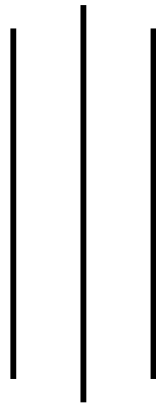


PROFIT PLANNING OF COMMERCIAL BANKS IN NEPAL

(A Comparative Study on Profit Planning of Bank of Kathmandu Ltd.,
NMB Bank Ltd. And Nepal Credit & Commerce Bank Ltd.)



Submitted By:

SRIJANA KHANAL

Shanker Dev Campus

T.U. Registration No: 36460-95

Campus Roll No: 1643/063

2nd Year Exam roll No: 2535

Submitted to:

Office of the Dean

Faculty of Management

Tribhuvan University

In partial fulfillment of the requirement for the Master's Degree of
Business Studies (M.B.S)

Kathmandu, Nepal

July, 2013

RECOMMENDATION

This is to certify that the thesis:

Submitted by

Srijana Khanal

Entitled

“PROFIT PLANNING OF COMMERCIAL BANKS IN NEPAL”

(A Comparative Study on Profit Planning of Bank of Kathmandu Ltd.,
NMB Bank Ltd. And Nepal Credit & Commerce Bank Ltd.)

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

.....
Asso. Prof. Prakash S.Pradhan (Thesis Supervisor)	Prof.Dr. Kamal Deep Dhakal Head, Research Department	Asso. Prof. Prakash S.Pradhan (Campus Chief)

VIVA VOCE SHEET

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

Srijana Khanal

Entitled

“PROFIT PLANNING OF COMMERCIAL BANKS IN NEPAL”

(A Comparative Study on Profit Planning of Bank of Kathmandu Ltd.,
NMB Bank Ltd. And Nepal Credit & Commerce Bank Ltd.)

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
Master's Degree in Business Studies (M.B.S.)

Viva Voce Committee

Head of Research Department:

Member (Thesis Supervisor):

Member (External Expert):

Date :- / /

DECLARATION

I hereby declare that the work reported in this thesis entitled "**Profit Planning of Commercial Banks in Nepal (A Comparative Study on Profit Planning of Bank of Kathmandu Ltd., NMB Bank Ltd. And Nepal Credit & Commerce Bank Ltd.)**" submitted to Shanker Dev campus, Faculty of Management, Tribhuvan University, is my original work done in the form of partial fulfillment of the requirements of the Master's Degree in Business Studies (MBS) under the supervision of Asso. Prof. Prakash Singh Pradhan, Shanker Dev Campus, Tribhuvan University.

Date:

.....

Srijana Khanal

Researcher

T.U.Registration No:36460-95

Shanker Dev Campus

ACKNOWLEDGEMENTS

I have prepared this thesis as the partial fulfillment of the MBS degree of Tribhuvan University. I have prepared this thesis with full sincerity and honesty. Many teachers, friends and family members supported me while completing this research work. So I would like to share the credit of my success with all of them. I would like to express my cordial gratitude to all of my teachers, who taught me at different levels. I would like to express my sincere thanks to my thesis supervisor Asso. Prof. Prakash Singh Pradhan who is also the campus chief of Shanker Dev Campus. His valuable suggestions and guidance from the beginning to the end were indeed very appreciable. I would also like to express my gratitude to all other members of Shanker Dev Campus, particularly staffs from MBS department and the campus library. Last but not the least, my sincere thanks goes to my husband for his constant encouragement and support.

.....
Srijana Khanal

Researcher

TABLE OF CONTENTS

Recommendation	
Viva - Voce Sheet	
Declaration	
Acknowledgement	
Table of Contents	
List of Tables	
List of Figure	
Abbreviations	

CHAPTER 1: INTRODUCTION **1-6**

1.1	General Background	1
1.2	Statement of Problem	3
1.3	Objectives of the Study	4
1.4	Focus & Significances of the Study	4
1.5	Limitation of the Study	5
1.6	Organization of the Study	5

CHAPTER 2: REVIEW OF LITERATURE **7-46**

2.1	Conceptual Frame Work	7
2.1.1	Concept of Profit Planning	7
2.1.2	Concept of Profit	8
2.1.3	Concept of Planning	9
2.1.4	Types of Planning	11
2.1.5	Role of Forecasting in planning	13
2.1.6	Planning Vs forecasting	13
2.1.7	Purpose of Profit Planning	14
2.1.8	Long Range and Short Range Profit Plan	15
2.1.9	Budgeting and Budget	16

2.1.10	Budgeting; As a device of Profit plan	17
2.1.11	Essential of an Effective Budgeting	18
2.1.12	Fundamental of PPC	20
2.1.13	Profit Planning and Control Process	20
2.1.14	Basic Assumptions and Limitations of Profit Plan	25
2.1.15	Development of Profit Plan	25
2.1.16	Resources Mobilization Plan or Budget	26
2.1.17	Resources Deployment Plan or Budget	27
2.1.18	Planning for Non-Funded Business Activities	28
2.1.19	Implementation of the Profit Plan	31
2.1.20	Performance Reports	32
2.1.21	Concepts of Commercial Banks	34
2.1.22	Evolution of Commercial Banks	35
2.1.23	Role of Commercial Banks in the Development of Economy	38
2.2	Review of Previous Studies	39
2.3	Research Gap	46

CHAPTER 3: RESEARCH METHODOLOGY **47-50**

3.1	Research Design	47
3.2	Population and Sample	47
3.3	Data Collection Procedures and Sources of Data	48
3.4	Research Variables	48
3.5	Analysis of Data	48
3.6	Statistical Tools	48
3.6.1	Arithmetic Mean Average	48
3.6.2	Multiple Bar -Diagram and Graphs	49
3.6.3	Percentage	49
3.6.4	Co-efficient of Correlation (r)	49
3.6.5	Regression Analysis	50
3.6.6	Standard Deviation	50
3.6.7	Coefficient of Variation	50

CHAPTER 4: PRESENTATION AND ANALYSIS OF DATA	51-110
4.1 Financial Analysis of Commercial Bank	51
4.1.1 Liquidity Ratio	51
4.1.2 Asset Management Ratio	56
4.1.3 Profitability Ratio	63
4.1.4 Risk Ratio	66
4.1.5 Growth Ratio	69
4.2 Statistical tools	73
4.2.1 Trend Analysis	73
4.2.2 Co-efficient of Correlation Analysis	79
4.2.3 Test of Hypothesis	87
4.2.4 Regression Analysis	101
4.3 Major Findings of the Study	103
CHAPTER -V: SUMMARY, CONCLUSION AND RECOMMENDATIONS	(111-115)
5.1 Summary	111
5.2 Conclusions	112
5.3 Recommendations	113

Bibliography

Appendix

LIST OF TABLES

Table No.	Title	Page No.
4.1 :	Current Ratio	52
4.2 :	Cash and Bank Balance Deposit Ratio	52
4.3 :	Cash and Bank Balance Assets Ratio	53
4.4 :	Investment on Government Securities to Current Assets Ratio	54
4.5 :	Loans and Advances to Current Assets Ratio	55
4.6 :	Loans and Advances to Total Deposit Ratio	56
4.7 :	Total Investment and Total Deposit Ratio	57
4.8 :	Loan and Advances to Working fund Ratio	59
4.9 :	Investment on Government Securities to Total working fund Ratio	59
4.10 :	Investment of shares & Debenture to Total working Fund Ratio	61
4.11 :	Total OBS Operation to Loan and Advances Ratio	61
4.12 :	Loan Loss Ratio	62
4.13 :	Return on Loan & Advances Ratio	63
4.14 :	Return on Total Working Fund Ratio	64
4.15 :	Total Interest earned to Total outside Assets Ratio	65
4.16 :	Total Interest earned to Total working Fund Ratio	65
4.17 :	Total Interest Paid to Total working Fund Ratio	66
4.18 :	Credit Risk Ratio	67
4.19 :	Liquidity Risk Ratio	68
4.20 :	Capital Risk Ratio	69
4.21 :	Growth Ratio of Total Deposit	70
4.22 :	Growth Ratio of Loan & Advances	71
4.23 :	Growth Ratio of Total Investment	72
4.24 :	Growth Ratio of Total Net Profit	73

4.25 : Trend Value of Total Deposits	74
4.26 : Trend Value of Loan & Advances	75
4.27 : Trend Values of Total Investment	77
4.28 : Trend Value of Net Profit	78
4.29 : Coefficient of Correlation between Deposits and Loan Advances	80
4.30 : Coefficient of Correlation between Deposit and Total Investment	81
4.31 : Coefficient of Correlation between outside Assets and Net Profit	82
4.32 : Coefficient of Correlation between Deposit and Net Profit	83
4.33 : Coefficient of Correlation between Deposit & Interest earned	84
4.34 : Coefficient of Correlation between Loans and Advances & Interest Paid	85
4.35 : Coefficient of Correlation between Total working Fund & Net profit	86
4.36 : Hypothesis Test on Loans & Advances to Total Deposit Ratio	87
4.37 : Hypothesis Test on Total Investment to Total Deposit Ratio	90
4.38 : Hypothesis Test of Investment of Government Securities to Current Assets Ratio	92
4.39 : Hypothesis Test of Loans & Advances to Current Assets Ratio	94
4.40 : Hypothesis Test of Return on Loans & Advances Ratio	97
4.41 : Hypothesis Test of Total Interest earned to Total Outside Assets Ratio	99
4.42 : Simple Regression Analysis of Net Profit and Total working Fund Ratio	102
4.43 : Simple Regression Analysis of Net Profit & Total Deposit	103

LIST OF FIGURES

Figure No.	Title	Page No.
4.1	Loans & Advances to current assets ratio of BOK, NMB & NCC	56
4.2	Total investment to total deposit ratio of BOK, NMB & NCC	58
4.3	Investment of government securities to total working fund ratio of BOK, NMB & NCC	60
4.4	Growth ratio of total deposit of BOK, NMB & NCC	70
4.5	Growth ratio of loan & advances of BOK, NMB & NCC	71
4.6	Growth ratio of total investment of BOK, NMB & NCC	72
4.7	Growth ratio of total net profit of BOK, NMB & NCC	73
4.8	Trend value of total deposit of BOK, NMB & NCC	74
4.9	Trend value of loans & advances of BOK, NMB & NCC	76
4.10	Trend value of total investment of BOK, NMB & NCC	77
4.11	Trend value of net profit of BOK, NMB & NCC	79

ABBREVIATIONS

BOK	Bank of Kathmandu
C.V.	Coefficient of Variation
CB	Commercial Bank
COD	Cost of deposit
FY	Fiscal Year
GNP	Gross National Product
JVBs	Joint Venture Banks
LDO	Loan, Discount and Overdraft
NCC	Nepal Credit & Commerce Bank Limited
NO.	Number
NRB	Nepal Rastra Bank
NMB	NMB Bank Limited
OBS	Off-Balance Sheet
P.E.	Probable Error
PPC	Profit Planning and Control
RBB	Rastriya Banijya Bank
ROA	Return on Assets
Rs	Rupees
S.D.	Standard Deviation
T.U.	Tribhuvan University

CHAPTER-I

INTRODUCTION

1.1 Background of the Study

Financial activities play a major role in the process of economic development of a country. In Nepal financial institutions like commercial banks, development bank and finance companies. The current state of Nepalese economy is characterized by unutilized natural sources, subsistence agriculture, deficit trade, mass poverty, illiteracy and so forth. Agriculture is the main occupation of most of the village population but it has not been commercialized yet. It is one of the richest countries in the world in terms of water resources. The water resources available here have remained practically unutilized. Nepal remains as one of the least developed countries in the world. The country's per capita income (\$735) is the lowest in South Asia. At this juncture arrangement and mobilization of financial resources would certainly play a major role.

Existence of strong Financial Institutions serves as a basis for happening of financial activities, the frequency and scale of financial activities determines the profitability of Financial Institution and profitability is the basic measure for sustainability of these Institutions.

Investments in productive sectors increase the economic activities. The unutilized financial resources should be diverted towards productive sector in order to increase the economic activities. To develop the Nepalese economy, the financial institutions should be established. The participations of the private sectors play even more important role for the economic development. Hence, various banks, insurance companies, financial companies etc. have been established in the private and government sector. However the country has not been able to achieve the desired economic progress so far which is due to the poor capital market condition.

Profit planning and control mechanism is being widely practiced in manufacturing industries; it is relatively new in non-manufacturing/service, industries/sectors. However this concept is equally applicable to any kind of business concerned for the best utilization of the scarce resources.

Every company or institution is established based on the definite goals and objectives. The company performs its tasks according to its objectives. There are mainly two types of institutions; profit oriented and service-oriented. For profit oriented institutions, profit is the backbone of the business which not only keeps it alive but also assures the future and makes it sound. Profit planning is an important tool of the firm to achieve the objectives. "Profit do not just happen, profits are managed" (Lynch and Williamson, 1989: 125). So, to manage the profit, the management should follow various processes of profit planning because the management process and profit planning and control are interrelated to each other.

Planning is the first essence of a management and all other functions are performed with the framework of planning. Planning means deciding in advance what is to be done in future. Planning starts from forecasting and predetermination of future events. The main objective of planning in business is to increase the chance of making profit. The budget is the primary planning operation document committed to performance. In this sense budget is also called a profit planning.

The term comprehensive profit planning and control is viewed as a process designed to help management effectively perform significant phases of the planning and control functions. The PPC model involves (Welsch,, et al., 2006: 30).

- 1) Development and application of broad and long range objectives of the enterprise.
- 2) The specification of enterprise goals.
- 3) Development of a strategic long range profit plan developed in broad terms.

- 4) Specification of a tactical short range profit plan detailed by assigned responsibilities (divisions, departments, product).
- 5) Establishment of a system of periodic performance reports detailed by assigned responsibilities, and
- 6) Development of follow-up procedures.

As like in other profit oriented organizations, a commercial bank has also to make reasonable profit for its survival. Most of the commercial banks are formed as a company with joint stock and the shares being traded at stock exchanges. Therefore, profit made by them is the important parameter for measurement of their effectiveness & efficiency.

1.2 Statement of the Problem

Profit planning tool is a newly developed concept in the business organization. By proper profit planning a business can be managed more effectively and efficiently. Profit planning is the vital tool which directs the organization towards achieving profit. Profit is the very basic primary short term and long term objectives of every business organization. Increasing ratio of profit is a good symbol of organization. By nature, profit is a yard stick of managerial efficiency.

Every financial institution, including a commercial bank must make profit out of its operations for its survival and fulfillment of the responsibilities assigned. Major activities of a commercial bank comprise mobilization of resources, which involves cost, and profitable deployment of those resources, which generates income. The different interest income over the interest cost, which is popularly called as interest margin, can be considered as the contribution margin in the profit of the bank. The bank attempts to compensate the other operational expenses by generating other income out of non-fund based business activities of the bank.

The present study aims to analyze and examines the application of PPC tool in the commercial banks taking a case of Bank of Kathmandu Ltd., NMB Bank

Ltd. and Nepal Credit & Commerce Bank Ltd. In this ground, the study deals with the following issues.

- What is the relationship between investment, loan and advances with total deposit, net profit and outside assets?
- How properly the collected fund has been used?
- What is the profitability position of the banks?
- What is the trend position of banks in terms of deposits collection and net profit?
- What is the effect of investment decision on profitability position of the banks?
- Is there significant relationship between loan and advances, total interest earned to total outside assets etc?

1.3 Objectives of the Study

The basic objectives of the study are to analysis the profit planning policy of commercial banks with reference to Bank of Kathmandu Ltd., NMB Bank Ltd. and Nepal Credit & Commerce bank Ltd. Specific objectives of the study are:

- To find out the relationships between total investment, loan and advances, deposit, net profit and outside assets.
- To identify the investment priority sectors of Commercial Banks.
- To assess the impact of investment on profitability.
- To analyze and forecast the trend and structure of deposit utilization and its projection for five years of Commercial Banks.
- To provide suggestions and possible guidelines to improve investment policy and its problems.

1.4 Significance of the Study

Profit is the backbone of any organization because the continuity or survival of the each and every organization depends upon the earning capacity of that organization. This study is concerned with the profit planning in the

commercial bank. It attempts to examine and analyze the applicability of profit planning system in the bank. Profit planning process significantly contributes to improve the profitability as well as the overall financial performance of an organization with the help of the best utilization of resources.

1.5 Limitations of the Study

This study confines only profit planning aspect of the Bank of Kathmandu Ltd., NMB Bank Ltd. and Nepal Credit & Commerce bank Ltd. So, the limitations of this study are:

1. This study focuses on profit planning control and its application in the BOK, NMB Bank and NCC Bank.
2. Only profit planning aspect of BOK, NMB Bank and NCC Bank has been analyzed.
3. This study covers the related data of the banks of five accounting periods only from the FY 2063/64 to 2067/68.
4. The study is mostly based on secondary sources of data.

1.6 Organization of the study

The study is divided into the following five chapters.

Chapter- I Introduction

Chapter- II Conceptual Framework and Review of Literature

Chapter- III Research Methodology

Chapter - IV Data Presentation and Analysis

Chapter - V Summary, Conclusion and Recommendations.

The **first chapter** deals the background of the study, statement of problem, objectives of the study, significance of the study, limitation of the study and organization of the study.

Second chapter deals with the review of available literature. It includes in review of related books, journals, articles and previous unpublished Master Degree Dissertation etc.

The **third chapter** deals with the research methodology adopted in this study. It includes research design, population and sample, data collection procedure and sources of data, data analysis techniques etc.

The **fourth chapter** is the most important part of the study which covers the presentation and analysis of data as well as major findings of the study.

The **fifth chapter** covers the summary of the study, the main conclusion that is drawn from the study and lists some recommendations as well as suggestions.

CHAPTER-II

REVIEW OF LITERATURE

2.1 Conceptual Aspects

2.1.1 Concept of Profit Planning

Profit planning is a comprehensive and coordinated plan expressed in financial terms for the operations and resource of an enterprise for some specific period in the future. It is a plan of the firm's expectation and is used as a basis for measuring the actual performance of managers and their units. A profit plan has an immense value in management; it helps in planning and co-ordinating if used appropriately, but not a replacement for management.

Profit Planning is a predetermined detailed plan of action developed and distributed as a guide to current operations and as a partial basis for the subsequent evaluation of performance. Thus it can be stated that profit planning is a tool which may be used by the management in planning the future course of actions and controlling the actual performance (Gupta, 1992; 3). The term comprehensive profit planning and control is defined as a systematic and formalized approach for performing significant phase of the management planning and control functions.

A profit planning and control program can be one of the more effective communication networks in an enterprise. Communication for effective planning and control requires that both the executive and the subordinate have the same understanding of responsibilities. Full and open reporting in performing reports that, focus on assigned responsibilities likewise enhance the degree of communication essential to sound management (Welsch, et.al.,2001:215).

Profit Planning is an example of short range planning. This planning focuses on improving the profit especially from a particular product over a relatively

short period of time. Therefore as used here, it is not the same as corporate planning of a cost rendition program (Terry, 1968; 245).

Profit Planning involves streamlining activities in order to get employees profit minded and to secure maximum benefit from minimum effort and expenditure. Best results seem to be obtained by assigning a profit planner to investigate all the factors affecting the profit obtained from a single product; the planner is given the right to probe the economics, the organization. The mode of operations, the pricing, the marketing or any fact of making and selling the product that in his judgment affects profit accruing from that product.

Profit Planning through volume of cost analysis, however, is a modern concept of management planning tools designated primarily for industrial enterprises. It involves a study of what a business cost and expenses should be and will be at different level of operations and it include a study of the resultant effect due to this hanging relationships between volume and cost. (Young Dong, 2000; 74).

2.1.2 Concept of Profit

Profit is the basic elements of profit plan so that the concept of profit planning may not be completed and meaningful in absence of the clear-cut well defined idea of profit. Oxford dictionary defines profit as a (a) financial gain and amount of money gained in business especially the difference between the amount earned and the amount spent (b) Advantage or benefits gained from something (Hornby & Cowie, 1992; 63).

According to some theories, profits are the factor payment for agreeing to take what is left over after contractual outlays have been made. In the second type of profit theory they viewed as a wage for the service of innovation. Profits in this theory are tied to dynamic development. Profit around which all enterprises activities directly or indirectly revolve play the significant role for judging the managerial efficiency. In absence of profit nobody can think about the long-term survivability of the enterprises.

2.1.3 Concept of Planning

Planning is the first essence of management and all other functions are performed within the framework of planning. Planning means deciding in advance what is to be done in future. Planning starts from forecasting and predetermination of future events. No firm can accomplish its predetermined goals and objectives without proper & effective planning. Hence it is the life blood of any organization which helps them to run efficiently in competitive environment.

Planning process includes setting goals, evaluating resources forecasting by different methods and formulating a master plan. Planning depends upon the organization's objectives. For the planning purpose a firm's objectives can be distinguished mainly as three types; the first is prime, the second is instrumental and the third is specific. Specific objectives are those objectives that have been specified as to time and magnitude which is known as goals. As a result of specifying a time period and a target amount, this goal is capable of giving specific guidance to various senses of management planning. Objective setting of a firm is very difficult task. Unfortunately, most top management fails to develop a clear and operational statement of company objectives. More carefulness is necessary for this tedious job. Carefully stated firm's objectives would yield at least the following benefits.

1. Company objectives provide the ultimate criteria for resolving difficult company decisions and
2. Company objectives are the basis for long-range profit planning.

Planning is the process of developing enterprises objectives and selecting future course of action to accomplish them. It includes (Welsch, et.al., 1992; 127).

1. Establishing enterprises objectives,
2. Developing premises about the environment in which they are to be accomplished,
3. Decision making,

4. Identifying activities necessary to translate plans into action and
5. Current re-planning to current deficiencies.

The planning processes, both short and long term, are the most crucial components of the whole system. It is both foundation and the bond for the other elements because it is through the planning process that we determine what we are going to do, how we are going to do it and who is going to do it. It operates as the brain centre of an organization and like the brain it both reasons and communicates (Welsch, et.al., 1992;73).

Planning could be taken as the tools of achieving organizational goals efficiently and effectively from the selection of various alternatives within an acceptable time frame. The essence of planning is:

1. To accomplish goals.
2. To reduce uncertainty.
3. To provide direction by determining the course of action in advance.

Planning is determined course of action for achieving organizational goals or objectives effectively and efficiently at a fluid environment with a certain time frame through the selection of various alternatives. On the other hand it holds accountability and responsibility about result to individual. A full appreciation of the firm task requires distinguishing among three types of company's activities which we call strategic planning, management control and operational control. The strategic planning is an important function of top management. Planning requires the management to setting a future state towards which effort will be directed i.e. objective, assessing the organization's resources, i.e. what the organization is going to work with, assessing the current and future environment with which the organization must be connected to achieve its goals and lately determine how and when to allocate resource accomplish the objective. Planning on the other hand is selecting objective and determining a course of action including allocation of resources in order to achieve those objectives in a specific time period.

Planning states what, when, and how things will be accomplished. An adequate planning is necessary for control of operations.

2.1.4 Types of Planning

Corporate Planning

The concept of corporate planning was first introduced and started in the United States in the late 1950s and nowadays it is being used in several companies in all over the world. The premises of the corporate planning are as follows (Robertson, 1968; 245).

1. Before drawing up a plan which is designed to decide something what the corporation wants to do.
2. In these days of rapid change it is necessary to look ahead as far as possible to anticipate these changes.
3. Instead of treating a company as a collection of departments treat it as a corporate whole, and
4. Take full accounts of the company's environment before drawing up and plan.

Strategic Long-Range Planning

Strategic planning is a top management function in which the organization's purpose, mission and overall objectives and policies are developed to position the organization advantageously in its operating environment. It refers to the selection of company objective and the determination of the growth or at least constant and competitive policies that are most likely to accomplish those objectives. Management planning and control is the process carried on within the framework established by strategic planning. Long range planning (5 to 10 years) varying with the enterprise sometimes extends upto 10 years. It is one of the most difficult time-span involved in planning, as many problems in short range planning can be traced to the absence of clear sense of direction and the practice which a comprehensive long-range plan provides. Basically, the long-range planning is more important for broad and long living enterprises.

A long-range planning is closely concerned with the concept of the corporation as a long living institution (David,1964;298).The planner must

include the following factors in his/her plan from the analysis of available information.

- a. Probable future opportunity
- b. Uncertainty and
- c. Challenges

Long range planning is the continuous process of making present entrepreneurial (risk taking) decision. Systematically and best possible organized efforts are needed to carry out these decisions and measuring the result of these decisions against the expectations through organized systematic feedback (Drucker, 1964;165). It is a decision making process. Such decision should be related about:

- Determination of goals, objectives and strategies.
- Level and direction of capital expenditure.
- Accession of new sources of funds.
- Organization design and structure etc.

Tactical Short Term Planning

A tactical planning is done at all level and involves directing the organizations activities to achieve overall strategic objectives with the organization's mission and policies. Standing plans provide consistency and efficiency for non going operations, and single use plans are developed for unique situation. Projects are short term plans designed to achieve objective within large scale programs. Short term plans cover about a year, and are less formal and detailed than long range plans, which usually cover more than three months. The short range planning is selected to conform to fiscal quarters or years because of the practical need for conforming plans to accounting periods. "What arbitrary limitation of the long range to three to five years is usually based has been indicated on the prevailing belief that the degree of uncertainty over a long period makes planning of questionable value" (Horold & Cyric, 1964;45).

2.1.5 Role of Forecasting in Planning

Forecasting is an integral part of decision making activities of management. An organization establishes goals and objectives seeking to predict the environmental factors. The need for forecasting is increasing as management attempts to decrease its dependence on change and become more scientific in dealing with its environment. Since each area of organization is related to others, a good or bad forecast can affect the entire organization. Planning or budgeting is not merely forecasting although forecasts form the basis of budgeting. Forecasting is the estimate of the future environment within which the company will operate. Budgeting or planning on the other hand involves the determination of what should be done, how the goals may be reached and what individual or units are to assume responsibility and be held accountable.

Forecasting is indispensable in planning. Forecast is statement of expected future conditions. Expectation depends upon the assumptions made. If the assumptions are possible the forecast has a better chance of being useful. Forecasting assumptions and techniques vary with the kind of planning needed.

The short-term forecasting is needed in budget making. A budget set for the following year will be much useful. It is regarded to sales levels, which will eventuate rather than current sales level. As budget distributed according to current sales may establish policy as to lines of emphasis, but will obviously requires successive adjustment if sales level changes (Bratt, 1985;246).

2.1.6 Planning Verses Forecasting

Planning is clearly discreet from forecasting. Forecasting, one of the essential elements of planning is a prediction of what will happen on the basis of certain assumption. Planning is an attempt to determine what should happen and what will make it likely to happen. A forecast is not a plan, rather it is a statement of quantified assessment of future conditions about a particular subject (sales revenue) based on one or more explicit assumption. A forecast should be viewed as only one input into the development of a sales plan. The

management of a company may accept modify or reject the forecast. In contrast a sales plan incorporates management decision that are based on the forecast, other inputs and management judgment about such related items as sales volume, price, production and sales, effort and financing (Welsch, et.al., 2001;109).

2.1.7 Purposes of Profit Planning

Some purposes of the application of profit planning are:

1. To state the firms' expectations clearly and facilitate for attainability.
2. To communicate expectations to all concerned with the management of the firm so that they are understood, supported and implemented.
3. To provide a detailed plan of action for reducing uncertainty and for the proper direction of individual and group efforts to achieve goals.
4. To coordinate the activities and efforts in such as way that the use of resource is maximized.
5. To provide a means of measuring the performance of individuals and units and to supply information on the basis of which the necessary corrective action can be taken.

There is controversy in term of profit. It is defined by different people from different aspect. According to RM Lynch and Robert Williamson usually profits does not just happen, profits are managed. Before we can make intelligent approaches to the management concept of profit, there are after all, several different interpretations of the term. Profit, an economist says is the reward of entrepreneurship for risk taking. A labour leader might say that it is a measure of how efficiently labour has produced and that it provides a base for negotiating a wage increase. An investor views it as a gauge for return on his/her investment. An internal revenue agent might regard it as the base for determining income taxes. The accountant will define it simply as the excess of firm's revenue over the expenses of producing revenue in a given period. Management thinks of profit as a tangible expression of the goals it has set for the firm, a measure of the performance towards the achievement of it, as a

means of measuring the health, growth and continuity of the economy (Lynch &Williamson, 1989; 249).

2.1.8 Long Range and Short Range Profit Plan

There are two types of profit plans developed; one strategic (long-range) and another tactical (short-range). The former profit plan takes a time horizon of 5 to 20 years and the later of short period. The long range planning is a picture of more summary data. A part of this plan is more or less informal as presented by tentative commitments made by the executive committee in the organizational planning seasons. The formal portion of long-range profit plan includes the following component detailed by each year.

- Income Statement
- Balance Sheet
- Capital Expenditure Plan
- Personnel Requirements
- Research Plan and
- Long Range Market Penetration Plan

Thus the long range profit plan covers all the key areas of anticipated activity; sales, expenses, research and development, capital expenditure, cash, profit and return on investment. The short range tactical profit plan shows the primarily annual results, the detail by months, responsibility and products. In an organization these annual summaries should be prepared to provide a general understanding of the profit plan and to provide an overall view of the comprehensive short range profit plan.

It is possible for the firms to develop these two profit plans for all aspects of the operations (Welsch, et.all., 2001;524). Assuming participatory planning and receipt of the executive instruments, the manager of each responsibility canter will immediately initiate activities within his or her responsibility centre to develop strategic profit plan and tactical profit plan. Certain format and normally the financial function should establish the general format, amount of

detail, and other relevant procedural and format requirements essentially for aggregation of the plan. All these activities must be coordinating among the centers in conformity with the organization structure” (Welsch, et.al. 2001; 523).

The preparation of long-range profit planning in addition to short range profit planning is also viewed as a total planning concept of business. Long range planning is essential to maintain the annual profit at improving level. The ultimate measure of the success of a business is generally based on growth in the volume of sales, increasing return on capital investment, efficient organization and these are all long-term consideration.

2.1.9 Budgeting and Budget

Budgeting is a forward planning and involves the preparation in advance for the quantitative as well as financial statement, it indicates the intention of the management in respect of the various aspects of the business. A budget is a comprehensive and coordinated plan expressed in financial term for the operation and source of an enterprise for some specific period in the future (Pandey, 1991:98).

The term 'Budget' can be visualized as the end result of the budgeting. If Budgeting is the procedure for preparing plan in respect of future financial requirements, the plan when presented in written form is called budget. Budgeting in facts is a managerial technique and a business budget is such a written plan in which all aspects of business operations with respect to a definite future period are included. It is a formal statement of policy, plan, objectives and goals established by the top-level management in respect of some future period (Gupta, 1981; 136).

A budget is forecast in detail, of the results of an officially recognized programmed operations based on the highest reasonable expected operating efficiency.

Budget is defined as a comprehensive and coordinated plan, expressed in financial terms for the operations and resources of enterprises for some specified period in the future (Fregmen, 1976; 256). According to his definition the essential elements of a budget are:

- Plan
- Operations and Resources
- Financial Terms
- Specified Future Period
- Comprehensiveness
- Co-operation

Therefore, we can say that budget is a tool, which may be used by the management in planning the future course of action-and in controlling the actual performance.

2.1.10 Budgeting: As a Device of Profit Plan

Budgeting is a forward planning. It serves basically as a device (tool) for management control; it is rather an effective scheme of control. Budgeting is the principal tool of planning and control offered to management by accounting functions (Welsch, 1999; 346). The prime objective of budgeting is to assist in systematic planning and in controlling the operations of the enterprises. In fact budgeting is best sources of communication and an important tool in the hands of management. Since, budgeting deals with fundamental policies and objectives, it is prepared by top management. A formal budget by itself will not ensure that a firm's operations will be automatically geared to the achievement of the goals set in the budget. For this to happen, the top level managers and lower level employees have to understand the goals and support them and co-ordinate their efforts to attain them.

Budgeting is a device of a planning and control that serves as a guide to conduct operation and a basis for evaluating actual results. Actual results can be judged being satisfactory or unsatisfactory in the light of the relevant budgeted data and also in the light of changes in conditions. Company

controls operations through its budgeting and responsibility reporting system. Top executive are able to control every area of the organization through a systems of budgetary planning and control reporting by responsibility area.

2.1.11 Essentials of an Effective Budgeting

An effective budgeting system should have some essential feature to ensure best results. The following are the chief characteristics of an effective budgeting.

Sound Forecasting

Forecasts are the foundation of budgets; these forecasts are discussed by the executives and when most profitable combinations of forecasts are selected they become budgets. The sounder are the forecasts better result would come out of the budgeting system.

An Adequate and Planned Accounting System

There should be proper flow of accurate and timely information in the enterprise which is must for the preparation of budgets. This can be ensured only by having an adequate and planned accounting system in the firm.

Efficient Organization with Definite Lines of Responsibility

An efficient, adequate and best organization is imperative for budget preparation and its operation. Thus a budgeting system should always be supported by a sound organization structure demarcating clearly the lines of authority and responsibility. Not only this, there should be a true delegation of authority from top to low levels of management. This will provide adequate opportunity to all executives to make decisions and also to participate in the function of budget preparation. Thus, an efficient organization helps not only in budget co-ordination but it also plays important role in budget operation.

Formation of Budget Committee

As mentioned earlier, budget committee receives the forecasts and targets of each department as well as periodic reports and finalizes. And also approves

the departmental budgets. Thus in order to make a budgeting system more and more effective, a budget committee should always be set up.

Clearly Defined Business Policies

Every budget reflects the business policies formulated by the top management. In other words budgets should always be prepared taking into account the policies set for particular department or functions. But for this purpose, policies should be precise and clearly defined as well as free from any ambiguity.

Availability of Statistical Information

Since budgets are always prepared and expressed in quantitative terms, it is necessary that sufficient and accurate relevant data should be made available to each department. Such data may not be available from accounting system alone and therefore they may be processed through statistical technique. These data should be reliable, accurate and adequate as far as possible.

Support of Top Management

If a budget program is to be made successful, the sympathy of each member of the management team will be required. The enthusiasm for budget operation as well as direction for it should initiate and come from top.

Good Reporting System

An effective budgeting system also requires the presence of a proper feedback system. As work proceeds in the budget period, actual performance should not only be recorded but it should also be compared with budgeted performance. The variations should be reported promptly and clearly to the appropriate levels of management.

Motivational Approach

All the employees or staff other than executives should be strongly and properly motivated towards budgeting system. In an organization it is needed to make each staff member feel too much involved in the budgeting system.

To meet this end motivational approach towards budgeting should be followed.

2.1.12 Fundamental of PPC

Comprehensively profit planning and control is one of the more important approaches that have been developed to facilitate effective performance of the management process. The concepts and techniques of PPC have wide application in individual business enterprises, government units, charitable organizations and virtually all group endeavors. The fundamental concepts of PPC include the underlying activities or tasks that must be carried out to attain maximum usefulness from PPC. The fundamentals of PPC are (Welsch, et al., 2001:235):

1. A management process that includes planning, organizing, staffing, leading and controlling.
2. A managerial commitment to effective management participation by all levels in the entity.
3. An organization structure that clearly specifies assignments of management authority and responsibility at all organization levels.
4. A management planning process.
5. A management control process.
6. Continuous and consistent co-ordination of all the management functions.
7. Continuous feed forward, feedback, follow up, and re-planning through defined communication channels (both downward and upward).
8. A strategic profit plan.
9. A tactical profit plan.
10. A responsibility accounting system.
11. A continuous use of the exception principle.
12. A behavior management program.

2.1.13 Profit Planning and Control Process

A PPC program includes more than the traditional idea of a periodic or master budget. It encompasses the application of a number of related management

concepts through a variety of approaches techniques and sequential steps. These steps are outlined in this study in the following manner.

Identification and Evaluation of External Variables

The variable identification phase of the PPC process focuses on (1) identifying and (2) evaluating the effects of the external variables. Management planning must focus on how to manipulate controllable variables and how to work with the existing situation of non-controllable variables. Variables, which have a direct and significant impact on the enterprises, are called relevant variables. Variables may have their different relevancy according to the market nature. For the enterprises purpose the external relevant variables are population, G.N.P., competitive activities product line, and industry sales. And so far internal variables are employees, capital, research productivity, pricing, operating costs, advertisements etc. A particularly significant phase of this analysis includes an evaluation of the present strength and weakness of the enterprises. The comprehensive PPC approach is based on the expectation that these significant aspects of operations will be critically analyzed and evaluated periodically and in an orderly manner (Welsch, et.al. 2001; 235).

Development of the Board Objectives of the Enterprises

Development of the broad objectives of the enterprises is the responsibility of executive management. Based on a realistic evaluation of the relevant variables and an assessment of the strength and weakness of the organization, executive management, can specify or restate this phase of the PPC process.

The statement of broad objectives should express the mission, vision and ethical character of the enterprise. Its purpose is to provide enterprise identify. One research study listed the purposes of the statement as:

1. To define of the purpose of the Co.
2. To clarify the philosophy character of the Co.
3. To create particular climate within the business.

4. To set down a guide for managers so that the decisions they make will reflect the best interest of the business with fairness and justice to those concerned.

Development of Specific Goals for the Enterprises

This component of a comprehensive PPC process is to bring the statement of broad objectives into sharper focus and to move from the realm of general information to more specific planning information. It provides both narrative and quantitative goals that are definite and measurable. These are specific goals that relate to the enterprises as a whole and to the major responsibility centers.

These goals should be developed by executive management as the second component of the substantive plan for the upcoming budget year. Executive management should exercise leadership in this planning phase so that there will be a realistic and clearly articulated framework within which operations will be conducted toward common goals.

Development and Evaluation of Company Strategy

Companies' strategies are the basic ways and tactics that will be used to attain planned objectives and goals. Some examples of basic strategies are:

- Increase long-term market penetration by using new technology
- Emphasize product quality and price for the top market.
- Expand market
- Market with low price to expand value.
- Use both institutional and local advertisement program to build market share.
- Improve employee morale and productivity by initiating a behavior management program.

Executive Management Planning Instruction

Executive management explicitly establishes a planning foundation that is a condition precedent to the movement in the planning foundation. The statement of planning guidelines is set as executive management instructions and is disseminated in order to initiate a sophisticated and potent move from broad corporate planning to the development of profits plans by each major responsibility centre in the enterprises. It is simply a communication steps from executive management to the lower levels of management and it should adopt the fundamentals of full communication.

Preparation and Evaluation of Project Plans

Periodic plans and project plans are different in feature and functions. It will be recalled that project plans encompasses different time horizons because each project has a unique time dimension, they encompass such items as plans for improvements of present, products, view and expanded physical facilities, entrance into new industrial unit from products and industries and new technology and other major activities that can be separately identified for planning purpose. The nature of projects is such that they must be planned as separate units.

Consistent with this approach during the formal planning cycle, management must evaluate the plan status of each project in process and select any new projects to be initiated during time dimension covered by the upcoming strategies and tactical profit plans.

Development of Strategies and Tactical Profit Plan

When the managers of the various responsibility centers in the enterprises receive the executive management planning instruction and the projects plans, they can begin intensive activities to develop their respective strategic or tactical profit plans. The strategic and tactical profit plans are usually developed concurrently. Certain format and procedural instructions should be provided by a centralized source, normally the financial functions, to establish the general format, amount of detail and other relevant procedural and format requirement essential for aggregation of the plans of the responsibility centers, into the overall profit plans. All of these activities must be coordinated

among the centers in conformity with the organization structure. When the two profit plans for the overall enterprises are completed, executive management should subject the entire planning package to a careful analysis and evaluation to determine whether overall plans are the most realistic set that can be developed under the circumstances. When this point reaches the two profit plans should be formally approved by the top executive and distributed to the appropriate managers.

Implementation of Profits Plans

That profit plans and strategies should be implemented by every level management is an accepted norm. Implementation of management plans that have been developed and approved in the planning process, involves the management functions of leading subordinates in attaining enterprises objectives and goals. Thus effective management at all levels requires that enterprises objectives, goals, strategies, and policy to be communicated and understood by subordinates. There are many facets involved in management leadership. However the comprehensive PPC program may aid substantially in performing this function, plans, strategies and policies foundation for effective communication. The plan should have been developed with the managerial conviction that they are going to be met or exceeded in all major respects. If these principles are effective in the development process, the supervisors will have a clear understanding of their responsibilities and the expected level of performance.

Use of Periodic Performance Reports

Only implementing the strategy will be of no meaning when the implementation is not checked to know if it is used appropriately. To check whether the significance has been raised, monthly and three monthly performance reports are to be prepared.

Follow Up

It is an important part of control. Because of performance, reports are based on assigned responsibilities and they are the basis for effective follow up

actions. Finally, there should be a special follow up of the prior follow up actions. This step should be designed to:

- Determine the effectiveness of prior corrective action and
- Provide a basis for improving future planning and control procedures.

2.1.14 Basic Assumptions and Limitations of Profit Plan

Profit planning systems are common in both business organizations and non-business organization. But there are so many assumptions of using profit-planning program. Firstly, the basic plans of the business must be measured in terms of money, if there is to be any assurance that money will be available for the needs of the business. Secondly, it is possible to plan for the future of a business in a comprehensive way, coordinating every aspect of the business, with every other aspect to establish optimum profits goals. Thirdly, profit planning is pre-planning not merely what to do if things workout as forecasted, but also what to do if things work out differently from the forecast. In developing and using a profit planning and control (PPC) program, the following limitations should be considered:

1. Profit plan is based on estimates.
2. A PPC program must be continually adapted to fit changing circumstances.
3. Execution of a profit plan will not occur automatically, the profit plan is not a substitute for management.

The profit plan should be regarded not as a master but as a servant. It is not one of the best tools yet devised for advancing the affairs of a company and the individuals in their various spheres of managerial activity. It is not assumed that any profit plan is perfect. The most important consideration is to make sure, by intelligent use of profit plans that all possible attainable benefits are derived from the plans as rendered and to re-plan when there are compelling business reasons. (Welsch, et.al., 2001;265).

2.1.15 Development of Profit Plan

Development of profit plan in commercial Bank begins with the preparation of various functional budgets. Those functional budgets are in fact the picture of various activities of the Bank to be performed during a particular period of time. Therefore the functional budgets of a Bank are activity based such as budget for deposit collection, budget for lending and investments, budget for non-fund based business, budgets for expenditures and revenues. The development of profit plans is the process that involves managerial decisions and ideally a high level of management participation.

2.1.16 Resources Mobilization Plan or Budget

Planning for resources mobilization is the foundation for planning in a bank. The all other planning is based on it. The major and the sustainable resource of a bank is the customer deposits. Therefore, the plan for resources mobilization has a primary focus on the customer deposit mobilization. The lending and investment activities depend on the deposit mobilized by the bank. So the deposit mobilization or collection plan is the starting point in preparing other different plans.

Deposit mobilization is the primary function of a bank, which has major contribution in the total resources of the bank. In terms of cost for the Bank, customer's deposits are of two kinds, viz. (i) interest free deposits i.e. current deposits, margin deposits etc. and (ii) interest bearing deposit i.e. saving deposits, fixed deposits of various tenure, call deposits etc. The interest free deposits are cost free but are generally volatile in nature. Those can be withdrawn without restriction from the bank, thus cannot be invested into higher income yielding assets. Further, interest bearing deposits involve cost of deposit but their retention ratio with the bank are much better so they can be put to high income yielding assets having longer tenure. Therefore, a proper mix of cost free and costly deposits corresponding to short term and longer term deposits are to be maintained by the bank in its deposit mix in order to minimize its average cost of deposit. The cost of deposit of banks is also affected by the prevailing deposit interest rate of other banks in the market.

Budgeted targets for deposit mobilization during a particular year is set in advance with the view of optimizing the cost of deposit and the same are allocated to the different branches of the banks. Such allocations may be regarded as the tactical plan for deposit mobilization of the banks. Banks resources other than customer deposits are the borrowing from other banks and the capital fund. Generally banks borrow from other banks to meet temporary requirement of liquidity which may occur, sometimes, during the banking operation caused due to unexpected withdrawals of deposit or deferment in loan repayments by the borrower by some reason or other. Such activities are managed from the Head Office with the least possible cost.

Among the capital fund, the equity capital is formed generally one time during opening of the bank. The central bank (NRB) may from time to time instruct the bank to enhance the paid up capital to improve the capital adequacy of the bank.

Further, the bankers may choose by themselves whether or not to increase the owner's capital by raising other item included in capital funds beside paid up capital and general reserves. It is always better to have a higher capital fund base of a bank because creation of bank's assets and the size of lending to any particular borrower are tied up with the capital adequacy requirement by the central bank.

2.1.17 Resources Deployment Plan or Budget

Planning for development of resources starts from assessment of nature of resources to be mobilized. That is, the assets are allocated on the basis of the nature of resources. This approach of deployment of resources is called asset allocation approach. The fundamental criterion which must be followed in allocating funds for acquiring different types of assets is that the velocity-turnover rate of different sources of supply of fund determines the appropriate maturity of the assets acquired through fund utilization, for instance while relatively stable fund like saving deposits, fixed deposits and paid up capital could be used to buy long dated high yielding securities, demand deposit

which are more volatile, could be used to acquire relatively liquid assets like cash or money at call and short notice on which little or no return is made by the bank (Vaish, 1996;365).

Funds kept as cash in vault and as balance with NRB and other banks in current account are the most liquid assets of the bank. Normally banks have to maintain certain fixed percentage of their deposit liability in this form as directed by the Central Bank from time to time. There is no yield in the fund deployed as liquid assets.

Deployment for lower income yielding assets are generally placing the funds in short term securities, treasury bills etc. which provides reasonable liquidity to the bank as well as yield some return although they are at very low rate. Major portion of the income of the bank comes as interest income from the resources deployed to loan & advances, bill discounting and overdraft (LDO). As the most part of the resources are for LDO, banks make its lending budgets in advance as per their lending policies. Lending targets are fixed at various sector of economy for various kinds of trades and commercial activities and to various borrowers ensuring well diversification of the assets. The targets are allocated to the branches, which are generally operated as separated profit centers.

2.1.18 Planning for Non-Funded Business Activities

Other activities of commercial bank where it does not have to involve its fund, yet it can generate other income are called non-funded business activities of the bank. They are usually letter of credit and bank guarantee issuance business of the bank where the bank undertakes payment liabilities, which are contingent in nature and the bank charges certain percentage of commission on such transaction to their client who are availing these facilities from the bank. The bank fixes annual target for such business and those are allocated to the branches of the bank.

Expenditure Planning

Expenses planning and controlling are very necessary for supporting the objectives and planned programs of the firm. An expense is related with profit. It is real fact that the minimization of cost is maximization of profit. So the expenses must be planned carefully for developing a profit plan. In a bank there are generally following types of expenses:

- a. Interest Expenses
- b. Personnel Expenses
- c. Office Operating Expenses
- d. Expenses meeting the loss in Exchange Fluctuation
- e. Non-operating expenses
- f. Expenses for provision for loan loss
- g. Expenses for provision for staff bonus
- h. Expenses for provision of income tax

The interest expenses are incurred while paying for the deposit mobilized by the bank and include the expenses incurred for interest payment in all kinds of interest bearing deposit as per the agreed rate between the bank and the borrower. In the total expenses of a bank, the portion of interest expenses is quite higher. Therefore, the expenses are categorized into interest expenses and other expenses while the later includes other expenses as mentioned above except the interest expense.

Interest expenses in a bank depend on the average cost of deposit (COD) mobilized by the bank. Lower the COD lower the interest expenses and thus higher the profitability. Therefore from profitability point of view banks plan their COD at lowest possible level. The nature of interest expense is that of a variable expense. The net earning from interest income of a bank deducting the interest expense for the deposit mobilized is called 'Spread' which is similar to the 'Contribution Margin' in sales of commodities by a manufacturing units.

Other expenses are the administrative expenses those are generally incurred by the bank during the course of its operation. Higher the volume of business

transaction of a bank, higher will be the amount of its other expenses. Therefore, the expense should be related with the business activities, which ultimately should produce income for the bank. Such other expenses from burden to the profitability as it consumes the spread earned. Therefore budgets are prepared with an aim of reducing the burden as far as possible. The expenses budgets are formulated considering the overall activities of the bank and the targets are allocated to different branches.

Revenue Plan

Revenue of a bank is generated from the income yielding activities of the bank. Therefore while preparing the resources deployment plan and non-funded business activities plan, banks make the estimation of the revenue in advance during the period for which the plan is developed. Revenues of a bank are generated in the following forms:

- a. Interest income
- b. Commission and discounts
- c. Dividend
- d. Other income
- e. Foreign exchange income
- f. Non-operating income

Generally the interest income of a commercial bank holds a major portion in total revenue of the bank and it provides the major source of earning of a bank. Therefore total income of a bank is categorized in two type viz. interest income and other income, while the later including other income items as listed above except the interest income.

The interest income is earned by charging interest on the fund deployed in interest earning assets such as loan and advances, overdraft, investments in government securities, debentures etc. For this study, the income from Bills discounting has also been treated as interest income, as we consider loans overdraft and bills discounting together as a single asset portfolio as LDO.

As the average rate of interest on LDO are comparatively higher than any other kind of income yielding assets, from the profitability point of view, higher

asset allocation into LDO, higher will be the income. The other income are generated from other activities of the bank such as issuance of L/C Bank Guarantees, from remittance charges, cheque collection fee, locker charges, service charges, commitment charges, trading gain on foreign exchange, revaluation gain on foreign exchange reserves etc. The amount of other income of a bank greatly contributes in lowering the burden on the profitability. Higher the other income earned by the bank, lower will be the net burden amount and thus better will be the profitability of the bank.

Income of a bank is essentially activity based i.e. the volume of business. Higher the income generating activities of a bank, higher will be the amount of its revenue. Therefore the bank develops its plans for various activities in such a way that it optimizes its revenue.

2.1.19 Implementation of the Profit Plan

Development of an annual profit plan ends with the planned income statement, the balance sheet and the planned statement of changes in financial position. These three statements summarize and integrate the details of plans developed by management for the period. They also report the primary impact of detailed plans on the financial characteristics of the firm. Before redistributing the completed profit plan it is generally desirable to recast certain budget schedules so that technical accounting mechanics and jargon are avoided as much as possible.

The redesigned budget schedules should be assembled in on logical order, reproduced and distributed before the first day of the upcoming budget period. The profit plan completion data is important. Issuance of a profit plan after the beginning of the budget period is one sure way of destroying much of the budget potential. Timely completion of the planning budget suggests the need for a budget calendar. (Welsch, et.al., 2001;235).

The final test of whether the efforts and cost in developing a profit plan are worthwhile is its usefulness to management. The plan should be developed with the conviction that the enterprises are going to meet or exceed all major

objectives. Participation enhances communication. If this principle is to be effective, the various executives and supervisors should have a clear understanding of their responsibilities. The copies of the complete profit plan should be prepared and distributed to the member of executive management. The guiding principle in establishing the distribution policy might be to provide one copy to each member of the management team. After distribution of the profit plan a series of profit plan conferences should be held. The top executives discuss comprehensively the plans, expectations and steps in implementation. At this top level meeting the importance of action, flexibility and continuous control may well be emphasized. In essence, each manager has to realize that the budget is a tool for his or her use. Conferences should be held so as to convey the profit plan to each level of management.

The manager of each responsibility centre obtains an approved profit plan for this centre and it becomes the basis for current operations. Performance must be measured and reported to management. Execution of the plan is assured through control procedure so that accomplishment or failure is immediately known. On this basis action can be taken to correct or minimize and undesirable effects. Short term performance reporting is essential.

A budget program viewed and administrated in a sophisticated way does not hamper or restrict management, instead, it provides definite goals around which day to day and mouth to mouth decisions are made. Flexibility in the use and application of both the profit plan and variable budgets also should be considered in detail. Flexibility in budget application is essential and it increases the probabilities of achieving or bettering the objectives (Welsch, et.al., 2001;238).

2.1.20 Performance Reports

Performance reporting is an important part of a comprehensive PPC system. Performance reports deal with control aspect of PPC. Performance reports are one of the vital tools of management to exercise its control function effectively.

Special external reports, reports to owner and internal reports are specially presented in the organization. Performance reports include in internal reports groups. It is usually prepared on a monthly basis and follows a standardized format. Such reports are designed to facilitate internal control by management. Fundamentally actual results of reports are compared with goals and budget plans. Frequently they identify problems that require special attention since these reports are prepared to pinpoint both efficient and inefficient performance.

Features of Performance Reports

In comprehensive PPC, performance report is very important. The main objective of performance reports is the communication of performance measurement, actual results and the related variances. Performance reports offer management essential insights into all the facts of operational efficiencies. Performance reports should be:

1. Tailored to the organizational structure and focus of controllability (that is by responsibility centers).
2. Designed to implement the management by exception principle.
3. Repetitive and related to short term period.
4. Adapted to the requirements of the primary users.
5. Simple, understandable and reports only essential information.
6. Accurate and designed to pinpoint significant distinctions.
7. Prepared and presented promptly.
8. Constructive in tone.

Aspects of Performance Reports

The actual use of performance report may vary from person to person which depends upon several factors. One important factor is the extent to which the performance reports serve the management and decision making needs of the users. Top management needs reports that give a complete and readily comprehensive summary of the overall aspects of operations and identification of major events. Middle management needs summary data as well as detailed data on day-to-day operation. Similarly lower level

management needs reports that must be detailed, simple understandable and limited to items having a direct bearing on the supervisor's operational responsibilities.

In the design and preparation of performance reports careful attention must be given that titles and headings should be descriptive; column heading and side caption should clearly identify the data, and the technical jargon should be avoided. Reports should not be too long and complex; tabulations should be avoided. Performance reports should be standardized to a reasonable degree and it should be relevant.

Performance reports should be available on a timely basis. To attain a realistic balance between immediate reporting and the costs of detailed reporting, monthly performance reports are widely used in practice.

2.1.21 Concept of Commercial Banks

The term 'Bank', signifies the place where we keep our money for safe keeping as well as for earning some interest or the place from where we borrow money as loan. As regard to borrowing money from the Bank, we may consider its function as that of money lender in our society. But a bank is different from the money lender in the sense that the former lends the money which is principally collected from their depositors while later does so from its own resources. The Random House Dictionary of the English Language defines the bank as an institution for receiving money and in some cases, issuing notes and transiting other financial business (Stein & Urdang, 1985; 29).

Banks refer to an institution, which perform the activities related with money and credit. Banks have been traditionally regarded as merely the purveyor of money. But today they are not merely purveyor of money but creator or manufacturer of money in an economic system. Maclead, in his book 'theory of credit' has defined the bank not only as an institution that borrows and lends money but also the institution for creating credit. In the opinion of

Sayers, Banks are the institutions whose debts usually are referred to as bank deposit and are commonly acceptable in final settlement of other people's debt. He has taken the bank deposit as the debt owed by bank and that particular depositor can set off his liability with his creditor by the deposit in the Bank to the extent of his deposit amount.

The Commercial Bank Act 2031, under which commercial banks in Nepal are established and operated, has defined Commercial Bank as a bank which exchanges money, accepts deposit, advances loans and performs other commercial transactions and which is not specially established with the objectives of co-operative, agricultural, industrial or any other similar specified purpose.

The Act has provided the modalities of establishing a commercial bank, as per which a commercial bank can be established under the Company Act as a limited liability company only with the recommendations of Nepal Rastra Bank.

2.1.22 Evolution of Commercial Bank

It is commonly believed that the word 'Bank' is derived from the word 'Banco', 'Bancus' or 'Banque' all meaning to a bench. This refers that early bankers transacted their money lending activities on benches in the marketplace exhibiting the coins of different countries in different denominations for the purpose of changing and or lending money. Some writers are of the opinion that the word 'Bank' came from the German word 'Banc' meaning joint stock fund (Varshney, 1993; 169).

In its native from, banking is as old as in the authentic history and origins of the modern commercial banking are traceable in ancient times. In ancient Greece, around 2000 B.C., the famous temples of Ephesus, Delphi and Olympia were used as depositories for people surplus fund and these temples were the centers for money lending transactions. The priests of these temples acted as financial agents until public confidence was destroyed by the spread

of disbelief in the religion. Later, however, for a few centuries, banking as an organized system of money lending receded because of the religious belief that the charging of interest was immoral. However, the banking as we know today, made its first beginning around the middle of 12th century in Italy. The Bank of Venice, founded in 1157 A.D. was the first public banking institutions. Following this, in 14th century, the Bank of Barcelona and the Bank of Genoa were established in 1401 A.D. and 1407 A.D. respectively (Vaish, 1996;192).

In England, start of Banking can be accounted for as far back as the region of Edward III. Those days, the Royal Exchanger used to exchange the various coins into British money and also used to supply foreign money to the British men going out of the country. The bankers of Lombardy were famous in medieval Europe as the credit of planning the seed of modern banking in England goes to them when they settled in London in the locality now famous as the Lombard Street.

The goldsmiths can be considered as the initial Bankers in England as they used to keep strong rooms with watchmen employed. People entrusted their cash to them. The goldsmiths used to issue duly signed receipt of the deposits with the undertaking to return the money on demand charging some fee for safe keeping. These undertaking helped in gaining a further confidence of the public therefore the money were kept with them for longer periods. They were thereby encouraged to lend some part of these funds, which became profitable business to them. Therefore they started offering interest on the deposits to attract more funds. In the course of time independent banking concerned were set up. The Bank of England was established in 1694, under a special Royal Charter. Further in 1833 legislative sanction was granted for establishment of joint stock banks in London, which served as a big impetus to the development of joint stock banking. These banks took the initiative for extending current account facilities and also introduced the facilities of withdrawals through cheques.

In India, the ancient Hindu scriptures refer to the money lending activities in the Vedic period. During the Ramayan and Mahabharata eras, banking had become a full-fledged business activity and during the smriti period (after the

Vedic period), the business of Banking was carried on by the members of Vanish community. Manu, the great law giver of the time speaks of the earning of interest as the business of Bishyas. The bankers in the Smriti period performed most of those functions which the banks in modern times performs such as the accepting of deposits, granting loans, acting as the treasurer, granting loans to the king in times of grave arises and banker to the state and issuing and managing the currency of the country (Vanish, 1992;183).

In Nepal, although the monetary history dates back to 1st century (Lichhavi Dynasty), the banking history is comparatively very short. The development of organized banking has started in Nepal only from around the starting of 20th century of Bikram Sambat. Nepal Bank Limited, established in B.S. 1994 with an authorized capital of Rs.1 crore and paid up capital of Rs.8 lacs 42 thousand is the first organized bank established in Nepal (NRB, 2045). Although during the Prime Minister-ship of Rana Prime Minister Ranadwip Singh, an office called "Tejarath Adda" was established for granting loans to government officials and also to the general public against the security of gold, silver and other valuables, it could not be considered as Bank in real sense as it did not collect deposit. Later after establishment of Nepal Bank, the functions of 'Tejarath Adda' were limited up to providing loans to government officials only (NRB Report, 2045;12).

Banking development in Nepal found another break after the establishment of Nepal Rastra Bank, the Central Bank of Nepal in 2013 B.S. (NRB, 2045:14). This has helped organizing the monetary system in the country before which the dual currency system (Indian and Nepalese currency) was prevailing in the system. Larger sector of economy was none monetized. In the course of organized development of banking sector, second commercial bank, Rastriya Banijya Bank was established in 2022 B.S. at the state ownership (NRB Report, 2045;16). Later on, in FY 2039/40, the policy for allowing establishment of foreign joint venture banks was taken with an aim of having fair competition and skill development in banking sector, which had added a new dimension in development of banking in Nepal. Accordingly, Nepal Arab

Bank Ltd. (presently renamed as Nabil Bank) has been established as the first joint venture bank in Nepal in 2041 B.S. (NRB Report, 2045;17).

Afterward, various commercial banks were opened with foreign joint venture under private sectors in Nepal which had contributed a lot to bring the commercial banking at present day position. Nepal Bangladesh Bank has established in the year 2051 B.S.

2.1.23 Role of Commercial Banks in the Development of Economy

Commercial Banks play an important role in facilitating the affairs of the economy in various ways. The operations of commercial Banks record the economic pulse of the country. The size and composition of their transaction reflect the economic happening in the country. Commercial Banks have played a vital role in giving the direction in economic growth over the time by financing the requirement of industries and trade in the country. By encouraging thrift among the people, banks have fostered the process of capital formation in the country. In the context of deposit mobilization, commercial banks induce the savers to hold their savings in the form of bank deposits thus help bringing the scattered resources into the organized banking sector which can be allocated to the different economic activities. In this way they help in country's capital assets formation. Through their advances, banks also help the creation of income out of which further saving by the community and further growth potentials emerge for the good of the economy. In a planned economy, banks make the entire planned productive process possible by providing funds to the public sector, joint sector or private sector for any type of organization. All employment income distribution and other objectives of the plan as far as possible subsumed into the production plan which banks finance (Vaish, 1996; 265).

The importance of commercial banks in directing the economic activities in the system is immense. Not only in the highly developed economies where the commercial and industrial activities are paralyzed in the absence of banks, even in the developing countries' economy are most of the economic activities

particularly of organized sectors bank based. Therefore, in a nutshell it can be said that the growth of the economy is tied up with the growth of the commercial banks in the economy.

2.2 Review of Previous Studies

A comparative study on profit planning, in the context of particularly commercial banks seems to be a new subject of study for research analysis. So far as the study concerned with the profit planning of commercial banks,

Kharel (2008) conducted a study entitled "Profit planning of commercial banks in Nepal comparative study of Everest Bank, Nabil Bank and Bank of Kathmandu " for the purpose of the partial fulfillment of the requirement for Master Degree in Business Studies.

His main objectives:

1. To find out the relationships between total investment loan and advances, deposit, net profit and outside assets.
2. To identify the investment priority sectors of commercial Bank
3. To assess the impact of investment on profitability.
4. To analyze and forecast the trend and structure of deposit utilization and its projection for five years of Commercial Bank

His Major Findings:

1. The liquidity position of EBL is comparatively better than that NABIL and BOK. EBL has invested higher sector in government
2. Securities than BOK less then portion than of Nabil. Asset management ratio found that EBL is better position as compared to that of Nabil and BOK.
3. EBL has best in loan loss provision.
4. Investment on share and debenture to total working found ratio is higher in BOK.
5. The interest earned to total outside asset and return on total working fund ratio of EBL is lowest of all. However, over all analysis of profitability ratios is average profitable in comparison to other compared bank (i.e. Nabil and BOK). To make the profit BOK is taking

- highest risk by providing the higher portion of its deposit as a loan.
6. The return, loan, advances ratio, and return on assets of EBL are lowest of all. The ratio suggests that the earning capacities of the bank's loan and advances is satisfactory. The return on asset of the bank is good in average. It indicates the good earning capacity of the bank assets and good utilization of its assets.
 7. The total interest paid to working fund ratio is less than the interest earned to total working fund ratio. So it is profitable position as it is getting higher return that is interest cost .
 8. EBL has shown its good performance by increasing the total deposit, loan and advance and investment in profitable sectors interested earning by providing loan to clients.
 9. The trend of the total investment, total deposit, loan and advances and net profits of EBL shows better position than that of NABIL and BOK.

Similarly **Indra Mani Pandey (2008)** conducted a research on the topic,'A study on Profit Planning of Commercial Bank (In comparative study of SBI Bank Ltd. And Himalayan Bank Ltd.)

Major Objectives of his study were;

1. To highlight the current profit planning premises adopted and its effectiveness in HBL and SBI .
2. To analyze the variance of budgeted and actual achievements.
3. To study the growth of the business of the Banks over the period.
4. To provide suggestion and recommendations for improvements of the overall profitability of the banks.

Major Findings of his study were;

1. Major concentration of the analysis on profit planning in commercial banks is at deposit mobilization. In this respect, they are incurring higher cost toward deposit mobilizations. The average growth rate of total deposit of SBI L is more than of HBL i.e. 17.0725% > 11.36%.
2. The LABP of both banks were in fluctuating rate over the study period, but in the FY 2002/03, negative growth of SBI L was by -1.54% (on the

basis of FY 2001/02). Comparatively SBI L was having good position than HBL (from the average growth rate i.e. 16.08% > 14.11% respectively).

3. In the SBI L, NLABP was high at first years and negative in second year then after it fluctuated. Towards the end, it's growth rate was 22.19 percent (on the basis of 2004/05). Similarly in the HBL, NLABP was positive in 5 years and negative in two years. At last year it's growth rate was negative by -7.79 percent (on the basis of 2004/05)
4. Expenditure of the both banks were in increasing trend but in the FY 2002/03 of SBI L and FY 2001/02 of HBL was decreased. In comparasion, the more increasing trend was in the HBL than SBI L.

Major Recommendations made by him were;

1. The deposit collections of both the banks are increasing over the period but the collection of HBL is not satisfactory in comparison with SBI L. So, it is recommended to HBL to collect more amounts as deposit through large variety of deposit scheme and facilities, like cumulative deposit scheme, gift cheques recurring deposit scheme (life insurance), and monthly interest income. The minimum amount needed to open on account should be minimizes so that it will attract other small deposits.
2. The average cost of deposit of SBI L is high than HBL. Therefore SBI L should try to lower it by mobilizing more and more low cost or lost free deposits thereby reducing the interest cost because due to high cost of deposit, bank is forced to invest its fund more on high yield assets, which are generally not liquid and obviously risky for the bank.
3. Correlation between interest expenses and deposit of HBL is negative, it shows there is no relation between interest expenses and deposit but it is not possible. So HBL should increase its cost of deposit rate.

Similarly **Narendra Kunwar (2009)**, has submitted thesis on the topic 'Profit Planning of Nabil Bank Limited.'

Major Objectives of his study were;

1. To find out the relationships between total investment loan and advances, deposit, net profit and outside assets.
2. To identify the investment priority sectors of commercial Bank
3. To assess the impact of investment on profitability.
4. To analyze and forecast the trend and structure of deposit utilization and its projection for five years of Commercial Bank
5. To provide suggestion and possible guidelines to improve investment policy and its problems.

Major Findings:

1. NABIL has been maintaining a steady growth rate over this period.
2. NABIL has earned a net profit of Rs 747 million for the fiscal year 2007/08 and this comes to be 10.83% more as compared to the same period in the previous fiscal year.
3. NABIL earned an operating profit of Rs 1122.7 million for the fiscal year 2007/08 and this comes to be 8.19% more as compared to the same period in the previous fiscal year.
4. Total deposit is Rs 31915 million for the fiscal year 2007/08 and this comes to be 36.72% more as compared to the same period in the previous fiscal year.
5. Total loan is Rs 21759 million which is an increase by 36.8% compared to the previous fiscal year.
6. Nabil bank has an adequate liquidity position. It shows that the bank's investment is appropriate.
7. Loan loss provision to total loan and advances ratio of NABIL is in a decreasing trend. This shows that there is good quality of assets in total volume of loan and advances.
8. Total non-performing assets to total assets ratio is also in a decreasing trend. It indicates proper management of total assets. This ratio indicates the more efficient operating of credit management. Ratios are decreasing trends; it indicates that the bank is decreasing the non-performing loan from total loan.
9. Interest expenses to total deposit ratio of NABIL is increased in fiscal year

2007/08. That this ratio does not indicate higher interest expenses on total deposit.

10. Equity portion of the bank is slightly increasing in the recent years due to issue of directives by Nepal Rastra Bank (NRB) the entire bank to increases it's paid up capital.

His Major Recommendations:

1. Cash and bank balance of NABIL is high. Banks efficiency should be increased to satisfy the demand of depositor at low level of cash and bank balance does not provide return to the bank. Therefore some percentage of the cash and bank balance should be invested in profitable sectors.
2. Bank is suggested to make policy to ensure rapid identification of delinquent loans. Bank should make immediate follow-up of loan until it is recovered. The recovery of loan is very challenging as well as important part of the bank. Therefore bank must be careful to strengthen credit collection policy.
3. NABIL should avoid extending credits merely based on oral information presented at the credit interview. Historical financial and trade records should be obtained for proper assessment of the proposal.

Similarly **Luna Maharjan (2009)** conducted a study on the topic 'Profit Planning in a Commercial Bank (a case study of Standard Chartered Bank)'

Major Objectives of her study were;

1. To highlight the current profit-planning premises adopted and its effectiveness in Standard Chartered Bank.
2. To observe Standard Chartered Bank's Profit Planning on the basis of overall managerial Budgets developed by Bank.
3. To analyze the variance of budgeted and actual achievements
4. To study the growth of the business of the Bank over the period.
5. To make necessary suggestions and recommendations.

Major Findings of her study were;

1. The decision making process is highly centralized however, management takes the feed forwards for annual planning and strategy building through manager conferences and strategy building through manager conferences and strategic meeting organized twice in every year at the head office.
2. Interest expenses amount is the highest among total expense items of the bank every year.
3. The total deposit of the bank is found increasing every year corresponding to the increase in interest expenses the total deposit is perfectly and positively correlated with total interest expenses.
4. The Profitability ratio shows that it is a useful measurement for all financial researchers invested in the assets. As Return on assets is high during 2005/06 with 2.55% and return on equity is high in same fiscal year with 37.55%, this shows that overall efficiency of the SC Bank and better utilization of total resources available is higher and strong.

Major Recommendations made by her were;

1. Profit Planning & control technique should be used for making long term banking strategies and managerial decisions.
2. Employee training & career planning at advance level should be given more focus in order to keep the man power updated with the changing practices and the technologies.
3. The average cost of deposit of the Bank is high. Therefore, bank should try to lower it by mobilizing more and more low cost or cost free deposits thereby reducing the interest cost due to high cost of deposit, bank is forced to invest its liquid and obviously risky for the bank.
4. Bank CD ratio is high, which is rather a compulsion to meet the cost of high cost deposits. Higher CD ratio although gives better return in short term, it hampers the liquid and is more risky for the bank and calls for more provision for loan loss. In this way, the profitability of the bank also get hampered on the long run. Therefore, the bank should improve its position from lowering the deposit cost and increase the investments in liquid assets although they are of low yield.

Uprety (2012) has conducted a research on “Profit Planning and Control of Commercial Banks in Nepal” In his study, he has selected Machhapuchhre Bank limited as a sample bank. This study is an analytical and descriptive type of research.

Major Objectives of his study were;

1. To examine the main approaches of profit planning.
2. To test the extant of achievement of planning of Machhapuchhre Bank Limited.

Major Findings of her study were;

1. Machhapuchhre Bank Ltd lacks active and organized planning department to undertake innovative products research, lunch and development work.
2. Management isn't free to operate the bank. Intervention of NRB and Ministry of finance regarding personnel placement and other matters has paralyzed the effectiveness of the bank.
3. The analysis of the position of deposit in MBL shows that the deposit, which are raised by the bank is not fully utilized. In fact this also reflects the lack of definite policy of the MBL.
4. MBL has the most sophisticated GLOBUS banking software enabling to provide modern banking facilities like tale banking, internet banking point of sale services, ATM facilities, SWIFT facility and many more.
5. It is the first private commercial bank to keep sophisticated communication technology which has interlinked all its branches to the centralized database system and has enabled the bank to provide anywhere banking facilities to all its valued customers.
6. Loans were approved based on proprietors or promoters statements rather than verifying and evaluating the possibilities of happening and non happening of their plans and statements.
7. While evaluating the loan application only the positive aspect or prospective are high-heighted and the risks involved (negative aspects) are not adequately addressed.

8. Additional loans/facilities are provided and loans are renewed without evaluating the past performance of the client. Even problematic loans are renewed for the sake of showing them good.
9. Analysis of the real need of the project and its capability to pay back are not done. Appraisals are based on the directors and promoters rather than the viability of the project.

2.3 Research Gap

Today's world is marketed by rapid changes and new developments, financial recession, as such researchers conducted a few years back may not be adequate to explain current phenomena. Thus continuous attempt needs to be taken and new researches should be conducted to build our existing knowledge base, interpret and analyze events in the face of dynamism. Most of the past research studies about profit planning system are basically related to profit planning system of manufacturing sectors or production oriented activities. The researcher could find only one study so far that has been related to profit planning system of a commercial bank i.e. in NB Bank. All the research have pointed out that there is no proper profit planning system and recommend for the effective implementation of profit planning system in the concerned institutions.

This study shall be a new study in this field as no study has been made so far in the profit planning of commercial banks i.e. comparative study on profit planning in Bank of Kathmandu NMB and NCC Bank Limited. This study has tried to indicate the implementation of profit planning system as well as to see how far the banks are practicing. This study has analyzed the financial position of BOK, NMB and NCC bank by applying the tools of ratio analysis and other mathematical and statistical tools. Finally it concludes the various findings of research and recommendations to the BOK, NMB and NCC bank.

CHAPTER - III

RESEARCH METHODOLOGY

This chapter describes the methodology employed in this study. Research methodology is the systematic method of finding solution to a problem i.e. systematic collection, recording, analysis, interpretation and reporting of information about various facts of a phenomenon under study. In this study research methodology describe the methods and processes applied in the entire aspect of the study. This chapter describes research design, population, sampling procedure, sources of data and analysis of data.

3.1 Research Design

Research design is the conceptual structure within which research is conducted. It constitutes the blueprint for the collection, measurement and analysis of data. As such the design includes an outline of what the researcher will do from writing the hypothesis and its operational implications to the final analysis of data.

This study is an examination and evaluation of budget process in profit planning program of BOK, NMB bank and NCC bank. Various functional budgets and other related accounting information and statement of the banks are materials to analyze and evaluate the profit planning system of banks. Descriptive as well as analytical approaches have been adopted in this research. This is a comparative study research of commercial banks.

3.2 Population and Sample

As this research aims at studying the profit planning aspect of the commercial bank taking the reference of BOK, NMB and NCC and data have been analyze for several years of its operation. Here, all the commercial banks are population of the study and BOK, NMB and NCC have been selected as sample for the present study.

3.3 Data Collection Procedures and Sources of Data

This study is mostly based on secondary data. However, primary data and information have been obtained through informal discussions with the staffs of the bank. Secondary data have been collected from the annual published accounting and financial statement of the banks. Similarly other necessary data have collected from website, newspapers and related publications.

3.4 Research Variables

Loans/Advances, overdrafts and Bills discounted (LDO), customer deposits, total resources, total deployment interest expenses, other expenses, interest income, other income etc. of the banks are the research variables of this study.

3.5 Analysis of data

Analysis is the careful study of available facts so that one can understand and draw conclusion from them on the basis of established principles and sound logic (Cottleetal; 1988; 29). This study is mostly based on the analysis of secondary data with the help of different statistical tools. Therefore the data have been collected accordingly and managed, analyzed and presented in suitable tables, formats, diagrams, graphs and charts. Such presentations have been interpreted and explained wherever necessary.

Financial, mathematical and statistical tools are used to analyze the presented data, which includes ratio analysis, percentage, regression analysis, correlation, mean, standard deviation, coefficient of variance, percentile increment, etc.

3.6 Statistical tools

To draw the conclusion by analyzing the collected data simple statistical tool like arithmetic mean, multiple bar diagram and tabulation are used to implicit the comparative results.

3.6.1 Arithmetic mean average

The central values that represent the characteristics of the whole distribution or the values around which all items of the distribution tend to concentrate are called average. Arithmetic mean or arithmetic average is one of the important statistical measures of average. The arithmetic mean of a given set of observation is their sum divided by the number of observations.

3.6.2 Multiple Bar- diagrams and graphs

Diagrams and graphs are visual aids which give a bird's eye view of a set of numerical data which show the information in a way that enables us to make comparison between two or more than two sets of data. Diagrams are in different types. Out of these various types of diagram one of the most important form of diagrammatic presentation of data is multiple bar diagram which is used in cases where multiple characteristics of the same set of data have to be presented and compared.

3.6.3 Percentage

Percentage is one of the most useful tools for the comparison of two quantities or variables. Simply, the word percentage means per hundred. In other words, the fraction with 100 as its denominator is known as a percentage and the numerator of this fraction is known as rate of percent.

3.6.4 Coefficient of correlation(R)

Correlation analysis is the statistical tool used to describe the degree to which one variable is linearly related to another. The coefficient of correlation measures the direction of relationship between the two sets of figures. It is the square root of the coefficient of determination. Correlation can either be negative or positive. It always lies between +1 to -1. The degree of association between the two variables, say X and Y, is defined by correlation coefficient (R)

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

3.6.5 Regression analysis

Regression is the statistical tool which is used to determine the statistical relationship between two (or more) variables and to make estimation (or prediction) of one variable on the basis of the other variable(s). In other words, regression is that statistical tool with the help of which the unknown value of one variable can be estimated on the basis of known value of the other variable.

3.6.6 Standard deviation (σ)

The standard deviation is the absolute measure of dispersion. It is defined as the positive square root of the mean of the square of the deviation taken from the arithmetic mean. The greater the amount of dispersion or variability, the greater the standard deviation, the greater will be the magnitude of the deviation of the values from their mean. A small standard deviation means a high degree of uniformity of the observation as well as homogeneity of a series and a large standard deviation means just the opposite.

3.6.7 Coefficient of variation (C.V.)

The relative measure of dispersion based on the standard deviation is known as the coefficient of variation. It is independent of unit. So, two distributions can better be compared with the help of C.V. for their variability. Less the C.V., more will be the uniformity, consistency, stable and homogeneous etc. and vice versa.

CHAPTER-IV

PRESENTATION AND ANALYSIS OF DATA

This chapter implies the presentation and analysis of data collected from various secondary sources. The chapter has been divided into two main sections. The first section of the chapter includes the presentation and analysis of data while the second section includes major findings of the study.

4.1 Financial Analysis of Commercial Bank

Financial analysis is the process of identifying the financial strength and weakness of the firm by properly establishing relationship between the items of the balance sheet. Relevant ratios are calculated and appropriate interpretations are made. Analysis of financial ratios shows the performance of the concerned banks.

4.1.1. Liquidity Ratio

a. Current Ratio

It is the relationship of current assets and current liabilities. Current assets can be converted into cash within short period of time normally not exceeding one year. Current liabilities are those obligation which are payable within short period. Current assets consist of cash and bank balance, money at call or short terms notice, loan & advances, investment in government securities and other interest receivable and other miscellaneous current assets. Current liabilities consist of deposits, loan and advances, bills payable, Tax provision, staff bonus, dividend payable and miscellaneous current liabilities.

In the table 4.1 below, current ratio of commercial banks has been analyzed. The table reflects that the current assets of all commercial banks have exceeded the current liabilities during the five years period. In general it can be said that all the banks have sound ability to meet their short term obligations. In other words bank are capable of discharging the current obligations.

Table 4.1
Current Ratio (Times)

Bank	Fiscal Year					Mean	SD	CV%
	2006/07	2007/08	2008/09	2009/10	2010/11			
BOK	1.05	1.06	1.07	1.07	1.09	1.068	0.0133	1.24
NMB	1.05	1.14	1.10	1.14	1.14	1.114	0.0356	3.19
NCC	0.90	1.07	1.07	1.11	1.12	1.054	0.0796	7.56

(Source: Appendix No. 1)

In case of BOK, the current ratios are in increasing trend from fiscal year 2006/07 to 2010/11. NMB has a fluctuating trend ratio. Similarly NCC has also increasing trend ratio. In an average, NMB has higher current ratio, which indicates that its liquidity position is fair. The value of coefficient of variation of NMB is 3.19% which is comparatively lower than NCC and higher than BOK i.e. $7.56\% < 3.19\% > 1.24\%$. Thus it can be said that current ratio of BOK is consistent than that of the other two banks, NCC's current ratio is least consistent.

b. Cash and Bank Balance to Total Deposit Ratio

Cash and bank balance are assets that constitute the banks first line of defense and consist of cash in hand and other cash items balance with domestic banks and balance with banks abroad. This ratio measures the promotion of most liquid assets i.e. cash and balance among the total current asset of bank. Higher ratio shows the bank's ability to meet demand for cash. The table below shows cash and bank balance to total deposit ratio of BOK, NMB and NCC from the FY 2006/07 to 2010/11.

Table 4.2
Cash and Bank Balance to Total Deposit Ratio

Bank	Fiscal Year					Mean	SD	CV%
	2006/07	2007/08	2008/09	2009/10	2010/11			
BOK	10.62	9.09	12.07	8.85	7.99	9.724	1.4477	14.89
NMB	2.62	327.92	108.75	17.11	11.61	93.6	123.2768	131.70
NCC	11.66	20.19	13.00	20.29	15.85	16.2	3.5671	22.02

(Source: Appendix No. 2)

In general, the cash and bank balance to total deposit ratios of all banks are in acceptable range. In average NMB has higher cash and bank balance to total deposits ratio than BOK and NCC. In this sense the liquidity position of NMB is better.

The above analysis helps to conclude that, the cash and bank balance position of NMB with respect to deposits is not better than that of the NCC and BOK. So NMB may invest in more productive sectors like short-term marketable securities, treasury bills etc ensuring enough liquidity which will helps the bank to improve its profitability.

c. Cash and Bank Balance to Current Assets Ratio

This ratio measures the proportion of most liquid assets i.e. cash and bank balance among the total current assets of bank. Higher ratio indicates the bank's ability to meet the daily cash requirement. Bank has to balance the adequate cash for the customers demand against deposit when required.

The table below shows the Cash and bank balance to current asset ratio of BOK, NMB and NCC from the FY 2006/07 to 2010/11.

Table 4.3
Cash and Bank Balance to Current Assets Ratio

Bank	Fiscal Year					Mean	SD	CV%
	2006/07	2007/08	2008/09	2009/10	2010/11			
BOK	9.24	8.31	10.87	7.85	6.92	8.638	1.3434	15.55
NMB	0.78	61.97	47.85	13.34	9.53	26.694	23.8178	89.23
NCC	12.88	18.32	11.71	17.60	13.40	14.782	2.6617	18.01

(Source: Appendix No. 3)

Table 4.3 shows that the cash and bank balance to current asset ratio of all three banks are in fluctuating trend during the study period. BOK has maintained a highest ratio of 10.87% in the year 2008/09. Similarly NMB and NCC have highest ratio of 61.97% and 18.32% in the year 2007/08 and

2007/08 respectively. The mean value of NMB is highest in comparison to other banks.

Similarly the coefficient of variation of NCC is 18.01%, which is lower than NMB and higher than BOK.

d. Investment on Government Securities to Current Assets Ratio

This ratio examines portion of a commercial banks current assets which is invested in different government securities i.e. treasury bills and government bonds. Commercial banks are interested to invest their collected fund on different securities issued by government to utilize their excess funds. Even governments securities are not so liquid as cash and bank balance of commercial bank; they can easily be sold in the market or can also be converted into cash in other ways.

Table 4.4 below reflects that investment in government securities to current asset ratio of all banks are in fluctuating trend.

Table 4.4
Investment on Government Securities to Current Assets Ratio

Bank	Fiscal Year					Mean	SD	CV%
	2006/07	2007/08	2008/09	2009/10	2010/11			
BOK	16.37	12.19	8.69	12.90	16.50	13.33	2.9088	21.82
NMB	10.99	8.81	7.25	12.32	12.05	10.284	1.9565	19.03
NCC	19.67	21.62	14.08	14.11	14.71	16.838	3.1769	18.87

(Source: Appendix No. 4)

The mean ratio of BOK is higher than NMB and lower than NCC. The coefficient of variation of NCC is lower in comparison to the other banks.

Lastly it can be concluded that NCC has invested its larger portion of its current assets as government securities than other banks.

e. Loans and Advances to Current Assets Ratio

Loan and advances include short and long term loan overdrafts and cash credit. Commercial banks should not keep its all collected funds as cash and bank balance in order to invest as loan and advances to the customers. If sufficient loan and advances cannot be granted, it should pay interest on those un-utilized deposits funds. Even high loan and advances may also effects to keep the bank in most liquid position because they can only be collected at the time of maturity. Thus, a bank must maintain its loan and advances on proper way.

Table 4.5
Loan and Advances to Current Assets Ratio

Bank	Fiscal Year					Mean	SD	CV%
	2006/07	2007/08	2008/09	2009/10	2010/11			
BOK	65.98	71.90	72.95	72.76	72.02	71.122	2.6029	3.66
NMB	32.17	22.06	33.22	60.20	71.52	43.834	18.7466	42.77
NCC	63.00	54.77	67.65	64.08	68.20	63.54	4.8188	7.58

(Source: Appendix No. 5)

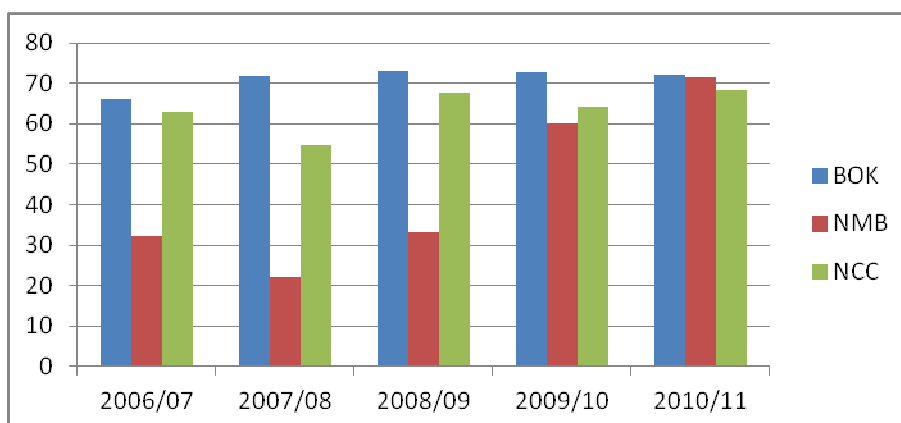
Table 4.5 shows the percentage of loan and advances to current assets ratio position of BOK, NMB and NCC. The loan and advances to current assets ratio of all banks are in increasing trend. The mean ratio of BOK is highest than NMB and NCC.

It reflects that loan and advances to current asset ratios of the BOK has maintained a highest ratio of 72.95% in the FY 2008/09. Similarly NMB and NCC have 71.52% and 68.20% in the FY 2010/11. The coefficient of variation among ratio is lower in case of BOK, which indicates uniformity of BOK in comparison to other banks. So it can be concluded that BOK is better in mobilization of its funds as loan and advances.

The loan & advances to current assets ratio of these 3 banks for the year 2006/07 – 2010/11 has been shown in figure 4.1 below.

Figure 4.1

Loan and Advances to Current Assets Ratio



4.1.2 Asset Management Ratio

Commercial bank must manage its assets very well to satisfy its customers to earn high profit and for its own existence. It measures the efficiency of the bank.

a. Loans and Advances to Total Deposit Ratio

This ratio measures how successfully the banks are able to mobilize the total deposit on loan and advances for profit generating purpose. Higher ratio indicates the better mobilization of total deposits, but too high is also not better from liquidity point of view.

Table 4.6 reflects the percentage of loan and advances to total deposit ratios position of BOK, NMB and NCC.

Table 4.6

Loan and Advances to Total Deposit Ratio

Bank	Fiscal Year					Mean	SD	CV%
	2006/07	2007/08	2008/09	2009/10	2010/11			
BOK	75.87	78.71	80.99	82.03	83.11	80.142	2.5843	3.22
NMB	107.72	116.73	75.52	77.22	87.12	92.862	16.5459	17.82
NCC	57.05	60.36	75.13	73.86	80.68	69.416	9.1017	13.11

(Source: Appendix No. 6)

The ratios of BOK and NCC are in increasing trend where as NMB's ratios are in fluctuating trend for the study period. BOK has maintained higher loan and advances to total deposit i.e. 83.11% in year 2010/11, likewise NMB has maintained higher ratio in year 2007/08 and NCC maintained the higher ratio of 80.68% in year 2010/11. The mean value of BOK i.e. 80.142% is higher than NCC but lower than NMB i.e. 92.862%. The CV of BOK is lower than that of the other banks which indicate that its loan and advances are stable and consistent.

Hence it can be concluded that BOK is in strong position or in better position regarding the mobilization of total deposits on loan and advances and acquiring higher profit in comparison with NCC and NMB.

b. Total Investment to Total Deposit Ratio

Commercial bank must mobilize its deposit fund by investing in different securities issued by government and other financial, non financial sectors. This ratio measures the extent to which the banks are capable to mobilize their deposits on investment in various securities. This ratio is computed by dividing total investment by total deposit.

Table 4.7 shows the total investment to total deposit ratio of the banks BOK, NMB & NCC.

Table 4.7
Total Investment to Total Deposit Ratio

Bank	Fiscal Year					Mean	SD	CV%
	2006/07	2007/08	2008/09	2009/10	2010/11			
BOK	24.15	20.23	15.39	16.09	20.40	19.252	3.1993	16.62
NMB	65.97	74.79	27.00	26.86	20.32	42.988	22.6676	52.73
NCC	19.03	25.97	17.34	18.00	18.82	19.832	3.1276	15.77

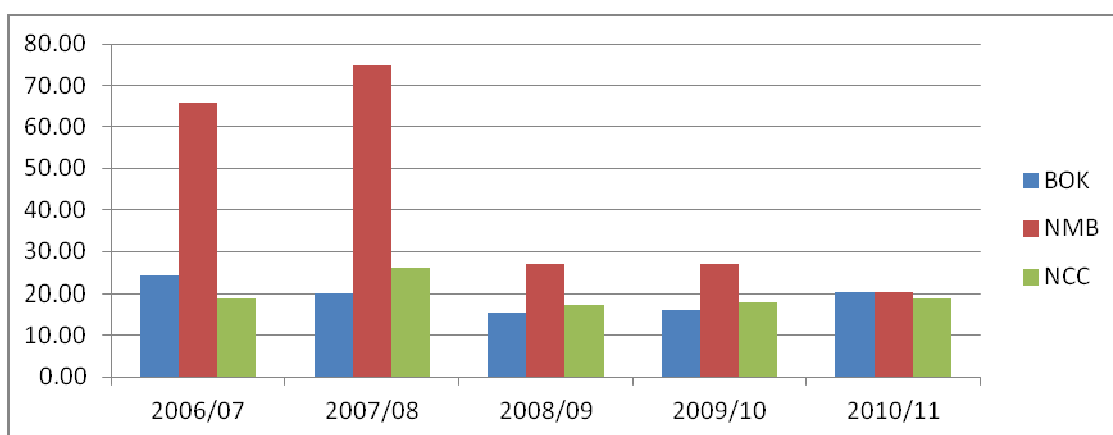
(Source: Appendix No. 7)

From table 4.7, it is found that, total investment to total deposit ratios of all three banks are in either increasing, decreasing trend or in fluctuating trend during study period 2006/07 to 2010/11. The total investment to total deposit

ratio of BOK has highest ratio of 24.15% in FY 2006/07 and lowest ratio of 15.39% in FY 2008/09. Similarly NMB has highest and lowest ratio of 74.79% and 20.32% in FY 2007/08 and 2010/11. NCC has highest and lowest ratio of 25.97% and 17.34% in FY 2007/08 and 2008/09 respectively.

BOK has the lowest mean value (19.252), NCC's mean value (19.832) is also similar to BOK. NMB has the highest mean value of 42.988. Likewise the value of coefficient of variation on NCC is lower than that of both banks. After analysis it is clear that the investment policy of NCC is in better position in comparison to both banks. The total investment to total deposit ratio of NCC is more homogeneous because it has low coefficient of variation. Year wise ratio is promoted in figure 4.2 below.

Figure 4.2
Total Investment Total Deposit Ratio



c. Loan and Advances to Total Working Fund Ratio

Loan and advances are the major components of the total working fund. The ratio reflects some extent to which the commercial banks are able to utilize loan and advances for the purpose of profit generation. Total working fund is the total assets. It is composed up of current assets, fixed assets, miscellaneous assets and investment, loan and advance and interest receivable.

Table 4.8 shows the loan and advance to total working fund ratio of BOK, NMB and NCC.

Table 4.8
Loan and Advances to Total Working Fund Ratio

Bank	Fiscal Year					Mean	SD	CV%
	2006/07	2007/08	2008/09	2009/10	2010/11			
BOK	64.51	70.33	71.46	71.23	70.55	69.616	2.5868	3.72
NMB	31.58	21.73	32.76	59.04	70.28	43.078	18.3801	42.67
NCC	61.42	53.61	65.14	62.65	72.03	62.97	5.9482	9.45

(Source: Appendix No. 8)

This clearly shows that loan and advances to working fund ratio of NMB is in highly fluctuating trend. BOK has the highest ratio 71.46% in the FY 2008/09, NMB and NCC has the highest ratio i.e. 70.28% and 72.03% in the FY 2010/11.

The mean value of BOK has maintained higher loan and advances to total working fund ratio than that of NMB and NCC. In this regard, BOK is in better position among other banks. The coefficient of variation of BOK is significantly lower than that of other banks.

d. Investment on Government Securities to Total Working Funds Ratio.

It is said that commercial banks should never use all the total deposits resources as loan and advances and other credit from security and liquidity point of view. So to some extent commercial bank seem to be interested to utilize their resources by purchasing government securities. This ratio reflects the relationship between the banks investment in securities in comparison to the total working funds.

Table 4.9 shows the investment on government securities to total working fund ratio of BOK, NMB and NCC.

Table 4.9
Investment on Government Securities to Total Working Fund Ratio

Bank	Fiscal Year					Mean	SD	CV%
	2006/07	2007/08	2008/09	2009/10	2010/11			
BOK	16.01	11.92	8.51	12.63	16.16	13.05	2.8460	21.82
NMB	10.79	8.68	7.15	12.08	11.84	10.11	1.9049	18.85
NCC	19.18	21.16	13.55	13.80	15.54	16.65	3.0234	18.16

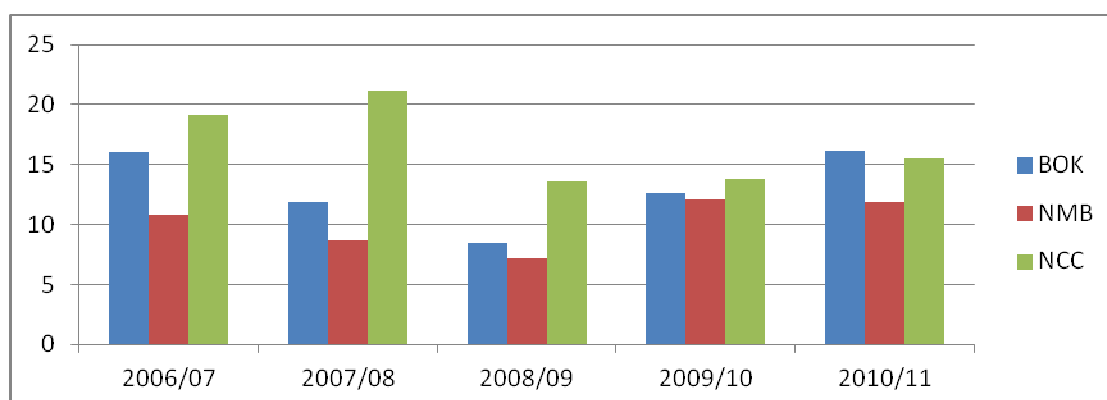
(Source: Appendix No. 9)

Table 4.9 reflects that investment on government securities to total working fund ratio of all three banks are in fluctuating trend. The mean value of NCC is the highest (16.65) among the three banks. This means NCC has invested relatively larger portion of working funds on government securities as other two banks.

The comparative picture composed to investment on government securities to total working fund ratio for the study period has been shown in figure 4.3 below.

Figure 4.3

Investment on Government Securities to Total Working Fund Ratio



e. Investment on Shares and Debentures to Total Working Fund Ratio

This ratio shows the banks' investment in share and debentures of subsidiary and other companies. Now-a-days, commercial banks are interested to invest on government securities only. They are also interested to invest in shares and debenture of different types of companies. Most of the commercial banks of Nepal have purchased shares of various development banks and some of them have purchased the share of other companies too.

This ratio reflects the extent on which the banks are able to mobilize their total assets on purchase of share and debenture of other companies to generate income and utilize their excess fund. A higher ratio indicates greater portion of investment on shares and debenture out of total working fund.

Table 4.10 shows the investment on shares and debenture to total working fund ratio of BOK, NMB and NCC from the FY 2006/07 to 2010/11.

Table 4.10**Investment on Shares and Debentures to Total Working Fund Ratio**

Bank	Fiscal Year					Mean	SD	CV%
	2006/07	2007/08	2008/09	2009/10	2010/11			
BOK	0.62	0.64	0.60	0.17	0.16	0.438	0.2233	50.98
NMB	0.43	0.44	0.25	0.82	0.65	0.518	0.1971	38.05
NCC	2.75	3.08	2.33	1.56	1.62	2.268	0.6028	26.58

(Source: Appendix No. 10)

The table 4.10 reflects that investment on shares and debentures to total working fund ratio of all three banks are in fluctuating trend.

In an average, NMB has maintained medium investment on shares and debentures to total working fund ratio than other. The coefficient of variation of BOK is higher than that of other two banks which indicate that BOK is more variable and less consistent in this regard.

f. Total Off Balance Sheet Operation to Loan and Advances Ratio

Commercial banks should concentrate not only on fund based activities such as loan and advances, investment on different sectors and so on. Rather, they should pay their attention to increase free based off balance sheet activities. Income generated through the free based off balance sheet activities constitutes a significant proportion in the total income of most of the commercial banks statement. A high ratio indicates the highest OBS transaction or vice versa.

The total OBS operation to loan & advances ratio of the three banks for the study period has been tabulated in table 4.11 below.

Table 4.11**Total OBS Operation to Loan and Advances Ratio**

Bank	Fiscal Year					Mean	SD	CV%
	2006/07	2007/08	2008/09	2009/10	2010/11			
BOK	22.80	24.42	52.45	68.79	68.22	47.34	20.2471	42.77
NMB	10.10	7.58	12.71	20.34	13.67	12.88	4.2924	33.33
NCC	34.63	33.09	31.92	3.61	35.90	27.83	12.1850	43.78

(Source: Appendix No. 11)

The total OBS operation to loan and advances ratio of BOK is generally in increasing trend whereas the NMB & NCC banks are generally following fluctuating trend.

The mean of NMB is lower than that of other banks i.e. $12.88 < 27.83 < 47.34$, which indicates that, NMB has lowest OBS transaction. BOK has highest mean value composed to NCC and BOK. The coefficients of variance of all the three banks are comparable.

g. Loan Loss Ratio

Loan loss occurred when the debtors fail to pay their loan. Loss of the loan is not only the default of debtors but it is also because of the failure of recovery of loan by the bank. Negligence in its part makes a negative impact on the earning and capital of a bank very badly. Greater loan loss provision is made in income statement if high loss is expected.

But this will lead to low profit and possible losses and produces low increase or decrease in capital. The loan loss ratio shows how efficiently the bank manages its loan and advances and makes effort for timely recovery of loan.

The loan loss ratio data of the three banks for the study period is presented in table 4.12 below.

Table 4.12
Loan Loss Ratio

Bank	Fiscal Year					Mean	SD	CV%
	2006/07	2007/08	2008/09	2009/10	2010/11			
BOK	0.87	0.30	0.23	0.71	0.88	0.598	0.2794	46.72
NMB	0.93	1.65	0.81	0.51	0.32	0.844	0.4570	54.15
NCC	5.45	3.03	0.89	1.33	0.76	2.292	1.7751	77.45

(Source: Appendix No. 12)

The table 4.12 reflects that the loan loss ratio of all the three banks have fluctuating trend. On the other hand BOK has the lowest mean value (.598) compared to that of NMB (.844) and NCC (2.292). Similarly the standard

deviation & coefficient of variation are lower for BOK. So the data shows that the performance of BOK in terms of loan recovery is better in comparison to NMB & NCC.

4.1.3 Profitability Ratio

Profitability ratios are useful to measure the efficiency of operation of a firm in term of profit. Profit is the indicator of the financial performance of any firm. Commercial banks acquire profit by providing different kinds of services. Higher profitability ratio generally shows the efficiency of the management. The following profitability ratios are related to study under this heading.

a. Return on Loan and Advances Ratio

Return on loan and advances ratio measures the earning capacity of banks on its total deposits mobilized on loan and advances. Mostly loan and advances includes loan, cash credit, and overdraft, bills purchased and discounted. In other words return on loan and advances ratio indicates how efficiently the banks have employed its resources in the firm of loan and advances.

Table 4.13 below depicts the return on loan & advances ratio data of the three banks under study.

Table 4.13
Return on Loan and Advances Ratio

Bank	Fiscal Year					Mean	SD	CV%
	2006/07	2007/08	2008/09	2009/10	2010/11			
BOK	2.79	2.90	3.15	3.05	3.46	3.07	0.2307	7.52
NMB	5.37	3.71	1.21	2.05	1.98	2.864	1.4950	52.20
NCC	-3.13	11.29	6.05	5.30	2.50	4.402	4.7184	107.19

(Source: Appendix No. 13)

The table 4.13 reveals that the returns on loan and advances ratio of all the three banks are following the fluctuating trend during the period of 2006/07 to 2010/11.

The mean of BOK is lesser than NCC and higher than that of NMB i.e. $3.07 < 4.402 > 2.864$. The standard deviation of BOK is lesser than both banks.

Similarly the coefficient of variation of BOK is less than other two banks i.e. $7.52\% < 52.20\% < 107.19\%$.

b. Return on Total Working Fund Ratio

It is also known as return on asset. This ratio measures the profit earning capacity by mobilizing available resources (total assets). Net profit includes the profit that is left to the internal equities after all charge and expenses cost.

The table below shows the return on assets of BOK, NMB and NCC for the period 2006/07 – 2010/11.

Table 4.14
Return on Total Working Fund Ratio

Bank	Fiscal Year					Mean	SD	CV%
	2006/07	2007/08	2008/09	2009/10	2010/11			
BOK	1.80	2.04	2.25	2.18	2.44	2.142	0.2141	10.00
NMB	1.70	0.81	0.40	1.21	1.39	1.102	0.4539	41.19
NCC	-1.92	6.06	3.94	3.32	1.80	2.64	2.6589	100.71

(Source: Appendix No. 14)

Table 4.14 shows clearly that the ratio is highly fluctuating in case of NCC, moderately fluctuating in case of NMB and slightly fluctuating in case of BOK. The coefficient of variation of BOK is lesser than that of NMB and NCC i.e. $10.00\% < 41.19\% < 100.71\%$. It indicates that the return on total working fund ratio of BOK is stable and consistent in comparison to NMB and NCC.

c. Total Interest Earned to Total Outside Assets Ratio

It measures the interest earning capacity of the banks through efficient utilization of all the outside assets. Higher ratio indicates better use of outside assets of a commercial bank. Total outside assets includes loan and advances, investment on government securities, share and debentures and all other types of investment.

The table below exhibits total interest earned to total outside assets ratio of BOK, NMB and NCC for the study period.

Table 4.15

Total Interest Earned to Total Outside Assets Ratio

Bank	Fiscal Year					Mean	SD	CV%
	2006/07	2007/08	2008/09	2009/10	2010/11			
BOK	6.61	6.60	7.73	9.39	10.97	8.26	1.6959	20.53
NMB	10.57	7.89	5.71	8.23	10.79	8.638	1.8795	21.76
NCC	9.59	9.13	8.98	10.48	12.32	10.1	1.2270	12.15

(Source: Appendix No. 15)

The total interest earned to total outside assets ratio of all the three banks are in fluctuating trend. NCC has the highest mean ratio (10.1) which indicates its better success in earning high interest income in comparison to other two banks.

If the coefficient of variation is observed, NCC has the lowest of all banks i.e. $12.15\% < 20.53\% < 21.76\%$. This reflects that the total interest earned to total outside assets ratio of NCC is relatively consistent.

d. Total Interest Earned to Total Working Fund Ratio

This ratio is calculated to find out the percentages of interest earned to total assets. It reflects the extent to which the banks are successful in mobilizing their assets to gain higher income as interest. Higher ratio indicates higher earning power.

Table 4.16 below shows the interest earned to total working fund ratio of BOK, NMB and NCC for the period 2006/07 – 2010/11.

Table 4.16

Total Interest Earned to Total Working Fund Ratio

Bank	Fiscal Year					Mean	SD	CV%
	2006/07	2007/08	2008/09	2009/10	2010/11			
BOK	5.62	5.83	6.58	8.00	9.64	7.134	1.5053	21.10
NMB	5.38	2.81	2.54	6.55	9.36	5.328	2.5245	47.38
NCC	7.85	7.00	7.20	8.17	10.95	8.234	1.4227	17.28

(Source: Appendix No. 16)

Table 4.16 reveals that the ratio of BOK is in increasing trend, where the ratio of NMB is in highly fluctuating trend. The ratio of NCC is also fluctuating but it is comparatively less than that of NMB.

After analysis it can be concluded that total interest earned to total working fund ratio of BOK is satisfactory compared to other banks. NMB has higher coefficient of variation among other two banks.

e. Total Interest Paid to Total Working Fund Ratio

This ratio is calculated to find out the proportion of interest paid against the total working fund. Higher ratio indicates the higher interest expenses on total working fund and vice-versa.

Table 4.17 below reflects the mean, S.D and C.V of total interest paid to total working fund ratio of the three banks for the study period.

Table 4.17
Total Interest Paid to Total Working Fund Ratio

Bank	Fiscal Year					Mean	SD	CV%
	2006/07	2007/08	2008/09	2009/10	2010/11			
BOK	2.33	2.35	2.75	3.86	4.92	3.242	1.0067	31.05
NMB	3.17	1.56	1.60	4.23	6.60	3.432	1.8763	54.67
NCC	4.69	3.39	3.34	4.55	7.12	4.618	1.3719	29.71

(Source: Appendix No. 17)

In the above table, total interests paid to working fund ratio of BOK are in increasing trend and other two banks have fluctuating trends.

The NCC bank has highest mean value whereas the standard deviation and coefficient of variance of NMB is clearly higher than the other two banks. Standard deviation and coefficient of variance of BOK and NCC are comparable.

4.1.4 Risk Ratio

Bank has to take risk to get return on investment. Risk taken is compensated by the increase in profit. So a bank has to take higher risk if it expects higher return on its investment.

a. Credit Risk Ratio

Bank utilizes its collected funds in providing credit to different sectors while making investment. It is essential for a bank to examine the credit risk involved in the project. This ratio shows the proportion of non-performing assets in total loan and advances of the bank. Due to the unavailability of the relevant data the ratio is measured with the help of loan and advances to total assets.

Table 4.18
Credit Risk Ratio

Bank	Fiscal Year					Mean	SD	CV%
	2006/07	2007/08	2008/09	2009/10	2010/11			
BOK	64.51	70.33	71.46	71.23	70.55	69.62	2.5868	3.72
NMB	31.58	21.73	32.76	59.04	70.28	43.08	18.3801	42.67
NCC	61.42	53.61	65.14	62.65	72.03	62.97	5.9482	9.45

(Source: Appendix No. 18)

The table 4.18 shows the percentage of credit risk ratio of BOK, NMB and NCC. The credit risk ratio of BOK is in fluctuating trend during the study period i.e. it has maintained maximum ratio of 71.46% in the FY 2008/09 and it has minimum ratio of 64.51% in the year 2006/07. Similarly credit risk ratio of NMB and NCC are also fluctuating trend. NMB and NCC have maintained maximum ratio of 70.28% and 72.03% in the year 2010/11 and 2010/11.

The mean of NCC is between NMB and BOK which mean NCC has average credit in comparison to both banks. The coefficient of variance of BOK is 3.72%, NMB has 42.67% and NCC has 9.45%. Among three banks BOK has less C.V, it indicates that its credit policy is consistent than other banks.

b. Liquidity Risk Ratio

The liquidity risk of the bank defines its liquidity need for deposit. A higher liquidity indicates less risk and less profitable bank and vice-versa. The ratio of cash and bank balance to total deposits is the indicator of the bank's

liquidity needs. The cash and bank balance are the most liquid assets and they are considered as bank's liquidity sources.

The liquidity risk ratios of the three banks for the study period have been tabulated below in table 4.19.

Table 4.19
Liquidity Risk Ratio

Bank	Fiscal Year					Mean	SD	CV%
	2006/07	2007/08	2008/09	2009/10	2010/11			
BOK	10.62	9.09	12.07	8.85	7.99	9.724	1.4477	14.89
NMB	2.62	327.92	108.75	17.11	11.61	93.6	123.2768	131.70
NCC	11.66	20.19	13.00	20.29	15.85	16.2	3.5671	22.02

(Source: Appendix No. 19)

Table 4.19 reflects that the liquidity risk ratios of all the three banks are in fluctuating trend. NMB's liquidity risk ratio fluctuated very highly, 2.62% in FY 2006/07 and 327.92% in FY 2007/08. The liquidity ratios of BOK and NCC are less fluctuating.

BOK has the lowest standard deviation and coefficient of variance compared to other two banks. NMB has the highest standard deviation and coefficient of variance. BOK seems more consistent in terms of liquidity risk ratios.

c. Capital Risk Ratio

A bank needs to maintain adequate capital in relation to the nature and condition of its assets, its deposits liabilities and other corporate responsibilities. This ratio measures ability of bank to attract deposits and inter-bank funds. It also determines the level of profit. A bank can earn if a bank choose to take high capital risk.

The capital risk ratio of the three banks for the study period has been presented in table 4.20 below.

Table 4.20
Capital Risk Ratio

Bank	Fiscal Year					Mean	SD	CV%
	2006/07	2007/08	2008/09	2009/10	2010/11			
BOK	9.44	9.57	9.80	9.41	10.37	9.718	0.3538	3.64
NMB	11.75	32.66	18.42	17.52	15.82	19.23	7.0926	36.88
NCC	-9.13	9.61	9.81	12.68	12.70	7.134	8.2407	115.51

(Source: Appendix No. 20)

From the table 4.20, it is clearly seen that the percentage of capital risk ratio of BOK is generally stable during the study period. NMB and NCC have followed the fluctuating trend. NMB has the value of 11.75 in FY 2006/07 and 32.66 in FY 2007/08. NCC has the value of -9.13 in FY 2006/07 and 12.70 in FY 2010/11.

The capital risk ratios of the banks over the study period have been well reflected in mean, standard deviation and coefficient of variance. BOK is the most stable in terms of capital risk ratio.

4.1.5 Growth Ratio

It represents how well the commercial banks are maintaining their economic and financial position. Here those growth ratios are analyzed and interpreted, which are related to the fund mobilization and investment management of a bank. In this topic, there are four types of growth ratio and under this section growth ratio of total deposit, total investment, loan and advances and net profit are calculated.

a) Growth ratio of total deposit

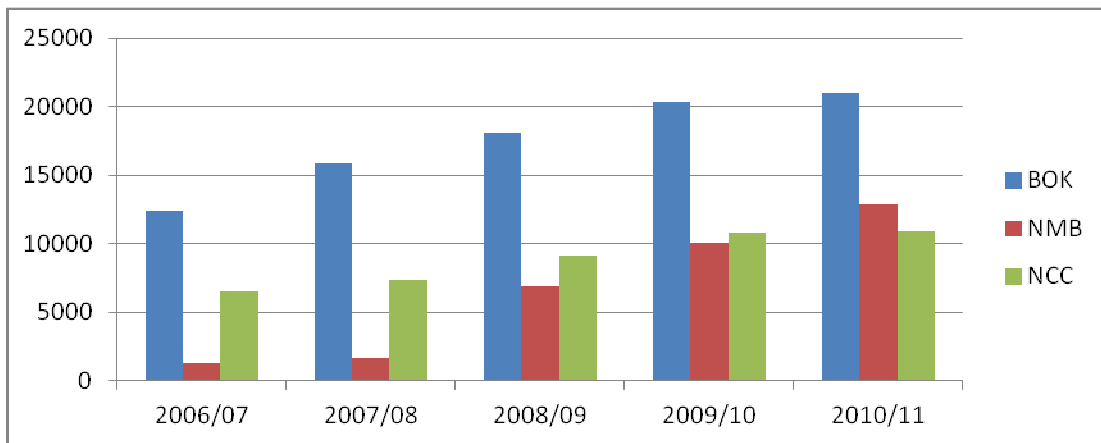
Growth ratios of total deposit of banks under study are calculated to find out the trend of growth of total deposit and to detect actual position of banks. The growth ratios are derived from the interpolation of the factor, which is calculated by dividing final deposit with initial deposit.

Table 4.21
Growth Ratio of Total Deposit

Bank	Fiscal Year					Growth Rate (%)
	2006/07	2007/08	2008/09	2009/10	2010/11	
BOK	12389	15834	18084	20316	21018	14.13
NMB	1296	1662	6878	10111	12866	77.50
NCC	6500	7320	9128	10825	10951	13.93

(Source: Appendix No. 21)

Figure 4.4
Growth Ratio of Total Deposit



The comparative table 4.21 and figure 4.4 shows that the growth ratio of NMB deposit is higher than that of BOK & NCC. NMB has maintained ratio of 77.50% where as BOK and NCC 14.13% and 13.93% respectively. This means the performance of NMB to collect greater deposit compared to other banks. BOK and NCC are improving year by year. Among three banks NCC has lowest growth ratio i.e.13.93%.

b) Growth ratio of loan and advances

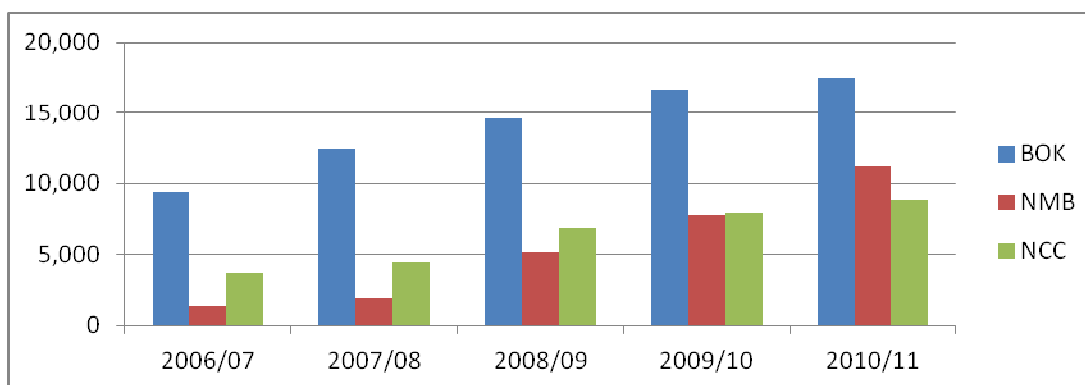
Growth ratios of total loan and advances of banks under study are calculated to find out the trend of growth of total loan advances and to detect actual position of banks. The growth ratios are derived from the interpolation of the factor, which is calculated by dividing final loan and advances with initial loan and advances.

Table 4.22
Growth Ratio of Loan and Advances

Bank	Fiscal Year					Growth Rate (%)
	2006/07	2007/08	2008/09	2009/10	2010/11	
BOK	9399	12463	14647	16665	17468	16.76
NMB	1396	1940	5194	7808	11209	68.33
NCC	3708	4418	6858	7995	8835	24.24

(Source: Appendix No. 21)

Figure 4.5
Growth Ratio of Loan and Advances



The comparative table 4.22 and figure 4.5 shows that the growth ratio of loan and advances of NMB is higher than that of other banks. BOK has able to maintain of 16.76%, whereas NMB and NCC able to have maintained 68.33% and 24.24% respectively. The performance of NMB to grant loan and advances is better in comparison to other banks i.e. BOK and NCC. The highest growth ratio is 68.33% and lowest growth ratio is 16.76%. The above table clearly has shown that NMB in comparison to other banks is better year by year and NCC also maintained the average performance to grant loan and advance in the study period.

c) Growth ratio of total Investment

Growth ratios of total investment of sample banks are calculated to find out the trend of growth of total investment and to detect better position of banks.

The growth ratios are derived from the interpolation of the factor, which is calculated by dividing final investment with initial investment.

Table 4.23
Growth Ratio of Total Investment

Bank	Fiscal Year					Growth Rate (%)
	2006/07	2007/08	2008/09	2009/10	2010/11	
BOK	2992	3204	2783	3269	4287	9.41
NMB	855	1243	1857	2716	2615	32.24
NCC	1237	1901	1583	1948	2061	13.62

(Source: Appendix No. 21)

Figure 4.6
Growth Ratio of Total Investment



The comparative table 4.23 and figure 4.6 shows that the growth ratio of NMB total investment is higher than other banks. NMB is able to maintain 32.24%, whereas BOK and NCC are able to have maintained 9.41% and 13.62% respectively. NMB Bank has highest growth ratio due to grant huge investment in FY 2009/10.

d) Growth ratio of total net profit

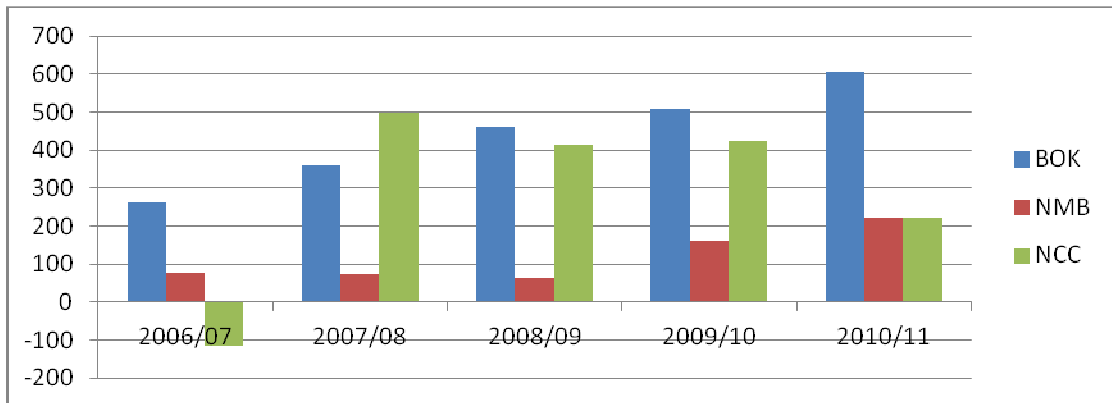
Growth ratios of total net profit of sample banks are calculated to find out the trend of Growth of total net profit and to detect better position of banks. The growth ratios are derived from the interpolation of the factor, which is calculated by dividing final net profit with initial net profit.

Table 4.24
Growth ratio of total net profit

Bank	Fiscal Year					Growth Rate (%)
	2006/07	2007/08	2008/09	2009/10	2010/11	
BOK	262	361	462	509	605	23.27
NMB	75	72	63	160	222	31.17
NCC	-116	499	415	424	221	17.49

(Source: Appendix No. 21)

Figure 4.7
Growth Ratio of Total Net Profit



The comparative table 4.24 and figure 4.7 shows that the growth ratio of NMB total net profit is higher than two banks (BOK and NCC) Net profit of NCC is poor in comparison with NMB and BOK, NMB is able to maintain the growth ratio in better position. So it clear that NMB has high growth rate in comparison to other banks.

From the above analysis of all tables, it can be concluded that NMB performance regarding the collection of deposit, granting loan and advances on total investment and net profit is comparatively better.

4.2 Statistical Tools

4.2.1 Trend Analysis

i) Trend Analysis of Total Deposit

Under this topic an effort has been made to calculate the trend values of deposits of BOK, NMB and NCC for five years from mid July 2006/07 to 2010/11 and forecast for next five years from the mid July 2011/12 to 2015/16 (table 4.25).

Table 4.25
Trend Value of Total Deposit of BOK, NMB and NCC

Fiscal year	Trend Value of BOK	% Change	Trend Value of NMB	% Change	Trend Value of NCC	% Change
2007	13180.2	-	244.8	-	6,463	-
2008	15354.2	16.49	3403.7	1290.40	7,704	19.20
2009	17528.2	14.16	6562.6	92.81	8,945	16.11
2010	19702.2	12.40	9721.5	48.13	10,186	13.87
2011	21876.2	11.03	12880.4	32.49	11,426	12.17
2012	24050.2	9.94	16039.3	24.52	12,667	10.86
2013	26224.2	9.04	19198.2	19.69	13,908	9.80
2014	28398.2	8.29	22357.1	16.45	15,148	8.92
2015	30572.2	7.66	25516	14.13	16,389	8.19
2016	32746.2	7.11	28674.9	12.38	17,630	7.57

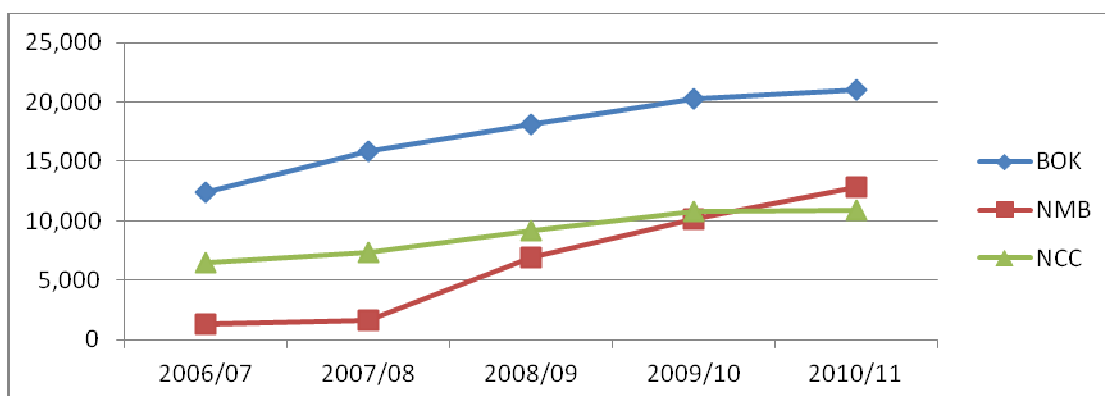
(Source: Appendix No. 22, 23, 24)

The total deposits of BOK, NMB and NCC are in the increasing trend. If all other things remain the same the total deposits of the BOK will be the highest deposit among the three banks, under the study period. Same as the total deposit of the NMB will be 28674.9 million in the mid July 2016. The total deposit of BOK will be 32746.2 million in the mid July 2016. The total deposit of NCC will be 17630.

By analyzing the above trend value, it is found that the total deposit collection position of BOK is better in comparison to NMB & NCC. Generally the deposit collection positions of all the three banks are following the increasing trend (figure 4.8).

Figure 4.8

Trend Value of Total Deposit of BOK, NMB and NCC



ii) Trend Analysis of Loan and Advances

Here the trend values of loan and advances of BOK, NMB and NCC have been calculated for five years from mid July 2006/07 to 2010/11. The forecast for next five years up to 2016 have been done.

Table 4.26 below reveals that the trend value of loan and advances of the three banks are in increasing trend. If other things remain same, total loan and advances of NMB will be 23355 million by 2016. Similarly the total loan and advances of NCC will be 16045 million. Total loan and advances of BOK will be 28366 million, which is the highest among the banks during the study period.

Table 4.26

Trend Values of Loan and Advances of BOK, NMB and NCC

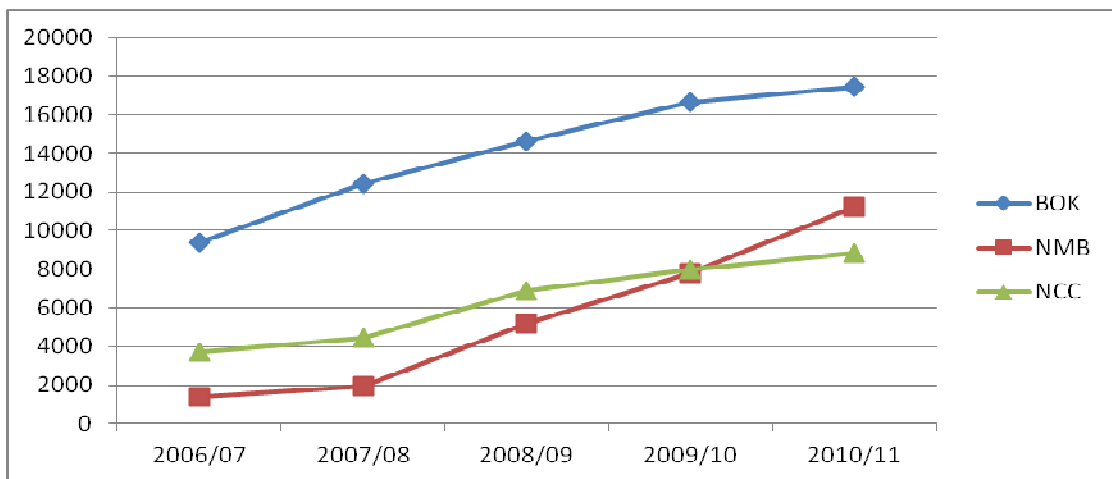
Fiscal year	Trend Value of BOK	% Change	Trend Value of NMB	% Change	Trend Value of NCC	% Change
2007	10,060	-	411	-	3,597	-
2008	12,094	20.22	2,960	620.19	4,980	38.45
2009	14,128	16.82	5,509	86.11	6,363	27.77
2010	16,162	14.40	8,059	46.29	7,746	21.74
2011	18,196	12.59	10,608	31.63	9,129	17.85
2012	20,230	11.18	13,158	24.04	10,512	15.15
2013	22,264	10.05	15,707	19.37	11,895	13.16
2014	24,298	9.14	18,256	16.23	13,278	11.63
2015	26,332	8.37	20,806	13.97	14,661	10.42
2016	28,366	7.72	23,355	12.25	16,045	9.44

(Source: Appendix No. 25, 26, 27)

From the above analysis it is found that the loan and advances position of NMB is comparatively lower than BOK and is better in comparison to NCC i.e. $28366 > 16045 < 23355$ million respectively. NMB and NCC may use the skill for the other option of secured loans that is quite appreciable. BOK is tilted towards the secured loan because of less risk due to the sufficient collateral of its clients.

The trend value of loan and advances of the three banks for the study period has been plotted in figure 4.9 below.

Figure 4.9
Trend Values of Loan and Advances of BOK, NMB and NCC



iii) Trend Analysis of Total Investment

Under this topic, an effort has been made to calculate the trend values of total investment from the mid July 2006/07 to 2010/11 and to forecast for the period of July 2012 to 2016.

Table 4.27 shows the trend values of total investment from mid July 2006/07 to 2015/16 of the BOK, NMB and NCC.

Table 4.27

Trend Values of Total Investment of BOK, NMB and NCC

Fiscal year	Trend Value of BOK	% Change	Trend Value of NMB	% Change	Trend Value of NCC	% Change
2007	2,776	0	859	0	1,407	0
2008	3,042	9.58	1,358	58.09	1,577	12.08
2009	3,307	8.71	1,857	36.75	1,746	10.72
2010	3,573	8.04	2,357	26.93	1,916	9.74
2011	3,838	7.42	2,856	21.17	2,085	8.82
2012	4,104	6.93	3,355	17.47	2,255	8.15
2013	4,369	6.46	3,854	14.87	2,424	7.49
2014	4,635	6.09	4,354	12.97	2,594	7.01
2015	4,900	5.72	4,853	11.46	2,763	6.52
2016	5,166	5.43	5,352	10.28	2,933	6.15

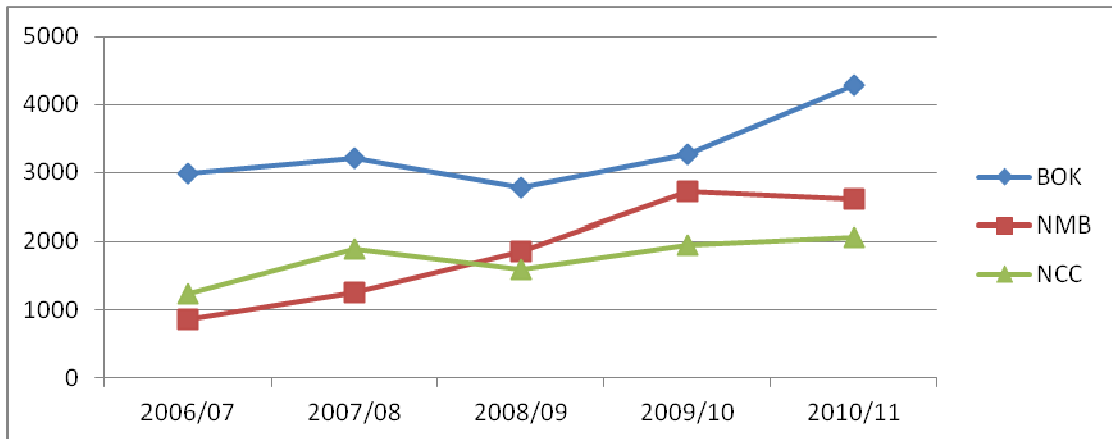
(Source: Appendix No. 28, 29, 30)

Total investments of BOK, NMB and NCC have the increasing trend. The total investment of NCC will be 2933 million in the mid July 2016, which is lowest in comparison with BOK and NMB. BOK and NMB will have expandable trend value of 5166 and 5352 (million) in the mid July 2016. The total investment trend of NMB is satisfactory among the two banks. From the above analysis, it can be concluded that BOK has not maintained well investment but in case of NCC and NMB it is predicted to be good total investment trend up to the 2015/16

The trend value of the three banks for the period of 2006/07 – 2010/11 has been shown in figure 4.10 as well

Figure 4.10

Trend Value of Investment of BOK, NMB and NCC



iv) Trend Analysis of Net Profit

Under this topic, an effort had been made to analyze net profit of BOK, NMB and NCC from the mid July 2006/07 to 2010/11 and forecast for the period from mid July 2011/12 to 2015/16. Table 4.28 shows the trend values of net profit for the period of ten years from mid July 2006/07 to 2015/16.

Table 4.28

Trend Value Net Profit of BOK, NMB and NCC

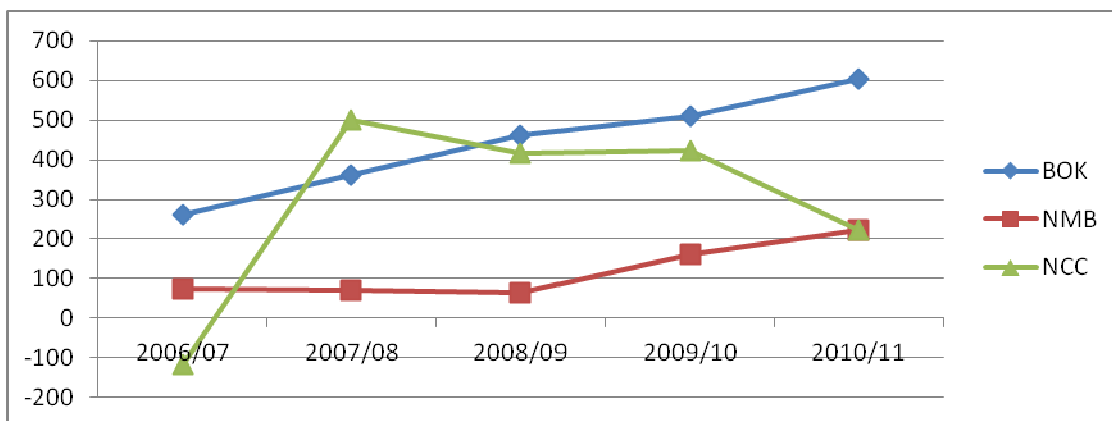
Fiscal year	Trend Value of BOK	% Change	Trend Value of NMB	% Change	Trend Value of NCC	% Change
2007	273	0.00	42	0.00	169	0.00
2008	356	30.40	80	90.48	229	35.50
2009	440	23.60	118	47.50	289	26.20
2010	523	18.86	157	33.05	349	20.76
2011	607	16.06	195	24.20	408	16.91
2012	690	13.67	233	19.49	468	14.71
2013	773	12.03	271	16.31	528	12.82
2014	857	10.87	309	14.02	588	11.36
2015	940	9.68	348	12.62	648	10.20
2016	1,024	8.94	386	10.92	708	9.26

(Source: Appendix No. 31, 32, 33)

The above table 4.28 shows the net profit all three banks have the increasing trend value. The net profit of NCC will be 708 million in the mid July 2016. Similarly net profit of BOK will be 1024 million, which is the highest amount among the three banks. Net profit of NMB will be 386 million, which is lowest value.

Trend value of net profit of the three banks for the period of 2006/07 – 2010/11 has been shown in figure 4.11 below.

Figure 4.11
Trend Value of Net Profit of BOK, NMB and NCC



From this trend analysis it can be said that the net profit of NCC in the medium among the banks which shows i.e. $1024 > 708 > 386$ million in the year 2016. The above calculated trend values of all three banks are fitted in the trend line.

4.2.2 Coefficient of Correlation Analysis

Under this heading Karl Pearson coefficient of correlation (Direct Method) has been used to find out the relationship between deposit and loan and advances, deposit and total investment and outside assets and net profit etc.

i) Coefficient of Correlation between Deposit and Loan and Advances

It measures the intensity or magnitudes or degree of relationship between the two variables. In the analysis, deposit is independent variable (X) and loan

and advances are dependent variable (Y). The objectives of computing coefficient of correlation (r) between the two variables are to justify whether deposit is significantly used as loan and advances or not.

Table 4.29 shows the value of 'r', r^2 , P. E. and 6P.E. between deposit and loan and advance of BOK, NMB and NCC.

Table 4.29
Coefficient of Correlation between Deposit and Loan and Advances

Banks	Evaluation Criteria			
	r	r^2	P.E.	6 P. E.
BOK	0.9997	0.9994	0.0001810	0.001086
NMB	0.9912	0.9825	0.005279	0.03167
NCC	0.9906	0.9813	0.005641	0.03385

(Source: Appendix No. 34, 35, 36)

As stated above, table 4.29 show the value of 'r', r^2 , P. E., 6 P. E. between deposit and loan and advances of BOK, NMB and NCC from year 2006/07 to 2010/11. In case of BOK, it is found that coefficient of correlation between deposit and loan and advances is 0.9997. It shows the positive relationship between two variables. The value of coefficient of determination (r^2) is 0.9994, which means 99.94% of the variation in the dependent variable (loans and advances), has been explained by the independent variable (deposit). Similarly, considering the value of 'r' i.e. 0.9997 and comparing it with 6 P.E. i.e. 0.001086, we can clearly see that it is greater than the value of 6 P.E., it means the value of 'r' is significant. In other words there is significant relationship between deposit and loan and advances. NMB and NCC also have similar trend.

In conclusion it can be stated that in BOK, NMB and NCC exhibits significant relationship between deposit and loan and advances because 'r' is greater than 6 P.E. in all cases. However BOK has higher correlation between deposit and loan and advances as well as higher value of (r^2) in comparison to NMB and NCC.

ii) Relationship between Deposit and Total Investment

Coefficient of correlation between deposit and total investment measures the degree of relationship between these two variables. Deposit is independent variable (X) and total investment is dependent variable (Y). The purpose of computing it is to find out whether deposit is significantly used as investment or not.

Table 4.30 shows the value of 'r', r^2 , P.E., 6 P.E. between outside asset and net profit of BOK, NMB and NCC for the study period 2006/07 to 2010/11.

Table 4.30
Coefficient of Correlation between Deposit and Total Investment

Banks	Evaluation Criteria			
	r	r^2	P.E.	6 P. E.
BOK	0.5897	0.3478	0.1967	1.1802
NMB	0.9619	0.9252	0.02256	0.1354
NCC	0.7313	0.5348	0.1403	0.8418

(Source: Appendix No. 37, 38, 39)

Table 4.30 shows the value of 'r', r^2 , P.E., 6 P.E. between deposit and total investment of BOK, NMB and NCC. From the table, it is found that coefficient of correlation between deposit and total investment of BOK is 0.5897. It shows the positive relationship between two variables i.e. deposit, independent variable (X) and total investment, dependent variable (Y). Moreover, the value of coefficient of determination (r^2) is 0.3478. It means 34.78% of the variation in the dependent variable is explained by the independent variable. Similarly considering the value of 'r' and comparing it with 6 P.E.i.e.1.1802, we can see that it is less than the value of 6P.E. it shows that the value of 'r' is not significant.

In case of NMB there exists significant relationship between deposit and total investment because 'r' is greater than 6P.E.where as, in case of BOK and NCC 'r' is less than 6P.E. So there is no significant relationship between deposit and total investment. That means Bok and NCC has not been able to

follow the policy of maximizing the investment of their deposits. NMB has followed the policy of maximizing the investment of their deposits.

iii) Coefficient of Correlation between Outside Asset and Net Profit

Here outside assets (x) are independent variables and net profit is dependent variable (y). The objective of computing coefficient of correlation between outside asset and net profit is to find out whether net profit is significantly correlated with respect to total outside assets or not.

Table 4.31 shows the value of 'r', r^2 , P.E, 6 P.E. between outside asset and net profit of BOK, NMB and NCC.

Table 4.31
Coefficient of Correlation between Outside Asset and Net Profit

Banks	Evaluation Criteria			
	r	r^2	P.E.	6 P. E.
BOK	0.9910	0.9821	0.005399	0.03239
NMB	0.9029	0.8152	0.05574	0.3344
NCC	0.4092	0.1674	0.2512	1.5072

(Source: Appendix No. 40, 41, 42)

Table 4.31 above shows the value of r, r^2 , P.E, 6 P.E. between outside Asset and Net Profit of BOK, NMB and NCC for the study period 2006/07 to 2010/11. From this table, it has been found that the coefficient of correlation between total outside assets (independent variable) and net profit (dependent variable) is 0.9910 in case of BOK. It shows positive relationship between these variables. The value of coefficient of determination (r^2), is 0.9821 indicated that 98.21% of the variation in the dependent variable has been explained by the independent variable. The value of r is greater than the value of 6P.E, which reveals BOK is capable to earn net profit by mobilizing in total outside assets.

Likewise, the coefficient of correlation between total outside assets and net profit in the case of NMB and NCC are 0.9029 and 0.4092. Again when we consider the value of coefficient determination (r^2) i.e. 0.8152 and 0.1674, it means 81.52% and 16.74% respectively in the dependent variable has been

explained by the independent variable. So in case of NMB there is significant relationship because the value of 'r' is greater than 6P.E.i.e. 0.3344 but in case of NCC there is no significant relationship because the value of 'r' is less than 6P.E.i.e. 1.5072.

iv) Coefficient of Correlation between Deposit and Net Profit

The coefficient of correlation between deposit and net profit measures the degree of relationship between these two variables. Here deposit (X) is independent variable and net profit (Y) is dependent variable. The objectives of computing coefficient of correlation between these two variables are to justify whether net profit is significantly correlated with deposits or not.

Table 4.32 shows the value of 'r', r^2 , P.E., 6 P.E. between deposit and net profit of BOK, NMB and NCC for the study period.

Table 4.32
Coefficient of Correlation between Deposit and Net Profit

Banks	Evaluation Criteria			
	r	r^2	P.E.	6 P. E.
BOK	0.9794	0.9592	0.01231	0.07386
NMB	0.8679	0.7533	0.07442	0.4465
NCC	0.3946	0.1557	0.2457	1.5282

(Source: Appendix No. 43, 44, 45)

From this table, it has been found that the coefficient of correlation between total deposit i.e. independent variable and net profit i.e. dependent variable is 0.9794 in case of BOK. It shows positive relationship between these two variables. Considering the value of coefficient of determination (r^2), i.e. 0.9592, it is indicated that 95.92% of the variation in the dependent variable has been explained by the independent variable. Similarly considering the value of r being greater than the value of 6 P.E, it is indicated that BOK is capable to earn net profit by mobilizing in total deposit.

Likewise, the coefficient of correlation between total deposit and net profit in the case of NMB and NCC are 0.8679 and 0.3946. Again when we consider the value of coefficient of determination (r^2) i.e. 0.7533 and 0.1557, it means 75.33% and 15.57% respectively in the dependent variable has been explained by the independent variable. So in case of NMB there is significant relationship because the value of 'r' is greater than 6P.E.i.e. 0.4465 but in case of NCC there is no significant relationship because the value of 'r' is less than 6 P.E. i.e. 1.5282.

The above analysis clears that; the value of 'r' in case of BOK and NMB is significant correlation between mobilizations of funds return. But in the case of NCC the value of 'r' is far less than 6 P.E. So NCC bank has no significant correlation between mobilization of funds and returns.

v) Coefficient of Correlation between Deposit and Interest Earned

The coefficient of correlation between deposits and interest earned measures the relationship between these two variables. Deposits are independent variable (X) and an interest earned is dependent variable (Y). The objective of calculating r between two variables is to see whether deposit is significantly used to earn interest or not.

Table 4.33 below shows the value of 'r', r^2 , P.E. and 6P.E of BOK, NMB and NCC for the study period.

Table 4.33
Coefficient of Correlation between Deposit and Interest Earned

Banks	Evaluation Criteria			
	r	r^2	P.E.	6 P. E.
BOK	0.9280	0.8612	0.04187	0.2512
NMB	0.9265	0.8584	0.04271	0.2563
NCC	0.9435	0.8902	0.03312	0.1987

(Source: Appendix No. 46, 47, 48)

The coefficient of correlation 'r' between deposit and interest earned in case of BOK is 0.9280, which indicates a positive relationship between these

variables. The coefficient of determination (r^2) is 0.8612 which indicates that 86.12% of the variation in dependent variable has been explained by independent variable. Similarly considering the value of 'r' and comparing with 6 P.E. it is clear that the value of r is greater than the value of 6 P.E. This shows that it has significant relationship between deposit and interest earned.

The coefficient of correlation 'r' between two variables in case of NMB and NCC are 0.9265 and 0.9435 respectively. These figures again indicate the positive relationship between the two variables in both the cases. As the values of determination for NMB & NCC are similar to that of BOK, their explanation will also be similar. NMB & NCC both have greater value of r than 6 P.E. showing significant relationship between deposit & interest earned.

vi) Coefficient of Correlation between Loan and Advances and Interest Paid

Here, loan and advances is independent variables (X) and interest paid in dependent variable (Y). The purpose of calculating 'r' between these variables is to establish whether increase in loan and advances has to play any role in decreasing in interest expenses.

Table 4.34 shows the values of 'r', r^2 , P.E and 6 P.E. of BOK, NMB and NCC for the study period.

Table 4.34

Coefficient of Correlation between Loan and Advances and Interest Paid

Banks	Evaluation Criteria			
	r	r^2	P.E.	6 P. E.
BOK	0.9048	0.8187	0.05469	0.3281
NMB	0.9603	0.9222	0.02347	0.1408
NCC	0.8742	0.7642	0.07113	0.4268

(Source: Appendix No. 49, 50, 51)

The coefficient of correlation between loan and advances and interest paid in the case of BOK is 0.9048. It shows the positive relationship between two variables. The coefficient of determination (r^2) in case of BOK shows a higher degree dependency than NCC and lower degree dependency than NMB. The

value of r is greater than value of 6 P.E. in case of BOK which states that there is significant relationship between loan and advances and interest paid.

Similarly the coefficient of correlation between loan and advances and interest paid in the case of NMB and NCC are 0.9603 and 0.8742. They show the positive relationship between these variables. The values of coefficient of determination (r^2) are 0.9222 and 0.7642 it means 92.22% and 76.42% of the variation in the dependent variable is explained by the independent variable. Again considering, the value of r and comparing with 6 P.E. in both cases it is greater than 6 P.E. which reveals that the value is significant relationship between two variables.

In conclusion, it can be clear that the relationship between loan and advances and interest in case of NMB is highly significant than both other banks. It is successful to utilize the loan and advances.

vii) Coefficient of Correlation between Total Working Fund and Net Profit

The coefficient of correlation between the total working fund and net profit measures the degree of relationship between them. Here, total working fund is taken as independent variable (X) and net profit is taken as dependent variable (Y). The main purpose of calculating 'r' is to see whether total working fund is significantly used to generate earnings or in other words whether these variables are significantly correlated or not.

Table 4.35 shows the value of 'r', r^2 , P.E., 6 P.E. between these two variables of BOK, NMB and NCC for the study period.

Table 4.35

Coefficient of Correlation between Total Working Fund and Net Profit

Banks	Evaluation Criteria			
	r	r^2	P.E.	6 P. E.
BOK	0.9884	0.9769	0.006968	0.04181
NMB	0.5175	0.2678	0.2209	1.3254
NCC	0.5426	0.2944	0.2184	1.3104

(Source: Appendix No. 52, 53, 54)

From table, it is found that coefficient of correlation between total working fund and net profit of NMB is 0.5175. Moreover, when we consider the value of coefficient of determination (r^2) it is 0.2678 and it means 26.78% of the variation in the dependent variable is explained by the independent variable. Similarly considering the value of 'r' and comparing it with 6 P.E.i.e.1.3254, we can see that it is less than the value of 6 P.E. which reveals the value of 'r' is not significant. Likewise in case of NCC value of 'r' is also less than 6 P.E. i.e.1.3104, so we can say that there is also not significant relationship between total working fund and net profit.

Since the value of 'r' i.e. 0.9884 is more than 6 P.E.i.e.0.04181, there exist significant relationship between total working fund and net profit. The coefficient of correlation between both total working fund & net profit in case of BOK is 0.9884, which indicates a positive relationship between these two variables. The value of coefficient of determination (r^2) is 0.9769 which indicates that 97.69% of the variation is dependant variable has been explained by independent variable.

4.2.3 Test of Hypothesis

i) Test of Hypothesis on Loans and Advances to Total Deposits Ratio.

To test the ratios of loans and advances to total deposits of BOK, NMB and NCC with the statistical tools "T-test" has been done.

Table 4.36

Loans and Advances to Total Deposits Ratios between BOK, NMB and NCC

Fiscal Year	BOK			NMB			NCC		
	x_1	X_1	X_1^2	x_2	X_2	X_2^2	x_3	X_3	X_3^2
2006/07	75.87	-4.27	18.25	107.72	14.86	220.76	57.05	-12.37	152.92
2007/8	78.71	-1.43	2.05	116.73	23.87	569.68	60.36	-9.06	82.01
2008/09	80.99	0.85	0.72	75.52	-17.34	300.74	75.13	5.71	32.65
2009/10	82.03	1.89	3.56	77.22	-15.64	244.67	73.86	4.44	19.75
2010/11	83.11	2.97	8.81	87.12	-5.74	32.97	80.68	11.26	126.88
Total	400.71		33.39	464.3		1368.83	347.07		414.21

We have,

$$\bar{X}_1 = \frac{\sum x_1}{n} = \frac{400.71}{5} = 80.14$$

$$\bar{X}_2 = \frac{\sum x_2}{n} = \frac{464.3}{5} = 92.86$$

$$\bar{X}_3 = \frac{\sum x_3}{n} = \frac{347.07}{5} = 69.42$$

$$\text{Again, } X_1 = x_1 - \bar{X}_1$$

$$X_2 = x_2 - \bar{X}_2$$

$$X_3 = x_3 - \bar{X}_3$$

a. Test of Significance of Difference between BOK and NMB

To test the significant relationship between BOK and NMB under statistical tool, T-test has been done.

We have,

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{SP^2 \left(\frac{1}{n_1} + \frac{1}{n_2} \right)}}$$

Where,

$$\begin{aligned} SP^2 &= \frac{1}{n_1 + n_2 - 2} \left(\sum X_1^2 + \sum X_2^2 \right) \\ &= \frac{1}{5 + 5 - 2} \times (33.39 + 1368.83) \\ &= 175.2775 \end{aligned}$$

Now,

Test statistics under H_0 is,

$$t = \frac{80.14 - 92.86}{\sqrt{175.2775 \left(\frac{1}{5} + \frac{1}{5} \right)}}$$

$$t = -3.03825$$

$$\text{Degree of freedom} = n_1 + n_2 - 2 = 5 + 5 - 2 = 8$$

Level of significance, $\alpha = 5\%$

Critical value: The tabulated value of t at 5% level of significance for one tailed test and for 8 degree of freedom is 1.860 i.e. $t_{0.05}(8) = 1.860$

Decision: Since the calculated value of t i.e. -3.03825 is less than the tabulated value 1.860, the null hypothesis (H_0) is accepted. This mean there is

no significant difference between mean ratios of loans and advances to total deposit of BOK and NMB.

b. Test of Significance Difference between BOK and NCC

To test the significant relationship between BOK and NCC under statistical tool, T-test has been done.

We have,

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{SP^2 \left(\frac{1}{n_1} + \frac{1}{n_2} \right)}}$$

Where,

$$\begin{aligned} SP^2 &= \frac{1}{n_1 + n_2 - 2} \left(\sum X_1^2 + \sum X_2^2 \right) \\ &= \frac{1}{5 + 5 - 2} \times (33.39 + 414.21) \\ &= 55.95 \end{aligned}$$

Now,

Test statistics under H_0 is,

$$t = \frac{80.14 - 69.42}{\sqrt{55.95 \left(\frac{1}{5} + \frac{1}{5} \right)}}$$

$$t = 4.5321$$

$$\text{Degree of freedom} = n_1 + n_2 - 2 = 5 + 5 - 2 = 8$$

Level of significance, $\alpha = 5\%$

Critical value: The tabulated value of t at 5% level of significance for one tailed test and for 8 degree of freedom is 1.860 i.e. $t_{0.05}(8) = 1.860$

Decision: Since the calculated value of t is 4.5321 which is greater than the tabulated value 1.860, the null hypothesis (H_0) is rejected. This means there is significant difference between mean ratios of loans and advances to total deposit of BOK and NCC.

ii) Test of Hypothesis on Total Investment to Total Deposit Ratio.

This ratio of total investment to total deposit of BOK, NMB and NCC are taken and carried out under t- test.

Table 4.37

Total Investment to Total Deposit Ratio of BOK, NMB and NCC

Fiscal Year	BOK			NMB			NCC		
	x_1	X_1	X_1^2	x_2	X_2	X_2^2	x_3	X_3	X_3^2
2006/07	24.15	4.90	23.99	65.97	22.98	528.17	19.03	-0.80	0.64
2007/8	20.23	0.98	0.96	74.79	31.80	1011.37	25.97	6.14	37.68
2008/09	15.39	-3.86	14.92	27.00	-15.99	255.62	17.34	-2.49	6.21
2009/10	16.09	-3.16	10.00	26.86	-16.13	260.11	18.00	-1.83	3.36
2010/11	20.4	1.15	1.32	20.32	-22.67	513.84	18.82	-1.01	1.02
Total	96.26		51.18	214.95		2569.11	99.16		48.91

We have,

$$\bar{X}_1 = \frac{\sum x_1}{n} = \frac{96.26}{5} = 19.25$$

$$\bar{X}_2 = \frac{\sum x_2}{n} = \frac{214.95}{5} = 42.99$$

$$\bar{X}_3 = \frac{\sum x_3}{n} = \frac{99.16}{5} = 19.83$$

$$\text{Again, } X_1 = x_1 - \bar{X}_1$$

$$X_2 = x_2 - \bar{X}_2$$

$$X_3 = x_3 - \bar{X}_3$$

a. Test of Significance Difference between BOK and NMB

To test the significant relationship between BOK and NMB under statistical tool, T-test has been done.

We have,

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{SP^2 \left(\frac{1}{n_1} + \frac{1}{n_2} \right)}}$$

Where,

$$\begin{aligned} SP^2 &= \frac{1}{n_1 + n_2 - 2} \left(\sum X_1^2 + \sum X_2^2 \right) \\ &= \frac{1}{5 + 5 - 2} \times (51.18 + 2569.11) \\ &= 327.53625 \end{aligned}$$

Now,

Test statistics under H_0 is,

$$t = \frac{19.25 - 42.99}{\sqrt{327.53625 \left(\frac{1}{5} + \frac{1}{5}\right)}}$$

$$t = -4.1481$$

Degree of freedom = $n_1 + n_2 - 2 = 5 + 5 - 2 = 8$

Level of significance, $\alpha = 5\%$

Critical value: The tabulated value of t at 5% level of significance for one tailed test and for 8 degree of freedom is 1.860 i.e. $t_{0.05}(8) = 1.860$

Decision: Since the calculated value of t i.e. **-4.1481** is less than the tabulated value i.e. 1.860, the null hypothesis is accepted. This means there is no significance difference between mean ratio of total investment to total deposit of BOK and NMB.

b. Test of Significance Difference between BOK and NCC

To test the significant relationship between BOK and NCC under statistical tool, T-test has been done.

We have,

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{SP^2 \left(\frac{1}{n_1} + \frac{1}{n_2}\right)}}$$

Where,

$$\begin{aligned} SP^2 &= \frac{1}{n_1 + n_2 - 2} \left(\sum X_1^2 + \sum X_2^2 \right) \\ &= \frac{1}{5 + 5 - 2} \times (51.18 + 48.91) \\ &= 12.51125 \end{aligned}$$

Now,

Test statistics under H_0 is,

$$t = \frac{19.25 - 19.83}{\sqrt{12.51125 \left(\frac{1}{5} + \frac{1}{5}\right)}}$$

$$t = -0.5185$$

Degree of freedom = $n_1 + n_2 - 2 = 5 + 5 - 2 = 8$

Level of significance, $\alpha = 5\%$

Critical value: The tabulated value of t at 5% level of significance for one tailed test and for 8 degree of freedom is 1.860 i.e. $t_{0.05}(8) = 1.860$

Decision: Since, the calculated value of t i.e. **-0.5185** is less than the tabulated value 1.860, so the null hypothesis is accepted i.e. there is no significance difference between mean ratio of total investment to total deposit of BOK and NCC.

iii) Test of Hypothesis of Investment on Government Securities to Current Assets Ratio.

To test the significance of relationship between BOK, NMB and NCC under statistical tool "T-test" has been done.

Table 4.38
Investment on Government Securities to Current Asset Ratio

Fiscal Year	BOK			NMB			NCC		
	x_1	X_1	X_1^2	x_2	X_2	X_2^2	x_3	X_3	X_3^2
2006/07	16.37	3.04	9.24	10.99	0.71	0.50	19.67	2.83	8.02
2007/8	12.19	-1.14	1.30	8.81	-1.47	2.17	21.62	4.78	22.87
2008/09	8.69	-4.64	21.53	7.25	-3.03	9.21	14.08	-2.76	7.61
2009/10	12.9	-0.43	0.18	12.32	2.04	4.15	14.11	-2.73	7.44
2010/11	16.5	3.17	10.05	12.05	1.77	3.12	14.71	-2.13	4.53
Total	66.65		42.30	51.42		19.14	84.19		50.46

We have,

$$\bar{X}_1 = \frac{\sum x_1}{n} = \frac{66.65}{5} = 13.33$$

$$\bar{X}_2 = \frac{\sum x_2}{n} = \frac{51.42}{5} = 10.28$$

$$\bar{X}_3 = \frac{\sum x_3}{n} = \frac{84.19}{5} = 16.84$$

$$\text{Again, } X_1 = x_1 - \bar{X}_1$$

$$X_2 = x_2 - \bar{X}_2$$

$$X_3 = x_3 - \bar{X}_3$$

a. Test of Significance of Difference between BOK and NMB

To test the significant relationship between BOK and NMB under statistical tool, T-test has been done.

We have,

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{SP^2 \left(\frac{1}{n_1} + \frac{1}{n_2} \right)}}$$

Where,

$$\begin{aligned} SP^2 &= \frac{1}{n_1 + n_2 - 2} \left(\sum X_1^2 + \sum X_2^2 \right) \\ &= \frac{1}{5 + 5 - 2} \times (42.30 + 10.14) \\ &= 7.68 \end{aligned}$$

Now,

Test statistics under H_0 is,

$$t = \frac{13.33 - 10.28}{\sqrt{7.68 \left(\frac{1}{5} + \frac{1}{5} \right)}}$$

$$t = 3.4803$$

Degree of freedom = $n_1 + n_2 - 2 = 5 + 5 - 2 = 8$

Level of significance, $\alpha = 5\%$

Critical value: The tabulated value of t at 5% level of significance for one tailed test and for 8 degree of freedom is 1.860 i.e. $t_{0.05}(8) = 1.860$

Decision: Since the calculated value of t i.e. **3.4803** is greater than the tabulated value i.e.1.860, the null hypothesis is rejected. This means there is significance difference between mean ratio of investment on government securities to current assets ratio of BOK and NMB.

b. Test of significance of difference between BOK and NCC

To test the significant relationship between BOK and NCC under statistical tool, T-test has been done.

We have,

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{SP^2 \left(\frac{1}{n_1} + \frac{1}{n_2} \right)}}$$

Where,

$$\begin{aligned}
 SP^2 &= \frac{1}{n_1 + n_2 - 2} \left(\sum X_1^2 + \sum X_2^2 \right) \\
 &= \frac{1}{5 + 5 - 2} \times (42.30 + 50.46) \\
 &= 11.595
 \end{aligned}$$

Now,

Test statistics under H_0 is,

$$t = \frac{13.33 - 16.64}{\sqrt{11.595 \left(\frac{1}{5} + \frac{1}{5} \right)}}$$

$$t = -3.2597$$

Degree of freedom = $n_1 + n_2 - 2 = 5 + 5 - 2 = 8$

Level of significance, $\alpha = 5\%$

Critical value: The tabulated value of t at 5% level of significance for one tailed test and for 8 degree of freedom is 1.860 i.e. $t_{0.05}(8) = 1.860$

Decision: Since the tabulated value of t i.e. -3.2597 which is less than the tabulated value i.e. 1.860, the null hypothesis is accepted i.e. there is no significance difference between mean ratio of investment on government securities to current assets ratio of BOK and NCC.

iv) Test of Hypothesis on Loans and Advances to Current Assets Ratio.

To test the significant relationship between loans and advances of BOK, NMB and NCC under statistical tool, "T-test" has been done.

Table 4.39

Loans and Advances to Current Assets Ratio of BOK, NMB and NCC

Fiscal Year	BOK			NMB			NCC		
	x_1	X_1	X_1^2	x_2	X_2	X_2^2	x_3	X_3	X_3^2
2006/07	65.98	-5.14	26.44	32.17	-11.66	136.05	63.00	-0.54	0.29
2007/8	71.90	0.78	0.61	22.06	-21.77	474.11	54.77	-8.77	76.91
2008/09	72.95	1.83	3.34	33.22	-10.61	112.66	67.65	4.11	16.89
2009/10	72.76	1.64	2.68	60.2	16.37	267.85	64.08	0.54	0.29
2010/11	72.02	0.90	0.81	71.52	27.69	766.51	68.2	4.66	21.72
Total	355.61		33.88	219.17		1757.17	317.69		116.10

We have,

$$\bar{X}_1 = \frac{\sum x_1}{n} = \frac{355.61}{5} = 71.12$$

$$\bar{X}_2 = \frac{\sum x_2}{n} = \frac{219.17}{5} = 43.83$$

$$\bar{X}_3 = \frac{\sum x_3}{n} = \frac{317.69}{5} = 63.54$$

$$\text{Again, } X_1 = x_1 - \bar{X}_1$$

$$X_2 = x_2 - \bar{X}_2$$

$$X_3 = x_3 - \bar{X}_3$$

a. Test of Significance of Difference between BOK and NMB

To test the significant relationship between EBL and NABIL under statistical tool, T-test has been done.

We have,

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{SP^2 \left(\frac{1}{n_1} + \frac{1}{n_2} \right)}}$$

Where,

$$\begin{aligned} SP^2 &= \frac{1}{n_1 + n_2 - 2} \left(\sum X_1^2 + \sum X_2^2 \right) \\ &= \frac{1}{5 + 5 - 2} \times (33.88 + 1757.17) \\ &= 223.88125 \end{aligned}$$

Now,

Test statistics under H_0 is,

$$t = \frac{71.12 - 43.83}{\sqrt{223.88125 \left(\frac{1}{5} + \frac{1}{5} \right)}}$$

$$t = 5.7676$$

$$\text{Degree of freedom} = n_1 + n_2 - 2 = 5 + 5 - 2 = 8$$

Level of significance, $\alpha = 5\%$

Critical value: The tabulated value of t at 5% level of significance for one tailed test and for 8 degree of freedom is 1.860 i.e. $t_{0.05}(8) = 1.860$

Decision: Since, the calculated value of t i.e. **5.7676** is greater than the tabulated value i.e. 1.860, the null hypothesis is rejected i.e. there is

significance difference between mean ratio of loan and advances to current assets ratio of BOK and NMB.

b. Test of Significance of Difference between BOK and NCC

To test the significant relationship between BOK and NCC under statistical tool, T-test has been done.

We have,

$$t = \frac{\bar{X}_1 - \bar{X}_3}{\sqrt{SP^2 \left(\frac{1}{n_1} + \frac{1}{n_3} \right)}}$$

Where,

$$\begin{aligned} SP^2 &= \frac{1}{n_1 + n_3 - 2} \left(\sum X_1^2 + \sum X_3^2 \right) \\ &= \frac{1}{5 + 5 - 2} \times (33.39 + 116.10) \\ &= 18.7474 \end{aligned}$$

Now,

Test statistics under H_0 is,

$$\begin{aligned} t &= \frac{71.12 - 63.54}{\sqrt{18.7474 \left(\frac{1}{5} + \frac{1}{5} \right)}} \\ t &= 5.7332 \end{aligned}$$

Degree of freedom = $n_1 + n_2 - 2 = 5 + 5 - 2 = 8$

Level of significance, $\alpha = 5\%$

Critical value: The tabulated value of t at 5% level of significance for one tailed test and for 8 degree of freedom is 1.860 i.e. $t_{0.05}(8) = 1.860$

Decision: Since the tabulated value of t i.e. **5.7332** is greater than the tabulated value i.e. 1.860, the null hypothesis is rejected i.e. there is significance difference between mean ratio of loan and advances to current assets ratio of BOK and NCC.

v) Test of Hypothesis on Return on Loans and Advances Ratio of BOK, NMB and NCC

The ratios of return on loans and advances of BOK, NMB and NCC are taken and under t- test of significance difference.

Table 4.40
Return on Loans and Advances Ratio of BOK, NMB and NCC.

Fiscal Year	BOK			NMB			NCC		
	x ₁	X ₁	X ₁ ²	x ₂	X ₂	X ₂ ²	x ₃	X ₃	X ₃ ²
2006/07	2.79	-0.28	0.08	5.37	2.51	6.28	-3.13	-7.53	56.73
2007/8	2.9	-0.17	0.03	3.71	0.85	0.72	11.29	6.89	47.44
2008/09	3.15	0.08	0.01	1.21	-1.65	2.74	6.05	1.65	2.72
2009/10	3.05	-0.02	0.00	2.05	-0.81	0.66	5.3	0.90	0.81
2010/11	3.46	0.39	0.15	1.98	-0.88	0.78	2.5	-1.90	3.62
Total	15.35		0.27	14.33		11.18	22.02		111.32

We have,

$$\bar{X}_1 = \frac{\sum x_1}{n} = \frac{15.35}{5} = 3.07$$

$$\bar{X}_2 = \frac{\sum x_2}{n} = \frac{14.33}{5} = 2.86$$

$$\bar{X}_3 = \frac{\sum x_3}{n} = \frac{22.02}{5} = 4.40$$

$$\text{Again, } X_1 = x_1 - \bar{X}_1$$

$$X_2 = x_2 - \bar{X}_2$$

$$X_3 = x_3 - \bar{X}_3$$

a. Test of Significance Difference between BOK and NMB

To test the significant relationship between BOK and NMB under statistical tool, T- test has been done.

We have,

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{SP^2 \left(\frac{1}{n_1} + \frac{1}{n_2} \right)}}$$

Where,

$$SP^2 = \frac{1}{n_1 + n_2 - 2} \left(\sum X_1^2 + \sum X_2^2 \right)$$

$$= \frac{1}{5 + 5 - 2} \times (0.27 + 11.18)$$

$$= 1.43125$$

Now,

Test statistics under H_0 is,

$$t = \frac{3.07 - 2.86}{\sqrt{1.43125 \left(\frac{1}{5} + \frac{1}{5}\right)}}$$

$$t = 0.5551$$

Degree of freedom = $n_1 + n_2 - 2 = 5 + 5 - 2 = 8$

Level of significance, $\alpha = 5\%$

Critical value: The tabulated value of t at 5% level of significance for one tailed test and for 8 degree of freedom is 1.860 i.e. $t_{0.05}(8) = 1.860$

Decision: Since the calculated value of t i.e. **0.5551** is less than the tabulated value i.e. 1.860, the null hypothesis is accepted i.e. there is no significant difference between mean ratio of return on loan and advances ratio of BOK and NMB.

b. Test of Significance Difference between BOK and NCC

To test the significant relationship between BOK and NCC under statistical tool, T-test has been done.

We have,

$$t = \frac{\bar{X}_1 - \bar{X}_3}{\sqrt{SP^2 \left(\frac{1}{n_1} + \frac{1}{n_3}\right)}}$$

Where,

$$\begin{aligned} SP^2 &= \frac{1}{n_1 + n_3 - 2} \left(\sum X_1^2 + \sum X_3^2 \right) \\ &= \frac{1}{5 + 5 - 2} \times (0.27 + 111.32) \\ &= 13.94875 \end{aligned}$$

Now,

Test statistics under H_0 is,

$$t = \frac{3.07 - 4.40}{\sqrt{13.94875 \left(\frac{1}{5} + \frac{1}{5}\right)}}$$

$$t = -1.1261$$

Degree of freedom = $n_1 + n_2 - 2 = 5 + 5 - 2 = 8$

Level of significance, $\alpha = 5\%$

Critical value: The tabulated value of t at 5% level of significance for one tailed test and for 8 degree of freedom is 1.860 i.e. $t_{0.05}(8) = 1.860$

Decision: Since the calculated value of t i.e. **-1.1261** is less than the tabulated value i.e. 1.860, the null hypothesis is accepted i.e. there is no significance difference between mean ratio of return on loan and advances of BOK and NCC.

vi) Test of Hypothesis on Total Interest Earned to Total outside Assets Ratio of BOK, NMB and NCC

The ratio of total interest earned to total outside assets of BOK, NMB and NCC are taken and carried out under "T- test" of significance difference.

Table 4.41

Total Interest Earned to Total outside Assets Ratio of BOK, NMB and NCC

Fiscal Year	BOK			NMB			NCC		
	x_1	X_1	X_1^2	x_2	X_2	X_2^2	x_3	X_3	X_3^2
2006/07	6.61	-1.65	2.72	10.57	1.93	3.73	9.59	-0.51	0.26
2007/8	6.6	-1.66	2.76	7.89	-0.75	0.56	9.13	-0.97	0.94
2008/09	7.73	-0.53	0.28	5.71	-2.93	8.57	8.98	-1.12	1.25
2009/10	9.39	1.13	1.28	8.23	-0.41	0.17	10.48	0.38	0.14
2010/11	10.97	2.71	7.34	10.79	2.15	4.63	12.32	2.22	4.93
Total	41.3		14.38	43.2		17.66	50.5		7.53

We have,

$$\bar{X}_1 = \frac{\sum x_1}{n} = \frac{41.3}{5} = 8.26$$

$$\bar{X}_2 = \frac{\sum x_2}{n} = \frac{43.2}{5} = 8.64$$

$$\bar{X}_3 = \frac{\sum x_3}{n} = \frac{50.50}{5} = 10.10$$

$$\text{Again, } X_1 = x_1 - \bar{X}_1$$

$$X_2 = x_2 - \bar{X}_2$$

$$X_3 = x_3 - \bar{X}_3$$

a) Test of Significance Difference between BOK and NMB

We have,

Where,

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{SP^2 \left(\frac{1}{n_1} + \frac{1}{n_2} \right)}}$$

Where,

$$\begin{aligned} SP^2 &= \frac{1}{n_1 + n_2 - 2} \left(\sum X_1^2 + \sum X_2^2 \right) \\ &= \frac{1}{5 + 5 - 2} \times (14.38 + 17.66) \\ &= 4.005 \end{aligned}$$

Now,

Test statistics under H_0 is,

$$t = \frac{8.26 - 8.64}{\sqrt{4.005 \left(\frac{1}{5} + \frac{1}{5} \right)}}$$

$$t = -0.6005$$

Degree of freedom = $n_1 + n_2 - 2 = 5 + 5 - 2 = 8$

Level of significance, $\alpha = 5\%$

Critical value: The tabulated value of t at 5% level of significance for one tailed test and for 8 degree of freedom is 1.860 i.e. $t_{0.05}(8) = 1.860$

Decision: Since the tabulated value of t i.e. **-0.6005** is less than the tabulated value i.e. 1.860, the null hypothesis is accepted i.e. there is no significant difference between mean ratio of total interest earned to total outside assets ratio of BOK and NMB

b. Test of Significance Difference between BOK and NCC

To test the significant relationship between BOK and NCC under statistical tool, "T- test" has been done.

We have,

$$t = \frac{\bar{X}_1 - \bar{X}_3}{\sqrt{SP^2 \left(\frac{1}{n_1} + \frac{1}{n_3} \right)}}$$

Where,

$$\begin{aligned}
 SP^2 &= \frac{1}{n_1 + n_3 - 2} \left(\sum X_1^2 + \sum X_3^2 \right) \\
 &= \frac{1}{5 + 5 - 2} \times (14.38 + 7.53) \\
 &= 2.73875
 \end{aligned}$$

Now,

Test statistics under H_0 is,

$$t = \frac{8.26 - 10.10}{\sqrt{2.73875 \left(\frac{1}{5} + \frac{1}{5} \right)}}$$

$$t = -0.9629$$

Degree of freedom = $n_1 + n_2 - 2 = 5 + 5 - 2 = 8$

Level of significance, $\alpha = 5\%$

Critical value: The tabulated value of t at 5% level of significance for one tailed test and for 8 degree of freedom is 1.860 i.e. $t_{0.05}(8) = 1.860$

Decision: Since the tabulated value of t i.e. -0.9629 is less than the tabulated value i.e. 1.860, the null hypothesis is accepted i.e. there is no significance difference between mean ratio of return on loan and advances of BOK and NCC.

4.2.4 Regression Analysis

Regression of Working Fund Capital and Net Profit

Regression is the statistical tool which is used to determine the statistical relationship between two or more variables and so make estimate of one variable on the basis of the other variable. Regression is the line which gives the best estimate of one variable for any given value of the other variable. The regression line of Y on X estimate the most probable values of Y for given values of X.

X is independent variable

Y is dependent variable

The regression equation of Y on X expressed as $Y = a + bx$

Where, a and b are parameters of the line.

To find out the exact relationship between different variable simple regressions analysis has been done and results of the analysis have been shown on the table.

Table 4.42

Calculation of Regression Equation between Net Profits on Total Working Fund

Banks	Regression equation	Value (a) constant	Regression coefficient (b)
BOK	$Y = -197.9515 + 0.3159X$	$a = -197.9515$	$b = 0.3159$
NMB	$Y = 33.1567 + 0.00730X$	$a = 33.1567$	$b = 0.00730$
NCC	$Y = -187.644 + 0.04778X$	$a = -187.644$	$b = 0.04778$

(Source: Appendix No. 55, 56, 57)

The table shows the regression equation of net profit and net working fund in BOK, NMB and NCC. According to the table regression equation of net profit on total working fund $Y = -197.9515 + 0.3159X$ in BOK is negative. The regression coefficient is positive i.e. 0.3159 which indicates the positive relationship exists between net profit and total working fund. In other word, one million increase in total working funds leads to average about 0.3159 million increase in net profit. The value of constant (a) is relatively low. The value of (a) indicates that if total working fund is 0 then the value of net profit is -197.9515 million. So from analysis it shows that the net profit will be decrease and net working fund also decrease.

On the other hand, regression coefficient of (b) is positive in case of NMB which indicates that one million increase in total working fund leads to an average about Rs. 0.00730 increases in net profit. According to the above table regression equation of net profit on total working fund regression coefficient is positive which reveals the positive relationship between net profit and total working fund.

Similarly regression equation of net profit on total working fund $Y = -187.644 + 0.04778X$ in NCC is negative. The regression coefficient is positive i.e. 0.04778 which indicates the positive relationship exists between net profit and total working fund. In other word, one million increase in total working funds leads to average about 0.04778 million increases in net profit. So from analysis it shows that the net profit will be decrease and total working fund also

decrease.

The test of t statistics helps us to conclude that in all three cases the results are not statistically significant at 5% level of significance since the value of t is smaller than tabulated value.

Table 4.43

Calculation of Regression Equation between Net Profits on Total Deposit

Banks	Regression equation	Value (a) constant	Regression coefficient (b)
BOK	$Y = -207.3282 + 0.03692X$	$a = -207.3282$	$b = 0.03692$
NMB	$Y = 40.3409 + 0.01189X$	$a = 40.3409$	$b = 0.01189$
NCC	$Y = -146.995 + 0.0487X$	$a = -146.995$	$b = 0.0487$

(Source: Appendix No. 58, 59, 60)

The above table is the collection of major output of simple regression analysis of net profit on total deposit.

The regression equation of net profit (Y) dependent variable on total deposit (X) independent variable $Y = -207.3282 + 0.03692X$ in BOK is negative i.e. 0.03692 which indicates the positive relationship exists between net profit and total deposit or it can be said that one million increase in total deposit leads to average 0.03692 million increase in net profit. The value of constant (a) is relatively low. Similarly in case of NCC the regression coefficient is positive or in other words one million increases in total deposit leads to average about 0.0487 million increase in net profit. The value of constant (a) indicates that the net profit can be increase and total deposit also increase. The regression coefficient of (b) is positive in case of NMB i.e. 0.01189 which indicates that one million increase in total deposit leads to an average about 0.01189 increases in net profit. The regression coefficient is positive which reveals the positive relationship between net profit and total deposit.

From the test of 't'-statistics it can be concluded that in all three cases the results are not statistically significant at 5% level of significance since the value of t is smaller than tabulated value.

4.3 Major Findings of the Study

1. The current ratio of BOK shows the increasing trend during the study period. The ratio ranges from lowest 1.05 in 2006/07 to highest 1.09 in 2010/11 with an average ratio of 1.068. The mean ratio of BOK is higher than NCC and slightly lower than NMB. In general, the current ratio analysis of banks over the five years period indicates that it has been able to meet its short-term obligations and has satisfactory liquidity position.
2. The cash and bank balances to total deposit ratio of NMB has fluctuating trend. The main ratio of this bank is higher than BOK and NCC which indicates that its liquidity position is better to serve its customers deposit withdrawal demands. On the basis of C.V. (131.70%) the ratio of NMB are more variable.
3. The mean ratio of cash and bank balance to current assets of NMB is higher than BOK and NCC. It states that liquidity position of NMB is better in this regard. The C.V. of NMB is 89.23 which is higher than other. The analysis reveals that NMB is in better position during study period as the bank shows the ability to manage the payment on customers deposit withdrawal in comparison with BOK and NCC although it has the fluctuating trend.
4. The mean ratio of investment on government securities to current asset of BOK is higher than NMB and lower than NCC. It means the BOK has invested it's as much as portion of its current assets as government securities as that of NMB and less than of NCC. The C.V. of BOK is higher in comparison to the other banks. So on the basis of C.V. the ratio of BOK are more volatile and inconsistent.
5. The Loan and advances to current assets ratio BOK has increasing trend. The mean ratio of BOK is higher than NMB and NCC which indicates that its liquidity positions fewer consistencies.
6. The loans and advances to total deposit ratio of BOK has an increasing trend. The mean ratio of BOK is higher than NCC and lower than NMB. The mean ratio is 80.142 % with lowest 3.22% C.V which shows that the ratios are satisfactory consistent over the study period.

7. Investment to total deposit of all three banks has in fluctuating trend during the study period. The mean ratio of total investment to total deposit of BOK has lesser than NMB and NCC. The highest ratio is 24.15% and lowest is 15.39% with mean ratio 19.252%. The C.V. between the ratios is found to be 16.62% which shows that the ratios of BOK aren't consistent and more variable.
8. The loans and advances to total working fund of ratio BOK has higher than NCC and NMB. Its C.V is 3.72% which is lowest than NCC and NMB banks. It shows the ratios are consistent over the study period. Loan and advances are the most risk and most productive asset of the bank. From the study shows two third of the asset taken optimum risk towards the mobilization of its fund to risky assets.
9. In case of investment on government, securities to total working fund mean ratio of BOK has higher than NMB and lower than NCC. The mean of the ratio is 13.05% with highest C.V of 21.82% which shows that its ratio is more variable and less consistent over the study period.
10. The investment on shares and debenture to total working fund ratios of all three banks have fluctuating trend during the study period. The mean ratio of BOK is found to be 0.438 with 50.98% C.V. The coefficient of variation of BOK is higher than that of other two banks which indicate that BOK is more variable and less consistent.
11. Total off balance sheet operation to loan and advances ratios of BOK has increasing trend during the study period. The mean of the ratio of NMB is found to be 12.88% with C.V. 33.33%. It has lowest C.V. than that of others compared to a bank which indicates that the ratio is consistent during the study period. The analysis of the ratios shows that OBS operation of the bank is in decreasing and fluctuating trend. It may be due to competition in the banking sector or bank is not getting enough attention towards non-funded business.
12. The loan loss ratio of BOK has fluctuating trend. The mean of the ratio of it is found to be 0.598% with C.V of 46.72%, which is lowest than that of the other compared banks, it shows that the bank manages its loan and advances and makes effort for timely recovered of loan. The

variability of the ratio of BOK is lower than that of other compared banks. The decreasing trend of loan loss provision indicates that the quality of loans becoming de-grading year by year.

13. The mean ratio of return on loans and advances ratio of BOK is higher than NMB and is lowest than NCC. The mean of the ratio is found to be 3.07% with C.V of 7.52%, which indicates that the ratios are less variable. The average ratio of 7.52 % suggests that the earning capacity of the bank's loan and advances is not satisfactory.
14. Return on total working fund ratios of BOK are in fluctuating trend during the study period. Its ratio ranges from 1.80% to 2.44%. The mean ratio of BOK is in between NCC and NMB i.e. BOK ratio is 2.14% with lowest C.V. of 10%. This indicates that the ratios are less variable and consistent than that of other compared banks.
15. The mean ratio of total interest earned to total outside assets of BOK is lowest of all. The total interest earned to total outside assets ratio of the BOK is less variable in comparison to NMB and NCC. Its C.V between the ratios is found to be 20.53% which shows that the ratios are satisfactory consistent during the study period.
16. Total interest earned to total working fund ratios of BOK have ranging from 5.62% in 2006/07 to 9.64% in 2010/11. The mean ratio of total interest earned to total working fund of BOK is 7.134% with 21.10% C.V. The ratio indicates that BOK has average earning power of the total assets. The variability of the ratio of BOK in between NCC and NMB.
17. The total interest paid to working fund ratios of NCC has fluctuating trend during the study period. The mean ratio of total interest paid to total working fund of NCC is higher than other banks, which means it has paid average interest. Similarly it has lower coefficient of variance among both banks which indicates that total interest paid & total working fund ratio is inconsistent than that of BOK & NMB. So, NCC is in better position from payment of interest point of view. It seems to be successful to collect its working fund from less expensive sources in comparison to others.

18. Credit risk ratios of the banks are in fluctuating trend. The mean of the ratios of BOK is found to be 69.62% which are higher than NCC & NMB. Similarly its C.V is 3.72% which is less compared with other banks. It indicates that its credit policy is consistent than other banks.
19. Liquidity risk ratio of the banks is in fluctuating trend. The mean liquidity risk ratio of NMB is highest of all and it's C.V of is also highest in comparison with NCC and BOK banks. In comparison, BOK has less C.V. which indicates that liquidity risk ratio of it's inconsistent.
20. The mean capital risk ratio of BOK is in between the compared banks. The ratio of BOK is less variable, which indicates that the capital risk ratio is consistent.
21. The analysis of the growth ratio of total deposits total loan and advances, total investments and net profit of BOK in comparison with NMB and NCC during the study period shows that the total deposits of the bank is in increasing trend with the net growth rate of 14.13%. It has maintained growth rate highest than NCC and lowest than NMB. This means the performance of NMB to collect deposit in comparison to other banks is better year by year.
22. Similarly loan and advances of the banks are also increasing trend. The growth rate of NMB is higher than that of BOK & NCC. It has maintained growth rate of 68.33%, where as BOK and NCC has 16.76% and 24.24 % respectively. So the performance of NMB to grant loan and advances in comparison to other bank is year by year and NMB also maintained the average performance to grant loan and advances in study period.
23. The total investment of studies banks are fluctuating trend during the study period. NMB has maintained growth ratio of 32.24%, which is higher than BOK (9.41%) and NCC (13.62%). It shows that NMB has successful in investing than the other bank.
24. The total net profit of BOK is in increasing trends but NMB & NCC are in fluctuating trend during the study periods. The growth ratio of NMB net profit is highest of all. It has the rate of 31.17% whereas BOK and

NCC have 23.27% and 17.49 % respectively. It means the performance of NMB to earn profit is better year by year.

25. The trend analyses of total deposit of BOK, NMB and NCC have increasing trend. From the trend analysis it is forecasted that the total deposit of BOK in 2015/16 will be Rs 32746.20 million. Similarly the total deposit of NMB and NCC will be 28674.90 and 17630 million in the third mid July of 2016 respectively. The deposit collection of BOK is better than that of NMB and NCC.
26. From the trend analysis of total loan and advances it has been seen that the total loan advances of all the three banks have increasing trend. The total loan and advance of NMB will be 23355 million in the mid July 2016, which is highest amount than that of BOK i.e. 18196 million and NCC i.e. 16045 million.
27. Total investments of BOK NMB and NCC have in increasing trend. The total investment of the BOK by the year 2016 is projected to be 5166 million. Similarly the total investment of NMB will be 5352 million which is highest among the study period. The total investments of NCC will be 2933 million.
28. The net profits of all three banks have the increasing trend. The net profit of BOK by the year 2016 is projected to be 1024 million, which is the highest value under the study period. Similarly the total net profit of NMB and NCC will be 386 and 708 million respectively.
29. The Correlation coefficient between deposits and loan and advances of the BOK is .9997 which is highest among other banks. It's probable error multiplied by six is found to be 0.001086 since ' r ' > 6 P.E and ' r ' is positive which is near by 1, there is very strong positive correlation between deposits and loans and advances during study period.
30. The Correlation coefficient between deposit and total investment of the NMB is 0.9619 which is highest among other banks. It's probable error multiplied by six is found to be 0.1354 since ' r ' > 6 P.E and ' r ' is positive which is near by 1, there is very strong positive correlation between deposit and total investment during study period.

31. The Correlation coefficient between total outside assets and net profit of the BOK is 0.9910 which is highest among other banks. It's probable error multiplied by six is found to be 0.03239, since $r > 6 \text{ P.E}$ and 'r' is positive which is near by 1, there is very strong positive correlation between outside assets and net profit. But in case of NCC is insignificant correlation between two variable because the value of 'r' i.e. 0.4092 is less than that of the value 6 P.E. i.e. 1.5072.
32. The Correlation coefficient between deposits and net profit of the BOK is 0.9794. It shows the positive relationship between two variables. It's probable error multiplied by five is found to be lesser than the value 'r'. So it indicates that it is successful to utilize the deposit. But in case of NCC there is no relationship could be established between the deposit and net profit.
33. The Correlation coefficient between deposits and interest earned of the BOK, NMB and NCC are 0.9280, 0.9265 and 0.9435. It's probable error multiplied by six is found to be 0.2512, 0.2563 and 0.1987. Since $r > 6\text{P.E.}$ and r is positive. There is positive correlation between deposit and interest earned.
34. The Correlation coefficient between loan and advances and interest paid of the NMB is 0.9603. It shows the positive relationship between two variables. It's probable error multiplied by six is found to be lesser than value of 'r' so it indicates that it is successful to utilize the loan and advances. In case of BOK and NCC the value of r also higher than the value 6 P.E., so the relation is significant. NMB has effectively mobilization of loan and advances which has major role to play in its interest paid in compared with BOK NCC.
35. The Correlation coefficient between total working fund and net profit of BOK is 0.9884. It shows the positive relationship between two variables. It's probable error multiplied by six is found to be lesser value of 'r'. But in case of NMB and NCC have no relationship could be established between the total working fund and net profit because its 'r' is lesser than the value of 6P.E. i.e. $0.5175 < 1.3254$ and $0.5426 < 1.3104$.

36. The calculated value of t i.e. -3.03825 is less than that the tabulated value i.e. 1.860 , so there is no significant difference between mean ratios of loan and advances to total deposit of BOK and NMB. But there is significant difference between mean ratios of loan and advances to total deposit of BOK and NCC, which indicates that it isn't to mobilize the total deposit on loan and advances for profit generating purpose.
37. There is no significant difference between mean ratios of total investment to total deposit ratio of BOK, NMB and NCC. So these banks mustn't mobilize its deposit funds by investing in different securities issued by government and other financial sectors.
38. The calculated value of t i.e. 3.4803 is greater than that the tabulated value i.e. 1.860 , so there is significant difference between mean ratios of investment on government securities to current assets ratio of BOK and NMB. But there is no significance difference between mean ratios of investment on government securities to current assets ratio of BOK NCC.
39. The calculated value of t is greater than that of tabulated value of BOK & NMB and BOK & NCC. This indicates there are significant differences between mean ratio of loan and advances to current assets of BOK, NMB and NCC. It must invest its collected funds as and bank balance in order to make high profit by mobilizing its funds by keeping some amount as liquidity.
40. There is no significant relationship between mean ratio of return on loan and advances of BOK & NMB and BOK & NCC. They have failed to employ its resources in the form of loan and advances.
41. There is no significant difference between mean ratios of total interest earned total outside assets of BOK & NMB and BOK & NCC.

CHAPTER -V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary

Commercial banks are major financial institutions, which occupy quite an important place in the framework of every economy because they provide capital for the development of industry, trade and business and other resources. Different sectors investing the saving collected as deposit of commercial banks are playing active role have changed the economic structure of the world. Commercial banks have its own role and contribution in the economic development; they maintain economic confidence of various segments and extend credit to people. The banking sector has to play developmental role to boost the economy by adopting the growth oriented investment policy and building up the financial structure for future economic development formulation of sound investment policies and planned effort pushed forward the force of economic growth. The income and profit of the bank depends upon its lending procedure, lending policy and investment of its fund utilize in different securities. Commercial banks are able to utilize their deposits properly i.e. providing loans and advances or lending for a profitable project, the reason behind it is lack of sound investment policy. The main objective of this study is to evaluate the profit planning policies adopted by BOK, NMB and NCC. The study is totally based on secondary sources of data and required data have been collected by using various published and unpublished sources. There are 31 commercial banks operating in Nepal which are considered to be the population of the study and out of them three commercial banks i.e. BOK, NMB and NCC has been taken as a sample of the study and the collected data have been analyzed by using various financial tools and statistical tools like ratio analysis, correlation coefficient, regression equation etc. Regarding the profit planning policies of commercial banks, there are basically five basic principles a bank follows while providing the loans i.e. liquidity, profitability, security, suitability and diversification. Various processes while making investment decision are applied in the study i.e. set investment process, security analysis, portfolio construction, revision,

performance evaluation .The data obtained from annual reports and websites of the concerned banks, likewise the financial statements of five years (from 2006/07 to 2010/11) were selected for the purpose of evaluation.

5.2 Conclusion

The liquidity position of BOK is comparatively better than that of NMB and NCC. In spite of the current ratio in average among the other two banks BOK has maintained the cash and bank balance to meet the customers demand. All the three banks have met the normal standard current assets ratio to meet the short term obligation of their customers. BOK has invested highest sectors like government securities than NMB and lesser portion than that of NCC. BOK had mobilized lots of its funds in order to gain the high profit.

From the analysis of assets management ratio it can be found that BOK is in better position as compared to that of NMB and NCC. The loans and advances to total deposit ratio, loan and advances to total working fund ratio of BOK lies in between those of NCC and NMB. NCC has invested the highest portion of total working fund on government securities as compared to NMB and BOK. Due to more efficient loan policy, BOK suffers less from loan loss provision. It takes low credit risk and has sufficient deposits of none bearing interest which can be used in a creation period. Anyhow BOK is also trying to be best in loan loss provision. Investment on shares and debentures to total working fund ratio is higher in BOK. The interest earned to total outside assets and return on total working fund ratio of BOK is lowest of all. But overall analysis of profitability ratios, BOK is average profitable in comparison to other compared bank i.e. NMB and NCC. To make the profit, BOK is taking highest risk by providing the higher portion of its deposit as a loan. The return on loan and advances ratio and return on assets of BOK is higher than NMB and lower than NCC. The ratio suggests that the earning capacity of the bank's loan and advances is not satisfactory. The return on assets of the bank is good in average; it indicates the good earning capacity of the bank assets and good utilization of its assets.

The total interest paid to working fund ratio of NCC is less than the interest earned to total working fund ratio. So it is in profitable position as it is getting higher return than interest cost. The degree of risk is average on BOK. The credit risk ratio is higher than the compared banks. However the lowest C.V. of credit ratio and average C. V. of liquidity risk ratio and capital ratio over the study period provides for the assurance of consistency of the degree of risk. BOK is showing its good performance by increasing the total deposit, loan and advances and investment in profitable sectors interested earnings by providing loan to clients. The trend of the total investment, total deposit, loan and advances and net profit of BOK shows better position than that of NMB and NCC.

5.3 Recommendations

On the basis of the findings of the study, following recommendations can be drawn:-

1. In commercial banks the liquidity position affects external and internal factors such as saving for investment situations, central banks requirements, the leading policies management capacity etc. In this study it should try to lower the current liabilities to improve its liquidity position. Current ratio of all three banks is not satisfactory. It is below its standard rate 2:1. So the banks are suggested to improve current assets. The ratio of cash and bank balance to total deposit and current assets of NMB is higher than that of NCC and BOK. It means NMB has higher cash and bank balance which decrease profit of bank, so it is recommended to mobilize cash and bank balance in profitable as loan and advances.
2. From the study it is found that BOK has not invested funds in government securities than that of other banks. BOK liquidity position shows that it has kept relatively funds as cash and bank balance which doesn't earn any return. This ultimately affects profitability of bank. Investment in government securities i.e. TBs development bonds. Saving certificate are free of risk and highly in nature. So BOK is recommended to invest its fund in government securities instead of keeping them idle. "Something is better than nothing".

3. In practice joint ventured banks are urban based; service quite a few elite, a fluent big customer are heavily dependent on free based activities. To overcome its situation they should be accessible to rural areas and possible loan and advances to its deposit. So the customers are enjoying by getting deposit borrowing and other services.
4. BOK has invested it's more of the funds that is total investment on total deposit ratio but the percentages of investment on share and debenture is nominal. So it is suggested to invest more of its fund in share and debenture of different companies.
5. NCC loan and advances to total deposit ratio is lowest compared to other banks. To overcome from the situation it is recommended to follow liberal lending policy and invest more and more of total deposit in loan and advances and maintain stability on the investment policy.
6. BOK's loan loss ratio is increased year by year. So this bank is recommended that before providing the loan makes sure that your clients are in good character and able to pay its loan or may take the collateral which is nearly two times more than that of your guaranteed.
7. Profitability ratios of banks are not satisfactory, if resources held idle bank have to bearded more cost and result would be lower profit margin. So portfolio condition of a bank should be regularly revised from time to time. It should always try to maintain the equilibrium in the portfolio condition of the bank. The bank should use its funds in more portfolio sectors. It should utilize its risky assets and shareholders' funds and it should reduce its express and should try to collect cheaper fund being more profitable.
8. It is seen that NMB has invested much of its fund in total outside assets but it has not achieved the desired result. So NMB should play tactfully while investing its fund keeping in mind the interest rate.
9. NMB has taken the low credit risk as NMB is one of the largest commercial bank in Nepal. It must also interest as NCC and BOK do. The risk taken by BOK from the angle of credit risk and capital risk are in an average but the consistencies of the same are highly volatile which may result higher loss. So it should not test such risk on an

experiment basis it should carefully study it so as to achieve higher return from the above risk.

10. In the light of growing competition in the banking sector the business of the bank is customer oriented. It should strengthen and activate its marketing function, as it is an effective tool of attracting and retaining customers. The bank should develop an innovative approach to bank marketing and formulate new strategies of serving customers in a more convenient way.
11. The investment policy of BOK is good in every aspect as studied above but the consistency in the above investment sectors is in equilibrium states. It is found that at time bank focuses much of its attention to one sector leaving other sector untouched, so it is recommended to touch all the sectors and balance it effectively as to have the optimal performance of the bank.

To get success itself and to encourage financial and economic development of the country through industrialization and commercialization, a commercial bank must mobilize its fund and debentures of other financial and non financial companies. And if other sectors go up positively then bank can utilize its fund more and more by providing them loan or getting sufficient dividend on their share or interest on their debentures. Commercial banks need to strengthen its economic structure to achieve piped overall development. They have to resort to innovative approach of banking there by bringing professionalism in their business. If they follow those suggestions they can have better reach to the modern innovative and competitive banking markets.

BIBLIOGRAPHY

Books:

- Baidhya, Shakespeare, (1996), *Banking Management*, Kathmandu; Monitor Nepal
- Balla, V.K. (1993). *Investment Managements*, (New Delhi: S. Chand and Company), P-2
- Bexley, James B. (1987), *Banking Management*, New Delhi; Sujeet Pulication
- Charles, P. Jones, (1991), *Investment Analysis and Management* (Bombay; Himalyan Publishing House)
- Crosse, H.D. (1963), *Management Policies for Commercial Banks*. 2nd Ed. Engle cwood cliffs, Prentic Hall Inc. N.J.
- Frank, K. Reily, (1999), *Inestment*. The Dryden Press, CBS Publishing Japan Ltd.
- Gitman, L.J. and Joehnk. (1990), *Fundamentals of Investing*. 4th Edition, Harper and Row Publishers
- John, M. Cheney and Edward, A. Moses (1998). *Fundamentals of Investment*. (St. Pant: West Publishing Company), p. 13
- Kothari, C.R. (1984). "*Quantitative Techniques*", (New Delhi, Vikash Publishing House)
- Sharpe J. William and Gordon, J. Alexander, (1999). *Investment*. New Delhi Prentice Hall of India Pvt. Ltd.
- Shrestha Monohar Krishna, (1994). *Financial Management*. (Theory and Practice), 1st Ed, Curriculum Development Center, T.U. Kathmandu
- Sing, S.P. and Sing. (1983). *Financial Analysis for credit Management in Banks*. Vikash Publishing House New Delhi
- Singh, Preeti, (1991). *Investment Management*. Himalayan Publishing House Bombay
- Van Horne, James C. (1985). *Fundamentals of Financial Management*. 5th Ed. New Delhi: Prentice Hall of India Ltd.
- Van Horne, James C. (1998). *Financial Management and Policy*. 10th Ed. New Delhi: Prentice Hall Pvt. Ltd.
- Weston and Bigham, (1980). *Managerial Finance*. 7th Ed., U.S.A, The Dryden Press, Hinsdale Illinois

Wolf, Howard K. Pant, P.R. (1999). Social Science Research and Thesis Writing. Second Edition, Kathmandu, Buddha Academic Enterprises Pvt. Ltd.

Journals and Articles

Agriculture Projects Services, "On – Going Evaluation of Intensive Banking program in October 1995

Annual Reports of Bank of Kathmandu Ltd. 2067/068

Annual Reports of NMB Bank Ltd. 2067/068

Annual Reports of Nepal Credit & Commerce Bank Ltd. 2067/068

Bajracharya, Bodhi B. (2047). Monetary Policy and Deposit Mobilization in Nepal

Bista, Bhagat, (2001). Issues in Banking Reform. Nepal Rastra Bank Samachar, p.33. Gorkhapatra, 2059 Poush 7th

J. Hadlock Charles and M. James Christopher (2002). Do Banks Provide Financial Slack? The Journal of Finance Vol. VII No. 3.

Kisshi, Dev Lal. (1996). The Changing Face of the Banking Sector and the Nepal Govt. Recent Budgetary Policy. Nepal Bank Patrika, NBL, Vol, 25, pp. 27-32.

Morris F. (1990). Latin Americas Banking System in the 1980. World Bank Discussion paper – 81, The World Bank, Washing Ton DC

Sharma, Murrain R. (1988). "A Study of Joint Venture Banks in Nepal: Co-Exiting and *growing Out*," Pradharshan Nepal Govt. 52nd, Kathmandu.

Nepal Rastra Bank Publication, (Dec.2001), "Basic Socio-Economic Indicators of Nepal"

Pradhan, K. (1991). Nepalma Baniya Banking, Upalabdhi Tatha Chunauti, Nepal Bank Patrika, p.13.

Rajat Jayanti Smarika, RBB, Kathmandu.

Shrestha, Monohar Krishna "Shareholders Democracy and annual meeting feedback portfolio analysis", Nepal Publication, Kathmandu PP.50

Shrestha Ramesh Lal (2055), A study on Deposit and Credits of Commercial Banks in Nepal. Nepal Rastra Bank Samachar, NRB

Shrestha, Sunity. (2055). Lending Operations of Commercial Banbks of Nepal its Impact on GPD. The Business Voice of Nepal (The Special Issue of Banijya Sansar), T.U., Kritipur, pp. 23-27

Thesis:

Gautam, Khagendra (2006), A Comparative Study on the Financial Performance of Standard Chartered Bank and Nepal Bangladesh Bank Ltd., An Unpublished Master Degrees Thesis, Shankar Dev Campus.

Kapadi, Ram Dev. (2002). A Comparative Study on Performance of NABIL Bank Ltd and Standard Chartered Bank Limited., An Unpublished Master Degrees Thesis, Shankar Dev Campus

Kharel, S. (2008). Profit Planning of Commercial Banks in Nepal (comparative study of Everest Bank, Nabil Bank and Bank of Kathmandu), An Unpublished Master Degrees Thesis, Nepal Commerce Campus

Kunwar, Narendra (2009). Profit Planning of NABIL Bank Limited, An Unpublished Master Degrees Thesis, Shankar Dev Campus

Loudari, Shiba Raj. (2003). A Study on Investment Policy of Nepal Indosuez Bank Ltd in Comparison to Nepal SBL Bank Ltd. An Unpublished Master Degrees Thesis, Shankar Dev Campus

Maharjan, Luna (2009). Profit Planning in a Commercial Bank (A Case Study of Standard Chartered Bank), Unpublished Master Degrees Thesis, Shankar Dev Campus

Manandhar, Shyam Krishna (2005). Financial Performance Analysis of Nepal Bangladesh Bank Limited. An Unpublished Master Degrees Thesis, Shankar Dev Campus

Pandey, Indra Mani (2008). A Study on Profit Planning of Commercial Bank (In comparative study of SBI Ltd. and Himalayan Bank Limited), An Unpublished Master Degrees Thesis, Shankar Dev Campus

Panta, Uttam Raj. (2003). A Study on Investment Policy of Nepal Bank Deposit and its *Utilization*,” An Unpublished Master Degrees Thesis, T.U.

Regmi, Ram Babu, (2008) Credit Management of NABIL Bank Limited, An Unpublished Master Degrees Thesis, Central Department of Management, T.U., Kirtipur.

Shrestha, Sunity. (1993). Investment Planning of Commercial Banks in Nepal. Ph.D. Thesis.

Shrestha, Prakash Man (2004). Role of Rastriya Banijya Bank in priority sector credit & its recovery, An Unpublished Master Degrees Thesis, Central Department of Management, T.U., Kirtipur.

Uprety, K. (2012). Profit Planning and Control of Commercial Banks in Nepal An Unpublished Master Degrees Thesis, Central Department T.U.

Websites

www.bok.com.np

www.nmb.com.np

www.nccbank.com.np

APPENDIX:-1

$$\text{Current ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

(Rs. In million)

Banks	BOK			NMB			NCC		
Fiscal Year	Current Assets	Current Liabilities	Ratio (Times)	Current Assets	Current Liabilities	Ratio (Times)	Current Assets	Current Liabilities	Ratio (Times)
2006/07	14,245	13,588	1.05	4,340	4,136	1.05	5,886	6,547	0.90
2007/08	17,334	16,380	1.06	8,795	7,714	1.14	8,067	7,556	1.07
2008/09	20,079	18,754	1.07	15,633	14,265	1.10	10,138	9,492	1.07
2009/10	22,905	21,323	1.07	12,971	11,415	1.14	12,477	11,238	1.11
2010/11	24,256	22,323	1.09	15,672	13,737	1.14	12,955	11,521	1.12

Appendix:-2

$$\text{Cash and bank balance to total deposit ratio} = \frac{\text{cash and bank balance}}{\text{Total deposit}}$$

(Rs. In million)

Banks	BOK			NMB			NCC		
Fiscal Year	Cash and bank balance	Total deposit	Ratio (%)	Cash and bank balance	Total deposit	Ratio (%)	Cash and bank balance	Total deposit	Ratio (%)
2006/07	1,316	12,389	10.62	34	1,296	2.62	758	6,500	11.66
2007/08	1,440	15,834	9.09	5,450	1,662	327.92	1,478	7,320	20.19
2008/09	2,182	18,084	12.07	7,480	6,878	108.75	1,187	9,128	13.00
2009/10	1,798	20,316	8.85	1,730	10,111	17.11	2,196	10,825	20.29
2010/11	1,679	21,018	7.99	1,494	12,866	11.61	1,736	10,951	15.85

Appendix:-3

$$\text{Cash and bank balance to total current assets} = \frac{\text{Cash and bank balance}}{\text{Total current assets}}$$

(Rs. In million)

Banks	BOK			NMB			NCC		
Fiscal Year	Cash and bank balance	Current Assets	Ratio (%)	Cash and bank balance	Current Assets	Ratio (%)	Cash and bank balance	Current Assets	Ratio (%)
2006/07	1,316	14,245	9.24	34	4,340	0.78	758	5,886	12.88
2007/08	1,440	17,334	8.31	5,450	8,795	61.97	1,478	8,067	18.32
2008/09	2,182	20,079	10.87	7,480	15,633	47.85	1,187	10,138	11.71
2009/10	1,798	22,905	7.85	1,730	12,971	13.34	2,196	12,477	17.60
2010/11	1,679	24,256	6.92	1,494	15,672	9.53	1,736	12,955	13.40

Appendix:-4

$$\text{Investment on government securities to total current assets} = \frac{\text{Investment on government securities}}{\text{Total current assets}}$$

(Rs. In million)

Banks	BOK			NMB			NCC			
	Fiscal Year	Investment on government securities	Current Assets	Ratio (%)	Investment on government securities	Current Assets	Ratio (%)	Investment on government securities	Current Assets	Ratio (%)
	2006/07	2,332	14,245	16.37	477	4,340	10.99	1,158	5,886	19.67
	2007/08	2,113	17,334	12.19	775	8,795	8.81	1,744	8,067	21.62
	2008/09	1,745	20,079	8.69	1,134	15,633	7.25	1,427	10,138	14.08
	2009/10	2,955	22,905	12.90	1,598	12,971	12.32	1761	12,477	14.11
	2010/11	4,002	24,256	16.50	1,888	15,672	12.05	1,906	12,955	14.71

Appendix:-5

$$\text{Loan and advances to total current assets} = \frac{\text{Loan and advances}}{\text{Total current assets}}$$

(Rs. In million)

Banks	BOK			NMB			NCC			
	Fiscal year	Loan and advances	Current assets	Ratio (%)	Loan and advances	Current assets	Ratio (%)	Loan and advances	Current assets	Ratio (%)
	2006/07	9,399	14,245	65.98	1,396	4,340	32.17	3,708	5,886	63.00
	2007/08	12,463	17,334	71.90	1,940	8,795	22.06	4,418	8,067	54.77
	2008/09	14,647	20,079	72.95	5,194	15,633	33.22	6,858	10,138	67.65
	2009/10	16,665	22,905	72.76	7,808	12,971	60.20	7,995	12,477	64.08
	2010/11	17,468	24,256	72.02	11,209	15,672	71.52	8,835	12,955	68.20

Appendix:-6

$$\text{Loan and advances to total deposit ratio} = \frac{\text{Loan and advances}}{\text{Total deposit}}$$

(Rs. In million)

Banks	BOK			NMB			NCC			
	Fiscal year	Loan and advance	Total deposit	Ratio (%)	Loan and advance	Total deposit	Ratio (%)	Loan and advance	Total deposit	Ratio (%)
	2006/07	9,399	12,389	75.87	1,396	1,296	107.72	3,708	6,500	57.05
	2007/08	12,463	15,834	78.71	1,940	1,662	116.73	4,418	7,320	60.36
	2008/09	14,647	18,084	80.99	5,194	6,878	75.52	6,858	9,128	75.13
	2009/10	16,665	20,316	82.03	7,808	10,111	77.22	7,995	10,825	73.86
	2010/11	17,468	21,018	83.11	11,209	12,866	87.12	8,835	10,951	80.68

Appendix:-7

$$\text{Total investment to total deposit ratio} = \frac{\text{Total investment}}{\text{Total deposit}}$$

(Rs. In million)

Banks	BOK			NMB			NCC		
Fiscal year	Total Investment	Total deposit	Ratio (%)	Total Investment	Total deposit	Ratio (%)	Total Investment	Total deposit	Ratio (%)
2006/07	2,992	12,389	24.15	855	1,296	65.97	1,237	6,500	19.03
2007/08	3,204	15,834	20.23	1,243	1,662	74.79	1,901	7,320	25.97
2008/09	2,783	18,084	15.39	1,857	6,878	27.00	1,583	9,128	17.34
2009/10	3,269	20,316	16.09	2,716	10,111	26.86	1,948	10,825	18.00
2010/11	4,287	21,018	20.40	2,615	12,866	20.32	2,061	10,951	18.82

Appendix:-8

$$\text{Loan and advances to working fund ratio} = \frac{\text{Loan and advances}}{\text{Working fund}}$$

(Rs. In million)

Banks	BOK			NMB			NCC		
Fiscal year	Loan & advance	Working fund	Ratio (%)	Loan & advance	Working fund	Ratio (%)	Loan & advance	Working fund	Ratio (%)
2006/07	9,399	14,570	64.51	1,396	4,421	31.58	3,708	6,037	61.42
2007/08	12,463	17,722	70.33	1,940	8,928	21.73	4,418	8,241	53.61
2008/09	14,647	20,496	71.46	5,194	15,857	32.76	6,858	10,528	65.14
2009/10	16,665	23,396	71.23	7,808	13,226	59.04	7,995	12,761	62.65
2010/11	17,468	24,758	70.55	11,209	15,948	70.28	8,835	12,265	72.03

Appendix:-9

$$\text{Investment on government securities to total working fund ratio} = \frac{\text{investment on government securities}}{\text{Total working fund}}$$

(Rs. In million)

Banks	BOK			NMB			NCC		
Fiscal Year	Investment on government securities	Working fund	Ratio (%)	Investment on government securities	Working fund	Ratio (%)	Investment on government securities	Working fund	Ratio (%)
2006/07	2,332	14,570	16.01	477	4,421	10.79	1,158	6,037	19.18
2007/08	2,113	17,722	11.92	775	8,928	8.68	1,744	8,241	21.16
2008/09	1,745	20,496	8.51	1,134	15,857	7.15	1,427	10,528	13.55
2009/10	2,955	23,396	12.63	1,598	13,226	12.08	1761	12,761	13.80
2010/11	4,002	24,758	16.16	1,888	15,948	11.84	1,906	12,265	15.54

Appendix:-10

$$\text{Investment on share and debentures to total working fund ratio} = \frac{\text{Investment on share and debenture}}{\text{Total working capital}}$$

(Rs. In million)

Banks	BOK			NMB			NCC		
	Fiscal Year	Investment on Share & debenture	Working fund	Ratio (%)	Investment on Share & debenture	Working fund	Ratio (%)	Investment on Share & debenture	Working fund
2006/07	90	14,570	0.62	19	4,421	0.43	166	6,037	2.75
2007/08	114	17,722	0.64	39	8,928	0.44	254	8,241	3.08
2008/09	124	20,496	0.60	39	15,857	0.25	245	10,528	2.33
2009/10	40	23,396	0.17	109	13,226	0.82	199	12,761	1.56
2010/11	40	24,758	0.16	103	15,948	0.65	199	12,265	1.62

Appendix:-11

$$\text{Total off balance sheet operation to loan and advances ratio} = \frac{\text{Total off balance sheet operation}}{\text{Loan and advances}}$$

(Rs. In million)

Banks	BOK			NMB			NCC		
	Fiscal year	TOBS	Loan and advances	Ratio (%)	TOBS	Loan and advances	Ratio (%)	TOBS	Loan and advances
2006/07	2,143	9,399	22.80	141	1,396	10.10	1,284	3,708	34.63
2007/08	3,043	12,463	24.42	147	1,940	7.58	1,462	4,418	33.09
2008/09	7,683	14,647	52.45	660	5,194	12.71	2,189	6,858	31.92
2009/10	11,464	16,665	68.79	1,588	7,808	20.34	289	7,995	3.61
2010/11	11,916	17,468	68.22	1,532	11,209	13.67	3,172	8,835	35.90

Appendix:-12

$$\text{Loan loss ratio} = \frac{\text{Loan loss provision}}{\text{Loan and advances}}$$

(Rs. In million)

Banks	BOK			NMB			NCC		
	Fiscal year	Loan loss provision	Loan and advances	Ratio (%)	Loan loss provision	Loan and advances	Ratio (%)	Loan loss provision	Loan and advances
2006/07	82	9,399	0.87	13	1,396	0.93	202	3,708	5.45
2007/08	38	12,463	0.30	32	1,940	1.65	134	4,418	3.03
2008/09	34	14,647	0.23	42	5,194	0.81	61	6,858	0.89
2009/10	119	16,665	0.71	40	7,808	0.51	106	7,995	1.33
2010/11	153	17,468	0.88	36	11,209	0.32	67	8,835	0.76

Appendix:-13

$$\text{Return on loan and advances ratio} = \frac{\text{Net profit}}{\text{Loan and advances}}$$

(Rs. In million)

Banks	BOK			NMB			NCC		
	Fiscal year	Net profit	Loan and advances	Ratio (%)	Net profit	Loan and advances	Ratio (%)	Net profit	Loan and advances
2006/07	262	9,399	2.79	75	1,396	5.37	-116	3,708	-3.13
2007/08	361	12,463	2.90	72	1,940	3.71	499	4,418	11.29
2008/09	462	14,647	3.15	63	5,194	1.21	415	6,858	6.05
2009/10	509	16,665	3.05	160	7,808	2.05	424	7,995	5.30
2010/11	605	17,468	3.46	222	11,209	1.98	221	8,835	2.50

Appendix:-14

$$\text{Return on total working fund ratio} = \frac{\text{Net profit}}{\text{Total working fund}}$$

(Rs. In million)

Banks	BOK			NMB			NCC		
Fiscal year	Net profit	Working fund	Ratio (%)	Net profit	Working fund	Ratio (%)	Net profit	Working fund	Ratio (%)
2006/07	262	14,570	1.80	75	4,421	1.70	-116	6,037	-1.92
2007/08	361	17,722	2.04	72	8,928	0.81	499	8,241	6.06
2008/09	462	20,496	2.25	63	15,857	0.40	415	10,528	3.94
2009/10	509	23,396	2.18	160	13,226	1.21	424	12,761	3.32
2010/11	605	24,758	2.44	222	15,948	1.39	221	12,265	1.80

Appendix:-15

$$\text{Total interest earned to total outside assets ratio} = \frac{\text{Total interest earned}}{\text{Total outside assets}}$$

(Rs. In million)

Banks	BOK			NMB			NCC		
Fiscal year	Interest earned	Outside assets	Ratio (%)	Interest earned	Outside assets	Ratio (%)	Interest earned	Outside assets	Ratio (%)
2006/07	819	12,392	6.61	238	2,251	10.57	474	4,944	9.59
2007/08	1,034	15,667	6.60	251	3,183	7.89	577	6,319	9.13
2008/09	1,348	17,431	7.73	403	7,052	5.71	758	8,441	8.98
2009/10	1,871	19,934	9.39	866	10,524	8.23	1,042	9,942	10.48
2010/11	2,387	21,755	10.97	1,492	13,823	10.79	1,343	10,897	12.32

Appendix:-16

$$\text{Total interest earned to total working fund ratio} = \frac{\text{Total interest earned}}{\text{Total working fund}}$$

(Rs. In million)

Banks	BOK			NMB			NCC		
Fiscal year	Interest earned	Working fund	Ratio (%)	Interest earned	Working fund	Ratio (%)	Interest earned	Working fund	Ratio (%)
2006/07	819	14,570	5.62	238	4,421	5.38	474	6,037	7.85
2007/08	1,034	17,722	5.83	251	8,928	2.81	577	8,241	7.00
2008/09	1,348	20,496	6.58	403	15,857	2.54	758	10,528	7.20
2009/10	1,871	23,396	8.00	866	13,226	6.55	1,042	12,761	8.17
2010/11	2,387	24,758	9.64	1,492	15,948	9.36	1,343	12,265	10.95

Appendix:-17

$$\text{Total interest paid to total working fund ratio} = \frac{\text{Total interest paid}}{\text{Total working fund}}$$

(Rs. In million)

Banks	BOK			NMB			NCC		
Fiscal year	Interest paid	Working fund	Ratio (%)	Interest paid	Working fund	Ratio (%)	Interest paid	Working fund	Ratio (%)
2006/07	339	14,570	2.33	140	4,421	3.17	283	6,037	4.69
2007/08	417	17,722	2.35	139	8,928	1.56	279	8,241	3.39
2008/09	563	20,496	2.75	254	15,857	1.60	352	10,528	3.34
2009/10	903	23,396	3.86	560	13,226	4.23	580	12,761	4.55
2010/11	1,219	24,758	4.92	1,053	15,948	6.60	873	12,265	7.12

Appendix:-18

$$\text{Credit risk ratio} = \frac{\text{Loan and advances}}{\text{Total assets}}$$

(Rs. In million)

Banks	BOK			NMB			NCC		
Fiscal year	Loan and advances	Total assets	Ratio (%)	Loan and advances	Total assets	Ratio (%)	Loan and advances	Total assets	Ratio (%)
2006/07	9,399	14,570	64.51	1,396	4,421	31.58	3,708	6,037	61.42
2007/08	12,463	17,722	70.33	1,940	8,928	21.73	4,418	8,241	53.61
2008/09	14,647	20,496	71.46	5,194	15,857	32.76	6,858	10,528	65.14
2009/10	16,665	23,396	71.23	7,808	13,226	59.04	7,995	12,761	62.65
2010/11	17,468	24,758	70.55	11,209	15,948	70.28	8,835	12,265	72.03

Appendix:-19

$$\text{Liquidity risk ratio} = \frac{\text{Cash and bank balance}}{\text{Total balance}}$$

(Rs. In million)

Banks	BOK			NMB			NCC		
Fiscal year	Cash & bank balance	Total deposit	Ratio (%)	Cash & bank balance	Total deposit	Ratio (%)	Cash & bank balance	Total deposit	Ratio (%)
2006/07	1,316	12,389	10.62	34	1,296	2.62	758	6,500	11.66
2007/08	1,440	15,834	9.09	5,450	1,662	327.92	1,478	7,320	20.19
2008/09	2,182	18,084	12.07	7,480	6,878	108.75	1,187	9,128	13.00
2009/10	1,798	20,316	8.85	1,730	10,111	17.11	2,196	10,825	20.29
2010/11	1,679	21,018	7.99	1,494	12,866	11.61	1,736	10,951	15.85

Appendix:-20

$$\text{Capital risk ratio} = \frac{\text{capital}}{\text{Risk weight assets}}$$

(Rs. In million)

Banks	BOK			NMB			NCC		
Fiscal year	Capital	Risk weight assets	Ratio (%)	Capital	Risk weight assets	Ratio (%)	Capital	Risk weight assets	Ratio (%)
2006/07	965	10,226	9.44	284	2,418	11.75	(575)	6,296	-9.13
2007/08	1,311	13,702	9.57	1,208	3,699	32.66	635	6,609	9.61
2008/09	1,683	17,168	9.80	1,587	8,617	18.42	881	8,984	9.81
2009/10	2,021	21,472	9.41	1,736	9,907	17.52	1,356	10,691	12.68
2010/11	2,377	22,918	10.37	2,133	13,484	15.82	1,572	12,375	12.70

Appendix:-21

Calculation of Growth Ratio

Let,

D_n = Variable in the n^{th} year

D_o = Variable in the initial year

N = no of period study

G = growth rate

Total deposit growth ratio of BOK

$$D_n = D_o(1+g)^{n-1}$$

$$21,018 = 12389(1+g)^{5-1}$$

$$(1+g) = (21018/12389)^{1/4}$$

$$(1+g) = 1.1413$$

$$g = .1413$$

$$g = 14.13\%$$

Total deposit growth ratio of NMB

$$D_n = D_o(1+g)^{n-1}$$

$$12866 = 1296 (1+g)^{5-1}$$

$$(1+g) = (12866 /1296)^{1/4}$$

$$1+g = 1.7750$$

$$g = .7750$$

$$g = 77.50\%$$

Total deposit growth ratio of NCC

$$D_n = D_o(1+g)^{n-1}$$

$$10951 = 6500(1+g)^{5-1}$$

$$(1+g) = (10951/6500)^{1/4}$$

$$1+g = 1.1393$$

$$g = .1393$$

$$g = 13.93\%$$

Total loans and advances growth ratio of BOK

$$D_n = D_o(1+g)^{n-1}$$

$$17468 = 9399(1+g)^{5-1}$$

$$1+g = (17468/9399)^{1/4}$$

$$g = .1676$$

$$g = 16.76\%$$

Total loans and advances growth ratio of NMB

$$D_n = D_o(1+g)^{n-1}$$

$$11209 = 1396(1+g)^{5-1}$$

$$1+g = (11209/1396)^{1/4}$$

$$g = .6833$$

$$g = 68.33\%$$

Total loans and advances growth ratio of NCC

$$D_n = D_o(1+g)^{n-1}$$

$$8835 = 3708(1+g)^{5-1}$$

$$(1+g) = (8835/3708)^{1/4}$$

$$1+g = 1.2424$$

$$g = .2424$$

$$g = 24.24\%$$

Total investment growth ratio of BOK

$$D_n = D_o(1+g)^{n-1}$$

$$4287 = 2992(1+g)^{5-1}$$

$$(1+g) = (4287/2992)^{1/4}$$

$$1+g = 1.0941$$

$$g = .0941$$

$$g = 9.41\%$$

Total investment growth ratio of NMB

$$D_n = D_o(1+g)^{n-1}$$

$$2615 = 855(1+g)^{5-1}$$

$$(1+g) = (2615/855)^{1/4}$$

$$1+g = 1.3224$$

$$g = .3224$$

$$g = 32.24\%$$

Total investment growth ratio of NCC

$$D_n = D_o(1+g)^{n-1}$$

$$2061 = 1237(1+g)^{5-1}$$

$$(1+g) = (2061/1237)^{1/4}$$

$$1+g = 1.1362$$

$$g = .1362$$

$$g = 13.62\%$$

Total Net Profit growth ratio of BOK

$$D_n = D_o(1+g)^{n-1}$$

$$605 = 262(1+g)^{5-1}$$

$$1+g = (605/262)^{1/4}$$

$$1+g = 1.2327$$

$$g = .2327$$

$$g = 23.27\%$$

Total Net Profit growth ratio of NMB

$$D_n = D_o(1+g)^{n-1}$$

$$222 = 75(1+g)^{5-1}$$

$$1+g = (222/75)^{1/4}$$

$$1+g = 1.3117$$

$$g = .3117$$

$$g = 31.17\%$$

Total Net Profit growth ratio of NCC

$$D_n = D_o(1+g)^{n-1}$$

$$221 = -116(1+g)^{5-1}$$

$$1+g = (221/-116)^{1/4}$$

$$1+g = -1.1749$$

$$g = 2.1749$$

$$g = 17.49\%$$

APPENDIX:-22

Trend analysis of total deposit of BOK

(Rs. In million)

Fiscal year (t)	Total deposit (Y)	X = t – 2009	X ²	XY	Yc = a + bX
2007	12,389	-2	4	-24778	13180.2
2008	15,834	-1	1	-15834	15354.2
2009	18,084	0	0	0	17528.2
2010	20,316	1	1	20316	19702.2
2011	21,018	2	4	42036	21876.2
n = 5	$\sum Y =$ 87,641		$\sum X^2 =$ 10	$\sum XY =$ 21740	

$$a = \frac{\sum y}{n} = \frac{87641}{5} = 17528.2$$

$$b = \frac{\sum xy}{\sum x^2} = \frac{21740}{10} = 2174$$

Project Trend values of Total deposit for next Five year

(Rs.In million)

Fiscal year (t)	X = t - 2009	Yc = a + bX
2012	3	24050.2
2013	4	26224.2
2014	5	28398.2
2015	6	30572.2
2016	7	32746.2

APPENDIX:-23

Trend analysis of total deposit of NMB

(Rs. In million)

Fiscal year (t)	Total deposit (Y)	X = t - 2009	X ²	XY	Yc = a + bX
2007	1,296	-2	4	-2592	244.8
2008	1,662	-1	1	-1662	3403.7
2009	6,878	0	0	0	6562.6
2010	10,111	1	1	10111	9721.5
2011	12,866	2	4	25732	12880.4
n = 5	$\sum Y =$ 32,813		$\sum X^2 =$ 10	$\sum XY =$ 31589	

$$a = \frac{\sum y}{n} = \frac{32813}{5} = 6562.6$$

$$b = \frac{\sum xy}{\sum x^2} = \frac{31589}{10} = 3158.9$$

Project Trend values of Total deposit for next Five year

Fiscal year (t)	X = t - 2009	Yc = a + bX
2012	3	16039.3
2013	4	19198.2
2014	5	22357.1
2015	6	25516
2016	7	28674.9

APPENDIX:-24

Trend analysis of total deposit of NCC

(Rs. In million)

Fiscal year (t)	Total deposit (Y)	X = t - 2009	X ²	XY	Yc = a + bX
2007	6,500	-2	4	-13000	6,463
2008	7,320	-1	1	-7320	7,704
2009	9,128	0	0	0	8,945
2010	10,825	1	1	10825	10,186
2011	10,951	2	4	21902	11,426
n = 5	$\sum Y =$ 44,724		$\sum X^2 =$ 10	$\sum XY =$ 12,407	

$$a = \frac{\sum y}{n} = \frac{44724}{5} = 8944.8$$

$$b = \frac{\sum xy}{\sum x^2} = \frac{12407}{10} = 1240.7$$

Project Trend values of Total deposit for next Five year

Fiscal year (t)	X = t - 2009	Yc = a + bX
2012	3	12,667
2013	4	13,908
2014	5	15,148
2015	6	16,389
2016	7	17,630

APPENDIX:-25

Trend analysis of loan and advances of BOK

(Rs. In million)

Fiscal year (t)	Loan & advances (Y)	X = t - 2009	X ²	XY	Yc = a + bX
2007	9,399	-2	4	-18,798	10,060
2008	12,463	-1	1	-12,463	12,094
2009	14,647	0	0	0	14,128
2010	16,665	1	1	16,665	16,162
2011	17,468	2	4	34,936	18,196
n = 5	$\sum Y =$ 70,642		$\sum X^2 =$ 10	$\sum XY =$ 20,340	

$$a = \frac{\sum y}{n} = \frac{70642}{5} = 14128.4$$

$$b = \frac{\sum xy}{\sum x^2} = \frac{20340}{10} = 2034$$

Project Trend values of loan and advances for next Five year

Fiscal year (t)	X = t - 2009	Yc = a + bX
2012	3	20,230
2013	4	22,264
2014	5	24,298
2015	6	26,332
2016	7	28,366

APPENDIX:-26

Trend analysis of loan and advances of NMB

(Rs. In million)

Fiscal year (t)	Loan & advances (Y)	X = t - 2009	X ²	XY	Yc = a + bX
2007	1,396	-2	4	-2,792	411
2008	1,940	-1	1	-1,940	2,960
2009	5,194	0	0	0	5,509
2010	7,808	1	1	7,808	8,059
2011	11,209	2	4	22,418	10,608
n = 5	$\sum Y =$ 27,547		$\sum X^2 =$ 10	$\sum XY =$ 25,494	

$$a = \frac{\sum y}{n} = \frac{27547}{5} = 5509.4$$

$$b = \frac{\sum xy}{\sum x^2} = \frac{25494}{10} = 2549.4$$

Project Trend values of loan and advances for next Five year

Fiscal year (t)	X = t - 2009	Yc = a + bX
2012	3	13,158
2013	4	15,707
2014	5	18,256
2015	6	20,806
2016	7	23,355

APPENDIX:-27

Trend analysis of loan and advances of NCC

(Rs. In million)

Fiscal year (t)	Loan & advances (Y)	X = t - 2009	X ²	XY	Yc = a + bX
2007	3,708	-2	4	-7,416	3,597
2008	4,418	-1	1	-4,418	4,980
2009	6,858	0	0	0	6,363
2010	7,995	1	1	7,995	7,746
2011	8,835	2	4	17,670	9,129
n = 5	$\sum Y =$ 31,814		$\sum X^2 =$ 10	$\sum XY =$ 13,831	

$$a = \frac{\sum y}{n} = \frac{31814}{5} = 6362.8$$

$$b = \frac{\sum xy}{\sum x^2} = \frac{13831}{10} = 1383.1$$

Project Trend values of loan and advances for next Five year

Fiscal year (t)	X = t - 2009	Yc = a + bX
2012	3	10,512
2013	4	11,895
2014	5	13,278
2015	6	14,661
2016	7	16,045

APPENDIX:-28

Trend analysis of Total investment of BOK

(Rs. In million)

Fiscal year (t)	Total investment (Y)	X = t - 2009	X ²	XY	Yc = a + bX
2007	2,992	-2	4	-5,984	2,776
2008	3,204	-1	1	-3,204	3,042
2009	2,783	0	0	0	3,307
2010	3,269	1	1	3,269	3,573
2011	4,287	2	4	8,574	3,838
n = 5	$\sum Y =$ 16,535		$\sum X^2 =$ 10	$\sum XY =$ 2,655	

$$a = \frac{\sum y}{n} = \frac{16535}{5} = 3307 \quad b = \frac{\sum xy}{\sum x^2} = \frac{2655}{10} = 265.5$$

Project Trend values of total investment for next Five year

Fiscal year (t)	X = t - 2009	Yc = a + bX
2012	3	4,104
2013	4	4,369
2014	5	4,635
2015	6	4,900
2016	7	5,166

APPENDIX:-29

Trend analysis of Total investment of NMB

(Rs. In million)

Fiscal year (t)	Total investment (Y)	X = t - 2009	X ²	XY	Yc = a + bX
2007	855	-2	4	-1,710	859
2008	1,243	-1	1	-1,243	1,358
2009	1,857	0	0	0	1,857
2010	2,716	1	1	2,716	2,357
2011	2,615	2	4	5,230	2,856
n = 5	$\sum Y =$ 9,286		$\sum X^2 =$ 10	$\sum XY =$ 4,993	

$$a = \frac{\sum y}{n} = \frac{9286}{5} = 1857.2 \quad b = \frac{\sum xy}{\sum x^2} = \frac{4993}{10} = 499.3$$

Project Trend values of Total deposit for next Five year

Fiscal year (t)	X = t - 2009	Yc = a + bX
2012	3	3,355
2013	4	3,854
2014	5	4,354
2015	6	4,853
2016	7	5,352

APPENDIX:-30

Trend analysis of Total investment of NCC

(Rs. In million)

Fiscal year (t)	Total investment (Y)	X = t - 2009	X ²	XY	Yc = a + bX
2007	1,237	-2	4	-2,474	1,407
2008	1,901	-1	1	-1,901	1,577
2009	1,583	0	0	0	1,746
2010	1,948	1	1	1,948	1,916
2011	2,061	2	4	4,122	2,085
n = 5	$\sum Y =$ 8,730		$\sum X^2 =$ 10	$\sum XY =$ 1,695	

$$a = \frac{\sum y}{n} = \frac{8730}{5} = 1746 \qquad b = \frac{\sum xy}{\sum x^2} = \frac{1695}{10} = 169.5$$

Project Trend values of total investment for next Five year

Fiscal year (t)	X = t - 2009	Yc = a + bX
2012	3	2,255
2013	4	2,424
2014	5	2,594
2015	6	2,763
2016	7	2,933

APPENDIX:-31

Trend analysis of Net Profit of BOK

(Rs. In million)

Fiscal year (t)	Net profit (Y)	X = t - 2009	X ²	XY	Yc = a + bX
2007	262	-2	4	-524	273
2008	361	-1	1	-361	356
2009	462	0	0	0	440
2010	509	1	1	509	523
2011	605	2	4	1,210	607
n = 5	$\sum Y =$ 2,199		$\sum X^2 =$ 10	$\sum XY =$ 834	

$$a = \frac{\sum y}{n} = \frac{2199}{5} = 439.8 \qquad b = \frac{\sum xy}{\sum x^2} = \frac{834}{10} = 83.4$$

Project Trend values of net profit for next Five year

Fiscal year (t)	X = t - 2009	Yc = a + bX
2012	3	690
2013	4	773
2014	5	857
2015	6	940
2016	7	1,024

APPENDIX:-32

Trend analysis of Net Profit of NMB

(Rs. In million)

Fiscal year (t)	Net profit (Y)	X = t - 2009	X ²	XY	Yc = a + bX
2007	75	-2	4	-150	42
2008	72	-1	1	-72	80
2009	63	0	0	0	118
2010	160	1	1	160	157
2011	222	2	4	444	195
n = 5	$\sum Y =$ 592		$\sum X^2 =$ 10	$\sum XY =$ 382	

$$a = \frac{\sum y}{n} = \frac{592}{5} = 118.4$$

$$b = \frac{\sum xy}{\sum x^2} = \frac{382}{10} = 38.2$$

Project Trend values of net profit for next Five year

Fiscal year (t)	X = t - 2009	Yc = a + bX
2012	3	233
2013	4	271
2014	5	309
2015	6	348
2016	7	386

APPENDIX:-33

Trend analysis of Net Profit of NCC

(Rs. In million)

Fiscal year (t)	Net profit (Y)	X = t - 2009	X ²	XY	Yc = a + bX
2007	-116	-2	4	232	169
2008	499	-1	1	-499	229
2009	415	0	0	0	289
2010	424	1	1	424	349
2011	221	2	4	442	408
n = 5	$\sum Y =$ 1,443		$\sum X^2 =$ 10	$\sum XY =$ 599	

$$a = \frac{\sum y}{n} = \frac{1443}{5} = 288.6$$

$$b = \frac{\sum xy}{\sum x^2} = \frac{599}{10} = 59.9$$

Project Trend values of net profit for next Five year

Fiscal year (t)	X = t - 2009	Yc = a + bX
2012	3	468
2013	4	528
2014	5	588
2015	6	648
2016	7	708

APPENDIX:-34

Coefficient of correlation between deposit and loan and advances of BOK

(Rs in million)

Fiscal year	Total deposit (X)	Loan & advance (Y)	X ²	Y ²	XY
2007	12,389	9,399	153,487,321	88,341,201	116,444,211
2008	15,834	12,463	250,715,556	155,326,369	197,339,142
2009	18,084	14,647	327,031,056	214,534,609	264,876,348
2010	20,316	16,665	412,739,856	277,722,225	338,566,140
2011	21,018	17,468	441,756,324	305,131,024	367,142,424
Total	87,641	70,642	1,585,730,113	1,041,055,428	1,284,368,265

Coefficient of Correlation(r):

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

$$= .9997$$

Coefficient of Determination (r^2) = .9997x.9997 = .9994

$$\text{Probable (P.E.)} = 0.6745 \times \frac{1 - r^2}{\sqrt{n}} = 0.0001810$$

6(P.E.) = 0.001086

APPENDIX:-35

Coefficient of correlation between deposit and loan and advances of NMB

(Rs in million)

Fiscal year	Total deposit (X)	Loan & advance (Y)	X ²	Y ²	XY
2007	1,296	1,396	1,679,616	1,948,816	1,809,216
2008	1,662	1,940	2,762,244	3,763,600	3,224,280
2009	6,878	5,194	47,306,884	26,977,636	35,724,332
2010	10,111	7,808	102,232,321	60,964,864	78,946,688
2011	12,866	11,209	165,533,956	125,641,681	144,214,994
Total	32,813	27,547	319,515,021	219,296,597	263,919,510

Coefficient of Correlation(r):

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

$$=0.9912$$

Coefficient of Determination (r^2) = 0.9912x0.9912=0.9825

$$\text{Probable (P.E.)} = 0.6745 \times \frac{1 - r^2}{\sqrt{n}} = 0.005279$$

6(P.E.) = 0.03167

APPENDIX:-36

Coefficient of correlation between deposit and loan and advances of NCC

(Rs in million)

Fiscal year	Total deposit (X)	Loan & advance (Y)	X ²	Y ²	XY
2007	6,500	3,708	42,250,000	13,749,264	24,102,000
2008	7,320	4,418	53,582,400	19,518,724	32,339,760
2009	9,128	6,858	83,320,384	47,032,164	62,599,824
2010	10,825	7,995	117,180,625	63,920,025	86,545,875
2011	10,951	8,835	119,924,401	78,057,225	96,752,085
Total	44,724	31,814	416,257,810	222,277,402	302,339,544

Coefficient of Correlation(r):

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

$$= 0.9906$$

Coefficient of Determination (r^2) = 0.9906 × 0.9906 = 0.9813

$$\text{Probable (P.E.)} = 0.6745 \times \frac{1 - r^2}{\sqrt{n}} = 0.005641$$

$$6(\text{P.E.}) = 0.03385$$

APPENDIX:-37

Coefficient of correlation between Total deposit and Total investment of BOK

(Rs. In million)

Fiscal year	Total deposit (X)	Total investment (Y)	X ²	Y ²	XY
2007	12,389	2,992	153,487,321	8,952,064	37,067,888
2008	15,834	3,204	250,715,556	10,265,616	50,732,136
2009	18,084	2,783	327,031,056	7,745,089	50,327,772
2010	20,316	3,269	412,739,856	10,686,361	66,413,004
2011	21,018	4,287	441,756,324	18,378,369	90,104,166
Total	87,641	16,535	1,585,730,113	56,027,499	294,644,966

Coefficient of Correlation(r):

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

$$= 0.5897$$

Coefficient of Determination (r^2) = 0.5897 × 0.5897 = 0.3478

$$\text{Probable (P.E.)} = 0.6745 \times \frac{1 - r^2}{\sqrt{n}} = 0.1967$$

$$6(\text{P.E.}) = 1.1802$$

APPENDIX:-38

Coefficient of correlation between Total deposit and Total investment of NMB

(Rs. In million)

Fiscal year	Total deposit (X)	Total investment (Y)	X ²	Y ²	XY
2007	1,296	855	1,679,616	731,025	1,108,080
2008	1,662	1,243	2,762,244	1,545,049	2,065,866
2009	6,878	1,857	47,306,884	3,448,449	12,772,446
2010	10,111	2,716	102,232,321	7,376,656	27,461,476
2011	12,866	2,615	165,533,956	6,838,225	33,644,590
Total	32,813	9,286	319,515,021	19,939,404	77,052,458

Coefficient of Correlation(r):

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

$$= 0.9619$$

Coefficient of Determination (r^2) = 0.9619 × 0.9619 = 0.9252

$$\text{Probable (P.E.)} = 0.6745 \times \frac{1 - r^2}{\sqrt{n}} = 0.02256$$

$$6(\text{P.E.}) = 0.1354$$

APPENDIX:-39

Coefficient of correlation between Total deposit and Total investment of NCC

(Rs. In million)

Fiscal year	Total deposit (X)	Total investment (Y)	X ²	Y ²	XY
2007	6,500	1,237	42,250,000	1,530,169	8,040,500
2008	7,320	1,901	53,582,400	3,613,801	13,915,320
2009	9,128	1,583	83,320,384	2,505,889	14,449,624
2010	10,825	1,948	117,180,625	3,794,704	21,087,100
2011	10,951	2,061	119,924,401	4,247,721	22,570,011
Total	44,724	8,730	416,257,810	15,692,284	80,062,555

Coefficient of Correlation(r):

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

$$= 0.7313$$

Coefficient of Determination (r²) = 0.7313 × 0.7313 = 0.5348

$$\text{Probable (P.E.)} = 0.6745 \times \frac{1 - r^2}{\sqrt{n}} = 0.1403$$

$$6(\text{P.E.}) = 0.8418$$

APPENDIX:-40

Coefficient of correlation between outside assets and net profit of BOK

(Rs. In million)

Fiscal year	Outside assets (X)	Net profit (Y)	X ²	Y ²	XY
2007	12,392	262	153,561,664	68,644	3,246,704
2008	15,667	361	245,454,889	130,321	5,655,787
2009	17,431	462	303,839,761	213,444	8,053,122
2010	19,934	509	397,364,356	259,081	10,146,406
2011	21,755	605	473,280,025	366,025	13,161,775
Total	87,179	2,199	1,573,500,695	1,037,515	40,263,794

Coefficient of Correlation(r):

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

$$= 0.9910$$

Coefficient of Determination (r²) = 0.9910 × 0.9910 = 0.9821

$$\text{Probable (P.E.)} = 0.6745 \times \frac{1 - r^2}{\sqrt{n}} = 0.005399$$

$$6(\text{P.E.}) = 0.03239$$

APPENDIX:-41

Coefficient of correlation between outside assets and net profit of NMB

(Rs. In million)

Fiscal year	Outside assets (X)	Net profit (Y)	X ²	Y ²	XY
2007	2,251	75	5,067,001	5,625	168,825
2008	3,183	72	10,131,489	5,184	229,176
2009	7,052	63	49,730,704	3,969	444,276
2010	10,524	160	110,754,576	25,600	1,683,840
2011	13,823	222	191,075,329	49,284	3,068,706
Total	36,833	592	366,759,099	89,662	5,594,823

Coefficient of Correlation(r):

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

$$= 0.9029$$

Coefficient of Determination (r²) = 0.9029 × 0.9029 = 0.8152

$$\text{Probable (P.E.)} = 0.6745 \times \frac{1 - r^2}{\sqrt{n}} = 0.05574$$

6(P.E.) = 0.3344

APPENDIX:-42

Coefficient of correlation between outside assets and net profit of NCC

(Rs. In million)

Fiscal year	Outside assets (X)	Net profit (Y)	X ²	Y ²	XY
2007	4,944	-116	24,443,136	13,456	(573,504)
2008	6,319	499	39,929,761	249,001	3,153,181
2009	8,441	415	71,250,481	172,225	3,503,015
2010	9,942	424	98,843,364	179,776	4,215,408
2011	10,897	221	118,744,609	48,841	2,408,237
Total	40,543	1,443	353,211,351	663,299	12,706,337

Coefficient of Correlation(r):

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

$$= 0.4092$$

Coefficient of Determination (r²) = 0.4092 × 0.4092 = 0.1674

$$\text{Probable (P.E.)} = 0.6745 \times \frac{1 - r^2}{\sqrt{n}} = 0.2512$$

6(P.E.) = 1.5072

APPENDIX:-43

Coefficient of correlation between Total deposit and net profit of BOK

(Rs. In million)

Fiscal year	Total deposit (X)	Net profit (Y)	X ²	Y ²	XY
2007	12,389	262	153,487,321	68,644	3,245,918
2008	15,834	361	250,715,556	130,321	5,716,074
2009	18,084	462	327,031,056	213,444	8,354,808
2010	20,316	509	412,739,856	259,081	10,340,844
2011	21,018	605	441,756,324	366,025	12,715,890

Total	87,641	2,199	1,585,730,113	1,037,515	40,373,534
-------	--------	-------	---------------	-----------	------------

Coefficient of Correlation(r):

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

$$= 0.9794$$

Coefficient of Determination (r^2) = 0.9794 × 0.9794 = 0.9592

$$\text{Probable (P.E.)} = 0.6745 \times \frac{1 - r^2}{\sqrt{n}} = 0.01231$$

$$6(\text{P.E.}) = 0.07386$$

APPENDIX:-44

Coefficient of correlation between Total deposit and net profit of NMB

(Rs. In million)

Fiscal year	Total deposit (X)	Net profit (Y)	X ²	Y ²	XY
2007	1,296	75	1,679,616	5,625	97,200
2008	1,662	72	2,762,244	5,184	119,664
2009	6,878	63	47,306,884	3,969	433,314
2010	10,111	160	102,232,321	25,600	1,617,760
2011	12,866	222	165,533,956	49,284	2,856,252
Total	32,813	592	319,515,021	89,662	5,124,190

Coefficient of Correlation(r):

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

$$= 0.8679$$

Coefficient of Determination (r^2) = 0.8679 × 0.8679 = 0.7533

$$\text{Probable (P.E.)} = 0.6745 \times \frac{1 - r^2}{\sqrt{n}} = 0.07442$$

$$6(\text{P.E.}) = 0.4465$$

APPENDIX:-45

Coefficient of correlation between Total deposit and net profit of NCC

(Rs. In million)

Fiscal year	Total deposit (X)	Net profit (Y)	X ²	Y ²	XY
2007	6,500	-116	42,250,000	13,456	(754,000)
2008	7,320	499	53,582,400	249,001	3,652,680
2009	9,128	415	83,320,384	172,225	3,788,120
2010	10,825	424	117,180,625	179,776	4,589,800
2011	10,951	221	119,924,401	48,841	2,420,171
Total	44,724	1,443	416,257,810	663,299	13,696,771

Coefficient of Correlation(r):

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

$$= 0.3946$$

Coefficient of Determination (r^2) = $0.3946 \times 0.3946 = 0.1557$

$$\text{Probable (P.E.)} = 0.6745 \times \frac{1 - r^2}{\sqrt{n}} = 0.2547$$

$$6(\text{P.E.}) = 1.5282$$

APPENDIX:-46

Coefficient of correlation between Total deposit and Interest earned of BOK

(Rs. In million)

Fiscal year	Total deposit (X)	Interest earned (Y)	X ²	Y ²	XY
2007	12,389	819	153,487,321	670,761	10,146,591
2008	15,834	1,034	250,715,556	1,069,156	16,372,356
2009	18,084	1,348	327,031,056	1,817,104	24,377,232
2010	20,316	1,871	412,739,856	3,500,641	38,011,236
2011	21,018	2,387	441,756,324	5,697,769	50,169,966
Total	87,641	7,459	1,585,730,113	12,755,431	139,077,381

Coefficient of Correlation(r):

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

$$= 0.9280$$

Coefficient of Determination (r^2) = $0.9280 \times 0.9280 = 0.8612$

$$\text{Probable (P.E.)} = 0.6745 \times \frac{1 - r^2}{\sqrt{n}} = 0.04187$$

$$6(\text{P.E.}) = 0.2512$$

APPENDIX:-47

Coefficient of correlation between Total deposit and Interest earned of NMB

(Rs. In million)

Fiscal year	Total deposit (X)	Interest earned (Y)	X ²	Y ²	XY
2007	1,296	238	1,679,616	56,644	308,448
2008	1,662	251	2,762,244	63,001	417,162
2009	6,878	403	47,306,884	162,409	2,771,834
2010	10,111	866	102,232,321	749,956	8,756,126
2011	12,866	1,492	165,533,956	2,226,064	19,196,072
Total	32,813	3,250	319,515,021	3,258,074	31,449,642

Coefficient of Correlation(r):

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

$$= 0.9265$$

Coefficient of Determination (r^2) = $0.9265 \times 0.9265 = 0.8584$

$$\text{Probable (P.E.)} = 0.6745 \times \frac{1 - r^2}{\sqrt{n}} = 0.04271$$

$$6(\text{P.E.}) = 0.2563$$

APPENDIX:-48

Coefficient of correlation between Total deposit and Interest earned of NCC

(Rs. In million)

Fiscal year	Total deposit (X)	Interest earned (Y)	X ²	Y ²	XY
2007	6,500	474	42,250,000	224,676	3,081,000
2008	7,320	577	53,582,400	332,929	4,223,640
2009	9,128	758	83,320,384	574,564	6,919,024
2010	10,825	1,042	117,180,625	1,085,764	11,279,650
2011	10,951	1,343	119,924,401	1,803,649	14,707,193
Total	44,724	4,194	416,257,810	4,021,582	40,210,507

Coefficient of Correlation(r):

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

$$= 0.9435$$

Coefficient of Determination (r²) = 0.9435 × 0.9435 = 0.8902

$$\text{Probable (P.E.)} = 0.6745 \times \frac{1 - r^2}{\sqrt{n}} = 0.03312$$

$$6(\text{P.E.}) = .1987$$

APPENDIX:-49**Coefficient of correlation between Loan and Advances and Interest Paid of BOK**

(Rs. In million)

Fiscal year	Loan & advances (X)	Interest paid (Y)	X ²	Y ²	XY
2007	9,399	339	88,341,201	114,921	3,186,261
2008	12,463	417	155,326,369	173,889	5,197,071
2009	14,647	563	214,534,609	316,969	8,246,261
2010	16,665	903	277,722,225	815,409	15,048,495
2011	17,468	1,219	305,131,024	1,485,961	21,293,492
Total	70,642	3,441	1,041,055,428	2,907,149	52,971,580

Coefficient of Correlation(r):

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

$$= 0.9048$$

Coefficient of Determination (r²) = 0.9048 × 0.9048 = 0.8187

$$\text{Probable (P.E.)} = 0.6745 \times \frac{1 - r^2}{\sqrt{n}} = 0.05469$$

$$6(\text{P.E.}) = 0.3281$$

APPENDIX:-50**Coefficient of correlation between Loan and Advances and Interest Paid of NMB**

(Rs. In million)

Fiscal year	Loan & advances (X)	Interest paid (Y)	X ²	Y ²	XY
2007	1,396	140	1,948,816	19,600	195,440
2008	1,940	139	3,763,600	19,321	269,660
2009	5,194	254	26,977,636	64,516	1,319,276
2010	7,808	560	60,964,864	313,600	4,372,480
2011	11,209	1,053	125,641,681	1,108,809	11,803,077

Total	27,547	2,146	219,296,597	1,525,846	17,959,933
-------	--------	-------	-------------	-----------	------------

Coefficient of Correlation(r):

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

$$= 0.9603$$

Coefficient of Determination (r^2) = 0.9603 × 0.9603 = 0.9222

$$\text{Probable (P.E.)} = 0.6745 \times \frac{1 - r^2}{\sqrt{n}} = 0.02347$$

$$6(\text{P.E.}) = 0.1408$$

APPENDIX:-51

Coefficient of correlation between Loan and Advances and Interest Paid of NCC

(Rs. In million)

Fiscal year	Loan & advances (X)	Interest paid (Y)	X ²	Y ²	XY
2007	3,708	283	13,749,264	80,089	1,049,364
2008	4,418	279	19,518,724	77,841	1,232,622
2009	6,858	352	47,032,164	123,904	2,414,016
2010	7,995	580	63,920,025	336,400	4,637,100
2011	8,835	873	78,057,225	762,129	7,712,955
Total	31,814	2,367	222,277,402	1,380,363	17,046,057

Coefficient of Correlation(r):

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

$$= 0.8742$$

Coefficient of Determination (r^2) = 0.8742 × 0.8742 = 0.7642

$$\text{Probable (P.E.)} = 0.6745 \times \frac{1 - r^2}{\sqrt{n}} = 0.07113$$

$$6(\text{P.E.}) = 0.4268$$

APPENDIX:-52

Coefficient of correlation between Total Working Fund and Net Profit of BOK

(Rs. In million)

Fiscal year	Working fund (X)	Net profit (Y)	X ²	Y ²	XY
2007	14,570	262	212,284,900	68,644	3,817,340
2008	17,722	361	314,069,284	130,321	6,397,642
2009	20,496	462	420,086,016	213,444	9,469,152
2010	23,396	509	547,372,816	259,081	11,908,564
2011	24,758	605	612,958,564	366,025	14,978,590
Total	100,942	2,199	2,106,771,580	1,037,515	46,571,288

Coefficient of Correlation(r):

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

$$= 0.9884$$

Coefficient of Determination (r^2) = $0.9884 \times 0.9884 = 0.9769$

$$\text{Probable (P.E.)} = 0.6745 \times \frac{1 - r^2}{\sqrt{n}} = 0.006968$$

$$6(\text{P.E.}) = 0.04181$$

APPENDIX:-53

Coefficient of correlation between Total Working Fund and Net Profit of NMB

(Rs. In million)

Fiscal year	Working fund (X)	Net profit (Y)	X ²	Y ²	XY
2007	4,421	75	19,545,241	5,625	331,575
2008	8,928	72	79,709,184	5,184	642,816
2009	15,857	63	251,444,449	3,969	998,991
2010	13,226	160	174,927,076	25,600	2,116,160
2011	15,948	222	254,338,704	49,284	3,540,456
Total	58,380	592	779,964,654	89,662	7,629,998

Coefficient of Correlation(r):

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

$$= 0.5175$$

Coefficient of Determination (r^2) = $0.5175 \times 0.5175 = 0.2678$

$$\text{Probable (P.E.)} = 0.6745 \times \frac{1 - r^2}{\sqrt{n}} = 0.2209$$

$$6(\text{P.E.}) = 1.3254$$

APPENDIX:-54

Coefficient of correlation between Total Working Fund and Net Profit of NCC

(Rs. In million)

Fiscal year	Working fund (X)	Net profit (Y)	X ²	Y ²	XY
2007	6,037	-116	36,445,369	13,456	(700,292)
2008	8,241	499	67,914,081	249,001	4,112,259
2009	10,528	415	110,838,784	172,225	4,369,120
2010	12,761	424	162,843,121	179,776	5,410,664
2011	12,265	221	150,430,225	48,841	2,710,565
Total	49,832	1,443	528,471,580	663,299	15,902,316

Coefficient of Correlation(r):

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

$$= 0.5426$$

Coefficient of Determination (r^2) = $0.5426 \times 0.5426 = 0.2944$

$$\text{Probable (P.E.)} = 0.6745 \times \frac{1 - r^2}{\sqrt{n}} = 0.2184$$

$$6(\text{P.E.}) = 1.3104$$

APPENDIX:-55

Regression equation between Net Profit and Total Working Fund of BOK

(Rs. In million)

Fiscal year	Working fund (X)	Net profit (Y)	X ²	Y ²	XY
2007	14,570	262	212,284,900	68,644	3,817,340
2008	17,722	361	314,069,284	130,321	6,397,642
2009	20,496	462	420,086,016	213,444	9,469,152
2010	23,396	509	547,372,816	259,081	11,908,564
2011	24,758	605	612,958,564	366,025	14,978,590
Total	100,942	2,199	2,106,771,580	1,037,515	46,571,288

X =Independent Variable

Y = Dependent Variable

Let, the regression equation of Y on X is

$$Y = a + bx \dots\dots\dots\text{eq.(I)}$$

To find the value of a and b we have to normal equation

$$\Sigma y = na + b\Sigma x \dots\dots\dots\text{eq.(II)}$$

$$\Sigma xy = a\Sigma x + b\Sigma x^2 \dots\dots\dots\text{eq.(III)}$$

Substituting the value of n , Σx , Σy , Σx^2 and Σxy in equation (II) and (III) we get,

$$2,199 = 5a + 100,942b \dots\dots\dots\text{eq.(IV)}$$

$$46,571,288 = 100,942a + 2,106,771,580b \dots\dots\dots\text{eq.(V)}$$

Now, multiplying eq.(IV) by 100942 and eq.(V) by 5 then substituting (V) we get

$$221,971,458 = 504,710a + 10189287364b$$

$$232,856,440 = 504,710a + 10533857900b$$

$$\underline{-10,884,982 = -344,570,536b}$$

$$b = 0.03159$$

Putting the value of b in equation (IV) then we get,

$$2199 = 5a + 100942 \times 0.03159$$

$$a = -197.9515$$

$$Y = -197.9515 + 0.03159X$$

APPENDIX:-56

Regression equation between Net Profit and Total Working Fund of NMB

(Rs. In million)

Fiscal year	Working fund (X)	Net profit (Y)	X ²	Y ²	XY
2007	4,421	75	19,545,241	5,625	331,575
2008	8,928	72	79,709,184	5,184	642,816
2009	15,857	63	251,444,449	3,969	998,991
2010	13,226	160	174,927,076	25,600	2,116,160
2011	15,948	222	254,338,704	49,284	3,540,456
Total	58,380	592	779,964,654	89,662	7,629,998

X =Independent Variable

Y = Dependent Variable

Let, the regression equation of Y on X is

$$Y = a + bx \dots\dots\dots\text{eq.(I)}$$

To find the value of a and b we have to normal equation

$$\Sigma y = na + b\Sigma x \dots\dots\dots\text{eq.(II)}$$

$$\Sigma xy = a\Sigma x + b\Sigma x^2 \dots\dots\dots\text{eq.(III)}$$

Substituting the value of n , Σx , Σy , Σx^2 and Σxy in equation (II) and (III) we get,

$$592 = 5a + 58,380b \dots\dots\dots\text{eq.(IV)}$$

$$7,629,998 = 58,380a + 779,964,654b \dots\dots\dots\text{eq.(V)}$$

Now, multiplying eq.(IV) by 58380 and eq.(V) by 5 then substituting (V) we get

$$34560960 = 291900a + 3408224400b$$

$$\begin{aligned} 38149990 &= 291900a + 3899823270b \\ -3589030 &= -491598870b \\ b &= 0.00730 \end{aligned}$$

Putting the value of b in equation (IV) then we get,

$$592 = 5a + 58,380 \times 0.00730$$

$$a = 33.1567$$

$$Y = 33.1567 + 0.00730 X$$

APPENDIX:-57

Regression equation between Net Profit and Total Working Fund of NCC

(Rs. In million)

Fiscal year	Working fund (X)	Net profit (Y)	X^2	Y^2	XY
2007	6,037	-116	36,445,369	13,456	(700,292)
2008	8,241	499	67,914,081	249,001	4,112,259
2009	10,528	415	110,838,784	172,225	4,369,120
2010	12,761	424	162,843,121	179,776	5,410,664
2011	12,265	221	150,430,225	48,841	2,710,565
Total	49,832	1,443	528,471,580	663,299	15,902,316

X =Independent Variable

Y = Dependent Variable

Let, the regression equation of Y on X is

$$Y = a + bx \dots\dots\dots\text{eq.(I)}$$

To find the value of a and b we have to normal equation

$$\Sigma y = na + b\Sigma x \dots\dots\dots\text{eq.(II)}$$

$$\Sigma xy = a\Sigma x + b\Sigma x^2 \dots\dots\dots\text{eq.(III)}$$

Substituting the value of n, Σx , Σy , Σx^2 and Σxy in equation (II) and (III) we get,

$$1,443 = 5a + 49,832b \dots\dots\dots\text{eq.(IV)}$$

$$15,902,316 = 49,832a + 528,471,580b \dots\dots\dots\text{eq.(V)}$$

Now, multiplying eq.(IV) by 49832 and eq.(V) by 5 then substituting (V) we get

$$71907576 = 249160a + 2483228224b$$

$$79511580 = 249160a + 2642357900b$$

$$\begin{aligned} -7604004 &= -159129676b \\ b &= 0.04778 \end{aligned}$$

$$b = 0.04778$$

Putting the value of b in equation (IV) then we get,

$$1443 = 5a + 49,832 \times 0.04778$$

$$a = -187.644$$

$$Y = -187.644 + 0.04778X$$

APPENDIX:-58

Regression equation between Total deposit and Net profit of BOK

(Rs. In million)

Fiscal year	Total deposit (X)	Net profit (Y)	X^2	Y^2	XY
2007	12,389	262	153,487,321	68,644	3,245,918
2008	15,834	361	250,715,556	130,321	5,716,074
2009	18,084	462	327,031,056	213,444	8,354,808
2010	20,316	509	412,739,856	259,081	10,340,844
2011	21,018	605	441,756,324	366,025	12,715,890
Total	87,641	2,199	1,585,730,113	1,037,515	40,373,534

X =Independent Variable

Y = Dependent Variable

Let, the regression equation of Y on X is

$$Y = a + bx \dots\dots\dots\text{eq.(I)}$$

To find the value of a and b we have to normal equation

$$\Sigma y = na + b\Sigma x \dots\dots\dots\text{eq.(II)}$$

$$\Sigma xy = a\Sigma x + b\Sigma x^2 \dots\dots\dots\text{eq.(III)}$$

Substituting the value of n, Σx , Σy , Σx^2 and Σxy in equation (II) and (III) we get,

$$2,199 = 5a + 87,641b \dots\dots\dots\text{eq.(IV)}$$

$$40,373,534 = 87,641a + 1,585,730,113b \dots\dots\dots\text{eq.(V)}$$

Now, multiplying eq.(IV) by 87641 and eq.(V) by 5 then substituting (V) we get

$$192722559 = 438205a + 7680944881b$$

$$201867670 = 438205a + 7928650565b$$

$$\underline{-9145111 = -247705684b}$$

$$b = 0.03692$$

Putting the value of b in equation (IV) then we get,

$$2199 = 5a + 87,641 \times 0.03692$$

$$a = -207.3282$$

$$Y = -207.3282 + 0.03692X$$

APPENDIX:-59

Regression equation between Total deposit and Net profit of NMB

(Rs. In million)

Fiscal year	Total deposit (X)	Net profit (Y)	X^2	Y^2	XY
2007	1,296	75	1,679,616	5,625	97,200
2008	1,662	72	2,762,244	5,184	119,664
2009	6,878	63	47,306,884	3,969	433,314
2010	10,111	160	102,232,321	25,600	1,617,760
2011	12,866	222	165,533,956	49,284	2,856,252
Total	32,813	592	319,515,021	89,662	5,124,190

X =Independent Variable

Y = Dependent Variable

Let, the regression equation of Y on X is

$$Y = a + bx \dots\dots\dots\text{eq.(I)}$$

To find the value of a and b we have to normal equation

$$\Sigma y = na + b\Sigma x \dots\dots\dots\text{eq.(II)}$$

$$\Sigma xy = a\Sigma x + b\Sigma x^2 \dots\dots\dots\text{eq.(III)}$$

Substituting the value of n, Σx , Σy , Σx^2 and Σxy in equation (II) and (III) we get,

$$592 = 5a + 32,813b \dots\dots\dots\text{eq.(IV)}$$

$$5,124,190 = 32,813a + 319,515,021b \dots\dots\dots\text{eq.(V)}$$

Now, multiplying eq.(IV) by 32813 and eq.(V) by 5 then substituting (V) we get

$$19425296 = 164065a + 1076692969b$$

$$25620950 = 164065a + 1597575105b$$

$$\underline{-6195654 = -520882136b}$$

$$b = 0.01189$$

Putting the value of b in equation (IV) then we get,

$$592 = 5a + 32,813 \times 0.01189$$

$$a = 40.3409$$

$$Y = 40.3409 + 0.01189X$$

APPENDIX:-60

Regression equation between Total deposit and Net profit of NCC

(Rs. In million)

Fiscal year	Total deposit (X)	Net profit (Y)	X ²	Y ²	XY
2007	6,500	-116	42,250,000	13,456	(754,000)
2008	7,320	499	53,582,400	249,001	3,652,680
2009	9,128	415	83,320,384	172,225	3,788,120
2010	10,825	424	117,180,625	179,776	4,589,800
2011	10,951	221	119,924,401	48,841	2,420,171
Total	44,724	1,443	416,257,810	663,299	13,696,771

X =Independent Variable

Y = Dependent Variable

Let, the regression equation of Y on X is

$$Y = a + bx \dots\dots\dots\text{eq.(I)}$$

To find the value of a and b we have to normal equation

$$\Sigma y = na + b\Sigma x \dots\dots\dots\text{eq.(II)}$$

$$\Sigma xy = a\Sigma x + b\Sigma x^2 \dots\dots\dots\text{eq.(III)}$$

Substituting the value of n , Σx, Σy, Σx² and Σxy in equation (II) and (III) we get,

$$1,443 = 5a + 44,724b \dots\dots\dots\text{eq.(IV)}$$

$$13,696,771 = 44,724a + 416,257,810b \dots\dots\dots\text{eq.(V)}$$

Now, multiplying eq.(IV) by 44724 and eq.(V) by 5 then substituting (V) we get

$$64536732 = 223620a + 2000236176b$$

$$68483855 = 223620a + 2081289050b$$

$$\underline{-3947123 = -81052874b}$$

$$b = 0.0487$$

Putting the value of b in equation (IV) then we get,

$$1443 = 5a + 44,724 \times 0.0487$$

$$a = -146.995$$

$$Y = -146.995 + 0.0487X$$

APPENDIX:-61

Calculation of mean, standard deviation, and coefficient of variation

Fiscal year	Ratio (X)	X ²
2007	1.05	1.1025
2008	1.06	1.1236
2009	1.07	1.1449
2010	1.07	1.1449
2011	1.09	1.1881
Total	5.34	5.704

$$\text{Mean} = \frac{\Sigma X}{N} = \frac{5.34}{5} = 1.068$$

$$\begin{aligned} \text{Standard deviation} &= \sqrt{\Sigma \frac{X^2}{N} - \left(\frac{\Sigma X}{N}\right)^2} \\ &= \sqrt{\frac{5.704}{5} - \left(\frac{5.34}{5}\right)^2} \\ &= 0.0133 \end{aligned}$$

$$\begin{aligned}\text{Coefficient of variation (C.V.)} &= \frac{S.D}{Mean} \times 100 \\ &= \frac{0.0133}{1.068} \times 100 \\ &= 1.2453\end{aligned}$$