A STUDY ON DIVIDEND POLICY

AND

IT'S EFFECT ON STOCK PRICE

(With reference to BOKL, HBL and Nepal SBI Bank)

Submitted By:

DAMODAR G.C.

KHWOPA COLLEGE

T.U Reg. No:- 7-2-408-76-2004

Second year symbol No: - 4080019

A THESIS

Submitted to:

Office of Dean

Faculty of Management

Tribhuvan University

In partial fulfillment of the requirement for the degree of

MASTER OF BUSINESS STUDIES (MBS)
Dekocha, Bhaktapur
June, 2013

RECOMMENDATION

This is to certify that the thesis

Submitted by:
DAMODAR G.C.

Entitled:

A Study on Dividend Policy
And
It's effect on Stock Price
(With reference to BoKL, HBL and Nepal SBI Bank)

Has been prepared as approved by this department in prescribed format of faculty of management. This thesis is forwarded for examination

....

....

Mr. Roopak Joshi | **Mr. Roopak Joshi**
(Thesis Supervisor) | **(College Principal)**

VIVA-VOCE SHEET

We have conducted the viva- voce examination of the thesis presented by:

DAMODAR G.C.

Entitled

A Study on Dividend Policy
And
It's Effect on Stock Price
(With reference to BOKL, HBL and Nepal SBI Bank)

And found the thesis to be original work of the student and written according to the prescribed format. We recommend the thesis to be accepted as partial fulfillment of the requirement for the degree of

Master of Business Studies (MBS)

Viva –Voce Committee

Head of Research Committee	………………………………………
Member (Thesis Supervisor)	………………………………………
Member (External Expert)	………………………………………

June, 2013

DECLERATION

I hereby declare that this thesis entitled **"A Study on Dividend Policy and it's effect on Stock Price (with reference to BOKL, HBL and Nepal SBI bank)"** submitted to the office of dean, faculty of management, Tribhuvan University is my original research work which is prepared as the partial fulfillment of the requirement for Degree of Master of Business Studies (MBS) under the guidance and supervision of **Mr. Roopak Joshi**, thesis supervisor/ principal of Khwopa College, Bhaktapur.

Date: - June, 2013

Damodar G.C.
Researcher
T.U. Reg. No: 7-2-408-76-2004
Second yr. Symbol No: 4080019

ACKNOWLEDGEMENT

Dividend decision is major financial decision of the financial Management. This thesis entitled "A study on Dividend Policy and it's effect on stock price (with reference to BOKL, HBL and Nepal SBI Bank) has been prepared to fulfill the partial requirement for the degree of Master of Business Studies (MBS).

I am highly grateful and indebted to my honorable supervisor Mr. Roopak Joshi, College principal for his guidance encouragement and possible help in the smooth conducting of this study. This thesis has been appeared in this form only because of his valuable suggestion and supervision.

I would like to express my profound gratitude to all my teachers of Khwopa College, staff of library and administration of the college, all my colleagues who helped me directly or indirectly for completion of this thesis. I acknowledge my profound gratitude to sample banks for the cooperation shown and providing necessary data.

I want to give thanks for the staff members of T.U central Library, Shanker Dev Campus Library who provide the reference and reading materials during the period of research.

Finally, I would like to extend my warm thanks to my family member and my friends for their continuous inspiration and support during the entire period of the study. Finally I would like to express a warm regard to the entire concerned person who helped and directed me for the successful completion of my thesis.

Damodar G.C.

Researcher

LIST OF TABLES

LIST OF FIGURES

ABBREVIATION

HBL: Himalayan Bank Limited
BOKL: Bank of Kathmandu Limited
NSBI: Nepal Sbi bank limited
EPS: Earning per share
DPS: Dividend per share
MPS: Market price per share
DPR: Dividend Payout ratio
MVPS: Market value per share
BVPS: Book value per share
NWPS: Net worth per share
EY: Earning yield
DY: Dividend yield
Rs.: Rupees
P.E: Probable error
CV: Coefficient of variation
NEPSE: Nepal Stock Exchange
R/E: Retained earning
P/E ratio: Price earning ratio
B.S: Bikram Sambat
AD: Anno Domini
FY: Fiscal year
Ltd: Limited
T.U: Tribhuvan University
df: Degree of freedom
SD: Standard Deviation
SEBO: Security Board of Nepal
IOS: Investment opportunity Schedules
WACC: Weighted average cost of capital
FNCCI: Federation of Nepal chamber of commerce and industry
CEO: Chief executive officer
NISBL: Nepal Indosuez bank limited
SCBL: Standard chartered bank limited
Yrs: years
BOD: Board of director
AGM: Annual general meeting
RONW: Return on net worth
r: Coefficient of correlation
R^2: Coefficient of determination
SSC: Sum of square due to column
TSS: Total sum of square

T: Sum of all observation
MSS: Mean sum of Square
SSE: Standard error of estimate

Table of Contents

Chapter- I
Introduction

1.1 Background of the Study

Nepal is landlocked developing country with agro based economy. Development of the country highly depends upon its economic growth. The country is divided into mountain, hill and terrain region. Economic status of our country is growing at very slow pace even though it lies between two countries with great economy in the world (China and India). The poor resource mobilization, lack of entrepreneurship and poor governance are responsible for slow pace of development. Development of the different institution is equally for the rapid economic development of the country like trade, commerce, industry and agriculture. Nepal is an agro dominated country where the majority of the people are farmer. The landlocked and complex geographical situation has further worsened the development of the country. Nepal is developing country with low per capita income. Very small part of the population has spare money where as big parts are under poverty line. Among the small part of population with spare money only few people are interested to invest the money in business due to fear of not getting back. So the people who invest money in the business expect return from the money they invest. Return may be in various form i.e. interest in case of debenture, dividend in case of stock etc.

Dividend is the return which the investor gets by investing their money in stock. Dividend play vital role to attract the people to invest their money in business. Public are encouraged to invest in the business which pay high amount to dividend. They do not care whether the business is actually running in profit or not. The market economy is becoming strong due to globalization and liberalization. Economic liberalization and policy reforms are the present needs since the market economy is becoming strong in world wide. After the restoration of multiparty democracy in 1990 and universal echo of economic liberalization. Nepal has also implemented liberal economic policy; as a result many more companies are established in different sectors such as industrial, tourism, transportation, trade and mostly in financial sector whose contribution in economy has great significance. For development of financial sectors efficient flow and generation of fund in the most productive sectors are necessary. The nation having efficient funds collection system from each and every corner of the country and investing them in the productive area are the economic heroes at the present scenario. Financial institution plays significant role for the effective collection of fund from each and every corner and act as a catalyst for economic development of the country.

Bank is one of the major financial institutions. The word bank originates from Italian word ‘Banca’ which means bench on which the banker would keep its money and his transaction records. The history of modern banks begins from bank of Venice established in 1157 A.D. Bank of Barcelona established in 1401A.D, bank of Geneva established in 1407 A.D, bank of Amsterdam established in 1609 A.D and bank of England established in 1694A.D. Merchants, goldsmiths and moneylenders are the pioneer for the modern day banks. The major objectives of the bank are to collect ideal money from scattered sources and mobilize them in most profitable sectors. They provide necessary capital required for trade and commerce mobilizing the scattered savings.

The policy of a company on the division of its profits between its shareholders as dividend and retention for its further investment are known as dividend policy. Dividend distribution is one of the vital functions among many functions of corporate firms. Dividend may be paid in the form of cash or stock which depends upon the corporate policy. Most of the company pay dividend annually to its shareholder in Nepal. Company have three option when it make profit: first to distribute all the profit to its shareholder as dividend, second retain some for future investment and distribute remaining as dividend and third retain all for future investment. There is a reciprocal relationship between retained earnings and cash dividend. If retained earnings is more company distribute less dividend to its shareholders and vice and versa. Company should have proper dividend policy so that they can make profit in future and maximize shareholder's wealth. So dividend policy can be defined as the policy implemented by the company on the division of its net profit between shareholders and retention of net profit for future reinvestment. Shareholders expectation may vary with their investment priorities. Some invest for capital appreciation of stock and some for earning divined. Divined is paid out of the profit made by the firm. So only firm running in profit is capable to pay dividend. Profit or earning is that amount which remains after deducting all operational and non operational expenses. In order to maximize wealth under uncertainty, the firm must pay enough dividends to satisfy its investors. The dividend policy reflects the firm's decision to pay out earning versus retaining them for reinvestment in firm. Any changes in dividend policy have both favorable and unfavorable effect on firm's stock price. Higher dividend means higher cash flow to investor, which are good but lower future growth, which is bad. The optimal dividend policy balances this opposing force and maximizes the price of the stock. Optimal dividend policy strike to achieve balance between both favorable and unfavorable effect. Dividend policy is an important financial management decision and it varies from firm to firm. There is not any consistency and regular practice of dividend announcement in different firm. They are extremely different as per their dividend policies. So dividend policy determined the amount of earning to be distributed to shareholder and amount to be retained in the firm for future investment.

The history of Nepal securities market began with the flotation of share by Biratnagar Jute Mills Ltd and Nepal Bank in 1937. Introduction of the Company Act in 1964, the first issuance of government bond in 1964 and the establishment of securities exchange centre ltd in 1976 were other significant development relating to capital markets. In 1993 security exchange centre was converted into Nepal stock exchange (NEPSE). NEPSE opened its trading floor on 13th January 1994. Only the members of NEPSE are permitted to act as intermediaries in buying and selling of government bonds and listed corporate securities. So only the securities of corporate listed in NEPSE are traded. The declaration of the dividend or the dividend policy of the firm changes the market price of the stock in secondary market. Therefore it is expected that there is some impact of dividend policy over the market price of the stock. In this study the dividend policy of two sample banks will be compared analytically to find out whether the dividend policies of the firm affect its stock price in the secondary market or not. The study will be carried out with reference of two sample bank: - Bank of Kathmandu ltd., NSBI Bank ltd. and Himalayan Bank ltd.

1.1.1 Introduction of Bank of Kathmandu Ltd

Bank of Kathmandu limited (BOK) started its operation in March 1995 with the objective to stimulate the Nepalese economy and to take it to newer heights. BOK has authorized share capital of Rs 1,000,000,000, issued share capital of Rs 606,173,300 and paid up share capital of Rs 603,141,300. BOK also aims to facilitate the nation's economy and to become more competitive globally. To achieve these BOK has been focusing on its set objectives right from the beginning. Its main objective is to contribute to the sustainable development of the nation by mobilizing domestic savings and channeling them to productive areas and to use the latest banking technology to provide better reliable and efficient services at a reasonable cost. BOK head office is located at Kamal Pokhari, Kathmandu and branches at different cities like Birjung, Ithari, Kohalpur, Tatopani etc. All together it has 23 branches among them 6 are located inside Kathmandu valley and 17 outside Kathmandu. BOK has today become landmark in the Nepalese banking sector by being among the few commercial banks which is entirely managed by Nepalese professionals and owned by the general public. It paid 20% cash dividend in the year 2006/7.

1.1.2 Introduction of Himalayan Bank Ltd

Himalayan bank limited (HBL) was established in 1993 in joint venture with Habib Bank limited of Pakistan. Despite the cut throat competition in Nepalese banking sector HBL has been able to maintain a lead in the primary banking activities, loans and deposits. All branches of HBL are integrated into Globus (developed by Temenos) the single banking software where the bank has been made substantial investments. This has helped the bank to provide services like 'Any branch Banking facility', Internet banking and sms banking. HBL holds a vision to become a leading bank of the country by providing premium products and services to the customers. Thus ensuring attractive and substantial returns to the shareholder of the bank. The bank's mission is to become preferred provider of quality financial services in the country. The bank's main objectives are to become the bank of first choice. HBL head office is located at Karmachary Sanchaya Kosh Building and its branches at different parts of the country like Bharatpur, Birjung, Heatuda, Bhairahawa, Biratnagar, Nepalgunj etc. It has 6 branches in Kathmandu valley and 11 outside Kathmandu valley. HBL bank was awarded number one bank of Nepal in year 2003 and 2003 by the Banker Almanac, Britian and National Excellence Award 2003 awarded by Federation of Nepal Chamber of Commerce and Industry(FNCCI).

1.1.3 Introduction of Nepal SBI Bank Ltd

Nepal NSBI bank ltd. is a subsidiary of state bank of India which has 55percent of ownership and rest is held by a local partner viz. employee provident fund 15 percent and general public 30 percent. In terms of the technical service agreement between NSBI and the NSBL, the former provides management support to the bank through its expatriate officers including managing Director who is also CEO of the Bank. Nepal NSBI Bank was incorporated in Nepal on April 28, 1993 as a public limited company. It commenced operations on July 7, 1993 and is principally engaged in the business of banking, as defined in the banks and financial institution Act, 2006. The bank is listed on Nepal Stock Exchange, Kathmandu. Nepal NSBI bank has since expanded into a network of 59 banking and non banking outlets including 50 full fledged commercial banking branches, 6 extension counters and 3 administrative offices. A network of 68 online ATMs covering all major cities in Nepal, 24 hours mobile banking and internet banking services support the delivery for speedier customer service. As on July 16, 2011 the bank is with a staff complement of 505 employees, had an equity of Rs 2.1 billion and total assets of Rs 46.1 billion, with more than 3,00,000 banking customers. The bank has been taking up diverse community service. Initiatives beyond the call of regular banking business, to establish itself as a responsible corporate business, to establish itself as a responsible corporate citizen of this great nation. Its aim is to become the banker to every Nepali.

1.2 Focus of the Study

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

The relationship between different variables will be individually and combine analyzed in order to state the particular suggestion. On the same way, the study will be focus on behavioral aspect of Nepalese investors in regards to dividend practices made in past five years by the sample bank.

1.3 Statement of the Problems

Dividend is the most inspiring factor for the investment on shares of any company. It is an important aspect of financial management. The dividend policy determines the division of earnings between payment to stockholder and reinvestment in the firm to exploit growth opportunities. Shareholder makes investment in equity capital with the expectation of making earnings. Dividend is a kind of earnings that the shareholders expect from their investment in stock. It affects the value of firm as well as overall financing decision such as financial structure, the flow of funds, corporate liquidity and investor's satisfaction. The dividend decision is however still a crucial as well as controversial area of managerial finances. There is no consensus among financial scholars on this subject matter and its relation with the stock price. Some financial scholars say that stock price are least influenced by dividend per share while so others believe that its relevance to the stock prices is quite significant. The idea of relevance is vague as well. It is rather hard to define whether dividend per share has positive effect or it has negative effect. Dividend is desirable foe the shareholder, which inspires them for the further investment on company's shareholders. But it is found that there is no satisfactory result about dividend decision of commercial banks in Nepal. Likewise, dividend distribution is not matching with the earning of the commercial bank. Similarly no proper relationship between dividend and quoted market price of share exist. Companies with lower returns records rigid prices whereas companies with sound returns do not rigid in price of share. Generally, earning of commercial banks depends upon the operating functions and what kind of operation policies they follow. Among the various reasons the government rules and regulation, ownerships patterns, attitudes of management, forms of management may be the partial cause of such a situation. In practice, every firm follows some kind of dividend policy and there is no unique dividend policy which is appropriate for all the firms. So dividend policy differs from organization to organization. In general it is assumed that there is relationship between dividend and stock price. There are many studies on dividends and stock prices. Some of them are Modigliani and Miller (1961), Linter (1962), Gordan (1963), Walter (1966), Elton and Gruber (1970), Black and Scholes (1974) etc. However no simple and conclusive relationship exists between the dividend policy and market price of share. There was considerable controversy concerning the relationship between dividend and stock prices. The affect of dividend policy on corporate market value or market price of share is a subject of long standing argument but there is no single conclusive result regarding the relation between the dividend payment and market price of the share.

In Nepalese context, the companies listed in NEPSE are not seen so serious regarding dividend decision, since most of them do not have any consistent and clear cut policy on dividend distribution. In connection to Nepalese public enterprises, M.K. Shrestha remarks that dividend is still considered as the unintended strategy or the non payable obligation at a time when Nepalese government is not in a position to impose the public limited companies to pay a minimum rate of dividend on equity capital contributed. Some Nepalese acts like Nepal Company Act 2053, Nepal commercial Act 2031 and other regulating acts are still silent regarding dividend distribution. So different companies are adopting different dividend decision inconsistently. There is common trend of deciding the dividend by management of companies instead of shareholders meeting.

Thus this study seeks to answer the following question, is there any relationship of dividend with EPS, MPS, net worth and net profit in the case of sampled bank.

i.What are the factors that affect dividend and valuation of the firm?

ii. What are the stock price behaviors after the announcement of dividend?

iii. Whether there is uniformity of dividend distribution or not?

iv. What are the dividend patterns followed by the sampled bank?

v. Are the banks following any specific dividend policy?

vi. What are the prevailing practices of bank regarding their dividend?

1.4 Objectives of the Study

The objectives of a dividend decision should be to maximize the shareholder’s wealth so that the value of his investment is maximized. This study is primarily under taken to focus on the prevalent dividend policies and to suggest the direction of future endeavors for the overall healthier developments of share market and also the possible impact of such endeavors on the share market prices of share as well as the overall valuation of firms and to compare the dividend policy between Bank of Kathmandu ltd. and Himalayan bank ltd. The specific objectives of the study are as follows:

i. To highlights the various aspects of dividend policies and practices in Nepal applied by the selected sample banks.

ii. To analyzes the variables such as profit, dividend per share, dividends pay out ration, dividend yield and relation with market value.

iii. To identify what type of dividend policy distribution is being followed and whether or not the followed policy is appropriate in commercial banks.

iv. To provides practical suggestion and possible guidelines to overcome various issues and gapes based on the findings of the analysis.

1.5 Significance of the Study

Due to excess liquidity and lack of investment opportunities in the capital market, nowadays people are very much interested and attracted to invest in share for getting higher returns. When many new company issues share through capital markets, very big congregation gathers to apply for owner's certificate. It reveals that people have expectation on higher return for investing in shares. So the dividend decision is one of the most important decisions of financial management. It is an effective tool to attract new investors, maintain present investors and controlling position of the firm. In capital market, basically the return can be earned in the following two ways: - i. by means of dividend and ii. By capital gains i.e. increase in share price. Without adequate knowledge people are haphazardly investing in shares. It shows that there is an extreme necessity to establish clear conception about the return that yields from investing in securities. In Nepalese perspective, we find that there exist almost none of the companies are adopting consistent dividend policy. There may be many reasons behind it. But there is not sufficient study conducted in this regard. So, I have made this humble attempt to contribute to this aspect. Therefore, considering all these facts, the study is undertaken which will help to meet deficiency of the literature relating to dividend decision and factors affecting the dividend policy. So the study of dividend policy is of considerable importance.

The study will be very helpful since we can learn about the dividend policy of the chosen companies which will represent the banks. Nowadays, a large number of people are attracted to invest in share with intention of getting greater return. I believe that following groups will be benefited from this study:-

Shareholders: The shareholders will know whether the dividend policy of the company is relevant or not and the position of the company in the financial market.

Banks: The bank will know the dividend practices followed by the other banks and can also improve their dividend policy. It also provides suggestion and recommendation to the sample bank regarding their dividend policy.

Students: It will be helpful for the student as they can take it as reference if they are doing the research in similar topics.

Teachers: Teacher can use it as tools in teaching.

Researcher: Researcher can use it as a reference in their further research.

1.6 Limitations of the study

Every study has its own limitation. This study is also not an exception, which cannot be ignored. This study simple represents the partial fulfillments of MBS program. The study will be conducted within certain constrains.

- The study covers a period of five fiscal year (2007/08 to 2011/12), which will be tabulated and proceeded for drawing conclusion.
- Time and financial constraints are major limitation of this study.
- The accuracy of the research work will dependent on data provided by concerned organization.
- Besides many commercial banks only two banks are taken as a sample for the study.
- There are many factors that affect dividend decisions and valuation of the firm. However only those factors related with dividend will be considered in this study.

1.7 Organization of the Study

The present study is organized in such a way that the stated objectives can easily be fulfilled. The structure of the study will try to analyze the study in a systematic way. The study report has presented the systematic presentation and findings of the study. The study report is designed in five chapters which are as follows:-

Chapter- I: Introduction

This chapter describes the basic concept and background of the study. It has served orientation for readers to known about the basic information of the research area, profile of concerned banks, focus of the study, objective of the study, need or significance of the study, limitation of the study and organization of the study. It is oriented for readers for reporting, giving them the perspective they need to understand the detailed information about coming chapter.

Chapter- II: Review of Literature

The second chapter of the study assures readers that they are familiar with important research that has been carried out in similar areas. In this chapter various books, journals and other thesis are reviewed so that we can obtain detail information of the work we are going to do. It includes discussion on the conceptual framework and review of the major studies.

Chapter- III: Research Methodology

Research methodology refers to the various sequential steps to be adopted by a researcher in studying a problem with certain objectives in view. It describes about the various source of data related with the study and various tool and techniques employed for presenting the data.

Chapter- IV: Presentation and Analysis of data

In this chapter the collected data are analyzed concerning the dividend policy of the sampled bank. It also includes the major findings of the study.

Chapter- V: Summary, Conclusion and Recommendation

On the basis of the results obtained from data analysis, the researchers concluded about the performance of the concerned organization and provide necessary recommendation for the betterment. Bibliography, appendix and other supporting documents have also been incorporated at the end of the study. The list of bibliography and appendixes are given at the last for reference.

Chapter – II

Literature Review

This research aims to analyze the dividend policy and practices of commercial banks taking three sample banks Himalayan Bank ltd, Bank of Kathmandu ltd and Nepal NSBI bank ltd. For this purpose, it is helpful to review related literatures in this concerned area which will help to get clear ideas, opinion and other concepts. What other have said?, what other have done? and what other has written? All these and other related questions are reviewed, which has provided useful inputs in this research work. This chapter emphasizes on the literatures which are concerned with this connection. Therefore in this chapter conceptual framework given by different authors and intellectual on this area, books, journals, research works and previous thesis related to dividend policies and its effect on stock price are reviewed. Moreover rules regarding to dividend policy are reviewed and an attempt has been made to present them properly. This chapter contains the review of different sources of literature such as books, journals, research paper and other studies related to dividend policy. It has been expected that the review will help to make the research more effective and useful. This chapter has been divided mainly into two parts; Theoretical review and review of previous studies in these related fields.

2.1 Conceptual framework

Financial institutions are important for achieving the basic objective of a country's economic and social progress. They enjoy a strategic and crucial position in our mixed economy. Financial institutions regulate different policies so that the economic standard of the country will be improved at large. They, in fact play a catalyst role for resource mobilization and capital formation to facilitate the process of economic development of the country.

Commercial banks, among other are key financial institutions for mobilizing national resources and keeping the economy alive. Despite making profit they have to pay attention towards the public welfare sustaining themselves in the competitive commercial market. All the business firms always seek to have the existence of sufficient profit for sustenance. Although, Nepal started joinery of commercial banking some seven decades ago, after many years of modern banking system in Nepal, the government allowed the establishment of foreign joint venture banks. As a result, Nepal Arab bank ltd (BOKL), standard Chartered bank ltd (SCBL) and Nepal Indosuez Bank ltd (NISBL) started their commercial transaction in 1984, 1985 and 1986 respectively. The establishment of joint venture banks gave a new horizon to the financial sector of the country with the expectation of inviting foreign capital, technology, experience, competitiveness expertise and skills in Nepal. After the restoration of multiparty democratic system in 1990, government adopts the liberalization and open market policy, which provided opportunities for growth of joint venture banks.

Most of the public enterprises in our country are operating in below the breakeven due to several reasons including inefficient management. In such enterprises, the problems are not the distribution of dividend rather minimization of losses through better utilization of capital. We can see only few enterprises paying proper dividend to the investors. But after establishment of joint venture companies, there is new trend of paying dividend to the shareholders. That has brought new hopes for productive mobilization of funds so major decision of the firm is its dividend policy, the percentage of earning it pays in cash to its shareholders.

By a dividend policy we mean some kind of consistent approach to the distribution versus retention decision rather than making the decision on the purely ad-hoc basis from period. So, what and how much it is desirable to pay dividend is always a controversial topic because shareholders always expect higher dividend, but the firm ensures towards setting aside funds for maximizing the shareholders wealth *(Dickens, Casey & Newman, 2002)*. It is true that only few companies are paying dividend, there is also growing practice of paying stock dividend among some Nepalese companies. The dividend affects long-term financing and immediate corporate financial indicators like net profit, market price per share, book value per share and earnings per share. Decision regarding the dividend is a very crucial factor for every corporation. In Nepal, regular payment of dividend is under question. However, most of the joint venture banks are committed to pay dividend to the shareholders. The appreciation in the market value of share of these joint venture banks, have without any doubt, provided adequate sense of protection to shareholder *(Shrestha, 1992)*.

Dividend is the portion of earning of the company that is distributed to the shareholders in return of their investment in share capital. They can be in the form of cash, stock of property and retained earnings. Dividend decision is an integral part of financial management decision. It is in the sense that the firm has to choose between distributing the profits to the shareholders and reinvesting it to finance the business. The important aspect of dividend policy is to determine the amount of earnings to be distributed to the shareholders in return to their investment and the amount to be retained in the firm. Dividend policy is the score component of a firm’s overall financial policy. It is comprised of a series of decision regarding how the firms distribute profits to their shareholders and it mostly includes basic contents about the selection of dividend policy, dividend payout ratio and payout channel etc. Since the dividend policy determines whether the earrings to shareholders or self finance through retained earnings, so it is an important issue that receives more attention these days for both academics and practioners. More generally there are two research lines on dividend policy; one is on motives of dividend policy and other is on the market reaction to dividend policy. Thus it is one of the central decision area related to policies seeking to maximize the value of firm’s common stock.

“ Dividend refers to the portion of retained earnings that is paid to the stockholders while dividend policy refers to the policy or guidelines that management uses in establishing the portion of retained earnings that is to be paid in dividend” (*Mathur; 1979:297*). The dividend policy determines the amount of firm’s earnings to be distributed to shareholders and the amount of profit to be retained in the firm. There is reciprocal relationship between retained earnings and cash dividends. That is to say if retained earnings are kept more by the company less will be dividend and vice-versa. In other word. The firm has to choose in between distributing profit to shareholders and retaining them in business. The choice should be guided by the given objective of maximizing the present value of future cash flows in each case. Any change in dividend policy has both favorable and unfavorable affects the firm’s stock price. Higher the dividend higher the immediate cash outflow to investor which is good for the investors, but lower future growth, which is bad for long term plans of the organization. Therefore the dividend policy should be optimal which balance the opposing forces and maximizes stock price. Dividends are generally paid in cash. Therefore it reduces the cash balances of the company. Dividend policy affects the financial structure, the flow of funds, corporate liquidity, and investors’ attitudes. Thus, it is one of the central decision area related to policies seeking to maximize the value of firm’s common stock.

“Bonus share refers to free share stock that are extended to the current shareholders of the company, without need for the shareholders actually purchase the additional share. An issue of bonus share represents distribution of shares in addition to the cash dividend to the existing shareholders. This has the effects of increasing the number of outstanding share of the company. The declaration of bonus share will increase the paid up share capital and reduce the reserve and surplus of the company but total net worth is not affected by issue of bonus share. *(Pandey, Financial Management;1989:706)*

Theoretically it is not a thing of value of the shareholders unless cash dividends per share remain unchanged or are increased. Stock dividend may serve to keep the market price per share in a popular trading range. A more effective device for reducing market price per share is stock split. But stock dividend and stock split appear to how informational affects. When other things are held constant, share price tends to rise around the time of announcement, consistent with the positive signal (*Horn, Financial Management and Policy;1993:328*). Dividend policy affects the financial structure, the flow of funds, corporate liquidity and investor’s attitude.

2.1.1 Major forms of Dividends

Forms of dividend represent part of the earnings per share of each particular stock in a company to be paid to the shareholders. It is often announced by the company's management and board of directors at the end of the financial year. Dividend distributions are based on accumulated profits that are retained earnings or on other capital items such as donated or additional capital paid in. Payment of dividend to stockholders indicates the corporation is operating successfully. Dividends are commonly paid inform of cash dividends but occasional stock, scrip or some other assets. Dividend is distributed in several forms due to changing needs, objectives and policies of companies. Cash and stock dividend are most popular form of dividend in Nepal. The types of dividend that companies follow is partly a matter of attitude of directors and partly a matter of various circumstances and financial constraint that bound corporate plans and policies *(Shrestha,Financial Management;1980:670)*. The following are the various forms of dividends:-

i. Cash Dividend

Cash dividend is the dividend paid in cash. It is the most popular and widely used form of dividend all over the world. Everyone likes to collect their return in cash rather than noncash means. So, cash dividend is not only a way to distribute earnings but also a way to improve perception of the capital market *(Niraula;2003:121)*. A company should have enough cash in its bank account when cash dividends are declared. If the company does not 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 dividend policy is followed *(Pandey; 1995:775)*. The cash account and the reserve account of a company will be 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 *(Hastings; 1996:370)*.

ii. Stock dividend or bonus share

It is a form of dividend whereby management decides to capitalize part of the earnings and retain them in the business on a permanent basis by issuing stock dividend. No assets are distributed and each shareholder has exactly the same proportionate interest in the company and same book value after the stock dividend was issued as before it was declared. A stock dividend does not change the total stockholder's equity. Earnings are appropriated equally to shareholders in relation to the amount of stock they hold with the company.

iii. Scrip Dividend

A scrip dividend is issued when company has been suffering from the cash problem and does not permit the cash dividend, but has earned profit. A dividend paid in promissory notes is called a scrip dividend. Scrip is a form of promissory notes promising to pay the holder at specified later date. Under this form of dividend, company issues and distributes transferable promissory notes to shareholders, which may be interest bearing or non-interest bearing. The use of scrip dividends is desirable only when company have really earned profit and have only to wait for the conversion of other current assets into cash. Therefore, in order to overcome the temporary shortage of cash, sometimes company uses scrip dividends.

iv. Property Dividend

If the company pays the dividend in the form of property or assets rather than cash, it is known as property dividend. When the company has unnecessary or useless assets for the operation of the business, it is distributed to the shareholders as property dividends. In some cases, the company pays subsidiary company's share as dividend. Property dividends are least used in practice and only used when extra ordinary circumstances exist. Similarly the payment of dividend as subsidiary company's share in place of cash dividend could result the negative impact as the shareholders may feel the share that are paid to them are of less value therefore they are paid *(Niraula;2003:15).*

v. Optional Dividend

The optional dividend is, in fact not a kind of dividend but simply a choice of dividend given to the shareholders to accept either cash or stock dividend. But the shareholders consider the comparative value of stock dividend with the amount of optional cash. If the two are very nearly the same, as it often the case, the cash option may be a convenience to small shareholder, who thus avoids the case and expenses of selling either whole or fraction of shares he does not wish to keep *(Waring;1931*:404). If the cash dividend is subject to income taxes over and above the limit he prefers to have stock dividend.

vii. Bond Dividend

This type of dividend is distributed to the shareholders in the form of bond. It helps to postpone the payment of cash. In other word, company declares dividend in the form of its own bond with a view to avoid cash outflows. They are issued rarely. They are long-term enough to fall beyond the current liability group. The stockholders become secured creditors if the bond carries lien on assets. But none of these types expect cash and stock dividend have been practiced in Nepalese companies although they have ample scope for application. So far in this study, the term dividend generally refers to cash dividend.

2.1.2 Dividend policy

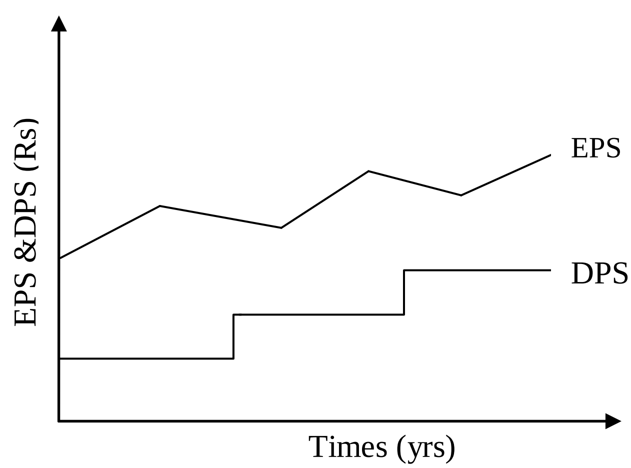
The policy, which decides in how much of the earnings a firm should retain for investment and how much it should pay to shareholders, as dividend is known as dividend policy. It is the third major decision of a firm which aims at maximization of shareholders wealth. Dividend policy determines the division of earnings between reinvestment in the firm and payment to shareholders. Retained earnings are one of the significant for financing corporate growth, but dividends refer to the cash flow that accrues to shareholders *(Weston and Copeland;1991:657)*. Stability or regularity of dividends is considered as a desirable policy by the management of companies. The most commonly used dividend policies are as follows:-

i. Constant dividend policy

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

Fig. 2.1

Constant Dividend per share policy



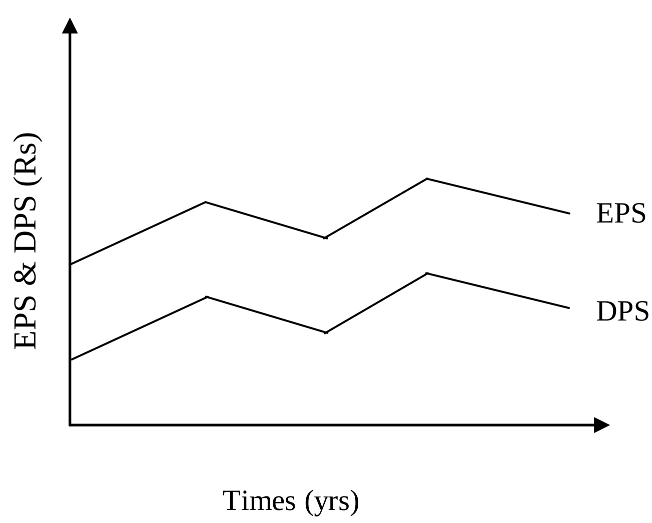
Constant Dividend per share policy

ii. Constant payout ratio policy

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

Fig. 2.2

Constant payout ratio policy



Constant payout ratio policy

iii. Stable rupee dividend plus extra dividend (low regular dividend plus extras) policy

A policy of paying a low regular dividend plus a year end extra amount in good years is a compromise between the previous two policies. Under this policy, a firm usually pays fixed dividend to the shareholders and in years of marked prosperity, additional or extra dividend is paid over and above the regular dividend. As normal conditions return, the firm cuts the extra dividend and pays the normal dividend per share. It gives the firm flexibility, but it leaves investors with somewhat uncertainty about what their dividend income will be. If a firm's earnings and cash flows are quite volatile this policy might be the best choice. This type of dividend policy enables a company to pay constant amount of dividend regularly without a default and allows a great deal of flexibility for supplementing the income of shareholders only when company's earnings are higher than the usual, without committing itself to make longer payments a part of the future dividend *(Pandey,Financial Management 1999:780)*.

2.1.3 Dividend payment procedure followed by companies

The actual payment procedure is of some importance and the following is an outline of the payment sequence.

i. Declarations date: It refers to the date on which directors meet and declare the dividend. In their resolution the board will set the date of record, the date of payment and the amount of the dividend for each share class.

ii. Holder of record date: This date is the date the company opens the ownership books to determine who will receive the dividend; the stockholders recorded on this date receive the dividend. In that date, the company closes its stock transfer books and make up a list of the shareholders as of that day. It is the date on which the shareholders register is closed after the trading day and all those who are listed will receive the dividend.

ii. Ex-dividend date: the date when the right to the dividend leaves the stock is called the ex-dividend date. In this case, the ex-dividend date is four days before holder of record date. Therefore if someone wants to receive the dividend, he/she must buy the stock four days before the holder of record day.

iv. Payment date: This is the day when dividend checks are actually mailed to the holder of record (*Weston and Copeland 1992:658)*.

2.1.4 Legal provision regarding dividend practice in Nepal

Nepal lacks clear provisions regarding dividend policy. Nepal Stock Exchange stated on the Security Exchange Act 1983, that it is responsible to undertake required action to protect shareholders interest. However this organization has not been able to protect shareholders interest and attitude of the BOD that plays dominant role in management of public limited companies and they are generally in majority who are nominated by government. Company ordinance, 2005 makes some legal provision for dividend payment in Nepal. These provisions may be seemed as under.

Dividend and Subsections of this section are as follows:

Section 46: Shareholder and debenture-holder Register Book

Subsection (1)

Every company should establish shareholder and debenture-holder register book as prescribed by law at company registrar office.

Subsection (2)

Following description should be clearly mentioned in the shareholders register book:

i. Shareholder's full name and address.

ii. No. of shares holding by shareholder.

iii. Total amount paid by shareholder and remaining balance if any.

iv. Registered date of shareholder's certificate.

v. Cancellation date of shareholder's certificate.

vi. Ownership right on share after the death of the registered shareholder.

Section 182: Dividend

Subsection (1)

Except in the following circumstances, dividend shall be distributed among the shareholders within 45 day from the date of decision to distribute them,

i. In case any law forbids the distribution of dividends.

ii. In case of right to dividend is disputed.

iii. In case dividends cannot be distributed within the time limit mentioned above owing to circumstance beyond anyone's control and without any fault on the part of the company.

Subsection (2)

Government owned companies either fully or partly can’t issue dividend without permission of government and also necessary direction in the matter of dividend.

Subsection (3)

In case dividends are not distributed with the time limit mentioned in subsection (1), this shall be done adding interest at prescribed rate.

Subsection (4)

Only the person whose name stands registered in the register of existing shareholders at the time of declaring the dividend shall be entitled to it.

Subsection (5)

The company can’t issue any form or amount as dividend expected separate reserve amount for the distribution of dividend.

Subsection (6)

The company should deduct the operating cost, deprecation amount, payable, adjustment for previous year’s losses by law before distributing dividend from profit.

Subsection (7)

Under this subsection company can distribute interim dividend if it is provisioned in rules and if the dividend is verified by audit report and attested by the BOD.

Subsection (8)

Except the amount declared by AGM, the company cannot distribute dividend from fund affecting the company’s reserve.

Subsection (9)

If the shareholder does not come to take the dividend within the five fiscal year from the declaration date, the amount would be safe guarded according to section 186 of company act.

Subsection (10)

If any shareholder comes to take the dividend amount according to section 183 within one month before the expiry date, the notice should be published publically in national daily.

Subsection (11)

After the dividend declared from AGM, the company should establish separate book of account within 45 days and distribute to the shareholders and the amount should not be used for other purpose by the company.

2.1.5 Factors influencing dividend policy

Dividend policy is one of the most controversial subjects in finance (*Baker and Powell 1991)*. Dividend is a key factor for the investment on the company's share, is desirable from the stockholder's point of view. In an established financial company dividend reflects several indicators of financial health of the company. Studies conclude that dividend policies have close but controversial relationship with market value of stock *(Baker, Farrelly & Edelman 1985, Black 1975).* Many considerations may affect a firm's decision about its dividends. Some of the more general considerations are given subsequently *(Gautam & Thapa 2003: 251-253).*

i. Legal requirements

The legal rules provide that the dividends must be paid from earnings either from the current year's earnings or from past year's earnings as reflected in the balance sheet's retained earnings account. State laws emphasize three rules:

a. Capital impairment rule

According to this rule, dividend should not be paid if a firm's capital has been impaired or if dividend payment will cause capital to become impaired. It means dividends should not be paid out of paid-up capital. If it does so there would be reduction in the capital that would affect the creditors of a corporation.

b. The surplus rule

According to surplus rule dividend should be paid only out of profit. This rule provides that dividend can be paid from past and present earnings. If there is no surplus or profits, dividend can't be legally declared.

c. The insolvency rule

This rule state that cash dividend should be prohibited, if the company is insolvent. Insolvency in the legal service defined as the situation when the recorded value of liabilities exceeds the recorded value of assets. Similarly in the technical sense, it is the firm's liability to pay its current debtors. In other word dividend is not paid if the payment results insolvency or if the firm is in insolvency (i.e. when liabilities exceed assets).

ii. Liquidity position

The liquidity of a company is a prime consideration in many dividends decision. Although a firm may have sufficient retained earnings to declare dividend, but if they are invested in physical assets cash may not be available to make dividend payments. Thus the company must have adequate cash available as well as retained earnings to pay dividends. As dividend represent cash outflow; the greater the cash position and overall liquidity of a company, the greater is its ability to pay dividend and vice-versa. A company that is growing and profitable may not be liquidated for its funds may go into fixed assets and permanent current assets.

iii. Access to the capital markets

A large well-established firm with a record of profitability and stability of earnings has easy access to capital markets and other forms of external financing. A small new or venturesome firm however is riskier for potential investors. Its ability to raise equity or debt funds from capital markets is restricted and it must return more earnings to finance its operations. A well-established firm is thus likely to have a higher dividend payout ratio than new or small firm.

iv. Need to repay debt

When a firm has sold debt to finance expansion or to substitute for other forms of financing, it is faced with two alternatives. It can refund the debt at maturity by replacing it with another form of security so it can make provisions for paying off the debt. If the decision is to retire the debt, this will generally require for retention of earnings.

v. Restriction in debt contracts

Debt contract may restrict a firm to pay cash dividend. Restrictions in debt contracts may specify that dividends may be paid only out of earnings generated after signing the loan agreement and only when net working capital is above a specified amount. Also, preferred dividends take precedence over common stock dividends.

vi. Growth rate of firm

A rapidly growing concern will have constant need of long-term funds to seize favorable opportunities for which it has to retain more and payless dividend.

vii. Control

The objective of maintaining control over the company by the existing management group or the body of shareholders can be an important variable in influencing the company’s dividend policy. When a company pays large dividends, its cash position is affected. As a result, the company will have to issue new shares to raise funds to finance its investment programs. The control of the existing shareholders will be diluted if they don’t want or can’t buy additional shares. Under this circumstance, the payment of dividends may be withheld and earnings may be retained to finance the firm’s investment opportunities.

viii. Stability of earnings

A firm that has relatively stable earnings is often able to predict approximately what its future earnings will be. Such a firm is therefore more likely to payout a higher percentage of its earnings than is a firm with fluctuating earnings. The unstable firm is not certain that in subsequent years the hope for earnings will be realized, so it is likely to retain a high portion of current earnings. A lower dividend will be easier to maintain if earnings fall off in the future.

ix. Tax position of shareholders

The tax positions of stockholders also affect dividend policy. The shareholders with high tax bracket prefer to take income in the form of capital gains rather than cash dividend. But the low tax bracket shareholders prefer cash dividends. Thus, the dividend policy to some extent is determined by the type of stockholders it have.

x. Inflation

In an indirect way inflation costs act as constraints on paying dividends. Our accounting system is based on historical costs. Depreciation is charged on the basis of original costs at which assets were acquired. As a result with raising prices, funds saved on account of depreciation may be inadequate to replace obsolete equipment. Those firms have to rely upon retained earnings as a source of funds to make up the shortfall. This aspect becomes more important if the assets are to be replaced in the near future. Consequently, their dividend payment tends to be low during periods of inflation.

xi. Age of corporation

Age of 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.

xii. Regularity and stability in dividend payment

Dividends should be paid regularly because each investor is interested in the regular payment of dividend. The management in spite of regular payment of dividend should also consider that the rate of dividend payment is constant. For this purpose sometimes companies maintain dividend equalization fund.

2.2 Theoretical Review

Dividend is that portion of earning of the company that is distributed to the shareholders in return of their investment in share capital. They can be in the form of cash, stock of dividend and retained earnings. Dividend policy is an integral parts of financial management decision in business organization that target at maximizing the shareholder's return so that the value of their investment is maximized. It is relevant with all institutions who mobilize fund in terms of return and investment. By the dividend policy we mean some kind of consistent approach to the distribution versus retention decision, rather than making the decision on the purely ad-hoc basic from period (*Shrestha, Financial Management;1980:640).*

Theoretically it is not a thing of value to the shareholders unless cash dividend per share remains unchanged or are increased. Stock dividend may serve to keep the market price per share in a popular trading range. A more effective device for reducing market price per share is stock split. But stock dividend and stock split appear to how informational affects. When other things are held constant, share price tends to rise at the time of announcement, consistent with positive signal (*Horn, Financial Management and Policy; 1993:328)*

2.2.1 Theories of dividend

There are different theories of dividend some of them are explained below.

i. Wealth Maximization Theory

Larger dividend is announced and distributed to shareholders under this theory in order to maximize their wealth. This theory is generally adopted by the newly established and declining companies to upkeep its image and retains the shareholder's positive attitude towards the company's stock (*Bhattrai; 2002:20*). The usual practice is to pay dividend in cash but other options for distributing earnings are also available to the companies which are as follows: i. Cash dividend ii. Bonus share iii. Scrap dividend iv. Property dividend v. Bond dividend

ii. Residual Theory

Residual theory of dividend suggests that the first priority should be given to the profitable investment opportunities (*Gitmen; 1988: 616)*. Dividend is taken as the residue amount of earning left after investing it in project with higher return. If expected return on the investment is higher, first profits are invested in those projects and then residue is distributed as dividends. It is because investment made from internal source cost less due to lack of flotation and other cost than from external sources. The residual dividend policy states that the profit should be used first in all profitable projects. Investment opportunity schedules (IOS), weighted average cost of capital (WACC), optimal capital structure are used as the base for investment proposal. The amount of dividend payout will fluctuate from period to period due to acceptable investment opportunities available to the firm.

Motives for a residual policy

The motives for a residual policy or high retentions dividend commonly include:-

1. A high retention policy reduces the need to raise fresh capital (debt or equity), thus saving on associated issues and flotation cost.

2. A fresh equity issue may dilute existing ownership control. This may be avoided, if retentions are consistently high.

A high retention policy may enable a company to finance a more rapid and higher rate of growth.

When the effective rate of tax on dividend income is higher than the tax on capital gains, some shareholders may prefer a high retention or low payout policy because of their personal tax positions.

iii. Dividend irrelevancy Theory

Dividend irrelevancy theory asserts that a firm's dividend policy has no effect on its market value or its cost of capital. The theory of dividend irrelevancy was perhaps most elegantly argued by its chief proponents, Modigliani and Miller (usually referred to as MM) in their seminar paper in 1961. They argued that dividend policy is a "passive residual" which is determined by a firm's need for investment funds.

According to M&M's irrelevancy theory, it does not matter how a firm divides its earning between dividend payments to shareholders and internal retentions. In the M&M view the dividend decision is one over which managers need not agonies, trying to find the optimal dividend policy, because an optimal dividend policy does not exist. M&M built heir dividend irrelevancy theory on a range of key assumptions, similar to those on which they based their theory of capital structure irrelevancy. For example they assumed:

i. Perfect capital markets, that is there are no taxes (corporate or personnel), no transaction costs on securities, investor's are rational, information is symmetrical- all investors have access to the same information and share the same expectations about the firm's future as its managers.

ii. The firm's investment policy is fixed and is independent of its dividend policy.

2.2.2 Review of previous studies

In this section, an attempt will be made to review the major studies concerning dividends and stock price and management views on dividend study.

2.2.2.1 Modigliani and Miller Study

Modigliani and Miller (1961) conducted a study on the irrelevance of dividend. This is popularly known as MM approach. It is sometimes termed as dividend irrelevance model. According to MM, dividend policy of a firm is irrelevant as it does not affect the wealth of the shareholders. They argue that the value of the firm depends on the earning power of the firm's assets or its investment policy. Thus, when the investment policy is given, the dividend decision-splitting the earnings into packages of retentions and dividends do not influence the value of equity shares. In other words the division of earnings between dividend and retained earnings is irrelevant from shareholders viewpoint.

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

Assumptions of MM model

i. Existence of perfect capital markets and all investors in it are rational. Information is available to all free of cost, there are no transactions costs, securities are infinitely divisible, no investor is large enough to influence the market price of securities and there are no flotation costs.

ii. There are no taxes: alternatively, there are no differences in tax rates applicable to capital gains and dividends.

iii. A firm has a given investment policy which does not change. It implies that the financing of new investments out of retained earnings will not change the business risk complexion of the firm and thus there would be no change in required rate of return.

iv. Investors know for certain future investments and profits of the firm (but this assumption has been dropped by MM later)

Argument of MM model

i. By the argument of arbitrage, MM model asserts the irrelevance of dividends. Arbitrage implies the distribution of earnings to shareholders and raising an equal amount externally. The effect of dividend would be offset by the effect of raising additional funds.

ii. MM model argues that when dividends are paid to the shareholders, the market price of the share will decrease and thus whatever is gained by the investors as a result of increased dividends will be neutralized completely by the reduction in the market value of the shares.

iii. The cost of capital is independent of leverage and the real cost of debt is the same as the real cost of equity, according to this model.

iv. That investors are indifferent between dividend and retained earnings implies that the dividend decision is irrelevant with dividends being irrelevant; a firm's cost of capital would be independent of its dividend payout ratio.

v. Arbitrage process will ensure that under conditions of uncertainty also the dividend policy would be irrelevant.

MM provides the proof in support of their argument in the following manner.

Step-one

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

Symbolically,

$$P_0 = \frac{D_1 + P_1}{(1+ Ke)} \quad \text{.................................. eq}^{n} \text{ (i)}$$

Where,

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

Ke = The cost of equity capital (assumed constant).

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

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

Step-two

Multiply both side of equation (i) by the number of share outstanding (n) to obtain the total value of the firm if no new financing exists.

$$nP_0 = \frac{n(D_1 + P_1)}{(1 + Ke)} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \text{ eq}^n$$

Where,

n = no. of outstanding share at zero point.

Step-three

If the firm issues (sell) number of new share 'm' to finance the new investment needs to the fund at price of P_1, the value of the firm at time zero will be:-

$$nP_0 = \frac{nD_1 + P_1(n + m) - mP_1}{(1 + Ke)} \quad \ldots\ldots\ldots\ldots\ldots\ldots \text{eq}^n\text{(iii)}$$

Where,

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

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

Step-four

The investment proposals of a firm, in a given period of time can be financed either by retained earnings or the issuance of new shares or both. Thus the amount of new issued will be:-

$$mP_1 = I - (E - nD_1) \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \text{eq}^n \text{ (iv)}$$

Where,

I = Investment needs (amount required for new investment during the period).

E = Earning available (total earnings during the period).

nD_1 = Total dividend paid

Step-five

Substituting the value of mP_1 from eq^n (iv) to eq^n(iii), we get

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

$$nP_0 = \frac{P_1(n+m) - I + E}{(1 + Ke)} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots eq^n(v)$$

Step-six

Conclusion: Since dividend does not appear directly in expression and E,I, $(n+m)P_1$ and Ke are assumed to be independent of dividend. In other words, MM concludes that dividend policy is irrelevant and dividend policy has no effect in the value of the firm. A firm that pays dividends will have to raise funds externally to finance its investment plans. MM hold that when the firm pays dividends, external financing offsets its advantage.

It does not seem so relevant to apply MM approach in Nepalese context because when we apply this approach, the assumptions made by MM are significantly deviated. In Nepal, we are unable to find the rational investors as well as perfect capital market, which are considered by MM. It does not seem so sound to neglect the flotation cost, transaction cost and tax effect in capital gain as neglected by MM. Arbitrage arguments are explained by MM applies only when there are very sensitive investors which are lacking in Nepal. Conscious investor always finds different between dividend and retained earnings and generally, Nepalese investors also prefer dividends more than retained earnings, when dividend is distributed. Thus MM proposition is not relevant in the case of Nepal (*Miller and Modigliani;1961:411-433, extracted from pandey;1989:287)*.

2.2.2.2 Gordon's Study

Myron Gordon (1962) conducted a study on the stock valuation using the dividend capitalization approach. Myron Gordon made a study on the dividend policy and market price of the stock and concluded that dividend policy of a firm influence the market value of stock. According to him dividend policy of a firm affects its value even in a situation where the return on investment and requires rate of return on investment are equal. It is assumed that current dividend is less risky than capital gain. The conclusion of his study is that investors prefer present dividend more than capital gain due to condition of uncertainty of capital gain. Therefore this model is also known as ‘a bird in hand argument’. His argument stated that an increase in dividend payout ratio leads to increase in stock price for the reason that investors consider the dividend yield (D1/P0) is less risky than that expected capital gain.

Assumption of Gordon’s model

i. The firm is an all equity firm. No external financing is used and investment programs are financial exclusively by retained earnings.

ii. Return on investment (r) and cost of equity (ke) are constant.

iii. The firm has perpetual life.

iv. The retention ratio, once decided upon is constant. Thus the growth rate (g=br) is also constant.

v. Ke must be greater than g to get meaningful value(ke>br).

vi. The source of financing a new investment is only retained earnings, no external financing is available.

Argument of Gordon’s model

i. Dividend policy of the firm is relevant and that investors put positive premium on current incomes/dividends.

ii. This model assumes that investors are risk averse and they put a premium on a certain return and discount uncertain returns.

iii. Investors are rational and want to avoid risk.

iv. The rational investors can reasonably be expected to prefer current dividend. They would discount future dividends. The retained earnings are evaluated by the investors as a risky promise. In case the earnings are retained, the market price of the shares would be adversely affected. In case the earnings are retained, the market value of the shares would be adversely affected.

v. Investors would be inclined to pay a higher price of shares on which current dividends are paid and they would discount the value of shares of a firm which postpones dividends.

vi. The omission of dividends or payment of low dividends would lower the value of the shares.

According to Gordon, the market value of share is equal to present value of future streams of dividend. His model is also known as Growth Model.

$$Po: \frac{D_1}{(1+k)^1} + \frac{D_2}{(1+k)^2} + \frac{D_3}{(1+k)^3} + \cdots\cdots\cdots \frac{D_n}{(1+k)^n}$$

A simplified version of Gordon's model can be symbolically expressed as:-

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

Where, P = Price of share

E = Earnings per share

b = Retention ratio

1-b = Dividend payout ratio

Ke = Cost of capital or the capitalization rate

br = Growth rate in r (rate or return on investment of an all equity firm)

2.2.2.3 Lintner's Study

John Linter (1956) conducted a study on corporate dividend policy in the American context, which was focused in "The Behavioral Aspect of Dividend policy". He investigated dividend pattern of 28 different companies of America and found that dividend are 'sticky' in the sense that they are slow to change and lay behind shifts in earnings by one or more periods. According to John Linter, dividend is a function of earnings of that year, existing dividend rate, target payout ratio and speed of adjustment.

The objectives of Linter's study are as follows:

i. To identify occasions when a change in dividends might well have been under active consideration even though no change was made.

ii. To determine the factors that existed most actively into dividends.

The above theoretical formulation of Lintner has been used as an estimating equation for corporate dividend in the present study, which is as follows:-

$$DIVt^{*} = PEPSt \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots..(1)$$

$$DIVt - DIV\ t\text{-}1 = a+b\ (DIVt^{*}\text{-}DIVt\text{-}1) + et \text{ ------------------------------------}(2)$$

Adding DIVt-1 on both sides of equation (2)

$$DIVt = a+b\ DIVt^{*} + (1\text{-}b)\ DIV\ t\text{-}1 + et \text{ ---}(3)$$

Where,

$DIVt^{*}$ = Firm's desired payment

P = Targeted Payout ratio

EPSt = Earnings

a = Constant relating to dividend growth

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

The major findings of Linter's study are:-

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

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

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

2.2.2.4 Walter's Study

James E. Walter (1966) conducted a study on dividend and stock price. According to him, the dividend policy of a firm cannot be looked aside from investment policy. His argument is just the opposite of what Modigliani and Miller said. Walter argued that the dividend policy affects the stock prices i.e. dividend is relevant with stock price. The relationship between firm's internal rate of return and cost of capital is determining factor to retain profits or to distribute dividends. As long as the internal rate is greater than cost of capital, the stock price will be enhanced by retention and will vary with dividend payout.

Professor James E. Walter argues that the choice of dividend policies almost always affect the value of the enterprise. His model, one of the earlier theoretical works, shows clearly the importance of the relationship between the firm's internal rate of return (r) and its cost of capital (k) in determining the dividend policy that will maximize the wealth of shareholders. Walter's model is based on following assumptions (*Pandey;1975:741)*.

i. The firm finances all investment through retained earnings; that is debt or new equity is not issued.

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

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

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

v. The firm has a very long or infinite life.

Based on these above assumptions Walter has given following formula of valuation of equity share.

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

Where,

P = market value of an equity share/ market price per share

DPS = Dividend per share

EPS = Earnings per share

r = The rate of return on the firm's investment

Ke = Cost of capital/ capitalization rate

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

Growth firm (r > Ke)

Growth firm are rapidly expanding ones. If the firm's internal rate of return exceeds the cost of capital, the relation between dividends and stock price is negative i.e. more dividends of rapidly expanding firm leads to low stock prices and optimum payout ratio is zero. Walter argued that zero dividends would maximize the market value of share for growth firm.

Normal firm (r = Ke)

If the firm's cost of capital and return on investment is the same there is no effect of dividend on stock price. This type of firm is referred as normal firm. In this type of firm, dividend payout ratio does not affect the share price.

Declining Firm (r < Ke)

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 (Ke). Shareholders of such firm would prefer earning to be distributed to them as dividend because distributed amount can be invested elsewhere to get higher rate of earnings than the earnings from the declining firms. By distributing the entire earnings as dividend the market value of share will be increased to the optimum level. Thus the optimum dividend payout ratio of a declining firm is 100%.

Conclusion

When the firm is in growth stage, the dividends are negatively correlated with stock prices, in the declining firms, dividends are positively correlated with stock prices. In the normal firm there is no relationship between dividends and stock prices.

Criticism of Walter's Theory

i. No external financing

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

ii. Constant rate of return (r) and opportunity cost of capital (Ke)

This model assumes that rate of return (r) and opportunity cost of capital or discount rate (Ke) is constant. In fact, rate of return (r) changes with increase and decrease in investment. i.e. rate of return (r) decreases as more investment occurs and cost of capital (Ke) changes directly with the risk borne by the firms *(Walter;1966:29-41, extracted from Pandey;1989:280).*

2.2.2.5 Chawla and Srinivasan's Study

Deepak and Srinivasan (1987) conducted a study on the impact of dividend and retention on share price. They selected 18 chemicals and 13 sugar companies and estimated cross- sectional relationship for the year 1969 and 1973.

They collected the required data from the official directory of Bombay stock exchange. They used two stages least square technique for estimation. They also used lagged earnings price ratio i.e. P/E (t-1). The following were the prime objectives of their study:

i. To test the hypothesis of dividend and retained earnings.

ii. To estimate a model to explain share price, dividend and retained earnings relationship.

iii. To examine the structural changes in estimated relations over time.

In order to achieve these objectives they used simultaneous equation model as developed by Friend and Puckett (1964). The following was the model in its unspecified form.

1.Prime function

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

2.Dividend supply function

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

3.Identity

$$Et = Dt + Rt$$

Where,

P = Market price per share

D = Dividend per share

R = Retained earnings per share

E = Earnings per share (D+R)

P/E = Deviation from the sample (Average of price earnings ratio)

T = Subscription of time

It was found, from the result of their two stages least square estimation that the estimated coefficient had the correct sign and the coefficients of determination of all the equations were very high in case of chemical industry. It implies that the stock price and dividend supply variation can be explained by their independent variables. But in case of sugar industry, they found that the sign for retained earnings is negative in both years and left for further analysis of sugar industry. It was observed that the coefficient of dividend was very high as compared to retained earnings for chemical industry. They also found that coefficient of dividend was significant at one percent level in both year whereas coefficient of retained earnings was significant at ten percent level in 1969 and one percent level in 1973.

Finally they conducted that dividend hypothesis holds well in the chemical industry. Both dividend and retained earnings significantly explain the variation in share price in chemical industry. They also stressed that the impact of dividend is more pronounced than that of the retained earnings but the market has started shifting towards more weight for retained earnings.

2.2.3 Review of major national studies

Nepalese capital market is in the early stage of development. There are only few studies done in this field. Due to the lack of information and expertise, no sufficient studies have been carried out in regards to the dividend policy. However, recent developments in the field of capital markets have shown some rays of hope for the future. Some of the studies done in the field of dividend policy and stock prices have been reviewed here under.

Pradhan (1993) conducted a landmark study in the field of *divined policy in Nepal*. He studied stock market behavior of 17 firms covering the period of 1986 to 1990 with the following objectives.

i.To access the stock market behavior in Nepal.

ii.To examine the relationship of market equity, market value, price earnings and dividend with liquidity, profitability, leverage, assets turnover and interest turnover.

Findings of his study are as follows:-

i. Higher earning in stock leads to the larger ratio of dividend per share.

ii. Stock with larger ratio of dividend per share to market price have lower leverage ratio.

iii. Stock with larger ratio of dividend per share to market price has higher liquidity.

iv. Positive relationship between the ratio of dividend per share to market price and interest coverage ratio.

vi. Dividend per share and market price per share are positively correlated.

vii. Positive relationship of dividend payout with liquidity, profitability, assets turnover and interest coverage ratios.

Adhakari (1999) carried out a study on *corporate dividend practices in Nepal* using primary as well as secondary data. The main objectives of his research were to analyze the properties of portfolios formed on dividend to examine the relationship between dividend and stock prices and to survey the opinions of financial executives on corporate dividend practices.

Findings

i. The financial position of high dividend paying companies is comparatively better than that of low dividend paying companies.

ii. Market price of stock of both finance and non finance sectors are affected by dividends.

iii. There is a positive relationship between dividend and stock price.

iv. There is a negative relationship between dividend payout and earnings before tax to net worth.

v. Stocks with larger ratio of DPS to book value per share have higher profitability. These profitability ratios of stock paying larger dividend are also more variable as compared to stocks paying smaller dividends.

vi. Companies paying higher dividends are reluctant to employ higher degree of leverage in their capital structures. The stock with larger ratio of dividend per share to book value per share have also higher turnover ratio and higher interest coverage.

Katuwal (2001) has conducted a study on *a comparative study of dividend policy in commercial bank* of Nepal based on data collected from 1994/95 to 1998/99 taking six sample commercial banks. The main objectives of his research were to study the current practice of dividend policy in commercial banks to find out the impact of dividend on share price and to analyze the relationship of financial indicators.

Findings

i. The analysis of DPR shows that none of the sample bank has consistent dividend policy.

ii. No specific dividend strategy is followed by these sample banks.

iii. Payment of cash dividend and stock dividend are made without wise managerial decision.

Manandhar (2000) entitled *bonous share and dividend change empirical analysis in Nepalese* context is studied to test the lagged structure of dividend and different hypothesis on relationship between dividend payout ratio and other financial factors. His study was based on the data taken from 17 Nepalese corporate firms and covered the period of 1987 to 1998. The analysis covers 35 observations per bonus dividend rate and 12 samples of the Nepalese corporate firms selected from the listed corporate firm in NEPSE. The samples corporate firms include 5 from banking, 3 from insurance and finance companies and 4 from manufacturing, trading and airlines. The study analyzes the actual dividend behavior of Nepalese corporate firms after an issue of bonus share. The conclusions of his study are as follows:

i. There is significant relationship between changed in dividend policy in terms of DPS and change in lagged earnings.

ii. There is relationship between distributed lagged profits and dividends. In overall there is a positive relationship between lagged consecutive earnings and dividend per share.

iii.When change in lagged consecutive earnings is greater than zero, 65% cases there is change in DPS.

Bhandari and Pokharel(2012) conducted a study on *corporate dividend policy of commercial banks of Nepal* taking financial indicators of 8 commercial banks from the period of 1996/97 to 2006/7. This study attempts to elucidate the dividend practices of commercial banks of Nepal. Abound by controversies and unpredictability, this study concludes that commercial banks of Nepal do not show uniform trend of dividend policy. Dividend policy practiced by commercial banks of Nepal is neither fully explained by residual theory nor stable theory. With the development of financial institutions in Nepal, they need to follow a robust method of dividend policy so that investors can predict stock market and make a rationale investment decision.

This study draws some important conclusions they are as follows:

i. The asymmetric dividend policy of commercial banks has made predicting dividend policy an uncertain task. However banks depend on certain financial indicators while making decisions on dividend policy.

ii. Due to fluctuation on dividend policy of commercial banks of Nepal, investors are unable to predict the future earnings from cash dividend. This fluctuation implies the general phenomenon of financial market.

iii. This analysis has raised a critical issue that all Nepalese commercial banks are not following financial indicators to decide dividend on share. Banks need to follow financial indicators to decide dividend on share which systematizes the stock market.

iv. The payment of dividend to shareholders is the effective way to attract investors and retain current investors. Therefore, commercial banks have to respect investor's expectation and decide on dividend accordingly.

v. Banks have to be competitive and systematic on dividend policy. Since the investors are also critical on security of their investment, better financial indicators of commercial banks help investors to secure their investment.

2.2.4 Review of thesis

Koirala Jeevan (2009) has done a thesis entitled "Dividend *Policy and its Practice in Nepal*" with reference to four selected joint venture commercial banks. Major objectives of the study were to study and highlight the prevailing dividend policy adopted by selected commercial banks, to analyze the relationship of dividend policy with various financial indicators like EPS, MPS, DPR in the sample bank, to analyze the impact of dividend policy on market price, to provide fruitful suggestion and recommendation to the chosen banks.

<u>Findings</u>

i. MPS of the banks is average fluctuating every year.

ii. BOKL has got success to keep the EPS more than average trough out the study period whereas HBL, HBL and SBL have less than average throughout the study period.

iii. DPS of the commercial banks are also fluctuating every year. BOKL has kept the DPS more than average throughout the study period. The entire bank have distributed dividend during the study period.

iv. DPR of the commercial bank is also fluctuating every year. DPR of BOKL is more than average throughout the study period. MPS of the selected commercial banks is also in fluctuating trend. The coefficient of variance shows that there is no consistency of MPS.

Prasian (2010) has conducted a research on *"Impact of dividend on market price of share"* taking three sample bank: BOKL bank, Siddhartha bank and NCC bank and analysis of data from 2004 to 2009 by using various tools.

Main objectives of the study

i. To analyze the impact of dividend policy on market price of share.

ii. To examine the direction and magnitude of relation between financial variables of selected banks.

iii. To analyze and explain the relation of MPS with EPS and retained earnings of the selected commercial banks.

Major Findings

i. Significant difference in DPS among the selected bank. It is also found that dividend payment is neither consistent nor regular in these banks.

ii. There is positive correlations of MVPS with other variables expect RR.

iii. The simple regressions between sample banks are not statistically significant but they are correlated in positive direction.

His Major recommendations

i. The payout ratio of sample bank is fluctuating from year to year; there is no rational approach in deciding the payout.

ii. The entire firm must accept one major fact EPS is to be considered for determining dividend amount.

iii. The legal rules and regulation must be in favor of investor to exercise the dividend practice and protect the shareholder right.

iv. Banks should have target rate of earning i.e. profit planning and target payout ratio because the fluctuation in EPS and DPR may cause confusion in the mind of shareholder.

v. Each and every company should provide information regarding their activities and performance, so that investor can analyze the situation and invest their money in the best company.

Bhattrai (2009) has conducted a research on "*Dividend practice of commercial banks and its impact on stock price*" and the data are taken from six banks they are SCBL, HBL, HBL, BOKL and DCBL and analysis of data from 2003 to 2008 by using various statistical and financial tools.

<u>Main objectives</u>

i. To analyze the impact of dividend on stock price.

ii. To identify the determinant DPS and MVPS.

iii. To compare dividend practices of selected commercial banks.

<u>Major findings</u>

i. Higher the dividend payout ratio indicates that the firm is paying higher dividend to its shareholder and lower DP ratio implies that the firm is retaining its profit to profitable investment opportunities.

ii. MPS trend of all banks is in increasing trend over the sample period.

iii. Higher dividend implies that it is performing better.

iv. Correlation matrix of some banks shows that the positive correlation between DPS and MVPS but they are statistically insignificant.

<u>Major Recommendations</u>

i. Company should clearly define their dividend policy and communicate to investors.

ii. Consistency in dividend payout ratio helps in gaining the shareholders' confidence and then maximizing the firm's value.

iii. Current and lagged earnings as well as expected future earning should be taken in account while changing dividend policy.

iv. The legal rule regarding dividend should be clear for smooth growth of the enterprises as well as growth of national economy.

Dhungel (2009) conducted research on a *study of dividend policy of Everest bank ltd (HBL) and Bank of Kathmandu ltd (BOK)*. Secondary data was used in this study with under mentioned objectives and findings.

<u>Objectives</u>

i. To identify what type of dividend policy is being followed and whether or not the policy followed is appropriate in those sample banks.

ii. To highlight dividend practices in BOK and HBL.

iii. To analyze the relationship between dividend per share with various important variables such as earning per share, net profit, net worth and stock prices.

iv. To provide a practical suggestion and possible guidelines to overcome various issues and gapes based on the findings of the analysis.

<u>Findings</u>

i. EPS analysis shows that the average EPS of HBL is greater than the average EPS of BOK.

ii. DPS ratio shows that average DPS of HBL is greater than average DPS of BOK.

iii. The DPR ratio shows that BOK provided more than HBL.

iv. Shareholders of BOK enjoyed more dividend percent compared to HBL on the basis of MPS.

v. HBL remained more successful than BOK in satisfying its shareholders through distributing cash and bonus share dividend.

Bhandari (2009) conducted study on dividend policy analysis of commercial banks of Nepal. She used primary and secondary data for analysis. Statistical as well as financial tools are used. Following are the objectives and findings.

<u>Objectives</u>

i. To identify what types of dividend policy is being followed and whether the followed policy is appropriate or not.

ii. To highlight the dividend practices of banks.

iii. To analyze the relationship between DPS with various important variables such as EPS, net profit, net worth and stock prices.

iv. To provide a practical suggestion and possible guidelines to overcome various issues and gaps on the findings of the analysis.

Findings

i. The bank should consider mainly the legal consideration while declaring dividend and pay cash dividend to fulfill shareholders expectation.

ii. The bank should pay dividend only after financing in all investment opportunities.

iii. The correlation of DPS of BOKL with EPS is positive and significant whereas the correlation between DPS with MPS and BVPS and DPR with MPS is insignificant. This means that DPS increase with the increase in EPS, the correlation of DPS of HBL with EPS shows that MPS is insignificant. Whereas correlation between DPS and BVPS are negative and insignificant. This means that there is no significant relationship of DPS with EPS, MPS and BVPS of HBL.

Shrestha (2011) conducted a research on *a comparative study of dividend policy of HBL, HBL and BOKL bank ltd*. The study was based on primary and secondary data and three commercial banks were taken as sample. The following are the main objectives and findings.

Objectives

i. To analyze the existing dividend practices of sample banks in terms of DPS, DPR,EY,DY, market value per share to book value per share and net worth per share.

ii. To analyze the relationship of dividend with earning per share, market price per share.

iii. To find out the effect on market value per share due to DPS and EPS.

iv. To find out significant difference between mean of DPS, DPR and DY of sample commercial banks.

Findings

i. From primary data, it can be concluded that commercial banks distribute dividend to attract potential investors.

ii. Banks market price per share is highly affected by dividend policy and liquidity position is important factor while adopting dividend policy.

iii. On the basis of secondary data, it was found that average dividend per share of BOKL bank is Higher than other HBL and HBL. This indicates that BOKL is paying higher dividend than other sample banks.

iv. On the basis of average dividend payout ratio BOKL bank is paying higher portion of its earnings as dividend than other two sample banks. On the basis of DY ratio of BOKL bank is more efficient than HBL and HBL for distribution of dividend on the basis of market price per share.

v. As from the simple regression of dividend per share on earning per share beta coefficient is positive in all sample banks. The positive sign of beta coefficients of earning per share indicates that dividend per share increase with higher price per share in sample banks remaining other variable constant.

vi. The correlation of DPS and MPS of BOKL bank and HBL is positive but the correlation of DPS and MPS of HBL is negative which implies that DPS affects MPS.

2.2.5 Research gap

The literature review of authentic books and journals has been very helpful to understand on practical issues. Even a casual review of the literature brings one quickly to the key impression about dividend decision by the companies. Academics and practioners developed a number of theories, which have been subjected to empirical test. The various financing decision are vital for the financial welfare of the company. Dividend decision is one of the major decisions to be made.

There have been many national and international studies in the field of dividend policy to date. Those studies have tried to find out the relationship between dividend policy and market price of the stock. But, as the Nepalese capital market is in the early stage of development, the conclusion made by the international studies may not be relevant in the Nepalese context. So far the Nepalese studies concerned, there are some studies done, like Gautam's and Bhattrai's which can be considered to be landmark in the field of dividend policy, but many more changes have taken places in Nepalese capital market in last few years and the validity of the past results are doubtful in the present context. Besides this some researchers have taken only few firms of the same sector as sample and so, the results drawn from those studies may not be accurate to represent the present practices and efforts made in the Nepalese capital markets. So, it is necessary to carry out a fresh study related to dividend pattern of Nepalese companies.

In this study, it is tried to carry out the distinct from other previous studies in term of sample size, nature of the sample firms and methodology used. The study has taken three banks as sample and recent five years data have been analyzed with due consideration of EPS,DPS,DPR and MVPS. Analyses of financial indicators, standard deviation, regression analysis etc are used as the main models in this study with view to obtain the relevant and accurate results. Moreover, the earlier studies on dividends have become old and need to be updated and validated because of the rapid changes taking place in financial market of Nepal. So, it has been believed that this study will be different than earlier one.

Chapter- III

Research Methodology

Research methodology is composed of two words research and methodology. The entire process by which we attempt to solve problems through the planned and systematic collection, analysis, interpretation of data is known as research. While methodology is the research method used to test the hypothesis. In other words, research methodology is a way to systematically solve the research problem. Research methodology consists of the methods, steps, guidelines which are to be followed in analysis of a research problem and systematic approach of presenting collected data with meaningful objectives.

The main purpose of this chapter is to discuss the research methodology such as research design, population and sample, data collection techniques and analytical tools of the research study. It is widely accepted that research is simply the process of arriving at dependable solution to problem through the planned and systematic collection, analysis and interpretation of data. It is most important tool for advancement of knowledge and accomplishment of purpose.

3.1 Selection of study area

Among 32 commercial banks I have chosen BOK and HBL as a sample bank to find out whether dividend policy will affect stock price or not. Due to lack of time only five years data will be used and different statistical and financial tools will be used to analyze the data.

3.2 Research Design

The research design refers to the conceptual structure within which the research is conducted (*Kothari; 1978:221*) a research design is the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure (*Selltiz ;1962:501*) Fed N. Krelings has defined it in his book foundation of behavioral research as " Research Design is the plan, structure and strategy of investigation concerned so as to obtain answers to research questions and to control variances." In simple language, it's just a planning for a research. It is purposeful scheme of action proposed to be carried out in a sequence during the process of research. Research design helps researcher to enable him to keep in right track and to know whether he was moving in the right direction to achieve his goals.

The structure of this research is constructed by both the descriptive and explanatory designs. Explanatory design is followed by review of past journals, books and annual reports as well as related schedules and consultation to suffice the qualitative and quantitative information regarding the stated objectives. Concurrently descriptive design comprises a unique approach to this issue by using the simple regression model to identify the factors that influenced the dividend policy of the Nepalese commercial banks to test the theoretical relation between dividend with variables namely EPS, DPS, DPR, P/E ratio, MVPS, to BVPS ratios, net worth, its analysis and the practices of these sample banks. This study research is also designed to find out the impact on the market price of common stock of a company when dividend is paid to the shareholders and also how the market price respond when dividend is not paid to the shareholders. To make the analysis more effective; financial statements, financial tools, statistical tools and testing models are also used.

3.3 Nature and Source of data

The required data has been collected from the financial statement of listed companies published by concerned bank. The data of related companies concerned with dividend, stock prices throughout the year are collected from security board of Nepal. Besides this further data are collected from annual reports, published and unpublished journals, economic survey published by government of Nepal, thesis and different related websites. The other data are obtained from central library T.U, newspaper, journals, magazines etc. this study is based on secondary as well as primary data.

3.4 Population and Sampling

There are various commercial banks listed in Nepal Stock Exchange limited (NEPSE) i.e. the banks which are listed in NEPSE are taken as population for this study. Due to the limited time and resource factors too, it is not possible to study all of them so sampling will be done. There should be no confusion with parameters and size of the companies. Since the topic is not related to comparison of sizes, but the dividend policy and its effect on market price of shares or simply, the valuation of shares only two of them will be selected as sample. Population and sample of this study are as follows:-

Table no: 3.1

Lists of commercial banks (up to June. 2013)

S.no	Name of Banks	Year of Establishment (A.D.)	Head office
1	Nepal Bank Limited	1957	Kathmandu
2	Rastriya Banijaya Bank Limited	1966	Kathmandu
3	BOKL Bank Limited	1984	Kathmandu
4	Nepal Investment Bank Limited (previously Nepal Indosuez Bank)	1986	Kathmandu
5	Standard Chartered Bank Limited (previously Nepal Grindlays Bank)	1987	Kathmandu

6	Himalayan Bank Limited	1993	Kathmandu
7	Nepal SBI Bank Limited	1993	Kathmandu
8	Nepal Bangladesh Bank Limited	1993	Kathmandu
9	Everest Bank Limited	1994	Kathmandu
10	Bank of Kathmandu Limited	1995	Kathmandu
11	Nepal Credit and Commerce Bank Limited (previously Nepal Bank of Ceylon)	1996	Bhairawa
12	Lumbini Bank Limited	1998	Narayangrah
13	Nepal Industrial And Commercial Bank Limited	1998	Biratnagar
14	Machhapuchre Bank Limited	2000	Pokhara
15	Kumari Bank Limited	2001	Kathmandu
16	Laxmi Bank Limited	2002	Birjung
17	Siddhartha Bank Limited	2002	Kathmandu
18	Agriculture Development Bank Limited	2006	Kathmandu
19	Global Bank Limited	2007	Birjung
20	Citizen Bank International Limited	2007	Kathmandu
21	Prime Commercial Bank Limited	2007	Kathmandu
22	Bank of Asia Nepal Limited	2007	Kathmandu
23	Grand Bank Nepal Limited	2008	Kathmandu
24	NMB Bank Limited	2009	Kathmandu
25	Kist Bank Limited	2009	Kathmandu
26	Mega Bank Limited	2009	Kathmandu
27	Sunrise Bank Limited	2009	Kathmandu
28	Janta Bank Limited	2009	Kathmandu
29	Commerz and Trust Bank Limited	2010	Kathmandu
30	Civil Bank LImited	2010	Kathmandu
31	Century Commercial Bank Limited	2011	Kathmandu
32	Sanima Bank Limited	2011	Kathmandu

(Source:Nepal Rastra bank)

These 32 banks are the population and among these population Bank of Kathmandu Limited, Himalayan Bank Limited and Nepal NSBI bank Limited are taken as sample for this study using judgmental or purposive sampling technique.

3.5 Data collection Technique

Data are collected from secondary source. In this study secondary will be taken as main source of data. Secondary data are the information which had been collected by some individual or agency and statistically treated to draw certain conclusions and also to extract some other information. The main advantage of this type of data is its availability and lower cost than primary data. It saves time too.

The major source of this study is secondary data which has different sources. The sources are annual reports where balance sheets, P/L account of concerned banks are included. Some other data and information will be collected from the authoritative source like library of different college, Nepal stock exchange Limited, Nepal Rastra Bank, Security exchange board, economic survey and different articles, reports, magazines etc. the articles published by the banks are also the source of information.

These data are the prerequisites of any research. They are all raw information which will be turned to different outcomes and the answer to the research questions. This is very necessary in the study without which the study can't take momentum. Some primary data may also be included in research which will be collected from concerned personnel of concerned bank.

3.6 Reliability and Validity of data

The idea behind reliability is that any significant result must be more than a one-off finding and be inherently repeatable. Other researchers must be able to perform exactly the same experiment under the same conditions and generate the same results. This will reinforce the findings and ensure that the wider scientific community will accept the hypothesis.

Validity encompasses the entire experimental concept and establishes whether the result obtained meet all of the requirements of the scientific research method. Since the data are collected from concerned bank's annual report the data are reliable.

3.7 Data Processing and analysis

The information or data obtained from different sources will be in raw form. From that information, direct presentation is not possible so it is necessary to process data and converts it into required form. After than only the data are presented for this study. This process is called data processing. For this study only required data are taken from the secondary sources (bank's publication) and presented. For presentation different figures and tables are used. Similarly graphical presentation is also made. For reference the detail of raw data are given in the last portion of thesis. So as far as the computation is concerned, it has been done with the help of scientific calculator and computer software program. Data collected from various sources have been properly organized, analyzed and presented in appropriate tables and formats for easy and direct understanding. Different financial and statistical tools have been used in this study for analysis. Mainly the analysis will be done by using financial tools, statistical tools, correlation with simple and multiple analysis. EPS, DPS, DPR, earning yield, dividend yield, market price per share, book value per share and market value per share to book value per share ratio will be used as financial tools. Similarly mean, standard deviation, coefficient of variation, correlation coefficient of simple and multiple determination, regression, t-test and f-test will be used as statistical tools. The various calculated results obtained through financial and statistical tools are tabulated under different headings to compare and interpret the result

3.7.1 Financial tools

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

i. Earnings per share (EPS)

Earnings per share refer to the rupee amount earned per share of common stock outstanding. It measures the profitableness of the shareholders investment. It shows the profitability of the companies on per share basis. It reflects the earning power of a company. It makes easy to compare past and present EPS of the company and compare with competitors. The higher earning indicates the better achievements in terms of profitability of the companies by mobilizing their funds and vice-versa. It is calculated by dividing total earnings available to the common stockholders by number of common stock outstanding.

$$\text{Earnings per share (EPS)} = \frac{\text{Earnings available to common}}{\text{no.of common stock outstanding}}$$

ii. Dividend per share (DPS)

Dividend per share indicates the rupee earnings actually distributed to common stockholder per share held by them. It gives financial soundness of the company. Only financially strong companies can distribute dividend. It attracts investor to invest in shares and maintain goodwill. Generally, the higher DPS creates positive attitude to the shareholders towards the banks, which consequently helps to increase the market value of shares. And it also works as the indicator for better performance of the bank management. It is calculated by dividing the total dividend distributed to equity shares by the total number of equity shares outstanding.

$$\text{Dividend per share (DPS)} = \frac{\text{Total amount of dividend paid to ordinary}}{\text{No.of ordinary share outstanding}}$$

iii. Dividend Payout ratio (DPR)

It is the portion of earning paid in the form of dividend. This ratio shows what percentage of profit is distributed as dividend and what percentage is retained as reserve and surplus for the growth of the companies. The dividend payout ratio of a company depends upon the earning made by it. Higher earning enhances the ability to pay more dividends and vice-versa. There is inverse relationship between dividend and retained earnings. The higher the dividend payout ratio, the lower will be the portion of retained earnings and vice-versa. The capacity of internal financing of the firm is checked by the retention ratio. It is calculated in term of percentage.

$$\text{Dividend payout ratio (DPR)} = \frac{\text{Dividend per share (DPS)}}{\text{Earnings per share (EPS)}}$$

OR

$$\text{DPR} = \frac{\text{Total dividend distributed to common shareholder after preference)}}{\text{Total earning available to common shareholder after preference}}$$

iv. Price earnings ratio (P/E ratio)

Price earnings ratio is also called the earnings multiplier. Price-earnings ratio is simply the ratio between market price per share and earnings per share. In other words, this represents the amount which investors are willing to pay for each rupee of the firm's earnings. The P/E ratio measures investor's expectation and market appraisal of the performance of the firm. This is important to compare the market share prices of different stocks given their earning per share. The higher P/E ratio implies the high market share price of stock given the earning per share and the greater confidence of investor in the firm's future. This is computed by dividing earning per share to market price per share.

$$\text{Price earnings ratio (P/E ratio)} = \frac{\text{Market price per share (MPS)}}{\text{Earnings per share (EPS)}}$$

v. Earning yield (EY)

Earning yield is the percentage of earning per share to market price per share in the stock market. In other words, it is a financial ratio relating to earning per share to the market price per share at a particular time. It measures the earning in relation to market value of share. It gives some idea of how much an investor 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.

$$\text{Earning yield} = \frac{\text{Earning per share (EPS)}}{\text{Market price per share (MPS)}}$$

vi. Dividend yield (DY)

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. It measures the dividend in relation to market value of share. So dividend yield is the dividend received by the investors as a percentage of market prices per share in the stock market. This ratio highly influences the market price per share because a small change in dividend per share can bring effective change in the market value of the share. The share with higher dividend yields is worth buying. Dividend has important guidance to commit funds for buying of share in the secondary market. This ratio is calculated by dividing dividend per share by market price of the stock.

$$\text{Dividend yield (DY)} = \frac{\text{Dividend per share (DPS)}}{\text{Market price per share (MPS)}}$$

v. Market value per share to Book value per share (MPS to BVPS) ratio

This ratio measures the market situation per share in the competitive open market with respect to book value per share of joint venture banks. This ratio indicates that the price market is paying for the share that is reported from the net worth of the banks. This is important to compare the market share price of different stocks on the basis of the book value per share. It shows the market share price of a stock as a percentage of book value per share and the effect of later on the former. The higher ratios represents to conclude that the better performance of joint venture bank in terms of market price per share to book value per share. This ratio can be derived by dividing market price per share by book value per share. This ratio is used by value based investors to help to identify undervalued stock.

$$\text{MPS to BVPS ratio} = \frac{\text{Market price per share (MPS)}}{\text{Book value per share (BVPS)}}$$

vi. Return on net worth (RONW)

Net worth refers to the owners claim in the assets of an organization. It can be found by subtracting total liabilities from total assets (excluding intangible assets and accumulated losses). This ratio indicates how well the banks have used the resources of the owner. It is calculated by dividing net profit after taxes by net worth.

$$\text{Return on net worth (RONW)} = \frac{\text{Net profit after tax}}{\text{net worth}}$$

vii. Net worth per share

It is a rupee value per share. It is calculated by dividing book value of net worth or net worth by total numbers of share outstanding.

$$\text{Net worth per share} = \frac{\text{net worth}}{\text{no.of shares}}$$

viii. Market value per share (MVPS)

Market value per share is the value of stock, which can be obtained by a firm from the sale of a share in the market. MVPS is one of the variables, which is affected by DPS of the firm. If the earning per share and dividend per share are high, the market value of share will also be high. The capital market determines MVPS. In this study the market price of share means the rupees value of one share indicated in NEPSE index.

$$Po = \frac{D_1}{(K_s\text{-}g)}$$

$$= \frac{D_0\,(1+g)}{K_s\text{-}g}$$

Where,

Po = Current market price per share

Do = Current dividend per share

D_1 = Expected dividend per share at the end of year

g = Dividend growth rate

K_s = Investor's required rate of return

(Risk free rate of return + inflation rate + market risk premium)

3.7.2 Statistical tools

Beside the financial tools statistical tool will be used to conduct this study. The various statistical tools that will be used are as follows:-

i. Mean ($\overline{X}$)

The arithmetic or average mean is the sum of total values to the number of observations in the sample divided by the number of observation. Mean value represents the entire data which lies almost between the two extremes. For this reason an average is frequently referred to as a best measure of central tendency. In general X_1, X_2, X_3………………………X_n are the given number of observation. Then their arithmetic mean usually denoted by X is given by:

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

Where,

$\overline{X}$ = Mean

$\sum X$ = Sum of the sizes of the items

N = Number of items observed

ii. Standard Deviation (SD)

The standard deviation is the square root of the average of the square deviation of the observations from the mean. The standard deviation measures the absolute dispersion. The greater the amount of dispersion the greater the standard deviation which means a high degree of uniformity of the observation and vice-versa. In this study standard deviation is calculated for certain selected dependent and independent variables, which is specified in the models presented above. A small standard deviation means a high degree of uniformity of observation as well as homogeneity of series. Standard deviation is denoted by Greek letter "σ" (sigma). It is calculated as follows:

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

Where,

$\overline{X}$ = Mean

X = Variable

N= No of items in the series

iii. Variance

Variance is the square of standard deviation. This tool is also used to interpret data with the help of numeric facts. It is denoted by σ^2 . It can be formulized as,

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

Where,

$\bar{X}$ = Mean

X = Variable

N= No of items in the series

iv. Coefficient of variation (CV)

Karl Pearson develops this measurement to measure the relative dispersion. It is used in such problems where we want to compare the variability of two or more series. The series for which the coefficient of variation is greater is said to be more variable or conversely less consistent, less uniform, less stable or less homogenous. On the contrary, the series or group for which the coefficient of variation is less is said to be less variable or more consistent, more uniform, more stable or more homogeneous. It is denoted by CV and is obtained by dividing the standard deviation by arithmetic mean.

$$\text{Coefficient of variance} = \frac{\text{SD}}{\text{Mean}} \times 100 \qquad \text{CV} = \frac{\sigma}{\bar{X}} \times 100$$

Where,

σ = Standard deviation

$\bar{X}$= Mean

v. Coefficient of correlation (r)

The correlation analysis is the technique used to measure the closeness of the relationship between two variables, correlation is an analysis of the co-variance between two or more variables and correlation analysis deals to determine the degree of relationship between variables (Pant and Chaudhary; 2053:299). Correlation analysis is a statistical tool used to describe the degree of which one variable is linearly related to another. The coefficient of correlation measures the degree of relationship between two sets of figures. In this study simple coefficient of correlation is used to determine the relationship of different variables and dividend. The data related to dividend over different periods are tabulated and their relationship with each other is drawn out.

The value of coefficient of correlation as obtained always lies between +1 and -1.

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

Where,

n = Number of observation

$\sum x$ = Sum of observation in series x

$\sum y$ = Sum of observation in series y

Interpretation of correlation coefficient

Degree	Direction	
	Positive	Negative
Perfect	+1	-1
Significant / Very high	+0.75 to +1	-0.75 to -1
High	+0.50 to +0.75	-0.50 to -0.75
Low	+0.25 to +0.50	-0.25 to -0.50
Insignificant (Very low)	0 to +0.25	0 to -0.25

The data related to dividend over different years are tabulated and their relationships with each other are drawn out. The value of correlation can range from -1 to (perfectly negative relation) to +1(perfectly positive relation). r = 0 implies no relation between the two variables. Thus in this study, the degree of relationship between market price and other relevant financial indicators such as dividend per share, earning per share, market price per share, dividend payout ratio etc. is measured by the correlation coefficient.

Under the correlation analysis, the following financial variables will be calculated in this study:-

(a) Correlation between market price per share and dividend per share.
(b) Correlation between market price per share and dividend payout ratio.
(c) Correlation between dividend per share and earnings per share
(d) Correlation between book value per share and dividend per share.
(e) Correlation between earning yield and dividend yield.

vi. Coefficient of Determination (R^2)

The coefficient of determination is the primary way to measure the extent or strength of the association that exists between two variables x and y. it is a measure of degree of line association or correlation between two variables one of which happens to be independent and other being dependent. In other word, R^2 measures the percentage of total variation in dependent variable explained by independent variable. The value of coefficient of determination can range from 0 to 1. 0 simply means that all the data points in the scatter diagram fall exactly on the regression line. Value of 1 can occur only if regression is unexplained. The R^2 is always positive number. It can't tell whether the relationship between the two variables is positive or negative. R^2 is also defined as the ratio of explained variance to the total variance

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

OR

$$R^2 = \frac{1 - \text{Unexplained}}{\text{Total variance}}$$

vii. Probable error (P.E)

Probable error is used to test the significance or reliability of the calculated coefficient of correlation. Probable error (P.E) is computed as:-

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

Where,

P.E = Probable error

r = Coefficient of correlation

r^2 = Coefficient of determination

n = Number of observation

Decision

If $r < P.E$ = Insignificant, so perhaps there is no evidence of correlation

If $r > P.E$ = Significant

If $P.E < r < 6\ P.E$ = undefined

The upper and lower limit within the correlation coefficient is expected to lie are given by:

Upper limit = $r + P.E$

Lower limit = $r – P.E$

viii. Regression analysis

The concept of regression was first introduced by Francis Galton. Regression refers to an analysis or a statistical method for determining relationships between the variables by the establishment of an approximate functional relationship between them. It is a statistical device used to estimate or predict the variable or interest from the known value of other variable. In other words, the regression is a statistical method for investing relationships between the variables by the establishment of an approximate functional relationship between them. It is considered as a useful tool for determining the strength of relationship between two (simple regression) or more (multiple regression) variables. It helps to predict or estimate the value of one variable when the value of other variables is known.

Simple regression

The analysis that relates two variables is known as simple regression analysis. Here following relation between two variables is established.

$$y = a + bx$$

Where,

a = Regression constant

b = Regression coefficient

x = Independent variable

y = Dependent variable

In this study following simple regression will be analyzed:-

(a) Dividend per share on earning per share

It enables to know whether EPS (independent variable) is influencing factor for determining DPS (dependent variable) or not.

(b) Market price per share on DPS

It enables to know whether DPS (independent variable) is the influencing factor for determining market price (dependent variable) or not.

(c) Market price per share on dividend percent

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

(d) Market price per share on dividend payout ratio

It is used to analyze the relationship between market price per share (dependent variable) and dividend payout (independent variable).

(e) Market price per share on dividend yield

To examine the relationship between market price per share (dependent variable) and dividend yield (independent variable).

ix . Standard error of estimate (SEE)

It measures the dispersion about an average line for measurement of accuracy in estimated line. It is impossible to perfectly predict only with the help of regression equation. Therefore standard error of estimate is calculated to measure the accuracy of prediction. Smaller the SEE, more accurate is the estimate and vice-versa. If SEE is zero, then there is no variation about the line and the correlation will be perfect. Thus with the help of SEE, it makes possible for us to ascertain how well and representative the regression line is description of the average relationship of two series.

x. T – statistics

To test the validity of assumption, if the sample size is less than 30 than, t-test is used. If the small number of sample are taken to test then t-test is appropriate for that. For taking the decision in t-test first t-value should be calculated and compare with table value of ‘t’ at a certain level of significance and given degree of freedom .If the calculated value of ‘t’ is less than tabulated value in certain level of significance and given degree of freedom than we conclude that the difference is not significant and vice-versa.

xi. F- statistics

The ratios of two independent chi-square variates divided by their respective degrees of freedom is known as F- statistic and the distribution of F-statistic is called the Fisher’s distribution. The sampling distribution of F-statistic does not involve any population parameters and depends only on degree of freedom. F- Statistics is used for testing the hypothesis. Hypothesis is usually considered as the principle instruments in research. It can also be considered as suggested solution of the research problems. Its main function is to suggest new experiments and observations. With the available data decision maker applied the hypothesis testing and give the decision accordingly. It may not be proved absolutely but in practice it is accepted if it has survive critical testing usually the statistical hypothesis is tested at 1%,5% and 10% level of significance.

Quantities statement about the population parameter is called a hypothesis. In other words it is an assumption that is made about the found valid of verification. The act of verification involves testing validity of such assumption which is undertaken on the basis of sample evidence is called statistical hypothesis or testing of hypothesis. By testing the hypothesis we can find out whether the hypothesis is rejected or accepted. The acceptance of hypothesis means there is no any sufficient evidence provided by sample to reject it and does not necessarily imply that it is true. The main goal of testing of hypothesis is to test the characteristics of the hypothesized population parameter and sample statistics is significant or not. Generally, two complementary hypotheses are set up simultaneously. If one of the hypothesis is accepted other is rejected. The two hypothesis that are set up in testing of hypothesis are null hypothesis and alternative hypothesis. In this study F-test will be done to find out uniformity DPS. The hypothesis test of this research work will be:-

First Hypothesis

Null Hypothesis (H_0)

There is no significant difference in EPS between sample commercial bank.

Alternative Hypothesis (H_1)

There is significant difference in EPS between sample commercial bank.

Second Hypothesis

Null Hypothesis (H_0)

There is no significant difference in DPS between sample commercial bank.

Alternative Hypothesis (H_1)

There is significant difference in DPS between sample commercial bank.

Third Hypothesis

Null Hypothesis (H_0)

There is no significant difference in DPR between sample commercial bank.

Alternative Hypothesis (H_1)

There is significant difference in DPR between sample commercial bank.

Fourth Hypothesis

Null Hypothesis (H_0)

There is no significant difference in DY between sample commercial bank.

Alternative Hypothesis (H_1)

There is significant difference in DY between sample commercial bank.

Chapter - IV

Presentation and Analysis of data

The basic objectives of the study have already mentioned in the 'Introduction Chapter'. In order to achieve this objective, several analytical tools & techniques are employed which are clearly described in third chapter, 'Research Methodology'. This chapter consist presentation, analysis and interpretation of secondary data related with different variables using both financial and statistical tools explained in previous chapter. This chapter is primary part of the study. This analysis on dividend policy of joint venture banks begins with analysis of dividend per share, earning per share, earnings yield ratio, dividend payout ratio, dividend yield ratio, market price per share and market value per share to book value per share analysis. These financial indicators of concerned banks are compared with the help of statistical tools viz .mean, standard deviation, and coefficient of variation which are calculated and interpreted. At last, correlation, regression analysis and hypothesis of some specific components have been made. The analyzed data and results are presented clearly and simultaneously by using tables and graphs.

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 (Wolff & Pant, 19999)

4.1 Analysis of Financial Indicators and Variables

To get the Knowledge of a business, financial tools are used which is fruitful to explore the strengths and weakness of the financial policies and strategies of a company. These tools are used for the analysis and interpretation of financial data. Financial tools are those which help to study the financial position of the firms. They give management an indication of what investors think of the company's past performance and future prospects. They help in evaluating a firm's performance and provide guidelines for analyzing the ways of improving performance of the firm. They are important aspect for the financial analysis of any firm.

4.1.1 Analysis of Earning per Share (EPS)

Generally, the performance and achievements of business organization are measured in term of their capacity to generate earnings. Earnings per share refer the rupee amount earned per share of common stock outstanding. It measures the profitableness of the shareholders investment. It measures the profitableness of the shareholders investment on a per share basis. It is computed by dividing net profit after taxes by the total number of common stocks outstanding. The higher earning indicates the better achievements of the profitability of the banks by mobilizing their funds and vice-versa. The earning per share of the concerned banks under study is tabulated as follows.

Table 4.1

Earning per share of concerned banks

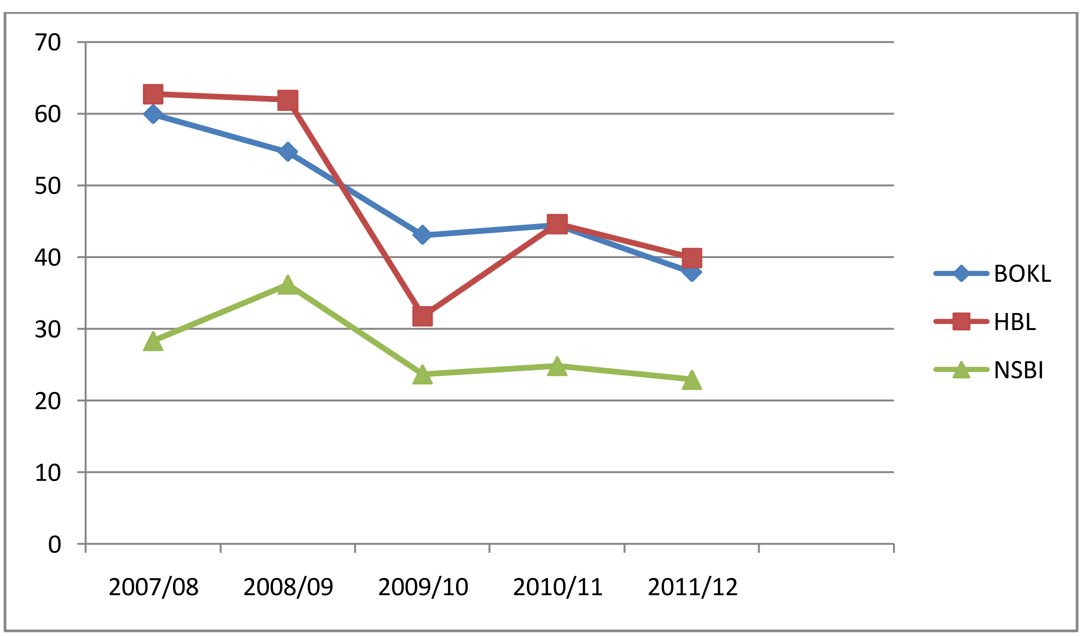
Banks / Year	BOKL	HBL	NSBI
2007/08	59.94	62.74	28.33
2008/09	54.68	61.90	36.18
2009/10	43.08	31.80	23.69
2010/11	44.51	44.66	24.85
2011/12	37.88	39.34	22.93
Total	240.09	241.04	135.98
Average	48.018	48.208	27.196
S.D.	8.074	12.238	4.858
C.V(%)	16.815	25.386	17.863

(Source: Annual report of BOKL,HBL,NSBI and appendix-1)

Above table shows the comparative earnings per share of three banks with their pooled average as well as the standard deviation and coefficient of the EPS covering the period from fiscal year 2007/2008 to 2011/12. Here, HBL has the highest EPS in year 2007/08 the study period where as NSBI has the lowest EPs during year 2011/12. Comparatively, the earning position of HBL is better than that of BOKL and NSBI. The average EPS of HBL bank is highest among these capacity of HBL at the satisfaction level. The EPS of these entire three bank are decreasing year by year. The comparative EPS of the selected commercial banks can be presented with the help of trend line follows:

Figure 4.1

EPS of BOKL, HBL and NSBI Banks



4.1.2. Analysis of Dividend per Share (DPS)

Dividend per share is the amount of dividend distributed to the shareholders for the single unit of share. Higher the amount of DPS retains the shareholders for long term. However, only cash dividend distributed to the shareholders of BOKL, HBL and NSBI are presented in the table 4.2

Table 4.2
Dividend per share of concerned banks

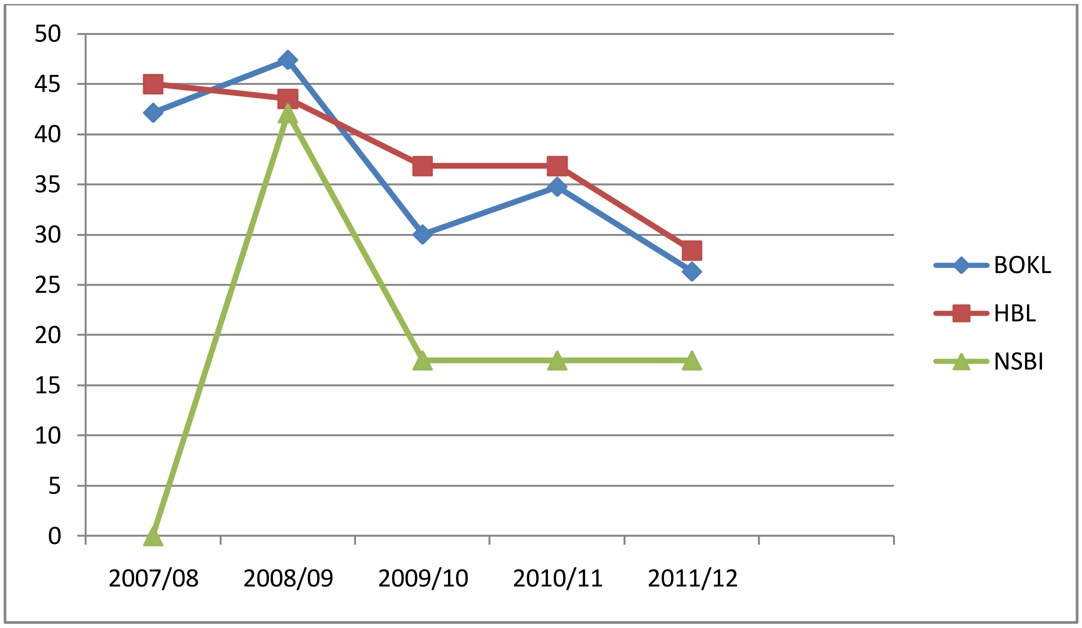
Banks / Year	BOKL	HBL	NSBI
2007/08	42.11	45	-
2008/09	47.37	43.56	42.11
2009/10	30.00	36.84	17.50
2010/11	34.75	36.84	17.50
2011/12	26.32	28.42	17.50
Total	180.55	190.66	94.61
Average	36.11	38.132	23.653
S.D.	7.718	5.904	10.656
C.V (%)	21.374	15.484	45.051

(Source: Annual report of BOKL, HBL, NSBI and appendix-2)

The above table shows the dividend per share fiscal year 2008/09 to 2011/12. In an average the highest dividend among these three banks is of HBL i.e. 38.132 comparing the average dividend of BOKL 136.111 and 123.653. From above table of analysis we can conclude that HBL banks dividend per share is better comparatively. The standard deviation of BOKL, HBL and NSBI are 7.718, 5.904 and 10.656 respectively. In above analysis HBL C.V is more fluctuating than other bank's dividend.

Figure 4.2

DPS of BOKL, HBL and NSBI Banks



4.1.3 Analysis of Dividend Payout ratio (DPR)

Dividend payout ratio measures the percentage of dividend paid out of the net profit after tax. It also clears about the retained earnings, since net profit is composed of dividend and retained earning only. Higher dividend payout attracts the shareholders and consequently increases the market price of share. The dividend payout ratio of BOKL, HBL and NSBI is presented in the following table 4.3.

Different categories of DPR are as follows:

Policy	DPR
Conservative	less than 20%
Moderate	20-50%
Aggressive	more than 50%

Table 4.3

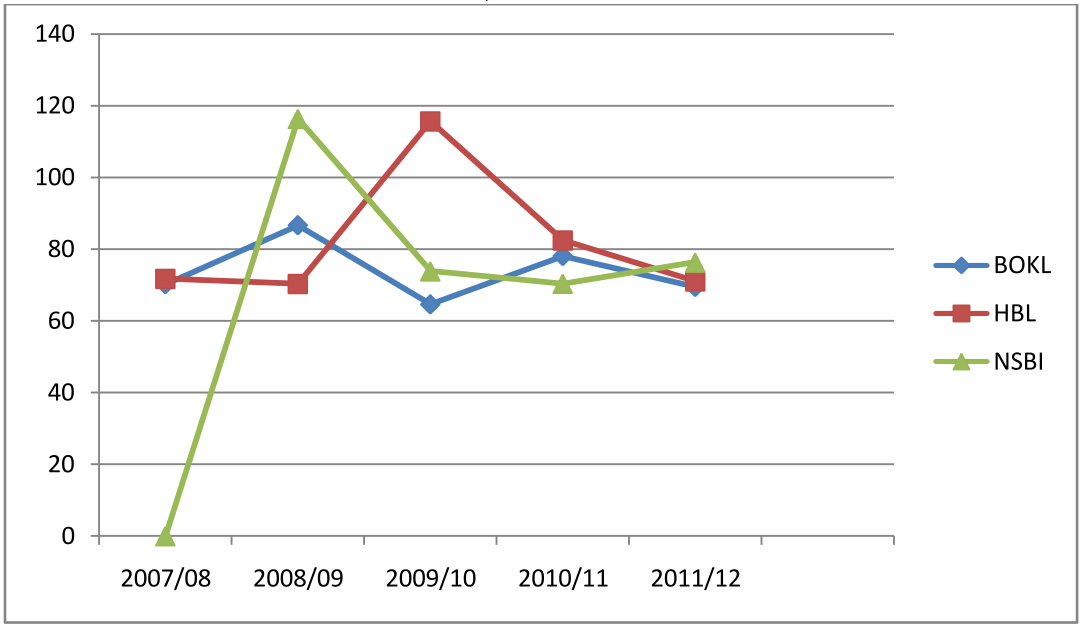
DPR analysis of concerned banks

Banks / Year	BOKL			HBL			NSBI		
	DPS	EPS	DPR	DPS	EPS	DPR	DPS	EPS	DPR
2007/08	42.11	59.94	70.254	45	62.74	71.725	-	28.33	-
2008/09	47.37	54.68	86.631	43.56	61.90	70.372	42.11	36.18	116.390
2009/10	30.00	43.08	64.635	36.84	31.80	115.631	17.50	23.69	73.871
2010/11	34.75	44.51	78.072	36.84	44.66	82.490	17.50	24.85	70.423
2011/12	26.32	37.88	69.483	28.42	39.34	71.157	17.50	22.93	76.319
Total			374.078			411.375			337.003
Average			74.816			82.275			84.251
S.D.			6.6727			17.258			18.673
C.V (%)			8.991			20.976			22.164

(Source: Annual report of BOKL, HBL, NSBI and appendix-3)

The table helps to find out the percentage of dividend payout of the total earning made by every bank for every year. In this table the comparative study of BOKL, HBL and NSBI banks from 2007/08 to 2011/12 with their mean, standard deviation and C.V. are shown. In year 2007/08 BOKL (70.254) and HBL (71.725) followed aggressive policy at the same time pay no dividend. In year 2008/09 BOKL (86.531) and HBL (70.372) has followed aggressive. In the same year NSBI bank (116.390) also followed aggressive policy. This shows that NSBI bank has highest DP ratio among these three banks. It shows that NSBI Bank's dividend paying policy is good and it has very good condition among three banks. In year 2009/10, 2010/11 and 2011/12 BOKL followed aggressive dividend policy whereas in the fiscal year 2009/10, 2010/ 11 and 2011/12 HBL followed moderate and NSBI followed aggressive dividend policy in all years.

Figure 4.3
DPR of BOKL, HBL and NSBI Banks



4.1.4Analysis of Earning Yield Ratio (EY)

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 BOKL, HBL and NSBI is presented in the following Figure 4.4.

The relationship between earning per share and market price per share of three banks in different years are exhibited in the table below. The main reason behind such kind of tabulation is to point 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.

Table 4.4
E/Y ratio of the Banks in Different Years

Banks Year	BOKL			HBL			NSBI		
	EPS	MPS	EY	EPS	MPS	EY	EPS	MPS	EY
2007/08	59.94	2350	2.551	62.74	1980	3.169	28.33	1511	1.875
2008/09	54.68	1825	2.996	61.90	1760	3.517	36.18	1900	1.904
2009/10	43.08	840	5.129	31.80	816	3.897	23.69	741	3.197
2010/11	44.51	570	7.809	44.66	575	7.767	24.85	565	4.393
2011/12	37.88	628	6.032	39.34	653	6.116	22.93	635	3.611
Total			24.517			24.466			14.985
Average			4.903			4.893			2.997

S.D.			1.946			1.767			0.983
C.V (%)			39.690			36.113			32.799

(Source: Annual report of BOKL, HBL, NSBI and appendix-4)

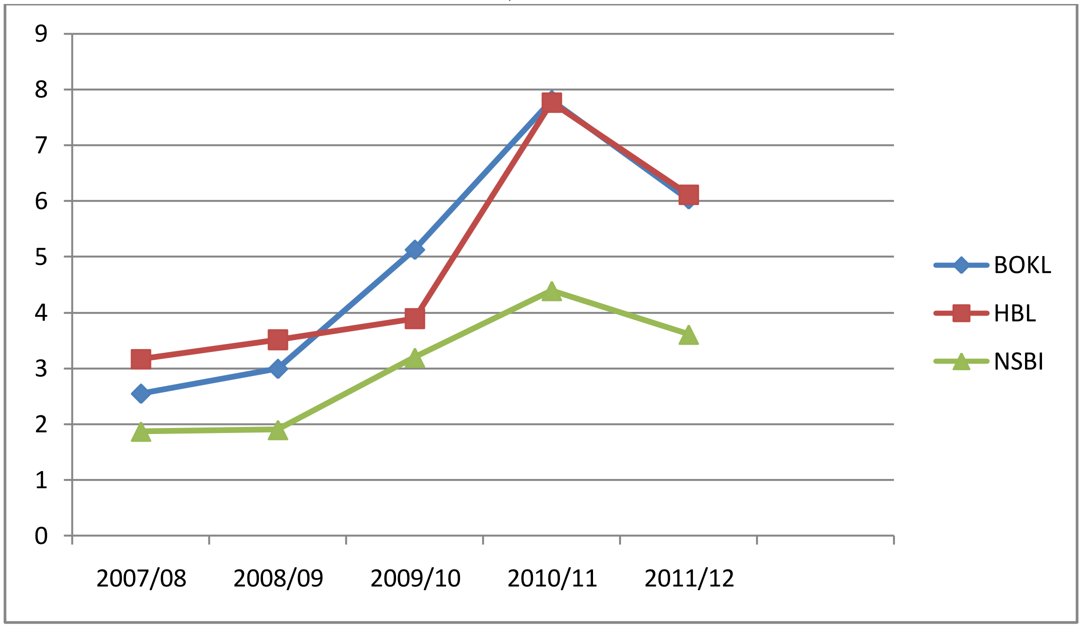
The table 4.4 depicts that the earning yield ratio of BOKL is in increasing trend till year 2010/11 and follow the decreasing trend in 2011/12. The earning yield increases from 2.551 from the fiscal year 2007/08 to 7.809 in the fiscal year 2010/11 and again decreases to 6.032 in FY 2011/12. The standard deviation is 1.946 and the coefficient of variation is 39.690%. The coefficient of variation indicates that there is 39.690% fluctuation in the EY of BOKL. Similarly, the average EY of BOKL indicates that only 4.903% of MPS is converted to EPS in the five year period. Although the EPS of BOKL followed increasing trend, the EY ratio indicates that the proportionate increase in EPS is lower than the proportionate increase in MPS, which means that the investor is paying more in the market to gain one rupee earning in each fiscal year.

The Earning Yield Ratio of HBL also followed increasing trend till FY 2010/11 and start decreasing trend in 2011/12. The earning yield increases from 3.169 in the fiscal year 2007/08 to 7.767 in the fiscal year 2010/11 and decreases to 6.116 in the FY 2011/12. The standard deviation is 1.767 and the coefficient of variation is 36.113%. The C.V. indicates that there is 36.113% fluctuation in the EY of HBL. Similarly, the average EY of HBL indicates that only 4.893% of MPS is converted to EPS in the five year period.

Similarly, The Earning Yield Ratio of NSBI also followed increasing trend till FY 2010/11 and start decreasing trend in 2011/12. The earning yield increases from 1.875 in the fiscal year 2007/08 to 4.398 in the fiscal year 2010/11 and decreases to 3.611 in the FY 2011/12. The standard deviation is 0.983 and the coefficient of variation is 32.799%. The C.V. indicates that there is 32.799% fluctuation in the EY of NSBI. Similarly, the average EY of NSBI indicates that only 2.997% of MPS is converted to EPS in the five year period.

Comparing the average E/Y ratio of BOKL (4.903), HBL (4.893) and NSBI (2.997), it can be considered that BOKL is more efficient in earning than that of HBL bank and NSBI Bank on the basis of market price of share.

Figure 4.4
EY ratio of BOKL, HBL and NSBI Banks



4.1.5 Analysis of Dividend yield ratio (DY)

Dividend yield ratio is the ratio of DPS and MPS. It measures the dividend in relation to market value of share. This ratio highly influences the market per share because a small change in dividend per share can bring effective change in market price of share in secondary market.

Table 4.5
Dividend yield ratio of the Banks in Different Years

Banks / Year	BOKL			HBL			NSBI		
	DPS	MPS	DY	DPS	MPS	DY	DPS	MPS	DY
2007/08	42.11	2350	1.792	45	1980	2.273	-	1511	-
2008/09	47.37	1825	2.596	43.56	1760	2.475	42.11	1900	2.216
2009/10	30.00	840	3.571	36.84	816	4.515	17.50	741	2.362
2010/11	34.75	570	3.096	36.84	575	6.407	17.50	565	3.097
2011/12	26.32	628	4.191	28.42	653	4.352	17.50	635	2.756
Total			18.246			20.022			10.431
Average			3.649			4.004			2.608
S.D.			1.473			1.514			0.345
C.V (%)			40.367			37.812			13.229

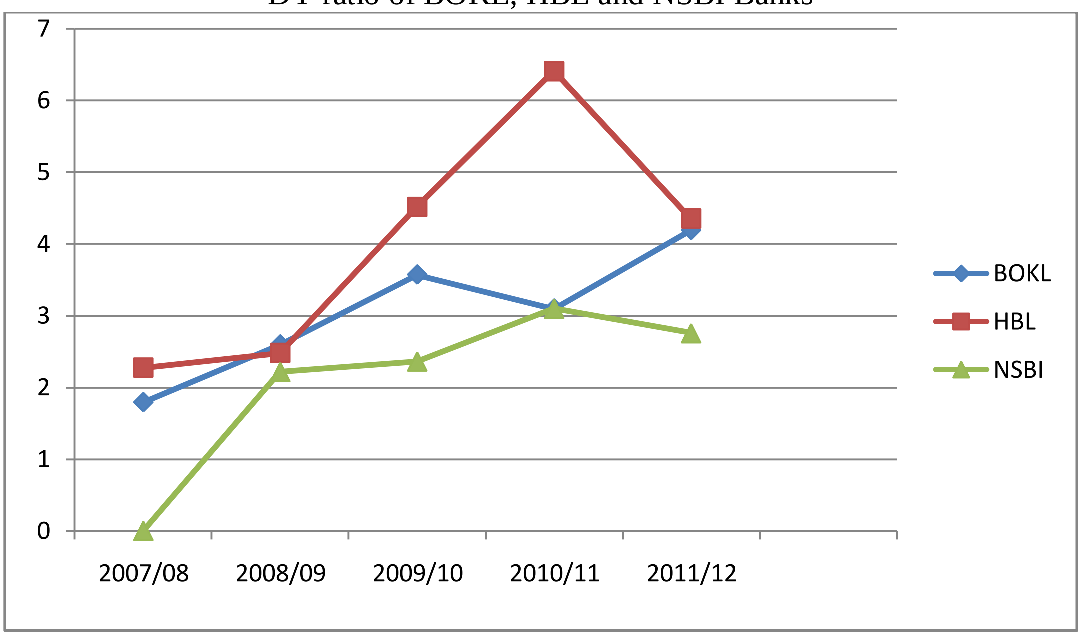
(Source: Annual report of BOKL, HBL, NSBI and appendix-5)

The above table depicts that dividend yield ratio of BOKL ranged from 1.792 to 6.096 from fiscal year 2007/08 to 2010/11. The bank has higher DY in the fiscal year 2010/11. It has increasing trend from year 2007/08 to 2010/11 and decrease to 4.191 in year 2011/12. The average dividend yield of BOKL in 5 year period is 3.649 and standard deviation and C.V are 1.473 and 40.367 respectively. BOKL has highest C.V among these three banks which indicate that there is highest fluctuation in DY during the study period.

Similarly, the DY of HBL and NSBI has increasing trends from fiscal year 2007/08 to 2010/11 and it decrease in year 2011/12. In year 2007/08 the DY of NSBI is 0, when no dividend is paid. The standard deviation of HBL is 1.514 and C.V is 37.812. Likewise NSBI has 0.345 and 13.229 standard deviation and C.V respectively. Comparing the average DY of BOKL, HBL and NSBI it can be considered that the shareholder of NSBI got more percentage of the market price they paid for a share as dividend in return. However the C.V of all the banks has high percentage but in comparatively it can be said that there is somewhat consistency in DY of BOKL than HBL and NSBI.

Figure 4.5

DY ratio of BOKL, HBL and NSBI Banks



4.1.6 Analysis of market price per share (MPS)

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

Table 4.6

MPS of the Banks in Different Years

Banks / Year	BOKL	HBL	NSBI
2007/08	2350	1980	1511
2008/09	1825	1760	1900

2009/10	840	860	741
2010/11	570	575	565
2011/12	628	653	635
Total	6213	5784	5352
Average	1242.60	1156.80	1070.40
S.D.	715.225	591.601	535.886
C.V (%)	57.559	51.141	50.064

(Source: Annual report of BOKL, HBL, NSBI and appendix-6)

The MPS of BOKL is in decreasing trend. Its value has been decreased from 2350 to 570. In fiscal year 2011/12 its value has increased to 628. The average MPS of BOKL is 2042.60 and standard deviation is 715.225. The C.V is 57.559 which indicate the high fluctuation in MPS of the bank.

The MPS of HBL is in decreasing trend from fiscal year 2007/08 (1980) to fiscal year 2010/11 (575) and finally increase in fiscal year 2011/12 (653). HBL has average MPS of 1156.80. The standard deviation of HBL is 590.601 and C.V is 51.141 which indicate that there is high fluctuation in MPS of HBL.

Similarly, the MPS of NSBI is also in decreasing trend in fiscal year 2007/08 (1511) _ to fiscal year 2010/11(565) and has increased to 635 in fiscal year 2011/12. The average MPS of NSBI is 1070.40 and S.D is 535.886. The C.V of NSBI bank is 50.064 which also indicate the high fluctuation.

From the above data and calculation, it can be seen that the average MPS of BOK L is highest and NSBI is lowest. The standard deviation of BOKL is also highest which means that deviation of this bank is more and it also has higher fluctuation and that of NSBI is lowest. The C.V of these bank shows that there is high fluctuation in MPS. BOKL and HBL have decreasing MPS from year 2007/08 to 2010/11 but in the final year of the study all these three banks' MPS has increased.

Figure 4.6
MPS of BOKL, HBL and NSBI Banks

4.1.7 Market value per share (MPS) to Book value per share (BVPS) ratio

This ratio indicates the price that the market is paying for the share that is reported from the networks of the banks. The market prices per share to book value per share of all three banks are presented in the following table.

Table 4.7
MPS to BVPS ratio of the Banks in Different Years

Banks / Year	BOKL			HBL			NSBI		
	MPS	BVPS	MPS to BVPS	MPS	BVPS	MPS to BVPS	MPS	BVPS	MPS to BVPS
2007/08	2350	222.51	10.561	1980	247.95	7.985	1511	160.57	9.410
2008/09	1825	206.25	8.848	1760	256.52	6.861	1900	194.68	9.760
2009/10	840	175.40	4.789	816	226.79	3.598	741	147.61	5.020
2010/11	570	179.13	3.182	575	199.77	2.878	565	153.51	3.681
2011/12	628	168.36	3.730	653	193.00	3.383	635	152.66	4.160
Total			31.110			24.705			33.031
Average			6.222			4.941			6.406
S.D.			2.940			2.173			2.633
C.V (%)			47.252			43.979			41.102

(Source: Annual report of BOKL, HBL, NSBI and appendix-7)

The above table 4.6 shows that the ratio of Market value per share (MPS) to book value per share (BVPS) is in ascending order till 2010/11 and slightly increasing in fiscal year 2011/12. The ratio decrease from 10.561 to 3.182 and increased to 3.730 in fiscal year 2011/12. It means that the investor paid 10.561 in the market for real book value of the share in the fiscal year 2007/08 and 233.182 in the market for real book value of the share in fiscal year 2010/11. The average MPS to BVPS in the five year period is 6.222 and the standard deviation is 2.940 and C.V is 47.252. In average investor in the market to possess a single share.

Likewise, the market price per share to book value per share of HBL is 7.985 in fiscal year 2007/08. It has decreased to 6.861 in the fiscal year 2008/09. HBL has more fluctuating MPS to BVPS ratio. The ratio is 3.598, 2.878 and finally increased to 3.383 in fiscal year 2009/10, 2010/11 and 2011/12 respectively. The average MPS to BVPS is 4.941, standard deviation is 2.173 and C.V is 43.979. In the five year period, the share holders paid 4.941 times more than the book value per share to acquire single share in market value in an average. Similarly the market price share to book value per share of NSBI bank has increased to 9.760 in the fiscal year 2008/09 from 9.410 in fiscal year 2007/08. After that it stepped downward and reached to 3.681 in fiscal year 2010/11 and finally increased to 4.160 in fiscal year 2011/12. In the five year period the share holder paid 6.406 times more than the book value per share to acquire a single share in the market value. Among these three banks BOKL has highest C.V (47.252) and NSBI has lowest C.V (41.102).

Figure 4.7
MPS to BVPS ratio of BOKL, HBL and NSBI Banks

4.1.8 Analysis of Net worth per share (NWPS)

The net worth per share is the value per share of total net worth in book value. It is a rupee value per share. It is calculated by dividing the book value of net worth by total number of share outstanding.

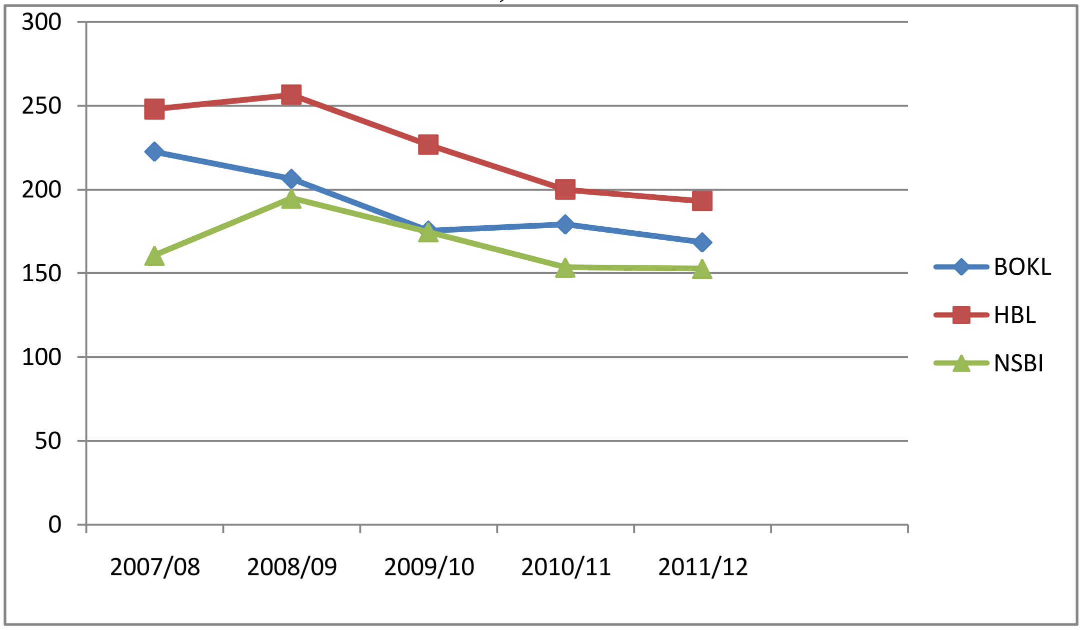
Table 4.8
NWPS of the Banks in Different Years

Banks / Year	BOKL	HBL	NSBI
2007/08	222.51	247.95	160.57
2008/09	206.25	256.52	194.68
2009/10	175.40	226.79	174.61
2010/11	179.13	199.77	153.51
2011/12	168.36	193.00	152.66
Total	951.650	1124.03	836.030
Average	130.330	224.806	167.206
S.D.	77.614	25.234	15.829
C.V (%)	59.552	11.225	9.467

(Source: Annual report of BOKL, HBL, NSBI and appendix-8)

The net worth per share of BOKL is highest in the year 2007/08 (222.51) and minimum in the year 2011/12 (168.36). The net worth per share of BOKL is in decreasing trend. The net worth per share of HBL is 247.95 in year 2007/08 and increased to 256.52 in the fiscal year 2008/09. After that it starts to decrease and reach to 193.00 in fiscal year 2011/12. Similarly the net worth per share of NSBI started to decrease from 194.68 in the fiscal year 2008/09 to 152.66 in the fiscal year 2011/12. Comparing these three banks in term of net worth per share, HBL has highest average (224.806) and BOKL has lowest (130.300). BOKL has highest standard deviation and C.V which means that deviation of net worth per share of this bank is more and also it has higher fluctuation.

Figure 4.8
NWPS of BOKL, HBL and NSBI Banks



4.1.9 Analysis of price earning ratio (P/E ratio)

The price earning ratio is the ratio between market price per share and earning per share. P/E ratio is also known as earning multiplier. P/E ratio is used to evaluate the performance of any organization by investor for security analysis point of view. It indicates investor's expectation towards firm's performance. Managerial level of firm's also watch this ratio to find out the performance and find the causes if the P/E ratio declines. The price earning ratio of the banks under study are presented in the table as follows.

Table 4.9
P/E ratio of the Banks in Different Years

Banks / Year	BOKL	HBL	NSBI
2007/08	39.21	31.56	53.34
2008/09	33.37	28.43	52.52
2009/10	19.50	25.66	31.28
2010/11	12.81	12.88	22.73
2011/12	16.58	16.35	27.69
Total	121.450	114.880	187.560
Average	24.290	22.976	37.512
S.D.	10.190	7.162	12.881
C.V (%)	41.951	31.172	34.338

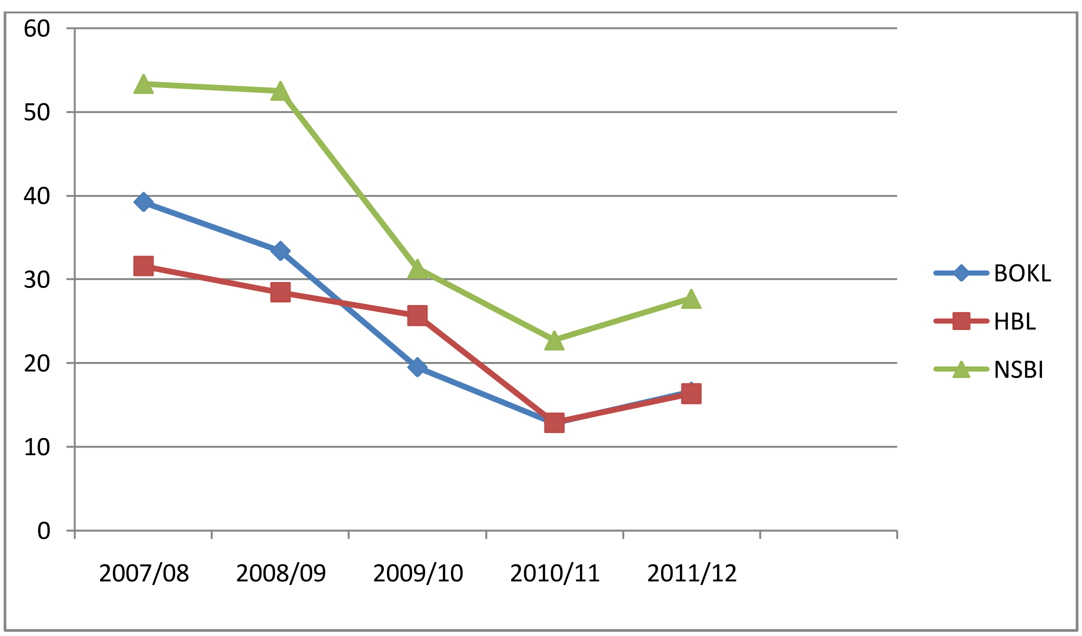
(Source: Annual report of BOKL, HBL, NSBI and appendix-9)

The table 4.9 depicts that P/E ratio of BOKL range from 39.21 in the fiscal year 2007/08 to 12.81 in fiscal year 2010/11. The P/E ratio follow decreasing trend up to 2010/11 and it is somewhat 16.58 in the fiscal year 2011/12. However, BOKL has maintained an average 24.290 P/E ratio in five year period, which indicates that the investor paid rupees 24.290 for a rupee of earning in average. The standard deviation and C.V of the same bank are 10.190 and 41.951 respectively. The C.V indicates that P/E ratio of BOKL is more fluctuating than other banks.

Likewise, HBL bank also followed decreasing trend from fiscal year 2007/08(31.56) to fiscal year 2010/11(12.88) and finally increase to 16.35 in fiscal year 2011/12. HBL maintained an average P/E ratio of 22.976 in the five year period taken for research, which clearly indicates that the shareholders of HBL paid rupees 22.976 to generate a rupee of earning. The standard deviation and C.V are 7.162 and 31.172 respectively. The C.V shows that P/E ratio of HBL is less consistency than BOKL.

Similarly, NSBI also followed decreasing trend in P/E ratio up to fiscal year 2010/11. Its P/E ratio range from 53.34 to 22.73 and increase to 27.69 in fiscal year 27.69. It has standard deviation 12.881 and C.V 34.338. Comparing the C.V of NSBI with HBL it is slightly more than HBL which indicates that P/E ratio of NSBI is more fluctuating than HBL.

Figure 4.9
P/E ratio of BOKL, HBL and NSBI Banks



4.2 Statistical tools

The statistical tools used are as follows:

4.2.1 Simple correlation and regression analysis

Financial tools are not sufficient to analyze the relationship among the various variables; therefore statistical tools are used to analyze the variable more effectively. For this purpose some financial data are used to determine how one variable will affect another variable. Correlation is study by tools which are used to determine covariance between two or more variables and to measure how a change in one variable affects the other variables.

The correlation coefficient may be defined as the degree of linear relationship existing between two or more variables. Two variables are said to be correlated when the change in value of one variable is accompanied by the change of another variable. It also measures the extent to which one variable affects the other one. The correlation coefficient lies between +1 and -1. If the correlation coefficient is +1 , it indicates that the variables are perfectly positive correlated and -1 correlation coefficient indicates that the variables are perfectly negative correlated. If the correlation coefficient is 0, it means that the variables are not related to each other. The negative correlation indicates that increase in value of one variable lead to decrease the value of other variables. The number indicates the degree of correlation between the variables.

4.2.1.1 Correlation and regression between DPS and EPS

4.2.1.2 Correlation and regression between EPS and MPS

4.2.1.3 Correlation and regression between DPS and MPS

4.2.1.1 Simple correlation and regression analysis between EPS and DPS

Earning per share is one of the influencing factors for dividend policy. So correlation between earning per share and dividend per share with their probable error and regression analysis are explained as follows:-

Table 4.10

Simple correlation and regression analysis between DPS and EPS

Banks	Regression model	a	b	SE_e	r	r^2	PE(r)	Sig /insig	T-value calculated	T-value tabulated
BOKL	Y= a+bX	-5.233	0.861	4.251	0.901	0.812	0.057	Sig	3.598	2.776
HBL		20.102	0.374	4.814	0.776	0.602	0.120	Sig	2.130	2.776
NSBI		-34.001	1.946	12.315	0.704	0.496	0.152	Insig	1.717	2.776

(Source: Annual report of BOKL, HBL, NSBI and appendix-10, 11, 12)

The above table 4.10 has contained the different indicators helpful to analyze the simple correlation and regression between DPS and EPS of the observed three commercial banks where EPS is independent variable and DPS is dependent variable. With the help of these indicators, we find

<u>BOKL</u>

The regression constant or intercept (a) -5.233 which shows that the average DPS would be Rs. – 5.233 which means that no dividend would be paid if the EPS is zero. The result shows that the slope of the regression line (b) is 0.861, which indicates positive correlation exists between EPS and DPS of BOKL. One rupee increase causes rupees 0.861 increases in the dividend per share distributed by the bank. The coefficient of determination (r^2) is 0.812, which indicates that 81.2% of the variation in DPS is affected by the explanatory variable EPS. The simple correlation coefficient (r) between EPS and DPS is 0.901 which indicates that there is a strong positive relationship between EPS and DPS of BOKL. Here ‘r’ is greater than 6 × P.E(r) = 6×0.057 = 0.342. This implies that there is significant correlation between EPS and DPS of BOKL.

The T-value for the regression model is 3.598 which are greater than the tabulated value at 5% level of significance so it is significant. By adding and subtracting the value of probable error from the coefficient of correlation, we can get the upper and lower limits respectively within which correlation coefficient in the population can be expected to lie.

The upper and lower limit within which the correlation coefficient is expected to lie is given by:

r - P.E = 0.901 – 0.057 = 0.844 lower limit

r + P.E = 0.901 + 0.057 = 0.958 upper limit

Hence the correlation coefficient is expected to lie between 0.844 and 0.958.

HBL

The regression constant or intercept coefficient (a) is 20.102 which show that the average DPS would be Rs20.102 if the EPS is zero. The result shows that the regression line (b) is 0.374 which indicates that positive correlation exists between EPS and DPS of HBL. One rupee increase in EPS cause Rs 0.374 increase in the dividend per share distributed by the bank. The coefficient of determination (r^2) is 0.602 which indicates that only 60.2% of the variation in DPS is affected or determined by explanatory variables EPS. The simple correlation coefficient (r) between EPS and DPS is 0.776 which indicates that there is a moderate positive relationship between EPS and DPS of HBL. The value of 't' shows that HBL is statistically not significant at 5% level of significance because the calculated t-value is lower than tabulated t-value. Since 'r' is greater than 6×P.E(r) we can say that correlation is significant.

The upper and lower limit within which the correlation coefficient is expected to lie is given by:

Lower limit = r - P.E = 0.776-0.120 =0.656

Upper limit = r + P.E = 0.776+0.120 = 0.896

Hence, the correlation coefficient is expected to lie between 0.656 to 0.896.

NSBI

The regression constant or intercept coefficient (a) is -34.001, which shows that the average DPS would Rs -34.00 which means no dividend is paid when EPS is zero. The result shows that the slope of the regression line (b) is 1.946, which indicates that positive correlation exits between EPS and DPS of NSBI bank. One rupee increase in EPS causes Rs 1.946 increase in the dividend per share distributed by the bank. The coefficient of determination (r^2) is 0.496, which indicates that 49.6% of the variation in DPS is affected or determined by the explanatory variables EPS. The simple correlation coefficient (r) between EPS and DPS is 0.704 which indicates that there is a strong positive relationship between EPS and DPS of NSBI bank. Here 'r' is less than 6×P.E(r) = 6 ×0.153 = 0.912, so we can say that the correlation is insignificant. From the analysis of 't' value we can conclude that NSBI bank is statistically not significant at 5% level of significance because the calculated value of 't' is lower than tabulated value of 't' at 5% level of significance.

The upper and lower limit within which the correlation coefficient is expected to lie is given by:

Lower limit = r – P.E = 0.704 - 0.152 =0.552

Upper limit = r + P.E = 0.704 + 0.152 = 0.856

Hence, the correlation coefficient is expected to lie between 0.552 and 0.856.

4.2.1.2 Simple correlation and regression analysis between EPS and MPS

This analysis test dependency of market price per share on earning per share. Dependency of MPS on EPS is shown as follows:

Table 4.11
Simple correlation and regression analysis between EPS and MPS

Banks	Regression model	a	b	SE_e	r	r^2	P.E (r)	Insig/Sig	t-value calculated	t-value tabulated
BOKL	Y=a + bX	-2831.871	84.853	264.977	0.958	0.918	0.025	Sig	5.780	2.776
HBL		-906.117	42.792	355.324	0.885	0.783	0.665	Sig	3.290	2.776
NSBI		-1730.090	102.978	248.069	0.934	0.872	0.039	Sig	4.532	2.776

(Source: Annual report of BOKL, HBL, NSBI and appendix-13, 14, 15)

The above table 4.11 shows the different indicator helpful to analyze the simple correlation and regression between EPS and MPS of the observed three commercial banks. Where EPS is independent variable and MPS is dependent variable, with the help of these indicators, we find:

<u>BOKL</u>

The regression constant or intercept coefficient (a) is -2831.871, which shows that the average MPS would be in negative, when earning per share is zero. The result shows that the slope of the regression line (b) is 84.853 which indicate that positive correlation exists between EPS and MPS. One rupee increase in EPS causes Rs 84.853 increase in the market price of the stock of the bank. The coefficient of determination (r^2) is 0.918, which indicates that 91.8% of the variation of the stock price is affected or determined by the explanatory variable EPS. The simple correlation (r) between EPS and MPS is 0.958, which indicates that there is positive relationship between EPS and MPS of BOKL. Since 'r' is greater than 6×P.E(r) =6×0.025=0.150; which shows that correlation is significant. The test of t-statistic aid to conclude that the relationship between MPS and EPS is significant. Since the calculated of t (5.780) is greater than tabulated value of t (2.776) at 5% level of significance at 4 degree of freedom.

HBL

The regression constant or intercept coefficient (a) is -906.117, which shows that the average MPS would be Rs.-906.11; if EPS is zero. The result shows that the slope of regression line (b) is 42.792, which indicates that positive correlation exists between EPS and MPS of HBL. The simple correlation coefficient(r) between MPS and EPS of HBL is 0.885, which indicates that there is aggressive positive relationship between EPS and MPS. Since the correlation(r) is greater than 6×P.E=6×0.065=0.393, we can conclude that it is significant. The coefficient of determination (r^2) is 0.783, which indicates that 78.3% of variation of stock price is affected or determined by the explanatory variable EPS. The test of t-statistics shows that relationship between MPS and EPS is significant. Since the calculated value of ‘t’ (3.290) is greater than tabulated value of ‘t’ (2.776) at 5% level of significance.

NSBI

The regression constant or intercept coefficient (a) is -1730.190, which shows that the average market price per share would be in negative when EPS is zero. The result shows that the slope of regression line (b) is 102.978, which indicate that positive correlation exists between EPS and MPS of NSBI bank. One rupee increase in EPS causes Rs. 102.978 increase in the marker price of stock of the bank. The coefficient determination (r^2) is 0.872, which indicates that 87.2% of the variation of stock price is affected or determined by the explanatory variable EPS. The simple correlation coefficient (r) between EPS and MPS is 0.934, which indicates that there is a strong positive relationship between EPS and MPS. Since, r >6×P.E = 6×0.039=0.231, the correlation is significant. From the study of t-value we can say that the relationship between EPS and MPS is significant because calculated t-value is more than tabulated t- value at 5% level of significance.

4.2.1.3 Simple correlation and regression analysis between DPS and MPS.

This analysis tests dependency of the market price per share on dividend per share. The correlation between MPS and DPS and probable error are calculated and summarized in the table below:-

Table 4.12

Simple correlation and regression between DPS and MPS

Banks	Regression model	a	b	SE_e	r	r^2	P.E (r)	Insig/Sig	t-value calculated	t-value tabulated
BOKL	Y=a + bX	-1496.92	75.866	530.292	0.819	0.671	0.099	Sig	2.472	2.776
HBL		-409.624	41.079	696.620	0.410	0.6181	0.251	Insig	0.779	2.776
NSBI		-1049.507	16.725	1901.761	0.407	0.616	0.252	Insig	0.772	2.776

(Source: Annual report of BOKL, HBL, NSBI and appendix-16, 17, 18)

The above table 4.12 shows different indicators helpful to analyze the simple correlation and regression between DPS and MPS of three commercials banks, where DPS is independent variable and MPS is dependent variable. With the help of these indicators, we find:-

<u>BOKL</u>

The regression constant or intercept coefficient (a) is -1496.92 which shows that the average MPS would be in negative if the DPS is zero. As far as the regression of MPS and DPS is concerned the regression coefficient of BOKL is 75.866, which indicates that one rupee increase in DPS leads to an average increase of Rs. 75.866 in market price. The coefficient of determination (r^2) is 0.671 which indicates that 67.1% of MPS is affected or determined by the explanatory variable DPS. The simple correlation coefficient (r) between DPS and MPS is 0.819, which indicates that there is positive relationship between DPS and MPS of BOKL. Since, ‘r’ is greater than 6×P.E= 6×0.094=0.594, the value of ‘r’ is significant. The test of t-statics aid to conclude that in BOKL the relationship between MPS and DPS is insignificant, since the calculated value of t (2.472) is less than tabulated value of t (2.776).

<u>HBL</u>

The regression constant or intercept coefficient (a) is -409.62, which indicates that the average MPS would be -409.624, if the DPS is zero. The result shows that the slope of the regression line (b) is 41.079, which indicates the positive correlation exists between DPS and MPS of HBL one rupee increase in DPS causes 41.079 increases in market price of the stock of the bank. The coefficient of determination r^2 is 0.251 which indicate that only 25.1% of the variation of stock price is affected or determined by the explanatory variables DPS. The simple correlation coefficient (r) between DPS and MPS is 0.410

which indicates that there is a moderate positive relationship between MPS and DPS. Since ‘r’ is less than 6×P.E=6×0.251=1.506, we can say the correlation is insignificant. The test of t-statistics is concluded that the relationship between MPS and DPS is not significant because the calculated ‘t’ value is smaller than tabulated value.

NSBI

The regression constant or intercept coefficient (a) is -1049.507, which shows that the average MPS would be -1049.507 if the DPS is zero. The result shows that the slope of the regression line (b) is 16.725, which indicate that positive correlation exists between DPS and MPS of NSBI bank. One rupee increase in DPS causes Rs. 16.725 increase in the market price of stock. The coefficient of determination r^2 is 0.618 which indicates that 61.6% of the variation of stock price is affected or determined by the explanatory variables DPS and MPS is 0.252 which indicates that there is a moderate positive relationship between DPS and MPS. But since ‘r’ is less than 6×P.E=6×0.252=1.510, we can say that correlation is insignificant. The result is also statically insignificant at 5% level of significance because the computed value of‘t’ (0.772) is lower than the tabulated value of‘t’ (2.776).

4.2.2 Multiple regression analysis

The regression is used to determine the statistically relationship between two or more variable and to make prediction of one variable on the basis of others. The regression can analyze either in simple regression or multiple regression. When we take two or more independent variables and predict the value of the dependent variable through the appropriate regression line, the analysis is known as multiple regression analysis.

4.2.2.1 Multiple regression of market price per share on DPS and EPS

To find out dependency of market price per share on the dividend per share and earnings per share this analysis is tested. The affects of MPS on DPS and EPS of sample banks are analyzed below:-

Table 4.13

Multiple regression line of MPS on DPS and EPS

$$X_1 = a + b_1X_2 + b_2X_3$$

Bank	No. of year	Constant(a)	Regression coefficient	
			b_1	b_2
BOKL	5	113.685	183.187	-113.864
HBL	5	-1781.214	43.598	26.459
NSBI	5	-2127.102	-14.382	127.579

(Source: Annual report of BOKL, HBL, NSBI and appendix-19)

The above table represents the linear relationship between MPS, with DPS and EPS of sample banks. The constant (a) is negative in HBL by -1781.214 and NSBI by -2127.102 and positive in BOKL (113.685). In case of BOKL the beta coefficient of DPS and EPS are 183.187 and -113.864 respectively. It indicates that one rupee increase in DPS leads to 183.187 increase in MPS and one rupee increase in EPS leads to decrease in MPS by Rs. 113.864. In case of HBL the beta coefficient of DPS and EPS are 43.598 and 26.459 respectively. It indicates that one rupee increase in DPS leads to Rs. 43.598 increase in MPS and one rupee increase in EPS leads to Rs. 26.459 increase in MPS. In case of NSBI bank the beta coefficient of DPS and EPS are -14.382 and 127.579 respectively, which indicates that one rupee increase in DPS leads to Rs. 14.382 decrease in MPS and one rupee increase in EPS leads to Rs. 127.579 increase in MPS.

4.3 Testing of Hypothesis

Testing of hypothesis is one of the most important aspects of the theory of decision making. It consists of decision rules required for drawing probabilistic inference about the population parameters. It often involves in deciding at any given point of time, whether the given population parameter is the same as before or has changed. For the decision making related to dividend factors four hypothesis are tested.

4.3.1 First hypothesis

Null hypothesis (H_0): There is no significant difference between EPS of sample commercial bank.

Alternative hypothesis (H_1): There is significant difference between EPS of sample commercial bank.

To find out significant difference between mean of EPS of sample banks, first hypothesis is tested under following ANOVA table.

Table 4.14
ANOVA analysis of EPS of Sample banks

Source of variation	Sum of square(SS)	Degree of freedom	Mean sum of square(MSS)	F-ratio
Between sample	SSC=1458.493	K-1=3-1=2	MSC $= \frac{SSC}{K-1} = \frac{1458.493}{2}$ =729.246	$F = \frac{MSC}{MSE}$
Within the sample(errors)	SSE = 26581.116	14-2=12	MSE $= \frac{SSC}{12} = \frac{26581.116}{12}$ =2215.093	$= \frac{729.246}{2215.093}$
Total	TSS = 28039.609	n-1= 15-1 =14		=0.329

(Source: Annual report of BOKL, HBL, NSBI and appendix-20)

From the above table, we calculated 'F' for 2, at 12 degree of freedom is 0.329. The tabulated value of 'F' at 5% level of significance at 2, 12 degree of freedom (df) is 3.89.

Decision: Since the calculated value of 'F' is less than the tabulated value of 'F'. So, it is not significant and null hypothesis (H_0) is accepted and alternative hypothesis (H_1) is rejected. It means there is no significance difference in EPS of BOKL, HBL and NSBI Bank.

4.3.2 Second hypothesis

Null hypothesis (H_0): There is no significant difference between DPS of sample commercial bank.

Alternative hypothesis (H_1): There is significant difference between DPS of sample commercial bank.

To find out significant difference between mean of DPS of sample banks, second hypothesis is tested under following ANOVA table.

Table 4.15
ANOVA analysis of DPS of Sample banks

Source of variation	Sum of square(SS)	Degree of freedom	Mean sum of square(MSS)	F-ratio
Between sample	SSC=528.508	K-1=3-1=2	MSC $= \frac{SSC}{K-1} = \frac{528.508}{2}$ =264.254	$F = \frac{MSC}{MSE}$
Within the sample(errors)	SSE = 16425.509	13-2=11	MSE $= \frac{SSC}{11} = \frac{16425.509}{11}$ =1493.228	$= \frac{264.254}{1493.228}$
Total	TSS = 16954.017	n-1= 14-1 =13		=0.177

(Source: Annual report of BOKL, HBL, NSBI and appendix-21)

From the above table, we find that the calculated value 'F' for 2, at 11 degree of freedom is 0.177. The tabulated value of 'F' at 5% level of significance for 2, at 11 degree of freedom (df) is 3.98.

Decision: Since the calculated value of 'F' is less than the tabulated value of 'F'. The null hypothesis (H_0) is accepted. Therefore we conclude that there is no significant difference in DPS on sample commercial bank.

4.3.3 Third hypothesis

Null hypothesis (H_0): There is no significant difference between DPR of sample commercial bank.

Alternative hypothesis (H_1): There is significant difference between DPR of sample commercial bank.

To find out significant difference between mean of DPR of sample banks, third hypothesis is tested under following ANOVA table.

Table 4.16
ANOVA analysis of EPS of Sample banks

Source of variation	Sum of square(SS)	Degree of freedom	Mean sum of square(MSS)	F-ratio
Between sample	SSC=232.113	K-1=3-1=2	MSC $= \frac{SSC}{K-1} = \frac{232.113}{2}$ =116.056	F $=\frac{MSC}{MSE}$
Within the sample(errors)	SSE = 93103.704	13-2=11	MSE $= \frac{SSC}{11} = \frac{93103.704}{11}$ =8463.973	$= \frac{116.056}{8463.973}$
Total	TSS = 93335.817	n-1= 14-1 =13		=0.014

(Source: Annual report of BOKL, HBL, NSBI and appendix-22)

Critical value: The tabulated value of 'F' at 5% level of significance for 2 and 11 degree of freedom (df) is 3.98.

Decision: Since calculated 'F' is less than tabulated value of 'F', the null hypothesis (H_0) is accepted and alternative hypothesis (H_1) is rejected. Therefore, we conclude that there is no significant difference in DPR of BOKL, HBL and NSBI Bank.

4.3.4 Fourth hypothesis

Null hypothesis (H_0): There is no significant difference between DY of sample commercial bank.

Alternative hypothesis (H_1): There is significant difference between DY of sample commercial bank.

To find out significant difference between mean of dividend yield (DY) of sample banks, fourth hypothesis is tested under following ANOVA table.

Table 4.17
ANOVA analysis of DY of Sample banks

Source of variation	Sum of square(SS)	Degree of freedom	Mean sum of square(MSS)	F-ratio
Between sample	SSC=4.561	K-1=3-1=2	MSC = $\frac{SSC}{K-1}$ = $\frac{4.561}{2}$ =2.281	F =$\frac{MSC}{MSE}$
Within the sample(errors)	SSE = 192.211	13-2=11	MSE = $\frac{SSC}{11}$ = $\frac{192.211}{11}$ =17.474	= $\frac{2.281}{17.474}$
Total	TSS = 196.772	n-1= 14-1 =13		=0.014

(Source: Annual report of BOKL, HBL, NSBI and appendix-23)

Critical value: The tabulated value of 'F' at 5% level of significance for 2 and 11 degree of freedom (df) is 3.98.

Decision: Since calculated 'F' is less than tabulated value of 'F', the null hypothesis (H_0) is accepted and alternative hypothesis (H_1) is rejected. Therefore, we conclude that there is no significant difference in dividend yield of BOKL, HBL and NSBI Bank.

4.4 Major findings of the study

The major findings that have drawn from analysis of secondary data by using various financial and statistical tools are as follows:-

- The average earning per share (EPS) of the banks under study shows a positive result. The EPS of the entire bank are in decreasing trend. Among the sample bank HBL has highest average EPS. By the analysis of coefficient of variation, it indicates that there is greater fluctuation in EPS of HBL than BOKL and NSBI. The C.V ranges from 16.815% to 25.386% among the bank under study.
- There is no regularity in DPS of sample banks in dividend payment. HBL bank's dividend is comparatively better than other two banks. The C.V of DPS ranges

from 15.484 to 45.051 and there is no consistency in dividend payment. NSBI bank has highest C.V which indicates that NSBI is more consistency than other bank. The average DPS of HBL is highest (38.132) with lowest coefficient of variation (15.484) which indicates that HBL has lowest fluctuation in DPS.

- The analysis of dividend payout ratio helps to find out dividend policy and practices adopted by the sample banks. Above analysis shows that sample banks DPR is not stable. Among the sample bank NSBI has highest average DPR (84.251) with moderate fluctuation. BOKL has the lowest DPR, which shows that BOKL focused more on retaining profit for internal financing purpose, where as NSBI focused more on retaining shareholders through providing more dividends.
- The P/E ratio shows that MPS of BOKL, HBL and NSBI are 24.290, 22.976 and 37.152 times greater than its average EPS. This means that the shareholder of BOKL, HBL and NSBI bank are willing to pay Rs. 24.290, 22.976 and 37.152 respectively to achieve one rupee earning per share. The C.V ranges from 31.172 to 41.951; among the bank under study BOKL has highest C.V (41.951) which shows that there is greater fluctuation in P/E ratio.
- The average earning yield (EY) of the concerned banks ranges from 2.997(NSBI) to 4.903(BOKL). BOKL has the highest average earning yield and highest C.V which indicates that earning yield of BOKL is more fluctuating and it is considered more efficient in earnings than other sample bank.
- The average dividend yield ratio of sample bank ranges from 2.608(NSBI) to 4.004(HBL). Among these three banks HBL has highest average dividend yield. Hence the shareholder of HBL enjoyed more dividend percent compared to the shareholders of NSBI and BOKL. The C.V analysis of BOKL (40.367) shows that, BOKL is more fluctuating than other sample banks HBL (37.812) and NSBI (13.229).
- The market values of share in case of all the sample banks are fluctuating. The trend is not consistent. The market price is falling each year and it rises at last year of study period. Comparing the average market price BOKL (1242.60) has highest average market price during the study period. The C.V of market price ranges from 50.064(NSBI) to 57.559(BOKL), which shows that BOKL‘s market price is more fluctuating than NSBI and HBL.
- The market value per share to book value per share to book value per share in case of all the sample banks is fluctuating. The trend is not consistent. It is continuously falling and rises at last year of study period. The average of MPS to BVPS ratio of NSBI (6.406) is highest in comparison to BOKL (6.222) and HBL (4.941). From the C.V analysis it is found that BOKL (47.252) is more fluctuating than other sample banks HBL (43.979) and NSBI (41.012).
- The average net worth of BOKL, HBL and NSBI are 130.330, 224.806 and 167.206 respectively. It shows that HBL has highest average net worth. The C.V

of NSBI (9.467) is lowest and BOKL (59.552) has highest net worth per share. This means that BOKL is more fluctuating than NSBI and HBL interim of net worth.

From the analysis of major statistical tools i.e. correlation and regression analysis we can summarize the relationship of various variables as follows:-

- The relationships between DPS of all sample banks with EPS are positively correlated. It implies that earning per share affect the dividend per share. The probable error shows that the correlation between EPS and DPS of BOKL and HBL are significant where as in the case of NSBI is insignificant. The regression coefficient of DPS on EPS of BOKL, HBL and NSBI are positive value, which indicates that DPS is influenced by EPS. The coefficient of NSBI bank (1.946) is high in comparison with HBL (0.374) and BOKL (0.861). From the regression analysis it can be concluded that a change in EPS affects the DPS differently in different banks.
- The t-value for the regression model, DPS and EPS are 3.598, 2.130 and 1.717 for the BOKL, HBL and NSBI bank respectively. This shows that the results of BOKL are statistically significant at 5% level of significance because the calculated value is greater than the tabulated value. But in the case of HBL and NSBI it is statistically insignificant because the calculated value of 't" is less than the tabulated value.
- The correlation between EPS and MPS of the entire sample bank are positive which shows that increase/decrease in the MPS causes increase/decrease in EPS. It implies that DPS affect MPS. From the study of probable error we find that all the banks correlation is significant. The regression coefficient of all these three banks is positive which shows that increase in EPS causes increase in MPS.
- The test of't' statistics for regression model MPS on EPS results that all the bank is significant because the calculated value of't' is greater than tabulated value of 't' in all the bank. So we can conclude that EPS has significant relationship with MPS.
- The correlation between DPS and MPS in all the sample banks are positive which shows that DPS affect the MPS of the stock. From the study of probable error we can conclude that the correlation of BOKL between DPS and MPS is significant and since 'r' is less than 6 times P.E the correlation between DPS and MPS of NSBI bank and HBL are insignificant. The regression coefficient between DPS and MPS are positive in all the banks, which indicates that DPS influenced MPS of the bank. Among these three banks the regression coefficient of BOKL is highest, so we can conclude that change in DPS affect MPS differently in different bank.

- On the multiple regression analysis regression coefficients b_1 is positive in BOKL (183.187) and HBL (43.598) but negative in case of NSBI (-14.382). It concludes that DPS affect negatively on MPS of NSBI and positively on MPS of BOKL and HBL. On the other hand regression coefficient b_2 is positive in HBL and NSBI and negative in BOKL. Hence it is concluded that EPS increase MPS in HBL and NSBI but EPS has negative relation with MPS in case of NSBI bank.
- From the first hypothesis it can be concluded that at 5% level of significance null hypothesis (H_0) is accepted and alternative hypothesis (H_1) is rejected. It means that there is no significance difference in mean of EPS of BOKL, HBL and NSBI bank.
- From the second hypothesis, it can be concluded that at 5% level of significance null hypothesis (H_0) is accepted and alternative hypothesis (H_1) is rejected which means that there is no significant difference in DPS of BOKL, HBL and SBU bank.
- From the third hypothesis, it can be concluded that at 5% level of significance, null hypothesis (H_0) is accepted and alternative hypothesis (H_1) is rejected. It means there is no significant difference in mean of DPR of sample bank.
- The fourth hypothesis is done to test whether there is significant difference in dividend yield between the sample banks. From the analysis it can be concluded that there is no significance difference between dividend yield of BOKL, HBL and NSBI bank because null hypothesis (H_0) is accepted and alternative hypothesis (H_1) is rejected at 5% level of significance.

Chapter- V

Summary, Conclusion and Recommendation

This chapter focuses on summarizing the study held with the conclusions and some recommendation on the basis of findings. For this purpose, the chapter has been divided into three parts as summary, conclusion and recommendation.

5.1 Summary

Dividend refers to the portion of firms net earning which is paid out to the shareholders. Dividend serves as simple, comprehensive signal of management's interpretation of the firm's recent 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 investors, who has poured their fund in.

An effective way to attract new investors to invest in shares is paying attractive dividend. Due to division of earnings of a company between dividend payout and retention of earnings, its effect on market price of share is crucial question. Thus, a wise policy should be maintained between shareholders interest and corporate growth from internally generated funds. Dividend policy decision is undoubtedly one of the three major decisions of financial management. It is right to say that dividend policy decision affects the operation and prosperity of a financial company because it has power to influence other two decisions namely, capital gain and dividend, by investing in equity capital or ordinary share. So payment of dividend to shareholders is an effective way to attract new investors and maintain present investors to invest in shares. So, it is justified to hold that a clearly defined and effectively managed dividend policy is required in all financial companies to fulfill the shareholders expectations with that of corporate growth from internally generated funds. So, the funds that could not be used due to lack of investment opportunities would be better to be distributed as dividend, since shareholders have investment opportunities elsewhere.

Thus we can say that dividend policy decision is one of the crucial decisions of the financial management. It is an important decision which affects shareholder wealth and value of firm. Dividend policy is an integral part of the firm's financing decision as it provides internal financing. While making dividend decision, the financial manager should consider the preference of shareholders as well as the investment opportunities available within the firm. Dividend decision is an effective way to attract new investor and maintain current investors. It is important to have clearly defined and effectively managed dividend policy, so as to fulfill the shareholder's expectations and corporate growth.

Deciding how much to pay to shareholders by way of dividend and how much to retain in the business is dividend decision. Dividend paying ability of any business organization reflects the financial position of organization in market. It helps to attract the new investors from market. Due to the division of earning between dividend payout and retention ratio the market price of the share is also affected, which is also crucial for the organization. So, the funds that could not be used due to the lack of investment opportunities would be better as dividend, since shareholders have investment opportunities elsewhere.

Considering time and resource constraints only three commercial banks namely BOKL, HBL and NSBI bank have been selected as sample banks in the study to fulfill the objectives of studying dividend policy decision and other factors related to dividend. The study period covers only last five fiscal year from 2007/08 to 2011/12. The study has been conducted on the secondary data such as annual reports of selected banks. For the analysis of data different financial tools like DPS, DY, DPR and statistical tools such as mean, standard deviation, correlation coefficient regression and hypothesis have been used.

The study mainly aims to analyze the existing dividend practices of sample banks. Its specific objectives are:-

- To analyze the existing dividend practices of sample banks in terms of DPS, DPR, EY, DY and market value per share to book net worth per share.
- To analyze the relationship of dividend with earning per share and market price per share.
- To find out the effect on market value per share due to DPS and EPS.
- To find out significance difference between mean of EPS, DPS, DPR and DY of sample commercial banks.

The study is organized in five chapters, viz

(i) Introduction
(ii) Review of literature
(iii) Research methodology
(iv) Data presentation and analysis and
(v) Summary, conclusion and recommendations.

5.2 Conclusions

It can be concluded that commercial banks distribute dividend to attract potential investors. Banks market price per share is highly affected by dividend policy. The major motive of cash dividend of commercial bank is to convey information to shareholders that the company is doing well. The dividend practices followed by Nepalese commercial bank are payment of dividend after financing in appropriate investment opportunities. Chief executives officer is the most influential in developing the dividend decision in Nepalese commercial banks. Banks re-examine their dividend policy normally annually. Commercial banks should be consistency in dividend policy in Nepalese enterprises.

The result of this analysis is strong enough to establish the relationship between dividend policy and market price per share of listed commercial banks. However this analysis cannot give a whole conclusion of present dividend scenario of the bank. After analyzing the data by using financial and statistical indicators of all the sample banks, following conclusions are drawn:-

- The market price per share is affected by the dividend related financial variable i.e. DPS, DY and DPR either positively or negatively. The nature of effect is different that might be positive or negative. In case of some banks there exists positive relation between dividend per share and market price per share, where as for other exist negative relationship. Therefore the market price per share is highly depends upon the dividend, which has been shown by coefficient of multiple determinations.
- After the study importance of cash dividend on the market price per share revealed that generally dividend per share has positive impact on market price per share in all banks.
- Dividend policy practices of sample banks are neither stable nor consistency growing. Dividend is distributed as an ad-hoc or situational basis.
- Beside dividend, other factors also affects the market price per share i.e. size of earning, liquidity position, net worth per share, price earning ratio, information value of dividend decision etc. their effect is differ from banks to banks.
- Market value per share (MVPS) to book value per share (BVPS) ratio is greater than 1 for all banks in all fiscal year under study. In other words the MVPS of sample banks are higher than BVPS. This indicates that the investors are not concern about BVPS but they are only concern with the transaction price per share. This shows the low consciousness and knowledge of shareholders.
- Dividend per share is affected by earning price per share, retention ratio and net profit per share.
- The situation of capital market of Nepal is improving day by day. As a result, the capital market seems to be more efficient than previous years. But it is reality that capital market of Nepal is still immature.
- Due to inadequate time period, few sample (only three banks) are taken from large population, the result might not be representing wholesome. Hence, if large samples are taken from the whole population the result might have produced more accurate and absolute results.

5.3 Recommendations

On the basis of study of the different commercial banks the following recommendation are made for the further applications of dividend of the banking sector. We found that there is lack of consistent dividend paying practices of sample joint venture bank of Nepal. This occurs due to lack of legal obligation toward shareholders. There is not clear provision made in company and commercial act Nepal, and regulation act regarding the dividend policy.

- Bank should pay dividend adopting any appropriate dividend policy. Bank should have their clearly defined dividend policy. Clearly defined dividend policy helps to determine specific policy such as stable dividend or low regular plus extra. What should be the long run dividend payout ratio, either it is pure residual policy or fixed dividend payout policy should have been clearly explained. This short of policy helps to investors in deciding whether to buy or not the share of particular company. It also helps to build good image of stock market. This kind of policy should be passed only on the conscious of shareholders. The tendency of management interference in policy matters should be eliminated. The uniformity and regularity in dividend payment practices should be adopted by the banks.
- Banks should have long-term vision regarding earning and dividend payment that helps to manage challenging competitive situation of present world. Various types of internal and external factors should be considered before taking decision.
- There is lack of rules binding companies to pay dividend. So the government of Nepal, SEBON and NEPSE should act in favor of the investor and should bind through such legal provision so that the profit earning companies should distribute certain portion of their earning as dividend. Government, Nepal Rastra Bank, Security exchange board and Nepal stock exchange should be conscious in discouraging market imperfection in dividend payment practices.
- Most of the banks have great fluctuation on dividend per share, earning per share, and dividend yield and dividend payout ratio and share price in terms of coefficient of variation. Such fluctuation increases in risk position of investors. Therefore, company should stabilize these variables.
- Shareholder should be given option to choose between stock dividend and cash dividend instead of declaring stock or cash dividend arbitrary. For this dividend declaration should be proposed in the annual general meeting of shareholders for approval. The legal rules and regulation must be in favors of investor to exercise the dividend practice and protect the shareholders right.
- Payment of dividend is neither static nor constantly growing. It is highly fluctuating; such way of paying dividend could not impress the market positively and may create more confusion and miss-conception about that firm. Due to higher degree of risk and uncertainty such fluctuations impact the firm’s market

price per share adversely. So, these banks are advised to follow either static or constantly growing dividend policy. It would be better to fix the amount of dividend in the annual general meeting. This is important not only from the point of view of adequate return to shareholders but also to generate stable and increasing market value per share, long run survival of bank, efficient management and socially acceptable distribution of income. Similarly, according to the changing context and shareholders interest and expectation, the predetermined policies should be reviewed.

- EPS should be considered as a major factor in determining the dividend. It is important to consider earning rather than neglecting it while making dividend decision.
- Banks are playing on the public money. So in this regard, they are advised to have target rate of return (earning) and target payout ratio that will help the banks to build good image in stock market and investors will be benefited on making investment decision.
- The dividend payout ratio of the sample firm is fluctuating from year to year; there is no rational approach in deciding the payout. All the firms should analyze the internal rate of return, cost of capital in deciding DPR, which helps to maximize the shareholders wealth.
- Each and every company should provide the information regarding their activities and performance, so that investors can analyze the situation and invest their money in the best company. Also the information and policies should be transparent and within reach of the shareholders.
- The legal rules and regulation must be in favor of investors to exercise the dividend practice and to protect the shareholder’s right. Most of the banks seem to ignore the dividend expectation of the minority, Shareholder association of Nepal should be encouraged to work against the management ignorance.
- The legal rule for the treatment of dividend is must for the smooth growth of any enterprise as well as growth of national economy. Some of the companies are in position to pay dividend while considering some case but some companies are suffering loss and there are efforts to minimize loss rather than payment of dividend.
- If the correlation between MVPS and DPS is negative. The bank should search investment opportunity rather than increasing DPS.
- It is recommended to the concerned parties that the optimum dividend policy must be based on the following criteria:
    (a) Optimum retention is made for excellent expansion and modernization.

    (b) Optimum dividend, so that market value per share will increase rapidly i.e. net present value of shareholders wealth can be maximized.

BIBLIOGRAPHY

Books:

Bajracharya, Silu & Bhattrai, Rabindra (2006). *Corporate financial Management*. Kathmandu: Buddha publication

Bhattrai, Rabindra (2006). *Investment*. Kathmandu: Buddha publication

Bhattrai, Rabindra (2006). *Capital Structure Management*. Kathmandu: Dhaulaghiri publication

Dangol, R.M. (2063). *Accounting for Financial Analysis and Planning*. Kathmandu: Taleju prakashan

Gautam, Rishi R. & Thapa, Kiran (2008). *Capital structure Management*. Kathmandu: Asmita publication

Gitman, Lawrence J. (1994). *Principle of Managerial finance*. Newyork. Harper Collins: College publisher

Kothari, C.R (1999), *Financial Management*. New Delhi: Vikash publishing house Pvt. Ltd

Pandey, I.M (1999). *Financial Management*. New Delhi: Vikash publishing house Pvt. ltd

Pradhan, R.S. (1986). *Management of working capital*. New Delhi: National book organization, publisher distributors

Pradhan, R.S. (1994). *Financial Management practices in Nepal*. New Delhi: Vikash publishing House Pvt. Ltd

Shrestha M.K. (1980). *Financial Management theory and practice*. T.U. Kathmandu: Curriculum development center

Stapit, A.B., Gautam H., Joshi P.R. and Dongol, P.M (2006). *Statistical Methods*. Kathmandu: Buddha Publication

Surya B. (2008). *Corporate Financial management*. Kathmandu: Asmita publication

Van Horn, Tames C. (2006). *Financial Management and Policy*. New Delhi: Prentice Hall of India Pvt. Ltd

Weston, J. Fred and Brigham, Eugene F. (1972). *Managerial Finance*. Newyork: Dryden press

Weston, J. Fred and Copeland, Thomas E. (1989). *Managerial finance*. Newyork: Dryden press

Wolf, H.K and Pant, P.R. (2004). *Social Science Research and Thesis Writing*. Kathmandu: Buddha publication

Publication, Report and Articles:

Bank of Kathmandu Ltd. *Annual report*. (FY 2007/08 to 2011/12)

Fisher Black and Myroon Scoles (1974). *The effects of dividend yield and dividend policy on common stock price and return*. Journal of financial economic

Gordan, Myron J. (1962). *Investment, Financing and Valuation of corporation*. Homewood III.Richard D. Irwin

Himalayan bank ltd. Annual report. (FY 2007/08 to 2011/12

Linter J. (1956). *Distribution of Income of corporations among Dividends, Retained earnings and Taxes*. American Economic Review 46.

Modigliani, F & Miller, M.H. (October 1961).*Dividend policy growth & the valuation of shares*. Journal of Business. 411-433
Nepal SBI bank Ltd. *Annual report*. (FY 2007/08 to 2011/12)
Shrestha, Manohar Krishna (1981). *Public Enterprises: have they dividend paying ability?* Publication: the Nepalese journal of public administration
Shrestha, Manohar Krishna (1992). *Shareholders democracy and Annual General Meeting feedback*. Portfolio analysis of Nepal. Kathmandu
Van Horn, James C. & Mc. Donald, John G. (1971). *Dividend policy and equity financing*. Journal of finance
Walter, J.E. (March 1966). *Dividend policies and common stock prices*. Journal of Finance.29-41

Previous Research Works:
Adhikari, Nabraj (19991). *Corporate dividend practice in Nepal*. An unpublished Master Degree thesis, T.U. central library, Kiritpur
Bhandari, Anjali (2009). *Dividend policy analysis of commercial banks of Nepal*. An unpublished Master Degree thesis, T.U., Kathmandu
Bhandari, Bina & Pokharel, Trilochan (2012).*Corporate dividend policy of commercial bank*. An unpublished Master Degree thesis. T.U. Kathmandu
Bhattrai, Mahim (2009).*Dividend practices of commercial banks and its impact on stock price*. An unpublished Master Degree thesis, Shanker Dev Campus Library, Kathmandu
Dhungel, Bhasker (2009). *A study on dividend policy of Everest bank Ltd and Bank of Kathmandu ltd*. An unpublished Master Degree thesis, T.U., Kathmandu
Koirala, Jeevan (2009). *Dividend Policy and it's practice in Nepal*. An unpublished Master Degree thesis. T.U. Kathmandu
Prasain, Punya Prasad (2010). *Impact of dividend on market price of share*. An unpublished Master Degree thesis. Shanker Dev Campus. Kathmandu
Pradhan, Reena (2010). *A comparative study on dividend policy of Himalayan Bank ltd. & Nepal investment bank ltd*. An unpublished Master Degree thesis. T.U. Kathmandu
Shrestha, Anjana (2011). *A study on dividend policy of HBL, EBL and NABIL bank*. An unpublished Master Degree thesis. T.U. Kathmandu
Yadav, Vijay K. (2007). *Dividend policy and it's impact on market price of stock*. An unpublished Master Degree thesis. Shanker Dev Campus. Kathmandu.

Websites:
www.bok.com.np
www.himalayanbank.com
www.nepalsbi.com.np
www.nrb.com.np
www.nepalstock.com
www.sebon.gov.np

APPENDICES

Appendix-1
Sample calculation of Mean, Standard Deviation And coefficient of variation

1.EPS of concerned bank

Year \ Bank	BOKL	HBL	SBI
2007/08	59.94	62.74	28.33
2008/09	54.68	61.90	36.18
2009/10	43.08	31.80	23.69
2010/2011	44.51	44.66	24.85
2011/2012	37.88	39.94	22.93

2. EPS of concerned bank

year \ Bank	BOKL	(BOKL-$\overline{BOKL}$)	(BOKL-$\overline{BOKL}$)^2	HBL	(HBL-$\overline{HBL}$)	(HBL-$\overline{HBL}$)^2	SBI	(SBI-$\overline{SBI}$)	(SBI-$\overline{SBI}$)^2
2007/08	59.94	11.922	142.134	62.74	14.532	211.179	28.33	1.134	1.286
2008/09	54.68	6.662	44.382	61.90	13.692	187.470	36.18	8.984	80.712
2009/10	43.08	-4.938	24.383	31.80	-16.408	269.222	23.69	-3.506	12.292
2010/2011	44.51	-3.508	12.306	44.66	-3.548	12.588	24.85	-2.346	5.504
2011/2012	37.88	-10.138	102.779	39.94	-8.268	68.359	22.93	-4.266	18.199
Total	240.09		$\sum$(BOKL-$\overline{BOKL}$)^2 = 325.984			$\sum$(HBL-$\overline{HBL}$)^2 = 748.818	135.98		$\sum$(SBI-$\overline{SBI}$)^2=117.993

Mean Calculation, Mean ($\bar{X}$) = $\frac{\sum x}{N}$

$\overline{BOKL} = \frac{\sum BOKL}{N} = \frac{240.09}{5}$ = 48.018

$\overline{HBL} = \frac{\sum HBL}{N} = \frac{241.04}{5}$= 48.208

$\overline{SBI} = \frac{\sum SBL}{N} = \frac{\sum 135.98}{5}$ = 27.196

S.D. (σ) = $\sqrt{\frac{\sum(X-\bar{X})^2}{N}}$

σ BOKL = $\sqrt{\frac{\sum(BOKL-\overline{BOKL})^2}{N}}$ σ HBL = $\sqrt{\frac{\sum(HBL-\overline{HBL})^2}{N}}$ σ SBI= $\sqrt{\frac{\sum(SBI-\overline{SBI})^2}{N}}$

= $\sqrt{\frac{325.984}{5}}$ = $\sqrt{\frac{748.818}{5}}$ = $\sqrt{\frac{117.993}{5}}$

= 8.074 = 12.238 = 4.858

Coefficient of variation (C.V) = $\frac{S.D}{\bar{X}}$ × 100

$C.V_{BOKL} = \frac{\sigma \text{ BOKL}}{\text{BOKL}} \times 100$ $C.V_{HBL} = \frac{\sigma \text{ HBL}}{\text{HBL}} \times 100$ $C.V_{SBI} = \frac{\sigma \text{ SBI}}{\text{SBI}} \times 100$

= $\frac{8.074}{48.018}$ × 100 = $\frac{12.238}{48.208}$ × 100 = $\frac{4.858}{27.196}$ × 100

= 16.815 = 25.386 = 17.863

Appendix -2

3. DPS of concerned bank

Bank / year	BOKL	(BOKL - $\overline{BOKL}$)	(BOKL-$\overline{BOKL}$)^2	HBL	(HBL - $\overline{HBL}$)	(HBL-$\overline{HBL}$)^2	SBI	(SBI-$\overline{SBI}$)	(SBI-$\overline{SBI}$)^2
2007/08	42.11	6	36	45.00	6.868	47.170	-	-	-
2008/09	47.37	11.26	126.788	43.56	5.428	29.463	42.11	18.457	34.660
2009/10	30.00	-6.11	37.332	36.84	-1.292	1.669	17.50	-6.153	37.860
2010/2011	34.75	-1.36	1.849	36.84	-1.292	1.669	17.50	-6.153	37.860
2011/2012	26.32	-9.79	95.844	28.42	-9.712	94.323	17.50	-6.153	37.860
Total	∑ BOKL =180.55		∑(BOKL-$\overline{BOKL}$)^2 = 297.813	∑ HBL =190.66		∑(HBL -$\overline{HBL}$)^2 = 174.294	∑ SBI =94.61		∑(SBI-$\overline{SBI}$)^2=454.24

Mean Calculation, Mean ($\bar{X}$) = $\frac{\sum x}{N}$

$\overline{BOKL} = \frac{\sum BOKL}{N} = \frac{180.55}{5}$ = 36

$\overline{HBL} = \frac{\sum HBL}{N} = \frac{190.66}{5}$= 38.132

$\overline{SBI} = \frac{\sum SBL}{N} = \frac{94.61}{4}$ = 23.653

S.D. (σ) = $\sqrt{\frac{\sum(X-\bar{X})^2}{N}}$

$\sigma_{BOKL} = \sqrt{\frac{\sum(BOKL-\overline{BOKL})^2}{N}}$ $\sigma_{HBL} = \sqrt{\frac{\sum(HBL-\overline{HBL})^2}{N}}$ $\sigma_{SBI} = \sqrt{\frac{\sum(SBI-\overline{SBI})^2}{N}}$

$= \sqrt{\frac{297.813}{5}}$ $= \sqrt{\frac{174.294}{5}}$ $= \sqrt{\frac{454.24}{4}}$

= 7.718 = 5.904 = 10.656

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

$C.V_{BOKL} = \frac{\sigma\ BOKL}{BOKL} \times 100$ $C.V_{HBL} = \frac{\sigma\ HBL}{HBL} \times 100$ $C.V_{SBI} = \frac{\sigma\ SBI}{SBI} \times 100$

$= \frac{7.718}{36.11} \times 100$ $= \frac{5.904}{38.13} \times 100$ $= \frac{10.656}{23.653} \times 100$

= 21.374 = 15.484 = 45.051

Appendix -3

4. Calculation of dividend payout rate(DPR)

Bank / year	BOKL			HBL			SBI		
	DPS	EPS	DPR= $\frac{DPS}{EPS}$	DPS	EPS	DPR= $\frac{DPS}{EPS}$	DPS	EPS	DPR= $\frac{DPS}{EPS}$
2007/08	42.11	59.94	70.254	45.00	62.74	71.725	-	28.33	-
2008/09	47.37	54.68	86.631	43.56	61.90	70.372	42.11	36.18	116.390
2009/10	30.00	43.08	69.638	36.84	31.80	115.631	17.50	23.69	73.871
2010/2011	34.75	44.51	78.072	36.84	44.66	82.490	17.50	24.85	70.423
2011/2012	26.32	37.88	69.483	28.42	39.94	71.157	17.50	22.93	76.319

5. Calculation of Mean, Standard deviation and CV of DPR of Concerned bank.

Bank / year	BOKL	(BOKL-$\overline{BOKL}$)	(BOKL-$\overline{BOKL}$)^2	HBL	(HBL-$\overline{HBL}$)	(HBL-$\overline{HBL}$)^2	SBI	(SBI-$\overline{SBI}$)	(SBI-$\overline{SBI}$)^2
2007/08	70.254	-4.562	20.812	71.725	-10.550	111.303	-	-	-
2008/09	86.631	11.815	139.594	70.372	-	141.68	116.39	32.13	1032.915

					11.903	1	0	9	
2009/10	69.638	-5.178	26.812	115.631	33.356	1112.623	73.871	-10.388	107.744
2010/2011	78.072	3.256	10.602	82.490	0.215	0.046	70.423	-13.828	191.214
2011/2012	69.483	-5.333	28.441	71.157	-11.118	123.610	76.319	-7.932	62.917
Total	$\sum$ BOKL =374.078		$\sum(BOKL-\overline{BOKL})^2$ = 226.261	$\sum$ HBL =411.375		$\sum(HBL-\overline{HBL})^2$ = 1489.263	$\sum$ SBI =337.003		$\sum(SBI-\overline{SBI})^2$=1394.790

Mean Calculation, Mean $(\bar{X}) = \frac{\sum x}{N}$

$$\overline{BOKL} = \frac{\sum BOKL}{N} = \frac{374.078}{5} = 74.816$$

$$\overline{HBL} = \frac{\sum HBL}{N} = \frac{411.375}{5} = 82.275$$

$$\overline{SBI} = \frac{\sum SBL}{N} = \frac{337.003}{4} = 84.251$$

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

$$\sigma_{BOKL} = \sqrt{\frac{\sum(BOKL-\overline{BOKL})^2}{N}} \qquad \sigma_{HBL} = \sqrt{\frac{\sum(HBL-\overline{HBL})^2}{N}} \qquad \sigma_{SBI} = \sqrt{\frac{\sum(SBI-\overline{SBI})^2}{N}}$$

$$= \sqrt{\frac{226.261}{5}} \qquad = \sqrt{\frac{1489.263}{5}} \qquad = \sqrt{\frac{1394.790}{4}}$$

$$= 6.727 \qquad = 17.258 \qquad = 18.673$$

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

$$C.V_{BOKL} = \frac{\sigma\ BOKL}{BOKL} \times 100 \qquad C.V_{HBL} = \frac{\sigma\ HBL}{HBL} \times 100 \qquad C.V_{SBI} = \frac{\sigma\ SBI}{SBI} \times 100$$

$$= \frac{6.727}{74.816} \times 100 \qquad = \frac{17.258}{82.275} \times 100 \qquad = \frac{18.673}{84.251} \times 100$$

$$= 8.991 \qquad = 20.976 \qquad = 22.164$$

Appendix -4

6. Calculation of earning yield ratio (EY)

Bank / year	BOKL			HBL			SBI		
	EPS	MPS	EY= $\frac{EPS}{MPS}$	EPS	MPS	EY= $\frac{EPS}{MPS}$	EPS	MPS	EY= $\frac{EPS}{MPS}$
2007/08	59.94	2350	2.551	62.74	1980	3.169	28.33	1511	1.875
2008/09	54.68	1825	2.996	61.90	1760	3.517	36.18	1900	1.904
2009/10	43.08	840	5.129	31.80	816	3.897	23.69	741	3.197
2010/2011	44.51	570	7.809	44.66	575	7.767	24.85	565	4.393
2011/2012	37.88	628	6.032	39.94	653	6.116	22.93	635	3.611

7. Calculation of Mean, Standard deviation and CV of earning yeild ratio of Concerned bank.

Bank / year	BOKL	(BOKL - $\overline{BOKL}$)	(BOKL-$\overline{BOKL}$)^2	HBL	(HBL - $\overline{HBL}$)	(HBL-$\overline{HBL}$)^2	SBI	(SBI - $\overline{SBI}$)	(SBI-$\overline{SBI}$)^2
2007/08	2.551	-2.352	5.532	3.169	-1.724	2.972	1.875	-1.112	-1.259
2008/09	2.996	-1.907	3.637	3.517	-1.376	1.893	1.904	-1.093	1.195
2009/10	5.129	0.226	0.051	3.897	-0.996	0.992	3.197	0.200	0.04
2010/2011	7.809	2.906	8.445	7.767	2.874	8.260	4.398	1.401	1.963
2011/2012	6.032	1.129	1.275	6.116	1.223	1.496	3.611	0.614	0.377
Total	∑ BOKL =24.517		∑(BOKL-$\overline{BOKL}$)^2 = 18.940	∑ HBL =24.466		∑(HBL -$\overline{HBL}$)^2 = 15.613	∑ SBI =14.985		∑(SBI-$\overline{SBI}$)^2=4.834

Mean Calculation, Mean ($\bar{X}$) = $\frac{\sum x}{N}$

$\overline{BOKL} = \frac{\sum BOKL}{N} = \frac{24.517}{5}$ = 4.903

$\overline{HBL} = \frac{\sum HBL}{N} = \frac{24.466}{5}$= 4.893

$\overline{SBI} = \frac{\sum SBL}{N} = \frac{14.985}{5}$ = 2.997

S.D. (σ) = $\sqrt{\frac{\sum(X-\bar{X})^2}{N}}$

$\sigma_{BOKL} = \sqrt{\frac{\sum(BOKL-\overline{BOKL})^2}{N}}$ $\sigma_{HBL} = \sqrt{\frac{\sum(HBL-\overline{HBL})^2}{N}}$ $\sigma_{SBI} = \sqrt{\frac{\sum(SBI-\overline{SBI})^2}{N}}$

$= \sqrt{\frac{18.940}{5}}$ $= \sqrt{\frac{15.613}{5}}$ $= \sqrt{\frac{4.834}{5}}$

= 1.946 = 1.767 =0.983

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

$C.V_{BOKL} = \frac{\sigma\ BOKL}{BOKL} \times 100$ $C.V_{HBL} = \frac{\sigma\ HBL}{HBL} \times 100$ $C.V_{SBI} = \frac{\sigma\ SBI}{SBI} \times 100$

$= \frac{1.946}{4.903} \times 100$ $= \frac{1.767}{4.893} \times 100$ $= \frac{0.983}{2.997} \times 100$

= 39.696 = 36.113 = 32.799

Appendix -5

8. Calculation of Dividend yield (DY)

Bank / year	BOKL			HBL			SBI		
	DPS	MPS	EY= $\frac{DPS}{MPS}$	DPS	MPS	EY= $\frac{DPS}{MPS}$	DPS	MPS	EY= $\frac{DPS}{MPS}$
2007/08	42.11	2350	1.792	45.00	1980	2.273	-	1511	-
2008/09	47.37	1825	2.596	43.56	1760	2.475	42.11	1900	2.216
2009/10	30.00	840	3.571	36.84	816	4.515	17.50	741	2.362
2010/2011	34.75	570	6.096	36.84	575	6.407	17.50	565	3.097
2011/2012	26.32	628	4.191	28.42	653	4.352	17.50	635	2.576

9. Calculation of Mean, Standard deviation and CV of DPR of Concerned bank.

Bank / year	BOKL	(BOKL - $\overline{BOKL}$)	(BOKL-$\overline{BOKL}$)^2	HBL	(HBL - $\overline{HBL}$)	(HBL-$\overline{HBL}$)^2	SBI	(SBI - $\overline{SBI}$)	(SBI-$\overline{SBI}$)^2
2007/08	1.792	-1.857	3.448	2.273	-1.731	2.996	-	-	-
2008/09	2.596	-1.053	1.109	2.475	-1.529	2.338	2.216	-0.392	0.154
2009/10	3.571	-0.078	0.006	4.515	0.511	0.261	2.362	-0.246	0.061
2010/2011	6.096	2.447	5.988	6.407	2.403	5.774	3.097	0.489	0.239
2011/2012	4.191	0.542	0.294	4.352	0.348	0.121	2.756	0.148	0.022
Total	$\sum$ BOKL =18.246		$\sum$(BOKL-$\overline{BOKL}$)^2 = 10.845	$\sum$ HBL =20.022		$\sum$(HBL-$\overline{HBL}$)^2 = 11.455	$\sum$ SBI =10.431		$\sum$(SBI-$\overline{SBI}$)^2=0.476

Mean Calculation, Mean ($\bar{X}$) = $\frac{\sum x}{N}$

$\overline{BOKL} = \frac{\sum BOKL}{N} = \frac{18.246}{5} = 3.649$

$\overline{HBL} = \frac{\sum HBL}{N} = \frac{20.022}{5} = 4.004$

$\overline{SBI} = \frac{\sum SBL}{N} = \frac{10.431}{4} = 2.608$

S.D. (σ) = $\sqrt{\frac{\sum (X-\bar{X})^2}{N}}$

$\sigma_{BOKL} = \sqrt{\frac{\sum (BOKL-\overline{BOKL})^2}{N}}$ $= \sqrt{\frac{10.845}{5}}$ $= 1.473$

$\sigma_{HBL} = \sqrt{\frac{\sum (HBL-\overline{HBL})^2}{N}}$ $= \sqrt{\frac{11.455}{5}}$ $= 1.514$

$\sigma_{SBI} = \sqrt{\frac{\sum (SBI-\overline{SBI})^2}{N}}$ $= \sqrt{\frac{0.476}{4}}$ $=0.345$

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

$C.V_{BOKL} = \frac{\sigma\ BOKL}{BOKL} \times 100$ $= \frac{1.473}{3.649} \times 100$ $= 40.367$

$C.V_{HBL} = \frac{\sigma\ HBL}{HBL} \times 100$ $= \frac{1.514}{4.004} \times 100$ $= 37.812$

$C.V_{SBI} = \frac{\sigma\ SBI}{SBI} \times 100$ $= \frac{0.345}{2.608} \times 100$ $= 13.229$

Appendix -6

10. Calculation of Mean, Standard deviation and CV of MPS.

Bank / year	BOKL	(BOKL-$\overline{BOKL}$)	(BOKL-$\overline{BOKL}$)^2	HBL	(HBL-$\overline{HBL}$)	(HBL-$\overline{HBL}$)^2	SBI	(SBI-$\overline{SBI}$)	(SBI-$\overline{SBI}$)^2
2007/08	2350	1107.40	1226334.760	1980	823.20	677658.240	1511	440.600	164128.360
2008/09	1825	582.40	339189.760	1760	603.20	363850.240	1900	829.60	688236.160
2009/10	840	-402.60	162086.760	816	-340.80	116144.640	741	-329.40	108504.360
2010/2011	570	-672.60	452390.760	575	-581.80	338491.240	565	-505.40	255429.160
2011/2012	628	-614.60	377733.160	653	-503.80	253814.440	635	-435.40	189573.160
Total	∑ BOK		∑(BOKL-$\overline{BOKL}$)^2 =	∑ HBL		∑(HBL-$\overline{HBL}$)^2 =	∑ SBI		∑(SBI-$\overline{SBI}$)^2=1435871

	L =6213		255773.20	=5784		1749958.80	=5352		.200

Mean Calculation, Mean $(\bar{X}) = \frac{\sum x}{N}$

$\overline{BOKL} = \frac{\sum BOKL}{N} = \frac{6213}{5} = 1242.60$

$\overline{HBL} = \frac{\sum HBL}{N} = \frac{5784}{5} = 1156.80$

$\overline{SBI} = \frac{\sum SBL}{N} = \frac{5352}{5}$ 1070.40

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

$\sigma_{BOKL} = \sqrt{\frac{\sum(BOKL-\overline{BOKL})^2}{N}}$

$= \sqrt{\frac{2557735.20}{5}}$

$= 715.225$

$\sigma_{HBL} = \sqrt{\frac{\sum(HBL-\overline{HBL})^2}{N}}$

$= \sqrt{\frac{1749958.80}{5}}$

$= 591.601$

$\sigma_{SBI} = \sqrt{\frac{\sum(SBI-\overline{SBI})^2}{N}}$

$= \sqrt{\frac{1435871.200}{5}}$

$=535.886$

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

$C.V_{BOKL} = \frac{\sigma\ BOKL}{BOKL} \times 100$

$= \frac{715.255}{1242.60} \times 100$

$=57.559$

$C.V_{HBL} = \frac{\sigma\ HBL}{HBL} \times 100$

$= \frac{591.601}{1156.80} \times 100$

$= 51.141$

$C.V_{SBI} = \frac{\sigma\ SBI}{SBI} \times 100$

$= \frac{535.886}{1070.40} \times 100$

$= 50.064$

Appendix -7

11. Calculation of MPS to BVPS ratio

Bank	BOKL			HBL			SBI		
year	MPS	BVPS	MPS to BPVS= $\frac{MPS}{BVPS}$	MPS	BVPS	MPS to BPVS= $\frac{MPS}{BVPS}$	MPS	BVPS	MPS to BPVS= $\frac{MPS}{BVPS}$
2007/08	2350	222.57	10.561	1980	247.95	7.985	1511	160.57	9.410
2008/09	1825	206.25	8.848	1760	256.52	6.861	1900	194.68	9.760
2009/10	840	175.40	4.789	816	226.79	3.598	741	147.61	5.020
2010/2011	570	179.13	3.182	575	199.77	2.878	565	153.51	3.681
2011/2012	628	168.36	3.730	653	193.00	3.383	635	152.66	4.160

12. Calculation of Mean, Standard deviation and CV of MPS to BVPS ratio

Bank / year	BOKL	(BOKL-$\overline{BOKL}$)	(BOKL-$\overline{BOKL}$)^2	HBL	(HBL-$\overline{HBL}$)	(HBL-$\overline{HBL}$)^2	SBI	(SBI-$\overline{SBI}$)	(SBI-$\overline{SBI}$)^2
2007/08	10.561	4.339	18.827	7.985	4.402	19.378	9.410	3.004	9.0124
2008/09	8.848	2.626	6.896	6.861	1.920	3.686	9.760	3.354	11.249
2009/10	4.789	-1.433	2.053	3.598	0.015	0	5.020	-1.386	1.921
2010/2011	3.182	-3.040	9.242	2.878	-0.705	0.497	3.681	-2.725	7.426
2011/2012	3.730	-2.492	6.210	3.383	-0.200	0.040	4.160	-2.246	5.045
Total	$\sum$ BOKL =31.110		$\sum$(BOKL-$\overline{BOKL}$)^2 = 43.228	$\sum$ HBL =24.705		$\sum$(HBL-$\overline{HBL}$)^2 = 23.601	$\sum$ SBI =32.031		$\sum$(SBI-$\overline{SBI}$)^2=34.667

Mean Calculation, Mean ($\bar{X}$) = $\frac{\sum x}{N}$

$\overline{BOKL} = \frac{\sum BOKL}{N} = \frac{31.110}{5} = 6.222$

$\overline{HBL} = \frac{\sum HBL}{N} = \frac{24.705}{5} = 4.941$

$\overline{SBI} = \frac{\sum SBL}{N} = \frac{32.031}{5} = 6.406$

S.D. (σ) = $\sqrt{\frac{\sum (X-\bar{X})^2}{N}}$

$\sigma_{\text{BOKL}} = \sqrt{\frac{\sum (BOKL-\overline{BOKL})^2}{N}}$ $\quad$ $\sigma_{\text{HBL}} = \sqrt{\frac{\sum (HBL-\overline{HBL})^2}{N}}$ $\quad$ $\sigma_{\text{SBI}} = \sqrt{\frac{\sum (SBI-\overline{SBI})^2}{N}}$

$= \sqrt{\frac{43.228}{5}}$ $\quad$ $= \sqrt{\frac{23.601}{5}}$ $\quad$ $= \sqrt{\frac{34.665}{5}}$

= 2.940 $\quad$ = 2.173 $\quad$ =2.633

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

$C.V_{\text{BOKL}} = \frac{\sigma \text{ BOKL}}{\text{BOKL}} \times 100$ $\quad$ $C.V_{\text{HBL}} = \frac{\sigma \text{ HBL}}{\text{HBL}} \times 100$ $\quad$ $C.V_{\text{SBI}} = \frac{\sigma \text{ SBI}}{\text{SBI}} \times 100$

$= \frac{2.940}{6.222} \times 100$ $\quad$ $= \frac{2.713}{4.941} \times 100$ $\quad$ $= \frac{2.633}{6.406} \times 100$

=47.252 = 43.979 = 41.102

Appendix -8

13. Calculation of Mean, Standard deviation and CV of net worth

Bank / year	BOKL	(BOKL-$\overline{BOKL}$)	(BOKL-$\overline{BOKL}$)^2	HBL	(HBL-$\overline{HBL}$)	(HBL-$\overline{HBL}$)^2	SBI	(SBI-$\overline{SBI}$)	(SBI-$\overline{SBI}$)^2
2007/08	222.51	92.180	8497.152	247.95	23.144	535.645	166.57	-6.636	44.036
2008/09	206.25	75.920	5763.846	256.52	31.714	1005.778	194.68	27.474	754.821
2009/10	175.40	45.070	2013.305	226.79	1.984	3.936	174.61	7.404	54.819
2010/2011	179.13	48.800	2381.44	199.77	-25.036	626.801	153.51	-13.696	187.580
2011/2012	168.36	38.030	1446.281	193.00	-31.806	1011.622	152.66	-14.546	211.586
Total	∑ BOKL =951.650		∑(BOKL-$\overline{BOKL}$)^2 = 30120.024	∑ HBL =1124.03		∑(HBL-$\overline{HBL}$)^2 = 31.83.781	∑ SBI =836.030		∑(SBI-$\overline{SBI}$)^2=1252.842

Mean Calculation, Mean ($\bar{X}$) = $\frac{\sum x}{N}$

$\overline{BOKL} = \frac{\sum BOKL}{N} = \frac{951.650}{5}$ = 130.330

$\overline{HBL} = \frac{\sum HBL}{N} = \frac{1124.03}{5}$= 224.806

$\overline{SBI} = \frac{\sum SBL}{N} = \frac{836.030}{5}$ = 167.206

S.D. (σ) = $\sqrt{\frac{\sum(X-\bar{X})^2}{N}}$

$\sigma_{BOKL} = \sqrt{\frac{\sum(BOKL-\overline{BOKL})^2}{N}}$ $\sigma_{HBL} = \sqrt{\frac{\sum(HBL-\overline{HBL})^2}{N}}$ $\sigma_{SBI} = \sqrt{\frac{\sum(SBI-\overline{SBI})^2}{N}}$

$= \sqrt{\frac{30120.024}{5}}$ $= \sqrt{\frac{3183.781}{5}}$ $= \sqrt{\frac{1252.842}{5}}$

= 77.614 = 25.234 =15.829

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

$C.V_{BOKL} = \frac{\sigma\ BOKL}{BOKL} \times 100$ $\quad$ $C.V_{HBL} = \frac{\sigma\ HBL}{HBL} \times 100$ $\quad$ $C.V_{SBI} = \frac{\sigma\ SBI}{SBI} \times 100$

$= \frac{77.614}{130.330} \times 100$ $\quad$ $= \frac{25.234}{224.806} \times 100$ $\quad$ $= \frac{15.829}{167.206} \times 100$

$= 59.552$ $\quad$ $= 11.225$ $\quad$ $= 9.467$

Appendix -9

14. Calculation of Mean, Standard deviation and CV of P/E ratio

Bank / year	BOKL	$(BOKL-\overline{BOKL})$	$(BOKL-\overline{BOKL})^2$	HBL	$(HBL-\overline{HBL})$	$(HBL-\overline{HBL})^2$	SBI	$(SBI-\overline{SBI})$	$(SBI-\overline{SBI})^2$
2007/08	39.21	14.920	222.606	31.56	8.584	73.685	53.34	15.828	250.526
2008/09	33.37	9.080	82.446	28.43	5.454	29.746	52.52	15.008	225.240
2009/10	19.50	-4.790	22.944	25.66	2.684	7.204	31.28	-6.232	38.838
2010/2011	12.81	-11.480	131.790	12.88	-10.096	101.929	22.73	-14.782	218.508
2011/2012	16.58	-7.710	59.44	16.35	-6.626	43.904	27.69	-9.822	96.472
Total	$\sum$ BOKL =121.450		$\sum(BOKL-\overline{BOKL})^2$ =519.230	$\sum$ HBL =114.880		$\sum(HBL-\overline{HBL})^2$ = 256.468	$\sum$ SBI =187.560		$\sum(SBI-\overline{SBI})^2$=829.584

Mean Calculation, Mean $(\bar{X}) = \frac{\sum x}{N}$

$\overline{BOKL} = \frac{\sum BOKL}{N} = \frac{121.450}{5} = 24.29$

$\overline{HBL} = \frac{\sum HBL}{N} = \frac{114.880}{5} = 22.976$

$\overline{SBI} = \frac{\sum SBL}{N} = \frac{187.560}{5} = 37.512$

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

$\sigma_{BOKL} = \sqrt{\frac{\sum(BOKL-\overline{BOKL})^2}{N}}$ $\quad$ $\sigma_{HBL} = \sqrt{\frac{\sum(HBL-\overline{HBL})^2}{N}}$ $\quad$ $\sigma_{SBI} = \sqrt{\frac{\sum(SBI-\overline{SBI})^2}{N}}$

$= \sqrt{\frac{519.230}{5}}$ $= \sqrt{\frac{256.468}{5}}$ $= \sqrt{\frac{829.584}{5}}$

= 10.190 = 7.162 =12.881

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

$C.V_{BOKL} = \frac{\sigma\ BOKL}{BOKL} \times 100$ $C.V_{HBL} = \frac{\sigma\ HBL}{HBL} \times 100$ $C.V_{SBI} = \frac{\sigma\ SBI}{SBI} \times 100$

$= \frac{10.190}{24.290} \times 100$ $= \frac{7.162}{22.976} \times 100$ $= \frac{12.881}{37.512} \times 100$

= 41.951 = 31.172 = 34.338

Appendix -10

15. Calculation of Correlation

(a) i. Calculation of Correlation between DPS and EPS of BOKL

Year	EPS(X)	DPS(Y)	X^2	Y^2	XY
2007/08	59.94	42.11	3592.804	1773.252	2524.073
2008/09	54.68	47.37	2989.902	2243.917	2590.192
2009/10	43.08	30	1855.886	900	1292.40
2010/2011	44.51	34.75	1981.140	1207.563	1546.723
2011/2012	37.88	26.32	1434.894	692.742	997.002
Total	$\sum X$=240.090	$\sum Y$=180.550	$\sum X^2$=11854.626	$\sum Y^2$=6817.474	$\sum XY$=8950.390

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

$$r = \frac{5\times8950.390 - 240.090\times180.550}{\sqrt{5\times11854.626 - (240.090)^2}\sqrt{5\times6817.474 - (180.550)^2}}$$

$$r = \frac{1403.701}{\sqrt{1629.922}\sqrt{1489.068}}$$

$$r = \frac{1403.701}{1557.904}$$

r = 0.901

$$P.E = \frac{1 - r^2}{\sqrt{n}} \times 0.6745$$

$$=\frac{1-0.901^2}{\sqrt{5}}\times 0.6745$$

$$= \frac{0.188}{2.236}\times 0.6745$$

$$= 0.084 \times 0.6745$$

$$= 0.057$$

$6 \times$ P.E = $6 \times 0.057 = 0.342$

r> 6.PE – significant correlation.

ii. Regression analysis between DPS and EPS of BOKL.

Mean($\overline{X}$) = $\frac{\sum X}{n} = \frac{240.090}{5} = 48.018$

Mean($\overline{Y}$) = $\frac{\sum Y}{n} = \frac{180.550}{5} = 36.110$

Dependent variable (Predictor) : DPS / say Y

Independent variable (Predictor) : EPS / say X

Regression equation Y on X is,

$$Y = a+bX$$

Where, a = regression constant

b = regression coefficient (slope of regression line)

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

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

$\sum XY = a\sum X + b\sum X^2$

Solving two normal equations we get,

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

$$= \frac{5\times 8950.390-240.090\times 180.550}{5\times 11854.626-(240.090)^2}$$

$$= 0.861$$

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

$$= 36.110 - 0.861\times 48.018$$

$$= -5.233$$

Standard error of the estimate,

$$SE_e = \sqrt{\frac{\sum Y^2 - a\sum Y - b\sum XY}{n-2}}$$

$$= \sqrt{\frac{6817.474-(-5.233)\times 180.550-0.861\times 8950.390}{5-2}}$$

$$= 4.251$$

$$T - value = \frac{r\sqrt{n-2}}{\sqrt{1-r^2}}$$

$$= \frac{0.901\sqrt{5-2}}{\sqrt{1-0.901^2}}$$

$$= 3.598$$

Appendix -11

b. i. Calculation of Correlation between DPS and EPS of HBL

Year	EPS(X)	DPS(Y)	X^2	Y^2	XY
2007/08	62.74	45.00	3936.308	2025	2823.30
2008/09	61.90	43.56	3831.610	1897.474	2696.364
2009/10	31.80	36.84	1011.240	1357.186	1171.512
2010/2011	44.66	36.84	1994.516	1357.186	1645.274
2011/2012	39.94	28.42	1595.204	807.696	11235.095
Total	$\sum X$=241.040	$\sum Y$=190.660	$\sum X^2$=12368.878	$\sum Y^2$=7444.542	$\sum XY$=9471.545

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

$$r = \frac{5\times 9471.545-241.040\times 190.660}{\sqrt{5\times 12368.878-(241.040)^2}\sqrt{5\times 7444.542-(190.660)^2}}$$

$$r = \frac{1401.039}{\sqrt{3744.108}\sqrt{871.474}}$$

$$r = \frac{1401.039}{1806.348}$$

$r = 0.776$

$$P.E = \frac{1-r^2}{\sqrt{n}} \times 0.6745$$

$$= \frac{1-0.766^2}{\sqrt{5}} \times 0.6745$$

$$= \frac{0.398}{2.236} \times 0.6745$$

$$= 0.120$$

$6 \times P.E = 6 \times 0.120 = 0.720$
$\therefore$ r> 6.PE. $\therefore$ the correlation is significant.

b. ii. Regression analysis between DPS and EPS of HBL.

$\text{Mean}(\bar{X}) = \frac{\sum X}{n} = \frac{241.040}{5} = 48.208$

$\text{Mean}(\bar{Y}) = \frac{\sum Y}{n} = \frac{190.660}{5} = 38.132$

Dependent variable (Predictor) : DPS / say Y
Independent variable (Predictor) : EPS / say X
Regression equation Y on X is,

$Y = a+bX$

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

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

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

$\sum XY = a\sum X + b\sum X^2$

Solving two normal equations we get,

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

$$= \frac{5 \times 9471.545 - 241.040 \times 190.660}{5 \times 12368.878 - (241.040)^2}$$

$$= 0.374$$

$$a = \overline{Y} - b\,\overline{X}$$
$$= 38.132 - 0.374 \times 48.208$$
$$= 20.102$$

Standard error of the estimate,

$$SE_e = \sqrt{\frac{\sum Y^2 - a\sum Y - b\sum XY}{n-2}}$$

$$= \sqrt{\frac{7444.542 - 20.102 \times 190.660 - 0.374 \times 9471.545}{5-2}}$$

$$= 4.814$$

$$T - \text{value} = \frac{r\sqrt{n-2}}{\sqrt{1-r^2}}$$

$$= \frac{0.776\sqrt{5-2}}{\sqrt{1-0.776^2}}$$

$$= 2.130$$

Appendix -12

c. i. Calculation of Correlation between DPS and EPS of SBI

Year	EPS(X)	DPS(Y)	X^2	Y^2	XY
2007/08	28.33	-	802.589	-	28.33
2008/09	36.18	42.11	1308.992	1773.252	1523.540
2009/10	23.69	17.50	561.216	306.250	414.575
2010/2011	24.85	17.50	617.523	306.250	434.875
2011/2012	22.93	17.50	525.785	306.250	401.275
Total	$\sum X$=135.980	$\sum Y$=94.610	$\sum X^2$=3816.105	$\sum Y^2$=2692.002	$\sum XY$=28023595

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

$$r = \frac{5 \times 28023595 - 135.980 \times 94.610}{\sqrt{5 \times 3816.105 - (135.980)^2}\sqrt{5 \times 692.002 - (94.610)^2}}$$

$$r = \frac{1147.907}{1630.990}$$

$r = 0.704$

$$P.E = \frac{1-r^2}{\sqrt{n}} \times 0.6745$$

$$= \frac{1-0.704^2}{\sqrt{5}} \times 0.6745$$

$$= 0.152$$

$6 \times P.E = 6 \times 0.152 = 0.912$

$\therefore$ $r < 6.PE$. $\therefore$ the correlation is insignificant.

c. ii. Regression analysis between DPS and EPS of SBI.

$$Mean(\overline{X}) = \frac{\sum X}{n} = \frac{135.980}{5} = 27.196$$

$$Mean(\overline{Y}) = \frac{\sum Y}{n} = \frac{94.610}{5} = 18.922$$

Dependent variable (Predictor) : DPS / say Y
Independent variable (Predictor) : EPS / say X
Regression equation Y on X is,

$$Y = a+bX$$

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

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

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

$\sum XY = a\sum X + b\sum X^2$

Solving two normal equations we get,

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

$$= \frac{5 \times 2802.595 - 135.980 \times 94.610}{5 \times 3816.105 - (135.980)^2}$$

$$= 1.946$$

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

$$= 18.92 - 1.946 \times 27.196$$

= -34.001

Standard error of the estimate,

$$SE_e = \sqrt{\frac{\sum Y^2 - a\sum Y - b\sum XY}{n-2}}$$

$$= \sqrt{\frac{2692.002-(-34.001)\times 94.610-1.946\times 2802.595}{5-2}}$$

= 12.315

$$T - value = \frac{r\sqrt{n-2}}{\sqrt{1-r^2}}$$

$$= \frac{0.704\sqrt{5-2}}{\sqrt{1-0.704^2}}$$

= 1.717

Appendix -13

d. i. Calculation of Correlation between EPS and MPS of BOKL

Year	EPS(X)	MPS(Y)	X^2	Y^2	XY
2007/08	59.94	2350	3592.804	5522500	140859
2008/09	54.68	1825	2989.902	3330625	99791
2009/10	43.08	840	1855.886	705600	36187.200
2010/2011	44.51	570	1981.140	324900	25370.70
2011/2012	37.88	628	1434.894	394384	23788.640
Total	$\sum X$= 240.090	$\sum Y$=6213.00	$\sum X^2$=11854.626	$\sum Y^2$=10278009	$\sum XY$=325996.540

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

$$r = \frac{5\times 325996.540-240.090\times 6213.00}{\sqrt{5\times 11854.626-(240.090)^2}\sqrt{5\times 692.002-(6213.00)^2}}$$

$$r = \frac{138303.530}{144376.390}$$

r = 0.958

P.E $= \frac{1-r^2}{\sqrt{n}} \times 0.6745$

$= \frac{1-0.958^2}{\sqrt{5}} \times 0.6745$

= 0.025

6 × P.E = 6 × 0.025 = 0.150

∴ r > 6.PE. ∴ the correlation is significant.

d. ii. Regression analysis between EPS and MPS of BOKL.

Mean($\overline{X}$) = $\frac{\sum X}{n} = \frac{240.090}{5}$ = 48.018

Mean($\overline{Y}$) = $\frac{\sum Y}{n} = \frac{6213.00}{5}$ = 1242.600

Dependent variable (Predictor) : MPS / say Y

Independent variable (Predictor) : EPS / say X

Regression equation Y on X is,

Y = a+bX

Where, a = regression constant

b = regression coefficient (slope of regression line)

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

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

$\sum XY = a\sum X + b\sum X^2$

Solving two normal equations we get,

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

$$= \frac{5 \times 325996.540 - 240.090 \times 6213.00}{5 \times 11854.626 - (240.090)^2}$$

$$= 84.853$$

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

= 1242.600– 84.853× 48.018

= -2831.871

Standard error of the estimate,

$$SE_e = \sqrt{\frac{\sum Y^2 - a\sum Y - b\sum XY}{n-2}}$$

$$= \sqrt{\frac{10278009 - (-2831.871)\times 6213 - 84.853\times 325996.540}{5-2}}$$

$$= 264.977$$

$$T - value = \frac{r\sqrt{n-2}}{\sqrt{1-r^2}}$$

$$= \frac{0.958\sqrt{5-2}}{\sqrt{1-0.958^2}}$$

$$= 5.780$$

Appendix -14

e. i. Calculation of Correlation between EPS and MPS of HBL

Year	EPS(X)	MPS(Y)	X^2	Y^2	XY
2007/08	62.74	1980	3936.308	3920400	124225.20
2008/09	61.90	1760	3831.610	3097600	108944
2009/10	31.80	816	1011.240	665856	25948.80
2010/2011	44.66	575	1994.516	330625	25679.50
2011/2012	39.94	653	1595.204	426409	26080.820
Total	$\sum X=$ 241.040	$\sum Y=5784$	$\sum X^2=12368.878$	$\sum Y^2=8440890$	$\sum XY=310878.320$

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

$$r = \frac{5\times 310878.320 - 241.040\times 5784}{\sqrt{5\times 12368.878 - (241.040)^2}\sqrt{5\times 8440890 - (5784)^2}}$$

$$r = \frac{160216.240}{180997.717}$$

$$r = 0.885$$

$$P.E = \frac{1-r^2}{\sqrt{n}}\times 0.6745$$

$=\frac{1-0.885^2}{\sqrt{5}}\times 0.6745$

$= 0.065$

6 × P.E = 6 × 0.065 = 0.393

∴ r > 6.PE. ∴ the correlation is significant.

e. ii. Regression analysis between EPS and MPS of HBL.

$\text{Mean}(\bar{X}) = \frac{\sum X}{n} = \frac{241.040}{5} = 48.208$

$\text{Mean}(\bar{Y}) = \frac{\sum Y}{n} = \frac{5784.00}{5} = 1156.800$

Dependent variable (Predictor) : MPS / say Y

Independent variable (Predictor) : EPS / say X

Regression equation Y on X is,

$Y = a+bX$

Where, a = regression constant

b = regression coefficient (slope of regression line)

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

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

$\sum XY = a\sum X + b\sum X^2$

Solving two normal equations we get,

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

$$= \frac{5\times 310878.320 - 241.040\times 5784.00}{5\times 123680.878 - (241.040)^2}$$

$$= 42.792$$

$a = \bar{Y} - b\,\bar{X}$

$= 1156.800 - 42.792\times 48.208$

$= -906.117$

Standard error of the estimate,

$$SE_e = \sqrt{\frac{\sum Y^2 - a\sum Y - b\sum XY}{n-2}}$$

$$= \sqrt{\frac{8440890-(-906.117)\times5784.00-42.792\times310878.320}{5-2}}$$

= 355.324

$$\text{T – value} = \frac{r\sqrt{n-2}}{\sqrt{1-r^2}}$$

$$= \frac{0.885\sqrt{5-2}}{\sqrt{1-0.885^2}}$$

= 3.290

Appendix -15

f. i. Calculation of Correlation between EPS and MPS of SBI

Year	EPS(X)	MPS(Y)	X^2	Y^2	XY
2007/08	28.33	1511	802.589	2283121	42806.630
2008/09	36.18	1900	1308.992	3610000	68742
2009/10	23.69	741	561.216	549081	17554.290
2010/2011	24.85	565	617.523	319225	14040.250
2011/2012	22.93	635	525.785	403225	14560.550
Total	$\sum X$= 135.980	$\sum Y$=5352	$\sum X^2$=3816.105	$\sum Y^2$=7164652	$\sum XY$=157703.720

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

$$r = \frac{5\times157703.720-135.980\times5352}{\sqrt{5\times3816.105-(135.980)^2}\sqrt{5\times7164652-(5352)^2}}$$

$$r = \frac{60753.640}{65081.247}$$

r = 0.934

P.E $= \frac{1-r^2}{\sqrt{n}} \times 0.6745$

$= \frac{1-0.934^2}{\sqrt{5}} \times 0.6745$

$= 0.039$

6 × P.E = 6 × 0.039 = 0.231

∴ r > 6.PE. ∴ the correlation is significant.

f. ii. Regression analysis between EPS and MPS of SBI.

Mean($\bar{X}$) $= \frac{\sum X}{n} = \frac{135.980}{5} = 27.196$

Mean($\bar{Y}$) $= \frac{\sum Y}{n} = \frac{5352}{5} = 1070.400$

Dependent variable (Predictor) : MPS / say Y

Independent variable (Predictor) : EPS / say X

Regression equation Y on X is,

$Y = a+bX$

Where, a = regression constant

b = regression coefficient (slope of regression line)

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

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

$\sum XY = a\sum X + b\sum X^2$

Solving two normal equations we get,

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

$$= \frac{5\times 157703.720 - 135.980\times 5352}{5\times 3816.105-(135.980)^2}$$

$$= 102.978$$

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

$= 1070.400 - 102.978\times 27.196$

$= -1730.190$

Standard error of the estimate,

$$SE_e = \sqrt{\frac{\sum Y^2 - a\sum Y - b\sum XY}{n-2}}$$

$$= \sqrt{\frac{7164652 - (-1730.190)\times 5352 - 102.978\times 157703.720}{5-2}}$$

$$= 248.069$$

$$T - \text{value} = \frac{r\sqrt{n-2}}{\sqrt{1-r^2}}$$

$$= \frac{0.934\sqrt{5-2}}{\sqrt{1-0.934^2}}$$

$$= 4.532$$

Appendix -16

g. i. Calculation of Correlation between DPS and MPS of BOKL

Year	DPS(X)	MPS(Y)	X^2	Y^2	XY
2007/08	42.11	2350	1773.252	5522500	98958.50
2008/09	47.37	1825	2243.917	3330625	86450.250
2009/10	30	840	900	705600	25200
2010/2011	34.75	570	1207.563	324900	19807.50
2011/2012	26.32	628	692.742	394384	16528.960
Total	$\sum X$= 180.550	$\sum Y$=621 3.00	$\sum X^2$=6817.474	$\sum Y^2$=1027800 9	$\sum XY$=246945. 210

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

$$r = \frac{5\times246945.210-180.550\times6213.00}{\sqrt{5\times6817.474-(180.550)^2}\sqrt{5\times10278009-(6213.00)^2}}$$

$$r = \frac{112968.900}{137997.131}$$

r = 0.819

$$P.E = \frac{1-r^2}{\sqrt{n}}\times0.6745$$

$$= \frac{1-0.819^2}{\sqrt{5}}\times0.6745$$

= 0.099

6 × P.E = 6 × 0.099 = 0.594

∴ r > 6.PE. ∴ the correlation is significant.

g. ii. Regression analysis between DPS and MPS of BOKL.

$$\text{Mean}(\bar{X}) = \frac{\sum X}{n} = \frac{180.550}{5} = 36.110$$

$$\text{Mean}(\bar{Y}) = \frac{\sum Y}{n} = \frac{6213}{5} = 1242.600$$

Dependent variable (Predictor) : MPS / say Y

Independent variable (Predictor) : DPS / say X

Regression equation Y on X is,

Y = a+bX

Where, a = regression constant

b = regression coefficient (slope of regression line)

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

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

$\sum XY = a\sum X + b\sum X^2$

Solving two normal equations we get,

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

$$= \frac{5\times246945.210-180.550\times6213}{5\times6817.474-(180.550)^2}$$

$= 75.866$

$a = \bar{Y} - b\,\bar{X}$
$= 1242.600 - 75.866 \times 36.110$
$= -1496.921$

Standard error of the estimate,

$$SE_e = \sqrt{\frac{\sum Y^2 - a\sum Y - b\sum XY}{n-2}}$$

$$= \sqrt{\frac{10278009 - (-1496.921) \times 6213 - 75.866 \times 246945.210}{5-2}}$$

$= 530.292$

$$T - \text{value} = \frac{r\sqrt{n-2}}{\sqrt{1-r^2}}$$

$$= \frac{0.819\sqrt{5-2}}{\sqrt{1-0.819^2}}$$

$= 2.472$

Appendix -17

h. i. Calculation of Correlation between DPS and MPS of HBL

Year	DPS(X)	MPS(Y)	X^2	Y^2	XY
2007/08	45.00	1980	2025	3920400	89100
2008/09	43.56	1760	1897.474	3097600	76665.60
2009/10	36.84	816	1357.186	665856	30061.440
2010/2011	36.84	575	1357.186	330625	21183
2011/2012	28.42	653	807.696	426409	17905.260
Total	$\sum X$= 190.660	$\sum Y$=5784.00	$\sum X^2$=7444.542	$\sum Y^2$=8440890	$\sum XY$=227715.30

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

$$r = \frac{5\times2227715.30 - 190.660\times5784.00}{\sqrt{5\times7444.542-(190.660)^2}\sqrt{5\times8440890-(5784.00)^2}}$$

$$r = \frac{35799.060}{87321.99}$$

$$r = 0.410$$

$$P.E = \frac{1-r^2}{\sqrt{n}}\times0.6745$$

$$= \frac{1-0.410^2}{\sqrt{5}}\times0.6745$$

$$= 0.251$$

6 × P.E = 6 × 0.251 = 1.506

∴ r < 6.PE. ∴ the correlation is insignificant.

h. ii. Regression analysis between DPS and MPS of HBL.

$$\text{Mean}(\overline{X}) = \frac{\sum X}{n} = \frac{190.660}{5} = 38.132$$

$$\text{Mean}(\overline{Y}) = \frac{\sum Y}{n} = \frac{5784.00}{5} = 1156.800$$

Dependent variable (Predictor) : MPS / say Y

Independent variable (Predictor) : DPS / say X

Regression equation Y on X is,

Y = a+bX

Where, a = regression constant

b = regression coefficient (slope of regression line)

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

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

$\sum XY = a\sum X + b\sum X^2$

Solving two normal equations we get,

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

$$= \frac{5\times227715130 - 190.660\times5784.00}{5\times7444.542-(190.660)^2}$$

$$= 41.079$$

$$a = \bar{Y} - b\,\bar{X}$$
$$= 1156.800 - 41.079 \times 38.132$$
$$= -409.624$$

Standard error of the estimate,

$$SE_e = \sqrt{\frac{\sum Y^2 - a\sum Y - b\sum XY}{n-2}}$$

$$= \sqrt{\frac{8440890 - (-409.624)\times 5784.00 - 41.079 \times 227715.30}{5-2}}$$

$$= 696.620$$

$$T - value = \frac{r\sqrt{n-2}}{\sqrt{1-r^2}}$$

$$= \frac{0.410\sqrt{5-2}}{\sqrt{1-0.410^2}}$$

$$= 0.779$$

Appendix -18

i. i. Calculation of Correlation between DPS and MPS of SBI

Year	DPS(X)	MPS(Y)	X^2	Y^2	XY
2007/08	-	1511	-	2283121	1511
2008/09	42.11	1900	1773.252	3610000	80009.00
2009/10	17.50	741	289	549081	12967.50
2010/2011	17.50	565	289	319225	9887.50
2011/2012	17.50	635	289	403225	11112.50
Total	$\sum X$=94.610	$\sum Y$=5352	$\sum X^2$=2640.252	$\sum Y^2$=7164652	$\sum XY$=115487.50

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

$$r = \frac{5\times 115487.50 - 94.610 \times 5352}{\sqrt{5\times 2640.252 - (94.610)^2}\sqrt{5\times 7164652 - (5352)^2}}$$

$$r = \frac{71084.780}{174681.872}$$

$r = 0.407$

$$P.E = \frac{1-r^2}{\sqrt{n}} \times 0.6745$$

$$= \frac{1-0.407^2}{\sqrt{5}} \times 0.6745$$

$$= 0.252$$

$6 \times P.E = 6 \times 0.251 = 1.510$

$\therefore$ $r < 6.PE$. $\therefore$ the correlation is insignificant.

i. ii. Regression analysis between DPS and MPS of SBI.

$$Mean(\overline{X}) = \frac{\sum X}{n} = \frac{94.610}{5} = 18.922$$

$$Mean(\overline{Y}) = \frac{\sum Y}{n} = \frac{5352}{5} = 1070.400$$

Dependent variable (Predictor) : MPS / say Y
Independent variable (Predictor) : DPS / say X
Regression equation Y on X is,

$$Y = a+bX$$

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

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

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

$\sum XY = a\sum X + b\sum X^2$

Solving two normal equations we get,

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

$$= \frac{5 \times 115487.50 - 94.610 \times 5352}{5 \times 2640.252 - (94.610)^2}$$

$$= 16.725$$

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

$$= 1070.400 - 16.725 \times 18.922$$

$= 753.930$

Standard error of the estimate,

$$SE_e = \sqrt{\frac{\sum Y^2 - a\sum Y - b\sum XY}{n-2}}$$

$$= \sqrt{\frac{7164652 - 753.930 \times 5352 - 16.725 \times 115487.50}{5-2}}$$

$= 631.952$

$$T - \text{value} = \frac{r\sqrt{n-2}}{\sqrt{1-r^2}}$$

$$= \frac{0.407\sqrt{5-2}}{\sqrt{1-0.407^2}}$$

$= 0.772$

Appendix -19

16. Multiple regression analysis

i. Regression analysis of MPS on DPS and EPS OF BOKL. Let X_1, X_2 and X_3 be the MPS, DPS and EPS respectively.

year	X_1	X_2	X_3	$X_1 . X_2$	$X_1 . X_3$	$X_2 . X_3$	X_2^2	X_3^2
2007/08	2350	42.11	59.94	98958.50	140859	2524.073	1773.252	3592.804
2008/09	1825	47.37	54.68	86450.250	86450.250	2590.192	2243.917	2989.902
2009/10	840	30	43.08	25200	36187.200	1292.400	900	1855.886
2010/2011	570	34.75	44.51	19807.50	25370.700	1546.723	1207.563	1981.140
2011/2012	628	26.32	37.88	16528.960	23788.640	977.002	692.742	1434.894
Total	$\sum X_1 = 6213$	$\sum X_2 = 180.550$	$\sum X_3 = 240.090$	$\sum X_1 . X_2 = 246945.210$	$\sum X_1 . X_3 = 312655.790$	$\sum X_2 . X_3 = 8950.390$	$\sum X_2^2 = 6817.474$	$\sum X_3^2 = 11854.626$

We have, the regression line of X_1 , X_2 and X_3 is

$X_1 = a + b_1X_2 + b_2X_3$ …………………….. eqn (i)

Here the value of a , b_1 and b_2 are estimated by solving the equation.

$\sum X_1 = na + b_1\sum X_2 + b_2\sum X_3$ …………………….. eqn (ii)

$\sum X_1 . X_2 = a\sum X_2 + b_1\sum X_2^2 + b_2\sum X_2 . X_3$ ……………. eqn (iii)

$\sum X_{1.} X_3 = a\sum X_3 + + b_1\sum X_2 X_3 + b_2\sum X_3^2$ ……………. eqn(iv)

Substituting the value from above table in eqn, we get

$6213 = 5a + 180.550\ b_1 + 240.090\ b_2$…………………….. eqn (v)

$246945.210 = 180.550a + 6817.474\ b_1 + 8950.390\ b_2$…………….. eqn (vi)

$312655.790 = 240.090a + 8950.390\ b_1 + 11854.626\ b_2$…………….. eqn (vii)

From eqn (v) and (vi) , multiply eqn(v) by 36.110 and subtract from eqn(vi)

$2243531.430 = \cancel{180.550a} + 6519.661\ b_1 + 8669.650\ b_2$

$246945.210 = \cancel{180.550a} + 6817.474\ b_1 + 8950.390\ b_2$

$- \quad - \quad - \quad -$

$- 22593.780 = -297.813\ b_1 – 280.740\ b_2$ ……………………… eqn (viii)

From Eqn (vi) and (vii) , multiply eqn(vi) by 1.330 and subtract from eqn(vii)

$328437.129 = \cancel{240.090a} + 9067.240\ b_1 + 11904.019\ b_2$

$312655.790 = \cancel{240.090a} + 8950.390\ b_1 + 11854.626\ b_2$

$- \quad - \quad - \quad -$

$15781.339 = 116.850\ b_1 + 49.393\ b_2$ …………………………eqn (ix)

Now multiply eqn(ix) by 5.683 and add both eqn(vii) and (ix)

$- 22593.780 = -297.813\ b_1 – \cancel{280.740\ b_2}$

$89685.350 = 664.059\ b_1 + \cancel{280.740\ b_2}$

$67091.570 = 336246\ b_1$

$b_1 = 183.187$

substituting the value of b_1 in eqn(ix) ,

$15781.339 = 116.850\ b_1 + 49.393\ b_2$

$15781.339 = 116.850 \times 183.187+ 49.393\ b_2$

$b_2 = -113.864$

now, substituting the value of b_1 and b_2 in eqn(v)

$6213 = 5a + 180.550\ b_1 + 240.090\ b_2$

$6213 = 5a + 180.550 \times 183.187 + 240.090 \times (-113.864)$

$a = 113.685$

ii. Regression analysis of MPS on DPS and EPS OF HBL. Let X_1, X_2 and X_3 be the MPS, DPS and EPS respectively.

year	X_1	X_2	X_3	$X_{1.} X_2$	$X_{1.} X_3$	$X_{2.} X_3$	X_2^2	X_3^2
2007/08	1980	45.00	62.74	89100	124225.2	2823.3	2025	3936.308
2008/09	1760	43.56	61.90	76665.6	108944	2696.364	1897.474	3813.61
2009/10	816	36.84	31.80	30061.424	25948.8	1171.512	1357.186	1011.24
2010/2011	575	36.84	44.66	21183	25679.5	1645.274	1375.186	1994.516
2011/2012	653	28.42	39.94	18558.26	26080.82	1135.095	807.696	1595.204

Total	$\sum X_1 = 5784$	$\sum X_2 = 190.66$	$\sum X_3 = 241.04$	$\sum X_{1.} X_2 = 235568.3$	$\sum X_{1.} X_3 = 310878.32$	$\sum X_{2.} X_3 = 9471.545$	$\sum X_2^2 = 7444.542$	$\sum X_3^2 = 12368.882$

We have, the regression line of X_1 , X_2 and X_3 is

$$X_1 = a + b_1X_2 + b_2X_3 \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \text{ eqn (i)}$$

Here the value of a , b_1 and b_2 are estimated by solving the equation.

$$\sum X_1 = na + b_1\sum X_2 + b_2\sum X_3 \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \text{ eqn (ii)}$$
$$\sum X_{1.} X_2 = a\sum X_2 + b_1\sum X_2^2 + b_2\sum X_{2.} X_3 \ldots\ldots\ldots\ldots\ldots \text{ eqn (iii)}$$
$$\sum X_{1.} X_3 = a\sum X_3 + + b_1\sum X_2 X_3 + b_2\sum X_3^2 \ldots\ldots\ldots\ldots\ldots \text{ eqn(iv)}$$

Substituting the value from above table in eqn, we get

$$5784 = 5a + 190.66\, b_1 + 241.04 b_2 \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \text{ eqn (v)}$$
$$235568.3 = 190.66\, a + 7444.542\, b_1 + 9471.545\, b_2 \ldots\ldots\ldots\ldots\ldots \text{ eqn (vi)}$$
$$310878.32 = 241.04a + 9471.545\, b_1 + 12368.882\, b_2 \ldots\ldots\ldots\ldots\ldots \text{ eqn (vii)}$$

From eqn (v) and (vi) , multiply eqn(v) by 38.132 and subtract from eqn(vi)

$$220555.488 = \cancel{190.66}a + 7270.247\, b_1 + 9191.337\, b_2$$
$$235568.3 \quad = \cancel{190.66}\, a + 7444.542\, b_1 + 9471.545\, b_2$$
$$- \qquad - \qquad - \qquad -$$
$$-15012.812 = -174.295\, b_1 - 280.208\, b_2$$
$$15012.812 = 174.295\, b_1 + 280.208\, b_2 \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \text{ eqn (viii)}$$

From Eqn (vi) and (vii) , multiply eqn(vi) by 1.2642 and subtract from eqn(vii)

$$297805.445 = \cancel{241.04}a + 9411.390\, b_1 + 11973.927\, b_2$$
$$310878.32 \quad = \cancel{241.04}a + 9471.545\, b_1 + 12368.882\, b_2$$
$$- \qquad - \qquad - \qquad -$$
$$-13072.875 = -60.155b_1 - 394.955b_2$$
$$13072.875 = 60.155b_1 + 394.955b_2 \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \text{eqn (ix)}$$

Now multiply eqn(ix) by 2.8974 and subtract from eqn(viii)

$$15012.812 = \cancel{174.295}\, b_1 + 280.208\, b_2$$
$$37877.348 = \cancel{174.295}b_1 + 1144.343\, b_2$$
$$- \qquad - \qquad -$$
$$-22864.536 = -864.135\, b_2$$
$$b_2 = 26.459$$

substituting the value of b_2 in eqn(viii) ,

$$15012.812 = 174.295\, b_1 + 280.208\, b_2$$
$$15012.812 = 174.295\, b_1 + 280.208 \times 26.459$$
$$b_1 = 43.498$$

now, substituting the value of b_1 and b_2 in eqn(v)

$5784 = 5a + 190.66\ b_1 + 241.04b_2$

$5784 = 5a + 190.66 \times 43.498 + 241.04 \times 26.459$

$a = -1781.214$

iii. Regression analysis of MPS on DPS and EPS OF SBI. Let X_1, X_2 and X_3 be the MPS, DPS and EPS respectively.

year	X_1	X_2	X_3	$X_1.X_2$	$X_1.X_3$	$X_2.X_3$	X_2^2	X_3^2
2007/08	1511	-	28.33	-	42806.03	-	-	802.589
2008/09	1900	42.11	36.18	8009	68742	1523.540	1773.252	1308.992
2009/10	741	17.50	23.69	12967.5	17554.29	414.575	306.25	561.216
2010/2011	565	17.50	24.85	9887.5	14040.25	434.875	306.25	617.522
2011/2012	635	17.50	22.93	11112.5	14560.55	401.275	306.25	525.785
Total	$\sum X_1 = 5352$	$\sum X_2 = 94.61$	$\sum X_3 = 135.98$	$\sum X_1.X_2 = 113976.5$	$\sum X_1.X_3 = 157703.12$	$\sum X_2.X_3 = 2774.265$	$\sum X_2^2 = 2692.002$	$\sum X_3^2 = 3816.104$

We have, the regression line of X_1 , X_2 and X_3 is

$X_1 = a + b_1X_2 + b_2X_3$ …………………….. eqn (i)

Here the value of a , b_1 and b_2 are estimated by solving the equation.

$\sum X_1 = na + b_1\sum X_2 + b_2\sum X_3$ …………………….. eqn (ii)

$\sum X_1.X_2 = a\sum X_2 + b_1\sum X_2^2 + b_2\sum X_2.X_3$ ……………. eqn (iii)

$\sum X_1.X_3 = a\sum X_3 + + b_1\sum X_2 X_3 + b_2\sum X_3^2$ ……………. eqn(iv)

Substituting the value from above table in eqn, we get

$5352 = 5a + 94.61b_1 + 135.98b_2$…………………….. eqn (v)

$113976.5 = 94.61a + 2692.002\ b_1 + 2774.265\ b_2$…………….. eqn (vi)

$157703.12 = 135.98a + 2774.265b_1 + 3816.104\ b_2$…………….. eqn (vii)

From eqn (v) and (vi) , multiply eqn(v) by 18.922 and subtract from eqn(vi)

$101270.544 = \cancel{94.61}a + 1790.210\ b_1 + 2573.014\ b_2$

$113976.5 \quad = \cancel{94.61}a + 2692.002\ b_1 + 2774.265\ b_2$

$- \qquad - \qquad - \qquad -$

$-12705.956 = -901.792\ b_1 - 201.255\ b_2$

$12705.956 = 901.792\ b_1 + 201.255\ b_2$……………………… eqn (viii)

From Eqn (vi) and (vii) , multiply eqn(vi) by 1.4373 and subtract from eqn(vii)

$163818.424 = \cancel{135.98}a + 3869.214\ b_1 + 3987.451\ b_2$

$157703.12 \quad = \cancel{135.98}a + 2774.265b_1 + 3816.104\ b_2$

$$\underline{\;-\qquad\qquad -\qquad\qquad -\qquad\qquad -\qquad\qquad\qquad}$$
$6115.304 = 1094.949\ b_1 + 171.347\ b_2$ ……………………………eqn (ix)

Now multiply eqn(vii) by 1.214 and subtract from eqn(ix)

$15425.031 = 10\cancel{94}.949\ b_1 + 244.319\ b_2$

$6115.304 = 109\cancel{4.94}9\ b_1 + 171.347\ b_2$

$$\underline{\;-\qquad\qquad -\qquad\qquad -\qquad\qquad\qquad}$$
$9309.727 = 72.972\ b_2$

$b_2 = 127.579$

substituting the value of b_2 in eqn(viii) ,

$12705.956 = 901.792\ b_1 + 201.255\ b_2$

$12705.956 = 901.792\ b_1 + 201.255 \times 127.579$

$b_1 = -14.382$

now, substituting the value of b_1 and b_2 in eqn(v)

$5352 = 5a + 94.61b_1 + 135.98b_2$

$5352 = 5a + 94.61\times(-14.382) + 135.98\times 127.579$

$a = -2127.102$

Appendix -20

17. Testing of Hypothesis

1. Let X_1, X_2 and X_3 be the EPS of BOKL, HBL and SBI bank respectively.

Year	X_1	X_2	X_3
2007/08	59.94	62.74	28.33
2008/09	54.68	61.90	36.18
2009/10	43.08	30.80	23.69
2010/2011	44.51	44.66	24.85
2011/2012	37.88	39.94	22.93
Total	240.090	241.040	135.98

Now,

T = sum of all observation

= 240.90+241.040+135.98

= 617.110

Correction factor (C.P) $= \frac{T^2}{N} = \frac{617.110^2}{15} = 25388.317$

TSS = total sum of square

$= 59.94^2 + 54.64^2 + 43.08^2 + 44.51^2 + 37.88^2 + 62.74^2 + 61.90^2 + 30.80^2 + 44.60^2 + 39.94^2 + 28.33^2 + 36.18^2 + 23.69^2 + 24.85^2 + 22.93^2$

$= 28039.609$

SSC = Sum of square due to column

$= \frac{240.090^2}{5} + \frac{241.040^2}{5} + \frac{135.98^2}{5} - \frac{T^2}{N}$

= 115.28.642 + 11620.056 + 3698.112 – 25388.317
= 1458.493

SSE = Sum of square due to error
= TSS - SSC
= 28039.609- 1458.493
= 26581.116

Appendix -21

2. Let $X_{1,}$ X_2 and X_3 be the DY of BOKL, HBL and SBI bank respectively.

Year	X_1	X_2	X_3
2007/08	1.792	2.273	-
2008/09	2.596	2.475	2.216
2009/10	3.571	4.515	2.362
2010/2011	6.096	6.407	3.097
2011/2012	4.191	4.352	2.756
Total	18.246	20.022	10.431

Now,

T = sum of all observation
= 18.246 + 20.022 + 10.431
= 48.699

Correction factor (C.P) = $\frac{T^2}{N} = \frac{48.699^2}{15}$ = 169.399

TSS = total sum of square
= $1.792^2 + 2.596^2 + 3.571^2 + 6.096^2 + 40191^2 + 2.273^2 + 2.475^2 + 4.515^2 + 6.407^2 + 4.352^2 + 2.216^2 + 2.362^2 + 3.097^2 + 2.756^2$
= 196.772

SSC = Sum of square due to column
= $\frac{18.246^2}{5} + \frac{20.022^2}{5} + \frac{10.431^2}{4} - \frac{T^2}{N}$
= 66.583 + 80.176 + 27.201– 169.399
= 4.561

SSE = Sum of square due to error
= TSS - SSC
= 196.772- 4.561
= 192.211

Appendix -22

3. Let $X_{1,}$ X_2 and X_3 be the DPR of BOKL, HBL and SBI bank respectively.

Year	X_1	X_2	X_3

2007/08	70.254	41.425	-
2008/09	86.631	70.372	116.390
2009/10	69.638	115.631	73.871
2010/2011	78.072	82.490	70.423
2011/2012	69.483	71.157	76.319
Total	374.078	411.375	337.003

Now,

T = sum of all observation
= 37.078 + 411.375 + 337.003
= 1122.456

Correction factor (C.P) = $\frac{T^2}{N} = \frac{1122.456^2}{14}$ = 89993.391

TSS = total sum of square
= $70.254^2 + 86.631^2 + 69.638^2 + 78.072^2 + 69.483^2 + 41.425^2 + 70.372^2 + 115.631^2 + 82.490^2 + 71.157^2 + 116.390^2 + 73.871^2 + 70.423^2 + 76.319^2$
= 93335.817

SSC = Sum of square due to column
= $\frac{374.078^2}{5} + \frac{411.375^2}{5} + \frac{337.003^2}{4} - \frac{T^2}{N}$
= 27986.870 + 33845.878 + 28392.720 -89993.91
= 232.113

SSE = Sum of square due to error
= TSS - SSC
= 93335.817- 232.113
= 93103.704

Appendix -23

4. Let X_1, X_2 and X_3 be the DPS of BOKL, HBL and SBI bank respectively.

Year	X_1	X_2	X_3
2007/08	42.11	45.00	-
2008/09	47.37	43.56	42.11
2009/10	30.00	36.84	17.50
2010/2011	34.75	36.84	17.50
2011/2012	26.32	28.42	17.50
Total	180.55	190.66	94.61

Now,

T = sum of all observation
= 180.55+190.66+94.61
= 465.82

Correction factor (C.P) = $\frac{T^2}{N}$ = $\frac{465.82}{14}$ = 15499.162

TSS = total sum of square

= $42.11^2 + 47.37^2 + 30.00^2 + 34.75^2 + 26.32^2 + 45.00^2 + 43.56^2 + 36.84^2 + 36.84^2$
$+28.42^2 + 42.11^2 + 17.50^2 + 17.50^2 + 17.50^2$

= 16954.017

SSC = Sum of square due to column

$= \frac{180.55^2}{5} + \frac{190.66^2}{5} + \frac{94.61^2}{4} - \frac{T^2}{N}$

= 6519.660 +7270.247 + 2237.763 – 15499.162

= 528.508

SSE = Sum of square due to error

= TSS - SSC

= 16954.017 – 582.508

= 16425.509