

# CHAPTER ONE

## INTRODUCTION

### 1.1 Background of the study

Nepal is a country with various sectors being in developing phase. Nepal is developing its economy from different sectors such as tourism, hydropower, construction etc. For the development of these sectors, financial institutions play a vital role to provide the financial support. Hence, various commercial banks, finance companies, insurance companies etc. are established from both government sector as well as private sector to boost the economy of the country from their perspective. So, the active participation of these financial institutions towards economic development is very important for the country.

Financial Institutions play a major role in the proper functioning and development of the economy of any country. The importance of financial institutions in the developing countries like Nepal is very vast and big. The major roles of financial institutions are following;

- Act as intermediaries between the individuals who lend and who borrow
- Accept deposits and in turn lend it to people who are in need of financial resources
- Make the flow of investment easier
- Pool the scattered funds and mobilize them in productive sector

So no one can deny the role, financial institutions play in developing an economy of a country.

Investment, in its broadest sense, means the sacrifice of current Rupees (Dollars) and resources for the sake of future Rupees (Dollars) and resources. In the other words, it is a commitment of

money and other resources that are expected to generate additional money and resources in future.

Investments are made in Assets. Assets generally are of two types;

-Real Assets (Land, Building, Plant, Machineries, Factories etc.)

-Financial Assets (Stocks, Bonds, T-Bills etc.)

Investment in any assets either in real or in financial assets will generate some reward or return for undertaking it. If the return is uncertain, there is some risk in it. So higher the risk, higher is the return and lower the risk, lower is the return.

Return in the investment is combination of two components. The first component that usually comes to mind is the periodic cash receipts (either interest or dividend). This cash receipt is also known as Ordinary Gain on investment. The second component is the appreciation (or depreciation) in the price of the asset and it is known as Capital Gain/Loss. So, mathematically the total return is the sum of Capital Gain/Loss and Ordinary Gain.

$$\text{Total Return} = \text{Capital Gain/Loss} + \text{Ordinary Gain}$$

Every shareholders, who invests his/her money expects both capital and ordinary return. That means, the shareholder wants good dividend as well as good value of the share. Otherwise, the shareholder could sell it in the secondary market. So it is necessary for an organization to make an appropriate and convincing dividend policy decision.

Dividend policy is decision regarding distribution of dividend out of net income and retaining the income in the organization. A company has to decide what portion of net income to be distributed to the shareholders and what portion to be retained for reinvestment in future. So, dividend policy is allocating the net income between dividend and retention. Dividend policy may have some impact on the value of stock.

## **1.2 Focus of the Study**

The study will mainly focus on the dividend policies of commercial banks. The study will go through different practices and applications of dividend policies in the Nepalese financial business context. The study will go through the method of dividend payment undertaken by the selected companies. With the view on different theories of dividend policy, it is very difficult subject matter to study. The study will also study the impact of dividend policy on the market price of shares of the selected banks and finance companies.

With the view on the dividend policy, the study will further focus on the different features of dividend such as Dividend per share (DPS), Earning per share (EPS), Market price per share (MPS) and other relating ratios.

## **1.3 Statement of Problem**

In recent years, the over-subscription of ordinary shares in initial public offering showed that the people are diverting towards investing in shares, bonds rather than other traditional assets. It is also due to the high increase in the bullion price. Generally, people are investing their money in the common stocks. Some investors are being more rational towards the investment process. They are studying background, past history and performance of the organization, market demand of the stock, dividend policy undertaken by the organization etc. before investing their money. But still more investors are investing without knowing the basic concept and process of the investment. Most of the investors are not aware of the risk involved in investing on such securities. Investors should be aware of the policies and decisions taken by the company management towards wealth or profit maximization.

Different financial experts have introduces the Dividend payment models which present their view towards Dividend payment. Among them, MM model tells that Dividends are irrelevant to the value of the firm. It believes that earnings should be retained only for getting benefit from investment opportunities. If there is no investment opportunity, all the earnings should be distributed as dividend.

James Walter had propounded relevant theory of dividend. He proposed a model for share valuation. According to him, the Dividend policy of the firm affects the value of the shares. His model supports that Dividends are relevant. He argues that the choice of Dividend policies almost always affect the value of an Enterprise. The Investment policy of a firm can not be separated from its Dividend policy according to him both are interlinked which is just opposite to Modigliani and Miller approach. Walter's model shows clearly the importance of the relationship between the return on a firm's investment or its internal rate of return ( $r$ ) and its cost of capital or the required rate of return ( $k$ ) in determining the Dividend policy. As long as the internal rate greater than the cost of capital, the share price will be enhanced by retention and will vary inversely with dividend payment. In this way Walter's model is also known as "Optimal Theory of Dividend".

Dividend policy is the decision to distribute the net income to shareholder or to retain or reinvest in the company. Common shareholders are considered as real owner of the company. So they look after the return on their shares. So dividend policy directly affects the view of the common shareholders towards the company. If company is distributing the dividend regularly, common stockholders will be more positive towards the company. But if the company cannot make its shareholders satisfy, it will lose the belief from the common shareholders.

Different banks have adopted different policies and Dividends are paid in different forms such as cash dividend, stock dividend etc. Nowadays stock dividend is being more popular in Nepal especially in banking sector. But there is no rigid rule for Dividend payment because few Banks are generating profit and they are focusing toward reinvestment opportunities.

In general, the dividend policy will affect the stock price in market. If the dividend policy is shareholder oriented, then the market price of the stock will increase. It's because people want to invest in those stocks, which give more return. But some scholars and experts do not agree with this relationship of dividend and market price of stock. Some experts believe to have a positive relationship whereas others believe to have negative relationship. Thus the controversy exists on impact of dividend policy on stock price.

- If there are no tax disadvantages associated with dividends and companies can issue stock at no cost to raise equity whenever needed, dividends do not matter, and dividend policy does not affect value.
- If dividends have a tax disadvantage, dividends are bad, and increasing dividends will reduce value
- If stockholders like dividends, or dividends operate as a signal of future prospects, dividends are good, and increasing dividends will increase value

Moreover; the study will be focused on the following problems regarding the subject chosen for the study. This study deals with the following issues;

- Does there exist the positive or negative relationship between dividend and stock price?
- What kind of dividend policies are following by the commercial banks of Nepal?
- Is there any consistency between dividend policies followed by commercial banks?
- Do the Nepalese investors take care about the dividend policies followed by the related companies before investing?

## **1.4 Objectives of the study**

The main objective of the study is to find out the appropriate dividend policies and practices in Nepal. However, following objectives can be considered more specific;

- To examine the prevailing practices and efforts made in dividend policy
- To explore the relationship between dividend and market price of the stock
- To identify the appropriate dividend policy followed by the commercial banks
- To provide suggestions to the listed banks for the improvement of their dividend policies on the basis of findings.

## **1.5 Importance & Significance of the study**

The study will have a significant importance in the present context of dividend policies taken by the commercial banks in Nepal. As dividend is one of the most important factors to make the

stockholders satisfy with the company and make a positive impact on different financial analyzer such as creditors, market researchers etc. The study will be helpful for the companies to take the decisions on the dividend policies. So, the study will provide some knowledge for those new investors who want to invest in new shares without studying the background of the company. Besides, financial institutions may also benefit in one way or the other from this study. Moreover, it will support the future researchers by providing valuable information too.

## **1.6 Limitation of the study**

The study focuses the sensitive part of the Bank which resultants the management a little bit hesitation to come up with open view regarding the Dividend policy and payment procedure. Therefore the study has been conducted on the basis of annual reports of selected banks, published and unpublished material, NRB publications.. Therefore the strength of findings will largely depends upon the correctness of input information. Since the study has been conducted by developing assuming about various factors it has following limitations:

- The study is based on secondary data like annual reports of the selected companies, reviews, journals, articles, published and unpublished thesis works, and various related material from various websites. Hence, the study does not include primary data.
- The Market Price Share of Kumari Bank Limited in fiscal year 2060/61 is unavailable, therefore the average MPS value of other years have been used as MPS for that year.
- The Balance Sheet, Income Statement and other statements from various published and unpublished reports have been considered as the subject matters of the study. Therefore, the results depend upon the validity of the data.
- Due to annual distribution system in Nepal, dividend has not been considered for calculation of holding monthly periodic return.
- Dividend policy of only financial institutions is taken into account. Dividend Policy of other companies associated with industry, trade, agriculture is not covered.
- The study covers the data of previous five years period only.

- The study was confined to select four companies. However, the data required to make a study for Lumbini Bank was not available, so the study will confine to select only three companies.
- Again, the study is fully based on existing statistical tools, therefore, technical errors possibly may exist with least chance.

## **1.7 Organization of the study**

The study will be organized into following five chapters listed below;

### ***Chapter 1: Introduction***

This chapter deals with subject matters of the study consisting background of the study, introduction to selected sample companies, statement of problem, objective of the study, significance of the study and limitation of the study.

### ***Chapter 2: Review of Literature***

This chapter deals with review of the different literature of the study field. Therefore it includes conceptual framework, theoretical review along with the review of major books, journals, previous research works and thesis reports on the subject matter.

### ***Chapter 3: Research Methodology***

This chapter deals with research methodology and it includes research design, population and sample selection, sources of data, data collection procedure, tools for analysis of the study, and limitations of the methodology.

### ***Chapter 4: Presentation and Analysis of Data***

This chapter deals with analysis and interpretation of collected data using appropriate financial and statistical tools. This chapter will illustrate the collected data into a systematic format. Similarly, analysis and interpretation of these data will also be included in this chapter.

### ***Chapter 5: Summary, Conclusions and Recommendations***

This chapter deals with summary of the entire study. Conclusions of the study will also be included in this chapter. As well as, possible and viable recommendations will also be presented in this chapter.



# CHAPTER TWO

## REVIEW OF LITERATURE

### 2.1 Conceptual Framework

The three major decisions in a company are *Investment Decision*, *Financing Decision* and *Dividend/Share repurchases Decision*. Dividend decision is not only important for the desire of the shareholders but also firm's internal growth.

Dividend decision of the firm is yet another crucial area of financial management. The important aspect of dividend policy is to determine the amount of earnings to be distributed to shareholders and the amount to be retained in the firm. Retained earnings are the most significant internal sources of financing the growth of the firm. On the other hand, dividends may be considered desirable from shareholders' point of view as they tend to increase their wealth. Dividends constitute the use of the firm's funds. (*Pandey, 1997; 672*)

#### 2.1.1 Introduction to Dividend

Dividend is a periodic payment made by a company to its shareholders. It is compensation to the shareholders for the use of and risk to their investment funds. Or in other words, it is that portion of the net earning divided by the company among the shareholders as a return for their money invested.

When a company earns a profit, 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 of the company as a dividend. Paying dividends is not an expense; rather, it is the division of an asset among shareholders. Many companies retain a portion of their earnings and pay the remainder as a

dividend. Publicly-traded companies usually pay dividends on a fixed schedule, but may declare a dividend at any time, sometimes called a special dividend to distinguish it from a regular one.

## **2.1.2 Dividend Payment Process**

Dividends are normally paid quarterly. Dividends must be "declared" (approved) by a company's Board of Directors each time they are paid. There are four important dates to remember regarding dividends. The dividend payment procedure follows following dates;

### **⇒ Declaration date**

The declaration date is the day the Board of Directors announces its intention to pay a dividend. On this day, a liability is created and the company records that liability on its books; it now owes the money to the stockholders. On the declaration date, the Board will also announce a date of record and a payment date.

### **⇒ Ex-dividend date**

The ex-dividend date is the day after which all shares bought and sold no longer come attached with the right to be paid the most recently declared dividend. This is an important date for any company that has many stockholders, including those that trade on exchanges, as it makes reconciliation of who is to be paid the dividend easier. Prior to this date, the stock is said to be cum dividend ('with dividend'): existing holders of the stock and anyone who buys it will receive the dividend, whereas any holders selling the stock lose their right to the dividend. On and after this date the stock becomes ex dividend: existing holders of the stock will receive the dividend even if they now sell the stock, whereas anyone who now buys the stock now will not receive the dividend.

It is relatively common for a stock's price to decrease on the ex-dividend date by an amount roughly equal to the dividend paid. This reflects the decrease in the company's assets resulting from the declaration of the dividend. The company does not take any explicit action to adjust its stock price; in an efficient market, buyers and sellers will automatically price this in.

### **⇒ Holder of Record date**

Shareholders who properly registered their ownership on or before the date of record will receive the dividend. Shareholders who are not registered as of this date will not receive the dividend. Registration in most countries is essentially automatic for shares purchased before the ex-dividend date.

⇒ **Payment date**

The payment date is the day when the dividend cheques will actually be mailed to the shareholders of a company or credited to brokerage accounts.

### **2.1.3 Forms of Payment**

Corporate firms choose to make the payment of dividends in view of its objectives, needs and policies. The firms may distribute the dividends in various forms. Some are briefly explained below;

#### **i) Cash Dividend**

Most companies pay dividends in cash. Sometimes cash dividend may be supplemented by a bonus issue (stock dividend). A company should have enough bank balance at the time of paying cash dividend, arrangement should be made to borrow funds. When the company follows a stable dividend policy, it should prepare a cash budget for the coming period to indicate the necessary funds which would be needed to meet the regular dividend payments of the company. It is relatively difficult to make cash planning in anticipation of dividend needs when an unstable policy is followed.

The cash account and the reserves account of a company will be reduced when the cash dividend is paid. Thus, both the total assets and the net worth of the company are reduced when the cash dividend is distributed. The market price of the share drops in most cases by the amount of the cash dividend distributed.

#### **ii) Script Dividend**

When company has been suffering from the cash problem but has earned profit, script dividend is paid (issued). Script is a form of promissory note promising to pay the holder at specified later

date. Under this type of dividend, company issues and distributes to shareholders transferable promissory notes which may be interest bearing or not.

### **iii) Stock Dividend**

Stock dividend is a form of dividend out of two forms; cash and stock. In the stock dividend company distributes shares as dividend to the shareholders' and this dividend is distributed either from past retained earnings or from net profit earned in the respective year. The share price of stock dividend is fixed at market price at the time of dividend declaration.

The declaration of stock dividend will increase the paid up share capital and reduce the retained earnings. Therefore, it involves making a transfer from the retained earnings amount to the other shareholders' equity accounts like common stock and additional paid-up capital (share premium or excess of par value)

There are number of reasons why company declares stock dividend. The following are the reasons;

- to increase share capital
- to provide tax benefit to the shareholders. Receipts of stock dividend is not taxable income but cash dividend is a taxable income
- to conserve cash in the organization. A company having less liquidity pay stock dividend to conserve cash
- to provide psychological value to the shareholders
- to decrease the share price at taxable range

The share issued to shareholders as dividend is called stock dividend. This is method of paying dividend without reducing cash balance. The issue of stock dividend is also known as bonus shares. Payment of stock dividend increases the number of outstanding shares of the company. Simply, it is a recapitalization of the owner's equity portion, i.e. the reserves and surpluses and transfer a portion of retained earnings to the capital accounts.

#### **iv) Stock Split**

Stock split is also a kind of stock dividend where company breaks (increase or decrease) shares through splitting (breaking) the par value of the share. Split takes place in two ways: Straight split, and Reverse split.

Except in accounting treatment the stock dividend and stock split are very similar. A stock split however is usually reversed for occasion when a company wishes to achieve a substantial reduction in the market price of the shares. (**Horne, 2000: 328**)

In stock split there is no change in the capital account: instead a large numbers of the shares of the common stock are issued. In two-for-one stock split, stockholders receive two shares for each one previously held. The book value per share is cut in a half and par or stated, value per share is similarly changed.

***Straight stock split:*** In the straight split company increases number of shares through a proportional reduction in the par value of stock. Straight split takes place to bring the market price in reasonable range (affordable by small investors) and to increase the total dividend without increasing dividend per share. With a stock split, the number of shares increases. Stock splits are similar to stock dividends. As a result of the stock split, the common stock, paid-in capital and retained earnings accounts remain unchanged. Shareholders' equity also stays the same; the only change is in the par value of the stock. Except in accounting treatment, the stock dividend and stock split are very similar.

***Reverse stock split:*** In the reverse stock split, company reduces number of shares outstanding through merging the par values of the stocks. This takes place to bring low priced shares up at desirable trading levels. Reverse stock split is the opposite of straight stock split where the par value increase but the common stock, retained earnings, additional paid-in capital remain unchanged.

#### **v) Stock Repurchase**

Company repurchases its own stock as dividend decision. It is also said that stock repurchase is an alternative of cash dividend. Under this plan, company distributes cash to the shareholders

buying back some of its own outstanding stock, thereby decreasing the number of shares, which would increase EPS and the stock price.

Company repurchases its own stock due to number of reasons, such as;

- to bring change in the existing capital structure
- to increase value of stocks in the future
- to distribute temporary excess cash
- to manage excess liquidity

#### **vi) Property Dividend**

If the declared dividend is provided in the form of property (assets) instead of cash, the dividend is said to be property dividend. This form of dividend may be followed when there are assets that are no longer necessary in operation of the business or in extra ordinary circumstances. Company's own products and securities of subsidiaries are the examples that have been paid as property dividend.

#### **vii) Bond Dividend**

Bond dividend by its name is a dividend that is distributed to shareholders in form of a bond. In other words company declares dividend in form of its own bond with a view to avoid cash out flows.

Though there are different forms of dividends, in general, the form of dividends popular in Nepal are cash dividend and stock dividend.

### **2.1.4 Theories of Dividend**

Different dividend theories have been advanced and new and thus head to the controversy regarding those theories as the theories consider the dividend decision to be both relevant and irrelevant. Some of the relevant and irrelevant theories have been discussed below;

### 2.1.4.1 Residual Theory of Dividend

The crux of the argument supporting the relevance of dividends to valuation is that the dividend policy of a firm is a part of its financing decision. As a part of financing decision of the firm, the dividend policy of the firm is a residual decision and dividends are a passive residual.

Residual theory is that in which the first priority is given to the profitable investment opportunities. If there are profitable opportunities, the firm invests in those and residual income (if any) is distributed to stockholders.

A theory that suggests that the dividend paid by the firm should be the amount left over after all acceptable investment opportunities have been untaken. (*Lawrence J. Gitman, 1988; 616*)

Using this approach the firm would treat the dividend decision in three steps as follows;

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

STEP II: Using the optimal capital structure proportion, it would estimate the total amount of equity financing needed to support the expenditures generated in STEP I.

STEP III: Because the cost of retained earnings ( $K_r$ ) is less than the cost of new common stock ( $K_n$ ), retained earnings are inadequate to meet this needs, new common stock would be sold. If the available retained earnings are in excess to this needs, the surplus amount would be distributed as dividends.

Under this policy, the firms use earning to finance the investment opportunities having good returns. If the firm has earnings left after financing all acceptable investment opportunities, these earnings would then be distributed to shareholders in the form of dividend policy as strictly a financing decision the payment of cash dividend is passive residual.

### **2.1.4.2 Wealth Maximization Theory**

Under wealth maximization theory, larger dividends is announced and distributed to shareholders in order to (or in hope with) maximize the wealth of the stockholders. Basically, this theory is beneficial for those companies, which are just established and to those companies whose financial profiles are in decreasing trends. The main purpose of the wealth maximization theory of dividend is to make assurance to the stockholders that company has better market value and good future.

### **2.1.5 Overview: Dividend Policy**

Dividend policy determines the division of earnings between payments to stockholders and reinvestment in the firm. Retained earnings are one of the most significant sources of funds for financing corporate growth, but dividends constitute the cash flows that accrue to stockholders. (*Weston & Copeland, 1992; 657*)

The Objective of a dividend policy should be to maximize a shareholder's return so that value of his investment is maximized. Return consists of two components; dividends and capital gains. Dividend policy has a direct influence on these two components of return. (*Pandey, 1997; 672*)

Dividend Policy involves the decision by the financial manager to pay out earnings or to retain them for reinvestment in the firm.

Dividend policy has two opposing effects, which the financial manager must consider. The optimal dividend policy for a firm strikes the balance that investors in the aggregate want between current dividends and future growth, thereby maximizing the price of the stock.

Dividend policy is of great importance in the corporate firm because it affects the financial structure, the flow of fund, corporate liquidity and investor's attitude. Thus, it is one of the crucial decision and firm attempts to maximize the value of the firm's common stock by means of this decision. Due to its rapidly increasing importance, many thoughts and provoking ideas in this area are up-coming, which needs to be reviewed.



### **2.1.5.1 Stable Dividend Policy**

A stable dividend policy is a long term policy. It does not affect by variation in earning from year to year. When a firm constantly pays a fix amount of dividend and maintains it for all times to come regardless of fluctuations in the level of its earnings, it is called a stable dividend policy. The dividend will be regular. Stability of dividend means regularity in paying dividend even though the amount of dividend may fluctuate from year to year. By stability we maintaining a position in relation to a dividend trend line, preferably one that is upward slopping. (*Van Horne, J. C., 2000; 325*)

The shareholders generally prefer stability or regularity of dividend because the company distributes a stable dividend over the year the market price of the share may be increased. It is suitable for those companies, which have got stable income. All other things being the same stable dividend may have a positive impact on the market price of the share. In other words, the term dividend stability refers to the consistency in the stream of dividends. There are three types of dividend stability which are given below.

#### **Constant DPS**

Under constant DPS, a fixed amount of dividend per share is distributed each financial year throughout some financial years. The dividend per share for every year is constant. Such as if ABC Company pays Rs. 15 per share as dividend to the equity shareholders, the dividend per share for next year will also be Rs. 15 per share under the constant DPS scheme.

#### **Constant Payout Ratio**

Under constant payout ratio companies pay dividend at constant rate of earning each year. Under this policy the payout ratio remains constant but the dividend fluctuates with earning fluctuations. The variability in dividend signals uncertainty of dividend in the future to the shareholders. Such as if ABC Company pays 20% dividend of total earnings to its shareholders, then the next year also the rate of dividend will be same, but DPS will vary according to the earnings of the Company.

## **Low Regular Dividend plus extra Dividend**

Dividends are usually settled on a cash basis, as a payment from the company to the customer. They can also take the form of shares in the company (either newly-created shares or existing shares bought in the market), and many companies offer dividend reinvestment plans, which automatically use the cash dividend to purchase additional shares for the shareholder.

### **2.1.5.2 No Immediate Dividend Policy**

If the company does not declare dividend unless the company earn large income is called no immediate dividend policy. In other words, if there is not any hurry about dividend payment and if it could be only when the company earns more profit is known as no immediate dividend policy. This policy is usually pursued the following circumstances;

- When the firm is new and rapidly growing concern, which needs tidy amount of funds to finance its expansion program
- When the firms access to capital market is difficult
- When availability of funds is costlier
- When stockholders have agreed to accept higher return in future

### **2.1.5.3 Regular Stock Dividend Policy**

If the company regularly pays dividend to its shareholders is stock instead in cash, then it is called regular stock dividend policy. Regular stock dividend policy is also designated as bonus shares. Such policy should follow under the following circumstances;

- When the firm needs cash generated by earnings to cover its modernization and expansion project
- When the firm is deficient in cash despite high earnings, this is particularly true when the firm's sale is affected through credit and entire sales proceeds are tied in receivables

#### **2.1.5.4 Irregular pay Dividend Policy**

It is the policy in which, the firm does not pay any fixed amount of dividend every year of dividend varied in correspondence with change in level of earnings, i.e. higher earnings means higher dividend and vice versa. The firm with unstable earnings also adopts this policy, when there are investable opportunities the company retains more and when there is not any investable opportunities, the company distributes the earnings as dividend or there is not regularity of dividend payment therefore it is the most used type of dividend policy in the Nepalese context of present.

#### **2.1.6 Dividend-Reinvestment Plans**

A plan that enables a stockholder to automatically reinvest dividends received back into the stock of the paying firm. There are two types of DRPs.

- 1) Plans which involve only 'old' stock that is already outstanding
- 2) Plans which involve newly issued stock

Some companies have dividend reinvestment plans, or DRIPs. These plans allow shareholders to use dividends to systematically buy small amounts of stock, usually with no commission and sometimes at a slight discount. In some cases the shareholder might not need to pay taxes on these re-invested dividends, but in most cases they do.

Management and the board may believe that the money is best re-invested into the company: research and development, capital investment, expansion, etc. Proponents suggest that a management eager to return profits to shareholders may have run out of good ideas for the future of the company. Some studies have demonstrated that companies that pay dividends have higher earnings growth, however, suggesting that dividend payments may be evidence of confidence in earnings growth and sufficient profitability to fund future expansion.

When dividends are paid, individual shareholders in many countries suffer from double taxation of those dividends: the company pays income tax to the government when it earns any income, and then when the dividend is paid, the individual shareholder pays income tax on the dividend payment; in many countries, the tax rate on dividend income is lower than for other forms of income to compensate for tax paid at the corporate level. This is often used as justification for retaining earnings, or for performing a stock buyback, in which the company buys back stock, thereby increasing the value of the stock left outstanding. In contrast, corporate shareholders often do not pay tax on dividends because the tax regime is designed to tax corporate income (as opposed to individual income) only once. The shareholder will pay a tax on capital gains (which is often taxed at a lower rate than ordinary income) only when the shareholder chooses to sell the stock. If a holder of the stock chooses to not participate in the buyback, the price of the holder's shares should rise, but the tax on these gains is delayed until the actual sale of the shares. Certain types of specialized investment companies (such as a REIT in the U.S.) allow the shareholder to partially or fully avoid double taxation of dividends.

Shareholders in companies which pay little or no cash dividends can reap the benefit of the company's profits when they sell their shareholding, or when a company is wound down and all assets liquidated and distributed amongst shareholders.

### **2.1.7 Factors influencing Dividend Policy**

Many variables influence dividends, however. For example, a firm's cash flows and investment needs may be too volatile for it to set a very high regular dividend. Yet, it may desire a high dividend payout to distribute funds not necessary for reinvestment. In such a case, the directors can set a relatively low regular dividend – low enough that it can be maintained even in low profit years or in years when a considerable amount of reinvestment is needed – and supplement it with an extra dividend in years when excess funds are available.

- I. Stability of earnings:** The nature of business has an important bearing on the dividend policy. Industrial units having stability of earnings may formulate a more consistent dividend policy than those having an uneven flow of incomes because they can predict easily their savings and earnings. Usually, enterprises dealing in

necessities suffer less from oscillating earnings than those dealing in luxuries or fancy goods.

- II. Age of corporation:** Age of the corporation counts much in deciding the dividend policy. A newly established company may require much of its earnings for expansion and plant improvement and may adopt a rigid dividend policy while, on the other hand, an older company can formulate a clear cut and more consistent policy regarding dividend.
- III. Liquidity of Funds:** Availability of cash and sound financial position is also an important factor in dividend decisions. A dividend represents a cash outflow, the greater the funds and the liquidity of the firm the better the ability to pay dividend. The liquidity of a firm depends very much on the investment and financial decisions of the firm which in turn determines the rate of expansion and the manner of financing. If cash position is weak, stock dividend will be distributed and if cash position is good, company can distribute the cash dividend.
- IV. Extent of share Distribution:** Nature of ownership also affects the dividend decisions. A closely held company is likely to get the assent of the shareholders for the suspension of dividend or for following a conservative dividend policy. On the other hand, a company having a good number of shareholders widely distributed and forming low or medium income group, would face a great difficulty in securing such assent because they will emphasize to distribute higher dividend.
- V. Needs for Additional Capital:** Companies retain a part of their profits for strengthening their financial position. The income may be conserved for meeting the increased requirements of working capital or of future expansion. Small companies usually find difficulties in raising finance for their needs of increased working capital for expansion programs. They having no other alternative, use their ploughed back profits. Thus, such Companies distribute dividend at low rates and retain a big part of profits.
- VI. Trade Cycles:** Business cycles also exercise influence upon dividend Policy. Dividend policy is adjusted according to the business oscillations. During the boom, prudent management creates food reserves for contingencies which follow the inflationary period. Higher rates of dividend can be used as a tool for marketing the

securities in an otherwise depressed market. The financial solvency can be proved and maintained by the companies in dull years if the adequate reserves have been built up.

- VII. Government Policies:** The earnings capacity of the enterprise is widely affected by the change in fiscal, industrial, labor, control and other government policies. Sometimes government restricts the distribution of dividend beyond a certain percentage in a particular industry or in all spheres of business activity as was done in emergency. The dividend policy has to be modified or formulated accordingly in those enterprises.
- VIII. Taxation Policy:** High taxation reduces the earnings of the companies and consequently the rate of dividend is lowered down. Sometimes government levies dividend-tax of distribution of dividend beyond a certain limit. It also affects the capital formation. In India, dividends beyond 10 % of paid-up capital are subject to dividend tax at 7.5 %.
- IX. Legal Requirements:** In deciding on the dividend, the directors take the legal requirements too into consideration. In order to protect the interests of creditors and outsiders, the Companies Act 1956 prescribes certain guidelines in respect of the distribution and payment of dividend. Moreover, a company is required to provide for depreciation on its fixed and tangible assets before declaring dividend on shares. It proposes that Dividend should not be distributed out of capital, in any case. Likewise, contractual obligation should also be fulfilled, for example, payment of dividend on preference shares in priority over ordinary dividend.
- X. Past dividend Rates:** While formulating the Dividend Policy, the directors must keep in mind the dividend paid in past years. The current rate should be around the average past rate. If it has been abnormally increased the shares will be subjected to speculation. In a new concern, the company should consider the dividend policy of the rival organization.
- XI. Ability to Borrow:** Well established and large firms have better access to the capital market than the new Companies and may borrow funds from the external sources if there arises any need. Such Companies may have a better dividend pay-out ratio. Whereas smaller firms have to depend on their internal sources and therefore they

will have to build up good reserves by reducing the dividend pay out ratio for meeting any obligation requiring heavy funds.

- XII. Policy of Control:** Policy of control is another determining factor is so far as dividends are concerned. If the directors want to have control on company, they would not like to add new shareholders and therefore, declare a dividend at low rate. Because by adding new shareholders they fear dilution of control and diversion of policies and programs of the existing management. So they prefer to meet the needs through retained earning. If the directors do not bother about the control of affairs they will follow a liberal dividend policy. Thus control is an influencing factor in framing the dividend policy.
- XIII. Repayments of Loan:** A company having loan indebtedness are vowed to a high rate of retention earnings, unless one other arrangements are made for the redemption of debt on maturity. It will naturally lower down the rate of dividend. Sometimes, the lenders (mostly institutional lenders) put restrictions on the dividend distribution still such time their loan is outstanding. Formal loan contracts generally provide a certain standard of liquidity and solvency to be maintained. Management is bound to hour such restrictions and to limit the rate of dividend payout.
- XIV. Time for Payment of Dividend:** When should the dividend be paid is another consideration. Payment of dividend means outflow of cash. It is, therefore, desirable to distribute dividend at a time when is least needed by the company because there are peak times as well as lean periods of expenditure. Wise management should plan the payment of dividend in such a manner that there is no cash outflow at a time when the undertaking is already in need of urgent finances.
- XV. Regularity and stability in Dividend Payment:** Dividends should be paid regularly because each investor is interested in the regular payment of dividend. The management should, in spite of regular payment of dividend, consider that the rate of dividend should be all the most constant. For this purpose sometimes companies maintain dividend equalization fund.

### **2.1.8 Conflicting Theories of Dividend Policy**

Basically two schools of thoughts have been advanced in the theoretical literature of finance. One school, associated with Myron Gordon and John Linter, among others holds that the capital gains expected to result from earnings retention are riskier than dividend expectations. Accordingly these theories suggest that the earnings ratios are typically capitalized at bigger rates than the earnings of a high payout firm, other things held constant. (*Weston & Brigham, 1972; 686*)

The other schools, associated with Merton Miller and Franco Modigliani holds that investors are basically indifferent to returns in the form of dividends or capital gains when firms raise or lower their dividends. If their stock prices tend to rise or fall in like manner, does this prove that investors prefer dividends? Miller and Modigliani argue that it does not; that they affect change in dividends has no the price of a firm's stock is related primarily to information about expected future earnings conveyed by a change in dividends. Recalling that corporate managements dislike cutting dividends, Miller and Modigliani argue that increase in cash dividends raise expectations about the level of future earnings that they have favorable information content.

Dividends are probably subject to less uncertain than capital gains, but they are taxed at a higher rate. How do these two forces balanced out? Some argue that the uncertain factor dominates; other feel that the differential tax rate is the stranger force and causes investors to favor corporate retention of earnings; still other like Miller and schools, reason that investors have opportunities for altering the tax effects of dividends, nor do systematic empirical studies settle the manner.

### **2.1.9 Role of Expected Dividend on Stock Value**

This is one of the prime issues of this research. According to generally accepted theory, stock prices are the present value of future cash flows streams. In other words, the capitalization of income procedure applies to common stocks as well as to bonds and other assets. What are the cash flows that corporations provide to their stockholders? What flows do the markets in fact capitalize? A number of different models have been formulated. They are;

- The stream of dividends



- The stream of earnings
- The current earnings plus flows resulting from future investment opportunities, and
- The discounting of cash flows as in capital budgeting models

In the dividend formulation, a share of common stock may be regarded as similar to a perpetual bond or share of perpetual preferred stock and its value may be established as the present value of its stream of dividends. This is,

Value of stock ( $P_0$ ) = PV of **all** of the expected future dividends

$$= \frac{d_1}{(1 + Kg)^1} + \frac{d_2}{(1 + Kg)^2} + \frac{d_3}{(1 + Kg)^3} + \dots$$

$$= \sum_{r=1}^{\infty} \frac{d_r}{(1 + Kg)^r}$$

**Stock values with growth:**

$$Price = \frac{Dividend}{Capitalization Rate}$$

$$P_0 = \frac{d_1}{Kg}$$

**Constant/Normal growth:**

$$P_0 = \sum_{t=1}^{\infty} \frac{d_0 (1 + g)^t}{(1 + Kg)^t}$$

Or,

$$P_0 = \frac{d_1}{Kg - g}$$

### Super Normal Growth:

Present Price = PV of dividend during super normal growth period + value of stock price at end of super normal growth period discounted back to present

$$P_0 = \frac{d_1}{(1 + Kg)^1} + \frac{d_2}{(1 + Kg)^2} + \frac{d_3}{(1 + Kg)^3} + \dots + \frac{d_t}{(1 + Kg)^t} + \frac{P_t}{(1 + Kg)^t}$$

$$P_0 = \frac{d_1}{(1 + Kg)^1} + \frac{d_2}{(1 + Kg)^2} + \frac{d_3}{(1 + Kg)^3} + \dots + \frac{d_t + P_t}{(1 + Kg)^t}$$

Where,

$d_1, d_2, d_3, \dots$  are the cash dividends for the given period.  $Kg$  is a required return, 'g' is a growth rate

### 2.1.10 Review of Company Act

Human is governed by natural rules and human works are governed by their rules and regulations. Companies are approved by constitutional provision of the country. Company's decisions are based on their rules and regulations. But in Nepalese context, companies do not have any rules and regulations regarding dividend policy. There are some provisions regarding dividend in the Company Ordinance, 2062 (2006). These provisions may be seen as under;

*Section 2 (q)* states that bonus share mean a share issued as an additional share to the shareholders by capitalizing saving earned from profit or reserve fund and also includes a circumstances where paid up value of the shares is increased by capitalizing the said surplus and reserve fund. (*Companies Ordinance 2062*)

**Section 179** Bonus shares (1) may be issued by a company to its shareholders out of the amount available for the distribution of dividends after adopting a special resolution to this effect in the general meeting. Sub-section (2) the company shall have to inform the office before issuing bonus shares under sub-section (1).

**Section 182:** Dividend as follows,

1. Except in the following circumstances, the dividend shall be distributed to the shareholders within 45 days of the decision made to provide the Dividend:
  - a. If any law prohibits the distribution of Dividend
  - b. If the right to receive Dividend is subject to any dispute
  - c. If, without the fault on the part of the company, the Dividend cannot be distributed within the above mentioned time limit due to any god's act
2. A company wholly or partly owned by His Majesty's government shall distribute Dividend only with prior approval of HNG and HMG may issue necessary directives in relation to distribution of such Dividend.
3. If Dividend is not paid stipulated in sub section (1) the same shall be paid together with the interest at the rate as prescribed.
4. The shareholders in whose name the share is registered in the shareholders registers the time of declaration of the dividend or his successor shall be entitled for the payment of the Dividend.
5. A company shall not pay or distribute Dividend except from profit allocated for the purpose.

A company shall eliminate pre-incorporation expenses, deduct the amount depreciation as per the accounting standard prescribed by competent authority under law enforced and allocate any amount to be allocated or paid out of profit under the law enforced and eliminate the accumulated loss of the preceding years before the payment or distribution of Dividend out of the profit in a particular year.

Provided that a company which is required to transfer any amount out of the profit to certain reserve fund under the law in force, Dividend shall not be reserve fund.

In Company Act of India, there are some provisions regarding Dividends;

- Dividend should be paid only out of profit available after providing for depreciation as per rules and after transferring 10 percent or more of profits to reserve.
- Unpaid Dividend should be transferred to "Unpaid Dividend Account" with 7 days of the expiry of 42 days of dividend declarations. If not, the company shall pay an interest of 12 percent per annum.
- Any unpaid Dividend declared before enforcement of this Act should also be transferred to the "Unpaid Dividend Account" within six month from the commencement of this Act.
- Dividend remained unpaid or unclaimed for 3 years from the date of transfer to "Unpaid Dividend Account" must be transferred to the general reserve account of the central Government. The claimants still apply to the government.
- On transfer of the unpaid dividend to the general account the company must also furnish a statement in the prescribed form setting forth the nature of sums, the names and addresses of the concerned persons the amount to which each is entitled and the nature of his claim there to.

## **2.2 Empirical Review**

In this part, various studies related to dividend policy from different researchers in different time are reviewed for the study. For the review, some major studies from international scholars and their opinions and conclusions are reviewed in this section. Furthermore, different studies on the context of Nepalese dividend policy from different researchers and students are also reviewed.

### **2.2.1 Review of Major Studies**

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

There is always raise the critical and confused question, whether dividend policy affect the market value of the shares or not. To highlight this matter, different studies carried out by different international scholars and researchers should be overviewed. Therefore some of the main researches are going to be discussed below;

### **2.2.1.1 Walter's Study**

An approach developed by Professor Walter is of considerable interest. Walter conducted a study on dividend and stock prices in 1966.

The main point, which he emphasized, is that, there is a significant relationship between the internal rate of return and cost of capital are determining factors to retain profit or distribute dividends. As long as the internal rate of return (R) is greater than the market rate (K), the stock price will be enhanced by retentions and will very inversely with dividend payout.

Walter's model is based on the following assumptions;

- ⇒ The firm finances all investment through retained earnings that is, debt or new equity is not issued.
- ⇒ The firm's internal rate of return 'r' and its cost of capital 'k' are constant.
- ⇒ All earnings are either distributed as dividends or reinvested internally immediately.
- ⇒ The value of EPS and DPS are assumed to remain constant forever in determining a given value.
- ⇒ The firm has a very long or infinite life.

He insists in the fundamental premise that stock prices over the long period reveal the present value of the expected dividends. The retained earnings affect stock prices in consideration of their impact on future dividends. Operating on the objective of maximizing the wealth position of the ordinary shareholders, the appropriate dividend payout is suggested by the following formula

$$V_c = \frac{D + (Ra/Rc)(E - D)}{Rc}$$

Where,

$V_c$  = Theoretical market value of company's ordinary share

$R_a$  = Internal productivity of retained earnings

$R_c$  = Market capitalization rate

$E$  = Earning per share

$D$  = Dividend per share

According to Walter's model, the optimum dividend policy depends on the relationship between the firm's internal rate of return 'r' and its cost of capital 'k'. Walter's view on the optimum dividend payout ratio can be summarized as follows;

**a) Growth Firm ( $r > k$ )**

Growth firms are assumed to have ample profitable investment opportunities. These firms would reinvest retained earnings at a rate that is higher than the rate expected by shareholders from investing elsewhere. These firms will maximize the value per share if they follow a policy of retaining all earnings for internal investment. Thus, the optimum payout ratio for a growth firm is zero. The market value per share  $P_o$  increases as payout ratio declines when  $r > k$ .

**b) Normal Firms ( $r = k$ )**

If the firms have  $r = k$ , there is no role of stock prices variation i.e. dividends are indifferent from stock price. In other words dividend payment doesn't affect the value of the shares. Whether the firms retains the profit or distributes dividends is a matter of indifference. This kind of firm is referred as normal firms.

**c) Decline Firms ( $r < k$ )**

Some of the firms don't have any profitable investment opportunities to invest the earnings. Such firms would earn on their investments rates of returns less than the minimum rate required by

investors. Investors of such firms would like earnings to be distributed to them so that they may either spend it or invest elsewhere to get a rate higher than earned by declining firms. The market value per share of a decline firm with  $r < k$ , will be maximum when it does not retain earning at all. Thus, the optimum payout ratio for a declining firm is 100 percent.

Thus, in Walter's model, the dividend policy of the firm depends on the availability of investment opportunities and relationship between the firm's internal rate of return 'r' and cost of capital 'k'. Reinvestment, if  $(r > k)$ . If,  $(r < k)$  it should distribute all earnings as dividends. If  $r = k$ , would remain indifferent.

When dividend policy is treated as a financing decision the payment of cash dividends is passive residual.

### ***Limitations of Walter's model***

Walter has assumed that, firm is first financed by retained earnings. It can be applicable to only those firms who have financed all capital by equity. He has assumed that the firm's internal rate of return 'r' and cost of capital 'k' are equal if earnings per share and dividends per share are constant which is not applicable for Nepalese companies. Rate of return (r) changed with increase and decrease of investment, and cost of capital (k) changes with risk born by the firms.

### **2.2.1.2 Gordon's Study**

Myron Gordon in 1962, has developed another popular model explicitly relating the market value of firm to dividend policy, which explains that dividend policy affects the value of shares even in a situation where the return on investment and required rate of return are equal. This model explains those investors are not indifferent between current dividend and retention of earnings with the prospects of future dividends, capital gain and both. The conclusion of the study is that investor gives more emphasis to the present dividend more than future capital gain. His argument stresses that an increase in dividend payout ratio leads to increase in the stock price for the reason that investors consider the dividend yield ( $P_1/P_0$ ) is less risky than the expected capital gain.

Hence, investor's required rate of return increases as the amount of dividend decreases. This means there exist positive relationship between the amount of dividend and stock prices.

His model is based on the following assumptions;

- ⇒ The firm is an all-equity firm.
- ⇒ The internal rate of return (R) and cost of capital (Ke) are constant.
- ⇒ The firm and its stream of earnings are perpetual.
- ⇒ The corporate taxes do not exist.
- ⇒ The retention ratio 'b' once decided upon is constant. Thus the growth rate  $g = br$  is constant.
- ⇒ Ke must be greater than 'g'.
- ⇒ No external financing is available, so retained earnings would be used to finance for any expansion.

Based on the above assumptions, Gordon has provided following formula, to determine the market value of a share.

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

Where,

P = Price of the share

E = Earning per share

b = Retention ratio

$1 - b$  = Percentage of earnings as dividends

$E(1 - b)$  = Dividend per share

$K_e$  = Capitalization rate or cost of capital

$br$  = Growth rate (g)



According to this model, the following facts are revealed.

In the case of growth firm, share price tend to decline in correspondence with increase in payout ratio of decrease in retention ratio i.e. high dividend corresponds to earnings leads to decrease in share prices. Therefore, dividend and stock prices are negatively correlated in growth firm. But in the case of normal firm, share value remains constant regardless of changes in dividend policies. It means dividend and stock prices are free from each other in normal firm i.e.  $r = k$  firm. In the case of declining firm, share price tends to rise in corresponding with rise in dividend and stock price are positively correlated with each other in declining firm.

### 2.2.1.3 Modigliani & Miller's Study

In their 1961 article, MM hypothesis provides the most comprehensive argument in support of the irrelevance of dividends i.e. dividend policy has no effect on the share price of the firm. They argue that the value of the firm depends on the firm's earnings, which result from its investment policy. Thus, when investment decision of the firm is given, dividend decision, the split of earnings between dividends and retained earnings is of no significance in determining the value of the firm.

Their hypothesis of irrelevance is based on the following assumption;

- ⇒ The firm operates in perfect capital market.
- ⇒ There are no taxes.
- ⇒ The firm has a fixed investment policy.
- ⇒ Risk of uncertainty does not exist.

Considering the above assumption, MM formula to determine the value of the firm is as follows;

$$Np_0 = \frac{p_1 (n + \Delta n) - I + E}{1 + K_e}$$

Where,

$Np_0$  = Value of the firm

$p_1$  = Market price of the share at the end of year

$n$  = no of existing shares

$\Delta n$  = no of additional shares

$I$  = Total investment

$E$  = Total earning of the firm

There is no any role of dividend in above equation. So Modigliani and Miller concluded that dividend policy has no effect on the share price or value of the firm.

The MM proposition is not relevant in case of Nepal since its assumption significantly deviates when it is applied. The assumption of perfect capital market mechanism and rational investors prove faulty assumptions in case of Nepal. Flotation cost, transformation cost and tax effect on capital gain are neglected by MM hypothesis, which is not appropriate. For the assumption of 'in a world without taxes', one critic satires, 'such a world is probably a moon or other planet in the universe'. Tax is everywhere in the world. Without taxes, the world economy is not possible. Arbitrage argument as described by MM applied only when there are very sensitive investors and which are lacking in Nepal. The assumption that investors are indifferent between dividend and retained earnings does hold true for unconscious investors.

#### **2.2.1.4 Linter's Study**

Linter (1956) made an important study focusing on the behavioral aspect of dividend policy in the American context. He investigated a partial adjustment model as he tested the dividend patterns of some 28 companies. He concluded that a major portion of the dividend of a firm could be expressed in the following way;

$$DIV_t = pEPS_t \text{ ----- (1)}$$

and,

$$DIV_t - DIV_{t-1} = a + b(DIV_t - DIV_{t-1}) + e_t \text{ ----- (2)}$$

Or,

$$DIV_t = a + bDIV_t + (1 - b)DIV_{t-1} + e_t \text{-----}(3)$$

Where,

$DIV_t$  = Firm's desired payment

$EPS_t$  = earnings

$P$  = targeted payout ratio

$a$  = constant relating to dividend growth

$b$  = the adjustment factor relating to the previous period's dividend and new desired level of dividends where  $b < 1$

The major findings of this study were as follows;

- ⇒ Firms generally think in terms of proportion of earnings to be paid out.
- ⇒ Investment requirements 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 (or dividend rate).

### **2.2.1.5 Friend & Puckett's Study**

Friend and Puckett (1964) conducted the study and the relationship between dividends and stock prices, by running regression analysis on the data of 110 firms from five industries in the years 1956 and 1958. These five industries were chemicals, electric utilities, electronics, food and steels. These industries were selected to permit a distinction made between the results for growth and non-growth industries and provide the basis for comparison with result by other authors for

earlier years. They also considered cyclical and non-cyclical industries that they covered. The study periods covered a boom year for the economy when stock prices, leveled off after rise (1956) and a somewhat depressed year for the economy when the stock prices however, rise strongly (1958).

They used dividends, retained earnings and price earnings ratio as independent variables in their regression model of price function. They used supply function and dividend function as well. In their dividend function earnings, last year's dividends and price earnings ratio are independent variables. They quoted that; the dividend supply function was developed by adding, to the best types of relationship developed by Linter.

Symbolically, their price function and dividend supply function are presented below;

***Price Function:***

$$P_t = a + bD_t + cR_t + d (P/E)_{t-1}$$

Where,

$P_t$  = Per share price at time 't'

$D_t$  = Dividends at time 't'

$R_t$  = Retained earnings at time 't'

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

***Dividend Supply Function:***

$$D_t = e + fE_t + gD_{t-1} + h (P/E)_{t-1}$$

Where,

$E_t$  = earning per share at time 't'

$D_{t-1}$  = Last year Dividend

Their study based on the following assumptions;

- ⇒ Price does not contain speculation components.
- ⇒ Earnings fluctuation may not sum zero over the sample.

Their regression results based on the equation of  $P_t = a + b D_t + cR_t$  showed the company's strong dividend and relatively weak retained earnings effects on three of the five industries, i.e. chemicals, foods and steels. Again they tested other regression equation by adding lagged earnings price ratio to the above equation and resulted the following equation,  $P_t = a + b D_t + cR_t + d(E/P)_{t-1}$ . They found that more than 80% of the variation in stock prices could be explained by three independent variables. Dividend have predominant influence on stock prices in the same three industries out of five industries but they found the difference between the dividend and retained earnings coefficients are not quite so market as in the first set of regressions. They also found that the dividends and retained earnings coefficients are closed to each other for all industries in both years except for steels in 1956, and the correlation are higher again except for steel.

They also calculated dividend supply equation i.e.  $D_t = e + fE_t + gD_{t-1} + h(P/E)_{t-1}$  and they derived price equation for industry group in 1958. In their derived price equation is seems that there was no significant changes from those obtained from the single equation approach as explained above. They argued that the stock prices more accurately the price earning ratio does not seem to have a significant effect on dividend payout. On the other hand, they noted that the retained earnings effect is increased relatively in three of the four cases tested. Further, they argued that their results suggested price effects on dividend are probably not a serious source of bias in the customer derivation of dividend and retained earnings affects on stock prices. Though, such a bias might be marked. The disturbing effect of short run income movements is sufficiently great.

Further, they used lagged price as a variable instead of lagged earnings price ratio and showed that more than 90% of variation in stock prices can be explained by the three independent variables and retained earnings received greater relative weight than dividends in the most of the

cases. The only exceptions were steels and foods in 1958. They considered chemicals, electronics and utilities as growth industries in their groups and the retained earnings effect was larger than the dividend effect for both years covered. For the other two industries, namely food and steel, there were no significant systematic differences between the retained earnings and dividend coefficients.

Similarly, they tested the regression equation of  $P_t = a + b D_t + cR$  by using normalized earnings again. They obtained normalized retained earnings by subtracting dividends from normalized earnings. That normalization procedure was based on the period 1950-61. Again, they added the prior year's normalized earnings price variable and they compared the result. Comparing the result they found that there was significant role of normalized earnings. When they examine the later equation they found that the difference between dividends and retained earnings coefficients disappeared. Finally they excluded that management might be able to increase prices some what by raising dividends in foods and steels industries. Finally, Friend and Puckett concluded that it is possible that management might be able, at least in some measure to increase stock prices in non-growth industries by raising dividends and growth industries by greater retention, i.e. low dividends.

#### **2.2.1.6 R. P. Mahapatra & P. K. Sahu's Study**

R. P. Mahapatra and P. K. Sahu (1977-78 to 1988-89) studied on determinants of corporate dividend behavior in India and econometric analysis. The objectives of their study were as follow;

- ❖ To examine the relative significance of some known dividend models in the Indian situation.
- ❖ To enquire into the determinants of corporate dividend behavior with the help of some known regression models.

Their study was based on the judgmental sample of 90 companies for period 1977-78 to 1988-89. They collected the data from various volumes of Bombay stock exchange official directory, covering a period of 12 years i.e. from 1977-78 to 1988-89.

The known dividend models they use to examine the relative significance in the Indian situation were as follows;

***Linter's Model***

$$D_t = a_1 + a_1p_t + a_2D_{t-1} + U_t$$

***Britain's Cash Flow Model***

$$D_t = a_1 + a_1c_t + a_2D_{t-1} + U_t$$

***Britain's explicit depreciation Model***

$$D_t = a_0 + a_1p_t + a_2D_{t-1} + a_3A_tU_t$$

***Darling Model***

$$D_t = a_0 + a_1p_t + a_2D_{t-1} + a_3A_t + a_4\Delta S_{-2} + U_t$$

Where,

$D_t$  and  $D_{t-1}$  = Total equity dividend in period 't' and 't-1' respectively

$P_t$  and  $P_{t-1}$  = Net Profit after tax in period 't' and 't-1' respectively

$C_t$  = Cash Flow in period 't'

$A_t$  = Amount of depreciation in period 't'

$\Delta S_{-2}$  = Change in sales in a year over the preceding two years

$U_t$  = Error term

A comparative review of the various regression models used in their study revealed that Britain's cash flow model is the "model of good fit" not only at the macro level, but also at the industry group level in the Indian situation. None of the other models provide as satisfactory explanation of dividend behavior as Britain's cash flow model. Based on this model, their study attempted to examine the impact of a few more determinants of dividend behavior with the help of their

sample data. Those determinants were Investment Demand (ID), Flow of Net Debt (FND), Interest (I), Liquidity (L), Behavior of Share Price (SP) and changes in the Britain's cash flow model, which provided the model of good fit in most of the sample classifications.

After using various regression equations they found that dividend decision is primarily governed by cash flow, a measure of company's capacity to pay and dividend paid in the previous year, in majority of the sample companies.

Among other determinants, investment demand has been found having significant impact on the dividend decision of electrical goods and chemical industries. The impact of flow of net debt on dividend decision found significant in care of new companies at the aggregate level and paper industry at the industry group level of their study. Similarly, they found that liquidity factor turns out to be a significant determinant of dividend payout in cotton and general engineering industries of their study. They found that determinants like interest payment, change in sales and behavior of share prices in general do not have any significant bearing on the dividend decision of the sample companies.

The findings of the above mentioned studies conducted in the context of India may or may not be applicable in Nepalese perspective because of dissimilarities that exist between Nepalese and Indian Capital market environment. Indian capital market is very big matured, organized and very several years of experiences. Nepalese capital market is small, unorganized and has experience only few years. Hence the Indian result may not be directly comparable to that of Nepal.

### **2.2.2 Review of Major Studies on Nepalese context**

Since Nepalese capital market is small, and at emerging stage, there are few studies regarding corporate dividend policy and its impact on share prices. Here is little review of studies in Nepalese perspective;



### **2.2.2.1 Shrestha's Study**

There are very few articles published related to dividend in Nepal. The article by Shrestha published in 1981 about the dividend performance of some public enterprises highlighted the following issues.

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

The article point's irony about government business that government has not allowed banks to follow an independent dividend policy and HMG is found to pressurize dividend payment in case of Nepal Bank Limited regardless of profit. But it has allowed Rastriya Banijya Bank to be relieved from dividend obligation in spite of considerable profit.

### **2.2.2.2 Pradhan's Study**

The study on stock market behavior in small capital market is a popular case study made by Pradhan.

Pradhan's study was based on the data collected from 17 enterprises from 1986 through 1990.

The objectives of this study were as follows;

- ◆ To assess the stock market behavior of Nepal.
- ◆ To examine the relationship of market equity, market value to book value, price earnings and dividends with liquidity, profitability level age, assets turnover and interest coverage.

Some findings of his study, among others are as follows;

- ❖ Higher the earnings on stock 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 ratio of dividend per share to market price per share and interest coverage.

- ❖ Positive relationship between dividend payout and liquidity.
- ❖ Positive relationship between dividend payout and profitability.
- ❖ Positive relationship between dividend payout and turnover ratios.
- ❖ Positive relationship between dividend payout and interest coverage.
- ❖ Liquidity and leverage ratios are more variable for the stock paying lower dividends.
- ❖ Earnings, assets turnover and interest leverage are more variable for the stock paying higher dividends.

**(Pradhan, 1993 : 23-49)**

### **2.2.2.3 Manandhar's Study**

The main statement of the problem of the study is to set test whether Nepalese corporate firms consider the lagged earnings and pay dividend in current year. To test this problem, he has considered 17 corporate companies as sample and set different hypothesis and drawn the following conclusion;

- There is significant relationship between the change in dividend policy in terms of DPS and change in lagged earnings.
- There is positive relationship between change in lagged consecutive earnings and dividend per share.
- There is relation between distributed lag profits and dividend.
- When change in lagged consecutive earnings is greater than zero, in 65% of the case change in dividend per share.
- Increase in EPS has resulted to increase in the dividend payment in 66.6% of the cases, while decrease in EPS has resulted decrease in dividend payment.
- Nepalese corporate firms have followed the practice of maintaining constant dividend payment per share.
- Corporate firm do not take into account one year or two year lagged earnings.

**(Manandhar, 2000 : 5-12)**

## 2.3 Review of Master's Degree Thesis

In this review section, the unpublished thesis reports prepared by students of master's level are reviewed for the further highlight on the dividend policy and its impact on share price.

**Gautam, Rishi Raj (1998)** *“Dividend Policy in Commercial Banks, A Comparative Study of NGBL, NIBL and NABIL”*

The main objectives of the study were;

- a) To identify the type of dividend policy followed by the banks
- b) To examine the impact of dividend on share price
- c) To identify the relationship between DPS and other financial indicators
- d) To know the uniformity among DPS, EPS and DPR of the sample companies

With various analyses, following conclusions were drawn from the study;

- a) No clearly defined dividend policy is found followed by the sample companies
- b) The market price of the share does not seem to be more or less dependent on EPS or DPS
- c) No significant relationship between DPS and other financial indicators
- d) No uniformity in EPS but prominent difference in DPS and DPR

**Rajbhandari, Prerana Laxmi (2001)** *“Dividend Policy: A comparative Study between Banks and Insurance Cos.”*

The main objective of her study is to find out the appropriate dividend policies and practices in Nepal. The specific objectives of her study were:

- a) To examine the relationship between dividend and market price of the stock.
- b) To identify the appropriate dividend policy followed by the banks and insurance companies.
- c) To analyze the relation between dividend policy decision of banks and insurance companies.

In her comparative, she concluded that the sample institutions have average earnings which can be considered satisfactory. However, no consistency in dividend payment is found in all the

sample institutions i.e. NGBL, NIBL, KBL, NIC and EIC except NLGI which seems to be paying average DPS Rs. 20 every year.

On her study, she further concluded that none of the six sample institutions have a clearly defined and appropriate dividend policy. The dissimilarity and insignificant relationship between the financial indicators of all three banks and insurance companies helps to conclude that they don't seem to follow and practice the dividend policy as established and developed in our context. However the analysis based on pooled data of dividend payment ratio between banks and insurance companies concluded that there is a kind of similarity in dividend payment decision of banks and insurance companies.

She further concluded on investors that they are not found to be investing their capital by studying the financial performance of the institutions but rather randomly without properly understanding the stock market.

The institutions don't seem to follow the optimal dividend policy of paying regular dividend as per the shareholder's expectation and interest. This would create (increase) uncertainty among the shareholders. But this does not mean that the institutions need to follow liberal dividend policy as the shareholders might even expect higher dividend as always. If the institutions are liberal on shareholders, it might make the company to raise extra capital in the near future.

The major findings of the study also makes conclusion that controversy existed in declaring dividend by the companies in the sense that the major factors like the earning and liquidity position of the firm have been neglected, ignored and disregarded which must have been considered the most.

**Kunwar, Subhash (2001)** *“Dividend Policy: A comparative Study between Nepal Insurance Co. Ltd. and National and General Insurance Co. Ltd.”*

The main objectives of his study are:

- a) To examine the influence of financial indicators on share price.
- b) To show the relationship between dividend per share and other financial indicators.

- c) To check the consistencies amongst DPS, EPS, D/P ratio etc. of the sample insurance company.
- d) To identify the dividend policy undertaken by each company and the appropriateness of the policy undertaken.
- e) To provide useful suggestions to formulate optimal dividend policy and maximize stock price on the basis of findings.

The methodology used in the study included, financial tools such as ratio analysis and statistical tools such as correlation analysis, etc. He used secondary data for the analysis.

He concluded that there are many factors that influence the dividend and the market value of share such as earnings, liquidity position, efficiency and leverage. These factors indicate the financial position of the company. If the company has good performance in terms of these factors it will be able to provide returns in the form of dividends to its Shareholders.

**Raya, Sarita (2008)** *“The Study of Dividend Policy of the Commercial Banks in Nepal”*

The main objectives of her study are:

- a) To study whether the commercial banks are following the suitable dividend policy or not.
- b) To compare the dividend policy followed by different commercial banks chooses.
- c) To study the relationship of dividend policy with various financial indicators like EPS, DPS, MPS, DPR, net worth, net profit and book value of share.
- d) To provide some fruitful suggestion to the sample banks chooses regarding their dividend policy, so that they can follow the better policy if the existing policy is not fruitful enough.

The methodology used in the study included, financial tools such as ratio analysis and statistical tools such as correlation analysis and test of hypothesis etc. She used secondary data for the analysis.

The major findings of her study are :-

- 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) There seems instability of dividend and inconsistency in dividend payout ratio of the banks.
- c) 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. Promoter lures investors mentioning to pay attractive dividends, when company makes profit. However in reality, most of the companies are deviated from their statement as promise in prospectus.
- d) Government does not have any clear policy towards dividend and to improve the efficiency of the companies. The number of companies can not earn enough profit and bureaucrats accused the cause of inefficiency to managers which is not sound.

**Luitel, B. (2006)** *“Dividend policy and its impact on share price in Nepalese context”*

The main objectives of the research are:-

- a) To study the prevailing practices and effort made in dividend policy among the firms.
- b) To find the impact of dividend policy on share price.
- c) To analyze the uniformity among DPS, EPS, MPS and DPR.
- d) To provide suggestions and recommendations.

The researcher has selected three commercial banks and three manufacturing companies as sample for the study. From the study, the researcher has specified following conclusions;

- a) The market price of the share is the consequent results of various factors. Since the study aims at finding the impacts of dividend policy on the market price of the share.
- b) The study of DPS and MPS indicate that stocks with larger ratio of dividend per share to market price per share have higher dividend yield.
- c) The better the liquidity position the higher will be the amount to pay dividend.
- d) The more the earning generated by the company, the higher will be the dividend distribution and vice versa since EPS and DPS are positively correlated.

- e) The positive correlation between the MPS and DPS calls to draw the conclusion that the more the company distribute dividend the higher will be the market price per share. However, the bonus share distribution intervened this conclusion because such relation is negative in case of NIC, UNL and NLOL. It may be the impact of intervening variable like bonus share.
- f) This study rests to conclude that the cash dividend can't be said as a sole factor to affect price of share. But there are other factors like earning power, bonus share, information value of dividend decisions etc. that also cause the share price fluctuation. In the imperfection market mechanism like Nepalese share market, the security brokers, other market makers and the rumors they spread in market have also a significant role in the share price fluctuation.

**Dhungel, Bhasker (2009)** *“A study on dividend policy of Everest Bank Limited and Bank Of Kathmandu Limited”*

The major objectives of his study are:-

- a) To identify what type of dividend policy is being followed and whether or not the followed policy is appropriate in Bank of Kathmandu and Everest Bank Limited
- b) To highlight dividend practices of the Bank of Kathmandu and Everest Bank Limited.
- c) To analyze the relationship between dividend per share with various important variables such as earning per share, net profit, net worth and stock prices.
- d) To provide a practical suggestion and possible guidelines to overcome various issues and gapes based on the findings of the analysis.

The major findings of his study are:-

- a) The Everest Bank seems to be much more successful in satisfying shareholders through distributing cash and bonus share dividend.
- b) The Everest Bank was able to generate higher amount of earning per share and hence maintaining the higher market value of share.
- c) BOK seems to be generous in distributing dividend by providing high dividend payout ratio and keeping good relationship between DPS, EPS and MPS.

- d) The dividend payout ratio shows that BOK has the policy of alluring its shareholders and EBL has the policy of retaining its earning for internal financing.

**Yadav, Vijay Kumar (2007)** *“Dividend policy and its impact on market price of stock”*

The major objectives of his study are:-

- a) To study the existing practices and effort made in dividend policy among the firms..
- b) To analyze the consistency and uniformity among DPS, EPS, MPS and DPR.
- c) To find the impact of dividend policy on market price of stock.

He selected two commercial banks and two insurance companies for the study. The selected companies are Nepal Arab Bank Limited, Himalayan Bank Limited, Himalayan General Insurance Company Limited and United Insurance Company Nepal Limited.

The methodology used in the study included, financial tools such as ratio analysis and statistical tools such as correlation analysis, regression analysis and test of hypothesis etc. She used secondary data for the analysis.

The major findings of his study are:-

- a) There is not any consistency in the dividend policy of the sample firms, therefore sometimes the result of the different test accept the theoretical assumptions of dividend policy and sometimes do not.
- b) Majority of Nepalese firm gives first priority to “earning” to get into the decision of dividend. The second priority goes to the “cash availability” and third priority is given to “past dividend”
- c) HBL is a strong company with the financial market reputation, if the result of it compared to other firms, it can be said that although EPS affects DPS it is less concerned with MPS. Therefore the MPS is more or less dependent with DPS in the efficient capital market



**Maharjan, Mana (2008) “Dividend Policy of Listed Commercial Banks”**

The major objectives of the study are:-

- a) To examine the dividend policies of listed banks.
- b) To analyze the relationship between dividends per share (DPS), earning per share (EPS) and market price per share (MPS).
- c) To analyze the effect of dividend on share price
- d) To provide suggestions to the listed banks for the improvement of their dividend policies on the basis of findings

. The methodology used in the study included, financial tools such as ratio analysis and statistical tools such as correlation analysis, regression analysis, trend analysis and test of hypothesis etc. She used secondary data for the analysis.

The researcher selected 9 commercial banks for the research.

The major findings of the research are:

- a) Earning per share of banks are increasing which indicates that banks in Nepal are doing well.
- b) Commercial banks of Nepal prefer cash dividend rather than stock dividend because it is easy and low operation cost to distribute likewise they prefer to provide fair return to Shareholders because in the one hand they have to increase their capital base by year 2060 and in the other hand they have to retain the market image as well.
- c) The share price in Nepal affected by various other factors rather than the earnings and dividend of those banks.

## **2.4 Research Gap**

In this study, I have gone through lots of papers, journals and articles issued by respective banks which are related to dividend policy that helps to identify its effect on financial indicators, relationship among them and show a glance of actual dividend behavior in Nepal. Moreover, I

also went through comprehensive study from various websites including, official website of respective banks, NEPSE and SEBO. And I hope this makes the study more comprehensive in comparison to other studies. Also, the chosen banks have drastically different data, hence yields more exact dividend behavior of commercial banks in Nepal. This research will be helpful to understand some aspects of dividend policy of commercial banks of Nepal and provides present scenario of dividend payments. Hence, it has been believed that this study will be different and comprehensive compared to previous studies.

## **CHAPTER THREE**

# **RESEARCH METHODOLOGY**

### **Introduction**

Research in common parlance refers to a search for knowledge. The Webster International Dictionary gives a very inclusive definition of research as a careful critical inquiry or examination in seeking facts and principles; diligent investigation in order to ascertain something.

Research Methodology is a way to systematically solve the research problem. It may be understood as a science of studying how research is done scientifically. In it we study the various steps that are generally adopted by a researcher, studying his research problem along with the logic behind them.

This chapter looks into the research design, nature and sources of data, data collection procedure and tools & technique of analysis.

A research methodology helps us to find out accuracy, validity and suitability. The justification on the present study can not be obtained without help of proper research methodology. For the purpose of achieving the objectives of study the applied methodology is used. The research methodology used in the present study is briefly mentioned below.

### **3.1 Research Design**

The research design is a mixture of descriptive, exploratory, and analytical. While analyzing the research, both parametric and non-parametric tools will be used wherever and whenever necessary.

A research design is the arrangement of condition for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure. Descriptive and analytical research designs have been used to this study. With the help of maintained research design the study evaluates the dividend policy structure of selected sample commercial banks as well as its impact on the market price of the stocks of the respective banks.

The research design is basically focused on analytical study. Ratio analysis, correlation and regression analysis have been done for analyzing the research. The research examines the relationship of EPS, MPS and DPS with respect to the dividend policy of the banks.

## **3.2 Sources of Data**

Data is the raw material for any kind of research through which further analysis of study can be done. Therefore, data collection happens to be a very important task. In this study, various types of data collection methods are adopted. They are presented in the tabular and graphic method as required in this report. Mainly primary and secondary data collection methods have been used.

The primary data are those which are collected a fresh and for the first time and thus happen to be original in character. The Secondary data, on the other hand are those, which have already been collected by some one else and already, been passed through the statistical process.

Primary sources of necessary data and materials will be collected from direct and indirect conversation with the employees or staffs and the customers of various commercial banks. Some materials and data will be collected from interview, face to face and telephone interview company officials, customers of the company and various departments whenever and wherever necessary.

Secondary sources of data will be collected from the Annual Reports of sample commercial banks, final accounts, income statements, official records, financial statistics and other journals. Various financial reports from Securities Board of Nepal (SEBO), Nepal Stock Exchange (NEPSE), Nepal Rastra Bank (NRB) and other financial organizations will provide other necessary data needed for the study. Various other related organizations and departments will be visited to collect necessary data for the study.

The study is mainly based on secondary data. So, the major sources of secondary data for this study are as follows:

- a) Annual reports of the NIC
- b) Annual reports of the MBL
- c) Annual reports of the KBL
- d) Reports of NRB
- e) Reports of NEPSE
- f) Published and unpublished bulletins, reports relating to dividend policy
- g) Previous studies and reports
- h) Unpublished official records
- i) Various Books
- j) Various Internet Websites

### **3.3 Population and Sample**

According to NEPSE, currently about 23 commercial banks are operating with expanding their branches all over the country. So collection the data from all banks is very complicated. With that reason only some banks are chosen as sample for the study. The study will mainly focus the data from such sample commercial banks. The selected commercial banks for the sample are;

- 1) NIC Bank Limited (NIC)
- 2) Machhapuchhre Bank Limited (MBL)
- 3) Kumari Bank Limited (KBL)

It has been made a best effort to select the combination of three commercial banks which were not chosen for the research purpose before.

### **3.4 Data Collection Procedure**

The data and information are collected from both the primary and secondary sources. For the collection of secondary data and information, directives of Nepal Rastra Bank, annual reports selected sample commercial banks; various publications of Nepal Rastra Bank, Security Board of Nepal, NEPSE, magazines, the other publications and the internet websites have been used to search about the dividend policy. Also, for other related information, various books and periodicals have been referred from library.

### **3.5 Data Analysis Tools**

Since the study will be including both primary and secondary data, the financial and statistical tools will be used to analyze the relationship between the variables. Central Tendency Measurement, Regression analysis and other ratio analysis will be used to analyze the collected data.

The relationship between different variables related to study topic will be illustrated with the use of different financial and statistical tools. The various calculated results obtained through financial and statistical tools will be tabulated. Then, the results will be compared with various other results and interpreted.

Various processing tools are used to present and analyze the data collected from different sources. The data from different sources are in raw form. Those data should be presented in various statistical ways. For the analysis of the data, different statistical tools such as percentage, ratios, mean, standard deviation and other comparisons are calculated for effective study.

Before analyzing the data, the data and information have been presented systematically in the formats of Tables, Graphs and Charts which will explain a lot about the data and information collected.

For the analysis of the research study, the following financial tools and statistical tools are used.

### 3.5.1 Financial Tools

Ratio analysis is the best and widely used tools for financial analysis. It measures the strength and weakness of the company. A ratio is defined as a relationship between two components, numbers, amount or measurements, which shows how much greater one is than another. Hence, a ratio analysis refers to the quantitative relationship between two variables. Ratios can be taken as expression of relationships between two items or group of items and therefore may be calculated in any number and ways so far meaningful co-relationship is obtainable.

*Pandey (1995)* emphasizes that a ratio is used as a benchmark for evaluating the financial position and performance of a firm.

There are some measures to analyze the effectiveness of the Dividend Policy. These measures are useful to both company and the stockholders. So, following measures will be used in the study;

- **Dividend Per Share (DPS):** The Net Profit after the deduction of taxes belongs to the shareholders. The amount of earning distributed and paid as cash dividend on per share basis is Dividend Per Share (DPS). DPS shows the part of earning distributed to the shareholders on per share basis.

$$DPS = \frac{\text{Total Dividend to shareholders}}{\text{No. of Shares Outstanding}}$$

- **Earning Per Share (EPS):** Apart from the rate of return, the profitability of a firm from the point of view of the ordinary shareholders is the Earning Per Share (EPS). It measures the profit available to the equity shareholders on per share basis. EPS will be useful to evaluate change in the company's earning power on per share basis over certain period of time or year.

$$EPS = \frac{\text{Net Profit after Tax}}{\text{No. of Shares Outstanding}}$$

- **Market Price Per Share (MPS):** It is the value of the stock which is traded in the secondary market of the stock. It is generally believed that if the EPS and DPS are high, the market value of the share (MPS) will also be high.

- **Dividend Payout Ratio (DPR):** This ratio measures the relationship between the earning belonging to the ordinary shareholders and the dividend paid to them. It measures the percentage of earnings that the company pays in terms of dividends to the shareholders. It will also show the percentage of earnings to be retained as reserve for the future investment for the company.

$$DPR = \frac{DPS}{EPS}$$

- **Price Earning Ratio (P/E Ratio):** This ratio reflects the market value per share for each rupee of currently reported earning per share.

$$P/E \text{ Ratio} = \frac{MPS}{EPS}$$

- **Dividend Yield Ratio (DYR):** It is defined as the ratio of dividend per share to market value per ordinary share. Its measures the return that an investor can make from dividends alone.

$$DYR = \frac{DPS}{MPS}$$

- **Earning Yield Ratio (EYR):** The ratio is defined as the ratio of earnings per share to market value per ordinary share.

$$EYR = \frac{EPS}{MPS}$$

- **Net Worth Per Share (NWPS):** Net Worth Per Share is a measurement of the net worth of the company for each share of stock that has been issued.

$$NWPS = \frac{\text{Shareholders' Equity}}{\text{Number of Shares}}$$

- **Market Value to Book Value (MV/BV) Ratio:**

$$MV/BV \text{ Ratio} = \frac{\text{Market Value Per Share}}{\text{Book Value Per Share (Net Worth)}}$$



### 3.5.2 Statistical Tools

The basic tools of statistics are Average or Mean, Standard Deviation ( $\bar{x}$ ) and Coefficient of Variation (C.V.). The following formulae have been used to calculate the value of Mean ( $\bar{x}$ ), Standard Deviation ( $\sigma$ ) and Coefficient of Variation (C.V.);

$$\text{Average or Mean } (\bar{x}) = \frac{\sum x}{n}$$

$$\text{Standard Deviation } (\sigma) = \sqrt{\frac{\sum X^2}{n-1} - \left(\frac{\sum X}{n-1}\right)^2}$$

$$= \sqrt{\frac{\sum (X - \bar{x})^2}{n-1}}$$

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

There are other statistical tools available to measure the relationship between two data, validity of the calculations and other measures. The following statistical tools are also used to analyze the calculated data:

#### 3.5.2.1 Correlation Analysis

The relation between two variables is correlated by Karl Pearson's correlation co-efficient. The following is the formula proposed by Karl Pearson for calculation of correlation coefficient.

$$R = \frac{N\sum XY - \sum X\sum Y}{\sqrt{N\sum X^2 - (\sum X)^2}\sqrt{N\sum Y^2 - (\sum Y)^2}}$$

Where,

N = Numbers of pairs in observation

X = Product of the first variable

Y = Product of the second variable

To ease the calculation, a shortcut formula has been proposed which has been used in to calculate correlation coefficients in this thesis report. The shortcut formula is as follows:

$$R = \frac{\sum xy}{\sqrt{\sum x^2} \sqrt{\sum y^2}}$$

Where,

$$x = (X - \bar{X})$$

$$y = (Y - \bar{Y})$$

Coefficient of Determination ( $R^2$ )

### 3.5.2.2 Regression Analysis

$$Y = a + bX$$

Y → Dependent Variable

a → Intercept (Regression Constant)

b → Slope variable (Regression Coefficient)

X → Independent Variable

This model has been applied to examine the relationship between

EPS and DPS

EPS and MPS

MPS and DPS

Standard Error of Estimate (SEE)

### 3.5.2.3 Test of Hypothesis

Test of Hypothesis is one of the important aspects of statistical methods. “In testing of hypothesis, an assumption is made about the population parameter. To test whether the assumptions or hypothesis is right or not, a sample is selected from the population, sample statistic is obtained, observe the difference between sample and the population hypothesized value, and test, whether the difference is significant. Smaller the difference, the sample mean is close to the hypothesized value, and larger the difference the hypothesized value has low chance to be correct.”

There are different tests to check the hypothesized value. Such as Z-test, F-test, t-Test and  $\chi^2$ -test. The suitable test should be used according to the nature of the data.

For the test of hypothesis, the correlation of capital fund with collection of deposits and the correlation of capital fund with the credit are tested. The correlation of the capital with the collection of deposits and credit is more important than others. It is because where the capital position is stronger; more deposits could be attracted and invested into the form of credit. So capital fund has some relation with the deposits and the credits. So as the collection of deposits and creation of credit can boost the performance of the bank.

The calculated correlation coefficients have been used to test the hypothesis by using the following t-test formula:

$$t = \frac{r * \sqrt{n - 2}}{\sqrt{1 - r^2}}$$

Where,

$r$  = calculated correlation coefficient

$n$  = number of observations

The hypotheses have been tested with at a 95% level of confidence.

## **T- Statistic**

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 “t” value is calculated first and then compared with the table value of “t” at a certain level of significance for given degree of freedom. If the calculated value of “t” exceeds the table value, we infer that the difference is significant at 5% level but if “t” value is less than the concerning table value of the “t” the difference is not treated as significant.

## **F-Statistic**

To test the validity of the assumption, f-test is also used. The difference between two sample mean can be studied through t-test whereas to examine the significance of the differences between more than two sample means at one at the same time, F-test is used. F-test, i.e. the technique of analyzing variance enables to test the significance of difference between more than two sample means. Using this technique, one will be able to make inferences about whether his/her regression equation provides statistically significant result or not.

## **CHAPTER FOUR**

### **PRESENTATION AND ANALYSIS OF DATA**

The main purpose of analyzing the data is to change it from an unprocessed form to an understandable presentation. The analysis of data consists of organizing, tabulating, and performing statistical analysis.

This chapter consists of presentation and analysis of data which is collected from different sources. The data is mainly focused on the capital adequacy position and its impact on the performance of the sample banks. To obtain best result, the data and information have been analyzed with the measures of different financial and analytical tools by using appropriate tables, graphs, formulae, hypothesis and other tools.

#### **Presentation of Data**

The collected data and information are presented in this section. Various tables, charts and graphs are used to best present the data. The data and information has been presented in most understandable format.

Dividend is a periodic payment made by a company to its shareholders. It is compensation to the shareholders for the use of and risk to their investment funds. Or in other words, it is that portion of the net earning divided by the company among the shareholders as a return for their money invested.

For the study of dividend policy of commercial banks in Nepal, 3 commercial banks are selected as sample banks. From the selected sample banks, data related to dividend policy are collected and presented as well as analyzed in this chapter.

## 4.1 Analysis of financial indicators

### 4.1.1 DPS of selected banks

Dividend per share (DPS) is that amount, which is paid to common shareholders on a per share basis. DPS shows that what exactly do the ordinary shareholders receive. It is calculated by dividing the total dividend to equity shareholders by the total numbers of equity shares.

The Dividend Per Share of the sample banks is presented in the following Table 4.1.1.

#### Cash Dividend

**Table 4.1.1**  
**Dividend Per Share**

<b>Fiscal Year</b>	<b>NIC</b>	<b>MBL</b>	<b>KBL</b>
<b>2060/61</b>	0	0	0
<b>2061/62</b>	10	0	0
<b>2062/63</b>	0.53	0.79	1.05
<b>2063/64</b>	1.05	0	1.05
<b>2064/65</b>	1.05	1.05	0.53
<b>Mean (<math>\bar{x}</math>)</b>	<b>2.53</b>	<b>0.37</b>	<b>0.53</b>
<b>S.D. (<math>\sigma</math>)</b>	<b>4.20</b>	<b>0.51</b>	<b>0.53</b>
<b>CV %</b>	<b>166.30</b>	<b>139.19</b>	<b>99.81</b>

*Source: Annual Reports of NIC, MBL and KBL*

The cash dividend per share shown in the table 4.1.1 reflects that DPS of NIC has ranged between zero (0) to Rs.1.05. Similarly, NIC has not paid any cash dividend in the fiscal year

2060/61. In FY 2061/62 NIC has DPS of Rs 10. The DPS decreased drastically to Rs. 0.53 in FY 2062/63 and then remain constant Rs. 1.05 in following two fiscal years 2063/2064 and 2064/65. In average, NIC paid cash dividend of Rs.2.53 in the entire period taken for research. The standard deviation and the coefficient of variation of the bank are 4.20 and 166.30% respectively, both being highest among the selected banks. The coefficient of variation indicates that there is 166.30% fluctuation in the DPS, which indicates there is high inconsistency in DPS.

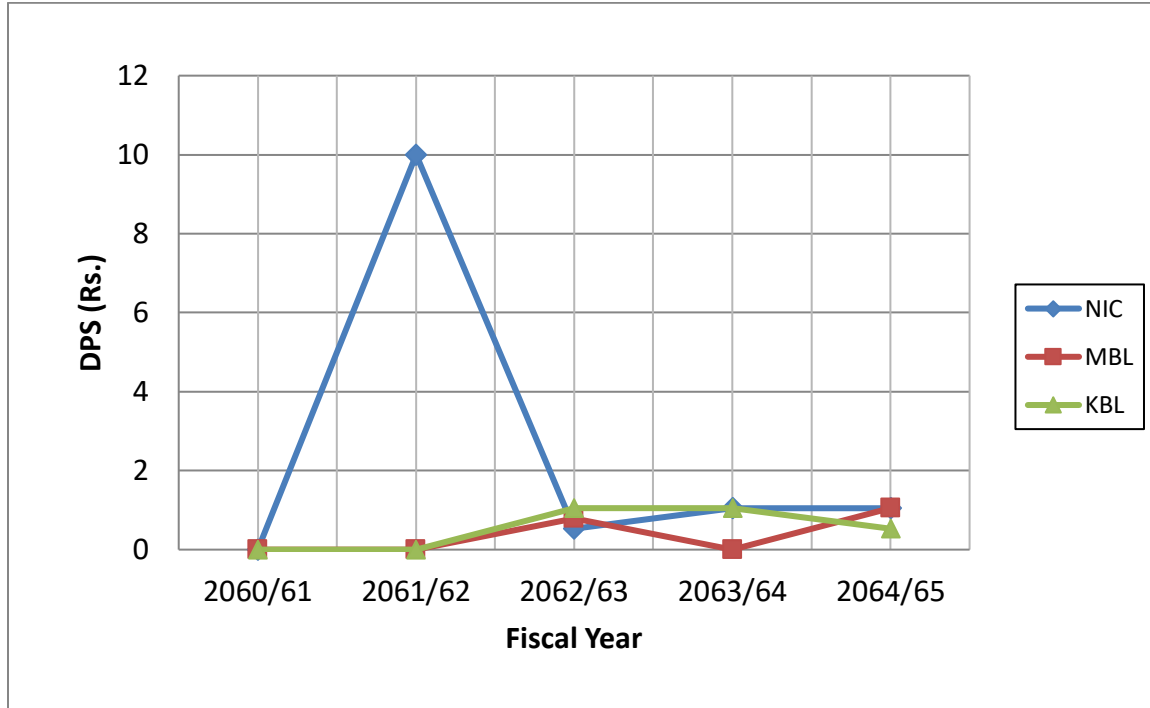
In case of MBL, they didn't pay dividend for three fiscal years 2060/61, 2061/62 and 2063/64. It has DPS of Rs. 0.79 in FY 2062/63 and Rs. 1.05 in FY 2064/65. The average DPS of this bank is Rs.0.37, which is lowest among the selected banks. The standard deviation is 0.51 and coefficient of variation is 139.19%. The high C.V. indicates that the DPS is very inconsistent.

Likewise, KBL didn't pay any dividend in first two fiscal years 2060/61 and 2061/62. It has constant DPS of Rs. 1.05 in FY 2062/63 and 2063/64. Then in FY 2064/65, its DPS decreased to Rs. 0.53. The average DPS of KBL is Rs 0.53. The standard deviation is 0.53 and the C.V. is 99.81%, which is less than other banks, but still the high percentage shows the inconsistency in DPS.

In conclusion, the average dividend per share paid by NIC (Rs.2.53) is higher than the average dividend per share of MBL (Rs 0.37) and KBL (Rs. 0.53). So, NIC is comparatively more successful to create the positive attitudes of shareholders towards the bank. It consequently helps to increase the market value of shares and also helps to indicate the better performance of the bank's management. However, KBL has less inconsistency in dividend payment than NIC and MBL.

The DPS of selected banks are presented in the trend form in Figure 4.1.1 below;

**Figure 4.1.1**  
**Dividend Per Share**



#### 4.1.2 SDPS of selected banks

A dividend paid as additional shares of stock rather than as cash. If dividends paid are in the form of cash, those dividends are taxable. When a company issues a stock dividend, rather than cash, there usually are not tax consequences until the shares are sold.



The Stock Dividend Per Share of the sample banks is presented in the following Table 4.1.2.

## Stock Dividend

**Table 4.1.2**  
**Stock Dividend Per Share**

<b>Fiscal Year</b>	<b>NIC</b>	<b>MBL</b>	<b>KBL</b>
<b>2060/61</b>	-	-	-
<b>2061/62</b>	20	-	-
<b>2062/63</b>	10	15	20
<b>2063/64</b>	20	-	20
<b>2064/65</b>	20	20	10
<b>Mean (<math>\bar{x}</math>)</b>	<b>14.00</b>	<b>7.00</b>	<b>10.00</b>
<b>S.D. (<math>\sigma</math>)</b>	<b>8.94</b>	<b>9.75</b>	<b>10.00</b>
<b>CV %</b>	<b>63.89</b>	<b>139.24</b>	<b>100.00</b>

*Source: Annual Reports of NIC, MBL and KBL*

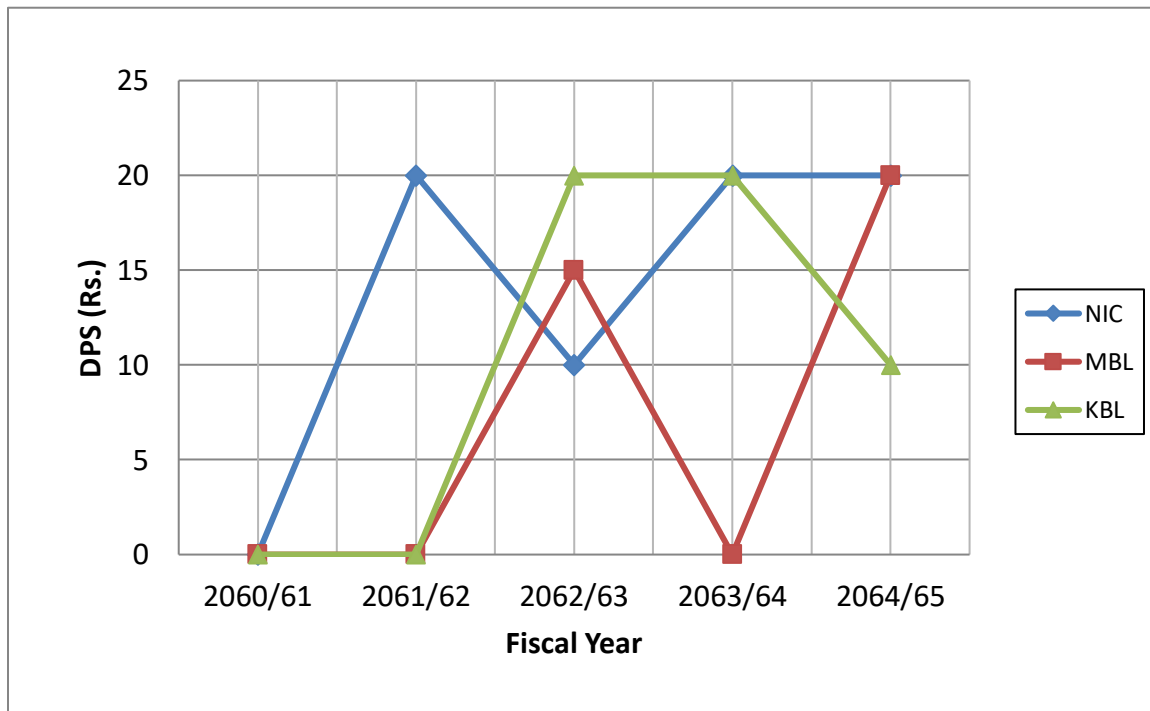
The stock dividend per share (SDPS) shown in the table 4.1.2 depicts that SDPS of NIC has ranged between zero (0) to Rs.20. NIC has not paid any stock dividend in the fiscal year 2060/61. In FY 2061/62 NIC has SDPS of Rs 20 which fell down to Rs. 10 in FY 2062/63. The SDPS increased again to Rs.20 in FY 2063/64 and remained constant in the following fiscal year. In average, NIC paid stock dividend of Rs.14.00 in the entire period taken for research, which is highest among the chosen banks. The standard deviation of the bank is 8.94, being lowest among the selected banks and the coefficient of variation was 63.89% which also being lower than the other banks. The coefficient of variation indicates that there is 63.89% fluctuation in the SDPS, which indicates there is more inconsistency in SDPS.

In case of MBL, they didn't pay stock dividend for three fiscal years 2060/61, 2061/62 and 2063/64. It has SDPS of Rs. 15 in FY 2062/63 and Rs. 20 in FY 2064/65. The average SDPS of this bank is Rs.7, which is lowest among the selected banks. The standard deviation is 9.75 and coefficient of variation is 139.24%, which is highest among the selected banks. The high C.V. indicates that the SDPS is very inconsistent.

Likewise, KBL didn't pay any stock dividend in first two fiscal years 2060/61 and 2061/62. It has constant SDPS of Rs. 20 in FY 2062/63 and 2063/64. Then in FY 2064/65, its SDPS decreased to Rs. 10. The average SDPS of KBL is Rs 10. The standard deviation is 10 and the C.V. is 100%. The high percentage of C.V. shows the inconsistency in SDPS.

In conclusion, the average stock dividend per share paid by NIC (Rs.14) is higher than the average dividend per share of MBL (Rs 7) and KBL (Rs.10). And also, the C.V. of SDPS seems to be much lesser than that of other banks. So, NIC is comparatively more successful to create the positive attitudes of shareholders towards the bank. It consequently helps to increase the market value of shares and also helps to indicate the better performance of the bank's management. The SDPS of selected banks are presented in the trend form in Figure 4.1.2 below;

**Figure 4.1.2 Stock Dividend Per Share**



### 4.1.3 EPS of selected banks

Earning per Share (EPS) is one of the most important financial indicators, which measure the earning capacity of a firm. It measures the profit available to the ordinary shareholders on a per share basis. EPS is calculated by dividing net income available to the common stockholders by the total number of common shares outstanding.

The EPS of the selected sample banks is presented below in Table 4.1.3;

**Table 4.1.3**  
**Earning Per Share**

<b>Fiscal Year</b>	<b>NIC</b>	<b>MBL</b>	<b>KBL</b>
<b>2060/61</b>	13.65	8.49	9.74
<b>2061/62</b>	22.75	15.43	17.58
<b>2062/63</b>	16.1	18.74	16.59
<b>2063/64</b>	24.01	9.02	22.7
<b>2064/65</b>	25.75	10.35	16.35
<b>Mean (<math>\bar{x}</math>)</b>	<b>20.45</b>	<b>12.41</b>	<b>16.59</b>
<b>S.D. (<math>\sigma</math>)</b>	<b>5.27</b>	<b>4.48</b>	<b>4.62</b>
<b>CV %</b>	<b>25.78</b>	<b>36.11</b>	<b>27.83</b>

*Source: Annual Reports of NIC, MBL and KBL*

In above table, the Earning Per Share of selected banks are presented. The EPS of selected banks are in Rs. amount. From the table it can be seen that the EPS of NIC Bank is better than that of other banks. The average EPS of NIC is Rs. 16.59. On the base of that the average EPS of MBL is lesser among 3 selected banks. The average EPS of MBL is only Rs. 12.41.

The average EPS of NIC is Rs. 20.45. NIC has highest EPS in FY 2064/65 (Rs. 25.75) and lowest EPS is in FY 2060/61 (Rs. 13.61). From the table, it can be seen that the earning per share of NIC is fluctuating every year. In FY 2061/62, its EPS increased and again in FY 2062/63, its EPS decreased to Rs 16.1 and in last two years, its EPS is increasing. The standard deviation of EPS of NIC is 5.27 and coefficient of variation being 25.78%. The 25.78% C.V. of NIC indicates that there is some fluctuation in the EPS, which means the EPS of NIC Bank is inconsistent.

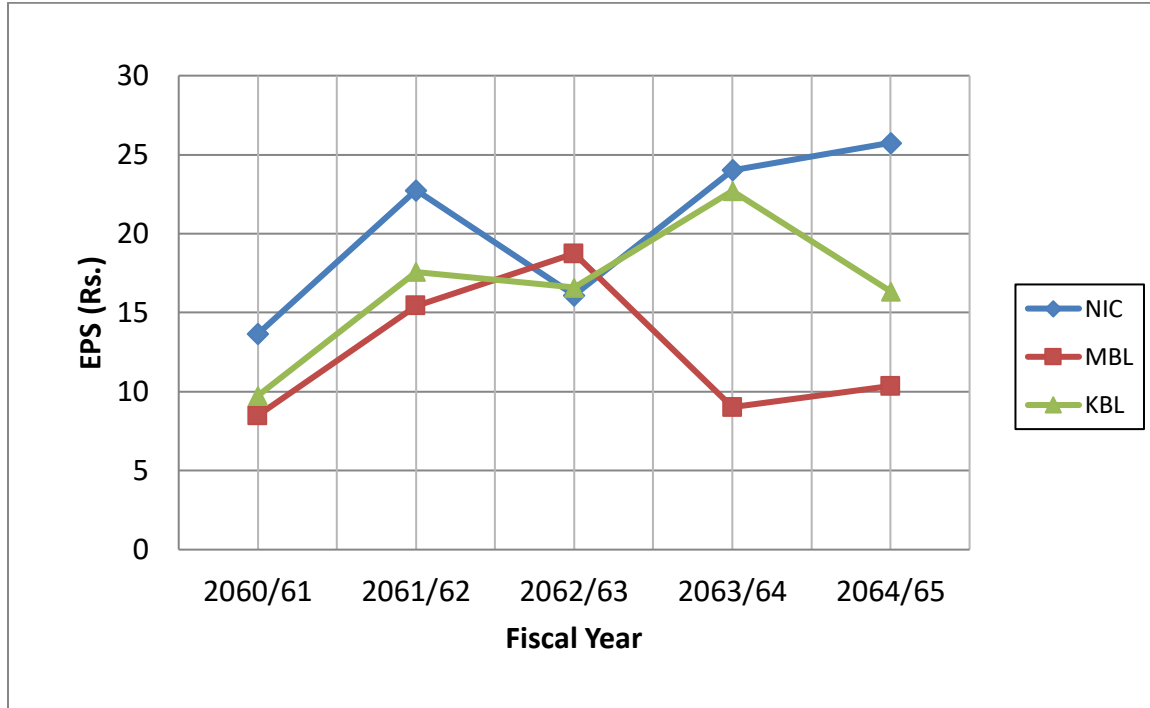
Similarly, the average EPS of MBL is Rs. 12.41, which is lowest among the selected banks. MBL has highest EPS in FY 2062/63 (Rs. 18.74) and lowest EPS is in FY 2060/61 (Rs. 8.49). From the table, it can be seen that the earning per share of MBL is fluctuating every year. We can see that from FY 2060/61 to FY 2062/63, the EPS of MBL is in increasing trend. While in FY 2063/64, the EPS decreased to nearly half of the previous year and again it slightly increased to Rs 10.35 in FY 2064/65. The standard deviation of EPS of MBL is 4.48 and coefficient of variation being 36.61%. This is highest among the selected banks. The 36.61% C.V. of MBL indicates that there is high fluctuation in the EPS of MBL. And the EPS of MBL is much more inconsistent than other banks.

Lastly, The average EPS of KBL is Rs. 16.59. KBL has highest EPS in FY 2063/64 (Rs. 22.70) and lowest EPS is in FY 2060/61 (Rs. 9.74). From the table, it can be seen that the earning per share of KBL is alternately increasing and decreasing every year. The standard deviation of EPS of KBL is 4.62 and coefficient of variation was calculated to be 27.83%. The 27.83% C.V. of KBL indicates that there is high fluctuation in the EPS. And this indicates EPS is pretty inconsistent.

In average, NIC enjoyed higher EPS (Rs.20.45) than that of MBL (Rs.12.41) and KBL (Rs.16.59). Also, there is more consistency in the EPS of NIC than that of MBL and KBL, as C.V. of NIC (25.78%) is lower than the C.V. of MBL (36.11%) and C.V. of KBL (27.83%). So, it can be considered that NIC remained more successful than MBL and KBL in generating higher EPS.

The EPS of selected banks are presented in the trend form in Figure 4.1.3 below;

**Figure 4.1.3**  
**Earning Per Share**



#### 4.1.4 MPS of selected banks

Market price of share is that value of stock, which can be received by firm or equity holders selling it in capital market. The capital market determines MPS. If this analysis MPS represents the closing market price of NEPSE index of the sample firms.

The Market Price of Share of the sample banks is presented in the following Table 4.1.4.

**Table 4.1.4**  
**Market Price of Share**

<b>Fiscal Year</b>	<b>NIC</b>	<b>MBL</b>	<b>KBL</b>
<b>2060/61</b>	218	125	661
<b>2061/62</b>	366	256	369
<b>2062/63</b>	496	320	443
<b>2063/64</b>	950	620	830
<b>2064/65</b>	1284	1285	1005
<b>Mean (<math>\bar{x}</math>)</b>	<b>662.80</b>	<b>521.20</b>	<b>661.60</b>
<b>S.D. (<math>\sigma</math>)</b>	<b>442.19</b>	<b>463.93</b>	<b>264.43</b>
<b>CV %</b>	<b>66.72</b>	<b>89.01</b>	<b>39.97</b>

*Source: Annual Reports of NIC, MBL and KBL*

The table 4.1.4 shows the market price of three commercial banks for the FY 2060/61 to FY 2065/65. The table shows that NIC has highest average MPS (Rs.662.80) and MBL (Rs.521.20) has lowest one. Reviewing the C.V. (66.72%) NIC bank has least variability in MPS. Since, KBL had no MPS on FY2060/61, an average of other years' MPS was taken into consideration. Hence, KBL Bank has an average MPS of Rs. 661.60.

NIC has highest MPS of Rs.1284 in FY 2064/65 and lowest of Rs. 218 in FY 2060/61. The table shows, the MPS of NIC is increasing every year. NIC falls in first position in respect of average MPS i.e. Rs. 662.80. Its SD is 442.19 and CV is 66.72%. The CV of the bank indicates that there is 66.72% fluctuation in MPS, i.e. There is only 33.28% consistency in MPS.

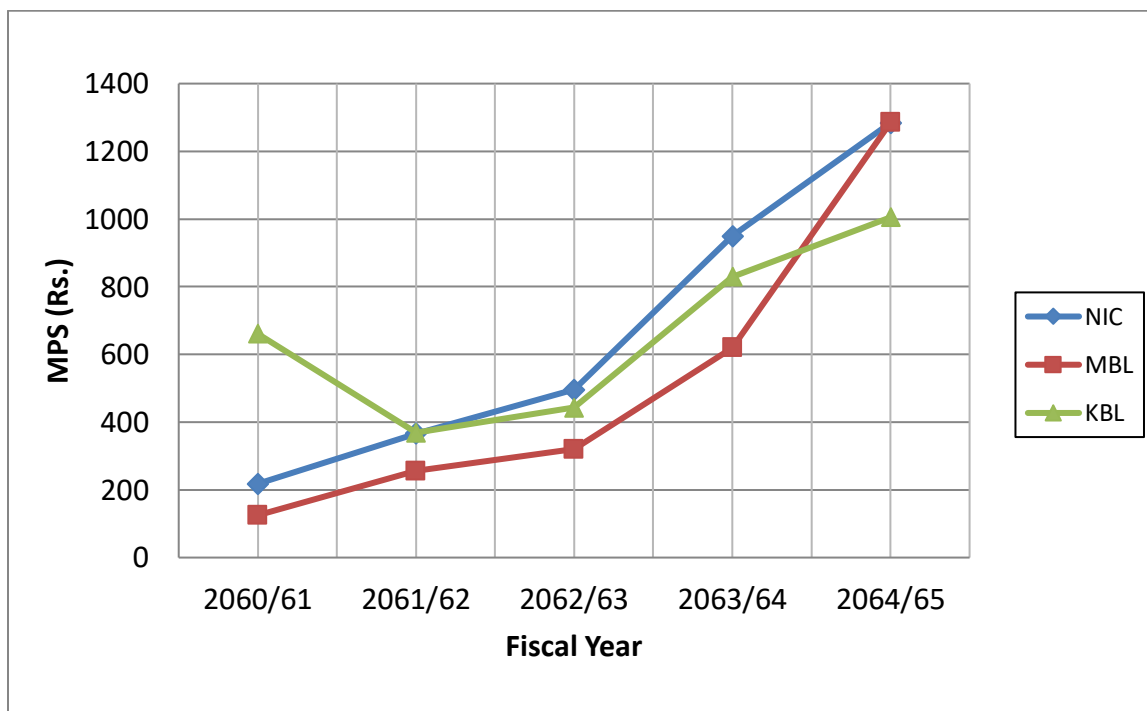
Similarly, MBL has highest MPS of Rs.1285 in FY 2064/65 and lowest of Rs. 125 in FY 2060/61. The table shows, the MPS of MBL is also increasing every year. The average MPS of MBL is Rs. 521.20 which is in the last position. Its SD is 463.93 and its CV is calculated as 89.01% which indicates there is very high fluctuation of 89.01% in its MPS and only 10.99% consistency in its MPS.

Lastly, KBL has MPS ranging from Rs.369 to Rs.1005 in FY 2061/62 to FY 2064/65 respectively. It is found that the MPS of KBL is unavailable in FY 2060/61; therefore, the average of MPS of other years was taken as an MPS for that year. The table shows, the MPS of KBL is also increasing every year, except from first FY 2060/61, MPS decreased from Rs 661 to Rs 369 in second year, then it followed the increasing trend. KBL has average MPS of Rs. 661.60. Its SD is Rs.264.43 and its CV is 39.97%, which is lowest among the selected banks. This show the MPS consistent than other banks. But it's still bit inconsistent.

Thus it can be concluded that C.V. for sample banks has very high fluctuations and MPS is very inconsistent.

The MPS of selected banks are presented in the trend form in Figure 4.1.4 below;

**Figure 4.1.4 Market Price Per Share**



#### 4.1.5 DPR of selected banks

Dividend payout ratio measures the percentage of dividend paid out of the net profit after tax. It also clears about the retained earning, since net profit is composed of dividend and retained earning only. Higher dividend payout ratio attracts the shareholders and consequently increases the market price of share.

The dividend payout ratio of the sample banks is presented in the following Table 4.1.5.

**Table 4.1.5**  
**Dividend Payout Ratio**

Fiscal Year	NIC			MBL			KBL		
	DPS	EPS	DPR	DPS	EPS	DPR	DPS	EPS	DPR
<b>2060/61</b>	0	13.65	<b>0</b>	0	8.49	<b>0</b>	0	9.74	<b>0</b>
<b>2061/62</b>	10	22.75	<b>43.96</b>	0	15.43	<b>0</b>	0	17.58	<b>0</b>
<b>2062/63</b>	0.53	16.1	<b>3.29</b>	0.79	18.74	<b>4.22</b>	1.05	16.59	<b>6.33</b>
<b>2063/64</b>	1.05	24.01	<b>4.37</b>	0	9.02	<b>0</b>	1.05	22.7	<b>4.63</b>
<b>2064/65</b>	1.05	25.75	<b>4.08</b>	1.05	10.35	<b>10.14</b>	0.53	16.35	<b>3.24</b>
<b>Mean (<math>\bar{x}</math>)</b>			<b>11.14</b>			<b>2.87</b>			<b>2.84</b>
<b>S.D. (<math>\sigma</math>)</b>			<b>18.43</b>			<b>4.46</b>			<b>2.81</b>
<b>CV %</b>			<b>165.42</b>			<b>155.17</b>			<b>99.08</b>



The table 4.1.5 shows the dividend pay-out ratio (DPR) of three selected sample banks. From the above table it is clear that NIC has the highest average DPR of 11.14 where as KBL has the lowest average DPR of 2.84. From the table, is clear that the DPR of NIC (C.V. 165.42%) is highly inconsistent in comparison with other banks.

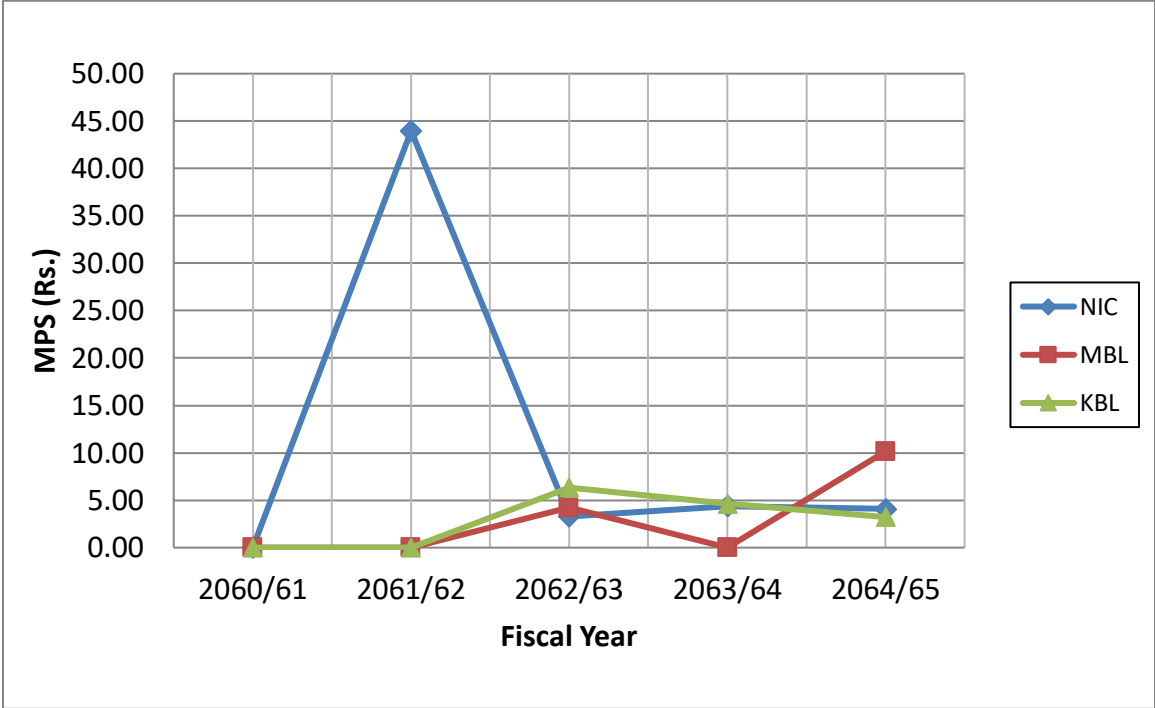
From the above table, its seen that NIC has not paid any dividend in FY 2060/61. It has highest DPR 43.96 in FY 2061/62. It heavily decreased to 3.29 in FY 2062/63 and slightly increased in following two years. It has lowest DPR of 4.08 in FY 2064/65. NIC has average 11.14 DPR which is highest among the select banks. The standard deviation was calculated to be 18.43, which means that the DPR were bit highly deviated from the average DPR. The DPR was found to be highly inconsistent as it was calculated to be 165.42%. That means, it shows the inconsistency in the dividend payment.

Similarly, From above table it is seen that MBL has not paid any dividend for three fiscal years, i.e. in FY 2060/61, FY 2061/62 and FY 2063/64. It has highest DPR 10.14 in FY 2064/65 and in FY 2062/63 its DPR was 4.22. MBL has average 2.87 DPR. The standard deviation was calculated to be 4.46, i.e. the DPR were slightly more deviated from the mean. The DPR were found to be highly inconsistent as it was calculated to be 155.12%.

Lastly, KBL didn't pay dividend for first two fiscal years, i.e. FY 2060/61 and FY 2061/62. It has highest DPR 6.33 in FY 2062/63 and lowest DPR 3.24 in FY 2064/65. Also, the KBL has decreasing trend of DPR. KBL has average 2.84 DPR. The standard deviation was calculated to be 2.81, i.e. standard deviation seems to be almost same as average DPR. The DPR were found to be highly inconsistent as it was calculated to be 99.08%, but its less inconsistent among the other banks.

The DPR of selected banks are presented in the trend form in Figure 4.1.5 below

**Figure 4.1.5**  
**Dividend Payment Ratio**



#### 4.1.6 P/E Ratio of selected banks

Price Earning Ratio is the ratio between market price per share and earning per share. It indicates the payment by the investors in the market for per rupee of earning in the company.

The price earning ratio of selected banks for the period taken for study is presented in the following Table 4.1.6.

**Table 4.1.6**  
**Price Earning Ratio**

<b>Fiscal Year</b>	<b>NIC</b>	<b>MBL</b>	<b>KBL</b>
<b>2060/61</b>	15.97	14.72	67.86
<b>2061/62</b>	16.09	16.59	20.99
<b>2062/63</b>	30.81	17.08	26.71
<b>2063/64</b>	39.56	68.74	36.56
<b>2064/65</b>	49.86	124.19	61.47
<b>Mean (<math>\bar{x}</math>)</b>	<b>30.46</b>	<b>48.26</b>	<b>42.72</b>
<b>S.D. (<math>\sigma</math>)</b>	<b>14.80</b>	<b>48.18</b>	<b>20.92</b>
<b>CV %</b>	<b>48.58</b>	<b>99.82</b>	<b>48.97</b>

*Source: Annual Reports of NIC, MBL and KBL*

The table 4.1.6 depicts that the P/E Ratio of NIC ranged from 15.97 times in the fiscal year 2060/61 to 49.86 times in the fiscal year 2064/65. The P/E ratio of NIC followed an increasing trend in the five year period. However, NIC maintained an average 30.46 times P/E ratio in the five year period, which indicates that the investors paid Rs. 30.46 for 1 rupee of earning in average. The standard deviation of the same bank in P/E ratio is 14.80, which is highly deviated

from the mean P/E ratio. The C.V. of NIC was found to be 48.58%, which is lowest among the selected banks.

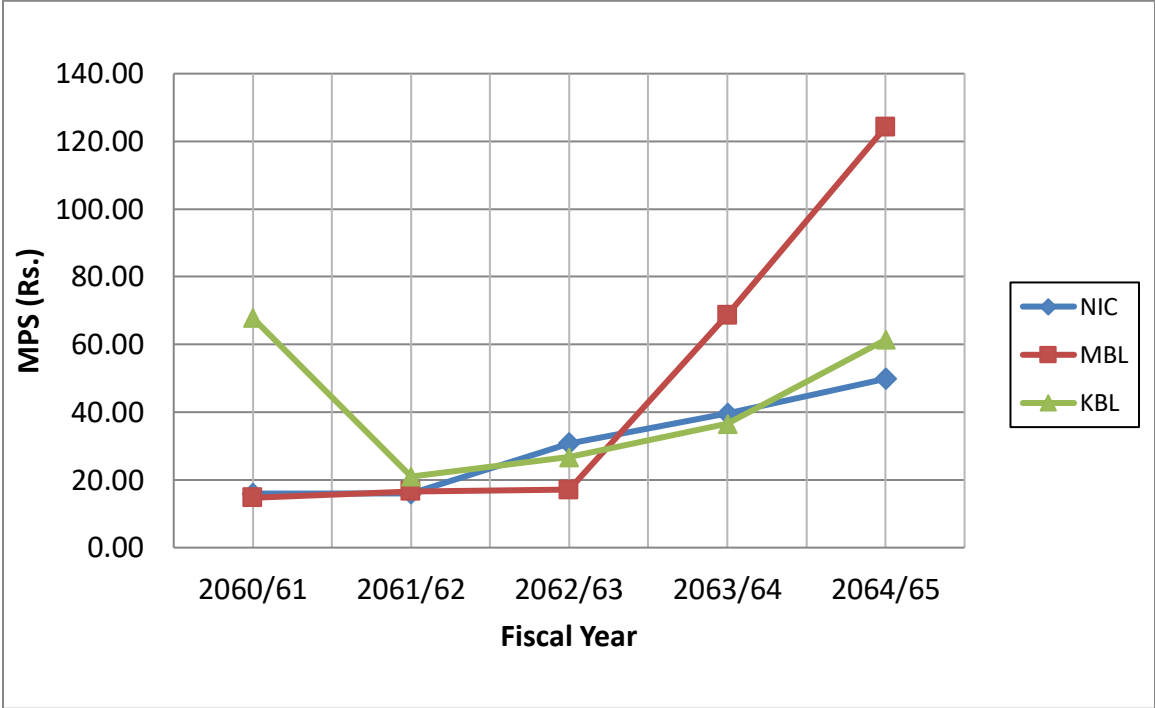
Likewise, the P/E ratio of MBL also followed the increasing trend. The P/E ratio of MBL in the base year was 14.72 times and increased to 124.19 times in the fiscal year 2064/65. MBL maintained an average P/E ratio of 48.26 times, highest among the selected banks, in the five year period taken for research, which clearly indicates that the shareholders of MBL paid Rs. 48.26 to generate 1 rupee of earning. The standard deviation was found to be 48.18, which is almost same as the average P/E ratio. The C.V. is highest among the selected banks, which is calculated to be 99.82%. The C.V. shows there was much fluctuation in P/E Ratio.

Similarly, the P/E Ratio of KBL ranged from 20.99 times in the fiscal year 2061/62 to 61.47 times in the fiscal year 2064/65. It is found that KBL has no P/E Ratio in the base Fiscal Year 2060/61, due to absence of MPS, so on basis of estimated MPS, the P/E Ratio was found to be 67.86. The P/E ratio seems to be decreased in FY 2061/62 and then followed an increasing trend in the next for years' period. However, KBL maintained an average 42.72 times P/E ratio in the five year period, which indicates that the investors paid Rs. 42.72 for 1 rupee of earning in average. The standard deviation of the same bank in P/E ratio is 20.92, which is slightly deviated from the mean P/E ratio. The C.V. of KBL was found to be 48.97%, which means that the P/E ratio is inconsistent by more than 50%.

Comparing the P/E ratio of selected banks, it can be considered that the investors of NIC Bank paid fewer amounts among the other banks to gain 1 rupee of earning. However, the P/E ratio of MBL fluctuated more compared to P/E ratio of NIC and KBL in these periods.

The P/E Ratio of selected banks are presented in the trend form in Figure 4.1.6 below;

**Figure 4.1.6**  
**Price Earning Ratio**



#### 4.1.7 D/Y Ratio of selected banks

Dividend yield is a percentage of dividends per share on market price per share. It shows that how much is the dividend per share on market price per share.

The dividend yield ratio of selected banks during the five year period is presented in the following Table 4.1.7.

**Table 4.1.7**  
**Dividend Yield Ratio**

Fiscal Year	NIC			MBL			KBL		
	DPS	MPS	D/Y R	DPS	MPS	D/Y R	DPS	MPS	D/Y R
<b>2060/61</b>	0	218	<b>0.00</b>	0	125	<b>0.00</b>	0	661	<b>0.00</b>
<b>2061/62</b>	10	366	<b>2.73</b>	0	256	<b>0.00</b>	0	369	<b>0.00</b>
<b>2062/63</b>	0.53	496	<b>0.11</b>	0.79	320	<b>0.25</b>	1.05	443	<b>0.24</b>
<b>2063/64</b>	1.05	950	<b>0.11</b>	0	620	<b>0.00</b>	1.05	830	<b>0.13</b>
<b>2064/65</b>	1.05	1284	<b>0.08</b>	1.05	1285	<b>0.08</b>	0.53	1005	<b>0.05</b>
<b>Mean (<math>\bar{x}</math>)</b>			<b>0.61</b>			<b>0.07</b>			<b>0.08</b>
<b>S.D. (<math>\sigma</math>)</b>			<b>1.19</b>			<b>0.11</b>			<b>0.10</b>
<b>CV %</b>			<b>196.16</b>			<b>163.23</b>			<b>120.58</b>

The above table depicts that the dividend yield ratio of NIC ranged from minimum 0% in the FY 2060/61, when no dividend paid, to maximum 2.73% in the FY 2061/62. The dividend yield

ratio decreased to 0.11% and remained constant for two fiscal years FY 2062/63 and FY 2063/64 and then decreased in the following FY 2064/65 to 0.08%. The average dividend yield of NIC during the five year period is only 0.61% and the standard deviation & C.V. are 1.19 and 196.16% respectively. This shows the Dividend Yield Ratio of NIC is highly inconsistent and which is highest among the selected banks. The average dividend yield of NIC indicated that the shareholders are paid dividend of Rs 0.61 for Rs. 100 investment per share in the market.

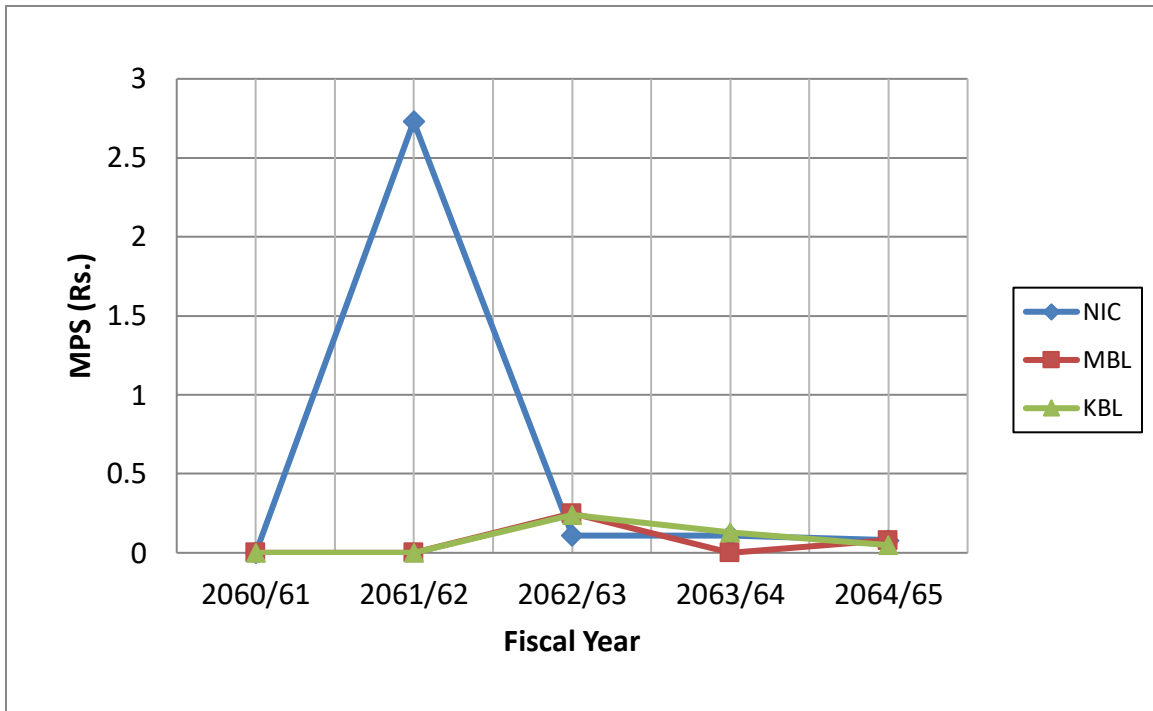
Similarly, the table shows that MBL has not paid dividend in fiscal years 2060/61, 2061/62 and 2063/64. The dividend yield of MBL in FY 2062/63 is 0.25% and decreased to 0.08% in FY 2064/65. MBL maintained an average dividend yield as low as 0.07%, which indicated that the shareholder of MBL got Rs.0.07 dividend for Rs.100 investment per share in the market. Likewise, standard deviation and C.V. of DY Ratio in MBL are 0.11 and 163.23% respectively. This shows the DY Ratio of MBL is highly inconsistent.

Likewise, KBL has not paid dividend in first two fiscal years 2060/61 and 2061/62. The DY Ratio of KBL seems to be in decreasing trend, highest 0.24% in FY 2062/63 and lowest 0.05% in FY 2064/65. The average DY Ratio of KBL was found to be 0.08%. This average dividend yield of KBL indicated that the shareholders are paid dividend of Rs 0.08 for Rs. 100 investment per share in the market. The standard deviation 0.10 seems to be not much deviated from the mean. KBL has a C.V. of 120.58% and is also highly inconsistent but lowest among the selected banks.

Comparing the average dividend of NIC (0.61%), MBL (0.07%) and KBL (0.08%), it can be considered that the shareholders of NIC got more percentage of the market price they paid for a share as dividend in return than the other banks.

The Dividend Yield Ratio of selected banks are presented in the trend form in Figure 4.1.7 below;

**Figure 4.1.7**  
**Dividend Yield Ratio**



#### 4.1.8 E/Y Ratio of selected banks

It measures the earning in relation to market value of share. It gives some idea of how much an investor might get for his money. The share with higher earnings yield is worth buying. Earning yield is informative to compare the market share prices of stocks in the secondary market.

The Earning Yield Ratio (EY) of selected banks is presented in the following Table 4.1.8.



**Table 4.1.8**  
**Earning Yield Ratio**

Fiscal Year	NIC			MBL			KBL		
	EPS	MPS	E/Y R	EPS	MPS	E/Y R	EPS	MPS	E/Y R
<b>2060/61</b>	13.65	218	<b>6.26</b>	8.49	125	<b>6.79</b>	9.74	661	<b>1.47</b>
<b>2061/62</b>	22.75	366	<b>6.22</b>	15.43	256	<b>6.03</b>	17.58	369	<b>4.76</b>
<b>2062/63</b>	16.1	496	<b>3.25</b>	18.74	320	<b>5.86</b>	16.59	443	<b>3.74</b>
<b>2063/64</b>	24.01	950	<b>2.53</b>	9.02	620	<b>1.45</b>	22.7	830	<b>2.73</b>
<b>2064/65</b>	25.75	1284	<b>2.01</b>	10.35	1285	<b>0.81</b>	16.35	1005	<b>1.63</b>
<b>Mean (<math>\bar{x}</math>)</b>			<b>4.05</b>			<b>4.19</b>			<b>2.87</b>
<b>S.D. (<math>\sigma</math>)</b>			<b>2.04</b>			<b>2.82</b>			<b>1.4</b>
<b>CV %</b>			<b>50.48</b>			<b>67.40</b>			<b>48.9</b>

The relationship between earning per share and market price per share of selected banks of different years are exhibited in the above table. The main reason behind such kind of tabulation is to point to the percentage relationship between EPS and MPS so as to illustrate the earning yield of the concerned banks, which may be a reliable tool to calculate the real value of the dividend as compared with the current market value of each share.

The table 4.1.8 depicts that the earning yield ratio of NIC is in decreasing order. The earning yield decrease from 6.26% in the FY 2061/61 to 2.01% in the FY 2064/65. The average earning yield ratio of that bank is 4.05%, which is higher than the earning yield ratio of the last three fiscal years. The standard deviation is 2.04 and the coefficient of variation is 50.48%

respectively. The coefficient of variation indicates that there is 50.48% fluctuation in the EY of NIC. Similarly, the average EY of NIC indicates that only 4.05% of MPS is converted to EPS in the five year period.

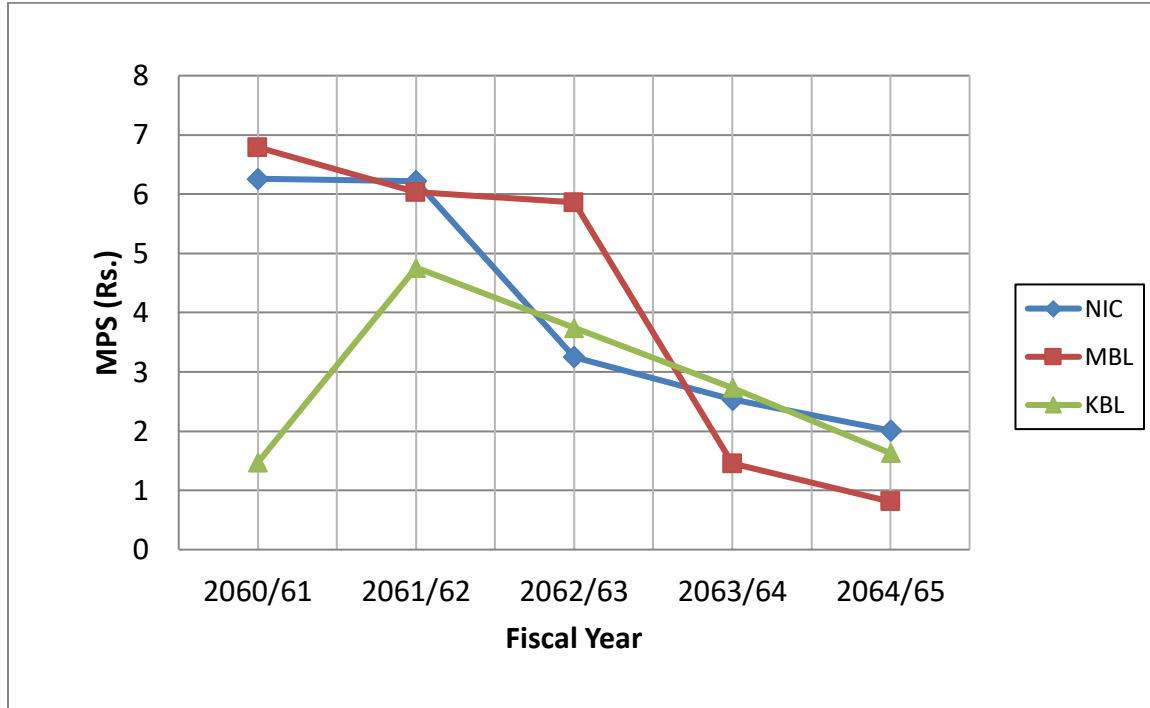
Similarly, the earning yield ratio of MBL also followed decreasing trend. The EY Ratio of MBL decreased from 6.79% in FY 2060/61 to 0.81% in FY 2064/65. The average earning yield ratio is 4.19%, which is highest among the selected banks, standard deviation is 2.82 and coefficient of variation is 67.40%. The average EY implies that EPS of MBL represents only 4.19% of MPS in the five year period.

Likewise, the earning yield ratio of KBL also shows the decreasing trend. Though, at base year 2060/61, there 1.47% of EY ratio and increased to 4.76% the following year and then decreased from 4.76% in FY 2061/62 to 1.63% in FY 2064/65. The average earning yield ratio of KBL was found to be 2.87% which is lowest among the selected banks. The standard deviation is 1.4, which is also lowest among the selected banks. The coefficient of variation is 48.9%, which is also lowest among the selected banks, i.e. the EY ratio of KBL is less inconsistent than the other banks. The average EY of KBL indicates that only 2.87% of MPS is converted to EPS in the five year period.

Comparing the average earning yield ratio of NIC (4.05%), MBL (4.19%) and that of KBL (2.87%), it can be considered that that MBL is more efficient in than other banks on the basis of market price of share.

The Earning Yield Ratio of selected banks are presented in the trend form in Figure 4.1.8 below;

**Figure 4.1.8**  
**Earning Yield Ratio**



#### 4.1.9 NWPS of selected banks

Net Worth Per Share is a measurement of the net worth of the company for each share of stock that has been issued. This will give a good indication about whether the company is overvalued or undervalued by the market.

The Net Worth Per Share (NWPS) of selected banks is presented in the following Table 4.1.9.

**Table 4.1.9**  
**Net Worth Per Share**

<b>Fiscal Year</b>	<b>NIC</b>	<b>MBL</b>	<b>KBL</b>
<b>2060/61</b>	124.09	100.77	114
<b>2061/62</b>	136.84	115.95	141
<b>2062/63</b>	116.13	130.22	149
<b>2063/64</b>	139.17	121.74	137
<b>2064/65</b>	197.49	141.59	128
<b>Mean (<math>\bar{x}</math>)</b>	<b>142.74</b>	<b>122.05</b>	<b>133.80</b>
<b>S.D. (<math>\sigma</math>)</b>	<b>32.02</b>	<b>15.32</b>	<b>13.41</b>
<b>CV %</b>	<b>22.43</b>	<b>12.55</b>	<b>10.02</b>

*Source: Annual Reports of NIC, MBL and KBL*

The NWPS of selected banks are shown in the above table. It is clear that average NWPS, standard deviation and coefficient of variation of NIC is highest among the selected banks.

The NIC bank has highest NWPS of Rs. 197.49 in FY 2064/65 and the lowest Rs 116.13 in FY 2062/63. It has average NWPS of Rs. 142.74, which is highest among the selected banks. The standard deviation was found to be 32.02 and C.V. being 22.43%, both of which are also highest among the selected banks.

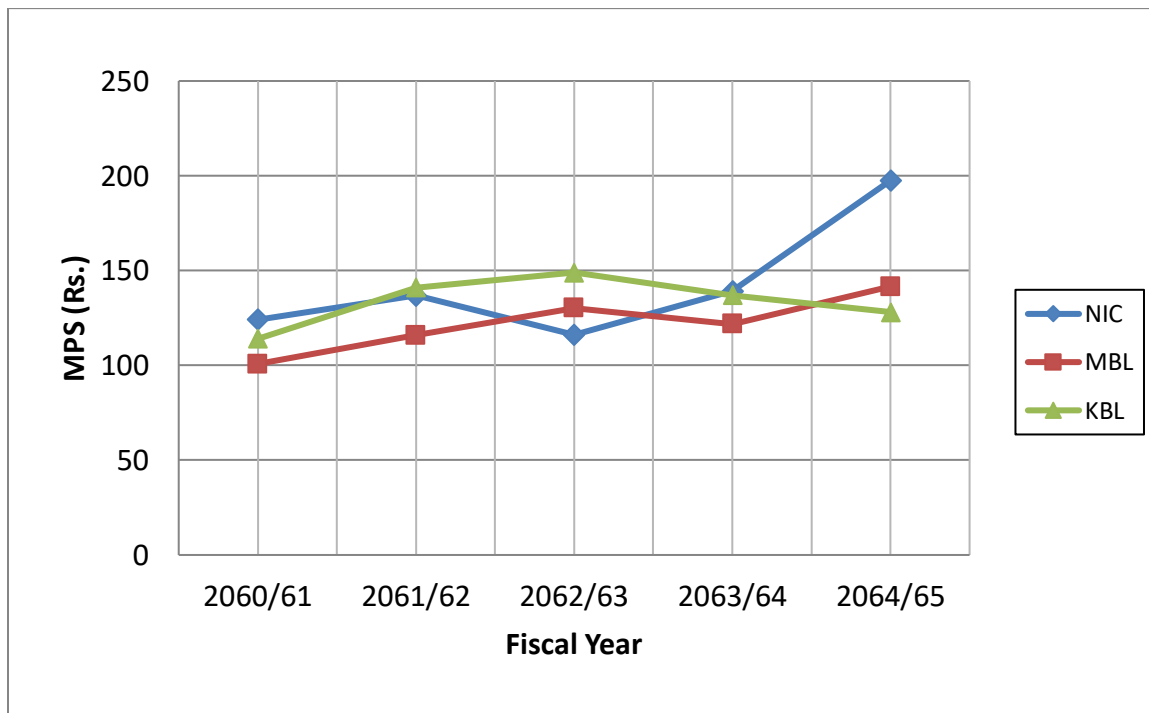
Similarly, The NWPS of MBL has an increasing trend in first three fiscal years. It decreases to Rs. 121.74 in FY 2063/64 and again increases to Rs. 141.59, which is highest in 5 years. It has lowest NWPS of Rs. 100.77 in FY 2060/61. MBL enjoyed an average NWPS of Rs. 122.05, which is lowest among the selected banks. The standard deviation is 15.32 and C.V. is 12.55%.

Likewise, The NWPS of KBL has an increasing trend in first three fiscal years and then followed decreasing trend in last two years. It has highest NWPS of Rs. 149 in FY 2062/63 and the lowest of Rs.114 in FY 2060/61. The average NWPS of KBL is Rs. 133.80. The standard deviation is 13.41 and C.V. being 10.02%, which is lowest among the selected banks, which indicates that the NWPS of KBL is less inconsistent in comparison with another banks.

Comparing the average NWPS of NIC (Rs. 142.74), MBL (Rs. 122.05) and KBL (Rs. 133.80), it can be concluded that NIC is much valued in the market in comparison with other banks and MBL is less valued in market among the selected banks.

The Net Worth Per Share of selected banks are presented in the trend form in Figure 4.1.9 below;

**Figure 4.1.9**  
**Net Worth Per Share**



#### 4.1.10 MV/BV Ratio of selected banks

This ratio indicates the price that the market is paying for the share that is reported from the net worth of the banks.

The market price per share to book value per share ratio (MV/BV Ratio) of selected banks is presented in the following Table 4.1.10.

**Table 4.1.10**  
**MV/BV Ratio**

Fiscal Year	NIC			MBL			KBL		
	MPS	BVPS	Ratio	MPS	BVPS	Ratio	MPS	BVPS	Ratio
<b>2060/61</b>	218	124.09	<b>1.76</b>	125	100.77	<b>1.24</b>	661	114	<b>5.80</b>
<b>2061/62</b>	366	136.84	<b>2.67</b>	256	115.95	<b>2.21</b>	369	141	<b>2.62</b>
<b>2062/63</b>	496	116.13	<b>4.27</b>	320	130.22	<b>2.46</b>	443	149	<b>2.97</b>
<b>2063/64</b>	950	139.17	<b>6.83</b>	620	121.74	<b>5.09</b>	830	137	<b>6.06</b>
<b>2064/65</b>	1284	197.49	<b>6.50</b>	1285	141.59	<b>9.08</b>	1005	128	<b>7.85</b>
<b>Mean (<math>\bar{x}</math>)</b>			<b>4.41</b>			<b>4.01</b>			<b>5.06</b>
<b>S.D. (<math>\sigma</math>)</b>			<b>2.25</b>			<b>3.17</b>			<b>2.22</b>
<b>CV %</b>			<b>51.11</b>			<b>78.92</b>			<b>43.81</b>

*Source: Annual Reports of NIC, MBL and KBL*

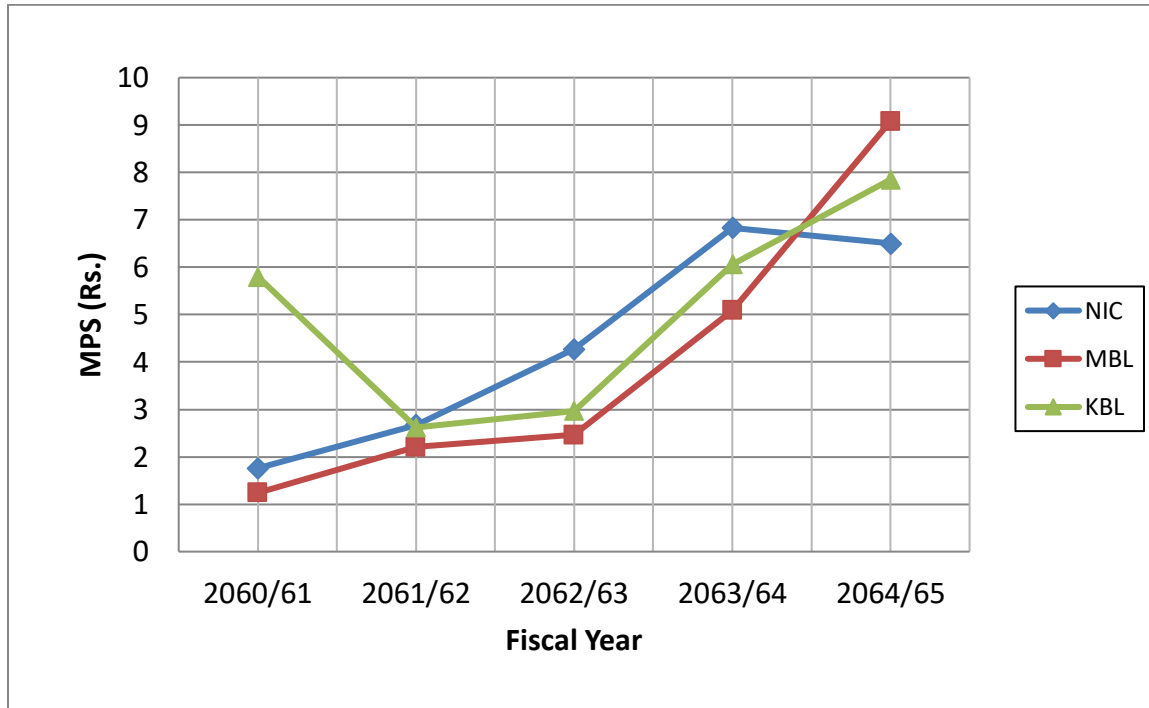
The table 4.1.10 shows that the ratio of market value per share (MPS) to book value per share (BVPS) of NIC is in increasing trend in first four fiscal years and then it decreased in the 5<sup>th</sup> year. The ratio increased from 1.76 times in the fiscal year 2060/61 to 6.83 times in the fiscal year 2063/64 and then decreased a bit to 6.50 times in the 5<sup>th</sup> FY 2064/65 . It means that the investor paid Rs. 1.76 in the market for Re. 1 book value of the share in the fiscal year 2060/61 and Rs. 6.50 in the market for Re.1 book value of the share 2064/65. The average MV/BV Ratio of NIC in the five year period is 4.41 times, which is second highest among the selected banks, standard deviation is 2.25 and C.V. is 51.11. In average, investor paid 4.41 times of the book value per share in the market to possess a single share.

Likewise, the MV/BV Ratio of MBL has increased in each fiscal year. The ratio ranged from 1.24 times to 9.08 times in the FY 2060/61 and 2064/65 respectively. The average ratio of MBL is 4.01 times, standard deviation is 3.17 and coefficient of variation is 78.92%. In the five year period, the shareholders paid 4.01 times in average more than the book value per share to acquire a single share in market value.

Similarly, the MV/BC Ratio of KBL has also increased in each fiscal year, except that the MPS was not available in FY 2060/61 and hence the estimated MPS was used. The ratio decreased from 5.8 times in FY 2060/61 to 2.62 times in the following year. The ratio increased from 2.62 times in FY 2061/62 to 7.85 times in FY 2064/65. KBL enjoyed average MV/BV Ratio of 5.06 times, which is highest among the selected banks. The standard deviation is 2.22 and C.V. being 43.81%, both being lowest among the selected banks, i.e. the MV/BV Ratio of KBL is less inconsistent than that of other banks.

The MV/BV Ratio of selected banks are presented in the trend form in Figure 4.1.10 below;

**Figure 4.1.10**  
**MV/BV Ratio**



## 4.2 Simple Correlation and Regression Analysis

To find the relationship of dividend with other determinants of share price the Karl Pearson's correlation coefficient and simple regression lines have been analyzed.

### 4.2.1 Dividend Per Share (DPS) and Market Price of Share (MPS)

#### 4.2.1.1 Correlation between DPS and MPS

The correlation between MPS and DPS and the probable error calculated in Appendix I is summarized in the below Table 4.2.1.1.



**Table 4.2.1.1**

Sample Banks	r	Relationship	r <sup>2</sup>	Probable Error (P. E.)	6 P.E.	Significant / Insignificant
NIC	(0.28292)	-ve	0.080043	0.2775	1.665	Insignificant
MBL	0.67730	+ve	0.45873	0.5723	3.4338	Insignificant
KBL	0.2329	+ve	0.05424	0.2853	1.7118	Insignificant

*(Source: Appendix I)*

As shown in Table 4.2.1.1, the correlation coefficient between Market Price of Share (MPS) and Dividend Per Share (DPS) of NIC, MBL and KBL are -0.28292, 0.67730 and 0.2329 respectively. The above figure indicates negative relationship between the two variables of NIC, a moderate degree of positive relationship between the variables of KBL and slightly higher degree of positive relationship between the variables of MBL. Coefficient of determination (r<sup>2</sup>) of NIC is 0.080043, which shows DPS of NIC explains 8.0043% of variations in the MPS. Likewise, according to the same table, coefficient of determination (r<sup>2</sup>) of MBL is 0.48573, which explains that the variation in the DPS explains 48.573% of variations in MPS. Similarly, the table shows KBL has coefficient of determination of 0.05424, which explains that the variation in the DPS explains 5.424% of variations in MPS.

Since, r of NIC (- 0.28292) is lower than 6 P.E. (1.665), the relationship between DPS and MPS is insignificant, which means that the increase in DPS does not necessarily mean the decrease in MPS. Similarly, r of MBL (0.67730) is lower than 6 P.E (3.4338), which also indicates that there is insignificant relationship between DPS and MPS. Likewise, r of KBL (0.2329) is lower than 6 P.E (1.7118), which means that there is no significant relationship between DPS and MPS.

#### **4.2.1.2 Regression Analysis between DPS and MPS**

Let the dependent variable MPS is denoted by Y and independent variable DPS is denoted by X, then the regression equation of MPS on DPS is given by: *(Appendix I)*

$$Y = a + bX$$

$$MPS_{NIC} = 587.553 + (-29.789) \times DPS_{NIC}$$

$$MPS_{MBL} = 746.683 + 612.724 \times DPS_{MBL}$$

$$MPS_{KBL} = 723.29 + 117.272 \times DPS_{KBL}$$

**Table 4.2.1.2**

<b>Banks</b>	<b>No. of Obsv. (n)</b>	<b>Constant (a)</b>	<b>Regression Coefficient (b)</b>	<b>T-value</b>
NIC	5	587.553	-29.789	-0.5327
MBL	5	746.683	612.724	2.1674
KBL	5	723.29	117.272	0.415

The Table 4.2.1.2 depicts the major output of simple regression analysis of average market price per share (MPS) on dividend per share (DPS) of the concerned banks.

As far as the regression of MPS and DPS is concerned, the regression coefficient of NIC, MBL and KBL are -29.789, 612.724 and 117.272 respectively. It indicates that a one-rupee increase in DPS leads to an average of Rs. 29.789 decrease in MPS of NIC, Rs.612.724 increase in MPS of MBL and Rs.117.272 increase in MPS of KBL, if the other variable remains constant. The test of t-statistics aid to conclude that in NIC the relationship between MPS and DPS is insignificant, since the calculated value of t (-0.5327) is lower than tabulated value of t (2.78), in MBL the relationship between MPS and DPS is slightly insignificant as the calculated value of t (2.1674) is lower than tabulated value of t (2.78) and in KBL the results are also insignificant, since the calculated t-value (0.415) is lower than the tabulated t-value (2.78) at 5% level of significance on 4 degree of freedom.

## 4.2.2 Earning Per Share (EPS) and Market Price of Share (MPS)

### 4.2.2.1 Correlation between EPS and MPS

The correlation between EPS and MPS and the probable error calculated in Appendix I is summarized in the below Table 4.2.2.1.

**Table 4.2.2.1**

Sample Banks	r	Relationship	r <sup>2</sup>	Probable Error (P. E.)	6 P.E.	Significant / Insignificant
NIC	0.792	+ve	0.6273	0.1124	0.6744	Significant
MBL	(0.2922)	-ve	0.0854	0.276	1.656	Insignificant
KBL	0.1353	+ve	0.0183	0.2961	1.7766	Insignificant

*(Source: Appendix I)*

As shown in Table 4.2.2.1, the correlation coefficient between Market Price of Share (MPS) and Earning Per Share (EPS) of NIC, MBL and KBL are 0.792, -0.2922 and 0.1353 respectively. The above figure indicates negative relationship between the two variables of MBL, a lower positive relationship between the variables of KBL and high degree of positive relationship between the variables of NIC. Coefficient of determination ( $r^2$ ) of NIC is 0.6273, which shows EPS of NIC explains 62.73% of variations in the MPS. Likewise, according to the same table, coefficient of determination ( $r^2$ ) of MBL is 0.0854, which explains that the variation in the EPS explains only 8.54% of variations in MPS. Similarly, the table shows KBL has coefficient of determination of 0.0183, which explains that the variation in the EPS explains 1.83% of variations in MPS.

Since, r of NIC (0.792) is higher than 6 P.E. (0.6744), the relationship between EPS and MPS is significant, which means that the increase in EPS also increases the MPS. Similarly, r of MBL (-0.2922) is lower than 6 P.E (1.656), which also indicates that there is insignificant relationship between EPS and MPS, which means its not necessary that increase in EPS will not increase

MPS. Likewise, r of KBL (0.1353) is lower than 6 P.E (1.7766), which means that there is no significant relationship between EPS and MPS.

#### 4.2.2.2 Regression Analysis between EPS and MPS

Let the dependent variable MPS is denoted by Y and independent variable EPS is denoted by X, then the regression equation of MPS on EPS is given by: (*Appendix I*)

$$Y = a + bX$$

$$MPS_{NIC} = 2020.404 + 66.38 \times EPS_{NIC}$$

$$MPS_{MBL} = 145.77 + (-30.262) \times EPS_{MBL}$$

$$MPS_{KBL} = 790.17 + 7.749 \times EPS_{KBL}$$

**Table 4.2.2.2**

<b>Banks</b>	<b>No. of Obsv. (n)</b>	<b>Constant (a)</b>	<b>Regression Coefficient (b)</b>	<b>T-value</b>
NIC	5	2020.404	66.38	2.25
MBL	5	145.77	-30.262	-0.5289
KBL	5	790.17	7.749	0.2365

The Table 4.2.2.2 depicts the major output of simple regression analysis of average market price per share (MPS) on earning per share (EPS) of the concerned banks.

As far as the regression of MPS and EPS is concerned, the regression coefficient of NIC, MBL and KBL are 66.38, -30.262 and 7.749 respectively. It indicates that a one-rupee increase in EPS leads to an average of Rs. 66.38 increase in MPS of NIC, 1 rupee increase in EPS of MBL leads to an average of Rs.30.262 decrease in MPS of MBL and one rupee increase in EPS leads to an average of Rs 7.749 increase in MPS of KBL, if the other variable remains constant. The test of

t-statistics aid to conclude that in NIC the relationship between MPS and EPS is slightly insignificant, since the calculated value of t (2.25) is lower than tabulated value of t (2.78), in MBL the relationship between MPS and EPS is highly insignificant as the calculated value of t (-0.5289) is much lower than tabulated value of t (2.78) and in KBL the results are also insignificant, since the calculated t-value (0.2365) is lower than the tabulated t-value (2.78) at 5% level of significance on 4 degree of freedom.

### 4.2.3 Earning Per Share (EPS) and Dividend Price of Share (DPS)

#### 4.2.3.1 Correlation between EPS and DPS

The correlation between EPS and DPS and the probable error calculated in Appendix I is summarized in the below Table 4.2.3.1.

**Table 4.2.3.1**

Sample Banks	r	Relationship	r <sup>2</sup>	Probable Error (P. E.)	6 P.E.	Significant / Insignificant
NIC	0.3382	+ve	0.1144	0.2671	1.603	Insignificant
MBL	0.3099	+ve	0.096	0.273	1.638	Insignificant
KBL	0.648	+ve	0.42	0.175	1.05	Insignificant

*(Source: Appendix I)*

As shown in Table 4.2.3.1, the correlation coefficient between Earning Per Share (EPS) and Dividend Per Share (DPS) of NIC, MBL and KBL are 0.3382, 0.3099 and 0.648 respectively. The above figure shows the lower positive relationship between the DPS and EPS of NIC, a lower positive relationship between the variables of MBL and high degree of positive relationship between the variables of KBL. The coefficient of determination of NIC r<sup>2</sup> is 0.1144, which indicates that; only 11.44% of the variation of DPS is determined by the explanatory variable EPS. Likewise, according to the same table, coefficient of determination (r<sup>2</sup>) of MBL is

0.096, which explains that the variation in the DPS explains only 8.6% of variations in EPS. Similarly, the table shows KBL has coefficient of determination of 0.42, which explains that the variation in the DPS explains 42% of variations in EPS.

Since,  $r$  of NIC (0.3382) is lower than 6 P.E. (1.603), the relationship between EPS and MPS is insignificant, which means that the increase in EPS will not increase the DPS. Similarly,  $r$  of MBL (0.3099) is lower than 6 P.E (1.638), which also indicates that there is insignificant relationship between EPS and DPS, which means that increase in EPS will not increase DPS here. Likewise,  $r$  of KBL (0.648) is lower than 6 P.E (1.05), which means that there is no significant relationship between EPS and MPS and hence increase in EPS will not increase its DPS.

#### 4.2.3.2 Regression Analysis between EPS and DPS

Let the dependent variable DPS is denoted by  $Y$  and independent variable EPS is denoted by  $X$ , then the regression equation of DPS on EPS is given by: (*Appendix I*)

$$Y = a + bX$$

$$DPS_{NIC} = 8.038 + 0.2695 \times EPS_{NIC}$$

$$DPS_{MBL} = 0.807 + 0.0354 \times EPS_{MBL}$$

$$DPS_{KBL} = 1.75 + 0.0737 \times EPS_{KBL}$$

**Table 4.2.3.2**

Banks	No. of Obsv. (n)	Constant (a)	Regression Coefficient (b)	T-value
NIC	5	8.038	0.2695	0.6224
MBL	5	0.807	0.0354	0.5645
KBL	5	1.75	0.0737	1.473

The Table 4.2.3.2 depicts the major output of simple regression analysis of average dividend per share (DPS) on earning per share (EPS) of the concerned banks.

As far as the regression of EPS and DPS is concerned, the regression coefficient of NIC, MBL and KBL are 0.2695, 0.0354 and 0.0737 respectively. It indicates that a one-rupee increase in EPS leads to an average of Rs. 0.2695 increase in DPS of NIC, 1 rupee increase in EPS of MBL leads to an average of Rs.0.0354 increase in DPS of MBL and one rupee increase in EPS leads to an average of Rs 0.0737 increase in MPS of KBL, if the other variable remains constant. The test of t-statistics aid to conclude that in NIC the relationship between EPS and EPS is insignificant, since the calculated value of t (0.6224) is lower than tabulated value of t (2.78), in MBL the relationship between MPS and EPS is also insignificant as the calculated value of t (0.5645) is much lower than tabulated value of t (2.78) and in KBL the results are also insignificant, since the calculated t-value (1.473) is lower than the tabulated t-value (2.78) at 5% level of significance on 4 degree of freedom.

## 4.3 Test of Hypothesis

### 4.3.1 Test of DPS among the sample banks

Null Hypothesis ( $H_0$ ):  $\mu_1 = \mu_2 = \mu_3$  i.e. There is no significant difference in DPS of the sample banks.

Alternative Hypothesis ( $H_1$ ):  $\mu_1 \neq \mu_2 \neq \mu_3$  i.e. There is significant difference in DPS of the sample banks.

**Table 4.3.1**  
**Dividend Per Share**

<b>Fiscal Year</b>	<b>NIC</b>	<b>MBL</b>	<b>KBL</b>
<b>2060/61</b>	0	0	0
<b>2061/62</b>	10	0	0
<b>2062/63</b>	0.53	0.79	1.05
<b>2063/64</b>	1.05	0	1.05
<b>2064/65</b>	1.05	1.05	0.53

*Source: Annual Reports of NIC, MBL and KBL*

### **F-Test Statistic**

Correction Factor (C.F.) = 19.494

Total Sum of Squares (TSS) = 87.22

Sum of squares due to row or between banks (SSR) = 14.47

Sum of squares due to error or within banks (SSE) = 72.75



**Table 4.3.1.1**  
**One-Way ANOVA table for DPS**

Sources of Variation	Sum of Squares	Degree of freedom (d.f. = n-1)	Mean Sum of Squares	F-Ratio
Between Banks	14.47	$3 - 1 = 2$	7.235	1.194
Within Banks	72.75	$14 - 2 = 12$	6.061	
Total	87.22	$15 - 1 = 14$		

**Critical Value:** The tabulate value of F at 5% level of significance for 2 and 12 d.f. is 3.88

**Decision:** Since the calculated F is less than the tabulated value of F, the Null Hypothesis ( $H_0$ ) is accepted. Therefore, we can conclude that there is no significant difference in DPS of sample banks.

### 4.3.2 Test of EPS among the sample banks

Null Hypothesis ( $H_0$ ):  $\mu_1 = \mu_2 = \mu_3$  i.e. There is no significant difference in EPS of the sample banks.

Alternative Hypothesis ( $H_1$ ):  $\mu_1 \neq \mu_2 \neq \mu_3$  i.e. There is significant difference in EPS of the sample banks.

**Table 4.3.2**  
**Earning Per Share**

<b>Fiscal Year</b>	<b>NIC</b>	<b>MBL</b>	<b>KBL</b>
<b>2060/61</b>	13.65	8.49	9.74
<b>2061/62</b>	22.75	15.43	17.58
<b>2062/63</b>	16.1	18.74	16.59
<b>2063/64</b>	24.01	9.02	22.7
<b>2064/65</b>	25.75	10.35	16.35

*Source: Annual Reports of NIC, MBL and KBL*

**F-Test Statistic**

Correction Factor (C.F.) = 4075.504

Total Sum of Squares (TSS) = 438.80

Sum of squares due to row or between banks (SSR) = 161.934

Sum of squares due to error or within banks (SSE) = 276.87

**Table 4.3.2.1**  
**One-Way ANOVA table for EPS**

<b>Sources of Variation</b>	<b>Sum of Squares</b>	<b>Degree of freedom (d.f. = n-1)</b>	<b>Mean Sum of Squares</b>	<b>F-Ratio</b>
<b>Between Banks</b>	161.934	3 – 1 = 2	80.97	3.510
<b>Within Banks</b>	276.87	14 – 2 = 12	23.07	
<b>Total</b>	438.80	15 – 1 = 14		

**Critical Value:** The tabulate value of F at 5% level of significance for 2 and 12 d.f. is 3.88

**Decision:** Since the calculated F (3.510) is less than the tabulated value of F (3.88), the Null Hypothesis ( $H_0$ ) is accepted. Therefore, we can conclude that there is no significant difference in EPS of sample banks.

### 4.3.3 Test of DPR among the sample banks

Null Hypothesis ( $H_0$ ):  $\mu_1 = \mu_2 = \mu_3$  i.e. There is no significant difference in DPR of the sample banks.

Alternative Hypothesis ( $H_1$ ):  $\mu_1 \neq \mu_2 \neq \mu_3$  i.e. There is significant difference in DPR of the sample banks.

**Table 4.3.3**  
**Dividend Payout Ratio**

Fiscal Year	NIC	MBL	KBL
2060/61	0	0	0
2061/62	43.96	0	0
2062/63	3.29	4.22	6.33
2063/64	4.37	0	4.63
2064/65	4.08	10.14	3.24

*Source: Annual Reports of NIC, MBL and KBL*

### F-Test Statistic

Correction Factor (C.F.) = 473.32

Total Sum of Squares (TSS) = 1698.40

Sum of squares due to row or between banks (SSR) = 228.75

Sum of squares due to error or within banks (SSE) = 1469.65

**Table 4.3.3.1**  
**One-Way ANOVA table for DPR**

Sources of Variation	Sum of Squares	Degree of freedom (d.f. = n-1)	Mean Sum of Squares	F-Ratio
Between Banks	228.75	$3 - 1 = 2$	114.38	0.934
Within Banks	1469.65	$14 - 2 = 12$	122.50	
Total	1698.40	$15 - 1 = 14$		

**Critical Value:** The tabulate value of F at 5% level of significance for 2 and 12 d.f. is 3.88

**Decision:** Since the calculated F (0.934) is less than the tabulated value of F (3.88), the Null Hypothesis ( $H_0$ ) is accepted. Therefore, we can conclude that there is no significant difference in DPR of sample banks.

## 4.4 Major Findings

In this segment we analyze various aspects of dividend and summarize the major findings for easy reference.

- a) The average dividend per shares of selected banks shows that NIC Bank paid highest DPS of Rs 2.53 in average. NIC is comparatively more successful to create the positive attitudes of shareholders towards the bank. It consequently helps to increase the market value of shares and also helps to indicate the better performance of the bank's management. Although, NIC has the highest inconsistency in dividend payment than other banks. The dividend payment by KBL was less inconsistent than the other banks. Whereas, MBL has the lowest average DPS.

- b) NIC distributed highest stock dividend per share of Rs. 14 in average and the stock dividend payment is also less inconsistent than other banks. So NIC is comparatively more successful than other banks to create the positive attitude of shareholders towards the bank. MBL has the lowest SDPS of Rs 7 in average and the SDPS were highly inconsistent in comparison with other banks.
- c) In average NIC enjoyed the highest EPS of Rs.20.45 and the EPS generation were less inconsistent than other banks. So, NIC's profitability of common shareholders investment are better than MBL and KBL. While, MBL has lowest average EPS of Rs. 12.41 and the EPS generation was more inconsistent than other banks.
- d) MPS of all selected banks seems to be in increasing trend. NIC has the highest MPS of Rs. 662.80 in average, followed by KBL which has slightly lower MPS than NIC of Rs. 661.60. But KBL seems to have more consistent MPS than other two banks. However, NIC seems to have highest market value than other two banks.
- e) The average Dividend Payout Ratio of selected banks shows that NIC Bank has highest DPR of 11.14 times and highly inconsistent than other banks.
- f) Similarly, NIC has the lowest P/E Ratio. It has P/E Ratio 30.46 in average. It can be considered that the investors of NIC Bank paid fewer amounts among the other banks to gain 1 rupee of earning. The P/E Ratio of MBL fluctuated more than other banks.
- g) NIC has a highest dividend yield ratio of 0.61% in average, though NIC also has a highest fluctuation in DY Ratio. Whereas, MBL has the lowest. It can be considered that the shareholders of NIC got more percentage of the market price they paid for a share as dividend in return than the other banks.
- h) MBL has the highest Earning Yield ratio of 4.19% in average among the selected banks. Which means MBL is more efficient in than other banks on the basis of market price of share.
- i) Comparing the average NWPS, NIC has the highest average NWPS of Rs.142.74. Hence, it can be concluded that NIC is much valued in the market in comparison with other banks and MBL is less valued in market among the selected banks.

- j) EPS and MPS of NIC bank and KBL were positively correlated while MBL has a negative correlation between EPS and MPS. But, only NIC Bank has a significant relationship between EPS and MPS.
- k) EPS and DPS of all three banks were positively correlated. It is also found that the relationship between EPS and DPS of all three banks were insignificant.
- l) The regression analysis between EPS and MPS shows that NIC has the highest regression coefficient 66.38. It indicates that a one-rupee increase in EPS leads to an average of Rs. 66.38 increase in MPS of NIC. While MBL has a negative regression coefficient (-30.262). This means, one rupee increase in EPS leads to an average of Rs 30.62 decrease in MPS of MBL.
- m) The regression analysis between DPS and MPS shows that NIC has the negative regression coefficient -29.789. It indicates that a one-rupee increase in EPS leads to an average of Rs. 29.789 decrease in MPS of NIC. While MBL has a highest regression coefficient 612.724. This means, one rupee increase in EPS leads to an average of Rs 612.724 increase in MPS of MBL.
- n) The regression analysis between EPS and DPS shows that NIC has the highest regression coefficient of 0.2695. It indicates that a one-rupee increase in EPS leads to an average of Rs. 0.2695 increase in DPS of NIC. While MBL has the lowest regression coefficient 0.0354.
- o) The calculated F (3.510) is less than the tabulated value of F (3.88), the Null Hypothesis (H<sub>0</sub>) is accepted. Therefore, we can conclude that there is no significant difference in EPS of sample banks.
- p) Since the calculated F (0.934) is less than the tabulated value of F (3.88), the Null Hypothesis (H<sub>0</sub>) is accepted. Therefore, we can conclude that there is no significant difference in DPR of sample banks.
- q) As the calculated F is less than the tabulated value of F, the Null Hypothesis (H<sub>0</sub>) is accepted. Therefore, we can conclude that there is no significant difference in DPS of sample banks.

## CHAPTER FIVE

# SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

### 5.1 Summary

The shareholders are paid with portion of firm's net earning known as dividend. Dividend serves as simple, comprehensive signal of management's interpretation of the firm's record performance and its future prospects. The improved corporate dividend practices are thus essential means to solve the problem of asymmetric information between companies and Nepalese's investors who have poured their fund there in.

In Nepal, only a few listed companies have paying regular dividends to their shareholders. Further companies have not been following stable dividend payout policy. On the other hand, the dividend payout ratio of listed companies in Nepal has not been able to distribute fair dividends. In this regards, however commercial banks are also no exception.

The theoretical statement of this study is to study the impact of dividend policy on market price of the stock, 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 stock. For this argument two simple regressions were formed. The first simple regression was formed to assess the impact of EPS on market price of share. It concludes the fact that earning per share has both positive and negative impacts on MPS. But, EPS has positive impact on MPS of two out of three banks. Whereas the second simple regression was formed to assess the impact of DPS on MPS. But, DPS has positive impact on MPS of two out of three banks. From the analysis, it is found that the DPS has positive and negative impact on MPS. From the regression analysis, it can be concluded that a change in dividend per share affects the share price differently in different banks.

The Earning Per Share of selected banks seems to have a fluctuated trend. NIC seems to have highest average EPS and the trend was consistent in comparison to other banks. So, NIC secures the interest of investors in terms of regular dividend.

Since Nepalese stock market is not perfect competitive .Share price of stock do not moves as per the risk and return of that share. It was found that the correlation coefficient between DPS and MPS of NIC bank is negatively correlated. Correlation coefficient between EPS and DPS of all banks are positive. Which obviously proves the higher earning enables the banks higher dividend and vice versa.

## 5.2 Conclusions

In this section, the things 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 examined as far as possible.

On the basis of secondary data, we can conclude that NIC Bank has higher earning capacity and paying more dividends in Rupees than other banks. According to DPR, NIC Bank is paying higher portion of its earning as dividend than other banks. Similarly, NIC Bank paid fewer amounts among the other banks to gain 1 rupee of earning. Also, average dividend yield indicates that NIC Bank is providing more percentage of its market value per share than other banks. Again, the average MPS of NIC bank is greater than other banks. Thus, it can be concluded that NIC Bank was more successful in comparison with other two banks.

It is also concluded that, there is no definite rules and regulations that forces companies to pay dividend every year. Not only companies, even government doesn't have any clear policy towards dividend. Also there is instability in dividend and inconsistency in dividend payment ratio of the banks. The EPS of all the banks seems to have fluctuated trend. This sort of fluctuation leads to lose the public faith. The average dividend yield ranged from 0.07% to 0.61%. The highest figure 0.61% cannot be considered to be encouraging factor because dividend of Rs 0.61 for Rs 100 investment is not encouraging at all.

Shareholders in Nepal seem to be not much conscious. Taking the advantage of this flaw, the company management does not show the commitment promised in prospectus while raising capital. Promoter tempts investors mentioning to pay attractive dividends, when company makes profit. However in reality, most of the companies are deviated from their statement as promise in



prospectus. Government also seems to fail in improving the efficiency of the companies, as government does not have any clear policy towards dividend.

## 5.3 Recommendations

On the basis of major findings and issues encountered during course of this study, some recommendations are presented as follows:

1. Banks are paying dividend without adopting any appropriate policy. Companies should have their clearly defined dividend policy. Clearly defined dividend policy helps to determine specific. This helps to investor in deciding whether to buy or not the share of particular company. The dividend payment should be stable and consistent because dividend policy is the only mirror of management perspective to shareholders return therefore all banks should have to come up with clear view regarding dividend policy.
2. Central Bank, NRB should come up with more monitoring tools to strengthen the banking system of the country because there are still some loopholes in rules and policies regarding dividend declaration. Legal rules relating to dividend policy indeed helps the central banks to protect the interest of depositors.
3. Each and every company should provide the detailed information regarding their performance and activities, so that investors can analyze them before they make an investment. On the other hand, NEPSE should provide all the necessary information regarding the company's activities. The information regarding secondary market and capital market is not duly flash out today. Therefore concerning body should timely provide all the information about this factor.
4. Banks should have long term vision regarding earning and dividend payment that helps to cope with challenging competitive situation of present world. Various internal and external factors should be considered before taking decision.
5. EPS of selected banks seem to be in fluctuating trend; therefore these banks should search the fruitful investment opportunities and plan for profit maximization.

6. The DPS analysis shows that there is no consistence in dividend policy in all the selected banks. Therefore, these banks need to create somehow paying reasonable DPS every year, it is because higher DPS creates positive attitude of shareholders towards the company. This consequently helps to increase the market value of shares.
7. The government should play a prominent role and interfere to encourage for the establishment of organizations to promote and protect activities those are fruitful to investors.

## Appendix I

### Calculation of Correlation Coefficient and Regression Analysis between DPS and MPS

#### a) NIC Bank

Calculated table of Correlation Coefficient between DPS & MPS

Year	DPS (X)	MPS(Y)	XY	X <sup>2</sup>	Y <sup>2</sup>
<b>2060/61</b>	0	218	0	0	47524
<b>2061/62</b>	10	366	3660	100	133956
<b>2062/63</b>	0.53	496	262.88	0.2809	246016
<b>2063/64</b>	1.05	950	997.5	1.1025	902500
<b>2064/65</b>	1.05	1284	1,348.2	1.1025	1648656
	<b>∑ X=12.63</b>	<b>∑ Y= 3314</b>	<b>∑XY= 6268.58</b>	<b>∑X<sup>2</sup>= 102.486</b>	<b>∑Y<sup>2</sup>= 2978652</b>

Here, N = 5

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

$$= \frac{5 * 6268.58 - 12.63 * 3314}{\sqrt{5(102.486) - (12.63)^2} \sqrt{5(2978652) - (3314)^2}}$$

$$= \frac{31342.9 - 41855.82}{\sqrt{512.43 - 159.2} \sqrt{14893260 - 10982596}}$$

$$= \frac{-10512.92}{18.79 * 1977.54}$$

$$r = -0.28292$$

And,

$$\text{Probable Error (P.E.)} = \frac{0.6745 * (1 - r^2)}{\sqrt{n}}$$

$$= \frac{0.6745 * (1 - (-0.28292)^2)}{\sqrt{5}}$$

$$\text{P. E.} = 0.2775$$

Regression equation of X on Y

$$Y = a + bX$$

Where,

a = Regression Constant

b = Regression Coefficient (Slope of the Regression Line)

According to the principle of least squares, two normal equations for estimation for estimating two numerical constants a and b are given by

$$\Sigma Y = na + b \Sigma X$$

$$\Sigma Y^2 = a\Sigma Y + b \Sigma XY$$

Solving these two normal equations, we get,

$$b = \frac{n\Sigma XY - \Sigma X \Sigma Y}{n\Sigma X^2 - (\Sigma X)^2}$$

$$b = \frac{31342.9 - 41855.82}{512.43 - 159.5169}$$

$$b = -29.789$$

Similarly,

$$a = \frac{\Sigma Y}{n} + b * \frac{\Sigma X}{n}$$

$$= \frac{3314}{5} + (-29.789) * \frac{12.63}{5}$$

$$a = 587.553$$

Similarly.

$$t = \frac{r * \sqrt{n - 2}}{\sqrt{1 - r^2}}$$

$$= \frac{(-0.28292) * \sqrt{5 - 2}}{\sqrt{1 - (-0.28292)^2}}$$

$$t = -0.5327$$

**b) Machhapuchhre Bank Limited (MBL)**

Calculated table of Correlation Coefficient between DPS & MPS

Year	DPS (X)	MPS(Y)	XY	X <sup>2</sup>	Y <sup>2</sup>
<b>2060/61</b>	0	125	0	0	15625
<b>2061/62</b>	0	256	0	0	65536
<b>2062/63</b>	0.79	320	252.8	0.6241	102400
<b>2063/64</b>	0	620	0	0	384400
<b>2064/65</b>	1.05	1285	1349.25	1.1025	1651225
	<b>∑ X=1.84</b>	<b>∑ Y= 2606</b>	<b>∑XY= 1602.05</b>	<b>∑X<sup>2</sup>= 1.7241</b>	<b>∑Y<sup>2</sup>= 2219186</b>

Here N = 5

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

$$= \frac{5 * 1602.05 - 1.84 * 2606}{\sqrt{5(1.7241) - (1.84)^2} \sqrt{5(2219186) - (2606)^2}}$$

$$= \frac{8010.25 - 4795.04}{\sqrt{8.6205 - 3.3856} \sqrt{11095930 - 6791236}}$$

$$= \frac{3215.21}{2.288 * 2074.76}$$

$$r = 0.6773$$

And,

$$\text{Probable Error (P. E.)} = \frac{0.6745 * (1 - r^2)}{\sqrt{n}}$$

$$= \frac{0.6745 * (1 - (0.6773)^2)}{\sqrt{5}}$$

$$\text{P. E.} = 0.1633$$

Regression equation of X on Y

$$Y = a + bX$$

Where,

a = Regression Constant

b = Regression Coefficient (Slope of the Regression Line)

According to the principle of least squares, two normal equations for estimation for estimating two numerical constants a and b are given by

$$\Sigma Y = na + b \Sigma X$$

$$\Sigma Y^2 = a\Sigma Y + b \Sigma X^2$$

Solving these two normal equations, we get,

$$b = \frac{n\Sigma XY - \Sigma X \Sigma Y}{n\Sigma X^2 - (\Sigma X)^2}$$

$$b = \frac{5 * 1602.05 - 1.84 * 2606}{5 * 1.7241 - 3.3856}$$

$$b = 612.724$$

Similarly,

$$a = \frac{\Sigma Y}{n} + b * \frac{\Sigma X}{n}$$

$$= \frac{2606}{5} + (612.724) * \frac{1.84}{5}$$

$$a = 746.683$$

Similarly.

$$t = \frac{r * \sqrt{n - 2}}{\sqrt{1 - r^2}}$$

$$= \frac{0.6773 * \sqrt{5 - 2}}{\sqrt{1 - (0.6773)^2}}$$

$$t = 2.1674$$

**c) Kumari Bank Limited (KBL)**

Calculated table of Correlation Coefficient between DPS & MPS

Year	DPS (X)	MPS(Y)	XY	X <sup>2</sup>	Y <sup>2</sup>
<b>2060/61</b>	0	661	0	0	436921
<b>2061/62</b>	0	369	0	0	136161
<b>2062/63</b>	1.05	443	465.15	1.1025	196249
<b>2063/64</b>	1.05	830	871.5	1.1025	688900
<b>2064/65</b>	0.53	1005	532.65	0.2809	1010025
	<b>Σ X=2.63</b>	<b>Σ Y= 3308</b>	<b>ΣXY= 1869.3</b>	<b>ΣX<sup>2</sup>= 2.4859</b>	<b>ΣY<sup>2</sup>= 2468256</b>



Here,  $N = 5$

$$\begin{aligned} r &= \frac{N\Sigma XY - (\Sigma X)(\Sigma Y)}{\sqrt{N\Sigma X^2 - (\Sigma X)^2} \sqrt{N\Sigma Y^2 - (\Sigma Y)^2}} \\ &= \frac{5 * 1869.3 - 2.63 * 3308}{\sqrt{5(2.4859) - (2.63)^2} \sqrt{5(2468256) - (3308)^2}} \\ &= \frac{9346.5 - 8700.04}{\sqrt{12.4295 - 6.9169} \sqrt{12341280 - 10942864}} \\ &= \frac{646.46}{2.3479 * 1182.546} \end{aligned}$$

$$r = 0.2329$$

And,

$$\begin{aligned} \text{Probable Error (P. E.)} &= \frac{0.6745 * (1 - r^2)}{\sqrt{n}} \\ &= \frac{0.6745 * (1 - (0.2329)^2)}{\sqrt{5}} \\ \text{P. E.} &= 0.2853 \end{aligned}$$

Regression equation of X on Y

$$Y = a + bX$$

Where,

a = Regression Constant

b = Regression Coefficient (Slope of the Regression Line)

According to the principle of least squares, two normal equations for estimation for estimating two numerical constants a and b are given by

$$\Sigma Y = na + b \Sigma X$$

$$\Sigma Y = a\Sigma Y + b \Sigma X^2$$

Solving these two normal equations, we get,

$$b = \frac{n\Sigma XY - \Sigma X \Sigma Y}{n\Sigma X^2 - (\Sigma X)^2}$$

$$b = \frac{5 * 1869.3 - 2.63 * 3308}{5 * 2.4859 - 6.917}$$

$$b = \frac{9346.5 - 8700.04}{12.4295 - 6.917}$$

$$b = 117.272$$

Similarly,

$$a = \frac{\Sigma Y}{n} + b * \frac{\Sigma X}{n}$$

$$= \frac{3308}{5} + (117.272) * \frac{2.63}{5}$$

$$a = 723.29$$

Similarly.

$$t = \frac{r * \sqrt{n - 2}}{\sqrt{1 - r^2}}$$

$$= \frac{0.2329 * \sqrt{5-2}}{\sqrt{1-(0.2329)^2}}$$

$$t = 0.415$$

### Calculation of Correlation Coefficient and Regression Analysis between EPS and MPS

#### a) NIC Bank

Calculated table of Correlation Coefficient between EPS & MPS

Year	EPS (X)	MPS(Y)	XY	X <sup>2</sup>	Y <sup>2</sup>
<b>2060/61</b>	13.65	218	2975.7	186.3225	47524
<b>2061/62</b>	22.75	366	8326.5	517.5625	133956
<b>2062/63</b>	16.1	496	7985.6	259.21	246016
<b>2063/64</b>	24.01	950	22809.5	576.4801	902500
<b>2064/65</b>	25.75	1284	33063	663.0625	1648656
	<b>∑ X=102.26</b>	<b>∑ Y= 3314</b>	<b>∑XY= 75160.3</b>	<b>∑X<sup>2</sup>= 2202.64</b>	<b>∑Y<sup>2</sup>= 2978652</b>

Here, N = 5

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

$$= \frac{5 * 75160.3 - 102.26 * 3314}{\sqrt{5(2202.64) - (102.26)^2} \sqrt{5(2978652) - (3314)^2}}$$

$$= \frac{375801.5 - 338889.64}{\sqrt{11013.2 - 10,457.1076} \sqrt{14893260 - 10982596}}$$

$$= \frac{36911.86}{23.582 * 1977.54}$$

$$r = 0.792$$

And,

$$\text{Probable Error (P. E.)} = \frac{0.6745 * (1 - r^2)}{\sqrt{n}}$$

$$= \frac{0.6745 * (1 - (0.792)^2)}{\sqrt{5}}$$

$$\text{P. E.} = 0.1124$$

Regression equation of X on Y

$$Y = a + bX$$

Where,

a = Regression Constant

b = Regression Coefficient (Slope of the Regression Line)

According to the principle of least squares, two normal equations for estimation for estimating two numerical constants a and b are given by

$$\Sigma Y = na + b \Sigma X$$

$$\Sigma Y = a\Sigma Y + b \Sigma X^2$$

Solving these two normal equations, we get,

$$b = \frac{n\Sigma XY - \Sigma X \Sigma Y}{n\Sigma X^2 - (\Sigma X)^2}$$

$$b = \frac{5 * 75160.3 - 102.26 * 3314}{5 * 2202.64 - (102.26)^2}$$

$$b = \frac{36911.86}{11013.2 - 10457.1076}$$

$$b = 66.38$$

Similarly,

$$a = \frac{\Sigma Y}{n} + b * \frac{\Sigma X}{n}$$

$$= \frac{3314}{5} + (66.38) * \frac{102.26}{5}$$

$$a = 2020.404$$

Similarly,

$$t = \frac{r * \sqrt{n - 2}}{\sqrt{1 - r^2}}$$

$$= \frac{(0.792) * \sqrt{5 - 2}}{\sqrt{1 - (0.792)^2}}$$

$$t = 2.25$$

**b) Machhapuchhre Bank Limited (MBL)**

Calculated table of Correlation Coefficient between EPS & MPS

Year	EPS (X)	MPS(Y)	XY	X <sup>2</sup>	Y <sup>2</sup>
<b>2060/61</b>	8.49	125	1061.25	72.0801	15625
<b>2061/62</b>	15.43	256	3950.08	238.0849	65536
<b>2062/63</b>	18.74	320	5996.8	351.1876	102400
<b>2063/64</b>	9.02	620	5592.4	81.3604	384400
<b>2064/65</b>	10.35	1285	13299.75	107.1225	1651225
	<b>∑ X=62.03</b>	<b>∑ Y= 2606</b>	<b>∑XY= 29900.28</b>	<b>∑X<sup>2</sup>= 849.8355</b>	<b>∑Y<sup>2</sup>= 2219186</b>

Here N = 5

$$\begin{aligned}
 r &= \frac{N\sum XY - (\sum X)(\sum Y)}{\sqrt{N\sum X^2 - (\sum X)^2} \sqrt{N\sum Y^2 - (\sum Y)^2}} \\
 &= \frac{5 * 29900.28 - 62.03 * 2606}{\sqrt{5(849.8355) - (62.03)^2} \sqrt{5(2219186) - (2606)^2}} \\
 &= \frac{149501.4 - 161650.18}{\sqrt{4249.178 - 3847.721} \sqrt{11095930 - 6791236}} \\
 &= \frac{-12148.78}{20.037 * 2074.76}
 \end{aligned}$$

$$r = -0.2922$$

And,

$$\text{Probable Error (P. E.)} = \frac{0.6745 * (1 - r^2)}{\sqrt{n}}$$

$$= \frac{0.6745 * (1 - (-0.2922)^2)}{\sqrt{5}}$$

$$= \frac{0.6745 * 0.9146}{2.2361}$$

$$\text{P. E.} = 0.276$$

Regression equation of X on Y

$$Y = a + bX$$

Where,

a = Regression Constant

b = Regression Coefficient (Slope of the Regression Line)

According to the principle of least squares, two normal equations for estimation for estimating two numerical constants a and b are given by

$$\Sigma Y = na + b \Sigma X$$

$$\Sigma Y = a \Sigma Y + b \Sigma X^2$$

Solving these two normal equations, we get,

$$b = \frac{n \Sigma XY - \Sigma X \Sigma Y}{n \Sigma X^2 - (\Sigma X)^2}$$

$$b = \frac{5 * 29900.28 - 62.03 * 2606}{5 * 849.8355 - 62.03 * 62.03}$$

$$b = \frac{-12148.78}{401.457}$$

$$b = -30.262$$

Similarly,

$$a = \frac{\Sigma Y}{n} + b * \frac{\Sigma X}{n}$$

$$= \frac{2606}{5} + (-30.262) * \frac{62.03}{5}$$

$$a = 145.77$$

Similarly,

$$t = \frac{r * \sqrt{n - 2}}{\sqrt{1 - r^2}}$$

$$= \frac{(-0.2922) * \sqrt{5 - 2}}{\sqrt{1 - (-0.2922)^2}}$$

$$= \frac{(-0.2922) * 1.732}{0.957}$$

$$t = -0.5289$$



c) **Kumari Bank Limited (KBL)**

Calculated table of Correlation Coefficient between EPS & MPS

Year	EPS (X)	MPS(Y)	XY	X <sup>2</sup>	Y <sup>2</sup>
<b>2060/61</b>	9.74	661	6438.14	94.8676	436921
<b>2061/62</b>	17.58	369	6487.02	309.0564	136161
<b>2062/63</b>	16.59	443	7349.37	275.2281	196249
<b>2063/64</b>	22.7	830	18841	515.29	688900
<b>2064/65</b>	16.35	1005	16431.75	267.3225	1010025
	<b>∑ X=82.96</b>	<b>∑ Y= 3308</b>	<b>∑XY= 55547.28</b>	<b>∑X<sup>2</sup>= 1461.765</b>	<b>∑Y<sup>2</sup>= 2468256</b>

Here, N = 5

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

$$= \frac{5 * 55547.28 - 82.96 * 3308}{\sqrt{5(1461.77) - (82.96)^2} \sqrt{5(2468256) - (3308)^2}}$$

$$= \frac{277736.4 - 274431.68}{\sqrt{7308.85 - 6882.362} \sqrt{12341280 - 10942864}}$$

$$= \frac{3304.72}{20.651 * 1182.5464}$$

$$r = 0.1353$$

And,

$$\text{Probable Error (P. E.)} = \frac{0.6745 * (1 - r^2)}{\sqrt{n}}$$

$$= \frac{0.6745 * (1 - (0.1353)^2)}{\sqrt{5}}$$

$$= \frac{0.662149905}{2.2361}$$

$$\text{P. E.} = 0.2961$$

Regression equation of X on Y

$$Y = a + bX$$

Where,

a = Regression Constant

b = Regression Coefficient (Slope of the Regression Line)

According to the principle of least squares, two normal equations for estimation for estimating two numerical constants a and b are given by

$$\Sigma Y = na + b \Sigma X$$

$$\Sigma Y = a \Sigma Y + b \Sigma X^2$$

Solving these two normal equations, we get,

$$b = \frac{n \Sigma XY - \Sigma X \Sigma Y}{n \Sigma X^2 - (\Sigma X)^2}$$

$$b = \frac{5 * 55547.28 - 82.96 * 3308}{5 * 1461.77 - 82.96 * 82.96}$$

$$b = \frac{277736.4 - 274431.68}{7308.85 - 6882.3616}$$

$$b = 7.749$$

Similarly,

$$a = \frac{\Sigma Y}{n} + b * \frac{\Sigma X}{n}$$

$$= \frac{3308}{5} + (7.7487) * \frac{82.96}{5}$$

$$a = 790.17$$

Similarly.

$$t = \frac{r * \sqrt{n - 2}}{\sqrt{1 - r^2}}$$

$$= \frac{0.1353 * \sqrt{5 - 2}}{\sqrt{1 - (0.1353)^2}}$$

$$= \frac{0.1353 * 1.732}{0.991}$$

$$t = 0.2365$$

## Calculation of Correlation Coefficient and Regression Analysis between EPS and DPS

### a) NIC Bank

Calculated table of Correlation Coefficient between EPS & DPS

Year	EPS (X)	DPS(Y)	XY	X <sup>2</sup>	Y <sup>2</sup>
<b>2060/61</b>	13.65	0	0	186.3225	0
<b>2061/62</b>	22.75	10	227.5	517.5625	100
<b>2062/63</b>	16.1	0.53	8.533	259.21	0.2809
<b>2063/64</b>	24.01	1.05	25.2105	576.4801	1.1025
<b>2064/65</b>	25.75	1.05	27.0375	663.0625	1.1025
	<b>∑ X=102.26</b>	<b>∑ Y= 12.63</b>	<b>∑XY= 288.281</b>	<b>∑X<sup>2</sup>= 2202.64</b>	<b>∑Y<sup>2</sup>= 102.486</b>

Here, N = 5

$$\begin{aligned}
 r &= \frac{N\sum XY - (\sum X)(\sum Y)}{\sqrt{N\sum X^2 - (\sum X)^2} \sqrt{N\sum Y^2 - (\sum Y)^2}} \\
 &= \frac{5 \times 288.281 - (102.26)(12.63)}{\sqrt{5(2202.64) - (102.26)^2} \sqrt{5(102.486) - (12.63)^2}} \\
 &= \frac{1441.405 - 1291.544}{\sqrt{11013.2 - 10457.1076} \sqrt{512.43 - 159.517}} \\
 &= \frac{149.861}{23.582 * 18.79}
 \end{aligned}$$

$$r = 0.3382$$

And,

$$\text{Probable Error (P. E.)} = \frac{0.6745 * (1 - r^2)}{\sqrt{n}}$$

$$= \frac{0.6745 * (1 - (0.3382)^2)}{\sqrt{5}}$$

$$\text{P. E.} = 0.2671$$

Regression equation of X on Y

$$Y = a + bX$$

Where,

a = Regression Constant

b = Regression Coefficient (Slope of the Regression Line)

According to the principle of least squares, two normal equations for estimation for estimating two numerical constants a and b are given by

$$\Sigma Y = na + b \Sigma X$$

$$\Sigma Y^2 = a \Sigma Y + b \Sigma X^2$$

Solving these two normal equations, we get,

$$b = \frac{n \Sigma XY - \Sigma X \Sigma Y}{n \Sigma X^2 - (\Sigma X)^2}$$

$$b = \frac{5 * 288.281 - 102.26 * 12.63}{5 * 2202.64 - (102.26)^2}$$

$$b = \frac{149.8612}{11013.2 - 10457.1076}$$

$$b = 0.2695$$

Similarly,

$$\begin{aligned} a &= \frac{\Sigma Y}{n} + b * \frac{\Sigma X}{n} \\ &= \frac{12.63}{5} + (0.2695) * \frac{102.26}{5} \end{aligned}$$

$$a = 8.038$$

Similarly.

$$\begin{aligned} t &= \frac{r * \sqrt{n - 2}}{\sqrt{1 - r^2}} \\ &= \frac{(0.3382) * \sqrt{5 - 2}}{\sqrt{1 - (0.3382)^2}} \end{aligned}$$

$$t = 0.6224$$

**b) Machhapuchhre Bank Limited (MBL)**

Calculated table of Correlation Coefficient between EPS & DPS

Year	EPS (X)	DPS(Y)	XY	X <sup>2</sup>	Y <sup>2</sup>
<b>2060/61</b>	8.49	0	0	72.0801	0
<b>2061/62</b>	15.43	0	0	238.0849	0
<b>2062/63</b>	18.74	0.79	14.8046	351.1876	0.6241
<b>2063/64</b>	9.02	0	0	81.3604	0
<b>2064/65</b>	10.35	1.05	10.8675	107.1225	1.1025
	<b>∑ X=62.03</b>	<b>∑ Y= 1.84</b>	<b>∑XY= 25.672</b>	<b>∑X<sup>2</sup>= 849.836</b>	<b>∑Y<sup>2</sup>= 1.727</b>

Here N = 5

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

$$= \frac{5 \times 25.672 - (62.03)(1.84)}{\sqrt{5(849.8355) - (62.03)^2} \sqrt{5(1.727) - (1.84)^2}}$$

$$= \frac{128.36 - 114.135}{\sqrt{4249.178 - 3847.721} \sqrt{8.635 - 3.386}}$$

$$= \frac{14.225}{20.037 \times 2.291}$$

$$r = 0.3099$$

And,

$$\text{Probable Error (P. E.)} = \frac{0.6745 * (1 - r^2)}{\sqrt{n}}$$

$$= \frac{0.6745 * (1 - (0.3099)^2)}{\sqrt{5}}$$

$$= \frac{0.6745 * 0.9146}{2.2361}$$

$$\text{P. E.} = 0.273$$

Regression equation of X on Y

$$Y = a + bX$$

Where,

a = Regression Constant

b = Regression Coefficient (Slope of the Regression Line)

According to the principle of least squares, two normal equations for estimation for estimating two numerical constants a and b are given by

$$\Sigma Y = na + b \Sigma X$$

$$\Sigma Y^2 = a \Sigma Y + b \Sigma X^2$$

Solving these two normal equations, we get,

$$b = \frac{n \Sigma XY - \Sigma X \Sigma Y}{n \Sigma X^2 - (\Sigma X)^2}$$

$$b = \frac{5 * 25.672 - 62.03 * 1.84}{5 * 849.8355 - 62.03 * 62.03}$$



$$b = \frac{14.225}{401.457}$$

$$b = 0.0354$$

Similarly,

$$a = \frac{\Sigma Y}{n} + b * \frac{\Sigma X}{n}$$

$$= \frac{1.84}{5} + (0.0354) * \frac{62.03}{5}$$

$$a = 0.807$$

Similarly,

$$t = \frac{r * \sqrt{n - 2}}{\sqrt{1 - r^2}}$$

$$= \frac{(0.3099) * \sqrt{5 - 2}}{\sqrt{1 - (0.3099)^2}}$$

$$= \frac{(0.3099) * 1.732}{0.957}$$

$$t = 0.5645$$

c) **Kumari Bank Limited (KBL)**

Calculated table of Correlation Coefficient between EPS & DPS

Year	EPS (X)	DPS(Y)	XY	X <sup>2</sup>	Y <sup>2</sup>
<b>2060/61</b>	9.74	0	0	94.8676	0
<b>2061/62</b>	17.58	0	0	309.0564	0
<b>2062/63</b>	16.59	1.05	17.4195	275.2281	1.1025
<b>2063/64</b>	22.7	1.05	23.835	515.29	1.1025
<b>2064/65</b>	16.35	0.53	8.6655	267.3225	0.2809
	<b>∑ X=82.96</b>	<b>∑ Y= 2.63</b>	<b>∑XY= 49.92</b>	<b>∑X<sup>2</sup>= 1461.765</b>	<b>∑Y<sup>2</sup>= 2.486</b>

Here, N = 5

$$\begin{aligned}
 r &= \frac{N\sum XY - (\sum X)(\sum Y)}{\sqrt{N\sum X^2 - (\sum X)^2} \sqrt{N\sum Y^2 - (\sum Y)^2}} \\
 &= \frac{5 \times 49.92 - (82.96)(2.63)}{\sqrt{5(1461.77) - (82.96)^2} \sqrt{5(2.486) - (2.63)^2}} \\
 &= \frac{249.6 - 218.185}{\sqrt{7308.85 - 6882.362} \sqrt{12.43 - 6.917}} \\
 &= \frac{31.415}{20.651 * 2.348}
 \end{aligned}$$

$$r = 0.648$$

And,

$$\text{Probable Error (P. E.)} = \frac{0.6745 * (1 - r^2)}{\sqrt{n}}$$

$$= \frac{0.6745 * (1 - (0.648)^2)}{\sqrt{5}}$$

$$\text{P. E.} = 0.175$$

Regression equation of X on Y

$$Y = a + bX$$

Where,

a = Regression Constant

b = Regression Coefficient (Slope of the Regression Line)

According to the principle of least squares, two normal equations for estimation for estimating two numerical constants a and b are given by

$$\Sigma Y = na + b \Sigma X$$

$$\Sigma Y^2 = a \Sigma Y + b \Sigma X^2$$

Solving these two normal equations, we get,

$$b = \frac{n \Sigma XY - \Sigma X \Sigma Y}{n \Sigma X^2 - (\Sigma X)^2}$$

$$b = \frac{5 \times 49.92 - (82.96)(2.63)}{5 * 1461.77 - 82.96 * 82.96}$$

$$b = \frac{249.6 - 218.1848}{7308.85 - 6882.3616}$$

$$b = 0.0737$$

Similarly,

$$a = \frac{\Sigma Y}{n} + b * \frac{\Sigma X}{n}$$

$$= \frac{2.63}{5} + (0.0737) * \frac{82.96}{5}$$

$$a = 1.75$$

Similarly.

$$t = \frac{r * \sqrt{n - 2}}{\sqrt{1 - r^2}}$$

$$= \frac{0.648 * \sqrt{5 - 2}}{\sqrt{1 - (0.648)^2}}$$

$$= \frac{0.648 * 1.732}{0.762}$$

$$t = 1.473$$

## Appendix II

### Test of hypothesis

#### (A) One way analysis of variance (ANOVA) for Dividend Per Share

Fiscal Year	NIC(X <sub>1</sub> )	MBL(X <sub>2</sub> )	KBL(X <sub>3</sub> )	X <sub>1</sub> <sup>2</sup>	X <sub>2</sub> <sup>2</sup>	X <sub>3</sub> <sup>2</sup>
2060/61	0	0	0	0	0	0
2061/62	10	0	0	100	0	0
2062/63	0.53	0.79	1.05	0.281	0.624	1.103
2063/64	1.05	0	1.05	1.103	0	1.103
2064/65	1.05	1.05	0.53	1.103	1.103	0.281
	<b>12.63</b>	<b>1.84</b>	<b>2.63</b>	<b>102.49</b>	<b>1.73</b>	<b>2.49</b>

Here,

$$\sum X_1 = 12.63, \sum X_2 = 1.84, \sum X_3 = 2.63, \sum X_1^2 = 102.49, \sum X_2^2 = 1.73, \sum X_3^2 = 2.49$$

Note:

Value of X<sub>1</sub>, X<sub>2</sub> and X<sub>3</sub> represent the value of Dividend Per Share (DPS) of three banks NIC, MBL and KBL respectively.

$$\text{Grand Total (T)} = \sum X_1 + \sum X_2 + \sum X_3 = 17.1$$

$$\text{Correction Factor (CF)} = T^2/N = 19.494$$

$$\text{Total Sum of Squares (TSS)} = \sum X_1^2 + \sum X_2^2 + \sum X_3^2 - CF = 87.22$$

Sum of squares due to row or between banks (SSR)

$$= (\sum X_1)^2/n_1 + (\sum X_2)^2/n_2 + (\sum X_3)^2/n_3 - CF = 14.47$$

Sum of squares due to error or within banks (SSE) = TSS - SSR = 72.75

**(B) One way analysis of variance (ANOVA) for Earning Per Share**

Fiscal Year	NIC(X <sub>1</sub> )	MBL(X <sub>2</sub> )	KBL(X <sub>3</sub> )	X <sub>1</sub> <sup>2</sup>	X <sub>2</sub> <sup>2</sup>	X <sub>3</sub> <sup>2</sup>
2060/61	13.65	8.49	9.74	186.323	72.080	94.868
2061/62	22.75	15.43	17.58	517.563	238.085	309.056
2062/63	16.1	18.74	16.59	259.210	351.188	275.228
2063/64	24.01	9.02	22.7	576.480	81.360	515.290
2064/65	25.75	10.35	16.35	663.063	107.123	267.323
	<b>102.26</b>	<b>62.03</b>	<b>82.96</b>	<b>2202.638</b>	<b>849.836</b>	<b>1461.765</b>

Here,

$$\sum X_1 = 102.26, \sum X_2 = 62.03, \sum X_3 = 82.96, \sum X_1^2 = 2202.69, \sum X_2^2 = 849.84, \sum X_3^2 = 1461.77$$

Note:

Value of X<sub>1</sub>, X<sub>2</sub> and X<sub>3</sub> represent the value of Earning Per Share (EPS) of three banks NIC, MBL and KBL respectively.

$$\text{Grand Total (T)} = \sum X_1 + \sum X_2 + \sum X_3 = 247.25$$

$$\text{Correction Factor (CF)} = T^2/N = 4075.504$$

$$\text{Total Sum of Squares (TSS)} = \sum X_1^2 + \sum X_2^2 + \sum X_3^2 - CF = 438.80$$

Sum of squares due to row or between banks (SSR)

$$= (\sum X_1)^2/n_1 + (\sum X_2)^2/n_2 + (\sum X_3)^2/n_3 - CF = 161.934$$

Sum of squares due to error or within banks (SSE) = TSS - SSR = 276.87

**(C) One way analysis of variance (ANOVA) for Dividend Payout Ratio**

<b>Fiscal Year</b>	<b>NIC(X<sub>1</sub>)</b>	<b>MBL(X<sub>2</sub>)</b>	<b>KBL(X<sub>3</sub>)</b>	<b>X<sub>1</sub><sup>2</sup></b>	<b>X<sub>2</sub><sup>2</sup></b>	<b>X<sub>3</sub><sup>2</sup></b>
<b>2060/61</b>	0	0	0	0.000	0.000	0.000
<b>2061/62</b>	43.96	0	0	1932.482	0.000	0.000
<b>2062/63</b>	3.29	4.22	6.33	10.824	17.808	40.069
<b>2063/64</b>	4.37	0	4.63	19.097	0.000	21.437
<b>2064/65</b>	4.08	10.14	3.24	16.646	102.820	10.498
	<b>55.7</b>	<b>14.36</b>	<b>14.2</b>	<b>1979.05</b>	<b>120.63</b>	<b>72.003</b>

Here,

$$\sum X_1 = 55.7, \sum X_2 = 14.36, \sum X_3 = 14.2, \sum X_1^2 = 1979.05, \sum X_2^2 = 120.63, \sum X_3^2 = 72.003$$

Note:

Value of X<sub>1</sub>, X<sub>2</sub> and X<sub>3</sub> represent the value of Dividend Payout Ratio (DPR) of three banks NIC, MBL and KBL respectively.

$$\text{Grand Total (T)} = \sum X_1 + \sum X_2 + \sum X_3 = 84.26$$

$$\text{Correction Factor (CF)} = T^2/N = 473.32$$

$$\text{Total Sum of Squares (TSS)} = \sum X_1^2 + \sum X_2^2 + \sum X_3^2 - CF = 1698.363$$

Sum of squares due to row or between banks (SSR)

$$= (\sum X_1)^2/n_1 + (\sum X_2)^2/n_2 + (\sum X_3)^2/n_3 - CF = 228.75$$

$$\text{Sum of squares due to error or within banks (SSE)} = TSS - SSR = 1469.62$$

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