated as follows:

Table 4.5

Earning Per Share (EPS)

Bank/Year	2004/05	2005/06	2006//07	2007/08	2008/09	Avg	S.D.	C.V.(%)
NIC	22.75	16.10	24.01	25.75	27.83	23.29	3.98	17.09
NABIL	105.49	129.21	137.08	108.31	106.76	117.37	13.15	11.20
BOK	30.10	43.67	43.50	59.94	54.68	46.38	10.33	22.27
Composite Bank Avg						62.35		
Yearly Avg	52.78	62.99	68.19	64.67	63.09			

(*Source: Annual reports of commercial banks.)*

From the above table shows that average Earning per Share (EPS) of NABIL is Rs 117.37 The bank has maintained its average EPS except in F.Y.2004/05, F.Y.2007/2008 and F.Y.2008/2009. The EPS ranges from Rs.105.49 to 137.08. The S.D of EPS is 13.15 whereas C.V is 11.204%. The C.V indicates a moderate fluctuation

in the EPS of the bank. Cross-sectional analysis shows that bank is above the yearly average in all the years.

During the period of the study, NIC bank has an average of EPS of Rs 23.29 with S.D of 3.98. NIC has lowest average EPS among the selected banks. Average EPS is maintained by the bank except in F.Y.2004/5 and F.Y.2005/06. The C.V of NIC is 17.09% which indicates there is fluctuation in EPS of that bank. Cross-sectional analysis shows that bank is below the yearly average in all the banks.

The average EPS of BOK during the period of the study is Rs 46.38. The S.D of EPS is 10.33 whereas the C.V of the bank is 22.27%. It indicates there is fluctuation in EPS of BOK. The bank is able to maintain its average EPS except in F.Y.2004/05. The analysis shows EPS of BOK is in the increasing trend. The cross-sectional analysis shows that the bank is below the yearly average except in F.Y.2007/08.

Comprising overall performance of sample banks selected for the study in respect of EPS. NABIL only has found to be maintained composite bank average of Rs 62.35. NABIL has highest EPS among the selected banks in the study and NIC has lowest EPS among them. We can better present the comparative EPS of sample banks with the help of following bar diagram and graph.

Figure 4.5 (A)

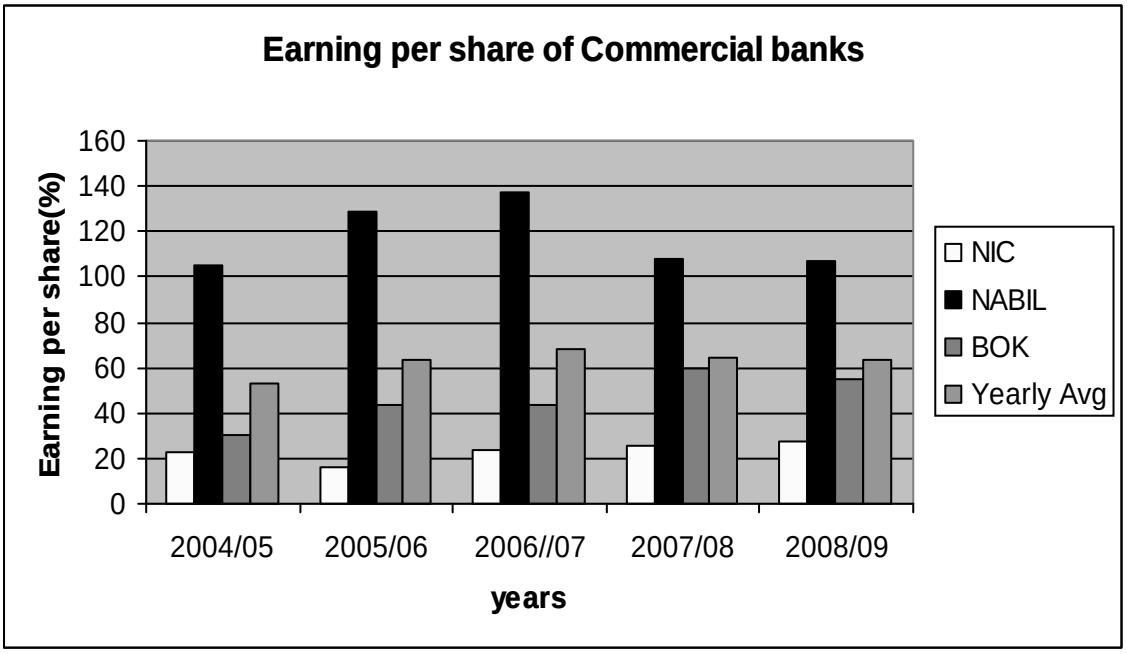
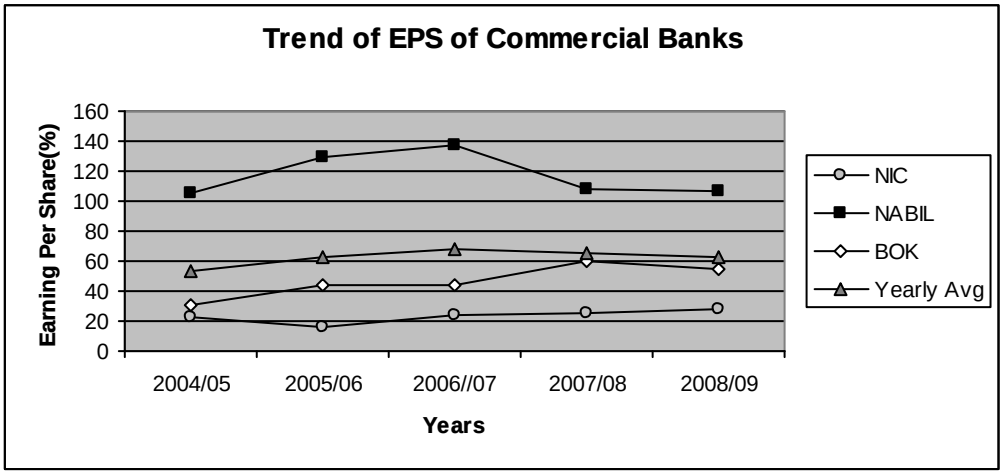


Figure4.5(B)



4.2 Company Wise Analysis

In the earlier section, picture of dividend practice of the selected banks have been presented in terms of ratio. Keeping in mind the need for more elaborate and extensive analysis, company wise analysis has been presented in this section

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4.2.1 NIC Bank Ltd. (NIC)

Table 4.6

Company Wise Analysis of NIC

Variables	Minimum	Maximum	Mean	S.D	C.V(%)
DPS	0.53	10	2.47	3.663	136.68
DPR	2.84	43.96	11.708	16.135	137.79
DY	0.07	2.98	0.67	1.158	172.83
POCDPC	0.53	0.53	2.47	3.66	136.68
EPS	16.10	27.83	23.29	3.98	17.09

(*Source: Annual reports of commercial banks.)*

The DPS of NIC bank has ranged from Rs 0.53 to Rs 10 and its average is Rs 2.47. Its standard deviation is Rs 3.663 and coefficient of variation is 136.68 which indicate 136.68% fluctuation in the variable in DPS.. Average DPR is 11.708%. It has been ranged from 2.84 to 43.96% and coefficient of variation is 137.79, Its S.D is 16.135 and C.V is 137.79. If the divided amount is seen as a return on market price of share, its average is 0.67% and S.D is 1.158%. The average divided on paid capital is Rs

2.47. The standard deviation and C.V are 3.66 and 136.68%, where as, the EPS of S.D and C.V with respect to NIC is Rs 3.98 and 17.09% respectively.

4.2.2 NABIL Bank Ltd. (NABIL)

Table 4.7

Company Wise Analysis of NABIL

Variables	Minimum	Maximum	Mean	S.D	C.V.(%)
DPS	35	100	70	22.136	31.623
DPR	32.78	72.95	58.65	14.104	24.05
DY	0.71	4.65	2.61	1.842	70.57
POCDPC	35	100	70	22.136	31.623
EPS	105.49	137.08	117.37	13.15	11.204

(*Source: Annual reports of commercial banks.)*

The DPS of NABIL has ranged from Rs 35 to Rs 100 and its average is Rs 70. Its S.D of DPS is Rs.22.136 and C.V is 31.623% which indicates 31.623% fluctuation in DPS. Its mean DPR of NABIL is 58.65%. It shows that bank has distributed 58.65% of its profit as divided as rest portion is retained. The range of DPR is 32.78 to 72.95. The S.D and C.V of DPR is 14.104 and 24.05%respectively. S.D of the bank greater then average S.D and C.V of the bank is less than average C.V. The average DY of the bank is 2.61% and range of DY is 0.71% to 4.65%. Average divided on paid up capital (POCDPC) is 70%; the range of POCDPC is 35 to 100%. EPS of the bank ranged from

Rs 105.49 and Rs 137.08. It has average EPS of Rs 117.37. The EPS Standard Deviation is greater than C.V, i.e. S.D. 13.15 is greater than 11.204%.

4.2.3 Bank of Kathmandu Ltd. (BOK)

Table 4.8

Company Wise Analysis of BOK

Variables	Minimum	Maximum	Mean	S.D	C.V(%)
DPS	2.11	20	12.50	6.74	70.95
DPR	3.52	49.83	30.81	18.68	60.63
DY	0.09	3.49	1.51	1.23	81.324
POCDPC	2.11	20	12.50	6.74	70.95
EPS	30.10	59.94	46.38	10.33	22.27

(Source:Annual reports of Commercial banks)

BOK has average DPS of Rs 12.50 its S.D and C.V are 6.74 and 70.95% respectively, which shows that C.V is greater than S.D .The Average DPR of BOK is 30.81 which show the bank has distributed 30.81% of its profit and rest is retained in the bank. The range of DPR is 3.52 to 49.83%, S.D and C.V is 18.68 and 60.63% respectively. Average DY of the bank is 1.51% the range of DY is 0.09 to 3.49%. Its S.D is 1.228and C.V is 81.324%. Average dividend percent on paid up capital is 12.50%.The S.D and C.V of POCDPC are 6.74 and 70.95% , which seems C.V is higher than S.D. Average EPS of the bank is Rs 46.38 and its range is Rs 30.10 to Rs 59.94, The S.D is 10.33 and the C.V. is 22.27% Which shows that C.V is higher than the S.D.

4.3 Impact of Dividend on Market price of share

Analysis and interpretation of dividend payment practices of the study of the selected companies have been presented in the first chapter. The purpose of the study is not complete yet. The main important analysis is effect of dividend on valuation of share which is still to be carried out. Therefore this part of the study is purely devoted in this regard. Based on these sample sizes it is hoped that the study will adequate light on the impact of dividend on stock price.

4.3.1 Impact of cash Dividend on Market price of share

To assess the impact of dividend on market price of stock the simple regression and correlation analysis has been done. The result of the regression analysis has been presented in Table 4.9.

Regression result of market price per share on dividend per share

Table 4.9

Market Price per Share on Dividend per Share

Banks	a	B	R^2	Sb	T
NIC	1011.37	-62.210	0.409	43.123	1.4
NABIL	4902.57	-15.891	0.049	40.364	0.394
BOK	2339.66	-77.918	0.594	37.213	2.094
Total/Pooled bank ave.	3240.23	-43.625	0.227	4.965	8.786

(*Source: Annual reports of commercial banks.)*

The result presented in table clearly shows that the coefficient of dividend in NABIL, NIC, BOK and Total/Pooled Bank Average ie. -62.210, -15.891, -77.918 and -43.625 respectively show negative coefficient, which shows that one rupee increase in DPS will bring that there is decrease in stock price and MPS. These banks have to increase the retention ratio in order to increase net worth by paying low dividend. The coefficient of total bank is -43.625 which indicate that one rupee increase in DPS will bring Rs -43.625 decrease in MPS.

The test of „t" statistics concluded the result is not significant except in NABIL bank in 5% level of significance since the value of „t' calculated is smaller than tabulated value.

The value of r2 is average in total banks average. The NABIL is noted to be 0.0493. It shows very satisfactory level of explanation for the model as a whole on the other

hand, the values of r2 are 0.4096 and 0.594 for NIC and BOK. These values of r2 indicates 40.96 and 59.4%% of variation in the stock price of NIC and BOK have been explained by the regression model.

As regard the regression model: Y = a +b.X and the above explanation, the conclusion drawn is that the coefficient of dividend is very high in NABIL as compared to other banks. This indicates that there is positive relationship between dividend and stock price. Dividend has a predominant influence on stock price in NABIL as compared to others.

4.3.2 Dividend payout ratio and Valuation of share.

Regression result of market price per share on dividend payout ratio.

Regression equation: Y = a +bX

Table 4.10

Market Price Per Share On Dividend Payout Ratio

Banks	**a**	**b**	**R^2**	**S.E.E.**	**Sb**	**T**
NIC	1016.39	-14.69	0.444	343.049	9.508	1.545
NABIL	6183.46	-40.798	0.1376	1906.57	60.631	0.673
BOK	1946.95	-18.858	0.471	640.43	15.331	1.230
Total/Pooled bank ave.	2618.541	-18.29	0.229	974.63	32.25	0.567

(*Source: Annual reports of commercial banks.)*

The result presented in above table shows that a coefficient of dividend ratio is Negative in NABIL, NIC, BOK and bank pooled average has negative coefficient of DPR i.e. -14.69, -40.798, -18.858, and -18.29 respectively which indicates that 1% increase in DPR leads to Rs 14.69 , Rs 40.798, Rs.18.858 and Rs 51.44 decrease in stock price. The value of r2 is very low of NABIL. This value of r2 indicates that very low satisfactory level of explained for the model as a whole the value of r2 in NIC and BOK is 0.444 and 0.471 respectively which indicates that 44.4% and 47.1% of variation in the stock has been explained by the regression model.

The test of „t" statistics concluded the result is not significant difference at 5% level of significance since the value of „t' calculated is smaller than tabulated value. As regard the regression model: Y = a +b.X and the above explanation, the conclusion drawn is that the coefficient of DPR is negative in total bank as compared to other banks. The effect of DPR on market price of stock has been found negative in all sample banks except NABIL.

4.3.3 Impact of Market price of share on Earning per share and Dividend per share

Now, the researcher is going to assess the impact of EPS and DPS on market price of share. For this purpose multiple regression and coefficient of determination analysis has been used. The result of regression analysis has been presented in table.

Multiple regression and coefficient of determination Analysis of MPS on EPS and DPS.

Regression equation:

Table 4.11

Market price of share on Earning per share and Dividend per share

A_2	B_1	B_2	$S_{1.23}$	$R^2_{1.23}$
-4836.80	131.61	-48.154	538.23	0.842

(Source: Appendix F & G)

The above table shows the output of multiple regression and coefficient of determination analysis between MPS (x1) and other independent variables EPS (x2) and DPS (x3) of the banks pooled average. The regression constant a1 is -4836.80 indicate that when EPS and DPS are equal to zero then MPS of the observed banks would be Rs -4836.80. The regression coefficient b1 for banks is 131.61, it indicates that one rupee increase in EPS cause Rs 131.61 increase in MPS. Another regression coefficient b2 is -48.154 which indicates that unitary increment in DPS causes Rs 48.154 decrease in MPS. Thus the dependent variable EPS has positive impact on MPS whereas another independent variable DPS has negative impact on MPS of observed banks in average. The coefficient of multiple determinations is 0.842; it concludes that 84.2% variation in MPS is explained by variation in EPS and DPS.

4.3.4 Impact of Market price of share on Dividend payout Ratio and Dividend per share

Now assessing impact of DPR and DPS on market price of share. For this purpose multiple regression and coefficient of determination analysis has been used. The result of regression and coefficient of multiple determination analysis has been presented in following table.

Multiple regression and coefficient of multiple determination analysis of MPS on DPR and DPS.

Regression equation:

Table 4.12

Market price of share on Dividend payout Ratio and Dividend per share

a_1	b_1	b_2	$S_{1.23}$	$R^2_{1.23}$
5580.149	-79.031	-14.97	3049.06	0.569

(Source: Appendix I & J)

The table shows the output of multiple regression analysis between MPS (x1) and independent variables DPR (x2) and DPS (X3) of the pooled bank average. The regression constant a1 is 5580.149 that indicate when DPR and DPS equal to zero then MPS of the observed banks would be Rs 5580.149. The regression coefficient b1 for observed banks is -79.031; it indicates one percent increase in DPR causes Rs79.031 decrease in MPS. Another regression coefficient b2 is -14.97 which indicates that unitary decreament in DPS causes Rs 14.97 decrease in MPS. The independent variable DPR and DPS has negative and positive impact on MPS of the banks in average. As coefficient of determination is 0.569 indicates 0.569 variation in MPS is explained by variation in DPR and DPS.

4.4 Analysis of relationship of dividend with other key variables

In this section an attempt has been made to analyze the relationship between DPS with other key variables. The analysis includes

a. Relationship between DPS and EPS.

b. Relationship between DPR and net profit.

c. Relationship between DPS and Net Worth.

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b. Relationship between DPR and net profit.

c. Relationship between DPS and Net Worth.

4.4.1 DPS and EPS

The relationship between DPS and EPS has been presented in the table as follows:

Table 4.13

Correlation between DPS and EPS

Banks	r	R^2	P.E.	Sig/INsig
NIC	0.216	0.0467	0.2875	Insig
NABIL	0.846	0.7157	0.0857	sig
BOK	-0.749	0.5461	0.1371	Insig
Total/pooled avg	0.0513	0.00263	0.3008	InSig

(Source: Appendix-A (i))

From the table gives relationship between DPS and EPS. From the analysis of result, the relationship between DPS and EPS has been found negative in all sample banks except pooled bank average. It implies that EPS affects the DPS.

The coefficient of determination r2 between DPS and EPS of NABIL is 0.7157 which means that the variation in independent variable (EPS) explains71.57% of variation in DPS. Likewise the value of r2 in NIC is 0.0467 and r2 in BOK is 0.5461 which means that 4.67% and 54.61% of variation in EPS explains by DPS. The r2 between DPS and EPS of pooled bank average is 0.00263 which means that variation in EPS explains only 0.263% of the variation in DPS.

The significance of relationship between EPS and DPS is measured by calculating Probable Error (P.E) of correlation coefficient. From the above, we can conclude that individual banks are insignificant; however total observed banks are significant.

Regression equation of DPS on EPS

Regression equation: Y = a +b.X

Table 4.14

Regression Line of DPS on EPS

Banks	a	b	S.E.E	Sb	t
NIC	-4.061	0.2804	6.525	0.733	0.382
NABIL	-97.135	1.424	8.219	0.279	5.103
BOK	35.155	-0.4887	5.774	0.248	1.968
Total/pooled.ave	33.177	-0.0767	12.141	1.056	0.073

(Source: Appendix-A (ii))

The result presented in the table shows that coefficient of EPS in all banks is positive except BOK. In case of BOK the coefficient of EPS is -0.4887 which means one rupee increase in EPS leads to Rs 0.4887 rupees decrease in DPS. The constant (a) is 35.155 which means that of EPS is zero then the estimated DPS will be Rs 35.155.

In case of NABIL, the coefficient of EPS is 1.424 which indicates that one rupee increase in EPS lead to Rs 1.424 rupees increase in DPS. The constant a =-97.135 which means if EPS is zero then company can only pay Rs 97.135 as dividend. Likewise the coefficient of EPS of NIC is 0.2804 which indicates that one rupee increase in EPS leads to Rs 0.2804 rupees increase in DPS. The coefficient of EPS of total bank is -0.0767 which means one rupee increase in EPS leads to Rs 0.0767 decrease in DPS.

T-value for the regression modal is 0.3824, 5.103, 1.9681 and 0.073 for NIC, NABIL, BOK and total bank average. It shows that the result of NIC, NABIL and BOK have no

significant difference whereas the "t" value of pooled bank average is greater than tabulated value so there is significant difference at 5% level of significance.

significant difference whereas the "t" value of pooled bank average is greater than tabulated value so there is significant difference at 5% level of significance.

4.4.2 Relationship between DPR and Net Profit

The relationship between Dividend payout Ratio and Net Profit has been presented in table.

Table 4.15

Correlation between DPR and Net Profit

Banks	r	r^2	P.E	Sig/Insig
NIC	-0.374	0.139	0.2597	Insig
NABIL	0.677	0.458	0.1634	sig
BOK	0.113	0.0128	0.298	Insig
Total/pooled ave.	-0.655	0.429	0.1723	Insig

(Source: Appendix-E (i))

Form the analysis of correlation coefficient, it is seen that relationship between DPR and net profit is negative in all sample banks except in total sample banks and NIC. It means increase or decrease in Net Profit does not have positive relationship with DPR. The value of r2 of NIC, NABIL, BOK and Total pooled banks Average is 0.139, 0.458, 0.0128 and 0.429 respectively which means that 13.9%, 45.8%, 1.28% and 42.9% is explained by independent variable (DPR) due to change in value of

dependent variable Net Profit for NIC and highest is explained in NABIL. As far as significance or insignificant relationship is concerned, it is found insignificant for all except NABIL.

Regression result of Dividend Payout Ratio (DPR) on Net Profit (NP)

Regression equation: Y = a +bX

Table 4.16

Regression Line of DPR on NP

Banks	**a**	**b**	**S.E.E**	**Sb**	**t**
NIC	40.718	-0.116	5.964	0.165	0.703
NABIL	26.676	0.0979	1.9905	0.0631	1.5515
BOK	45.164	-0.074	21.357	0.5111	0.145
Total/pooled ave.	44.641	-0.2113	2.2617	0.1399	1.5097

(Source: Appendix-E(ii))

The result presented in the table shows that coefficient of NP in all banks is negative except NABIL bank. In case of NABIL, the coefficient of NP is 0.0979 which indicates that 1% increase in NP leads to Rs 0.0979 decrease in DPR. The 't' value for NABIL is significant at 5% level of significance. The constant „a' is 26.676 which mean that if NP is zero then DPR is 26.676%. Similarly in case of BOK and pooled Bank Average coefficient of NP is -0.074 and -0.2113 respectively indicates that 1% increase in NP leads to Rs 0.074 and Rs 0.2113 decrease in DPR. The „t' value is also not significant at 5% level of level of significance. The constant „a' is 45.164 and 44.641 respectively.

4.4.3 Relationship between Dividend Per Share (DPS) and Net Worth (NW)

The relationship between DPS and NW has been presented in table.

Table 4.17

Correlation between DPS and Net Worth

Banks	r	r2	P.E	Sig/Insig
NIC	0.3116	0.0971	0.2723	sig
NABIL	0.885	0.783	0.0654	Insig
BOK	0.111	0.0123	0.2979	Insig
Total/pooled ave.	0.6517	0.4247	0.1735	Sig

Source Appendix A(i)

The result presented in the above table shows the relationship between DPS and NW. From the analysis of above result, the relationship between DPS and NW has been found positive in all sample banks. It implies that NW affects the DPS. The highest positive relationship is observed for NABIL and the lowest in BOK. The value of r2 between DPS and NW of NIC, NABIL, BOK and Total pooled Average is 0.0971, 0.783, 0.0123 and 0.4247 respectively which means that 9.71%, 78.3%, 1.23% and 42.47% respectively. From the above analysis we find relationship between NW & DPS is found significant for NIC and Total Pooled Banks Average. And found insignificant relation for NABIL and BOK. Regression result of Dividend Per Share (DPS) and Net Worth (NW) Regression equation: Y = a +b.X

Table 4.18

Regression Line of DPS on NW

Banks	a	b	S.E.E	Sb	t
NIC	132.537	0.945	13.634	1.656	0.571
NABIL	268.93	1.341	20.179	0.408	3.287
BOK	225.56	-1.44	113.904	-7.56	0.191
Total/pooled.ave	221.872	0.4693	6.606	0.3145	1.492

(Source: Appendix-C(ii))

The result presented in the table above shows that coefficient of NW in all banks is positive except BOK. In case of BOK, the coefficient of NW is -1.44 which indicates that 1% increase in NW leads to Rs 1.44 decrease in DPS. The constant, "a" is 225.66 which mean that if NW is zero then DPS is Rs 225.66. In case of NABIL the coefficient of NW is 1.341 which indicate that 1% increase in NW leads to Rs 1.341 increase in DPS. The constant,"a" is 268.93 which mean that if NW is zero then DPS is Rs 268.93. Likewise coefficient of NW of NIC and Pooled Banks average are 0.945 and 0.4693 respectively. The constant ,"a" is 132.537 and 221.872 respectively means if that if NW is zero then DPS will be Rs 132.537 and Rs 221.872 respectively. The test of „t" value concluded that there is statistically insignificant for NIC and BOK and significant for NABIL and Pooled banks Average at 5% level of level of significance.

4.5 Test of hypothesis

The part of the study is concerned with test of the relationship between dependent and independent variable whether the independent variables have statistically significant relationship with dependent variable or not. The test is based on the pooled average for the five years of three commercial banks.

Hypothesis test-I

In this test, it has been tried to find whether the independent variable EPS (X_2) and DPS (X_3) have statistically significant relationship with dependent variable MPS (X_1) or not.

Null Hypothesis (H_0): $b_1 = b_2 = 0$ (the regression equation of X_1 on X_2 and X_3 is not significant. In other words there is no relationship between dependent variable X_1 and two independent variables X_2 and X_3)

Alternative Hypothesis (H_1): $b_1 b_2 \neq 0$ (i.e. at least one $b_1 \neq 0$, the regression equation of X_1 on X_2 and X_3 is significant. In other words there a relationship between dependent variable X_1 and two independent variables X_2 and X_3)

Test statistics: Under H_0, test statistics is,

$$\mathbf{t} = \frac{\text{Mean Sum of square between samples}}{\text{Mean Sum of square within samples}}$$

Table 4.19

One way ANOVA

Source of variation	Sum of square	d.f	Mean sum of square	F-ratio
Between samples	12757860.87	3-1= 2	6378930.435	$\frac{6378930.435}{308333.673} = 20.69$
Within samples	3700004.08	12	308333.673	
Total	16457864.95	15-1=14		

(Source- Appendix-(H))

Critical value: The tabulated value of F at 5% level of significance for (2, 12) d.f is 3.89.

Decision: Since calculated F is greater than tabulated value F, the Null hypothesis (H_0) is rejected and alternative hypothesis (H_1) accepted. Therefore we conclude that there is significant difference. In other words there a linear relationship between dependent variable X_1 (MPS) and two independent variables X_2 (EPS) and X_3 (DPS)

Hypothesis test-II

In this test, it has been tried to find whether the independent variable EPS (X_2) and DPR (X_3) have statistically significant relationship with dependent variable MPS (X_1) or not.

Null Hypothesis (H_0): $b_1 = b_2 = 0$ (the regression equation of X_1 on X_2 and X_3 is not significant. In other words there is no relationship between dependent variable X1 and two independent variables X_2 and X_3)

Alternative Hypothesis (H_1): $b_1 b_2 \neq 0$ (i.e. at least one $b_1 \neq 0$, the regression equation of X_1 on X_2 and X_3 is significant. In other words there a relationship between dependent variable X_1 and two independent variables X_2 and X_3)

Test statistics: Under H_0, test statistics is,

$$\mathbf{t} = \frac{\text{Mean Sum of square between samples}}{\text{Mean Sum of square within samples}}$$

Table 4.20

One way ANOVA

Source of variation	**Sum of square**	**d.f**	**Mean sum of square**	**F-ratio**
Between samples	12902131.28	3-1= 2	6451065.64	$\frac{6451065.64}{308344.421} = 20.922$
Within samples	3700133.06	12	308344.421	
Total	16602264.34	15-1=14		

(Source- Appendix-J)

Critical value: the tabulated value of F at 5% level of significance for (2, 12) d.f is 3.89.

Decision: Since calculated F is greater than tabulated value F, the Null hypothesis (H0) is rejected and alternative hypothesis (H1) accepted. Therefore we conclude that there is significant difference. In other words there a linear relationship between dependent variable X1 (MPS) and two independent variables X2 (DPR) and X3 (DPS).

4.6 Major Findings of Research work

The major finding of research work are summarize in numeric order:

- DPS of the sample banks in average shows that these are no regularity in dividend payment. NABIL has highest average DPS among sample banks.
- The average highest DPR is 32.78% of NABIL and lowest is 2.84% of NIC. The analysis of CV of DPR indicates that NABIL has least fluctuation in DPR and NIC has most fluctuation.
- The average DY of the banks under study indicates that average DY is quite low ranging between 0.67% to 2.61%. Among the sample banks NABIL has highest DY and NIC has lowest DY. Besides that DY being low, there is high fluctuation in the DY.
- The average EPS of the banks under study shows a positive result. But the C.V indicates there is no consistency of EPS. The C.V of EPS range in between 11.204%% to 22.27%. Among the sample banks under NABIL has the highest average EPS with low fluctuation.
- The study of impact of cash dividend on market price of share revealed that DPS has positive impact on MPS in NABIL and total pooled bank average. But negative impact has been found in BOK and NIC, which indicates the MPS of NIC and BOK, is influenced by any other from regression analysis it can be concluded that a change in DPS the share prices differently in different banks.

- With respect to impact of DPR on valuation of share. Negative impact has found except of NABIL. The coefficient of DPR in NABIL is -40.798 leads increase MPS but other sample banks have negative relation. DPR affects stock price differently.

- The multiple regression analysis of MPS on EPS and DPS, it has been found that there is positive relation between MPS and EPS, but negative between MPS and DPS.

- The multiple regression analysis of MPS on DPR and DPS, it has been found that there is negative relation between MPS and DPR, but positive between MPS and DPS.

- The DPS and EPS are positively corrected in all sample banks BOK which means higher the EPS , higher will be DPS. Regression analysis show that 1% increases in EPS leads to 0.2804, 1.424, (-0.4867), and (0.0767) increase in DPS of NIC, NABIL, BOK and average sample banks.

- A negative relationship is found between DPR and net profit. But we can say with confidence that it is statically insignificant as it is its coefficient is less than 6xP.E(r). It is found negatively correlated with DPR and Net Profit.

- A positive relationship is found between DPS and net worth in all sample banks. From analysis we can conclude that the relationship between NW and DPS of all sample banks are insignificant since the coefficient of correlation (r) is less than G.P.E(r). Regression DPS and NW are all sample banks except HBL. The test statistics of „t" statistics concluded that there is statistical in significant at 5%level of significance.

- From the hypothesis test, it has been found that the regression equation of dependent variable MRS on two independent variables EPS and DPS is significant like wire, two regression equation of dependent variable MPS on two independent variables DPR and DPS is also found significant.

CHAPTER – V

SUMMARY, CONCLUSION AND RECOMMENDATIONS

This chapter focuses on summarizing the study held with the conclusions and some recommendations on the basis of findings. Three major aspect of the study are discussed in this chapter. At the beginning summary and conclusion has been drawn up based on findings. The gaps found and the factors to cause those gaps are also presented. This chapter is very important in the sense that:

- It shows the result what was observed during research.
- It concludes the findings in an understandable form and
- It provides clues of suggestion to the concerned authorities as well as practitioners and academicians. The recommendation is presented in last part of this considering major findings and gaps found there to.

5.1 Summary

Dividends are payments made to shareholders from a firm's earnings in return to their investment. Thus, dividend policy is to determine the amount of earnings to be distributed to shareholders and the amount to be retained or reinvest in the firm. Dividend payment to shareholder is taken as best in such a condition because shareholder have investment opportunities elsewhere. In the changed context of encouraging secondary market, it is time to study influences of other factors on dividend and application of dividend on market price per shares. The study has tried to cover some such factors. However, it is not enough due to some limitations.

This paper attempts to analyze the dividend practices of commercial banks. The study is based on secondary data for a period of 2004/05 to 2008/09. To analyze the dividend payment practices of banks, different financial ratios have been calculated and interpreted. Taking in the mind for more extensive analysis, company wise analysis has also been made. In order to assess the impact of dividend on MPS, available information from different sectors were reviewed and analyzed. Simple and multiple regression analysis have been done to make the research more reliable. At last, testing of hypothesis has been done. It is found from the study that bank are paying dividend but there is no consistency in dividend distribution. The research shows that none of the banks have well defined and appropriate dividend policy. They don't seem to follow the optimum dividend policy of paying regular dividend as per the shareholders expectation. It might cause uncertainty among shareholders. A change in dividend per share and payout ratio affects the share prices differently in different banks. The relationship between DPS with EPS, net profit and net worth are positive in all banks.

In Nepal, only few listed companies have paying regular dividend to their shareholders. Further companies have not been following stable dividend policy. On the other hand, the dividend payout ratio of listed companies in Nepal has not been able to distribute fair dividends. The theoretical statement of this study is to study the dividend practices of sample bank therefore, it is concluded that more or less the dividend policy depends on the earning per share of a company: the earning per share and dividend per share having the positive relation may also impact on market price of share. For this argument, there were two multiple regression formed.

The first multiple regression was formed to assess the impact of EPS and DPS on market price of share. It concludes the fact that earning per share has positive impact on MPS where dividend per share has negative impact on MPS. The second multiple regression was formed to assess the impact of DPR and DPS on MPS. From

the analysis, it is found that the DPR and DPS have negative and positive impact on MPS of the observed banks in average respectively. From the regression analysis it can be concluded that a change in dividend per share affects the share prices differently in different banks. The market price of share is affected by the financial position and the dividend paid by the firms. In this regards the MPS of the sample banks is seem to be fluctuated. It denoted Nepalese investors are not treated fairly. The lack of financial knowledge and the market inefficiency has affected the market price of the share in all the sample banks. Paying dividend to shareholders is an effective way to lure new investors to invest in shares. Due to the division of earnings of company (between dividend payout and retention of earnings) its effect on the market prices of share is a crucial question. It is therefore, necessary that wise policy should be maintained to balance between shareholders interest with that of corporate growth from internally generated funds. Since, shareholders have investment opportunities to employ of investment opportunities could not be used due to lack of investment opportunities should be better paid as dividends. So in conclusion it can be said that the dividend policy should be optimal which balances the opposing forces and maximize stock price.

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 scrutinized as far as possible.

a. 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.

b. Dividend payout ratio does not show any stability and co-ordination with other variables. These banks don't have any strategic dividend policy.

c. There seems instability and consistency in dividend payment by the banks.

d. Every year EPS and MPS seem highly fluctuating. The CV of EPS has ranged from 14.21 to 28.33 percent. Similarly market prices per share are also fluctuating. These short of fluctuation cause no faith from public towards the companies.

e. 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.

f. 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.

5.2 Recommendations

Considering the major findings and issues found in course of this work, some recommendations are presented below.

a. 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.

b. 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.

c. 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.

d. 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.

e. The legal rules and regulation must be in favor of investors to exercise the dividend practice and to protect the shareholders rights.

f. 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.

g. 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.

h. 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.

i. 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 investors interest.

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Appendix-A

Simple correlation and regression Analysis between EPS and DPS

1) Bank of Kathmandu Ltd. (BOK)

Year	X(EPS)	Y(DPS)	XY	X2	Y2	(X- $\overline{X}$)2
2004/05	30.10	15	451.5	906.01	225	265.04
2005/06	43.67	18	786.06	1907.07	324	7.34
2006/07	43.50	20	870	1892.25	400	8.29
2007/08	59.94	2.11	126.47	3592.80	4.45	183.87
2008/09	54.68	7.37	402.99	2989.90	54.32	68.89
N=5	$\sum$ X=231.89	$\sum$ Y=62.48	$\sum$ XY=2637.02	$\sum$ x2=11288.03	$\sum$ Y2=1007.78	$\sum$ (X- $\overline{X}$)2=533.43

Mean,

$\overline{X}$ = 46.38, $\overline{Y}$ =12.49

i) Coefficient of correlation (r) = $$\frac{n\sum XY - \sum X.\sum Y}{\sqrt{n\sum X2 - (\sum X)2}.\sqrt{n\sum Y2 - (\sum Y)2}}$$

$$= \frac{5x2637.02 - 231.89x62.48}{\sqrt{5x11288.03} - (231.89)2\sqrt{5x1007.78} - (62.48)2}$$

= -0.749

Coefficient of Determination (r^2) = 0.5461

Standard Error of correlation coefficient, S.E. (r) = $\frac{1-r2}{\sqrt{n}}$

= 0.2029

Probable error of correlation coefficient, P.E. (r) = 0.6745 x $\frac{1-r2}{\sqrt{n}}$

= 0.137

ii) 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 $\sum XY = a\sum X + b\sum X2$

Solving two normal equations, we get

$$b = \frac{n\sum XY - \sum X.\sum Y}{n\sum X2 - (\sum X)2}$$

$$= \frac{5x2637.02 - 231.89x62.48}{5x11288.03 - (231.89)2}$$

= -0.4887

$a = \overline{Y} - b\overline{X}$

= 12.49-(- 0.4887) x 46.38

= 35.155

Standard Error of Estimate (S.E.E) = $\frac{\sqrt{\sum Y2 - a\sum Y - b\sum XY}}{n-2}$

$= \sqrt{\frac{1007.78 - 35.155x62.48 - (-0.4887x2637.02)}{5-2}}$

= 5.7737

Standard Error of Regression Coefficient (S_b) = $\frac{S.E.E.}{\sqrt{\sum (X - \overline{X})2}}$

$= \frac{5.7337}{\sqrt{533.43}}$

= 0.2483

t-value, $|t| = \frac{b}{Sb}$

= 1.9681

2) NIC Bank Ltd. (NIC)

Year	X (EPS)	Y(DPS)	XY	X2	Y2	(X-Y)2
2004/05	22.75	10	227.5	517.56	100	0.291
2005/06	16.10	0.53	8.53	259.21	0.29	51.70
2006/07	24.01	1.05	25.21	576.48	1.10	0.5184
2007/08	25.75	1.05	27.04	663.06	1.10	6.05
2008/09	27.83	0.79	21.99	774.51	0.62	20.61
N=5	$\sum$ X=116.44	$\sum$ Y=12.37	$\sum$ XY=310.27	$\sum$ X2=2790.82	$\sum$ Y2=164.49	$\sum(x-\overline{X})2$ =79.17

Mean,

$\overline{X}$ = 23.29, $\overline{Y}$ = 2.47

i) Coefficient of correlation (r) = $\frac{n\sum XY - \sum X.\sum Y}{\sqrt{n\sum X2 - (\sum X)2}.\sqrt{n\sum Y2 - (\sum Y)2}}$

$$= \frac{5x310.27 - 116.44x12.37}{\sqrt{5x2790.82 - (116.44)2}.\sqrt{5x164.49 - (12.37)2}}$$

= 0.216

Coefficient of Determination (r_2) = 0.0467

Standard Error of correlation coefficient, S.E. (r) = $\frac{1-r2}{\sqrt{n}}$

= 0.4263

Probable error of correlation coefficient, P.E. (r) = 0.6745 x $\frac{1-r2}{\sqrt{n}}$

= 0.2875

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,

$$\sum Y = n.a + b\sum X \text{ and } \sum XY = a\sum X + b\sum X2$$

Solving two normal equations, we get

$$b = \frac{n\sum XY - \sum X.\sum Y}{n\sum X2 - (\sum X)2}$$

$$= \frac{5x310.27 - 116.44x12.37}{5x2790.82 - (116.44)2}$$

= 0.6182

$$a = \overline{Y} - b\overline{X}$$

= 2.47- 0.2804 x23.29

=-4.061

Standard Error of Estimate (S.E.E) = $\frac{\sqrt{\sum Y2 - a\sum Y - b\sum XY}}{n-2}$

$$= \frac{\sqrt{164.49 - (-4.061x12.37) - 0.2804x310.27}}{5-2} -$$

= 6.525

Standard Error of Regression Coefficient (S_b) = $\frac{S.E.E.}{\sqrt{\sum(X-\overline{X})2}}$

= $\frac{6.525}{\sqrt{\sum 79.17}}$

= 0.7333

t-value, $|t|$ = $\frac{b}{Sb}$

= 0.3824

3) NABIL Bank Ltd. (NABIL)

Year	**X (EPS)**	**Y(DPS)**	**XY**	**X2**	**Y2**	**(X- $\overline{X}$)2**
2004/05	105.49	70	7384.3	11128.14	4900	141.134
2005/06	129.21	85	10982.85	16695.22	7225	140.186
2006/07	137.08	100	13708	18790.93	10000	388.484
2007/08	108.31	60	6498.6	11731.056	3600	82.084
2008/09	106.76	35	3736.6	11397.698	1225	112.572
N=5	$\sum$ X=586.85	$\sum Y = 350$	$\sum$ XY=42310.35	$\sum$ X2=69743.044	$\sum$ Y2=26050	$\sum(X-\overline{X})2$ =864.46

Mean,

$\overline{X}$ = 117.37 , $\overline{Y}$ = 70

i) Coefficient of correlation (r) = $\frac{n\sum XY - \sum X.\sum Y}{\sqrt{n\sum X2-(\sum X)2}.\sqrt{n\sum Y2-(\sum Y)2}}$

$$= \frac{5x42310.35 - 586.85x350}{\sqrt{5x69743.044 - (586.85)2}\sqrt{5x26950 - (350)2}}$$

$$= 0.846$$

Coefficient of Determination (r_2) = 0.7157

Standard Error of correlation coefficient, S.E. (r) = $\frac{1-r2}{\sqrt{n}}$

$$= 0.1271$$

Probable error of correlation coefficient, P.E. (r) = 0.6745 x $\frac{1-r2}{\sqrt{n}}$

$$= 0.08573$$

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,

$$\sum Y = n.a + b\sum X \text{ and } \sum XY = a\sum X + b\sum X2$$

Solving two normal equations, we get

$$b = \frac{n\sum XY - \sum X.\sum Y}{n\sum X2 - (\sum X)2}$$

$$= \frac{5x42310.35 - 586.85x350}{5x69743.044 - (586.85)2}$$

$$= 1.424$$

$$a = \overline{Y} - b\overline{X}$$

$$= 70\text{-}1.424x117.37$$

= -97.135

Standard Error of Estimate (S.E.E) = $\frac{\sqrt{\sum Y2 - a\sum Y - b\sum XY}}{n-2}$

$= \sqrt{\frac{26050 - (-97.135x350) - 1.424x42310.35}{5-2}}$

= 8.219

Standard Error of Regression Coefficient (S_b) = $\frac{S.E.E.}{\sqrt{\sum (X - \overline{X})2}}$

$= \frac{8.219}{\sqrt{864.46}}$

= 0.279

t-value, $|t| = \frac{b}{Sb}$

= 5.103

4) Pooled Bank Average

Year	**X (EPS)**	**Y(DPS)**	**XY**	**X2**	**Y2**	**(X- $\overline{X}$)2**
2004/05	52.78	31.67	1671.54	2785.73	1002.99	91.547
2005/06	63	34.51	2174.13	3639	1190.94	0.425
2006/07	68.2	40.35	2751.87	4651.24	1628.12	34.25
2007/08	64.67	21.053	1361.50	4182.21	443.23	5.39
2008/09	63.09	14.39	907.87	3980.35	207.07	0.55
N=5	$\sum$ X=311.74	$\sum Y2 =$ 141.973	$\sum$ XY=8866.91	$\sum$ X2=19238.53	$\sum$ Y2=4472.35	$\sum (X - \overline{X})2$ =132.162

Mean,

$\overline{X}$ = 62.348, $\overline{Y}$ = 28.395

i) Coefficient of correlation (r) = $\frac{n\sum XY - \sum X.\sum Y}{\sqrt{n\sum X2 - (\sum X)2}.\sqrt{n\sum Y2 - (\sum Y)2}}$

$$= \frac{5x8866.91 - 311.74x141.973}{\sqrt{5x19238.53 - (311.74)2}\sqrt{5x4472.35 - (141.97)2}}$$

$$= 0.0513$$

Coefficient of Determination (r_2) = 0.00263

Standard Error of correlation coefficient, S.E. (r) = $\frac{1-r2}{\sqrt{n}}$

$$= 0.446$$

Probable error of correlation coefficient, P.E. (r) = 0.6745 x $\frac{1-r2}{\sqrt{n}}$

$$= 0.3008$$

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,

$$\sum Y = n.a + b\sum X \text{ and } \sum XY = a\sum X + b\sum X2$$

Solving two normal equations, we get

$$b = \frac{n\sum XY - \sum X.\sum Y}{n\sum X2 - (\sum X)2}$$

$$= \frac{5x8866.91 - 311.74x141.973}{5x19238.53 - (311.74)2}$$

$$= -0.0767$$

$$a = \overline{Y} - b\overline{X}$$

$$= 28.395-(-0.0767x62.348$$

$$= 33.177$$

Standard Error of Estimate (S.E.E) = $\frac{\sqrt{\sum Y2 - a\sum Y - b\sum XY}}{n-2}$

$$= \sqrt{\frac{4472.35 - 33.177x141.973 - (-0.0767x8866.9)}{5-2}}$$

$$=12.141$$

Standard Error of Regression Coefficient (S_b) = $\frac{S.E.E.}{\sqrt{\sum (X - \overline{X})2}}$

$$= \frac{12.141}{\sqrt{132.162}}$$

$$= 1.0561$$

t-value, $|t|$ = $\frac{b}{Sb}$

$$= 0.073$$

Appendix-B

Simple correlation and Regression analysis between DPR and MPS

1) NIC Bank Ltd. (NIC)

Year	X (DPR)	Y(MPS)	XY	X2	Y2	(X- $\overline{X}$)2
2004/05	43.96	366	16089.36	1932.48	133956	1040.192
2005/06	3.29	496	1631.84	10.82	246016	70.863

2006/07	4.37	950	4151.5	19.10	902500	53.846
2007/08	4.08	1284	5238.72	16.65	1648656	58.186
2008/09	2.84	1126	3197.84	8.07	1267876	78.641
N=5	$\sum$ X=58.54	$\sum Y$ =4222	$\sum$ XY=30309.26	$\sum$ X2=1987.12	$\sum$ Y2=4199004	$\sum(X-\overline{X})2$ =1301.728

Mean,

$\overline{X}$ = 11.708, $\overline{Y}$ = 844.4

i) Coefficient of correlation (r) = $\frac{n\sum XY - \sum X.\sum Y}{\sqrt{n\sum X2 - (\sum X)2}.\sqrt{n\sum Y2 - (\sum Y)2}}$

$$= \frac{5x30309.26 - 58.54x4222}{\sqrt{5x1987.12 - (58.54)2}\sqrt{5x4199004 - (4222)2}}$$

= -0.666

Coefficient of Determination (r_2) = 0.444

Standard Error of correlation coefficient, S.E. (r) = $\frac{1-r2}{\sqrt{n}}$

= 0.249

Probable error of correlation coefficient, P.E. (r) = 0.6745 x $\frac{1-r2}{\sqrt{n}}$

= 0.168

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,

$$\sum Y = n.a + b\sum X \text{ and } \sum XY = a\sum X + b\sum X2$$

Solving two normal equations, we get

$$b = \frac{n\sum XY - \sum X.\sum Y}{n\sum X2 - (\sum X)2}$$

= -14.69

$$a = \overline{Y} - b\overline{X}$$

= 844.4-(-14.69x11.708)

= 1016.39

Standard Error of Estimate (S.E.E) = $\frac{\sqrt{\sum Y2 - a\sum Y - b\sum XY}}{n-2}$

$$= \sqrt{\frac{4199004 - 1016.39x4222 - (-14.69)x30309.26}{5-2}}$$

= 343.049

Standard Error of Regression Coefficient (S_b) = $\frac{S.E.E.}{\sqrt{\sum (X - \overline{X})2}}$

$$= \frac{343.049}{\sqrt{1301.728}}$$

= 9.508

t-value, $|t| = \frac{b}{Sb}$

= 1.545

2) NABIL Bank Ltd. (NABIL)

Year	X (DPR)	Y(MPS)	XY	X2	Y2	(X- $\overline{X}$)2
2004/05	66.36	1505	99871.8	4403.65	2265025	60.715
2005/06	65.36	2240	147347.2	4327.01	5017600	46.131
2006/07	72.95	5050	368397.5	5321.7	25502500	206.842
2007/08	55.39	5275	292182.25	3068.05	27825625	10.099
2008/09	32.78	4899	160589.22	1074.53	24000201	665.0209
N=5	$\sum$ X=292.84	$\sum Y$ = 18969	$\sum$ XY=1068388	$\sum$ X2=18194.94	$\sum$ Y2=84610951	$\sum (X - \overline{X})2$ =988.808

Mean,

$\overline{X}$ = 58.568, $\overline{Y}$ = 3794

i) Coefficient of correlation (r) = $$\frac{n\sum XY - \sum X.\sum Y}{\sqrt{n\sum X2 - (\sum X)2}.\sqrt{n\sum Y2 - (\sum Y)2}}$$

=

$$\frac{5x1068388 - 292.84x18969}{\sqrt{5x18194.94 - (292.84)2}\sqrt{5x84610951 - (18969)2}}$$

= -0.371

Coefficient of Determination (r^2) = 0.1376

Standard Error of correlation coefficient, S.E. (r) = $\frac{1-r2}{\sqrt{n}}$

= 0.3867

Probable error of correlation coefficient, P.E. (r) = 0.6745 x $\frac{1-r2}{\sqrt{n}}$

= 0.26083

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,

$$\sum Y = n.a + b\sum X \text{ and } \sum XY = a\sum X + b\sum X2$$

Solving two normal equations, we get

$$b = \frac{n\sum XY - \sum X.\sum Y}{n\sum X2 - (\sum X)2}$$

$$= \frac{5x1068388 - 292.84x18969}{5x18194.94 - (292.84)2}$$

= -40.798

$$a = \overline{Y} - b\overline{X}$$

= 3794-(-40.798x58.568)

= 6183.46

$$\text{Standard Error of Estimate (S.E.E)} = \frac{\sqrt{\sum Y2 - a\sum Y - b\sum XY}}{n-2}$$

$$= \sqrt{\frac{84610951 - 6183.46x18969 - (-40.798x1068388)}{5-2}}$$

= 1906.57

$$\text{Standard Error of Regression Coefficient } (S_b) = \frac{S.E.E.}{\sqrt{\sum (X - \overline{X})2}}$$

$$= \frac{1906.57}{\sqrt{988.808}}$$

= 60.6313

t-value, $|t| = \frac{b}{Sb}$

= 0.673

3) Bank of Kathmandu Ltd. (BOK)

Year	X (DPR)	Y(MPS)	XY	X2	Y2	(X- $\overline{X}$)2
2004/05	49.83	430	21426.9	2483.03	184900	361.76
2005/06	41.22	850	35037	1699.09	722500	108.45
2006/07	45.98	1375	63222.5	2114.16	1890625	230.25
2007/08	3.52	2350	8272	12.39	5522500	744.526
2008/09	13.48	1825	24601	181.71	3330625	300.190
N=5	$\sum$ X=154.03	$\sum Y$ =6830	$\sum$ XY=152559.4	$\sum$ X2=7812.43	$\sum$ Y2=11651150	$\sum(X-\overline{X})2$ =1745.176

Mean,

$\overline{X}$ = 30.806, $\overline{Y}$ = 1366

i) Coefficient of correlation (r) = $\frac{n\sum XY - \sum X.\sum Y}{\sqrt{n\sum X2 - (\sum X)2}.\sqrt{n\sum Y2 - (\sum Y)2}}$

= $\frac{5x152559.4 - 154.03x6830}{\sqrt{5x7812.43 - (154.03)2}\sqrt{5x11651150 - (6830)2}}$

= -0.686

Coefficient of Determination (r_2) = 0.4706

Standard Error of correlation coefficient, S.E. (r) = $\frac{1-r2}{\sqrt{n}}$

= 0.2368

Probable error of correlation coefficient, P.E. (r) = 0.6745 x $\frac{1-r2}{\sqrt{n}}$

= 0.1597

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,

$$\sum Y = n.a + b\sum X \text{ and } \sum XY = a\sum X + b\sum X2$$

Solving two normal equations, we get

$$b = \frac{n\sum XY - \sum X.\sum Y}{n\sum X2 - (\sum X)2}$$

$$= \frac{5x152559.4 - 154.03x6830}{5x7812.43 - (154.03)2}$$

= -18.858

$$a = \overline{Y} - b\overline{X}$$

= 1366-(-18.858) x 30.806

= 1946.95

Standard Error of Estimate (S.E.E) = $\frac{\sqrt{\sum Y2 - a\sum Y - b\sum XY}}{n-2}$

$$= \sqrt{\frac{11651150 - 1946.95x6830 - (-18.858)x152559.4}{5-2}}$$

= 640.43

Standard Error of Regression Coefficient (S_b) = $\frac{S.E.E.}{\sqrt{\sum (X - \overline{X})2}}$

$$= \frac{640.43}{\sqrt{1745.1776}}$$

$$= 15.3305$$

t-value, $|t| = \frac{b}{Sb}$ = 1.2301

4) Pooled Bank Average

Year	X (DPR)	Y(MPS)	XY	X2	Y2	(X-Y)2
2004/05	53.38	767	40942.46	2849.42	588289	386.52
2005/06	36.76	1195.33	43940.33	1351.30	1428813.81	9.24
2006/07	41.1	2458.33	101037.36	1689.21	6043386.4	54.46
2007/08	20.99	2970	98930.70	1109.56	8820900	162.05
2008/09	16..37	2617	42840.29	1220.105	6848689	301.02
N=5	$\sum X$ =168.6	$\sum Y$ =10008	$\sum XY$ =291100.74	$\sum$ X2=8219.6	$\sum$ Y2=23730078	$\sum (X - \overline{X})2$ =913.292

Mean,

$\overline{X}$ = 33.72, $\overline{Y}$ = 2001.6

i) Coefficient of correlation (r) = $\frac{n\sum XY - \sum X.\sum Y}{\sqrt{n\sum X2 - (\sum X)2}.\sqrt{n\sum Y2 - (\sum Y)2}}$

$$= \frac{5x291100.74 - 168.6x10008}{\sqrt{5x8219.6 - (168.6)2}.\sqrt{5x23730078 - (10008)2}}$$

= -0.479

Coefficient of Determination (r_2) = 0.229

Standard Error of correlation coefficient, S.E. (r) = $\frac{1-r2}{\sqrt{n}}$

= 0.345

Probable error of correlation coefficient, P.E. (r) = 0.6745 x $\frac{1-r2}{\sqrt{n}}$

= 0.2327

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,

$$\sum Y = n.a + b\sum X \text{ and } \sum XY = a\sum X + b\sum X2$$

Solving two normal equations, we get

$$b = \frac{n\sum XY - \sum X.\sum Y}{n\sum X2 - (\sum X)2}$$

$$= \frac{5x291100.74 - 168.6x10008}{5x8219.6 - (168.6)2}$$

= -18.296

a = $\overline{Y} - b\overline{X}$

= 2001.6-(-18.296)x33.72

= 2618.541

Standard Error of Estimate (S.E.E) = $\frac{\sqrt{\sum Y2 - a\sum Y - b\sum XY}}{n-2}$

$$= \sqrt{\frac{23730078 - 2618.541x10008 - (-18.296x291100.74)}{5-2}}$$

= 974.63

Standard Error of Regression Coefficient (S_b) = $\frac{S.E.E.}{\sqrt{\sum (X - \overline{X})2}}$

$$= \frac{974.63}{\sqrt{913.292}}$$

= 32.25

t-value, $|t| = \frac{b}{Sb}$

= 0.567

Appendix-C

Simple correlation and Regression analysis between DPS and Net Worth

1) NIC Bank Ltd (NIC)

Year	X (DPS)	Y(NW)	XY	X2	Y2	(X- $\overline{X}$)2
2004/05	10	136.84	1368.4	100	18725.19	55.8009

2005/06	.53	116.13	61.55	0.28	13486.18	4
2006/07	1.05	139.17	146.13	1.10	19368.29	2.1904
2007/08	1.05	138.09	145	1.10	19068.85	2.1904
2008/09	0.79	145.58	155.01	0.62	21193.54	3.587
N=5	$\sum$ X=13.42	$\sum Y$ =675.37	$\sum$ XY=1876.08	$\sum$ X2=103.1	$\sum$ Y2=91842.05	$\sum(X-\overline{X})2$ =67.7678

Mean,

$\overline{X}$ = 2.684, $\overline{Y}$ = 135.074

i) Coefficient of correlation (r) = $\frac{n\sum XY-\sum X.\sum Y}{\sqrt{n\sum X2-(\sum X)2}.\sqrt{n\sum Y2-(\sum Y)2}}$

$$= \frac{5X1876.08-13.42X675.37}{\sqrt{5X103.1-(13.42)2}\sqrt{5X91842.05}-(675.37)2}$$

= 0.3116

Coefficient of Determination (r^2) = 0.0971

Standard Error of correlation coefficient, S.E. (r) = $\frac{1-r2}{\sqrt{n}}$

= 0.4038

Probable error of correlation coefficient, P.E. (r) = 0.6745 x $\frac{1-r2}{\sqrt{n}}$

= 0.2723

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,

$$\sum Y = n.a + b\sum X \text{ and } \sum XY = a\sum X + b\sum X2$$

Solving two normal equations, we get

$$b = \frac{n\sum XY - \sum X.\sum Y}{n\sum X2 - (\sum X)2}$$

$$= \frac{5X1876.08 - 13.42X654.37}{5X103.1 - (13.42)2}$$

$$= 0.945$$

$$a = \overline{Y} - b\overline{X}$$

$$= 135.0743\text{-}0.945x2.684$$

$$= 132.537$$

$$\text{Standard Error of Estimate (S.E.E)} = \sqrt{\frac{\sum Y2 - a.\sum Y - b.\sum XY}{n-2}}$$

$$= \sqrt{\frac{91842.05 - 132.537X675.37 - 0.945x1876.08}{5-2}}$$

$$=13.634$$

$$\text{Standard Error of Regression Coefficient } (S_b) = \frac{S.E.E.}{\sqrt{\sum (X - \overline{X})2}}$$

$$= \frac{13.634}{\sqrt{67.7678}}$$

$$= 1.656$$

t-value, $|t| = \frac{b}{Sb}$

= 0.571

2) NABIL Bank Ltd (NABIL)

Year	X (DPS)	Y(NW)	XY	X2	Y2	(X- $\overline{X}$)2
2003/04	70	337	23590	4900	113569	0
2004/05	85	381	32385	7225	145161	225
2005/06	100	418	41800	10000	174724	900
2006/07	60	354	21240	3600	125316	100
2007/08	35	324	11340	1225	104976	1225
N=5	$\sum$ X=350	$\sum Y = 1814$	$\sum$ XY=130265	$\sum$ X2=26950	$\sum$ Y2=663746	$\sum (X - \overline{X})2$ =2450

Mean,

$\overline{X}$ = 70, $\overline{Y}$ = 362.8

ii) Coefficient of correlation (r) = $\frac{n\sum XY - \sum X.\sum Y}{\sqrt{n\sum X2 - (\sum X)2}.\sqrt{n\sum Y2 - (\sum Y)2}}$

= $\frac{5x130265 - 350x1814}{\sqrt{5x26950 - (350)2}\sqrt{5x663746 - (1814)2}}$

= 0.885

Coefficient of Determination (r_2) = 0.783

Standard Error of correlation coefficient, S.E. (r) = $\frac{1 - r2}{\sqrt{n}}$

=0.0969

Probable error of correlation coefficient, P.E. (r) = 0.6745 x $\frac{1-r2}{\sqrt{n}}$

= 0.06539

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,

$$\sum Y = n.a + b\sum X \text{ and } \sum XY = a\sum X + b\sum X2$$

Solving two normal equations, we get

$$b = \frac{n\sum XY - \sum X.\sum Y}{n\sum X2 - (\sum X)2}$$

$$= \frac{5x130265 - 350x1814}{5x26950 - (350)2}$$

= 1.341

$a = \overline{Y} - b\overline{X}$

= 362.8-1.341x70

= 268.93

Standard Error of Estimate (S.E.E) = $\frac{\sqrt{\sum Y2 - a\sum Y - b\sum XY}}{n-2}$

$$= \sqrt{\frac{663746 - 268.93X1814 - 1.341X130265}{5-2}}$$

= 20.179

Standard Error of Regression Coefficient (S_b) = $\frac{S.E.E.}{\sqrt{\sum(X-\overline{X})2}}$

$= \frac{20.179}{\sqrt{49.497}}$

= 0.408

t-value, $|t|$ = $\frac{b}{Sb}$

= 3.287

3) Bank of Kathmandu Ltd. (BOK)

Year	**X (DPS)**	**Y(NW)**	**XY**	**X2**	**Y2**	**(X-$\overline{X}$)2**
2004/05	15	213.6	3204	225	4562.5	6.25
2005/06	18	230.7	4152	324	53208.6	30.25
2006/07	20	164.7	3294	400	27119.5	56.25
2007/08	2.11	222.5	470	4.4	49511	107.952
2008/09	7.37	206.3	1520.431	54.32	42559.69	26.32
N=5	$\sum$ X=62.48	$\sum Y = 1037.8$	$\sum$ XY=12640.43	$\sum$ X2=1007.72	$\sum$ Y2=176961.29	$\sum(X-\overline{X})2$ =227.02

Mean,

$\overline{X}$ = 12.50 $\overline{Y}$ = 207.56

ii) Coefficient of correlation (r) = $\frac{n\sum XY - \sum X.\sum Y}{\sqrt{n\sum X2 - (\sum X)2}.\sqrt{n\sum Y2 - (\sum Y)2}}$

$$= \frac{5x12640.431 - 62.48x1037.8}{\sqrt{5x1007.72 - (62.48)2}\sqrt{5x176961.29 - (1037.8)2}}$$

= 0.111

Coefficient of Determination (r^2) = 0.0123

Standard Error of correlation coefficient, S.E. (r) = $\frac{1-r2}{\sqrt{n}}$

=0.44171

Probable error of correlation coefficient, P.E. (r) = 0.6745 x $\frac{1-r2}{\sqrt{n}}$

= .2979

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 $\sum XY = a\sum X + b\sum X2$

Solving two normal equations, we get

b = $\frac{n\sum XY - \sum X.\sum Y}{n\sum X2 - (\sum X)2}$

$$= \frac{5x12640.431 - 62.48x1037.8}{5x1007.72 - (62.48)2}$$

= -1.44

a = $\overline{Y} - b\overline{X}$

= 207.56- (-1.44) x 12.50

= 225.56

Standard Error of Estimate (S.E.E) = $\frac{\sqrt{\sum Y2 - a\sum Y - b\sum XY}}{n-2}$

$$= \sqrt{\frac{176961.29 - 225.56X1037.8 - (-1.44)X12640.43}{5-2}}$$

= -113.904

Standard Error of Regression Coefficient (S_b) = $\frac{S.E.E.}{\sqrt{\sum (X - \overline{X})2}}$

$$= \frac{-113.904}{\sqrt{227.02}}$$

= 7.56

t-value, $|t|$ = $\frac{b}{Sb}$

= 0.1905

4) Pooled Bank Average

Year	**X (DPS)**	**Y(NW)**	**XY**	**X2**	**Y2**	**(X- $\overline{X}$)2**
2004/05	31.67	229.1	7256	1003	52487	10.693
2005/06	34.51	242.6	8372	1191	58855	37.332
2006/07	4035	241	9724	1628	58081	142.802

2007/08	21.053	238	8185	1183	56644	53.978
2008/09	14.39	225.29	3241.93	207.07	50756	196.28
N=5	$\sum$ X=142	$\sum Y = 1176$	$\sum$ XY=33604.54	$\sum$ X2=4472.07	$\sum$ Y=276823	$\sum (X - \overline{X})2$ =441.085

Mean,

$\overline{X}$ = 28.4 $\overline{Y}$ = 235.2

ii) Coefficient of correlation (r) = $\frac{n\sum XY - \sum X.\sum Y}{\sqrt{n\sum X2 - (\sum X)2}.\sqrt{n\sum Y2 - (\sum Y)2}}$

= $\frac{5x33604.54 - 142x1176}{\sqrt{5x4472.07 - (142)2}\sqrt{5x276823 - (1176)2}}$

= 0.6517

Coefficient of Determination (r^2) = 0.4247

Standard Error of correlation coefficient, S.E. (r) = $\frac{1-r2}{\sqrt{n}}$

= 0.2573

Probable error of correlation coefficient, P.E. (r) = 0.6745 x $\frac{1-r2}{\sqrt{n}}$

= 0.1735

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,

$$\sum Y = n.a + b\sum X \text{ and } \sum XY = a\sum X + b\sum X2$$

Solving two normal equations, we get

$$b = \frac{n\sum XY - \sum X.\sum Y}{n\sum X2 - (\sum X)2}$$

$$= \frac{5x33604.54 - 142x1176}{5x4472.07 - (142)2}$$

$$= 0.4693$$

$$a = \overline{Y} - b\overline{X}$$

$$= 235.2 - 0.4693 \text{ x } 28.4$$

$$= 221.872$$

$$\text{Standard Error of Estimate (S.E.E)} = \frac{\sqrt{\sum Y2 - a\sum Y - b\sum XY}}{n-2}$$

$$= \sqrt{\frac{276823 - 221.872X1176 - 0.4693X33604.54}{5-2}}$$

$$= 6.606$$

$$\text{Standard Error of Regression Coefficient } (S_b) = \frac{S.E.E.}{\sqrt{\sum (X - \overline{X})2}}$$

$$= \frac{6.606}{\sqrt{441.085}}$$

$$= 0.3145$$

$$\text{t-value, } |t| = \frac{b}{Sb}$$

$$= 1.492$$

Appendix-D

Simple correlation and Regression analysis between DPS and MPS

1) NIC Bank Ltd (NIC)

Year	X (DPS)	Y(MPS)	XY	X2	Y2	(X- $\overline{X}$)2
2004/05	10	366	3660	100	133956	53.52
2005/06	0.53	496	262.88	0.2809	246016	4.64
2006/07	1.05	950	997.5	1.1025	902500	2.67
2007/08	1.05	1284	1348.2	1.1025	1648656	2.67
2008/09	0.79	1126	889.54	0.6241	1267876	3.587
N=5	$\sum$ X=13.42	$\sum Y$ =4222	$\sum$ XY=7158.12	$\sum$ X2=103.11	$\sum$ Y2=4199004	$\sum (X - \overline{X})2$ =67.087

Mean,

$\overline{X}$ = 2.684 $\overline{Y}$ = 844.4

ii) Coefficient of correlation (r) = $\frac{n\sum XY - \sum X.\sum Y}{\sqrt{n\sum X2 - (\sum X)2}.\sqrt{n\sum Y2 - (\sum Y)2}}$

= $\frac{5x7158.12 - 13.42x4222}{\sqrt{5x103.11 - (13.42)2}\sqrt{5x4199004 - (4222)2}}$

= -0.64

Coefficient of Determination (r_2) = 0.4096

Standard Error of correlation coefficient, S.E. (r) = $\frac{1-r2}{\sqrt{n}}$

= 0.264

Probable error of correlation coefficient, P.E. (r) = 0.6745 x $\frac{1-r2}{\sqrt{n}}$

= 0.178

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,

$$\sum Y = n.a + b\sum X \text{ and } \sum XY = a\sum X + b\sum X2$$

Solving two normal equations, we get

$$b = \frac{n\sum XY - \sum X.\sum Y}{n\sum X2 - (\sum X)2}$$

$$= \frac{5x7158.12 - 13.42x4222}{5x103.11 - (13.42)2}$$

= 62.210

$a = \overline{Y} - b\overline{X}$

= 844.4-(-62.210) x 2.684

=1011.3716

Standard Error of Estimate (S.E.E) = $\frac{\sqrt{\sum Y2 - a\sum Y - b\sum XY}}{n-2}$

$$= \sqrt{\frac{4199004 - 1011.3716X4222 - (-62.210)X7158.12}{5-2}}$$

= 353.223

Standard Error of Regression Coefficient (S_b) = $\frac{S.E.E.}{\sqrt{\sum(X-\overline{X})2}}$

= $\frac{353.223}{\sqrt{67.087}}$

= 43.123

t-value, $|t|$ = $\frac{b}{Sb}$

= 1.4

2) NABIL Bank Ltd (NABIL)

Year	**X (DPS)**	**Y(MPS)**	**XY**	**X2**	**Y2**	**(X- $\overline{X}$)2**
2004/05	70	1505	105350	4900	2265025	0
2005/06	85	2240	190400	7225	5017600	225
2006/07	100	5050	505000	10000	25502500	900
2007/08	60	5257	315420	3600	27636049	100
2008/09	35	4899	171465	1225	24000201	1225
N=5	$\sum$ X=350	$\sum Y$ =18951	$\sum$ XY=1287635	$\sum$ X2=26950	$\sum$ Y2=84421375	$\sum(X-\overline{X})2$ =2450

Mean,

$\overline{X}$ = 70 $\overline{Y}$ = 3790.2

ii) Coefficient of correlation (r) = $\frac{n\sum XY - \sum X.\sum Y}{\sqrt{n\sum X2 - (\sum X)2}.\sqrt{n\sum Y2 - (\sum Y)2}}$

$$= \frac{5x1287635 - 350x18951}{\sqrt{5x26950 - (350)2}\sqrt{5x84421375 - (18951)2}}$$

= -0.222

Coefficient of Determination (r^2) = 0.0493

Standard Error of correlation coefficient, S.E. (r) = $\frac{1-r2}{\sqrt{n}}$

= 0.425

Probable error of correlation coefficient, P.E. (r) = 0.6745 x $\frac{1-r2}{\sqrt{n}}$

= 0.287

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 $\sum XY = a\sum X + b\sum X2$

Solving two normal equations, we get

b = $\frac{n\sum XY - \sum X.\sum Y}{n\sum X2 - (\sum X)2}$

$= \frac{5x1287635 - 350x18951}{5x26950 - (350)2}$

= -15.891

a = $\overline{Y} - b\overline{X}$

= 3790.2-15.891 x 70

= 4902.57

Standard Error of Estimate (S.E.E) = $\frac{\sqrt{\sum Y2 - a\sum Y - b\sum XY}}{n-2}$

= $\sqrt{\frac{84421375 - (-4902.57)X18951 - (-15.891X1287635)}{5-2}}$

= 1997.88

Standard Error of Regression Coefficient (S_b) = $\frac{S.E.E.}{\sqrt{\sum (X - \overline{X})2}}$

= $\frac{1997.88}{\sqrt{2450}}$

= 40.364

t-value, $|t|$ = $\frac{b}{Sb}$

= 0.394

3) Bank of Kathmandu Ltd (BOK)

Year	X (DPS)	Y(MPS)	XY	X2	Y2	(X- $\overline{X}$)2
2004/05	15	430	6450	225	184900	6.270
2005/06	18	850	15300	324	722500	30.294
2006/07	20	1375	27500	400	1890625	56.31
2007/08	2.11	2350	4958.5	4.4521	5522500	107.87
2008/09	7.37	1825	13450.25	54.32	3330625	26.276

N=5	$\sum$ X=62.48	$\sum Y = 6830$	$\sum$ XY=67658.75	$\sum$ X2=1007.77	$\sum$ Y2=1161150	$\sum (X - \overline{X})2$ =227.02

Mean,

$\overline{X}$ = 12.496 $\overline{Y}$ = 1366

ii) Coefficient of correlation (r) = $\frac{n\sum XY - \sum X.\sum Y}{\sqrt{n\sum X2 - (\sum X)2}.\sqrt{n\sum Y2 - (\sum Y)2}}$

$$= \frac{5x67658.75 - 62.48x6830}{\sqrt{5x1007.77 - (62.48)2}\sqrt{5x11651150 - (6830)2}}$$

= -0.771

Coefficient of Determination (r^2) = 0.594

Standard Error of correlation coefficient, S.E. (r) = $\frac{1-r2}{\sqrt{n}}$

= 0.182

Probable error of correlation coefficient, P.E. (r) = 0.6745 x $\frac{1-r2}{\sqrt{n}}$

= 0.123

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 $\sum XY = a\sum X + b\sum X2$

Solving two normal equations, we get

$$b = \frac{n\sum XY - \sum X.\sum Y}{n\sum X2 - (\sum X)2}$$

$$= \frac{5x67658.75 - 62.48x6830}{5x1007.77 - (62.48)2}$$

= -77.918

$$a = \overline{Y} - b\overline{X}$$

= 1366-(-77.918) x 12.496

= 2339.66

Standard Error of Estimate (S.E.E) = $\frac{\sqrt{\sum Y2 - a\sum Y - b\sum XY}}{n-2}$

$$= \sqrt{\frac{11651150 - 2339.66X6830 - (-77.918)X67658.7}{5-2}}$$

= 560.69

Standard Error of Regression Coefficient (S_b) = $\frac{S.E.E.}{\sqrt{\sum (X - \overline{X})2}}$

$$= \frac{560.69}{\sqrt{227.02}}$$

= 37.213

t-value, $|t|$ = $\frac{b}{Sb}$

= -2.094

4) Pooled Bank Average

Year	X (DPS)	Y(MPS)	XY	X2	Y2	(X- $\overline{X}$)2
2004/05	31.67	767	24290.89	1003	588289	12166.09
2005/06	34.51	1195.33	4125.84	1190.94	1428814	11547.651
2006/07	40.35	2458.38	99195.633	1628.12	6043386	142.95
2007/08	21.05	2970	62518.5	443.103	8820900	14621.65
2008/09	14.39	2617	37658.63	207.07	6848689	196.112
N=5	$\sum$ X=141.97	$\sum Y$ =10007.71	$\sum$ XY=264914.49	$\sum$ X2=4472.23	$\sum$ Y2=23730078	$\sum(X-\overline{X})2$ =38674.453

Mean,

$\overline{X}$ = 28.394 $\overline{Y}$ = 2001.542

ii) Coefficient of correlation (r) = $\frac{n\sum XY-\sum X.\sum Y}{\sqrt{n\sum X2-(\sum X)2}.\sqrt{n\sum Y2-(\sum Y)2}}$

= $\frac{5x264914.49-141.97x10007.77}{\sqrt{5x4472.23-(141.97)2}\sqrt{5x23730078-(10007.71)2}}$

= -0.476

Coefficient of Determination (r^2) = 0.227

Standard Error of correlation coefficient, S.E. (r) = $\frac{1-r2}{\sqrt{n}}$

= 0.3457

Probable error of correlation coefficient, P.E. (r) = 0.6745 x $\frac{1-r2}{\sqrt{n}}$

= 0.2332

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,

$$\sum Y = n.a + b\sum X \text{ and } \sum XY = a\sum X + b\sum X2$$

Solving two normal equations, we get

$$b = \frac{n\sum XY - \sum X.\sum Y}{n\sum X2 - (\sum X)2}$$

$$= \frac{5x264914.49 - 141.97x10007.71}{5x4472.23 - (141.97)2}$$

=-43.625

$a = \overline{Y} - b\overline{X}$

= 2001.542-(-43.625 x 28.394)

=3240.230

Standard Error of Estimate (S.E.E) = $\frac{\sqrt{\sum Y2 - a\sum Y - b\sum XY}}{n-2}$

$$= \sqrt{\frac{23730078 - 3240.230X10007.71 - (-43.625X\ 264914.49)}{5-2}}$$

= 976.335

Standard Error of Regression Coefficient (S_b) = $\frac{S.E.E.}{\sqrt{\sum (X - \overline{X})2}}$

$$= \frac{976.335}{\sqrt{38674.453}}$$

= 4.965

t-value, $|t| = \frac{b}{Sb}$

= 8.786

Appendix-E

Simple correlation and Regression analysis between DPR and Net Profit

1) NIC Bank Ltd. (NIC)

Year	**X (DPR)**	**Y(Net profit)**	**XY**	**X2**	**Y2**	**(X-$\overline{X}$)2**
2004/05	43.96	38.9	1710	1932.48	1513.2	1040.19
2005/06	3.29	30.7	101	10.82	942.5	70.863
2006/07	4.37	38.6	168.7	19.10	1490	53.846
2007/08	4.08	44.49	48.05	16.65	1979.4	58.186
2008/09	2.84	44.09	125.22	8.066	1943.93	78.641
N=5	$\sum$ X=58.54	$\sum Y = 196.78$	$\sum$ XY=2153.22	$\sum$ X2=1987.12	$\sum$ Y2=7869.43	$\sum(X - \overline{X})2$ =1301.726

Mean,

$\overline{X}$ = 11.708 $\overline{Y}$ = 39.36

ii) Coefficient of correlation (r) = $\frac{n\sum XY - \sum X.\sum Y}{\sqrt{n\sum X2 - (\sum X)2}.\sqrt{n\sum Y2 - (\sum Y)2}}$

$= \frac{5x2153.22 - 58.54x196.78}{\sqrt{5x1987.12 - (58.54.7)2}\sqrt{5x7869.43 - (196.78)2}}$

= -0.374

Coefficient of Determination (r^2) = 0.139

Standard Error of correlation coefficient, S.E. (r) = $\frac{1-r2}{\sqrt{n}}$

= 0.3851

Probable error of correlation coefficient, P.E. (r) = 0.6745 x $\frac{1-r2}{\sqrt{n}}$ = 0.2597

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 $\sum XY = a\sum X + b\sum X2$

Solving two normal equations, we get

b = $\frac{n\sum XY - \sum X.\sum Y}{n\sum X2 - (\sum X)2}$

$= \frac{5x2153.22 - 58.54x196.78}{5x1987.12 - (58.54)2}$

= -0.116

a = $\overline{Y} - b\overline{X}$

= 39.36 – (-0.116 x 11.708)

= 40.718

Standard Error of Estimate (S.E.E) = $\frac{\sqrt{\sum Y2 - a\sum Y - b\sum XY}}{n-2}$

= $\sqrt{\frac{7869.43 - 40.718X196.78 - (-0.116X2153.22)}{5-2}}$

= 5.964

Standard Error of Regression Coefficient (S_b) = $\frac{S.E.E.}{\sqrt{\sum (X - \overline{X})2}}$

= $\frac{5.964}{\sqrt{36.08}}$

= 0.165

t-value, $|t|$ = $\frac{b}{Sb}$

= -0.703

2) NABIL Bank Ltd. (NABIL)

Year	**X (DPR)**	**Y(Net profit)**	**XY**	**X2**	**Y2**	**(X- $\overline{X}$)2**
2004/05	66.36	34.33	2278.1	4403.65	1178	60.715
2005/06	65.36	35.32	2323.3	4327.01	1247	46.145
2006/07	72.95	32.16	2346.1	5321.7	1034	206.84

2007/08	55.33	29.68	1643.98	3068.05	881	10.099
2008/09	32.78	30.56	1001.76	1074.53	933.91	665.021
N=5	$\sum$ X=292.84	$\sum Y = 162.05$	$\sum$ XY=9593.24	$\sum$ X2=18194.94	$\sum$ Y2=5273.91	$\sum (X - \overline{X})2$ =988.82

Mean,

$\overline{X}$ = 58.568 $\overline{Y}$ = 32.41

ii) Coefficient of correlation (r) = $\frac{n\sum XY - \sum X.\sum Y}{\sqrt{n\sum X2 - (\sum X)2}.\sqrt{n\sum Y2 - (\sum Y)2}}$

$$= \frac{5x9593.24 - 292.84x162.05}{\sqrt{5x18194.94 - (292.84)2}\sqrt{5x5273.91 - (162.05)2}}$$

= 0.677

Coefficient of Determination (r^2) = 0.458

Standard Error of correlation coefficient, S.E. (r) = $\frac{1-r2}{\sqrt{n}}$

= 0.2424

Probable error of correlation coefficient, P.E. (r) = 0.6745 x $\frac{1-r2}{\sqrt{n}}$

= 0.1634

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,

$$\sum Y = n.a + b\sum X \text{ and } \sum XY = a\sum X + b\sum X2$$

Solving two normal equations, we get

$$b = \frac{n\sum XY - \sum X.\sum Y}{n\sum X2 - (\sum X)2}$$

$$= \frac{5x9593.24 - 292.846x162.05}{5x18194.94 - (292.84)2}$$

$$=0.0979$$

$$a = \overline{Y} - b\overline{X}$$

$$= 32.41\text{-}0.0979 \text{ x } 58.568$$

$$= 26.676$$

$$\text{Standard Error of Estimate (S.E.E)} = \frac{\sqrt{\sum Y2 - a\sum Y - b\sum XY}}{n-2}$$

$$= \sqrt{\frac{5273.91 - 26.676X162.05 - 0.0979X9593.24}{5-2}}$$

$$= 1.9905$$

$$\text{Standard Error of Regression Coefficient } (S_b) = \frac{S.E.E.}{\sqrt{\sum (X - \overline{X})2}}$$

$$= \frac{1.9905}{\sqrt{988.82}}$$

$$= 0.0631$$

t-value, $|t| = \frac{b}{Sb}$

= 1.5515

3) Bank of Kathmandu Ltd. (BOK)

Year	X (DPR)	Y(Net profit)	XY	X2	Y2	(X- $\overline{X}$)2
2004/05	49.83	27.13	1352	2483.03	736	361.91
2005/06	41.22	35.11	1447	1699.09	1233	108.45
2006/07	45.98	38.75	1782	2114.16	1502	230.25
2007/08	3.52	41.89	147.4	12.39	1755	744.526
2008/09	13.48	41.42	558.34	181.71	1715.62	300.190
N=5	$\sum$ X=154.03	$\sum Y = 214.42$	$\sum$ XY=6378.54	$\sum$ X2=7812.43	$\sum$ Y2=7843.62	$\sum (X - \overline{X})2$ =1745.33

Mean,

$\overline{X}$ = 30.806 $\overline{Y}$ =42.884

ii) Coefficient of correlation (r) = $\frac{n\sum XY - \sum X.\sum Y}{\sqrt{n\sum X2 - (\sum X)2}.\sqrt{n\sum Y2 - (\sum Y)2}}$

= $\frac{5x6378.54 - 154.03x214.42}{\sqrt{5x7812.43 - (154.03)2}\sqrt{5x7843.62 - (214.42)2}}$

= 0.113

Coefficient of Determination (r^2) = 0.0128

Standard Error of correlation coefficient, S.E. (r) = $\frac{1-r2}{\sqrt{n}}$

= 0.4415

Probable error of correlation coefficient, P.E. (r) = 0.6745 x $\frac{1-r2}{\sqrt{n}}$

= 0.298

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,

$$\sum Y = n.a + b\sum X \text{ and } \sum XY = a\sum X + b\sum X2$$

Solving two normal equations, we get

$$b = \frac{n\sum XY - \sum X.\sum Y}{n\sum X2 - (\sum X)2}$$

$$= \frac{5x6378.54 - 154.03x214.42}{5x7812.43 - (154.03)2}$$

=-0.074

$a = \overline{Y} - b\overline{X}$

= 42.884-(-0.0.74) x 30.806

= 45.164

$$\text{Standard Error of Estimate (S.E.E)} = \frac{\sqrt{\sum Y2 - a\sum Y - b\sum XY}}{n-2}$$

$$= \sqrt{\frac{7843.62 - 45.164X\,214.42 - (-0.074)X\,6378.54}{5-2}}$$

$$= 21.357$$

$$\text{Standard Error of Regression Coefficient } (S_b) = \frac{S.E.E.}{\sqrt{\sum (X - \overline{X})2}}$$

$$= \frac{21.357}{\sqrt{1745.33}}$$

$$= 0.5111$$

$$\text{t-value}, |t| = \frac{b}{Sb}$$

=0.145

5) **Pooled Bank Average**

Year	**X (DPR)**	**Y(Net profit)**	**XY**	**X2**	**Y2**	**(X-** $\overline{X}$ **)2**
2004/05	53.38	33.45	1785.6	2849.42	1119	181.71
2005/06	36.76	33.7	1239	1351.30	1136	9.86

2006/07	41.1	36.5	150.2	1689.21	1332	1.44
2007/08	33.31	38.7	1289	1109.56	1498	43.43
2008/09	34.93	38.7	1352	1220.105	1498	24.70
N=5	$\sum$ X=199.48	$\sum Y$ =181.05	$\sum$ XY=7168	$\sum$ X2=8219.6	$\sum$ Y2=6583	$\sum(X-\overline{X})2$ =261.14

Mean,

$\overline{X}$ = 39.90, , $\overline{Y}$ = 36.21

ii) Coefficient of correlation (r) = $\frac{n\sum XY-\sum X.\sum Y}{\sqrt{n\sum X2-(\sum X)2}.\sqrt{n\sum Y2-(\sum Y)2}}$

= $\frac{5x7168-199.48x181.05}{\sqrt{5x8219.6-(199.48)2}\sqrt{5x6583-(181.05)2}}$

= -0.655

Coefficient of Determination (r^2) = 0.429

Standard Error of correlation coefficient, S.E. (r) = $\frac{1-r2}{\sqrt{n}}$

= 0.2554

Probable error of correlation coefficient, P.E. (r) = 0.6745 x $\frac{1-r2}{\sqrt{n}}$

= 0.1723

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,

$$\sum Y = n.a + b\sum X \text{ and } \sum XY = a\sum X + b\sum X2$$

Solving two normal equations, we get

$$b = \frac{n\sum XY - \sum X.\sum Y}{n\sum X2 - (\sum X)2}$$

$$= \frac{5x7168 - 199.48x181.05}{5x8219.6 - (199.48)2}$$

= -0.2113

$$a = \overline{Y} - b\overline{X}$$

= 36.21-(-0.2113) x39.90

= 44.641

$$\text{Standard Error of Estimate (S.E.E)} = \frac{\sqrt{\sum Y2 - a\sum Y - b\sum XY}}{n-2}$$

$$= \sqrt{\frac{6583 - 44.641x181.05 - (-0.2113)X7168}{5-2}}$$

= 2.2617

$$\text{Standard Error of Regression Coefficient } (S_b) = \frac{S.E.E.}{\sqrt{\sum (X - \overline{X})2}}$$

$$= \frac{2.2617}{\sqrt{261.14}}$$

= 0.13996

$$\text{t-value, } |t| = \frac{b}{Sb}$$

= 1.5097

Appendix-F

Multiple Regression Analysis of MPS on EPS and DPS (of pooled Bank Average)

Year	MPS(X_1)	EPS(X_2)	DPS(X_3)	X_1^2	X_2^2	X_3^2	X_1X_2	X_2X_3	X_1X_3
2004/05	767	52.78	31.67	588289	2785.73	1002.99	40482.26	1671.543	24290.89
2005/06	1195.33	63	34.51	1428814	3969	1190.94	75305.79	2174.13	41250.84
2006/07	2458.33	68.2	40.35	6043386	4651.24	1628.12	167658.11	2751.87	99193.62
2007/08	2970	64.67	21.05	8820900	4182.21	443.103	192069.9	1361.303	62518.5
2008/09	2617	63.09	14.39	6848689	3980.35	207.07	165106.53	907.87	37658.63
N=5	$\sum X_{1=}$ **10007.66**	$\sum X_{2=}$ 311.74	$\sum X_{3=}$ 141.97	$\sum X_1^2$ =23730078	$\sum X_2^2$ =19568.53	$\sum X_3^{2=}$ 4472.223	$\sum X_1X_2$ =640622.59	$\sum X_2X_3$ = 8866.72	$\sum X_1X_{3=}$ 264912.48

Mean; $\overline{X1}$=2001.532 , $\overline{X2}$=62.348 and $\overline{X3}$=28.394

Dependent variable: MPS ($\overline{X1}$)

Independent variables: EPS ($\overline{X2}$) and DPS($\overline{X3}$)

The general formula of multiple regression equation is given case is

$X_1=a_1+b_1X_2+b_2X_3$

Where, a_1 = regression constant

b_2 And b_1= Regression coefficient

Required normal equations to find the value of a_1 b_2 And b_1 can be written as under as:

$\sum X_1 = n.a_1 + b_1 \sum X_2 + b_2 \sum X_3$ …… (i)

$\sum X_1X_2 = a_1 \sum X_2 + \sum X_2^2 + b_2 \sum X_2X_3$ ……..(ii)

$\sum X_1X_3 = a_1 \sum X_3 + b_1 \sum X_2X_3 + b_2 \sum X_3^2$ ……..(iii)

Subtitling the corresponding values and solving, we get

a_1 = -4836.80, $b1$ = 131.61 And b_2 = -48.154

Hence the required multiple regression equation as follows

$X_1 = -4836.80 + 131.61X_2 - 48.154X_3$

Standard Error of Estimated is given by X_1 on X_2 and X_3 is given by

$$S_{1.23} = \sqrt{\frac{\sum X12 - a1\sum X1 - b1\sum X1X2 - b2\sum X1X3}{(n-3)}}$$

$$= \sqrt{\frac{23730078 - (-4836.80x10007.66) - 131.61x640622.59 - (-48.154x264912.48)}{5-3}}$$

= 538.23

Appendix-G

Coefficient of Multiple Determination among MPS, EPS and DPS (Pooled Average)

Year	MPS (Y)	EPS(X_1)	DPS(X_2)	X_1^2	X_2^2	YX_1	YX_2	X_1X_2
2004/05	767	52.78	31.67	2785.73	1002.99	40482.26	24290.89	1671.54
2005/06	1195.33	63	34.51	3969	1190.94	75305.79	41250.84	2174.13
2006/07	2458.33	68.2	40.53	4651.24	1642.68	167658.11	99636.11	2764.15
2007/08	2970	64.67	21.05	4182.21	443.10	192069.9	62518.5	1361.30
2008/09	2617	63.09	14.39	3980.35	207.07	165106.53	37658.63	907.87
N=5	$\sum$Y= 10007.66	$\sum$X1= 311.74	$\sum$X2= 142.15	$\sum X1^2$= **19568.53**	$\sum x2^2$= 4486.78	$\sum$**YX1= 640622.59**	$\sum$YX2= 26535.97	$\sum$X1X2= 8878.99

Dependent variable: MPS ($\overline{Y}$)

Independent variables: EPS($\overline{X1}$) and DPS($\overline{X2}$)

The general formula of Coefficient of multiple Determination is given case is

$Y=a_1+b_1X_1+b_2X_2$

Where, a_1 = regression constant

b_2 And b_1= Regression coefficient

Required normal equations to find the value of a_1 b_2 And b_1 can be written as under as:

$\sum Y = n.a_1+b_1 \sum X_2+b_2 \sum X_3$ …… (i)

$\sum$ **YX_1** = $a_1 \sum$ **X_1**+ $b_1 \sum$ **X_1^2**+ $b_2 \sum$ **X_1X_2** **……..(ii)**

$\sum$ **YX_2** = $a_1 \sum$ **X_2**+ $b_1 \sum$ **X_1X_2**+ $b_2 \sum$ **X_2^2** **……..(iii)**

Subtitling the corresponding values and solving, we get

a_1 = -4864.81, $b1_{=}$ 131.936 And $b_{2=}$ -47.823

Total variation = Total sum of Square = TSS = $\sum (X_1 - \overline{x1})^2$ = 4669564

Explained Variation = Regression sum of Square = SSR = $\sum (\vec{x}_{.} - \overline{x1})^2$ = 2794419

Unexplained variation = $\sum (X1 - \vec{x1})2$ = 1316177

The coefficient of Multiple Determination is given by

$$R_{1.23}^2 = \frac{a\sum Y + b1\sum YX1 + b2\sum YX2 - n(\overline{Y})2}{\sum (Y)2 - n\overline{(Y)}2}$$

$$= \frac{3115095.124}{3699426.465}$$

== 0.842

Appendix-H

Test of Regression coefficients of Multiple Regression model (Pooled Bank Average)

i) Grand Total (T) = $\sum X_1 + \sum X_2 + \sum X_3$ =10007.66+311.74+142.15= 10461.55

ii) Correction Factor (C.F) = $\frac{T2}{N}$

= 7296268.56

iii) Total sum of square (T.S.S) = $\sum \mathbf{X_1^2} + \sum \mathbf{X_2^2} + \sum \mathbf{X_3^2} - \mathbf{C.F}$

= 16457864.95

iv) Sum of Square between Samples (S.S.C) = $\frac{(\sum x1)2}{n1} + \frac{(\sum x2)2}{n2} \frac{(\sum x3)2}{n3} - C.F$

= $\frac{(10007.66)2}{5} + \frac{(311.74)2}{5} + \frac{(142.15)2}{5} - 7296268.56$

=12757860.87

v) Sum of Square within Samples (S.S.W) = T.S.S – S.S.C

= 3700004.08

One way ANOVA Table

S.N	Source of Variation (S.V)	Sum of Square	D.F	Mean Sum of square (M.S.S)	F_1=ratio
1	Between Samples	12757860.87	2	6378930.435	20.69
2	Within Samples	3700004.08	12	308333.673	
3	Total	16457864.95	14		

Appendix-I

Multiple Regression Analysis of MPS on DPR and DPS (of pooled Bank Average)

Year	MPS(X_1)	DPR(X_2)	DPS(X_3)	X_1^2	X_2^2	X_3^2	X_1X_2	X_2X_3	X_1X_3

2004/05	767	53.38	31.67	588289	2849.42	1002.99	40942.46	1690.54	24290.89
2005/06	1195.33	36.76	34.51	1428813.8	1351.29	1190.94	43940.33	1268.59	41250.84
2006/07	2458.33	41.1	40.53	6043386.39	1689.21	1642.68	101037.36	1665.78	99636.11
2007/08	2970	33.31	21.05	8820900	1109.56	443.10	98930.7	701.76	62518.5
2008/09	2617	34.93	14.39	6848689	1220.10	207.07	91411.81	502.64	37658.63
N=5	$\sum X_{1=}$ **10007.66**	$\sum X_{2=}$ **199.48**	$\sum X_{3=}$ **142.15**	$\sum X_1^{2}{}_{=}$ **23730078.2**	$\sum X_2^{2}{}_{=}$ **8219.58**	$\sum X_3^{2}{}_{=}$ **4486.782**	$\sum X_1X_{2=}$ **376262.66**	$\sum X_2X_{3=}$ **5829.31**	$\sum X_1X_{3=}$ **265354.97**

Mean; $\overline{X1}$ = 2001.53, $\overline{X2}$ =39.896 and $\overline{X3}$ =28.43

Dependent variable: MPS ($\overline{X1}$)

Independent variables: DPR($\overline{X2}$) and DPS($\overline{X3}$)

The general formula of multiple regression equation is given case is

$X_1=a_1+b_1X_2+b_2X_3$

Where, a_1 = regression constant

b_2 And b_1= Regression coefficient

Required normal equations to find the value of a_1 b_2 And b_1 can be written as under as:

$\sum X_1=n.a_1+b_1\sum X_2+b_2\sum X_3$ …….. (i)

$\sum X_1X_2 = a_1\sum X_2+\sum X_2^2+ b_2\sum X_2X_3$ **……..(ii)**

$\sum X_1X_3 = a_1\sum X_3+ b_1\sum X_2X_3+ b_2\sum X_3^2$ **……..(iii)**

Subtitling the corresponding values and solving, we get

$a_1 = 5580.149,\ b_{1=} -79.031$ And $b_{2=} -14.97$

Hence the required multiple regression equation as follows

$X_{1=} 5580.149-79.031X_2-14.97X_3$

Standard Error of Estimated is given by **X_1** on **X_2** and **X_3** **is given by**

$$S_{1.23} = \sqrt{\frac{\sum X12 - a1\sum X1 - b1\sum X1X2 - b2\sum X1X3}{(n-3)}}$$

$$= \sqrt{\frac{23730078.2 - 5580.149x10007.66 - (-79.031)x376262.66 - (-79.031x265354.97)}{5-3}}$$

$$= 3049.06$$

The coefficient of Multiple Determination is given by

$$R_{1.23}^2 = \frac{a\sum Y + b1\sum YX1 + b2\sum YX2 - n(\overline{Y})2}{\sum Y2 - n(\overline{\overline{Y}})2}$$

$$= \frac{2104804.023}{3699426.465}$$

$$== 0.569$$

Appendix-H

Test of Regression coefficients of Multiple Regression model (Pooled Bank Average)

i. Grand Total (T) = $\sum \mathbf{X_1} + \sum \mathbf{X_2} + \sum \mathbf{X_3} =$ 10007.66+199.48+142.15 = 10349.29

ii. Correction Factor (C.F) = $\frac{T2}{N}$

= 7140520.234

iii. Total sum of square (T.S.S) = $\sum \mathbf{X_1^2} + \sum \mathbf{X_2^2} + \sum \mathbf{X_3^2} - \mathbf{C.F}$

= 16602264.34

iv) Sum of Square between Samples (S.S.C) = $\frac{(\sum x1)2}{n1} + \frac{(\sum x2)2}{n2} \frac{(\sum x3)2}{n3} - C.F$

= $\frac{(10007.66)2}{5} + \frac{(199.48)2}{5} + \frac{(142.15)2}{5} - 7140520.234$

=12902131.28

v) Sum of Square within Samples (S.S.W) = T.S.S – S.S.C

= 16602264.34 -12902131.28

= 3700133.06

One way ANOVA Table

S.N	Source of Variation (S.V)	Sum of Square	D.F	Mean Sum of square (M.S.S)	F_1=ratio
1	Between Samples	12902131.28	2	6451065.64	20.922
2	Within Samples	3700133.06	12	308344.421	
3	Total	16602264.34	14		