CHAPTER – I

INTRODUCTION

1.1 BACKGROUND OF THE STUDY:

Nepal is a land-locked a country situated between two emerging econonic Asian giants China and India, both having well developed economic condition. The development of a country is measured by its economic indices. Nepal, like any other country has been laying emphasis on the upliftment of its economy. The process of economic development depends upon various factors. Financial institutions are viewed as catalyst in the process of economic growth. The mobilization of domestic resources, capital formation and its proper utilization plays an important role in the economic development of a country. Every financial institution, big or small, be it a commercial bank or a finance company or a cooperative bank play an important role in the development of a country.

Commercial banks are major financial institutions, which occupy quite an important place in the economy because through the deposits they collect they provide much needed capital for the development of industry, trade and business and other deficit sectors, thereby contributing to the economic growth of the nation.

"Investment in the actual sense refers to the sacrifice of current dollars for future dollars" (Sharpe, 1986: 9). Investment involves two attributes, time and risk. The sacrifice takes place in the present and is certain. The reward comes later, if at all and the magnitude of which is uncertain. In some cases the element of time predominates (for example, government bonds). In other case, risk is more dominant (for example call option on common stock). In yet others, both time and risk play a dominant role (for example share of common stock).

Investment is the use of money to earn profit. It can be said that investment in concerned with the proper management of the investors wealth, which are the sum of the current income and the present value of all future income. Fund to be invested come from assets already owned, borrowed money and saving or foregone consumption. By foregoing today and investing the saving, investors expect to enhance their future consumption possibilities i.e. the fund is invested to increase wealth. Investors also seek to manage their wealth effectively obtaining the most from it, while protecting it from inflation, taxes and other possible harms.

"Investment policy involves determining the investor's objectives and the amount of his or her investable wealth. It is not appropriate for an investor to say that his objective is to make a lot of money"(Clarke, 1989: 10). What is appropriate for an investor in this situation is to state that the objective is to earn a profit while recognizing that there exist some chances of incurring large losses. Investment objectives should be stated in terms of both risk & return.

Investment promotes economic growth and contributes to a nation's wealth. When people deposit money in the bank, the bank may invest by lending the funds to various businesses. These firms in return may invest in new factories and equipment to increase their production and efficiency. In addition to borrowing from banks, most companies issue stocks and bonds, which they sell to investors to raise capital needed for business expansion. Government also issues bonds, to raise required funds to invest in various projects. NRB on behalf of HMG issues bonds, treasury bills to finance the long term and short-term needs of the government. All such investment by individuals, business, government & government entities involve a present sacrifice of income to get an expected future benefit.

The real talent of an investor primarily lies in selecting proper or suitable area for investment with low or moderate risk. Investment policy should ensure minimum risk and maximum profit from lending.

1.2   STATEMENT OF THE PROBLEM:

Commercial banks have huge collection from depositors. Effective utilization of collected fund is only possible through sound investment policy. Most Nepalese Commercial banks have not formulated their investment policy in an organized manner. They mainly rely upon the instructions and guidelines issued by NRB. They are unable to estimate the future; they do not have any clear view towards Investment policy. Furthermore, the implementation of policy is not in an effective way. The main reason attributed to unsound investment policy are lack of proper analysis on financial risk, interest rate risk, liquidity risk, business risk etc. Commercial Banks have become a role model in the improvement of fund mobilization.

The problem that still persists for a bank even today is to find a proper and viable project to ensure healthy profit. They have always feared high degree of risk and uncertainty owing to lack of profitable sectors for their investment. Still, some emerging and existing commercial banks are tempted to invest, without proper credit analysis and on personal guarantee. Some have even sanctioned loan to customers beyond customer's real requirement. The high liquidity position of banks has resulted in a decrease in investment in productive sectors.

Thus, the present study will make a modest attempt to analyze investment policy of two Commercial banks viz. NIBL and BOKL. This study basically deals with the following issues of commercial banks :-

) Proper utilization of available fund, are the Commercial Banks properly utilizing their available fund?

⟩ Is the fund mobilization and investment policy of Commercial Banks effective?

⟩ What is the relationship of investment and loan and advances with total deposits and net profit of Commercial Banks?

⟩ Does the investment decision affect the total earnings of Commercial Banks.

1.3 OBJECTIVES OF THE STUDY:

Investment decision is one of the major decision functions of financial management. The main purpose of this study is to assess the investment policy and strategies followed by NIBL and BOKL. The specific objectives of this study are given below:-

❖ To evaluate the liquidity, asset management, profitability, risk position and growth ratios of the banks under study.

❖ To find out relationship between total deposits and investment, loans & advances, interest earned, and net profit, net profit to outsides assets and total working fund, loan and advances to interest paid & compare them.

❖ To analyze the trend of deposits, investment, net profit and loan and advances, for next five years of BOKL and NIBL.

❖ To provide suggestions and recommendation on the basis of the study.

1.4 SIGNIFICANCE OF THE STUDY:

Investment activity is the life-blood of any financial institution, since only accumulating deposits has no meaning. Better return can be ensured only when deposits are properly mobilized through sound investment policy.

This study "Comparative Analysis of Investment policy" of two major Commercial Banks will provide a useful feedback to academic institutions, bank employees, trainees, investors, policy making bodies and those concerned with banks in the formulation of appropriate strategies for improving the performance of banks.

1.5   LIMITATIONS OF THE STUDY:

Like every research study, this study also has some limitations viz-inadequate coverage of commercial banks, time period taken and other variables. The following factors are the basic limitations:-

➢ This study is based on secondary data collected from the banks.

➢ This study is limited to only a period of five years of the concerned banks and hence the conclusion drawn only confines to the above period (F.Y. 2005/2006 to 2009/2010).

➢ This study deals with only two Commercial Banks i.e. NIBL and BOKL. Other commercial banks have not been considered in this study.

➢ This research particularly based on data gathered from the published annual report of the two banks along with NRB directives issued from time to time.

1.6   ORGANIZATION OF THE STUDY:

This study includes five chapters namely Introduction, Review of Literature, Research Methodology, Data Presentation and Analysis and Conclusion and Recommendation.

The first chapter in the introductory chapter, which contains the following topics:-

- General background of the study.
- Historical developments of Banking
- Statement of the Problem
- Objectives of the Study
- Significance of the Study
- Limitation of the Study
- Organization of the Study

The second chapter is Review of Literature, which deals with the study of related articles, journals, reports and past thesis writing. This chapter includes three topics.

- ❖ Conceptual framework.
- ❖ Review of journals, articles, reports and
- ❖ Review of previous thesis studies related to Investment decision and policy.

The third chapter concentrates on Research Methodology, techniques that are applied to collect and analyze the data. It consists of the following topics:-

a) Introduction
b) Research design
c) Sources of data
d) Population and sample
e) Presentation of data
f) Method of analysis

The fourth chapter is Presentation and Analysis of Data, which consists of financial tools and statistical tools used in the analysis of data. Financial tool mainly consists of ratio analysis, which involves-liquidity ratio, asset management ratio, profitability ratio, risk ratio and growth ratio. Statistical tools used in the analysis of data involve co-relation analysis, trend analysis and test of hypothesis. This chapter also provides major findings of the study.

The fifth chapter, which is also the concluding chapter covers Summary, Conclusion and Recommendation, and provide some valuable suggestions to the selected banks.

CHAPTER – II

2.   REVIEW OF LITERATURE:

This part of the study tries to describe the conceptual framework, concept of commercial bank and Commercial Banks. Apart from these, this chapter highlights the literature that is available in the concerned subject to my knowledge, Review of reports related to commercial banks, Review of research works, Review of Books, Review of articles and relevant study on this topic and Review of previous thesis work.

2.1   CONCEPTUAL FRAMEWORK:

2.1.1   Historical Developments of Bank:

The origin of the word "Bank" is linked to: Latin word "bancus" meaning a bench, Italian word "banca" meaning a bench, French word "banque" meaning a bench. Since there is no unanimity, it is difficult to say exactly from which of these words the term "bank" has been derived from. Bank of Venice, set up in 1157 in Venice, Italy is regarded as the first modern bank. Subsequently, Bank of Barcelona (1401) and Bank of Genoa (1407) were established. The Bank of Hindustan established in 1770 is regarded as the first bank in India. The real growth of banks accelerated only after the introduction of the Banking Act -1833.

In the beginning, commercial bank functions were confined to accepting deposit and giving loans. Their functions have now increased manifold. They offer a wide range of services encompassing the needs of public of different walks of life. The main objective of bank involves collecting amount from the public in the form of savings and providing short-term loan for the development of industry, trade and business. Generally, when we talk of banks, we mean commercial banks. In the

context of Nepal, Tejarath Adda established during the tenure of the then Prime Minister Ranodip Singh (B.S. 1933) was the first step towards the institutional development of banking in Nepal. Tejarath Adda did not collect deposits from the public but gave loan to employees and public against the bullion.

Banking in the modern sense started with the inception of Nepal Bank Ltd. (NBL) on B.S. 1994-07-30. Nepal Bank Ltd had a massive responsibility of attracting people towards the banking sector from the net of moneylenders, and of expanding banking services. Being a commercial bank, it was natural that NBL paid more attention to profit generating business and preferred opening branches at urban centers.

However, Government had the onus of stretching banking services to the nook and corner of the country and also managing financial system in a proper way. The need for a central bank was felt. Thus, Nepal Rastra Bank (NRB) was set up on B.S. 2013.01.14 as a central bank under Nepal Rastra Bank Act 2012 B.S. since then, it has been functioning as the government's bank and has contributed to the growth of financial sector ever since. The major challenge before NRB is to ensure the robust health of financial institutions. Integrated and speedy development of the country is possible only when competitive banking services reaches nooks and corners of the country. With this in mind, government set up Rastriya Banijya Bank (RBB) in B.S. 2022-10-10 as a fully government owned commercial bank.

As an open policy of the government to allow private and foreign investors to invest in banking under the Commercial Bank Act 2031 B.S., many new banks were established, and many more are coming into existence.

2.1.2 Meaning of Bank:

The word Bank means an organization where people and business can invest or borrow money; change it to foreign currency etc. According to Halsbury

"A Banker is an individual, partnership or corporation whose sole pre-dominant business is banking, that is the receipt of money on current or deposit account, and the payment of cheques drawn and the collection of cheques paid in by a customer".

2.1.3 The Origin and Uses of Banks:

The word 'bank' is derived from the Italian word 'banco' signifying a bench, which was erected in the market-place, where it was customary to exchange money. The Lombard Jews were the first to practice this exchange business, the first bench having been established in Italy A.D. 808. Some authorities assert that the Lombard merchants commenced the business of money-dealing, employing bills of exchange as remittances, about the beginning of the thirteenth century.

About the middle of the twelfth century it became evident, as the advantage of coined money was gradually acknowledged, that there must be some controlling power, some corporation which would undertake to keep the coins that were to bear the royal stamp up to a certain standard of value; as, independently of the 'sweating '-which invention may place to the credit of the ingenuity of the Lombard merchants-all coins will, by wear or abrasion, become thinner, and consequently less valuable; and it is of the last importance, not only for the credit of a country, but for the easier regulation of commercial transactions, that the metallic currency be kept as nearly as possible up to the legal standard. Much unnecessary trouble and annoyance has been caused formerly by negligence in this respect.

The gradual merging of the business of a goldsmith into a bank appears to have been the way in which banking, as we now understand the term, was introduced into England; and it was not until long after the establishment of banks in other countries-for State purposes, the regulation of the coinage, etc.-that any large or similar institution was introduced into England.. It is only within the last twenty

years that printed cheques have been in use in that establishment. First commercial bank was Bank of Venice which was established in 1157 in Italy.

2.1.4 Evolution of Banking Industry in Nepal:

In Nepalese Chronicle, it was recorded that the new era known as Nepal Sambat was introduced by Shankhadhar, a sudra merchant of Kantipur in 879 of 880 A.D. after paying all the outstanding debts in the country. This shows the basic of money lending practice in ancient Nepal towards the end of 8th century. Gunkam Dev had borrowed money to rebuild the Kathmandu valley in 11th century, during Malla regime there was an evidence of professional moneylenders and bankers. It is further believed that money lending business, particularly for financing the foreign trade with Tibet, became quite popular during reign of Mallas. However, in the absence of any regulatory measures, the unscrupulous moneylenders were known to have charged exorbitant rates of interest and other extra dues on loans advanced.

The establishment of the "Tejarath Adda" during the year 1877 A.D. was fully subscribed by the government of Kathmandu valley, which played a vital role in the banking system. Banking was first introduced in Nepal through 'Nepal Bank Limited' in 1937, to monitor banking activities and provide financial advice to the Government. Nepal Rastra Bank was established in 1956. A new Era in Banking began in 1984 with the establishment of the first Commercial Banks, Nepal Arab Bank Limited (NABIL)

Today, 31 Commercial Banks, 61 Development Banks, 78 finance companies, 13 Micro- Credit Financial Institution are involved in the economic development of

the Country. Also the 17 cooperatives (Licensed by NRB) and 47 NGOs (Licensed by NRB), 21 Insurance Companies (Licensed by Insurance Board), 1 Employee Provident fund and 1 Citizens Investment Trust are operating limited banking transactions in Nepal.

2.1.5 Commercial Bank:

"Commercial Bank is a corporation which accepts demand deposits subject to check and makes short-term loans to business enterprises, regardless of the scope of its other services". (American Institute of Banking; 1972:325) Commercial Bank Act 1975 AD (2031 BS) defines, "A commercial bank is one which exchange money, deposits money, accepts deposits, grant loans and performs commercial banking functions and which is not a bank meant for co-operative, agriculture, industries or for such specific purpose". (Commercial Bank Act 2031) The Commercial bank has its own role and contributions in the economic development. It is a resource for the economic development; it maintains economic confidence of various segments and extends credit to people. (Grywinshki, 1991:87) Commercial bank deals with others money. They have to find ways of keeping their asset liquid so that they could meet the demand of their customers.

Liquidity is the lifeline of bank. Any bank perceived to be illiquid cannot attract deposit from the public. Inadequate liquidity does damage credit standing of those organizations, but if banks fail to repay the deposits on demand, the bank loses the trust of the public. This leads to "runs" is the bank and probably bankruptcy thereoff. Trade off between liquidity and profitability is thus a crucial task for any bank. Satisfactory trade off is possible through correct prediction of liquidity needs and judicious distribution of resources in various forms of liquid

and high earning assets. The main function of commercial bank is concerned with the accumulation of the temporarily idle money of the general public to advance it to deficit sections i.e. trade and commerce for expenditure. Its main functions are:

Accepting various types of deposits;

Lending money in various productive sectors;

Letter of credit (LC)

Guarantee (G'tee)

Remittance

Bills and collections

Hence, a commercial bank can be defined as a "Financial department store", which renders a host of financial services besides taking deposits and giving loans.

2.1.6 Features of a Sound Lending and Investment Policy:

The income and profit of a financial institution depends upon to its lending procedure, lending policy and investment of its fund in different securities. A sound lending and investment policy is not only pre-requisite for bank's profitability but also of utmost significance for the promotion of commercial savings of an under developed and backward country like Nepal. The factors that banks must consider for sound lending and investment policies are explained as under:

a)   Safety and Security:

Banks should buy investment rated securities only. It should abstain form investing its fund in those securities, which are subject to greater depreciation and fluctuation for example common stock, since a little difference may result in a great loss. It must not advance its funds to speculative business, which may earn millions in a minute or may become bankrupt the next minute. Since risk is overpriced during recession and under priced during boom banks should invest in medium grade and high-grade securities during recession and boom respectively. Banks should buy securities, which are commercially durable, marketable and have high market price. In this regard, "MAST" should be followed while investing, Where, M =Marketability, A =AscertainbiLity, S =Stability and T =Transferability.

b) Liquidity:

Liquidity is defined as bank's capacity to pay cash in exchange of deposits. People deposit their money in banks because they believe that the bank will repay their money on demand. In order to retain good credit standing and trust and confidence of its customers every banks must maintain enough liquidity to meet its various obligations.

c) Profitability:

Commercial banks can maximize its volume of wealth through maximization of return on their investments and lending. They must invest their fund in viable sectors where they can earn maximum profit. Their return depends upon the interest rate, volume of loan, duration of the loan and nature of investment in different securities.

d)   Purpose of Loan:

It is very important to be reminded that most of the bank failures in the world are due to shrinkage in the value of loan and advances. The first substantive question a banker must examine is how loan proceeds will be used. If the loan purpose conflicts with commercial policy, such as loan for some speculative purpose not acceptable to the banker such loans should not be processed. If customers misuse their borrowings, there is risk involved in repayment and the bank will incur heavy bad debts. Detailed information about the plan and scheme of project should be collected and examined before borrowing.

e)   Diversification:

Investment and credit concentrated on same geographical region, same sector of business and few customers increase the risk. Hence the policy should fix a cap on all these aspect. As the saying goes " A bank should not put all its eggs in the same basket", therefore, in order to minimize the risk, a bank should diversify its investment in different securities. This diversification or portfolio investment helps to earn good return and at the same time minimize the risks and uncertainty.

f)   Legality:

A commercial bank must follow the rules and regulations and statuary directives issued by Nepal Rastra Bank, Ministry of Finance and others while issuing securities and mobilizing their funds. In Nepal, NRB restricts financial institution licensed by it to invest in securities of each other.

2.1.7 Meaning of Some Important Terminology Assets:

Assets, representing economic resources are the valuable possessions owned by the firm. These possessions should be capable of being measured in monetary terms. Assets are the future benefits. They represent:

a) Stored purchasing power (e.g. cash),

b) Money claims (e.g. receivables stock) and

(c) Tangible and intangible assets that can be sold or used in business to generate earnings. Tangible items include land building, plant equipment or stocks of materials and finished goods and all such other items, which have physical value. Intangible items do not have physical existence, but they have value to the firm. They include patents, copyrights, trade name or goodwill. Assets may be current asset or long-term assets. Current assets are those assets that are expected to be converted into cash within the accounting period. Long-term assets normally include fixed assets, long-term investment and other non-current assets that are held for longer periods for use in business.

Advances:

Advances are amount of money, which are paid or lent before any actual benefit has been derived. It could be expenses of future period paid in advance, advance for current supplies or advances against acquisition of capital asset.

Balance sheet:

Balance sheet is one of the most significant financial statements, which is prepared at the end of each accounting period that indicates the financial condition or the state of affairs of a business at a given moment of time. More

specifically, balance sheet contains information about the assets liabilities and ownership equity capital.

Bond*:*

A bond is the source of long term financing issued by an organization in written form under which the organization or the borrower agrees to pay principal and interest to the lender on specific date. It may be secured i.e. mortgage bond with fixed assets pledged as security or unsecured like debenture bond.

Deposits*:*

Deposits are the main source of fund of the financial institution. It is the sum totals of money collected form the depositors in various accounts.

Liquidity position:

Liquidity assets are those assets that can be quickly converted into cash. Liquid assets determine the liquidity position of the organization. Higher the liquid assets better the liquidity position. Liquidity position refers to the state of owning things of value that can easily be changed into cash.

Share:

The part of capital owned by a shareholder is called share. Any person can become a member of a company by purchasing the certificates of investment of the company also called shares, and can withdraw his/her membership by transferring his/her shares. Shares are a major source of long-term financing.

Securities:

Securities are the main source of long term financing. They consist of shares and debentures issued by government or any company, which may or may not be redeemable with interest in the future.

Income Statement:

It is a statement, which presents the summary of revenue expenses and net income or net loss of a firm at a given period of time. Thus, it serves as a measure of firm's profitability. Revenues are amounts, which the customers pay to the firm for providing them goods and services. The firm uses economic resources in providing goods and services to customers. The costs of economic resources are called expenses. Net income is the amount by which revenues earned during a period exceeds expenses incurred during that period.

Retained Earning:

It represents total undistributed earnings. It is that portion of firm's earnings, which is kept for future use and contingencies. It is also an internal source of financing.

Liability:

Liabilities are debts payable in future by the firm to its creditors. They represent economic obligations to pay cash or provide goods or services in some future period. Generally, borrowing money or purchasing goods or services on credit creates liabilities. Examples of liabilities are creditors, bills payable, wages and salaries payable, taxes payable etc.

Off- Balance Sheet Transaction:

Off-Balance sheet transactions are future agreements concerning bills purchase, letter of credit and guarantees. They are also treated as liabilities.

Standard Deviation:

Standard Deviation is the positive square root of the mean of the deviations taken from the arithmetic mean, which measured the variability of a set of observations. It is denoted by '6'and measures risk.

Variance:

The Square of standard deviation is called variance. It is generally denoted by 'σ^2'. It is one of the statistical tools used in the analysis of data for this study.

Coefficient of Variation:

Co-efficient of variation (C.V.) is the proportion of standard deviation with mean multiplied by 100 Mathematically,

$$\text{C. V.} = \frac{\bar{x}}{\delta_x} \times 100\%$$

Mean:

A mean is the average value or sum of all the observation divided by the numbers of observation. It is denoted by ($\bar{X}$) , Mathematically,

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

Correlation:

Correlation is a statistical tool, which represents the relationship between two variables. Under correlation analysis two variables are correlated if a change in one variable results in a corresponding change in the other. It does not however explain the causes and effects of the change in variables. It is of two types' positive correlation and negative correlation.

Ratio Analysis:

The relationship between two accounting figures, expressed mathematically, is known as ratio. Ratios help to summarize the large quantities of financial data and to make qualitative judgment about the firm's financial performance. In financial analysis, a ratio is used as a benchmark for evaluating the financial position and performance of a firm. In the study on investment policy the following ratios of selected firms are calculated and analyzed. a) Liquidity ratio b) Asset Management ratio c) Profitability ratio d) Growth Ratio e) Risk ratios

Loan and advances:

Earnings from loan and advances occupy a major space in income statement of the bank. Loans from commercial banks are secured against the assets of the borrower.

2.2. Review of Papers / Articles:

Under this heading some related articles published in different books, economic journals, World Bank Bulletin, magazines, newspaper has been examined and reviewed. Shiba Raj Shrestha in his article "Portfolio Management in commercial Bank, Theory and practice" (Shrestha; 2055B.S:13) has emphasized that portfolio management is essential for individual and institutional investors. Though in the case of small investor as they are not left with much of an option it may be limited to small savings, but for large investors, diversification through investment in mutual funds, shares, debentures should be practiced as any rational investor would seek to derive the maximum return on investment although assuming some risk at the same time. A best mix of investment assets fulfilling the under mentioned aspects are preferred by prudent (large) investors. They are:-

) Higher return which is comparable with alternative opportunities available not undermining the risk taking capability of the investor.

) Adequate liquidity with sufficient safety and profitability of investment.

) Maximum tax concessions.

) Certain capital gain and flexibility of investment.

Economic, efficient and effective mix of investment etc.

With these in view, the following strategy needs to be adopted:-

To have a portfolio of different securities and not just holding a single security.

Don't put all the eggs in the same basket. (For instance don't invest in a single company or single sector). Diversification of investment should be practiced for adequate safety, liquidity and profitability.

Choose such a portfolio of securities, which ensures maximum return with low degree of risk and uncertainty.

Shrestha has put forward the following approach to be adopted for designing & managing good portfolio:-

Search investment assets (generally securities), which have scope for better returns, depending upon individual characteristics like age, health, need deposition, liquidity and tax liability etc.

To identify variety of securities for investment to reduce volatility of returns and risk.

To develop alternative investment strategies for selecting a better portfolio which will ensure a tradeoff between risk and return so as to attain the primary objective of wealth maximization at lowest risk.

To find out the risk of the securities depending upon the attitude of investor towards risk.

Shrestha has also recommended that banks in order to succeed in portfolio management should have skilled manpower, research and analysis team, and proper management information system. He has suggested that the banks having international network can also offer access to global financial markets. He has also stressed that:-

The survival of every bank depends upon its own financial health and various activities.

In order to develop and expand the portfolio management activities successfully the investment management methodology of a portfolio manager should reflect high standard and give their clients the benefits of global strength, local insights and prudent philosophy.

The Nepalese banks having greater network and access to national and international capital market have to go for portfolio management activities for the increment of their fee based income as well as to enrich their fund based income and to contribute to the national economy.

Bodhi R. Bajracharya in his article **"Monetary Policy and Deposit Mobilization in Nepal"**(Bajracharya;1991:93) writes **"Mobilization of domestic savings is one of the prime objectives of the monetary policy in Nepal"** and for this purpose, commercial banks stood as the active and vital financial intermediary for generating resources in the form of deposit of the private sector and providing credit to the investors in different aspects of the economy.

Dr. Sunity Shrestha in her article *"Lending operation of commercial banks of Nepal and its impact on G.D.P."* (Shrestha; 1997:23) has presented an objective to make an analysis of contribution of commercial banks lending to the G.D.P. of Nepal. She has set hypothesis that there has been positive impact of commercial bank lending to the G.D.P. in research methodology she has considered G.D.P as the dependent variable and various sectors of lending viz. Agriculture, Industrial, Commercial service, general and social sectors as independent variables. A multiple regression technique has been applied to analyze the contribution. The multiple analyses have shown that all the variables except service sector lending have positive impact on G.D.P. While concluding, she has accepted the hypothesis i.e., there has been positive impact by the lending of commercial banks in various sectors of economy except service sector economy.

Mr. Ramesh Lal Shrestha in his article *"A study on deposits and credits of commercial bank in Nepal"*(Ramesh Lal Shrestha) concluded that the credit deposit ratio would be 51.30% other things remaining the same in Nepal, which was the lowest under the period of review. He strongly recommended that the commercial banks should try to give more emphasis on entering new field as far as possible, otherwise they might not be able to absorb even the total expense.

Mr. Bhaskar Sharma in his article *"Banking the future on competition"* (Sharma;2000:13) has highlighted that majority of commercial banks are being established and have operation in urban areas only. They have shown no interest to open branches in rural areas. The branches of NBL and RBB are only running in those sectors. The commercial banks are charging higher interest rate on lending, they are offered maximum tax concession, they do not property analyze the credit system. According to him "Due to lack of investment avenues, banks are tempted to invest without proper credit approval and on personal guarantee, whose negative side effects would show true colors only after four or five years" He has further added that private banks have mushroomed only in urban areas where large volume of banking transaction and activities are possible.

Mr. Shekhar Bahadur Pradhan in his article *"Deposit mobilization its problem and prospects"* (Pradhan; 1996:9) points out that deposit in the lifeblood of every financial institution. The latest financial/accounting figures of most bank and financial companies produce a strong feeling that serious review must be made with regards to problem and prospect of deposit sectors. Leaving a few joint venture banks other organization rely heavily on the business deposit and credit disbursement. Mr. Pradhan has highlighted the following problems of deposit mobilization in the Nepalese context.-

Most Nepalese people do not go for institutional savings due to lack of adequate knowledge. They are much used to savings in the form of cash

and ornaments. Their half heartedness to deal with institutional system is governed by the lower level of understanding about financial organization process, withdrawal system, availability of deposit facilities and so on.

Unavailability of institutional services in rural areas.
Due to lesser office hours of banking system, people prefer holding cash in their personal possession.
Improper mobilization and improvement of the employment of deposits towards various sectors.

For proper deposit mobilization, he has recommended the following:-

1) Provide sufficient institutional services in the rural areas.
2) Cultivate the habit of using rural banking unit.

3) Add service hours to the bank.
4) NRB should organize training programs to develop skilled manpower. 5) Spreading co-operatives to rural areas to develop mini-branch service. Mr. Bhagat Bista in his research paper *"Nepalma Adhunik Banking Byabastha"* (Bista; 2048) has made an attempt to highlight some of the important indicators, which have contributed to the efficiency and performance of Commercial Banks. He writes that the establishment of Commercial Banks a decade ago marks the beginning of modern banking era in Nepal. The Commercial Banks have brought in many new banking techniques such as computerized hypothecation, consortium finance and modern fee based activities into the economy. This is indeed a significant milestone in the financial development process of the economy.

2.3   Review of Related Studies:

In the context of Nepal, a few researchers have published their articles with regards to Investment policy. More research in the field of investment policy in commercial banks and financial institutions is the need of the hour. Dr. Govinda Bahadur Thapa in his research paper **"Financial system of Nepal"**(Thapa;1994) holds the view that the commercial banks including Commercial Banks are performing pretty well in the area of deposits mobilization. Loans and advance of these banks are also increasing. In comparison to the credit needs of the newly emerging industries, the banks still seem to lack adequate funds. The banks are increasing their lending to non-traditional sectors along with the traditional sectors. NBL and RBB are operating under nominal profit, have negative net worth, with profits turning negative from time it time owing to non-recovery of interest. The margin between interest income and interest expense is decreasing. In traditional off balance sheet operations, these banks have not been able to increase their income from commissions and discounts. To add to the crisis, these banks have to bear a heavy burden of personal and administrative overheads. At the same time due to accumulated overdue and defaulting loans, profitability of these banks has been seriously affected.

Dr. Thapa also points out that the foreign Commercial Banks have been functioning in an extremely efficient manner. They are enjoying huge profits year after year and have been distributing large amount of bonus and dividends to its employees and shareholders. Through effective persuasion for loan recovery even due and defaulting loans have been limited resulting in high margins between interest income and interest expenses. Similarly concentration of these banks to modern off balance sheet operations and efficient human resource management has added to the maximization of their profits. He concludes by saying that due to the very nature of public sector the domestic banks could not compete with the private sector banks. The only remedy for such banks is to hand over the ownership as well as the management of these banks to the private hands.

Dr. Radhe S Pradhan has conducted his research on **"Financial management and practices in Nepal"**(Pradhan; 1994). The survey mainly dealt with the financial functions, sources and types of financing, financing decisions involving debt, effect of change in taxes on capital structure, financial distress, dealing with banks and dividend policy. The major findings of the study concerned with financial management are given as:-

Bank borrowing and retained earnings are the two most widely used financing sources.

The enterprises have a definite performance for bank loans at a lower level of debt.

Most enterprises do not borrow from one bank only and they do switch between banks, which ever offer best interest rates.

Most enterprises find that banks are flexible in interest rates and convenience.

Generally, there is no definite time to borrow the issue stocks, that is majority of respondents are unable to predict when the interest rate will be lower or will go up. They are unable to predict when the stock will go up or down.

2.4   Review of Thesis:

Prior to this, several thesis works has been attempted by previous students regarding various aspects of commercial banks like financial performance, lending policy, investment policy, resource mobilization, capital structure etc. Among them some research those that were found relevant for this study are presented below:

Khadka, Raja Ram (1998) in his thesis work entitled *"A study on the Investment Policy of Nepal Arab Bank Ltd in comparison to other joint venture banks of Nepal"* has tried to examine and interpret the investment policies adopted by NIBL and other joint venture banks of Nepal.

The objectives of the research were:-

To evaluate the liquidity, asset management, efficiency and profitability position.

To discuss fund mobilization and investment policy of NIBL with respect to its fee based off-balance sheet transaction in comparison to other JVB's.

To evaluate the growth ratios of loan and advances and total investment with respective growth rate of total deposits and net profit of other JVB's.

To find out the relationship between deposit and total investment, deposit and loan and advances and net profit and outside assets of NIBL comparison to other JVB's.

To evaluate the trends of deposit utilization and its projection for next five years of NIBL compared to other JVB's.

His major findings were:-

The liquidity position of NIBL is comparatively worse than other JVB's. NIBL has utilized more portions of current assets as loan and advances and lesser portions in government securities.

The profitability position of NIBL is comparatively better then that of other JVB's.

There is significant relationship between deposit and loan and advances as well as outside assets and net profit where as there is no significant relationship between deposit and total investment in case of other JVB's.

The trend values of loan and advances to total deposit of NIBL and other JVB's are in increasing trend. The trend value of total investment to total deposit of NIBL and other JVB's are in increasing trend.

NIBL is seen to be more successful in increasing its sources of fund for deposit mobilization and granting loan and advances and maintain a good investment but it has failed to maintain its high growth rate of profit in comparisons with other JVB's.

Tuladhar, Upendra (2000) has conducted a thesis research on *" A study of investment policy of Bank of Kathmandu Limited in comparison to other JVB'S of Nepal".*

The basic objectives of this study were:-

To study the fund mobilization and investment policy with respect to fee based off-balance sheet transaction and fund based on balance sheet activities. b) To evaluate the liquidity, efficiency, assets management and profitability position.
To evaluate the growth ratios of loan & advances and total investment with respective growth rate of total deposit and net profit.

To evaluate the trends of deposit utilization towards total investment and loan advances and its projection for next five years.

To perform an empirical study of the customer's views and ideas regarding the existing service and adopted investment policy of the joint venture banks.

To provide suggestions and recommendation on the basis of this study.

His major findings were: -

BOKL has maintained adequate liquidity than other JVB's. It is in a better position to meet current obligation.

BOKL has successfully maintained and managed its assets towards different income generating activities.

The profitability position of BOKL is higher than other JVB's.

BOKL has invested higher portion of total working fund in government securities than other JVB's. BOKL's loans and advance to total deposit ratio is less than other JVB's.

BOKL has the largest profit margin in comparison with other JVB's.

Thapa, Samiksha (2001) has conducted a thesis research on **"A comparative study on investment policy of Nepal Bangladesh Bank and other JVB's (NIBL Bank Limited and Nepal Grindlays Bank Limited)"**.

The research study were based on the following specific objectives:-

To evaluate the liquidity, assets management efficiency, profitability and risk position of NBBL in comparison to NIBL and BOKL.

To analyze the relationship between loan and advances and total investment with other financial variables of NBBL and compare them with NIBL & BOKL.

To examine the fund mobilization and investment policy of NBBL through off-balance sheet and on balance sheet activities in comparison to the other two banks.

To study the various risks in investment of NBBL in comparison to NIBL & BOKL

To analyze the deposit utilization trend and its projection for next five years of NB Bank and compare it with that of NIBL & BOKL.

The major findings of the study were as follows:-

NBBL has good deposit collection, enough liquidity, it has sanctioned enough loan and advances, but it has made negligible amount of investment in government securities.

NBBL is in a weak position regarding its on balance as well as off balance sheet activities.

Profitability position of NBBL is comparatively worse than that the NIBL & BOKL. d) The credit risk ratio, interest risk ratio, capital risk ratio of NBBL is higher than BOKL & NIBL. It is exposed to more risk.

NBBL has been successful in increasing its sources of funds and its mobilization. The growth ratio of total investment of NBBL is comparatively worse than the other two JVB's.

There is significant relationship between deposit and loan and advance, outside assets and net profit of NBBL but there is no significant relationship between deposit and investment of NBBL.

The position of NBBL in regard to utilization of fund to earn profit is not better in comparison to NIBL & BOKL.

The cost of fund of NBBL is competitively higher than NIBL & BOKL.

Bohara, Indra Bahadur (2002) has conducted a research entitled ***"A comparative study on Investment policy of Joint Venture Banks and Finance Companies of Nepal".***

The objectives of the study were as follows:-

To find out the liquidity position and profitability position of above mentioned JVB's in comparison with finance companies.

To find out the relationship between profitability and asset structure.

To analyze the deposit utilization trend and its future projections for next five years for JVB's and finance companies.

To study the various risks in investment of JVB'S in comparison with finance companies.

To analyze the relationship between deposits and investment, deposits and loan & advances, net profit and total assets of JVB'S in comparison with finance companies.

To provide suggestion and recommendation on the basis of findings.

The major findings of the study were as follows:-

Liquidity position of JVB's is comparatively better than that of finance companies. Finance companies have made nominal amount of investment in government securities.

Finance companies have mobilized their deposits smoothly in comparison with JVB's. The average loan and advance to total deposit ratios of finance companies is higher than JVB's.

Profitability position of JVB's except for BOKL is better than that of finance companies, but profitability position of finance companies in terms of return on total assets is better. Interest income in relation to proportion of total assets and operating income is higher in finance companies in comparison to JVB's.

The growth ratios of deposits, net profit, loan and advances are higher than that of JVB's and are increasing every year, which indicates good performance of the finance companies.

The risk ratios of finance companies are less variable than the JVB's. The interest risk ratios of finance companies is higher where as the capital risk ratios of JVB'S are comparatively higher than that of finance companies.

JVB'S are in a better position in mobilizing deposits as loan and advances, but so far finance companies have been successful in utilizing their sources of funds and in their mobilization.

Shrestha, Dina (2003) has conducted a research entitled *"Investment Analysis of Commercial Banks"* (A Comparative Study of Nepal Bank Limited and Nepal State Bank of India Limited).

The objectives of the study were:

To analyze percentage of investment made by HBL and NSBIL in total investment made by commercial banks.

To analyze investment trend, deposits trend and total income and their projection for next five years of HBL and compare them with that of NSBIL.

To identify investment sector of HBL and NSBIL.

To evaluate the liquidity, assets management efficiency, profitability and risk position of HBL in comparison to that of NSBIL.

To study the relationship between investment and deposits of bank.

The major findings of the study were as follows:-

Percentage of HBL's investment to total commercial banks investment in extremely higher than NSBIL.

Both HBL and NSBIL have invested mostly on government securities but HBL has invested in NRB bonds also as well as in other productive sectors.

NSBIL is better than HBL from liquidity point of view.

HBL has higher profitability position than NSBIL.

HBL is exposed to more risk than NSBIL. f) HBL has maintained higher growth rate in net profit in comparison to NSBIL.

Bhattarai, Prakriti (2005) has conducted a research entitled *"Investment policy Analysis of Joint Venture Bank (with special reference to NSBIL & EBL)"*

The objectives of the study were as follows:-

To evaluate the liquidity management, assets management efficiency, profitability position, risk position and investment practices of NSBIL, BOKL & EBL)

❖ To find out the relationship between deposit and total investment, deposit and loan and advance, and net profit and outside asset.

His major findings are enumerated below:-

NSBIL has better liquidity position. It is in a good position to meet its daily cash requirement and current obligation. Liquidity position of EBL & BOKL have not been satisfactory.

NSBIL's loan and advance to total deposit ratio is lower than EBL & BOKL. It does not seem to follow any definite policy regarding the management of its assets.

The profitability position of all the banks is not satisfactory. The banks have not adopted sound investment policy in utilizing their surplus funds.

BOKL & EBL are exposed to high credit risk and capital risk.

NSBIL & BOKL have not been successful to increase their sources of fund. EBL has been successful in maintaining its higher growth rate of total deposit.

There is significant relationship between deposits and total investment of BOKL & EBL but the same is not significant in case of NSBIL.

Thapa, Neeta (2006) has conducted a research entitled "Investment Policy of Commercial banks in Nepal".

The objectives of the study were:-

To discuss fund mobilization and investment policy of EBL in respect to its fee based off-balance sheet transaction and fund based on balance sheet transaction of NIBL and BOKL.

To evaluate the liquidity, efficiency, profitability and risk position.

To evaluate the growth ratios of loans and advances and total investment with other financial variables.

To analyze the trends of deposits utilization towards total investment and loan and advances and its projection for next five years.

To conduct hypothetical test to find out whether there is significant difference between the important ratios of EBL, NIBL & BOKL.

To provide packages of workable suggestions and possible guidelines to improve investment policy of EBL and other banks.

His major findings are enumerated below: -

EBL is comparatively better than NIBL and BOKL in terms of liquidity.

EBL has been less successful than NIBL and BOKL in its on balance sheet operation as well as off balance sheet activities.

The profitability position of EBL is worse than NIBL and BOKL.

EBL is exposed to more credit risk and capital risk, but lower interest rate risk than NIBL and BOKL.

EBL has maintained high growth rates in total deposit, loan and advances but it has moderate position in investment.

There is significant relationship between deposit and loan and advances and outside assets and net profit of EBL.

Pudasaini, Gangaram (2007) has conducted a research entitled ***"An Investment Analysis of RBB in comparison with NBL"***.

The specific objectives of the study were:-

To evaluate liquidity, activity and profitability ratios of RBB in comparison with NBL and industry average.

To analyze relationship of loan and advance and total investments with total deposit and net profit of RBB and to compare it with that of NBL and industry average.

To use trend analysis to compare loan and advance, total investment, total deposit and net profit of RBB and compare the same with other two.

To examine the loan loss provision of RBB and NBL.

To provide suggestion and recommendation on the basis of findings.

The major findings of the study were:-

RBB has good deposit collection, enough loan and advance and investment in government securities. It has comparatively better liquidity position than NBL.

RBB is in comparatively better position regarding issue of loan and advance but it does not have good position regarding investment in shares and debentures of other companies, off balance sheet operation. Loan Loss ratio shows low quality of loan and advance.

The profitability position of RBB is worse. RBB needs to take immediate steps to increase its profitability.

There is significant relationship between deposit and loan and advance. There is insignificant relationship between deposit and investment, and outside assets and net profit.

Shrestha, Biswo Nath (2008) has conducted a thesis research entitled ***"Investment portfolio Analysis of JVB's"***.

The specific objectives of the study were:-

To analyze the risk and return ratios of commercial banks.

To evaluate the financial performance of JVB's.

To provide suggestion package based on the analysis of data.

To study existing investment policies taken by NIBL in various sectors.

To study portfolio structure of NIBL in investment as compared to other JVB's.

Preference given by NIBL for investment between, Loan Investment, Investment in real fixed assets, Investment in financial assets.

The main findings of the study were:

BOKL has the highest return on shareholders' fund and total assets. It has also been successful in mobilizing its deposits as investments. NIBL and EBL have invested high amounts of deposits as loan and advances in comparison to BOKL, NIBL and HBL.

Among the JVB's, looking at the investment portfolio, EBL has investment highest amount of funds in government securities, NBB has invested highest amount of funds on shares and debentures and NIBL has invested highest amount of funds in NRB bonds in comparison to other JVB's.

BOKL has the highest EPS and EBL the lowest EPS among the JVB's Commercial banks have huge deposit collection. These deposits need to be properly utilized. Effective utilization of collected fund is possible only through implementation of sound investment policy.

NIBL and BOKL are the best examples of Commercial Banks in Nepal that have been able to mobilize the funds in an effective manner and achieved phenomenal growth and profit year after year by formulating and implementing sound investment policy. Most research studies conducted prior to this study involving comparative analysis comprised of a successful bank and an emerging bank as samples. It was obvious that the successful bank with sound financial health would excel in various aspects of banking. The possibility of the samples showing different result during data analysis was high. The financial and empirical analysis to data revealed higher degree of consistency in case of successful bank and less uniformity in case of emerging bank.

This study comprises of two of the most successful Commercial Banks as sample viz NIBL and BOKL. This study is also different from previous studies in view of the time period its covers. During this period the country has witnessed political uncertainty, deteriorating security situation that have rendered the economy further sluggish. There has been a restructuring in the banking business.

This study gives a new dimension to the research topic in the sense that it has adhered to most of the fresh guidelines and directives issued by NRB to commercial banks, which previous studies lack. This study aims at providing a more realistic picture to various financial aspects of the sample banks. In line with fresh guidelines and NRB directives and practices adopted by banks, some items of the balance sheet that were previously booked under one heading have now been accounted under a different heading. For instance, leasehold improvements or deferred expenditure that were previously a part of current assets have been accounted for under fixed assets as they are amortized over the period of lease. Similarly, staff loan and advances previously part of Loan Advances and Bills purchase have been booked under other assets, checks presented for clearing have been booked under other assets. Gratuity is expensed of on accrual basis and is now a part of personnel expense.

Previously, it was the practice of banks to include it under current liabilities and appropriate it from profit and loss Account. This study will reveal the strength and weaknesses of the sample bank and serve as a valuable input in decision-making process of the concerned banks and other emerging banks in formulating appropriate investment policy.

CHAPTER – III

3.   RESEARCH METHODOLOGY:

Research methodology is a way to solve research problems systematically, which includes many techniques and tools that is necessary in each and every steps of this study.

3.1   RESEARCH DESIGN:

This study depends on the secondary data. It includes all the process of collecting, verifying and evaluating of past evidence systematically and objectively to reach final conclusion. Some statistical and accounting tools have been adopted to examine factors in this study. In this study descriptive and analytical research design has been done.

3.2   POPULATIONS AND SAMPLE:

There are all together 31 commercial banks listed in Nepal Stock Exchange. Among them, only two Commercial Banks viz NIBL, BOKL have taken into account for research proposes as samples in this research study to compare their investment policy. They are two of the best performing Commercial Banks in Nepal. Their profit per share, percentage of dividend paid per equity capital, net profits are among the highest in commercial banks. They are equipped with research and analysis team, proper MIS, sufficient capital and skilled manpower. They also have access to Global financial markets. These factors put them in the best position, i.e. it gives them an edge over other banks. They are best suited to exploit the opportunities that are existent. They can easily redress problem faced by other and can also avoid risks by formulating and implementing sound investment policy.

3.3   SOURCE OF DATA:

This study is mainly based on secondary data. The secondary sources of data collections are Balance Sheet, P& L Account of concerned banks, Nepal Stock exchange's NEPSE report. Other relating data are obtained directly from authorized persons of concerned banks, regulating authorities i.e. Ministry of Finance, NRB Budget speech, published books, banks bulletin, Newspapers, previous studies, central library T.U., Shanker Dev Campus library, Securities exchange Board etc. The data are prerequisites for any project study. The data collection entails labor and time and it is the most necessary step in project study without which the study cannot be done.

3.4   DATA ANALYSIS TOOLS:

Analysis and presentation of the data is the core of project study. This study needs some financial and statistical tools to accomplish the objectives of this study. The data extracted from financial, statistical and accounting tools have

been used. These results are then compared with each other to interpret the results. Two kinds of tools have been used to achieve the purpose, namely:-

1) Financial tools
2) Statistical tools

3.4.1 Financial tools:

Financial tools basically helps to analyze the strength and weakness of a firm. Ratio analysis being one of the important financial tools has been used in this study. In financial analysis a ratio is used as a benchmark for evaluating the financial position and performance of a firm. Ratios help to summarize the large quantities of financial data and to make qualitative judgment about the firm's performance. The point to note is that a ratio indicates a quantitative relationship, which can be used to make a qualitative judgments. There are several ratios involved in analyzing and interpreting the financial statement. In this study, basically four types of ratios have been used which are related to Investment policy of banks. They are as follows:

A) Liquidity Ratios:

Liquidity Ratio measures the firm's ability to meet its current obligation. Commercial banks collect fund from the community with a commitment to return depositor's fund, facilitate withdrawal on demand. A firm should ensure that it does not suffer from lack of liquidity and also that it does not have excess liquidity. It is necessary to strike a proper balance between high liquidity and lack of liquidity. The following ratios are evaluated under liquidity ratio:

i)   Current Ratio:

The current ratio is calculated by dividing current assets by current liabilities.

$$Current\ Ratio = \frac{Current\ Assets}{Current\ Liabilities}$$

The current ratio is a measure of the firm's short-term solvency. It also shows the relationship between CA and CL of a firm. Current assets include cash and those assets which can be convened into cash within a year such as money at call or short notice, loans and advances, overdrafts, bills purchased and discounted, Investment in government securities, prepaid expenses, and other interest receivables and miscellaneous current assets.. All obligation maturing within a year are included in current liabilities such as deposit and other accounts, short term loans, outstanding or accrued expenses, bills payable, tax liability, staff bonus, dividend payable, long term debt maturing in current year and miscellaneous current liabilities. As a conventional rule a current ratio of 2:1 is considered satisfactory. A current ratio is a crude and quick measure of the firm's liquidity.

ii)   Cash and Bank Balance to Total Deposit Ratio:

They are the most liquid of current assets to pay off depositors immediately. This ratio is calculated by dividing cash and bank balance by total deposits. In order to bring about consistency in this research, checks for clearing have been excluded from cash and bank balance and included in other assets. Mathematically,

$$Cash\ \&\ Bank\ Balance\ to\ Total\ Deposit\ Ratio = \frac{Cash\ \&\ Bank\ Balance}{Total\ Deposit}$$

Cash and bank balance includes cash in local currency & foreign currency on hand or with banks. The total deposits consists of deposits in current account, savings account, fixed deposit account, money at call deposits, margin deposits

etc. A higher ratio indicates greater ability of banks to meet their deposits and vice-versa.

iii) Cash and Bank Balance to Current Assets Ratio:

This ratio measures the percentage of liquid assets i.e. cash and bank balance in the current assets of the firm. Higher ratio shows greater capacity of firms to meet cash demand. The ratio is calculated by dividing cash and bank balance by current assets. Mathematically,

$$Cash\ \&\ Bank\ Balance\ to\ Current\ Assets\ Ratio = \frac{Cash\ \&\ Bank\ Balance}{Current\ Assets}$$

iv) Investment in Government Securities to Current Assets Ratio:

This ratio is used to find the percentage of current assets invested in government securities, i.e. treasury bills, development bonds etc. Commercial banks are interested to invest some portion of their collected fund in government securities as they are risk-free and can easily sold in the market. Mathematically,

$$\begin{array}{l} Investment\ in\ Government\ Securities \\ to\ current\ Asset\ Ratio \end{array} = \frac{Total\ Investment\ in\ Government\ Securities}{Current\ Assets}$$

v) Loan and Advances to Current Assets Ratio:

The major portion of a bank's asset side of the balance sheet includes loan and advances. Loan and advance comprise of loan and advance, credit overdraft, bills purchased and discounted. In this research study, staff loan and advances have been treated as other assets to maintain status quo with the

practice followed by banks. It shows the percentage of total loan and advances to current assets. Mathematically ,

$$\text{Loan and Advances to Current Asset Ratio} \quad - \quad \frac{\text{Total Loan and Advances}}{\text{Current Assets}}$$

B)   Asset Management Ratios (Activity ratio):

In order to satisfy its customers, earn profit and for its own survival a commercial bank must be well versed in managing its assets. Activity ratios are employed to evaluate the efficiency with which the firm manages and utilizes its assets. In this study, it is used to measure the bank's ability to utilize their available resources. The following ratios related to investment policy are calculated under asset management ratio.

i)   Loan and Advances to Total Deposit Ratio:

This ratio is calculated to find out how successfully the selected banks are utilizing their total deposits on loan and advances to generate profits. A higher ratio is indicative of better utilization of total deposits, but the same might not hold true from liquidity point of view. It is computed by dividing total loan and advances by total deposits. Mathematically,

$$\text{Loan and Advance to Total Deposits Ratio} \quad = \frac{\text{Loan and Advance}}{\text{Total Deposits}}$$

ii)   Loan and Advances to Total Working Fund Ratio:

The major portion of a bank's asset side of the sheet includes loan and advances. It is also the major component of the total working fund. This ratio shows the ability of a bank to channelize its assets in the form of loan and advances to earn higher profits. A high ratio indicates better mobilization of fund as loan and advances and vice-versa. Mathematically,

$$\text{Loan and Advance to Total Working Fund Ratio} = \frac{\text{Total Loan and Advance}}{\text{Total Working Fund}}$$

Where total working fund includes all assets of balance sheet items i.e. current assets, net fixed assets and other miscellaneous assets.

iii)   Total Investment to Total Deposit Ratio:

This ratio shows the utilization of firm's deposits on investment in government securities and purchasing shares and debentures of other companies. A high ratio is indicative of high success in mobilization of deposits in investments and vice-versa.

This ratio can be calculated by dividing total investment by total deposits. Mathematically,

$$\text{Total Investment to Total Deposit Ratio} = \frac{\text{Total Investment}}{\text{Total Deposits}}$$

iv)   Investment on Government Securities to Total Working Fund Ratio:

This ratio shows the percentage of total working fund invested in government securities. In other words, this ratio measures the extent to which the banks have been successful in mobilizing their total working fund on different type of government securities. The logic behind Investment on government securities by banks is to diversify the risk by not putting all the eggs in the same

basket. This is also beneficial in the sense that banks are assured of adequate liquidity. A high ratio indicates better mobilization of funds as Investment on government securities and vice-versa. This ratio can be calculated by dividing total amount of investment in government securities by the total working fund. Mathematically,

$$Investment\ in\ Government\ Securities\ = \frac{Investment\ in\ Govt.\ Securities}{Total\ Working\ Fund}$$

v)   Investment on Shares and Debentures to Total Working Fund Ratio:

This ratio shows the percentage of total working fund invested in purchasing shares and bonds & debentures of other companies. Investment on shares and debentures to total working fund measures the extent to which the banks have been successful in mobilizing their total assets on shares and debenture of other companies to generate income. A high ratio indicates portion of investment on shares and debentures out of total working fund and vice-versa. This ratio is calculated by dividing the total amount of Investment is shares & debenture of other companies by total working fund. Mathematically,

$$Investment\ on\ Shares\ \&\ Debentures\ to\ Total\ Working\ Fund\ Ratio\ = \frac{Investment\ in\ Shares\ \&\ Debentures}{Total\ Working\ Fund}$$

C)   Profitability Ratio:

The profitability ratios are calculated to measure the overall efficiency of a firm in terms of profit earning and performance. Profit is one of the major indicators of efficient performance of banks. One of the major objectives of banks is to earn profit, so profit is very crucial for the survival of banks. To meet various

objectives like, maintaining good liquidity position, meet internal obligations, expansion of banking services, finance short- term government needs, commercial banks need to earn sufficient profit. A higher profit ratio shows higher efficiency of a bank. The following ratios related to investment policy are calculated under profitability ratios:

i)   Return on Loan and Advance Ratio:

Return on loan and advances ratio indicates how efficiently the bank has utilized its resources in the form of loan and advances to generate good return. It measures the earning capacity of a commercial bank. This ratio is calculated by dividing net profit by loan and advances. Mathematically,

$$Return\ on\ Loan\ \&\ Advances\ Ratio\ =\ \frac{Net\ Profit\ /\ Loss}{Total\ Loan\ and\ Advances}$$

ii)   Return on Total Assets ratio:

Return on total assets shows the overall profitability of working fund or total assets. Return on working fund ratio is a measuring rod of the profitability with respect to each financial resource investment of banks asset. If the banks total working fund is well managed and utilized efficiently, return on such assets will be higher and vice-versa. This ratio is calculated by dividing net profit by total working fund. It is calculated by dividing net profit by total assets. Mathematically,

$$Return\ on\ Total\ Assets\ =\ \frac{Net\ Profit\ /\ Loss}{Total\ Working\ Fund}$$

iii)   Total Interest Earned to Total Working Fund Ratio:

This ratio is calculated to find the percentage of interest earned to total assets. This ratio reflects the extent to which banks are successful in mobilizing their assets to generate high income. This ratio presents the earning capacity of a bank on its total working fund. Higher ratio indicates better performance or

proper utilization of total assets in the form of interest earned on its working fund. This ratio is calculated by dividing total interest earned by total working fund. Mathematically,

$$\text{Total Interest Earned to Total Working Fund Ratio} = \frac{\text{Total Interest Earned}}{\text{Total Working Fund}}$$

iv) Total Interest Earned to Operating Income Ratio:

This ratio is measured to find out the ratio of interest income with operating income of the bank. It shows how efficiently the banks have mobilized their resources in interest bearing assets i.e., loan and advances, investment in government securities. Total operating income includes interest income, commission fees & discount, dividend income, foreign exchange income etc. This ratio shows the magnitude of interest income in total income. It is calculated by dividing total interest earned by net operating income. Mathematically,

$$\text{Total Interest Earned to Total Operating Income Ratio} = \frac{\text{Total Interest Earned}}{\text{Total Operating Income}}$$

v) Total Interest Earned to Total Outside Assets Ratio:

This ratio is calculated to find the percentage of interest earned to total outside assets of the bank, which includes loan and advances, Investment on Government securities, Investment on share and debentures and all other types of investment. It is calculated by dividing total interest earned by total outside assets. A high ratio indicates high return on total assets and vice-versa. Mathematically,

$$\text{Total Interest Earned to Outsides Assets} = \frac{\text{Total Interest Earned}}{\text{Total Outside Assets}}$$

vi)   Total Interest Paid to Total Working Fund Ratio:

This ratio measures the percentage of total interest expenses against total working fund. A high ratio is indicative of higher interest expenses on total working fund. This ratio is calculated by dividing by total interest paid by total working fund. Mathematically,

$$Total\ Interest\ Paid\ to\ Total\ Working\ Fund\ Ratio = \frac{Total\ Interest\ Paid}{Total\ Working\ Fund}$$

D)   Risk Ratio:

Risk means uncertainty, variability of return, which is inherent in any investment portfolio of a business enterprise. Risk is an important element since investment with greater risk requires higher return than investments with lower risk. Risk ratios measures the degree of risk involved in various financial operations. The possibility of risk involved in bank's financial operations makes the bank investment a challenging task. As the notion goes," no risk no gain", therefore, if a bank expects high return on its investment it must be prepared to accept the risk and manage it efficiently. The following risk ratios are used to analyze and interpret the financial data and investment policy.

i)   Liquidity Risk Ratio:

Liquidity risk of the bank defines its liquidity needs for deposit. Cash and bank balance are the most liquid of all the assets and are considered bank's liquidity sources. Deposits on the other hand refer to the liquidity needs of banks.

This ratio measures the risk associated with the liquid assets i.e., cash and bank balance that are kept to satisfy the cash demand of customers. A higher ratio shows that the banks has sufficient cash to meet its current obligations i.e. lower liquidity risk, but that may have an adverse impact on the profitability position of the bank. A trade off between liquidity and profitability must be maintained. This ratio is calculated by dividing cash and bank balance by total deposit. Mathematically,

$$Liquidity\ Risk\ Ratio\ =\ \frac{Total\ Cash\ \&\ Bank\ Balance}{Total\ Deposits}$$

ii) **Credit Risk Ratio:**

Normally, every credit is good at the time it is sanctioned. Most of the bank failures are due to shrinkage in the value of loan and advances. Loan is a risky asset and risk of non-repayment of loan in known as credit risk or default risk. Credit risk ratio measures the possibility of loan going into default. While sanctioning loans banks measure credit risk involved in the project. Credit risk is calculated by dividing total loan and advances by total assets. Mathematically,

$$Credit\ Risk\ Ratio\ =\ \frac{Total\ Loan\ and\ Advances}{Total\ Assets}$$

E) **Growth Ratio:**

The growth ratios represent how the commercial banks are maintaining their economic and financial condition. As a conventional rule, a higher ratio is preferable. A high ratio indicates better performance of the banks and vice-versa.

The following growth ratios directly related to the fund-mobilization and investment of the banks are calculated:

I) Growth ratio of total deposit

II) Growth ratio of total investment

III) Growth ratio of loan and advances

IV) Growth ratio of net profit

3.4.2 Statistical Tools:

Some important statistical tools have been used to present and analyze the data for achieving the objectives of this study. Co-efficient of variance, Co-efficient of correlation, standard deviation, least square, linear tend analysis etc. have been used for the purpose of investment policy analysis.

a)   Karl Pearson's Correlation Co-efficient Analysis:

This statistical tool interprets and identifies the relationship between two or more variables. It identifies whether two or more variables are positively correlated or negatively correlated Statistical tool helps to analyze the relationship between these variables and aids the selected banks to prepare appropriate investment policy relating to deposit collection, fund utilization (loan and advances and investment) and profit maximization. This study attempts to find out relationship between the following variables:-

i)   Co-efficient of co-relation between deposit and loan and advances.

ii)   Co-efficient of correlation between total deposit and total investment.

iii)   Co-efficient of correlation between total outside assets and net profit.

iv)   Co-efficient of correlation between deposits and net profit.

iv)   Co-efficient of correlation between deposits and interest earned.

v)   Co-efficient of correlation between loan and advances and interest paid.

vii)   Co-efficient correlation between total working fund and net profit. Karl Pearson's correlation coefficient (r) can be obtained by using the following formulae:-

$$r = \frac{\sum xy}{\sqrt{\sum x^2 \sum y^2}} \qquad \text{Where } x = (x - \bar{x}), \quad y = (y - \bar{y})$$

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

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

$\sum x^2$ = Sum of squared observation in series x

$\sum y^2$ = Sum of squared observation in series y

$\sum xy$ = Sum of the product of observation in series x & y.

The co-efficient of correlation (r) lies between −1 to +1, If r = +1 there exists a significant relationship between the two variables. If r = -1, then the two variables are negatively correlated or there is no significant relationship between the two variables.

b)   Trend Analysis:

Under this topic we analyze the trend of deposits, loan and advances, investments and net profit of NIBL and BOKL from F/Y 2005/2006 to F/Y 2009/2010. It also aids in making forecasting for the next five years up to 2014/2015. The following trend value analysis has been used in this study:

i)   Trend Analysis of total deposits.

ii) Trend Analysis of loan and advances.

iii) Trend Analysis of total investment.

iv) Trend analysis of net profit.

c)   Standard Deviation (S.D):

The standard deviation measures the absolute dispersion. The lower the percentage of dispersion lower the standard deviation. The lower percentage of dispersion also projects a high degree of uniformity of the observations as well as homogeneity of the series. A large value of standard deviation suggests exactly the opposite. In this study standard deviation of different ratios are calculated. Mathematically,

$$S.D = \sqrt{\frac{\sum (x - \bar{x})^2}{n}}$$

d)   Co-efficient of Variation (C.V.):

C.V. is the proportion of standard deviation with mean multiplied by 100. Mathematically,

$$C.V. = \frac{S.D. \times 100\%}{Mean}$$

e)   Test of Hypothesis:

Under this analysis, effect has been made to test the significance level regarding the parameters of the population on the basis of sample drawn from the population. This test has been conducted on the following:

i)   Test of hypothesis on loan and advances to total deposit ratio of NIBL & BOKL.

ii)   Test of hypothesis on Investment in Government securities to current assets ratio of NIBL and BOKL.

iii)   Test of hypothesis of total investment to total deposit ratio of NIBL & BOKL.

iv)   Test of hypothesis of return on loan and advances ratio of NIBL & BOKL.

v)   Test of hypothesis on total interest earned to total outside assets of NIBL and BOKL.

CHAPTER – IV
DATA PRESENTATION, ANALYSIS & MAJOR FINDINGS

4.1 DATA PRESENTATION AND ANALYSIS:

This is an analytical chapter, where an attempt has been made to analyze and evaluate major financial items, which have an impact on investment management and fund mobilization of NIBL and BOKL. There are many types of financial ratios. In this study those ratios are calculated and analyzed that are crucial in evaluating fund mobilization of commercial banks.

4.1.1 Financial Analysis:

Financial analysis involves identifying the financial strength and weakness of the organization by presenting the relationship between items of the balance sheet. For the purpose of this study, ratio analysis has been mainly used for the analysis of data. Various financial ratios related to investment management and fund mobilization, have been presented and discussed in order to evaluate and analyze the performance of two joint venture banks, namely NIBL and BOKL. The ratios are designed and calculated to highlight the relationship between financial items and figures. These calculations are based on financial statements of concerned JVB's.

The financial ratios that are calculated for the purpose of this study are:
A. Liquidity ratio
B. Asset Management ratio
C. Profitability ratio
D. Risk ratio
E. Growth ratio

A)   Liquidity Ratios:

Liquidity ratios measure the firm's ability to meet its current obligation. The following ratios which measure the liquidity position of banks are calculated:

I) **Current Ratio:**

This ratio is calculated by dividing current assets by current liabilities.

Table 4.1

The current ratio of NIBL and BOKL are given below:

Fiscal Year	NIBL	BOKL
2005/2006	1.057	1.053
2006/2007	1.051	1.054
2007/2008	1.076	1.085
2008/2009	1.092	1.075
2009/2010	1.097	1.074
Mean	1.0806	1.071
S.D.	0.0197	0.0129
C.V.	1.82 %	1.204 %

(source :Annex 4)

figure 4.1
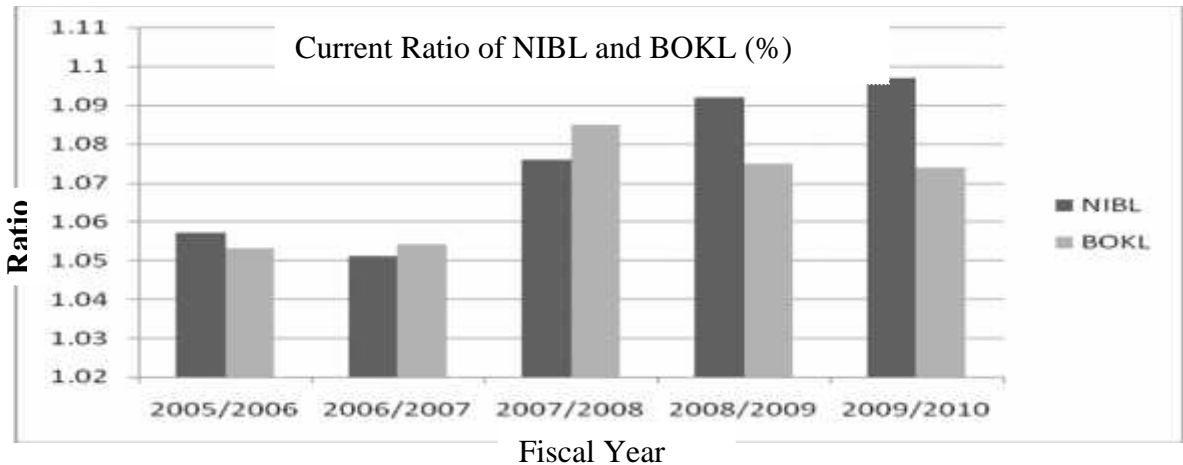
It is clear from the above table and diagram that both NIBL and BOKL have maintained current assets more than their current liabilities. This is a sign that both banks are capable enough to pay their current obligations. NIBL has the

highest current ratio in F/Y 2009/10 i.e., 1.097 and the lowest in F/Y 2006/2007 i.e., 1.051. Similarly BOKL has a high current ratio of 1.085 in F/Y 2007/2008 and a low of 1.053 in F/Y 2005/2006. The averages mean ratio of NIBL is slightly higher than BOKL; i.e. 1.0806 >1.071. This shows that NIBL's liquidity position is slightly better than that of BOKL. The lower degree of standard deviation and coefficient of variation suggest that both the banks have maintained consistency in their ratios. Though, as per the conventional rule current ratio should be 2:1 but for banks and other financial institutions any current ratio above 1 also considered healthy and sound.

II) Cash and Bank Balance to Total Deposit Ratio:

This ratio is calculated by dividing cash and bank balance by total deposits. The cash and bank balance to total deposits ratio of NIBL and BOKL are given below:

Table   4.2
Cash and Bank Balance to Total deposit ratio (%)

Fiscal Year	NIBL	BOKL
2005/06	7.12	8.12
2006/07	5.13	6.13
2007/08	6.78	5.21
2008/09	8.5	8.06
2009/10	6.87	9.56
Mean	6.88	7.44
S.D.	1.0728	1.5348
C.V.	15.59 %	20.63 %

(source: annex 5)

Cash and Bank Balance to Total deposit ratio (%)

Figure- 4.2

Cash and Bank Balance To Total Deposit Ratio (%)

Fiscal Year
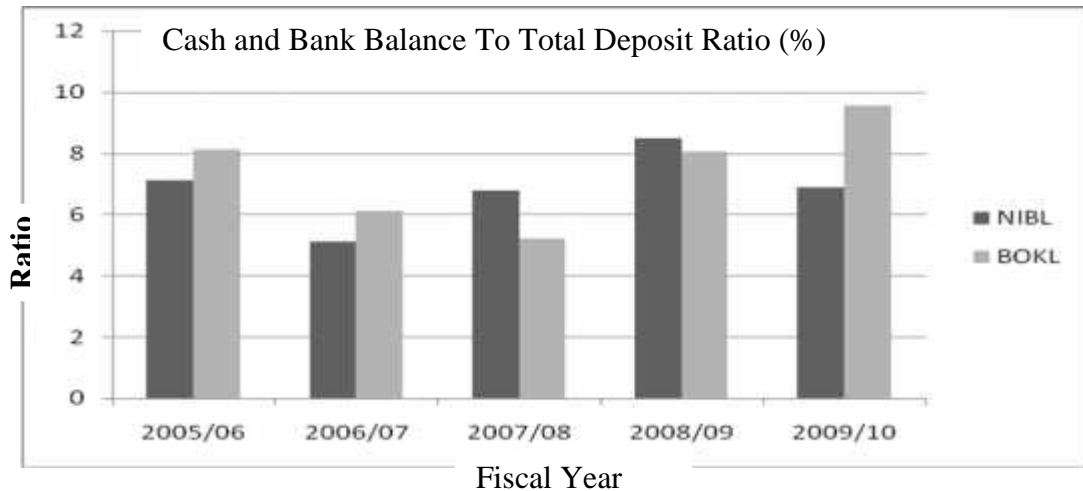
The above table and diagram shows that the cash and bank balance to total deposit of both NIBL and BOKL are in fluctuating trend. NIBL had a high ratio of 8.50% in F/Y 2008/2009 and a low ratio of 5.13% in F/Y 2006/2007. Similarly, BOKL has a high of 9.56% in F/Y 2009/2010 and a low of 5.21% in F/Y 2007/2008. The averages mean ratio of BOKL is slightly higher than NIBL i.e., 7.44%>6.88%.

This shows, BOKL readiness to meet customer requirement better than NIBL. The C.V. of NIBL of is slightly lower than that of BOKL i.e., 15.59 %< 20.63%. On its basis, it can be concluded that NIBL's ratios are more consistent than that of BOKL.

Although the above ratios implies a slightly better liquidity position of BOKL, a high ratio of non-earning cash and bank balance indicates the banks unavailability to invest its fund in income generation areas that might have helped it to improve its profitability.

III)   **Cash and Bank Balance to Current Assets Ratio :**

This ratio is calculated by dividing cash and bank balance by current assets. The Cash and bank balance to current assets ratio are presented in the following table.

Table   4.3

Cash and Bank balance to Current Asset ratio (%)

Fiscal year	NIBL	BOKL
2005/06	6.16	6.13
2006/07	4.49	5
2007/08	5.93	4.42
2008/09	6.88	7.17
2009/10	5.80	8.51
Mean	5.85	6.25
S. D	0.7698	1.475
C.V	13.16	23.6

(source: Annex – 6)

Figure – 4.3
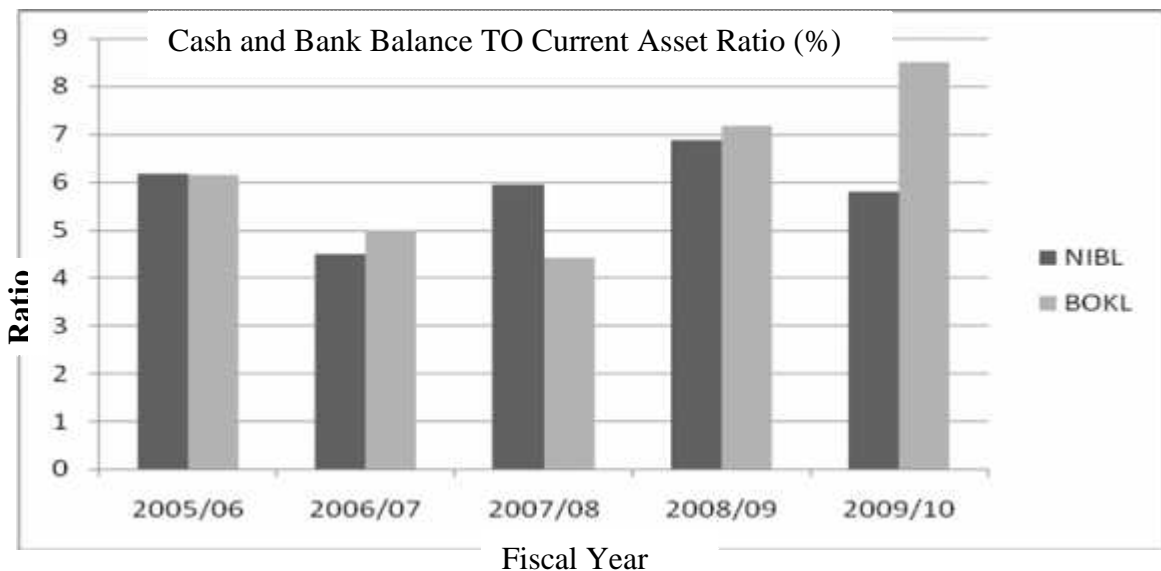
The above table and diagram shows that the cash and bank balance to current assets of both NIBL & BOKL are in a fluctuating trend. NIBL has maintained a

high ratio of 6.88% in F/Y 2008/09, and a low ratio of 4.49% in 2006/07. Similarly, BOKL has a high of 8.57 in F/Y 2009/10 anticipating higher cash requirement depositors in this F/Y. It has a low ratio of 4.42% in F/Y 2007/2008.

The average mean ratio of BOKL is slightly higher than NIBL. The C.V. of BOKL is greater than that of NIBL i.e., 23.6%>13.16%. It shows BOKL ratios are less consistent than that of NIBL. The above table does not show any significant difference between the JVB's with regards to meeting customer's daily cash requirement. Both have fared well in meeting their depositor's daily cash requirement and investing the surplus fund in other productive areas.

IV)   Investment on Government Securities to Current Assets Ratio:

This ratio is calculated by dividing investment on government securities by current assets. The Investment on Government securities to current assets ratio of NIBL and BOKL are tabulated below:

Table 4.4

Investment on Government Securities to Current Assets Ratio (%)

Fiscal year	NIBL	BOKL
2005/06	8.35	20.05
2006/07	15.1	25.03
2007/08	23.24	31
2008/09	21.56	31.86
2009/10	21.94	33.43
Mean	18.04	28.27
S.D	5.606	5
C.V	31.08 %	17.69 %

(Source: Annex – 7)

Figure – 4.4

Investment On Government Securities To Current Assets Ratio (%)

Y-axis: Ratio — values 0 to 40
X-axis: Fiscal Year — 2005/06, 2006/07, 2007/08, 2008/09, 2009/10
Legend: NIBL, BOKL
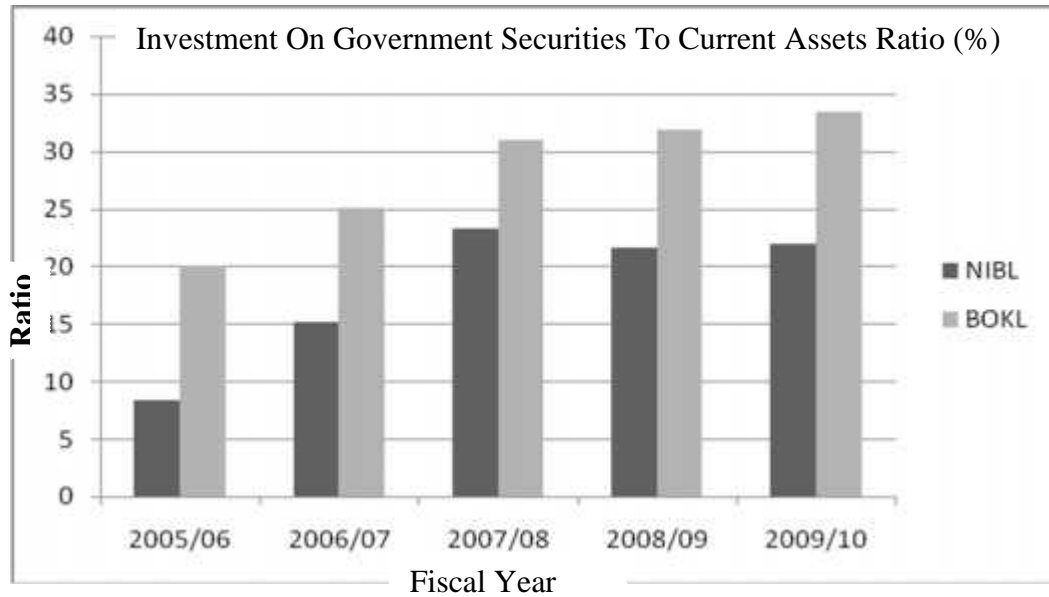
The above table and diagram clearly depicts that the investment on Government securities to current assets of both the sample banks have a fluctuating trend. Never the less, both have tried to maintain consistency from F/Y 2006/2007 onwards.

From the above five year picture, it is evident that the average mean ratio of BOKL is higher than that of NIBL i.e. 28.27%>18.04%. This shows that a greater portion of current assets of BOKL comprises of government securities. Also, BOKL's investments in government securities to current assets have an increasing trend over the years. From the point of view of C.V. BOKL's ratios have been more consistent. NIBL has been more consistent in its ratio post F/Y 2004/05.

From the above analysis it is clear that NIBL has made lesser investment in government securities as it has injected more funds on other productive sectors. The reason behind BOKL higher ratio could be attributed to more deposit collection and unavailability of other secured and profitable investment sectors. The balance sheet of BOKL post 2005/06 shows that total fund invested in government securities is more than the loan & advances it has made.

V) Loan and Advances to Current Assets Ratio:

This ratio is calculated by dividing total loan and advances by current assets. The ratios are presented in the following table.

Table 4.5
Loan and Advances to Current Assets ratio (%)

Fiscal year	NIBL	BOKL
2005/06	41.82	28.67
2006/07	46	29.55
2007/08	44	30.52
2008/09	48.75	28.43
2009/10	51.06	28.15
Mean	46.33	29.06
S.D	3.29	0.866
C.V	7 %	2.98 %

(Source: Annex – 8)

Figure – 4.5

Loan and Advances to Current Assets Ratio (%)
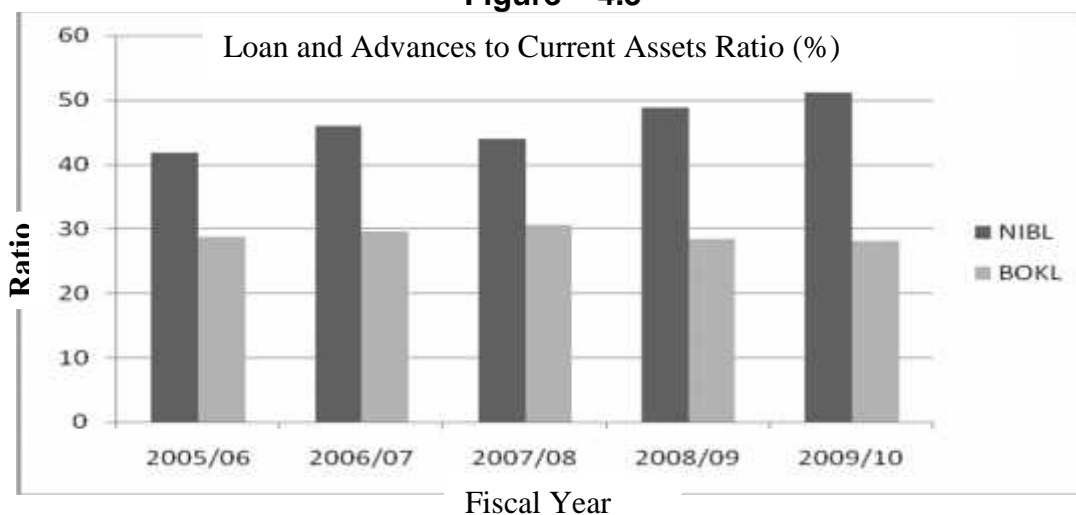
The above table and diagram clearly shows favorable increasing trend of loan and advances of NIBL during the study period. The average mean ratio of NIBL is higher compared to BOKL i.e. 46.33>29.06. BOKL has experienced an increasing trend of loan and advances upto F/Y 2007/2008. There after it has witnessed a decrease in loan and advances as a percentage of current assets.

NIBL had had a high ratio of 51.06% in 2009/10 and a low ratio of 41.82% in F/Y 2005/2006. Similarly BOKL has experienced a high ratio of 30.52% in F/Y 2007/2008 and a low of 28.15% in F/Y 2009/2010. The above analysis reveals that NIBL has been more successful in identifying profitable investment sectors and increasing its earning. The same does not hold true for BOKL, whose efforts seems to be more focused on investing in risk free assets, rather than increasing its loan and advances volume and subsequent earnings from it.

B)   Assets Management Ratios:

The following ratios measure the asset management ability of NIBL and BOKL.

I)   Loan and Advances to Total Deposit Ratio:

This ratio is calculated by dividing total loan and advances by total deposits. The data tabulated below shows the loan and advances to total deposit ratio of NIBL and BOKL.

Table: 4.6
Loan and Advances to Total Deposit Ratio (%)

Fiscal year	NIBL	BOKL
2005/06	56.43	38
2006/07	52.56	36.82
2007/08	50.31	35.97
2008/09	60.34	32
2009/10	60.55	31.63
Mean	56.03	34.88
S.D	4.096	2.588
C.V	7.31 %	7.42 %

(Source Annex – 9)

Figure – 4.6

Loan and Advances to Total Deposit Ratio (%)
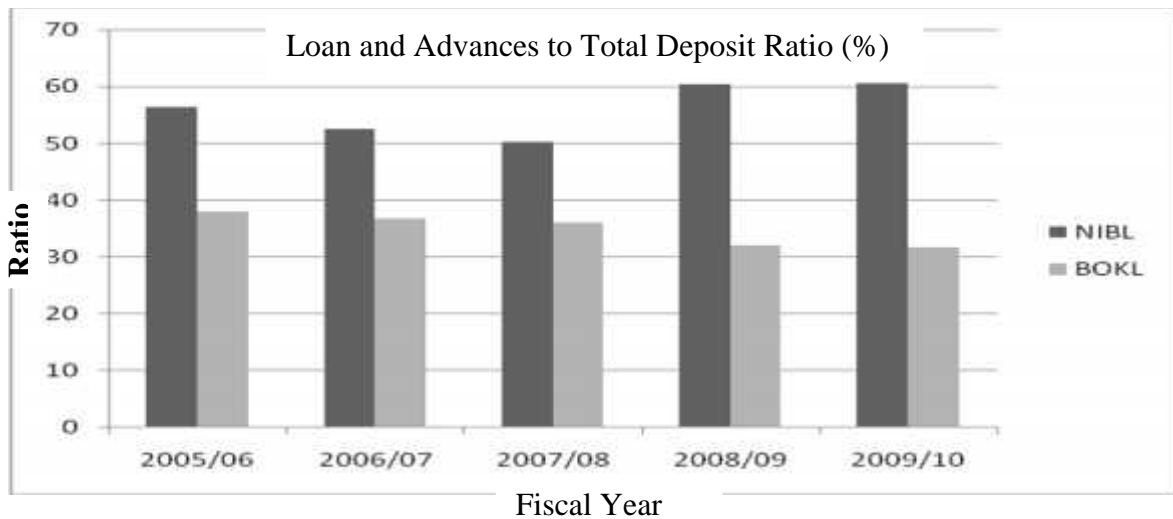
The above table and diagram shows that the loan and advances to total deposit of both the banks have a fluctuating trend. NIBL had a high ratio of 60.55% in F/Y 2009/10 and a low ratio of 50.31% in F/Y 2007/08. Accordingly, BOKL had a high of 38% and a low of 31.63%. BOKL's loan and advances to total deposit has had a decreasing trend over the years. The mean ratio of NIBL is almost twice that of BOKL i.e. 60.55%>31.63%. NIBL seems to be strong in terms of mobilization of its total deposits as loan and advances when compared to BOKL. In terms of C.V., both seem to be equally consistent.

It can be concluded that, NIBL has been more successful in mobilizing its total deposits as loan and advances than BOKL. On the contrary, a high ratio should not be perceived as a better state of affairs from the point of view of liquidity, as loan and advance are not as liquid as cash and bank balance and other investment. In portfolio management of bank various factors such as availability of funds, liquidity requirements, central bank norms etc. needs to be taken into account.

II) Total Investment to Total Deposit Ratio:

This ratio is calculated by dividing total investments by total deposits.

The data tabulated below shows the total investment to total deposit ratio of NIBL and BOKL.

Table 4.7

Total Investment to Total Deposit Ratios (%)

Fiscal year	NIBL	BOKL
2005/06	9.79	26.65
2006/07	48.64	61.95
2007/08	52.88	58.58
2008/09	44.85	52.22
2009/10	41.33	53.68
Mean	39.50	50.62
S.D	15.34	12.48
C.V	38.84 %	24.65 %

(Source: Annex – 10)

Figure – 4.7
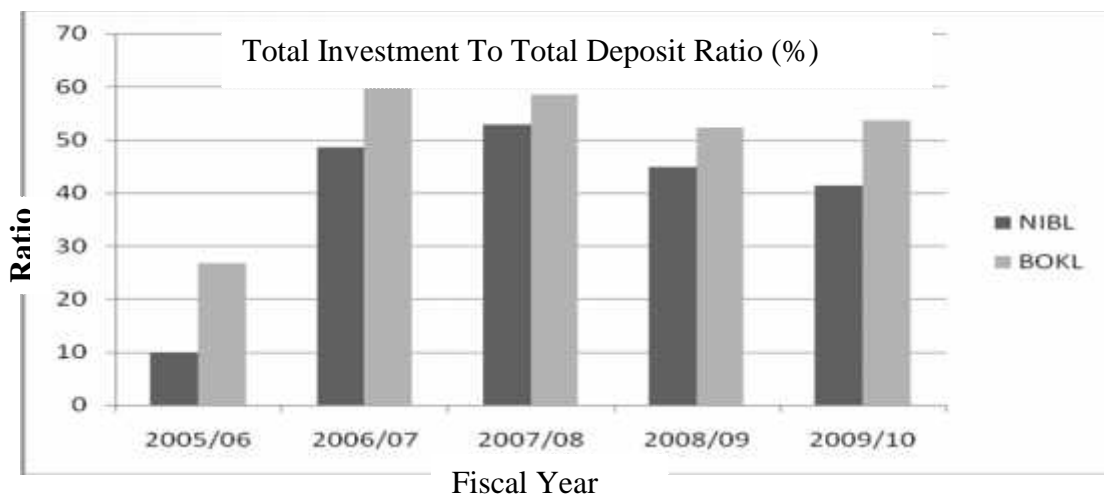
The above table and diagram shows a highly fluctuating trend in total Investment to total deposit of NIBL and BOKL. NIBL has a high ratio of 52.88% and a low ratio of 9.79%. BOKL, on the other hand had a high ratio of 61.95% and a low ratio of 26.65% in F/Y2006/2007 and 2005/2006 respectively. BOKL has a high mean ratio than NIBL i.e., 50.62%>39.50%. From mean ratio perspective, BOKL

has been more successful in mobilization of deposits on various forms of investment. From C.V.'s viewpoint, both the sample banks have been inconsistent, with BOKL being little better in terms of consistency than NIBL

In conclusion, the above analysis reveals that BOKL has been more successful in mobilizing its resources on various forms of investment. What is worth mentioning is that Interest on Treasury Bills, Inter bank lending and placements are at an all time low level, so BOKL has not done itself justice by investing in low yield less risky and risk free assets.

IV)   Loan and Advances to Total Working Fund Ratio:

This ratio is computed by dividing loan and advances by total working fund. The following table exhibits the ratio of loan and advances to total working fund of NIBL and BOKL during the study period.

Table 4.8

Loan and Advances to Total Working Fund Ratio (%)

Fiscal year	NIBL	BOKL
2005/06	48	28.36
2006/07	45.32	29.35
2007/08	43.36	30.34
2008/09	49	28.16
2009/10	50	28
Mean	47.14	28.84
S.D	2.449	1.977
C.V	5.20	6.86

(Source: Annex – 11)

Figure – 4.8

Loan and Advances to Total working fund Ratio (%)
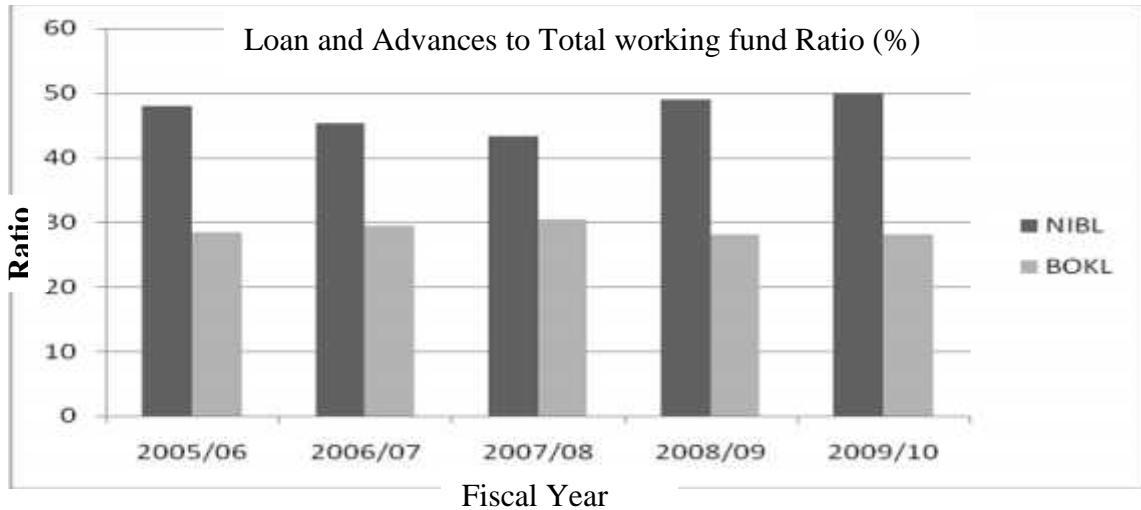
The above table and diagram shows a fluctuating trend of loan and advances total working fund of NIBL and BOKL. NIBL has maintained highest ratio of 50% in F/Y 2009/10 and a low ratio of 43.36% in F/Y 2007/08. Similarly, BOKL has maintained a high ratio of 30.34% in F/Y 2007/08 and a low ratio of 28% in F/Y 2008/09. NIBL also has a high average ratio of loan and advances to total working fund than BOKL i.e. 47.14%>28.84%. It reveals the strength of NIBL in mobilizing its total assets as loan and advances. NIBL's CAR (capital adequacy ratio) stands at a comfortable 13.56% against NRB mandatory requirement of 12%. This surplus capital gives it an added advantage to assume more risk-weighted asset within NRB prescribed norms.

V)   Investment in Government Securities to Total Working Fund Ratio:

This ratio is calculated by dividing Investment on government securities by total working fund. The following table shows that ratios of NIBL and BOKL.

Table 4.9
Investment in Government Securities to Total Working Fund Ratio (%)

Fiscal year	NIBL	BOKL
2005/06	8.20	19.83
2006/07	14.88	24.85
2007/08	22.90	30.81
2008/09	21.67	31.56
2009/10	21.47	33.22
Mean	17.82	28.05
S.D	5.57	4.99
C.V	31.26 %	17.79 %

(Source: Annex – 12)

Figure – 4.9
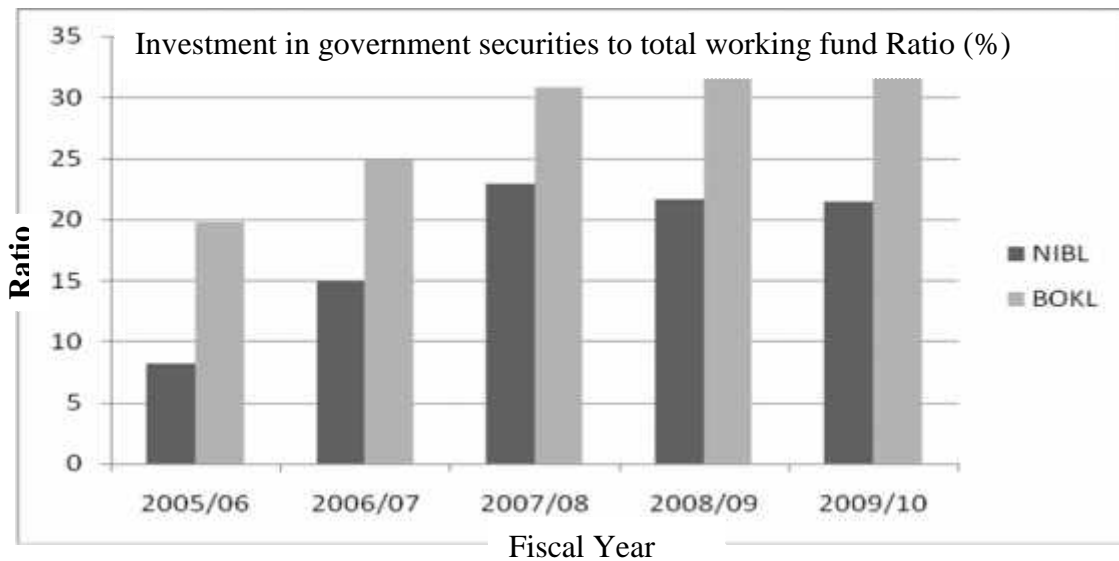
The above table and diagram reveals that BOKL has had an increasing trend of Investment of Government securities to total working fund over the study period while NIBL has had more of a fluctuating trend. NIBL has a higher ratio 22.90% in F/Y 2007/08 and a low ratio of 8.20% in F/Y 2005/2006. Similarly, BOKL has had a high ratio of 33.22% in F/Y 2009/10 and low ratio of 19.83% in 2005/2006. When mean ratio is considered, NIBL seems to be slightly weaker than BOKL in mobilizing of total assets as Investment in Government securities i.e. (17.82 %<

28.05%). Also, when we compare C.V. of both, it reflects that ratios of NIBL are less consistent than BOKL i.e., (31.26%>17.79%).

From the above analysis, we can conclude that BOKL has invested larger portion of working fund in government securities than NIBL. The ratios also indicates that both the banks have no concrete or certain investment policy with regards to what percentage of working fund to be invested in purchasing government securities.

VI)   Investment on Share and Debentures to Total Working Fund Ratio :

The Investment on share and debentures to total working fund ratio of NIBL and BOKL has been shown in the following table.

Table   4.10

Investment on Share and Debentures to Total Working Fund Ratio

Fiscal year	NIBL	BOKL
2005/06	0.107	0.067
2006/07	0.103	0.058
2007/08	0.124	0.060
2008/09	0.134	0.053
2009/10	0.130	0.047
Mean	0.120	0.057
S.D	0.0124	0.005
C.V	10.33 %	8.77 %

(Source: Annex – 13)

Figure – 4.10

Investment on shares and debentures to total working fund Ratio(%)
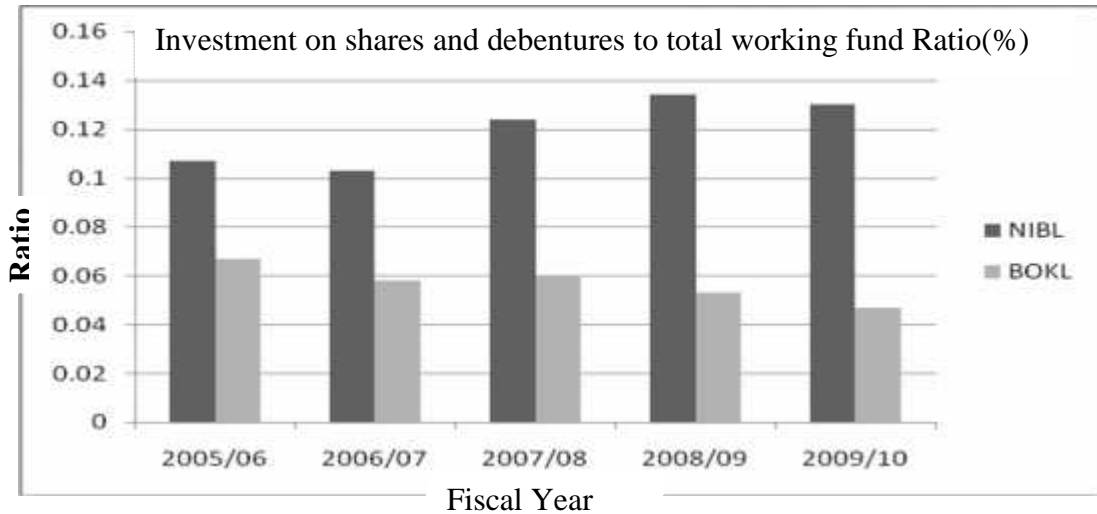
The above table and diagram clearly reveals that both the banks have invested miniscule percentage of total working fund in purchasing share and debentures of other companies. In either case the ratio percentage is less than 0.2%. NIBL has invested slightly higher amount of total working fund on shares and debenture than BOKL. it also has a mean ratio higher than BOKL.

It indicates that NIBL has been more successful in mobilizing it funds as Investment in shares and debenture than BOKL, though the fund invested is marginal.

The above table diagram also shows NIBL's increasing trend in Investment on shares and debentures except for F/Y 2008/09, where as BOKL has had a fluctuating trend through out the period of study. In terms of C.V. both the banks have remained fairly consistent though BOKL's variability is slightly less than that of NIBL i.e., (8.77 %< 10.33%).

C)   Profitability Ratio:

The following ratios are calculated under profitability ratios:

I)   Return to Loan and advances ratio:

This ratio is calculated by dividing net profit by loan and advances. The following table shows the return on loan and advances ratio of NIBL and BOKL during the study period.

Table 4.11

Return to Loan and Advances Ratio (%)

Fiscal year	NIBL	BOKL
2005/06	4.56	8.22
2006/07	3.50	7.58
2007/08	3.48	8.41
2008/09	5.13	8.45
2009/10	5.33	8.03
Mean	4.40	8.14
S.D	0.7848	0.3165
C.V	17.84 %	3.89 %

(Source:Annex – 14)

Figure – 4.11
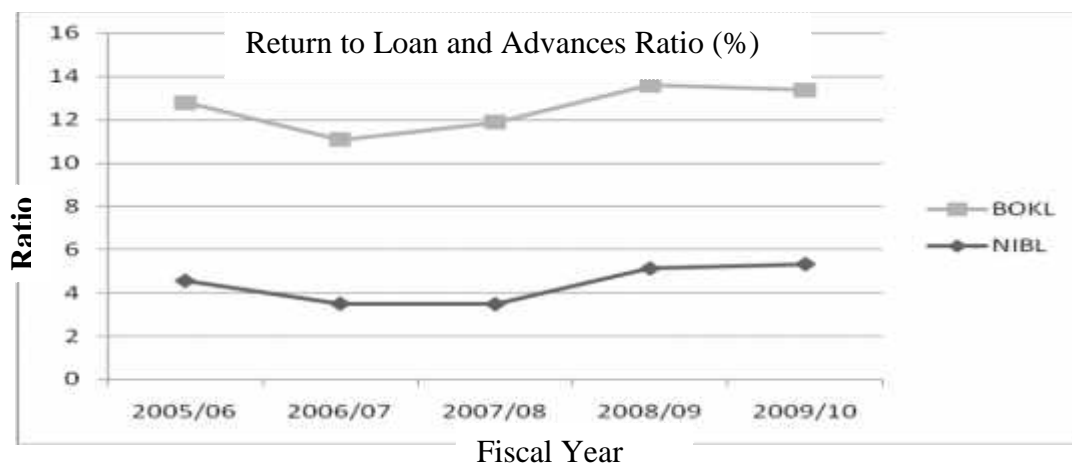
The above table and diagram shows that the ratio of return on loan and advances of BOKL are better than NIBL in all F/Y, through they have a fluctuating trend. NIBL's ratios have witnessed a decreasing trend upto F/Y 2007/08; thereafter they have an increasing trend. NIBL has recorded a high ratio of 5.33% in F/Y 2009/10, and a low ratio of 3.48% in F/Y 2007/08. Similarly,

BOKL recorded a high of 8.45% in F/Y 2008/09 and a low of 7.58% in F/Y 2007/08. Similarly, BOKL recorded a high of 8.45% in F/Y 2008/09 and a low of 7.58% in F/Y 2006/07.

The comparison of mean ratio reveals that BOKL has a higher ratio than NIBL i.e., 8.14%>4.40%. This shows that BOKL has been more successful in maintaining its higher return on loan and advances than NIBL. C.V. of BOKL is significantly lower than NIBL i.e. 3.89%>17.84%. It proves that NIBL has higher variability of ratio than BOKL. In conclusion, it can be said that NIBL's profit earning capacity by utilizing available resources in weaker compared to BOKL, but nevertheless NIBL is making significant improvements in this regard.

II)   Return to Total Working Fund Ratio:

This ratio is calculated by dividing net profit by total working fund. The data tabulated below reflects the profitability position with respect to total assets of NIBL and BOKL.

Table 4.12

Return to Total Working Fund ratio (%)

Fiscal year	NIBL	BOKL
2005/06	2.19	2.33
2006/07	1.59	2.23
2007/08	1.51	2.55
2008/09	2.51	2.38
2009/10	2.66	2.25
Mean	2.09	2.35
S.D	0.4686	0.1146
C.V	22.42 %	4.88

(Source: Annex – 15)

Figure –4.12

Return To Total Working Fund Ratio (%)
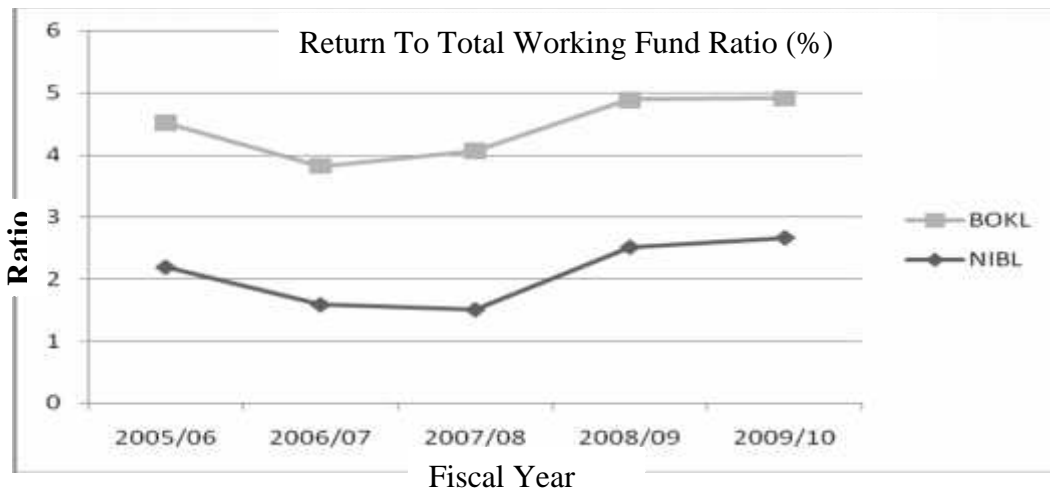
The above table and diagram reveals that the ratio of return on total working fund is in decreasing trend in case of NIBL upto F/Y 2007/08. From F/Y 2007/08 the ratio has an increasing trend. It has surpassed BOKL in F/Y 2008/09, 2009/10. NIBL has a high ratio of 2.66% in F/Y 2009/10 and a low ratio of 1.51% in F/Y 2007/08.

Similarly, BOKL has had a high of 2.55% and a low of 2.23% in F/Y 2007/08 and 2006/07 respectively. BOKL has a slightly high mean ratio than NIBL i.e., 2.35>2.09. It reveals that BOKL has been able to earn high profit on total working fund in comparison to NIBL. One point worth making here is that NIBL has managed and utilized it assets more efficiently than BOKL from F/Y 2007/08 onwards and its return on assets have also been higher. BOKL has not managed its assets well post F/Y 2007/2008. Its return on total assets has also been lower in comparison to NIBL in F/Y 2008/09 and 2009/10. From the viewpoint of C.V., BOKL's ratios are more consistent than NIBL i.e. 4.88% < 22.42%. Both banks need to exert more effort in mobilizing its working assets more efficiently.

III) Total Interest Earned to Total Working Fund Ratio:

This ratio is calculated by dividing total interest earned by total assets. The following table shows interest earned to total working fund ratio of NIBL and BOKL during the review period.

Table 4.13

Total Interest earned to Total Working Fund ratio (%)

Fiscal year	NIBL	BOKL
2005/06	6.97	6.25
2006/07	6.90	6.42
2007/08	6.25	5.40
2008/09	6.15	4.70
2009/10	5.86	4.36
Mean	6.43	5.43
S.D	0.4355	0.8162
C.V	6.77 %	15.03 %

(Source: Annex – 16)

Figure – 4.13
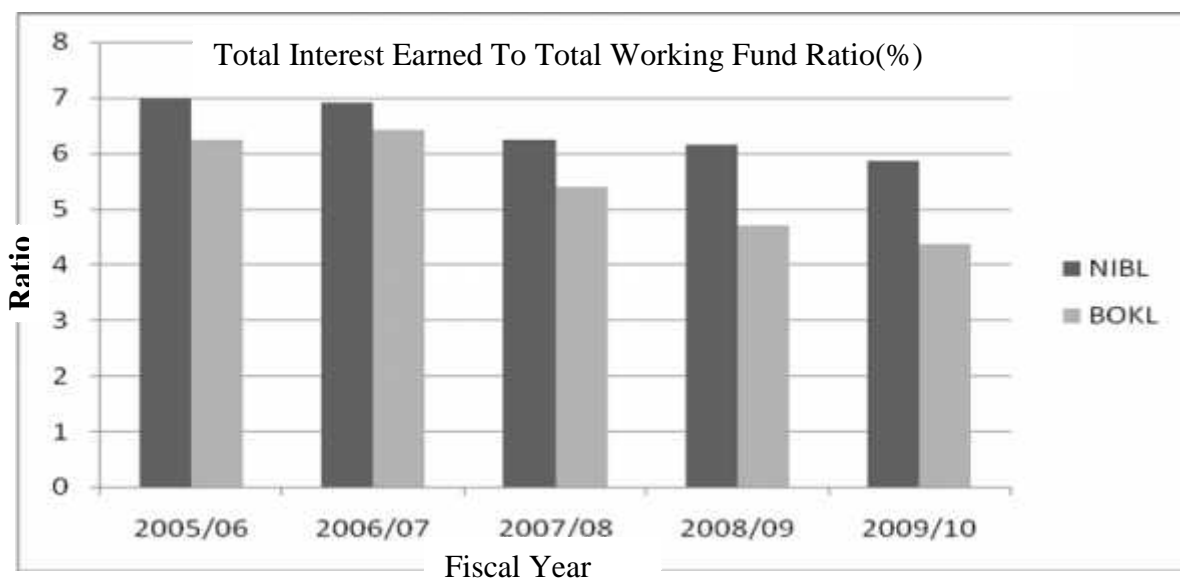
The above table and diagram reflects a decreasing trend in interest earning ratio of both the banks. NIBL has had a high ratio of 6.97% in F/Y 2005/2006 and a low ratio of 5.86% in F/Y 2009/2010. Similarly, BOKL has experienced a high of

6.42% in F/Y 2006/2007 and a low of 4.36% in F/Y 2009/2010. The average Interest earning ratio of NIBL is 6.43% where as the same for BOKL is 5.43%. This reflects that NIBL has been stronger in terms of interest earning power w.r.t. total working fund than BOKL. From the above analysis, we can conclude that NIBL has been able to earn high interest on its total assets i.e., it has been more successful in mobilizing its assets to generate high income. The decreasing trend of interest earning ratio w.r.t. total working fund is a matter of concern, and both the banks need to look for ways to improve upon their interest earnings.

IV)   Total Interest Earned to Total Operating Income Ratio:

This ratio is calculated by dividing total interest earning by net operating income. The following table shows interest earned to total operating income ratio of NIBL and BOKL.

Table 4.14
Total Interest Earned to Total Operating Income Ratio (%)

Fiscal year	NIBL	BOKL
2005/06	79.96	77
2006/07	80.51	75.78
2007/08	68.34	70
2008/09	75.93	66.60
2009/10	75.10	68.51
Mean	75.97	71.58
S.D	4.37	4.09
C.V	5.75 %	5.72 %

(Source Annex – 17)

Figure – 4.14
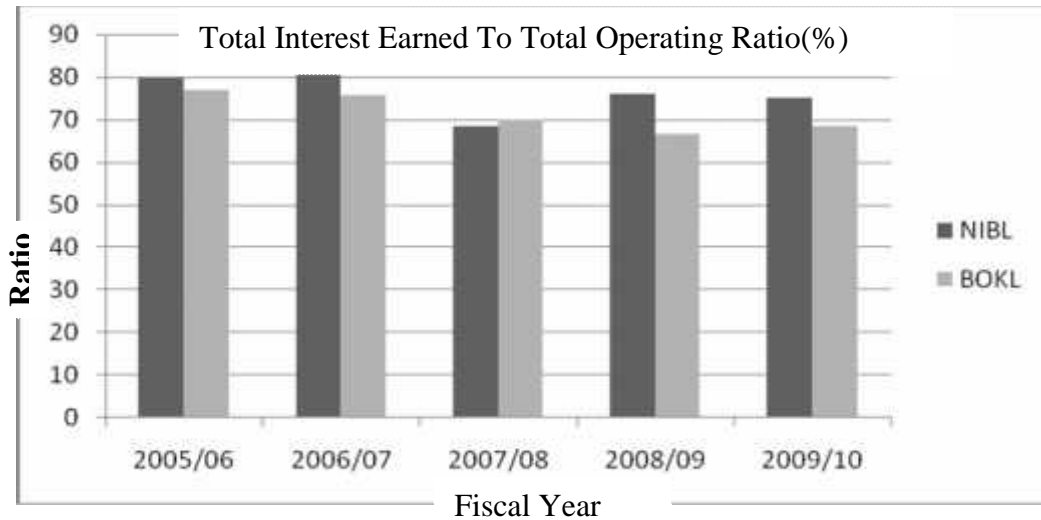
The above table and diagram shows that both the banks have a fluctuating trend of Interest earning ratio w.r.t total operating income. BOKL moreover has had a decreasing trend of Interest earned to total operating income ratio except for F/Y 2009/10. The higher and lower ratios of NIBL are 80.51% in F/Y 2006/2007 and 68.34% F/Y 2007/2008 respectively. BOKL has had a high of 77% in F/Y 2005/2006 and a low of 66.60% in F/Y 2008/2009. The mean ratio of NIBL is higher than BOKL i.e., 75.97%>71.58%.

On the basis of mean ratio, we can say that NIBL has been more successful in earning higher amount of interest income out of total operating income. On the other hand, the variability in Interest earned to total operating income of both banks are similar. Both have been equally consistent in their ratios.

From the above analysis, it can be concluded that NIBL has mobilized its funds in interest bearing assets better than BOKL. It is also evident that BOKL has given more priority to non-fund based income to earn higher profit than NIBL. NIBL needs to increase its income from off balance sheet operation as well.

V) Total Interest Earned to Total outside Assets Ratio:

This ratio is calculated by dividing total interest earned by total outside asset. The following table shows interest earned to total outside assets

Table 4.15
Total Interest Earned to Total outside Assets Ratio

Fiscal year	NIBL	BOKL
2005/06	12.37	12.95
2006/07	7.90	8.16
2007/08	7	6.77
2008/09	7.20	6.12
2009/10	6.96	5.77
Mean	8.29	7.95
S.D	2.069	2.628
C.V	24.96 %	33.06 %

(Source Annex – 18)

Figure – 4.15
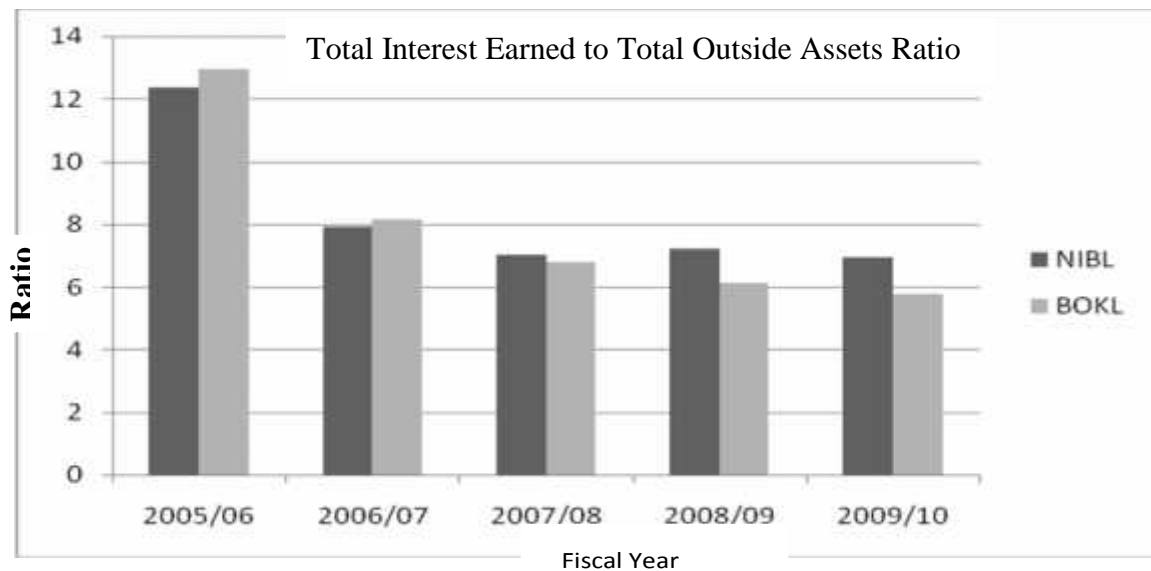
From the above table NIBL has recorded a high ratio of 12.37% in F/Y 2005/2006 and a low ratio of 6.96% in F/Y 2009/2010. BOKL has had a high ratio of 12.95% in FY 2005/2006 and a low ratio of 5.77% in F/Y 2009/2010. In case of mean ratio, NIBL has a higher ratio than BOKL i.e. 8.29%>7.95%. It is clear that NIBL has earned higher amount of interest on its outside assets in comparison to BOKL. The C.V. of NIBL is quite lower than BOKL (i.e. 24.96 %< 33.6%). This indicates that NIBL ratios are more stable than BOKL.

From the above analysis, it can be concluded that NIBL seems to be more successful in earning high interest on its outside assets than BOKL.

VI)   Total Interest Paid to Total Working Fund Ratio:

This ratio is calculated by dividing total interest paid by total working fund. The following table shows the total interest paid to total interest paid to total working fund ratio of NIBL and BOKL for the five-year study period.

Table 4.16

Total Interest Paid to Total Working Fund Ratio (%)

Fiscal year	NIBL	BOKL
2005/06	2.88	2.54
2006/07	3.15	2.45
2007/08	2.57	1.60
2008/09	1.92	1.20
2009/10	1.65	1.15
Mean	2.43	1.79
S.D	0.567	0.735
C.V	23.33 %	41.06 %

(Source Annex – 19)

Figure – 4.16
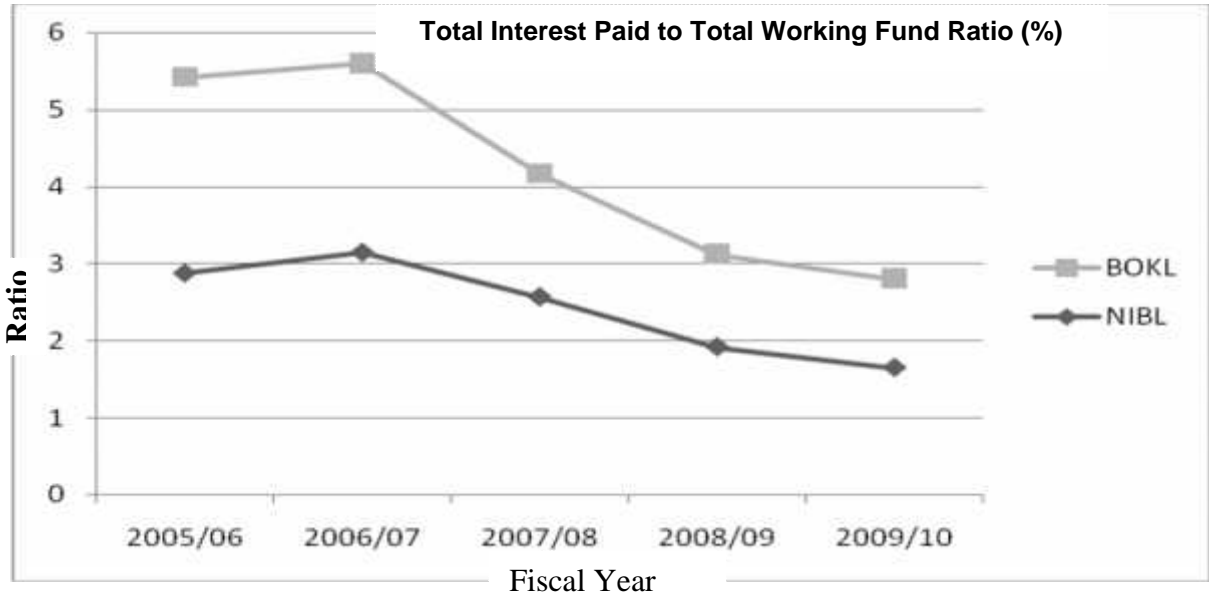
The above table and diagram shows a decreasing trend in total Interest paid to total working fund ratio of both the banks except for F/Y 2006/2007 in case of NIBL. The decrease in Interest expenses can be attributed to an all time low Interest rate offered by banks on deposits, lower interest rates on inter-bank taking, and bank borrowings. The average ratio of BOKL with regards to total interest paid to total working fund ratio is slightly lower than that of NIBL i.e. 1.79%<2.43%. In terms of C.V., BOKL ratios are more stable than that of NIBL. Overall, we can say that BOKL is in a better position form interest payment point of view that NIBL. BOKL seems to have collected its funds from cheaper sources than NIBL.

D)   Risk Ratio:

The following risk ratios have been used to measure the risk involved in financial operation of NIBL and BOKL.

I)   Liquidity Risk Ratio:

Liquidity risk is calculated by dividing cash and bank balance by total deposits. The following table shows the liquidity risk interest in NIBL and BOKL.

Table 4.17

Liquidity Risk Ratio (%)

Fiscal year	NIBL	BOKL
2005/06	7.12	8.12
2006/07	5.13	6.23
2007/08	6.78	5.21
2008/09	8.50	8.06
2009/10	6.87	9.56
Mean	6.88	7.44
S.D	1.0728	1.5348
C.V	15.59 %	20.63 %

(Source Annex – 5)

Diagram – 4.17
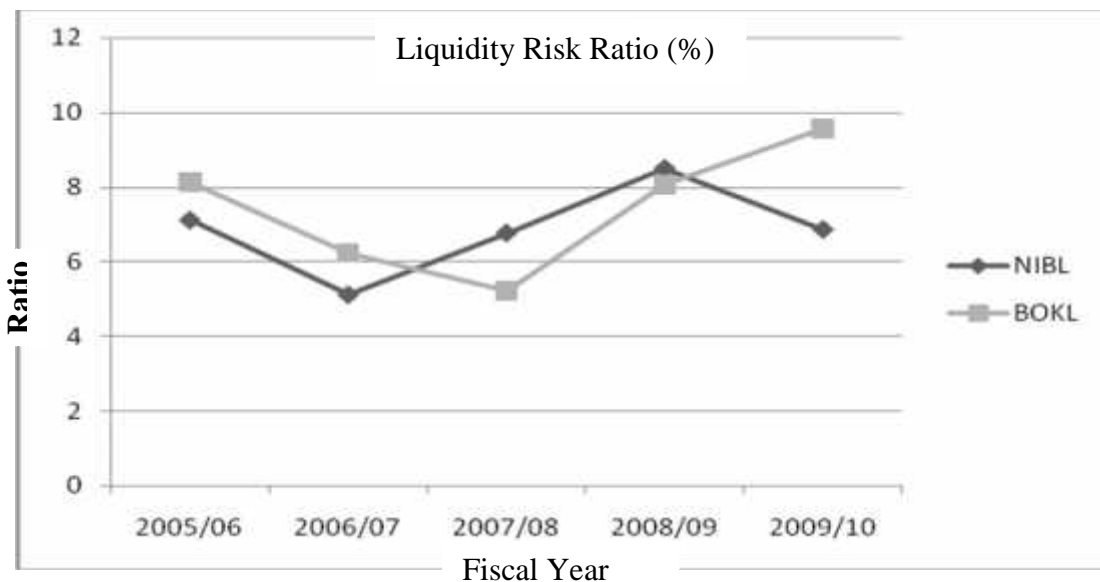
The above table and diagram shows that the liquidity risk ratios of both the banks have fluctuating trend. NIBL has recorded a high ratio of 8.50% and a low ratio of 5.13%. Similarly, BOKL has recorded a high of 9.56% and a low of 5.21%. When mean ratio are taken it is found that BOKL's liquidity risk is lower than that of NIBL i.e. 7.44>6.88. BOKL has more cash & bank balance than NIBL to meet its current obligations. On the other hand, too much idle cash might have an adverse impact on profitability. A trade off between liquidity and profitability must be maintained at all times. On comparison of C.V.'s of both the banks, NIBL ratio's seems to be more stable and consistent than BOKL.

II)   Credit Risk Ratio:

This ratio is calculated by dividing total loan and advances by total assets. The following table shows the comparative credit risk ratio of NIBL and BOKL.

Table 4.18

Credit Risk Ratio (%)

Fiscal year	NIBL	BOKL
2005/06	56.43	38
2006/07	52.56	36.82
2007/08	50.31	35.97
2008/09	60.34	32
2009/10	60.55	31.63
Mean	56.04	34.88
S.D	4.097	2.590
C.V	7.31 %	7.43 %

(Source Annex – 9)

Figure – 4.18
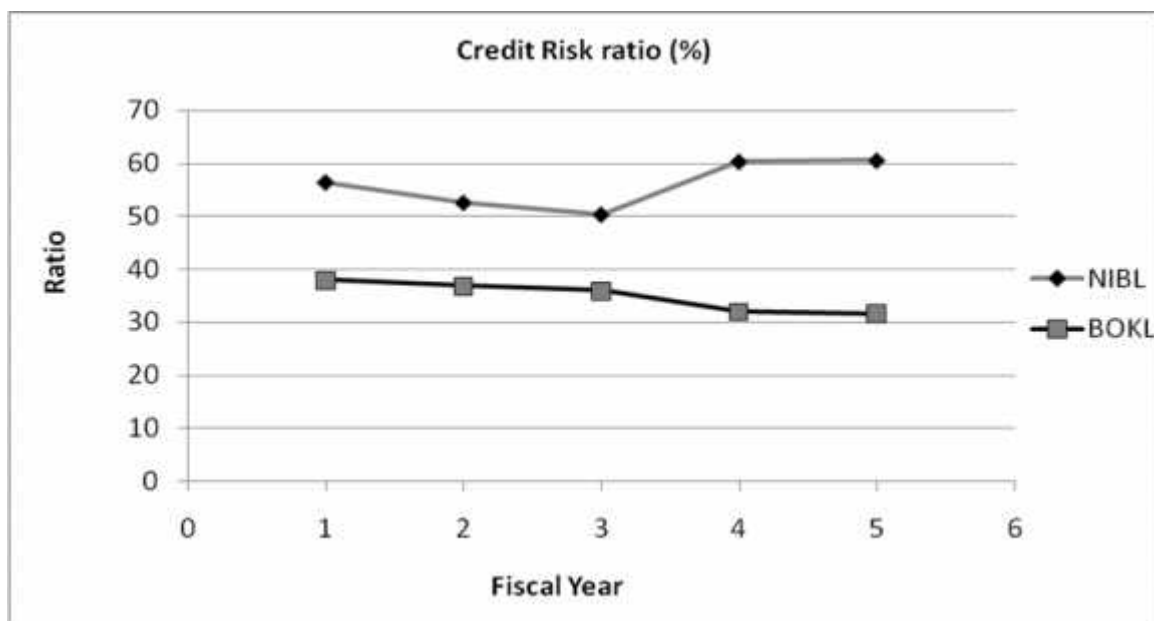
The above table and diagram shows that NIBL ratios are in a decreasing trend till F/Y 2007/2008. There after they have an increasing trend. The ratios of BOKL have a decreasing trend. NIBL has witnessed a high ratio of 60.55% in F/Y 2009/2010 and a low ratio of 50.31% F/Y 2007/2008. Similarly, BOKL has had a high ratio of 38% in F/Y 2005/2006 and a low ratio of 31.63% in F/Y 2009/2010. The mean ratio of BOKL is lower than that of NIBL ie. 34.88 %< 56.04%.

This indicates that NIBL has more exposure to credit risk than its counterpart. The decreasing trend of BOKL's ratios project a picture that BOKL is trying to reduce its credit risk. From the point of view of C.V., both banks seem to have had consistent ratios during the study period.

E) Growth Ratio:

Under this topic the following ratios directly related to fund mobilization and investment of the banks are calculated:

I) Growth ratio of total deposit

II) Growth ratio of loan and advances

III) Growth ratio of total investment

IV) Growth ratio of net profit.

I) Growth ratio of total deposit:

Table 4.19
Growth ratio of Total Deposit (%)

(Rs. in Million)

Fiscal year	NIBL		BOKL	
	Total deposit (Rs)	%	Total deposit (Rs)	%
2005/06	12779.51	0	12568.49	0
2006/07	15839.00	23.94	15430.05	22.77
2007/08	15506.43	2.1	15835.75	2.63
2008/09	13447.66	(13.28)	18755.63	18.44
2009/10	14119.03	4.99	21161.44	12.83
Mean	-	2.71	-	11.33
S.D	-	12.182	-	8.806
C.V	-	449.54	-	77.72

II)   Growth ratio of total loan and advances:

Table 4.20

Growth ratio of Total Loan and Advances (%)

Rs in Million

Fiscal year	NIBL		BOKL	
	Total loan & advanced (Rs)	%	Total loan & advanced (Rs)	%
2005/06	7211.42	0	4774.27	0
2006/07	8324.44	15.43	5681.35	19.00
2007/08	7801.95	(5.28)	5696.18	0.26
2008/09	8113.68	4	6000.16	5.34
2009/10	8548.66	5.36	6693.86	11.56
Mean	-	2.71	-	7.23
S.D	-	12.182	-	7.235
C.V	-	449.54	-	100.10

III)   Growth ratio of total investment:

Table 4.21
Growth ratio of total investment (%)

Rs. in Million

Fiscal year	NIBL		BOKL	
	Total Investment (Rs)	%	Total Investment (Rs)	%
2005/06	1250.94	0	3349.87	0
2006/07	7704.31	515.88	9559.18	185.36
2007/08	8199.51	6.43	9275.88	(2.96)
2008/09	6031.18	(26.44)	10357.68	11.66
2009/10	5835.95	(3.24)	11360.33	9.68
Mean	-	98.53	-	41.34
S.D	-	208.97	-	72.52
C.V	-	212.09	-	175.43

IV)   Growth ratio of net profit:

Table 4.22

Growth ratio of Net Profit (%)

Rs. in Million

Fiscal year	NIBL		BOKL	
	Net profit (Rs)	**%**	**Net profit (Rs)**	**%**
2005/06	329.10	0	392.59	0
2006/07	291.38	(11.46)	430.83	9.74
2007/08	271.64	(6.77)	479.21	11.23
2008/09	416.24	53.23	506.93	5.78
2009/10	455.32	9.39	537.80	6.09
Mean	-	8.88	-	6.57
S.D	-	23.26	-	3.89
C.V	-	261.91	-	59.26

The growth rates of deposits of both the banks are in a fluctuating trend. The average growth rate of deposits of BOKL are significantly higher than NIBL i.e. 11.33%>2.71%. This indicates NIBL dismal performance in collecting more deposits. NIBL has experienced negative growth rate in F/Y 2007/2008 and 2008/2009 respectively. NIBL has consciously decreased deposits by 2.1% in F/Y 2007/2008 and 13.28%in F/Y 2008/2009 as per its strategy of shedding high cost and unprofitable deposit. On the contrary, BOKL has been successful in increasing its deposit year after year. This is a solid proof of its high quality service, security, and credibility in the mind of depositors.

In the study period, NIBL ratios were highly variable than BOKL. The growth rate of total loan and advances of both the banks are in a fluctuating trend. The average growth rate of total loan and advances of BOKL is better than NIBL i.e. 11.56%>5.36%. This ratio can misleading in the sense that the ratio of loan and advance to current assets, total deposits, total working fund of BOKL is comparatively less than that of NIBL. NIBL has experienced a negative growth in

F/Y 2007/2008. This was due to a cautious approach taken by the bank in consolidating its business instead of exploring high-risk new business.

In terms of C.V., BOKL growth ratio of loan and advances seems to be more stable than that of NIBL.

The growth rates of total investment of both the banks are in a fluctuating trend. NIBL has witnessed a high growth rate of 515.88% in F/Y 2006/2007 and a negative growth rate of 26.44% in F/Y 2009/2010.

On the other hand BOKL has had a high growth rate of 185.36% in F/Y 2006/2007 and a negative growth rate of 2.96% in F/Y 2007/2008. Except for F/Y 2007/2008, BOKL has been successful in increasing its investment year after year. The average growth ratio of investment of NIBL seems to be higher than BOKL i.e., 98.53%>41.34%. This is due to a massive growth in NIBL's investment in F/Y 2000/2001 of over five times the pervious year. However, we must not discount the fact that BOKL's Investment to total working fund is far greater than NIBL.

The growth rate of net profit of both the banks has a fluctuating trend. NIBL has recorded a high growth rate of 53.23%inF/Y 2008/2009 and a low negative growth rate of 11.46% in F/Y 2006/2007. Similarly, BOKL has had a high growth rate of 11.23% in F/Y2007/2008 and a low growth rate of 5.78% in F/Y 2008/2009. Overall, BOKL has been successful in increasing its net profit year after year.

The mean growth rate of NIBL is higher than BOKL i.e., 8.88%>6.57%. This is due to a surge in net profit of NIBL by 53.23% in F/Y 2008/2009 over the previous F/Y. This sudden surge in net profit has made the growth ratios of NIBL unstable in comparison to BOKL.

4.1.2 Statistical Analysis:

Under this topic, some statistical tools such as coefficient of correlation analysis between different variables, trend analysis of deposits, loan and advances, Investment and net profit as well as hypothesis test (t- statistic) are used to achieve the objectives of the study. These statistical tools are as follows:

A)   Coefficient of Correlation Analysis:

Under this topic, Karl Pearson's coefficient of correlation is used to find out the relationship between deposit and loan and advances, deposit and total investment, outside assets and net profit, deposits and net profit, deposits and interest earned, loan and advances and interest paid, total working fund and net profit.

I)   Coefficient of Correlation between Deposits and Loan and Advances:

The coefficient of correlation between deposits and loan and advances measures the degree of relationship between them. In our study, we have taken deposit as an independent variable denoted by (x) and loan and advance as dependent variable (y). The main objective of calculating 'r' between these two variables is to justify whether deposits are significantly used as loan and advances or not.

The following table shows the value of 'r' r^2, P.Er and 6 P.Er between total deposits and loan and advances of NIBL and BOKL during the study period

Table 4.23

Correlation between Deposit and Loan and Advances

Bank	Evaluation criteria			
	r	r^2	P.Er	6 P.Er
NIBL	0.4630	0.2144	0.2366	1.4190
BOKL	0.9740	0.9487	0.0154	0.0924

(Source Annex – A-1 & A-2)

In the above table the coefficient of correlation between deposit and loan and advances in case of NIBL is 0.463. This indicates that there is a positive

relationship between deposit and loan and advances. The calculated value of (r^2) or coefficient of determination is 0.2144. This means 21.44% of variation of the dependent variable (loan and advances) has been explained by the independent variable (deposit). When the value of 'r' i.e., 0.4630 is compared with six times the probably error or 6PEr. i.e., 1.419, we can say that there is no significant relationship between deposits and loan advances because 'r' is lower than six times PE.r i.e. 0.4630<1.419. The coefficient of correlation 'r' between deposits and loan and advances incase of BOKL is 0.974, which gives us an indication of higher positive correlation between them.

Similarly, the value of coefficient of determination (r^2) is found to be 0.9487. This shows that 94.87% variation of dependent variable (loan and advances) has been explained by the independent variable (deposits). The value of 'r' is greater than six times P E.r. i.e. 0.974>0.0924. This further shows that the value of 'r' is significant. In other words, there is significant relationship between deposit and loan and advances.

From the above analysis, we can conclude that both the banks show positive relationship between deposits and loan and advance. The relationship is highly significant in case of BOKL and the value of (r^2) shows higher percentage of dependency. In case of NIBL the relationship is less significant and (r^2) shows lower percentage of dependency. It indicates BOKL has been more successful in utilizing its deposits in a proper manner than NIBL. Further, the increase in loan and advance is due to effective mobilization of deposits, and other factors have marginal role in increase in loan and advances.

II) **Coefficient of Correlation between Deposit and Total Investment:**

Coefficient of correlation between deposit and total investment measures the degree of relationship between these two variables. Here deposit is taken as independent variable (x) and the variable dependent on deposits is total investment, which is denoted by (y). The purpose of calculating 'r' is to judge whether deposits are significantly mobilized as Investments or not. The following table shows the value of 'r', r^2, P.Er & 6 P.Er of NIBL and BOKL during the study period.

Table 4.24

Correlation between Deposit and Total Investment

Bank	Evaluation criteria			
	r	r^2	P.Er	6 P.Er
NIBL	0.8703	0.7574	0.0730	0.4383
BOKL	0.8630	0.7448	0.0768	0.4610

(Source Annex – A-3 & A-4)

The coefficient of correlation 'r' between deposits and total investment in case of NIBL is 0.8703, which indicates a positive correlation between deposits and total investment. Coefficient of determination (r^2) is 0.7574. This means 75.74% of variation of the dependent variable has been explained by independent variable. The value of 'r' i.e. 0.8703 is also greater than six times PEr. This states that there exists a significant relationship between deposits and total investment.

The coefficient of correlation 'r' between deposits and total investment in case of BOKL is 0.8603, which indicates a positive relationship between the two variables. The coefficient of determination (r^2) is 0.7448. This indicates that 74.48% of the variation of the dependent variable has been explained by independent variable. Moreover 'r' is greater than six times P.E.r, This further state that there is a significant relationship between deposits and total investment.

In conclusion, it can be said that both the banks show significant relationship between total deposits and total investment.

III)   Co-efficient of Correlation between Outside Assets and Net Profit:

Coefficient of correlation 'r' between outside asset and net profit measures the degree of relationship between these two variables. The main objective of calculating coefficient of correlation between outside asset and net profit is to justify whether the net profit is significantly correlated with total outside assets or not. The following shows the value of 'r' 'r^2' P.Er. & 6 P.Er of NIBL and BOKL during the study period.

Table 4.25

Correlation between Outside Assets and Net Profit

Bank	Evaluation criteria			
	r	r^2	P.Er	6 P.Er
NIBL	-0.108	0.0117	0.2976	1.786
BOKL	0.1138	0.0129	0.2972	1.7833

(Source: Annex – A-5 & A-6)

The coefficient of correlation 'r' between outside assets and net profit in case of NIBL is –0.108, which indicates a negative relationship between these two variables. The coefficient of determination (r^2) is 0.0117, which indicates than 1.17% of the variation of the dependent variable, has been explained by independent variable. The value of 6 P.Er i.e. 1.786 is greater than the value of 'r' i.e. –0.108. This states that there exists an insignificant relationship between outside assets and net profit of NIBL.

The coefficient of correlation between outside assets and net profit in case of BOKL is 0.1138, which indicates a low positive relationship between the two variables.

The value of (r^2) is 0.0129 which highlights that 1.29% of the variation of the dependent variable has been explained by the independent variable. Likewise when we compare 6 P.Er with the value of 'r' we can say that there exists no significant relationship between outside assets and net profit because 'r' is lower than six times P.E.r. i.e., 0.1138<1.7833. Thus BOKL has no significant correlation between mobilization of outside assets and net profit.

Thus, in view of above we can conclude that the relationship between outside assets and net profit incase of both the banks is insignificant. The low percentage of dependency as shown by (r^2) suggests that other factors have a greater role to play in increase in net profit.

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 is independent variable (x) and net profit is dependent variable (y). The main purpose of calculating between these two variables is to justify whether net profit is significantly correlated with deposits or not.

The following table shows the value of r, r_2, P.Er & 6 P.Er of NIBL and BOKL during the study period.

Table 4.26

Correlation between Deposit and Net Profit

Bank	Evaluation criteria			
	r	r^2	P.Er	6 P.Er
NIBL	-0.5470	0.299	0.211	1.266
BOKL	0.8303	0.6894	0.0935	0.5612

(Source Annex – A-7 & A-8)

The coefficient of correlation between deposits and net profit in case of NIBL is − 0.547, which indicates a negative relationship between deposits and net profit. It has been able to increase its net profit despite shedding of RS. 2 billion in deposits. The coefficient of determination (r^2) is 0.299, which indicates 29.9% of the variation of the dependent variable (net profit) has been explained by the independent variable (deposits). The value of 6 P.Er is greater than 'r' i.e. 1.266>-0.547. This states that there exists an insignificant relationship between deposits and net profit.

The coefficient of correlation between deposits and net profit in case of BOKL is 0.8303, which indicates a positive relationship between these variables. The value of (r^2) is 0.6894 indicates that 68.94% of the variation of the dependent variable has been explained by the independent variable. The value of 'r' is greater than 6 P.Er i.e. 0.8303>0.5612, which further states that these exists a significant relationship between deposit and net profit.

From the above analysis, we can conclude that NIBL shows negative relationship or insignificant relationship and BOKL shows positive relationship between deposit and net profit. The value of (r^2) in case of NIBL shows lower percentage of dependency and the same in case of BOKL shows higher percentage of dependency. The increase in net profit in case of BOKL is due to effective mobilization of deposits and other factors have a lesser role to play in increase in net profits. BOKL has been more successful in mobilization of its deposits to yield higher profits year after year.

V)   Co-efficient of Correlation between Deposits and Interest Earned:

The coefficient of correlation between deposits and interest earned measure the relationship between these two variables. Here deposit is independent variable (x) and interest earned is dependent variable (y). The main objective of calculating 'r' between these two variables is to justify whether

deposit is significantly used to earn interest or not. The following table sows the values of r, r2, PEr & 6PEr of NIBL and BOKL during the study period.

Table 4.27

Correlation between Deposit and Interest earned

Bank	Evaluation criteria			
	R	R^2	P.Er	6 P.Er
NIBL	0.793	0.6825	0.1120	0.6712
BOKL	-0.2794	0.07806	0.2776	1.666

(Source Annex – A-9 & A-10)

The coefficient of correlation 'r' between deposit and interest earned in case of NIBL is 0.793, which indicates a positive relationship between these variables. When deposits increased, the interest income subsequently increased but when it fell the interest income also fell. The coefficient of determination (r^2) is 0.6825, which shows that 68.25% of the variation of dependent variable has been explained by independent variable. The value of 6 P.Er is less than 'r' i.e. 0.6712<0.793. This states that there is a significant relationship between deposit and interest earned.

The coefficient of correlation 'r' between deposit and interest earned in case of BOKL is –0.2794, which projects a negative relationship between these variables. Its interest income has decreased despite an increase in total deposits. The coefficient of determination (r^2) is 0.07806, which shows that 7.806% of the variation of dependent variable has been explained by the independent variable. The value of 'r' i.e. –0.2794 is considerably less than six times PEr. This shows that there is insignificant relationship between interests' earned and total deposits.

In conclusion, we can say that the relationship between deposit and interest earned in case of NIBL is highly significant with NIBL showing higher percentage

of dependency and the relationship between the variables is insignificant in case of BOKL. In case of NIBL effective mobilization of deposits has had a major role to play in its earnings; where as other factors are responsible in the earnings of BOKL.

VI) **Coefficient of Correlation between Loan and Advances and Interest Paid:**

The coefficient of correlation between loan and advances and interest paid measures the relationship between these two variables. Here, loan and advances is independent variable (x) and interest paid is dependent variable (y). The purpose of calculating 'r' between these variables is to establish whether increase in loan advances has any role to play in decrease in Interest expenses and vice-versa.

The following table shows the values of r, r^2, P.Er and 6 P.Er of NIBL and BOKL during the period of study.

Table 4.28

Correlation between Loan and Advances and Interest Paid

Bank	Evaluation criteria			
	r	r^2	P.Er	6 P.Er
NIBL	-0.2193	0.048	0.2867	1.72
BOKL	-0.6460	0.4174	0.1754	1.0526

(Source Annex – A-12)

The calculated values of 'r' of both the banks reflect a negative relationship between loan and advances and Interest paid. The coefficient of determination (r^2) in case of BOKL shows a higher degree of dependency than NIBL.

The values of PEr is considerably greater than 'r' in both the cases, which states that there isn't any significant relationship between loan and advances and interest paid for the above mentioned banks.

In conclusion no relationship could be established between the variables of both the banks.

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

The coefficient of correlation between these variables measures the degree of relationship between them. In our analysis, total working fund is taken as independent variable (x) and net profit is taken as dependent variable (y). The main objective of calculating 'r' is to justify whether total working fund is significantly used to generate earnings or in other words whether total working fund and net profit are significantly correlated or not.

The following table shows the value of r, r^2, P.Er, and 6 P.Er between these two variables of NIBL and BOKL.

Table 4.29

Correlation between Total Assets and Net Profit

Bank	Evaluation criteria			
	r	r^2	P.Er	6 P.Er
NIBL	-0.3191	0.1018	0.2705	1.6228
BOKL	0.2596	0.0674	0.2808	1.6848

(Source Annex – A-13 & A-14)

The coefficient of correlation 'r' between total assets and net profit is case of NIBL is –0.3191 which indicates a negative relationship between these variables. The coefficient of determination (r^2) is 0.1018, which shows that only 10.26% of the variation of the dependent variable has been explained by independent variable. The value of 6 P.Er is greater than 'r' i.e. 1.6228>-0.3191. This further states that there exists an insignificant relation between the variables.

The coefficient of correlation 'r' between total assets and net profit is 0.2596, which shows a positive relationship between total working fund and net profit. The coefficient of determination (r^2) is 0.0674, which indicates that 6.74% of the variation of the dependent variable has been explained by the in dependent variable. The value of 6PEr is greater than 'r', which states that there is no significant relationship between these variables.

B.   Trend analysis and projection for next five years:

This is known as time series analysis. The objectives of this analysis are to analyze the trend of deposit collection, its utilization and net profit of NIBL and BOKL. These topics analyzes the trend of deposits, loan and advances, total investment and net profit and its projection for the next five years the basis of past performance and records available. The projections are based on the following assumptions:

The bank will run in this present position i.e. trend will repeat itself.

Other things will remain constant or unchanged.

The economy will remain in the present stage.

Nepal Rastra Bank will not change its guidelines relating to commercial banks.

The forecast will hold true only when the limitation of least square method is carried out.

I)   Analysis of Trend value of Total Deposit:

Under this topic, based on the trend values of deposit from F/Y 2005/06 to 2009/2010, an attempt has been made to forecast the projection for next five years up to 2014/2015.

The following table shows the trend value of deposits from F/Y 2005/2006 to F/Y 2014/2015.

Table 4.30

Trend Values of Total Deposit of NIBL and BOKL

Rs. in Million

Fiscal year	Trend value of NIBL	Trend value of BOKL
2005/06	14280.79	12647.97
2006/07	14309.56	14699.12
2007/08	14338.33	16750.27
2008/09	14367.10	18801.42
2009/10	14395.87	20852.57
2010/11	14424.64	22903.72
2011/12	14453.41	24954.87
2012/13	14482.18	27006.02
2013/14	14510.95	29057.17
2014/15	14539.72	31108.32

(Source Annex – A-15 & A-16)

From the above comparative table it is clear that a trend value of BOKL is in an increasing trend. If other things remain unchanged the total deposit of NIBL is predicted to be RS. 14539.72 million and that of BOKL to be more than two times the deposit of NIBL by the end of F/Y 2014/2015 i.e. Rs. 31108.32 million.

From the above trend analysis, it is quite obvious that BOKL's deposit collection is proportionately much better than NIBL from F/Y 2005/2006 onwards.

II)   Analysis of Trend Values of Loan and Advances:

Here, the trend values of loan and advances of NIBL and BOKL have been calculated for five years from F/Y 2005/2006 to 2009/2010 and the forecast for next five years. I.e. from F/Y 2010/2011 to F/Y 2014/2015 has been made.

Table 4.31

Trend Values of Loan and Advances of NIBL and BOKL

Rs. in Million

Fiscal year	Trend value of NIBL	Trend value of BOKL
2005/06	7507.23	4937.56
2006/07	7753.62	5353.36
2007/08	8000.01	5769.16
2008/09	8246.40	6184.96
2009/10	8492.79	6600.76
2010/11	8739.18	7016.56
2011/12	8989.57	7432.36
2012/13	9231.96	7848.16
2013/14	9478.35	8263.96
2014/15	9724.74	8679.76

(Source Annex – A-17 & A-18)

The above table clearly shows that the loan and advance of both the banks are in an increasing trend. Assuming that other things will remain constant, the loan and advances of NIBL at the end of F/Y 2014/2015 is predicted to be Rs. 9724.74 million. Similarly, the projection for BOKL at the end of F/Y 2014/2015 is Rs 8679.76 million.

From the above trend analysis, it is quite clear that NIBL's loan and advances in relation to BOKL is comparatively higher through out the trend projection period

III) Analysis of Trend Values of Total Investment:

Under this topic, based on the trend values of Investment from F/Y 2005/2006 to 2009/2010, an attempt has been made to forecast the projections for next five years i.e. upto F/Y 2014/2015.

The following table shows the trend value investment from F/Y 2005/2006 to F/Y 2014/2015:

Table 4.32

Trend Values of Total Investment of NIBL and BOKL

Rs. in Million

Fiscal year	Trend value of NIBL	Trend value of BOKL
2005/06	4305.01	5416.71
2006/07	5054.70	7098.65
2007/08	5804.39	8780.59
2008/09	6554.08	10462.53
2009/10	7307.77	12144.47
2010/11	8053.46	13826.41
2011/12	8803.09	14408.35
2012/13	9552.78	17190.29
2013/14	10302.47	18872.23
2014/15	11052.16	20544.17

(Source Annex – A-19 & A-20)

From the above table it is clear that the trend value of both the banks are in an increasing trend. If other things remain uncharged total investment of NIBL is predicted to be Rs. 11052.16 in F/Y 2014/2015 and that of BOKL to be Rs. 20544.17 million. These values are highest under the review period. The above table reveals that BOKL's total investment is higher than that of NIBL through out the trend projection period. It can be said that both NIBL and BOKL have followed the policy of maximizing their investment.

IV) Analysis Trend Values of Net Profit:

Under this topic, based on the trend values of net profit from F/Y 2005/2006 to 2008/2009, an attempt has been made to forecast the projections for next five years i.e. upto F/Y 2013/2014.

The following table shows the trend value of net profit from F/Y 2005/2006 to F/Y 2014/2015:

Table 4.33

Trend Values of Net Profit of NIBL and BOKL

Rs. in Million

Fiscal year	Trend value of NIBL	Trend value of BOKL
2005/06	277.28	396.17
2006/07	315.01	432.82
2007/08	352.74	469.47
2008/09	390.47	506.12
2009/10	428.20	542.77
2010/11	465.93	579.42
2011/12	503.66	616.07
2012/13	541.39	652.72
2013/14	579.12	689.37
2014/15	616.85	726.02

(Source Annex – A-21 & A-22)

From the above comparative table it is clear that the trend value of both the banks are in increasing trend. Other things remaining the same the trend value of both the banks are in increasing trend. The trend value of NIBL will be highest in F/Y 2014/2015 i.e. Rs.616.85 million. In case of BOKL net profit will be Rs 726.02 million in F/Y 2014/2015, which is the highest under the review period. BOKL's net profit is higher than that of NIBL through the review period. It can be said that both the banks have followed the policy of maximizing their net profit. However, we can draw a conclusion that BOKL has utilized its fund better than NIBL to earn higher amounts of profit.

C)   Test of Hypothesis:

Under this topic, an effort has been made to test the significance level regarding the parameter of the population on the basis of sample drawn from the population.

The following stops have been followed in the test of hypothesis:-

i)   Formulating of hypothesis
- Null Hypothesis
- Alternative Hypothesis

ii) Computing the test statistic

iii) Fixing the level of significance

iv) Deciding two tailed or one tailed test

v) Having decision

I)   T- test:

In this research study the sample is small i.e., n =5. Hence, to deal with small sample T-test is used. Suppose we want to test if two independent samples have been drawn from two normal populations having the same means, the population variances being equal.

We set up the Null hypothesis H_0: $\mu_1 = \mu_2$ i.e., the samples have been drawn from the normal population, or the sample means $\bar{x}$ and $\bar{y}$ do not differ significantly. Similarly, Alternative Hypothesis H_1: μ_1 μ_2, the two samples means

differ significantly. Under the assumption that $a^2 = 6a^2$ i.e., population variances are equal but unknown, the test statistic under H_o is:

$$= \frac{\overline{x} - \overline{y}}{\sqrt{S2 \times \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}} \sim \dots \text{w.d.f.} \quad n_1 + n_2 - 2$$

Where $\overline{x} = \dfrac{\Sigma x}{n_1}$ $\quad \overline{y} = \dfrac{\Sigma y}{n_2}$

And $S^2 = \dfrac{1}{n_1 + n_2 - 2} [\Sigma(x - \overline{x})^2 + \Sigma(y - \overline{y})2]$

is an unbiased estimate the common population variance S^2 based on both the samples. By comparing the tabulated value of 't' for $n_1 + n_2 - 2$, degree of freedom (d.f.) at the desired level of significance. Usually 5% we reject or retain the Null hypothesis H_o.

a) **Test of Hypothesis on Loan and Advances to Total Deposit Ratio of NIBL and BOKL:**

Let loan and advances to total deposit of NIBL and BOKL be denoted by X and Y respectively.

Calculated $S^2 = 14.56$ (Source Annex A-23)

Solution:

Null Hypothesis (H$_o$): $\mu_1 = \mu_2$ i.e., there is no significant difference between mean ratio of loan and advances to total deposit of NIBL and BOKL.

Alternative Hypothesis (H$_1$): $\mu_1 \neq \mu_2$ i.e., there is significant difference between mean ratio of loan and advances to total deposit of NIBL and BOKL.

Test Statistic

Under H$_0$, the test statistic is

$$t = \frac{\bar{x} - \bar{y}}{\sqrt{S^2\left(\frac{1}{n^1} + \frac{1}{n^2}\right)}} \quad \text{(with .... d.f.} = n_1 + n_2 - 2)$$

$$= \frac{56.04 - 34.88}{\sqrt{14.56\left(\frac{1}{5} + \frac{1}{5}\right)}} = \frac{21.16}{2.41}$$

$$|t| = 8.78$$

Decision:

The tabulated value of t for 8 d.f. at 5%level of significance is 2.306. Since calculated 't' is much greater than tabulated 't' it is highly significant. Hence **H$_0$: $\mu_1 = \mu_2$** is rejected at 5% level of significance and we can conclude that there is significant difference between mean ratios of loan and advances to total deposit of NIBL and BOKL.

b)   Test of Hypothesis on total Investment to Total Deposits Ratio NIBL and BOKL.

Let, the total investment to total deposit ratio of NIBL and BOKL be denoted by X and Y.

Calculated $S^2 = 246.53$ (for detail see Annex A-24)

Solution:

Null Hypothesis (H_0): $\mu_1 = \mu_2$ i.e., There is no significant difference between the mean ratios of total investment to total deposit of NIBL and BOKL.

Alternative Hypothesis (H_1): $\mu_1 \neq \mu_2$ i.e., There is significant difference between the mean ratio of total investment to total deposit of NIBL and BOKL.

Test Statistic:

Under H_0, the test statistic is

$$t = \frac{\bar{x} - \bar{y}}{\sqrt{S^2 \left(\frac{1}{n^1} + \frac{1}{n^2} \right)}} \qquad (\text{with} \ \dots\dots \ \text{d.f.} = n_1 + n_2 - 2)$$

$$= \frac{39.50 - 51.22}{\sqrt{246.53 \left(\frac{1}{5} + \frac{1}{5} \right)}} = \frac{-11.72}{9.93}$$

$$|t| = 1.18$$

Decision:

The tabulated value of t for 8 d. of at 5% level of significance is 2.306. Since calculated is less than tabulated value of 't' it is not significant. Hence H_0: $\mu_1 =$

μ_2 is accepted at 5% level of significance and we may conclude that there is no significant difference between mean ratios of total investment to total deposit of NIBL and BOKL.

c) **Test of Hypothesis on Investment in Government Securities to Current Assets Ratio of NIBL AND BOKL:**

Let, the total Investment in Government securities to current assets ratio of NIBL and BOKL be denoted by X and Y.

Calculated S^2 = 35.28 (for detail see Annex A-25)

Solution:

Null Hypothesis (H₀): $\mu_1 = \mu_2$ i.e., there is no significant difference between the mean ratio of Investment in Government securities to current assets of NIBL and BOKL.

Alternative Hypothesis (H₁): $\mu_1 \neq \mu_2$ i.e., there is significant difference between the mean ratio of Investment in Government securities to current assets of NIBL and BOKL.

Test Statistic:

Under H₀, the test statistic is,

$$t = \frac{\bar{x} - \bar{y}}{\sqrt{S^2\left(\dfrac{1}{n^1} + \dfrac{1}{n^2}\right)}} \qquad \text{(with .... d.f. = } N_1 + N_2 - 2)$$

$$= \frac{18.04 - 28.27}{\sqrt{35.28\left(\dfrac{1}{5} + \dfrac{1}{5}\right)}} \qquad = \frac{-10.23}{3.76} \qquad = -2.72$$

$$|t| = 2.72$$

Decision:

The tabulated value of t for 8 d.f. at 5% level of significance is 2.306. Since calculated 't' is greater than tabulated 't' it is significant. Hence null Hypothesis H_0: $_1$ $=$ $_2$ is rejected at 5% level of significance and we may conclude that there is significant difference between the mean ratios of Investment in Government securities to current assets ratio of NIBL and BOKL.

d)   Test of Hypothesis on Return on Loan and Advance Ratio:

Let the return on loan and advance of NIBL and BOKL be denoted by X and Y.

$S^2 = 0.4476$ (for detail see Annex – A-26)

Solution:

Null Hypothesis (H_0): $\mu_1 = \mu_2$ i.e., there is no significant difference between the mean ratio of return on loan and advances of NIBL and BOKL.

Alternative Hypothesis (H₁): μ₁ ≠ μ₂ i.e., there is significant difference between the mean ratio of return on loan and advances of NIBL and BOKL.

Test Statistic:

Under H_0 the test statistic is

$$t = \frac{\overline{x} - \overline{y}}{\sqrt{S^2\left(\frac{1}{n^1} + \frac{1}{n^2}\right)}} \quad \text{(with .... d.f.} = N_1 + N_2 - 2\text{)}$$

$$= \frac{4.4 - 8.14}{\sqrt{.4476\left(\frac{1}{5} + \frac{1}{5}\right)}} = \frac{-3.74}{0.423} = -8.84$$

$$|t| = 8.8$$

Decision:

The tabulated value of 't' at 5% level of significance is 2.306. Since calculated 't' is much greater than tabulated value of 't' it is highly significant. Hence Null Hypothesis **Ho: μ₁ = μ₂** i.e., is rejected and Alternative Hypothesis **H₁: μ₁ ≠ μ₂** is accepted at 5% level of significance and we can conclude that there is significant difference between the mean ratio of return on loan and advances of NIBL and BOKL.

e)   Test of Hypothesis on Total Interest Earned to Total Outside Assets:

Let, the total interest earned to total outside assets of NIBL and BOKL be denoted by X and Y respectively.

Calculated $S^2 = 55.96$ (for detail see Annex- A-27)

Solution:

Null Hypothesis (H_0): $\mu_1 = \mu_2$ i.e., there is no significant difference between the mean ratio of total interest earned to total outside assets of NIBL and BOKL.

Alternative Hypothesis (H_1): $\mu_1 \neq \mu_2$ i.e., there is significant difference between the mean ratio of total interest earned to total outside assets of NIBL and BOKL.

Test Statistic:

Under H_0 the test statistic is,

$$t = \frac{\bar{x} - \bar{y}}{\sqrt{S^2\left(\frac{1}{n^1} + \frac{1}{n^2}\right)}} \quad \text{(with .... d.f.} = N_1 + N_2 - 2)$$

$$= \frac{8.29 - 7.95}{\sqrt{55.96\left(\frac{1}{5} + \frac{1}{5}\right)}} = \frac{0.34}{4.73}$$

$$|t| = 0.0719$$

Decision:

The tabulated value of **'t'** at 5% level of significance is 2.306. Since calculated value of **'t'** is much less than tabulated value of **'t'** it is not significant. Hence, Null Hypothesis **(H_0): $\mu_1 = \mu_2$** is accepted at 5% level of significance and we can conclude that there is no significant difference between total interest earned to total outside assets of NIBL and BOKL.

4.2   MAJOR FINDINGS OF THE STUDY:

Having completed the basic analysis required for this study, the final and the most important task of the researcher is to enlist the findings. This will give meaning to the desired result. A comprehensive summary of the major findings of this study is presented below.

The main findings of the study derived from the analysis of financial data of NIBL and BOKL are given below.

4.2.1 Liquidity Ratio:

The liquidity position of NIBL and BOKL reveals that:

From the analysis of current ratio it is found that the mean ratio of NIBL is slightly higher than BOKL. The ratios of both the banks are highly consistent. The mean current ratio of both the banks is greater than 1.

The mean ratio of cash and bank balance to total deposits of BOKL is slightly higher than NIBL. BOKL has better liquidity position than NIBL because of high percentage of liquid assets. This shows BOKL readiness to meet its customer requirement. On the contrary, a high liquidity also indicates the iNIBLity of the bank to mobilize its current assets. The ratios of NIBL are more consistent than BOKL.

The mean ratio of cash and bank balance to current assets of BOKL is slightly higher than NIBL. This shows BOKL's greater capacity to meet its customer's daily cash requirement than NIBL. The ratios of NIBL are less variable and more consistent than BOKL.

The mean ratio of investment in Government securities to current assets of BOKL is higher than NIBL. This shows that BOKL has invested more of

its fund in Government securities than NIBL. The ratios of BOKL are less variable and more consistent than NIBL.

The mean ratio of loan and advances to current assets of NIBL is comparatively higher than BOKL. The variability of ratios of NIBL is slightly greater than BOKL.

From the above findings, we can conclude that the liquidity position of BOKL is comparatively better than NIBL. It has the highest cash and bank balance to total deposit, cash and bank balance to current assets. BOKL is in a better position to meet its daily cash requirement. NIBL has a higher current ratio, which justifies that it is also capable enough to meet its current obligations. BOKL's mean investment in Government securities is better than NIBL. The higher degree of variability in Investment in Government securities of BOKL during the study period shows lack of concrete policy of the bank in this regard.

4.2.2 Assets Management Ratio:

The asset management ratio of NIBL and BOKL reveals that:

The mean ratio of loan and advances to total deposit ratio of NIBL is higher than BOKL. In terms of consistency both have been stable in their ratios.

The mean ratio of total investment to total deposits of BOKL is higher than NIBL. The ratios of BOKL are more consistent and less variable than NIBL.
The mean ratio of loan and advances to total working fund of NIBL is higher than BOKL. The ratios of NIBL are less variable and more consistent than NIBL.

The mean ratio of Investment in Government securities to total working fund ratio of BOKL is higher than NIBL. The ratios of BOKL are less variable and more consistent than NIBL.

The mean ratio of Investment in shares and debentures to total working fund ratio of NIBL is slightly higher than BOKL. NIBL ratios are more variable than that of BOKL.

From the above findings we can conclude that NIBL has been more successful in mobilization of its total deposits and working fund as loan and advances. On the other hand, BOKL appears to be stronger in mobilization of total deposits and working fund as investment in risk free government securities. NIBL has fared better in purchasing shares and debentures of other companies, but both have invested marginal amount under this heading. Both the banks have successfully managed their assets towards different income generation activities.

4.2.3 Profitability Ratio:

The profitability ratios of NIBL and BOKL reveal that,

The mean ratio of return on total loan and advances of BOKL has been found to be significantly greater than NIBL. The ratios of BOKL are less variable and more consistent than NIBL.

The mean ratio o return on total working fund of BOKL is slightly higher than NIBL. The ratios of NIBL are less consistent and more variable than BOKL.

The mean ratio of total interest earned to total working fund of NIBL is higher than BOKL. NIBL's ratios are more stable and less variable than BOKL.

The mean ratio of total interest earned to total operating income of NIBL is higher than BOKL. Both the banks have been fairly consistent in their ratios.

The mean ratio of total interest earned to total outside assets of NIBL is higher than BOKL. The ratios of NIBL are more consistent than BOKL.

The mean ratio of total interest paid to total working fund ratio of BOKL is lower than NIBL. However, BOKL ratios are more variable than NIBL ratios.

On the basis of above, we can conclude that BOKL has been more successful in maintaining its higher return on loan and advances and total working fund. On the other hand, NIBL has been more successful in term of earning power w.r.t. total working fund and outside assets. NIBL has been more successful in mobilization of its funds in interest bearing assets to earn higher interest income than BOKL.

BOKL is in a better position than NIBL from interest payment point of view. NIBL has paid higher interest than BOKL, whereas the latter seems to have collected its funds from cheaper sources than NIBL.

4.2.4 Risk Ratio:

The Risk ratio of NIBL and BOKL reveals that:-

The mean liquidity risk ratio of BOKL is lower than NIBL. On the contrary, NIBL's ratios are more uniform then BOKL.

The mean credit risk ratio of BOKL is lower than NIBL. Both the banks have been fairly consistent in their ratios.

Based on above findings we can conclude that BOKL has lower liquidity risk and credit risk than NIBL. NIBL has greater exposure to risk in its financial operations than BOKL.

4.2.5 Growth Ratio:

The mean growth rate of deposits of BOKL is significantly higher than NIBL.

The mean growth rate of total loan and advances of BOKL is higher than NIBL.

The mean growth rate of total investment of NIBL is significantly higher than BOKL.

The mean growth rate of net profit of NIBL is higher than BOKL.

Based on the above findings, we can conclude that, BOKL has been more successful in increasing its deposits and loan and advances during the study period, whereas, NIBL has been more efficient in terms of increasing its investment and net profit, but less successful in deposit collection. While other banks have initiated a host of measures and schemes to attract customer deposits, NIBL's strategy of shedding deposits seems to be off the tune. NIBL needs to seriously rethink its strategy.

4.2.6. Co-efficient of Correlation Analysis

Co-efficient of correlation analysis between different variables of NIBL and BOKL reveals that: -

BOKL has a higher value of coefficient of correlation between deposits and loan and advances than NIBL.

The co-efficient of correlation between deposits and total investment of NIBL is slightly higher than BOKL.

The co-efficient of correlation between outside assets and net profit in case of NIBL is negative, whereas the co-efficient of correlation between the same variables in case of BOKL has a lower positive value.

The co-efficient of correlation between deposit and net profit in case of NIBL to negative, where as BOKL has a higher value of coefficient of correlation.

The coefficient of correlation between deposits and interest earned in case of BOKL is negative, whereas NIBL has a higher value of coefficient of correlation.

The coefficient of correlation between total working fund and net profit in case of NIBL is negative, whereas the same has a lower positive value in case of BOKL.

In conclusion, we can say that there is a significant relationship between deposit and loan and advances, deposits and total investment, deposit and net profit in case of BOKL, and the relationship is insignificant between outside assets and net profit, deposit and net profit, deposit and interest earned, loan and advances and interest paid, total assets and net profit.

Incase of NIBL, three exists a significant relationship between deposits and total loan and advances, deposits and total investment, deposits and interest earned, whereas the relationship is insignificant between deposit and net profit, deposit and interest earned, loan and advances and interest paid, total assets and net profit, outside assets and net profit.

4.2.7 Trend Analysis and projection for next five years:

The trend analysis of deposits, loan and advances, total investment and net profit and its projection for next five years of NIBL and BOKL reveals that: -

The deposits of both the banks have an increasing trend. The total deposit of NIBL is predicted to be 14539.72 million and that of BOKL to be 31108.32 million at the end of F/Y 2008/2009. The deposit collection of BOKL is much better than NIBL.

The loan and advance of both the banks have an increasing trend. The total loan and advance of NIBL is predicted to be 9724.74 million and that of BOKL to be 8679.76 million at the end of F/Y 2008/2009. The loan and advances of NIBL is much better compared to BOKL.

The total investments of both the bank have an increasing trend. The total investment of NIBL is projected at 11052.16 million and that of BOKL at 20544.17 million by the end of F/Y 2008/2009. BOKL seems to have a much-focused policy with regards to total investment than NIBL.

The net profits of both the banks are in an increasing trend. The net profit of NIBL and BOKL is predicted at 616.85 million and 726.02 million respectively by the end of F/Y 2008/2009. The position of BOKL with regard to utilization of the fund to earn profit is better than NIBL.

4.2.8 Test of Hypothesis:

The test of significance regarding the parameter of the population, on the basis of sample drawn from the population reveals that:

There is significant difference between mean ratio of loan and advances to total deposit of NIBL and BOKL.

There is no significant difference between mean ratio of total investment to total deposit of NIBL and BOKL.

There is significant difference between the mean ratio of investment in government securities to current assets ratio of NIBL and BOKL.

There is significant difference between mean ratio of return on loan and advances of NIBL & BOKL.

There is no significant difference between mean ratio of total interest earned to total outside assets of NIBL and BOKL.

CHAPTER – V
SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 SUMMARY AND CONCLUSION

This study reveals that the current ratio of both the banks is greater than 1, which should be considered satisfactory. The liquidity position of BOKL is better than NIBL. The cash and bank balance of BOKL w.r.t. deposits is greater than NIBL. This puts, BOKL in a better position w.r.t. meeting customer requirement than NIBL. In contrast, a high ratio of non-earning cash and bank balance is an indication of bank's unavailability to invest its fund in income generation areas. The cash and bank balance of BOKL w.r.t. current assets is higher than NIBL. This shows greater capacity of BOKL to meet its customer's cash requirement but that does not mean NIBL can not meet its daily customer cash requirement. BOKL needs to invest its funds in more productive sectors.

BOKL has invested more portions of its current assets and total working fund in government securities than NIBL. This is due to lack of other secured and profitable investment sector, whereas NIBL has invested more of its fund in other productive sectors.

NIBL has been more successful in mobilization of its total deposits and working fund as loan and advances and achieving higher profits in comparison to BOKL. In contrast, a high ratio is not better from the point of view of liquidity, since loan and advances are less liquid than cash and bank balance.

NIBL has invested more of its funds in purchasing shares and debentures of other companies than BOKL.

From the point of view of profitability, BOKL seems to be more successful than NIBL w.r.t. profit earning capacity by utilizing available resources. NIBL has been more successful in terms of interest earning power. It has been more successful in mobilizing its funds in interest bearing assets to earn higher interest income. BOKL is in a better position to meet its interest expenses as it has collected its fund from cheaper sources than NIBL.

The liquidity risk and credit risk of BOKL is comparatively lower than NIBL. NIBL has more exposure to risk than BOKL.

BOKL has been successful in maintaining a steady growth rate on deposits and loan and advances year after year. The average growth rate of total investment and net profit of NIBL is higher than BOKL. BOKL's growth in deposits can be accounted to its credibility, security and high quality service. From the analysis of coefficient of correlation, we can say that both the banks show positive relationship between deposit and loan and advances, deposits and total investment. There exists a positive relationship between deposits and net profit in case of BOKL and also between deposits and interest earned in case of NIBL.

Both the banks show insignificant relationship between deposits and interest earned, loan and advances and interest paid total assets and net profit, outside assets and net profit.

There is an insignificant relationship between deposits and net profit in case of NIBL.

The trend value of deposits, loan and advances, investment and net profits of NIBL and BOKL are in an increasing trend. The trend values of deposits, investment and net

profit of BOKL are proportionately higher than NIBL in all the years. The trend value of loan and advances of NIBL is proportionately better than BOKL in all the years.

From the test of hypothesis, we can say that there exists a significant difference between the mean ratios of loan and advance to total deposit, investment in government securities to current assets, return on loan and advances of NIBL and BOKL.

The test of hypothesis on mean ratios of total investment to total deposit, total interest earned to total outside assets show there is no significant difference in the ratios of NIBL and BOKL.

5.2   RECOMMENDATION

On the basis of analysis, findings, following recommendations are made. The banks can make use of these recommendations to overcome their weakness, inefficiency and improve their present fund mobilization and their overall investment policy.

Increase Deposits

BOKL, backed by its credibility, high quality service and security has been able to increase its deposit collection consistently. While other banks are coming up with a host of measures to increase their deposits, NIBL's strategy of selective shedding of unprofitable deposits seems off the tune. NIBL is recommended to rethink its strategy and collect more deposits. Since the past few years, banks have been targeting depositors through a large variety of deposit schemes and facilities. NIBL, itself introduced a saving plus deposit scheme a few years back to target high-end depositors, but the growth in deposits does not look convincing. Like others, it also needs to come up with various incentives, schemes, and facilities to increase deposits. As of now, the minimum balance required to operate an account is Rs. 30000, which is

too high. The minimum balance ceiling should be brought down to attract small depositors and entrepreneurs.

NIBL has so far been providing ATM facilities through its own premises. The ATM facilities need further expansion. For this, bank needs to identify potential locations.

Increase Investment in productive sectors

BOKL has given more priority to invest its fund in government securities and deposit money has been less utilized as loan and advances. Though securities issued by government are risk free but such instruments after lower interest rate. BOKL should identify less risky and profitable investment sectors and invest in them. BOKL has been following a wait, watch and act policy towards investment in productive sectors for a long time. Despite the uncertain security and political situation in the country, the macro-economic indicators and good. Once the political and security conditions improve, a good turn-around in the economy is expected and unless BOKL quickly acts it might be left behind in the race.

Increase Consumer Lending

Currently the size of the consumer lending market is estimated at Rs. 10 billion (Himalayan News Services, March 28). Housing and vehicle finance have become two important and viable sectors with minimum risk. However, the market has not been fully exploited. Retail lending of EBL alone accounts for 20 percent of the total loan portfolio, which is the highest among the commercial banks in Nepal. The sale of automobiles recorded a two-digit growth in the past five years and the real estate business, especially in urban areas is doing much better, thanks to consumer financing. Both NIBL and BOKL are recommended to increase their investment in consumer loan sector by offering competitive interest rates.

Increase Investment in share and Debentures

Both the banks have invested nominal percentage of its funds in shares and debentures of other companies. They are recommended to invest more in shares and debentures of financial and non-financial companies across different sectors including government corporations. This will encourage overall economic development of the country.

Increase Investment in Deprived and Priority Sectors

NRB has directed the banks to extend a certain percentage of loan and advances to the deprived and priority sector. Both the banks are recommended to adhere to the directives issued by NRB and invest more in these sectors. NRB should also speed up its supervision and monitoring in this regard. It should ensure that such directives are put into practice in letter and spirit.

Commence Margin Lending

The introduction of margin lending by NBL at 6.5% per annum against shares of selected companies can be viewed as a new opportunity for investment. Bank sources claim to have already disbursed over Rupees 500 million in a month to margin clients. Since NIBL and BOKL have sound liquidity position and also as their cost of fund is lower, the banks could embark on margin lending after conducting appropriate feasibility study.

Effective Portfolio Management

Portfolio management refers to the allocation of funds into different components of its assets, having different degree of risk and varying rate of return in such a manner that the conflicting goals of maximum yield and minimum risk can be achieved. The portfolio condition of the banks should be regularly revised from time to time. Appointing an investment specialist as a portfolio manager or assigning the task of portfolio management to Manager Finance and Planning could prove beneficial.

Enhancement of OBS Operation

The fee-based activities include commission, discount and fees. They yield high return to the bank. NIBL is not in a better position with regard to income from off-balance sheet activities. It is recommended to enhance the off-balance sheet operations as well.

Increase Branches in Rural Areas

Integrated and speedy development of the country is possible only when competitive banking services reaches nooks and corners of the country. NIBL and BOKL have shown no interest to open branches in rural areas. Both the banks are recommended to expand their branches and banking services and facilities in rural areas and communities to accelerate their economic development. NRB should implement policies to encourage banks, which provide extensive services while distincentivising those who are not responsive to the banking needs of the community, including the underprivileged.

BIBLIOGRAPHY

◎ American Institute of Banking (1972). *Principles of Bank Operations.* USA: Nova Press.

◎ *Annual Report of BOKL* from F/Y 2003/2004 to F/Y 2008/2009.

◎ *Annual Report of NIBL* from F/Y 2003/2004 to F/Y 2008/2009.

◎ Bhattarai, Prakriti (2005*). Investment Policy Analysis of Joint Venture Bank (with special reference to NSBIL & EBL Nepal*. Kathmandu : An unpublished Master Degree Thesis, submitted to FOM, T.U.

◎ Bista, Bhagat (1994). *Nepalma Adhunik Banking Byabastha*. Lalitpur Indu: Chhpakhana.

◎ Bohara, Indra Bahadur (2002). *A Comparative Study on Investment Policy of Joint Venture Banks and Finance Companies in Nepal*. Kathmandu : An unpublished Master Degree Thesis, submitted to FOM, T.U.

◎ Dahal, Bhuwan and Sarita (2002). *A Hand Book of Banking.* Kathmandu: Asmita Books and Stationery.

◎ Francis, Jack Clarke (1991). *Investments Analysis and Management*. United Kingdom: Howard Publishing House.

◎ Grupt, D.P (1984). *The Banking System, its Role in Export Development*. Geneva: The Financing Exports from Developing Countries, International Trade Center, UNCTAD GATT-1984.

◎ Gupta, S.C. (1992). *Fundamental Statistic.* Bombay: Himalayan Publishing House.

◎ Khadka, Raja Ram (1998). *A Study of Investment Policy of Nepal Arab Bank Ltd. In Comparison to other JVB's in Nepal*. Kathmandu: An unpublished Master Degree Thesis, submitted to FOM, T.U.

◎ Khan, M and Jain, P.K. (1999). *Financial Management.* New Delhi: Tata McGraw Hill Publishing Co. Ltd.

◎ Kothari, C.R (1990). *Research Methodology Methods & Techniques.* New Delhi: Vikas Publishing House.

◎ Pandey, I.M. (1998). *Financial Management.* New Delhi: Vikash Publishing House.

◎ Pradhan, S Radhe (1994). *Financial Management and Practices in Nepal.* New Delhi: Vikash Publishing House.

◎ Pudasaini, Gangaram (2007). *An Investment Analysis of RBB in Comparision With NBL Nepal.* Kathmandu : An unpublished Master Degree Thesis, submitted to FOM, T.U.

◎ Ronald, Grywinskhi (1991). *The New Function Banking*. United Kingdom: Howard Business Review.

◎ Sharma, Bhaskar (2007). *Banking the Future on Competition.* Business Age. October Edition, Vol. 2, p.13.

◎ Sharpe, W.F. Alexander, G.J. (1995). *Investment Analysis.* New Delhi: Prentice Hall of India.

◎ Shrestha, Biswo Nath (2008). *Investment Portfolio's Analysis of JVB's Nepal.* Kathmandu: An unpublished Master Degree Thesis, submitted to FOM, T.U.

◎ Shrestha, Dina (2003). *Investment Analysis of Commercial Banks (A Comparative Study of HBL and NSBIL) Nepal.* Kathmandu: An unpublished Master Degree Thesis, submitted to FOM, T.U.

◎ Shrestha, Shiba.R. (2064). *Portfolio Management in Commercial Bank, Theory and Practice.* Nepal Bank Patrika, P -13.

◎ Shrestha, Sunity (2006). *Lending Operation of Commercial Banks of Nepal and its impact on G.D.P.* The Business Voice of Nepal. Special Issue of Banijya Sansar, p. 23-27, Kathmandu: TU.

◎ Thapa, Gobind Bahadur (2007). *Financial System of Nepal. Development Division.* Lalitpur: Patan Multiple Campus.

◎ Thapa, Neeta (2006). *Investment Policy of Commercial Banks in Nepal.* Kathmandu : An unpublished Master Degree Thesis, submitted to FOM, T.U.

◎ Thapa, Samiksha (2001). *A Comparative Study on Investment Policy of Nepal Bangladesh Bank and Other Joint Venture Banks (Nepal Arab Bank Ltd. & Standard Chartered bank Ltd.) Nepal.* Kathmandu: An unpublished Master Degree Thesis, submitted to FOM, T.U.

◎ Tuladhar, Upendra (2000). *A Study of Investment Policy of BOKL in Comparison to other JVB's of Nepal.* Kathmandu: An unpublished Master Degree Thesis, submitted to FOM, T.U.

◎ Wolf, Howard K. and Pant, Prem R. (1999). *Social Science Research and Thesis Writing.* Kathmandu: Buddha Academic Enterprises Pvt. Ltd.

APPENDICES

Annex -1

Profile of Concerned Banks

Nepal Investment Bank Ltd. (NIBL)

NIBL Bank Ltd. (erstwhile Nepal Indosoez Bank Ltd.) was established on July 12th 1984. NIBL is the first and major joint venture bank in the country with key points of representation all over Nepal. The bank is managed by a team of qualified and highly experienced professionals.

The shareholdings are distributed as follows:

- 50% is owned by N.B. International Limited, Ireland.

- 20% is owned by local financial institutions and

- 30% by the Nepalese public.

NIBL is amongst the most successful joint venture organizations in Nepal registering strong growth in balance sheet footing as well as profits year after year. The initial capital of Rs. 30 million, invested in 1984, has grown to Rs.1482 million as at mid July 2008.

The bank provides a complete range of personal, commercial and corporate banking and related financial services through its 16 branches and 2 airport counters, the largest number of braches amongst any JVB"s in Nepal. The bank has recently been awarded "Bank of Year 2008" by Financial Times London.

The bank has been a pioneer in introducing modern banking and numerous innovative products into Nepal. It was the first to introduce consortium finance in Nepal. NIBL is the sole banker to a multitude of International Aid Agencies, NGO's, Embassies and consulates in the Kingdom, which is a compliment to its image and servicing capabilities. NIBL was the first bank to issue credit card in Nepal. NIBL has correspondent banking relationship with banks in 47 countries. NIBL is a member of SWIFT. It has also been providing ATM facilities to its account holders.

Bank of Kathmandu Ltd. (BOKL)

Bank of Kathmandu Ltd was established in 1987 A.D. as a joint venture bank with Siam Commercial bank of Thailand, 50% of the equity share capital .The bank has made significant contribution in the Nepalese banking sector since its inception.
BOKL holds 50% of total equity capital investment. The 25% is by the financial institutions and general public holds the remaining 25% shares.

The bank is being managed under joint venture & technical services agreement (T.S.A.) signed between BOK and Nepalese promoters. The bank has been providing various banking services to its customers through its braches nation wide. It has twenty one branches including its main branch /corporate office in the Kathmandu valley. The bank is well equipped with the latest technology in the banking sector. It leads the Nepalese list in the best 500 banks of Asia as voted by Fortune magazine. It has some of the best banking professionals in the banking industry in Nepal.

Some of the facilities are listed below.
- Tele-banking
- Credit Card facilities

- Foreign Currency Transaction
- Automated Teller Machines
- Personalized & Corporate Financial services
- SWIFT, TELEX
- Western Union Money Transfer & Money Gram

Annex -2

Nepal Investment Bank Ltd. (NIBL)

Rs. in Million

S.N	Fiscal year	2005/06	2006/07	2007/08	2008/09	2009/10
1	Current Assets	14773.77	18098.96	17732.35	16644.97	16742.67
2	Current Liabilities	13977.29	17226.20	16482.82	15248.44	15263.80
3	Cash and Bank Balance	910.07	812.91	1051.82	1144.77	970.49
4	Total Investment	1250.94	7704.31	8199.51	6031.18	5835.95
5	Total Deposit	12779.51	15839	15506.43	13447.66	14119.03
6	Loan and Advances	7211.42	8324.44	7801.85	8113.68	8548.66
7	Investment in Government Securities	1233.82	2732.96	4120.30	3588.77	3672.63
8	Investment on Share and Debenture	16.12	18.82	22.22	22.22	22.22
9	Total Working Fund	15024.20	18367.15	17993.20	16668.44	17104.27
10	Total Interest Earned	1047.03	1266.70	1120.18	1017.87	1001.62

11	Total Interest Paid	432.96	578.36	462.08	317.35	282.95
12	Net Profit	329.10	291.38	271.64	416.24	455.32
13	Operating Income	1309.41	1573.33	1639.12	1340.50	1333.65
14	Total Outside Assets	8462.36	16028.75	16001.36	14144.26	14384.61

Annex –3

Bank of Kathmandu Ltd. (BOKL)

Rs. in Million

S.N	Fiscal year	2005/06	2006/07	2007/08	2008/09	2009/10
1	Current Assets	16650.32	19224.20	18663.02	21101.94	23778.25
2	Current Liabilities	15817.39	18245.18	17207.63	19631.60	22146.32
3	Cash and Bank Balance	1020.46	961.05	825.26	1512.30	2023.16
4	Total Investment	3349.87	9559.18	9275.88	10357.68	11360.33
5	Total Deposit	12568.49	15430.05	15835.75	18755.63	21161.44
6	Loan and Advances	4774.27	5681.35	5696.18	60001.16	6693.86
7	Investment in Government Securities	3338.67	4811.01	5784.72	6722.83	7948.22
8	Investment on Share and Debenture	11.195	11.195	11.195	11.195	11.195
9	Total Working Fund	16832.24	19357.2	18775.27	21304.84	23925.68
10	Total Interest earned	1052.36	1242.92	1013.64	1001.36	1042.18

11	Total Interest paid	427.85	474.4	299.86	255.15	275.81
12	Net profit	392.59	430.83	479.21	506.93	537.8
13	Operating Income	1366.91	1640.26	1446.81	1503.60	1521.16
14	Total Outside Assets	8124.14	15240.53	14974.06	16357.84	18054.19

Annex –4

Nepal Investment Bank Ltd. (NIBL)

Current Ratio:

Fiscal year	Current assets	Current Liabilities	Ratio
2005/2006	14733.77	13977.29	1.057
2006/2007	18098.96	17226.20	1.051
2007/2008	17732.35	16482.82	1.076
2008/2009	16644.97	15248.44	1.092
2009/2010	16742.67	15263.80	1.097

Bank of Kathmandu Ltd. (BOKL)

Current Ratio:

Fiscal year	Current assets	Current Liabilities	Ratio
2005/2006	16650.32	15781.18	1.053
2006/2007	19224.2	18196.01	1.054
2007/2008	18663.02	17150.05	1.085
2008/2009	21101.94	19569.39	1075
2009/2010	23778.25	22086.20	1.074

Annex –5

Nepal Investment Bank Ltd. (NIBL)

Cash and Bank Balance to Total Deposit Ratio:

F/Y	Cash & Bank Balance	Total Deposit	Percentage
2005/2006	910.07	12779.51	7.12
2006/2007	812.91	15839.00	5.13
2007/2008	1051.82	15506.43	6.78
2008/2009	1144.77	13447.66	8.50
2009/2010	970.49	14119.03	6.87

Bank of Kathmandu Ltd. (BOKL)

Cash and Bank Balance to Total Deposit Ratio:

F/Y	Cash & Bank Balance	Total Deposit	Percentage

2005/2006	1020.46	12568.49	8.12
2006/2007	961.05	15430.05	6.23
2007/2008	825.26	15835.75	5.21
2008/2009	1512.30	18755.63	8.06
2009/2010	2023.13	21161.44	9.56

Annex –6

Nepal Investment Bank Ltd. (NIBL)

Cash and Bank Balance to Current Asset Ratio:

F/Y	Cash & Bank Balance	Current Asset	Percentage
2005/2006	910.07	14773.77	6.16
2006/2007	812.91	18098.96	4.49
2007/2008	1051.82	17732.35	5.93
2008/2009	1144.77	16644.97	6.88
2009/2010	970.49	16742.67	5. 80

Bank of Kathmandu Ltd. (BOKL)

Cash and Bank Balance to Current Asset Ratio:

F/Y	Cash & Bank Balance	Current Asset	Percentage

2005/2006	1020.46	16650.32	6.13
2006/2007	961.05	19224.20	5.00
2007/2008	825.26	18663.20	4.42
2008/2009	1512.30	21101.94	7.17
2009/2010	2023.16	23778.25	8.51

Annex –7

Nepal Investment Bank Ltd. (NIBL)

Investment in Government Securities to Current Asset Ratio:

F/Y	Investment in Government securities	Current Asset	Percentage
2005/2006	1233.82	14773.77	8.35
2006/2007	2732.96	18098.96	15.1
2007/2008	4120.30	17732.35	23.24
2008/2009	3588.77	16644.97	21.56
2009/2010	3672.63	16742.67	21.94

Bank of Kathmandu Ltd. (BOKL)

Investment in Government securities to Current Asset Ratio:

F/Y	Investment in Government securities	Current Asset	Percentage
2005/2006	3338.67	16650.32	20.05
2006/2007	4811.01	19224.20	25.03
2007/2008	5784.72	18663.02	31.10
2008/2009	6722.83	21101.94	31.86
2009/2010	7948.22	3778.25	33.43

Annex -8

Nepal Investment Bank Ltd. (NIBL)

Loan and Advances to Current Asset Ratio:

F/Y	Loan & advances	Current Asset	Percentage
2005/2006	7211.42	14773.77	41.82
2006/2007	8324.44	18098.96	46
2007/2008	7801.85	17732.35	44
2008/2009	8113.68	16644.97	48.75
2009/2010	8548.66	16742.67	51.06

Bank of Kathmandu Ltd. (BOKL)

Loan and Advances to Current Asset Ratio:

F/Y	Loan & advances	Current Asset	Percentage

2005/2006	4774.27	16650.32	28.67
2006/2007	5681.35	19224.20	29.55
2007/2008	5676.18	18663.02	30.52
2008/2009	6000.16	21101.94	28.43
2009/2010	6693.86	23778.25	28.15

Annex -9

Nepal Investment Bank Ltd. (NIBL)

Loan and Advances to Total Deposit Ratio:

F/Y	Loan & advances	Total deposit	Percentage
2005/2006	7211.42	12779.51	56.43
2006/2007	8324.44	15839.00	52.56
2007/2008	7801.85	15506.43	50.30
2008/2009	8113.68	13447.66	60.34
2009/2010	8548.66	14119.03	60.55

Bank of Kathmandu Ltd. (BOKL)

Loan and Advances to Total Deposit Ratio:

F/Y	Loan & advances	Total deposit	Percentage

2005/2006	4774.27	12568.49	38.00
2006/2007	5681.35	15430.05	36.82
2007/2008	5696.18	15835.75	35.97
2008/2009	6000.16	18755.63	32.00
2009/2010	6693.86	21161.44	31.63

Annex –10

Nepal Investment Bank Ltd. (NIBL)

Total Investment to Total Deposit Ratio:

F/Y	Total investment	Total deposit	Percentage
2005/2006	1250.94	12779.51	9.79
2006/2007	7704.31	15839	48.64
2007/2008	8199.51	15506.43	52.88
2008/2009	6031.18	13447.66	44.85
2009/2010	5835.95	14119.03	41.33

Bank of Kathmandu Ltd. (BOKL)

Total Investment to Total Deposit Ratio

F/Y	Total investment	Total deposit	Percentage

2005/2006	3349.87	12568.49	26.65
20062007	9559.18	15430.05	61.95
2007/2008	9275.88	15835.05	58.58
2008/2009	10357.68	18755.63	55.22
2009/2010	11360.33	21161.44	53.68

Annex -11

Nepal Investment Bank Ltd. (NIBL)

Loan and Advance to Total Working Fund Ratio:

F/Y	Loan & advances	Total working fund	Percentage
2005/2006	7211.42	15024.20	48.00
2006/2007	8324.44	18367.15	45.32
2007/2008	7801.85	17993.20	43.36
2008/2009	8113.68	16668.44	49.00
2009/2010	8548.66	17104.27	50.00

Bank of Kathmandu Ltd. (BOKL)

Loan and Advance to Total Working Fund Ratio:

F/Y	Loan & advances	Total working fund	Percentage
2005/2006	4774.27	16832.24	28.36
2006/2007	5681.35	19357.2	29.35
2007/2008	5696.18	18775.27	30.34
2008/2009	6000.16	21304.84	28.16
2009/2010	6693.86	23925.68	28.00

Annex −12

Nepal Investment Bank Ltd. (NIBL)

Investment in Government Securities to Total working Fund Ratio:

F/Y	Investment in Government securities	Total working fund	Percentage
2005/2006	1233.82	15024.20	8.20
2006/2007	2732.96	18367.15	14.88
2007/2008	4120.30	17993.20	22.90
2008/2009	3588.77	16668.44	21.67
2009/2010	3672.63	17104.27	21.47

Bank of Kathmandu Ltd. (BOKL)

Investment in Government Securities to Total working capital Fund Ratio:

F/Y	Investment in Government securities	Total working fund	Percentage
2005/2006	3338.67	16832.24	19.83
2006/2007	4811.01	19357.2	24.85
2007/2008	5784.72	18775.27	30.81
2008/2009	6722.83	21304.84	31.56
2009/2010	7948.22	23925.68	33.22

Annex -13

Nepal Investment Bank Ltd. (NIBL)

Investment in Share & Debentures to Total Working Fund Ratio:

F/Y	Investment in share & debentures	Total working fund	Percentage
2005/2006	16.12	15024.20	0.107
2006/2007	18.82	18367.15	0.103
2007/2008	22.22	17993.20	0.124
2008/2009	22.22	16668.44	0.134
2009/2010	22.22	17104.27	0.130

Bank of Kathmandu Ltd. (BOKL)

Investment in Share & Debentures to Total Working Fund Ratio:

F/Y	Investment in share & debentures	Total working fund	Percentage
2005/2006	11.195	16832.24	0.067
2006/2007	11.195	19357.2	0.058
2007/2008	11.195	18775.27	0.060
2008/2009	11.195	21304.84	0.053
2009/2010	11.195	23925.68	0.047

Annex -14

Nepal Investment Bank Ltd. (NIBL)

Return on Loan and Advances Ratio:

F/Y	Loan & advances	Net profit	Percentage
2005/2006	7211.42	329.10	4.56
2006/2007	8324.44	291.38	3.50
2007/2008	7801.85	271.64	3.48
2008/2009	8113.68	416.24	5.13
2009/2010	8548.66	455.32	5.33

Bank of Kathmandu Ltd. (BOKL)

Return on Loan and Advances Ratio:

F/Y	Loan & advances	Net profit	Percentage
2005/2006	4774.27	392.59	8.22
2006/2007	5681.35	430.83	7.58
2007/2008	5696.18	479.21	8.41
2008/2009	6000.16	506.93	8.45
2009/2010	6693.86	537.8	8.03

Annex -15

Nepal Investment Bank Ltd. (NIBL)

Return on Total working fund Ratio:

F/Y	Total working fund	Net profit	Percentage
2005/2006	15024.20	329.10	2.19
2006/2007	18367.15	291.38	1.59
2007/2008	17993.20	271.64	1.51
2008/2009	16668.44	416.24	2.51
2009/2010	17104.27	455.32	2.66

Bank of Kathmandu Ltd. (BOKL)

Return on Total working fund Ratio:

F/Y	Total working fund	Net profit	Percentage
2005/2006	16832.24	392.59	2.33
2006/2007	19357.2	430.83	2.23
2007/2008	18775.27	479.21	2.55
2008/2009	21304.84	506.93	2.38
2009/2010	23925.68	537.8	2.25

Annex -16

Nepal Investment Bank Ltd. (NIBL)

Total Interest Earned to Total working fund Ratio:

F/Y	Total working fund	Total Interest Earned	Percentage
2005/2006	15024.20	1047.03	6.97
2006/2007	18367.15	1266.70	6.90
2007/2008	17993.20	1120.18	6.25
2008/2009	16668.44	1017.87	6.15
2009/2010	17104.27	1001.62	5.86

Bank of Kathmandu Ltd. (BOKL)

Total Interest Earned to Total working fund Ratio:

F/Y	Total working fund	Total Interest Earned	Percentage
2005/2006	16832.24	1052.36	6.25
2006/2007	19357.2	1224.92	6.42
2007/2008	18775.27	1013.64	5.40
2008/2009	21304.84	1001.36	4.70
2009/2010	23925.68	1042.18	4.36

Annex -17

Nepal Investment Bank Ltd. (NIBL)

Total Interest Earned to Total Operating Income Ratio:

F/Y	Total operating income	Total Interest Earned	Percentage
2005/2006	1309.41	1047.03	79.96
2006/2007	1573.33	1266.70	80.51
2007/2008	1639.12	1120.18	68.34
2008/2009	1340.50	1017.87	75.93
2009/2010	1333.65	1001.62	75.10

Bank of Kathmandu Ltd. (BOKL)

Total Interest Earned to Total Operating Income Ratio:

F/Y	Total operating income	Total Interest Earned	Percentage
2005/2006	1366.91	1052.36	77.00
2006/2007	1640.26	1224.92	75.78
2007/2008	1446.81	1013.64	70.00
2008/2009	1503.60	1001.36	66.60
2009/2010	1521.16	1042.18	68.51

Annex -18

Nepal Investment Bank Ltd. (NIBL)

Total Interest Paid to Total Working Fund Ratio:

F/Y	Total working fund	Total Interest paid	Percentage
2005/2006	15024.20	432.96	2.88
2006/2007	18367.15	578.36	3.15
2007/2008	17993.20	462.08	2.57
2008/2009	16668.44	317.35	1.92
2009/2010	17104.27	282.95	1.65

Bank of Kathmandu Ltd. (BOKL)

Total Interest Paid to Total Working Fund Ratio:

F/Y	Total working fund	Total Interest paid	Percentage
2005/2006	16832.24	427.85	2.54
2006/2007	19357.2	474.4	2.45
2007/2008	18775.27	299.86	1.60
2008/2009	21304.84	255.15	1.20
2009/2010	23925.68	275.81	1.15

Annex -19

Nepal Investment Bank Ltd. (NIBL)

Total Interest Earned to Total outside Assets Ratio:

F/Y	Total outside assets	Total Interest Earned	Percentage
2005/2006	8462.36	1047.03	12.37
2006/2007	16028.75	1266.70	7.90
2007/2008	16001.36	1120.18	7.00
2008/2009	14144.896	1017.87	7.20
2008/2010	14384.69	1001.62	6.96

Bank of Kathmandu Ltd. (BOKL)

Total Interest Earned to Total outside Assets Ratio:

F/Y	Total outside assets	Total Interest Earned	Percentage
2005/2006	8124.14	1052.36	12.95
2006/2007	15240.53	1224.92	8.16
2007/2008	14974.06	1013.64	6.77
2008/2009	16357.84	1001.36	6.12
2009/2010	18054.19	1042.18	5.77

Annex A - 1

Nepal Investment Bank Ltd. (NIBL)

Correlation between Total Deposit and Loan and Advances:

Fiscal year	Deposit (X)	Loan & advanced (Y)	$X=(x-\bar{x})$ (x-14338.33)	X^2	$Y=(y-\bar{y})$ (y-8000)	Y^2	XY
2005/06	12779.51	7211.42	-1558.82	2429919.79	788.58	621858.42	1229254.28
2006/07	15839	8324.44	1500.67	2252010.45	324.44	105261.31	486877.37
2007/08	15506.43	7801.85	1168.1	1364457.61	198.15	39262.43	-231459.02
2008/09	13447.66	8113.68	-890.67	793293.05	113.68	12923.14	-101251.37
2009/10	14119.03	8548.66	-219.3	48092.49	548.66	301027.80	-120321.14
	X= 71691.63	Y=40000		X^2=6887773.39		Y^2=1080344.10	XY=1263100.13

Here, N = 5

$$\bar{x} = \frac{\sum x}{N} = \frac{71691.63}{5} = 14338.33$$

$$\bar{y} = \frac{\sum y}{N} = \frac{40000}{5} = 8000$$

We have,

$$\sum x^2 = 6887773.39$$

$$\sum y^2 = 1080344.10$$

$$\sum xy = 1263100.13$$

Calculation of correlation coefficient (r) :

$$r = \frac{\sum xy}{\sqrt{\sum x^2} \sqrt{\sum y^2}} \qquad r = \frac{1263100.13}{\sqrt{6887773.39} \sqrt{1080344.10}}$$

$$r = \frac{1263100.13}{2727849.95} \qquad = 0.4630$$

or r = 0.4630 $r^2 = 0.2144$

Calculation of Probable error,

$$\text{P. Er.} = 0.745 \frac{1-r^2}{\sqrt{N}} = 0.6745 \times \frac{1-0.2144}{\sqrt{5}}$$

$$= 0.6745 \times \frac{1-r^2}{\sqrt{N}} = 0.6745 \times \frac{1-0.2144}{\sqrt{5}}$$

Or P. Er. 0.2366

6. P. Er. = 1.419

Annex A - 2

Bank of Kathmandu Ltd (BOKL)

Correlation between Total Deposit and Loan and Advances:

Fiscal year	Deposit (X)	Loan & advanced (Y)	$X=(x-\bar{x})$ (x-16750.27)	X^2	$Y = (y-\bar{y})$ (y-5769.16)	Y^2	XY
2005/06	12568.49	4774.27	- 4181.78	17487283.97	-994.89	989806.11	4160411.10
2006/07	15430.05	5681.35	-1320.22	1742980.85	-87.81	7710.60	115928.52
2007/08	15835.75	5696.18	-914.82	836346.83	-72.98	5326.08	66741.67
2008/09	18755.63	6000.16	2005.36	4021468.73	231	53361.00	463238.16
2009/10	21161.44	6693.86	4411.17	19458420.77	924.7	855070.09	4079008.89
	X= 83751.36	Y=28845.82		X^2=43546501.15		y^2=1911273.88	XY=8885328.44

Here, N = 5

$$\bar{x} = \frac{\sum x}{N} = \frac{83751.36}{5} = 16750.27$$

$$\bar{y} = \frac{\sum y}{N} = \frac{28845.82}{5} = 5769.16$$

We have,

$$\Sigma x^2 = 43546501.15$$

$\Sigma y^2 = 1911273.88$

$\Sigma xy = 8885328.34$

Calculation of correlation coefficient (r):

$$r = \frac{\Sigma xy}{\sqrt{\Sigma x^2}\ \sqrt{\Sigma y^2}} \qquad r = \frac{8885328.34}{\sqrt{43546501.15}\ \sqrt{1911273.88}}$$

$$r = \frac{8885328.34}{9123008.84} \qquad = 0.974$$

or $r = 0.974$ $\qquad r^2 = 0.9487$

Calculation of Probable error,

$$\text{P. Er.} = 0.6745\ \frac{1-r^2}{\sqrt{N}} \quad = 0.6745 \quad \times \quad \frac{1-0.9487}{\sqrt{5}}$$

Or, P. Er. $= 0.0154$ $\qquad\qquad$ 6 P. Er. $= 0.0924$

Annex A - 3

Nepal Investment Bank Ltd. (NIBL)

Correlation between Total Deposit and Total Investment:

F /Y	Deposit (X)	Total investment (Y)	$X=(x-\bar{x})$ (x-14338.33)	X^2	$Y = (y-\bar{y})$ (y-5804.38)	Y^2	XY
2005/06	12779.51	1250.94	-1558.82	2429919.79	788.58	621858.42	1229254.28
2006/07	15839	7704.31	1500.67	2252010.45	324.44	105261.31	486877.37
2007/08	15506.43	8199.51	1168.1	1364457.61	198.15	39262.43	-231459.02
2008/09	13447.66	6031.18	-890.67	793293.05	113.68	12923.14	-101251.37
2009/10	14119.03	5831.95	-219.3	48092.49	548.66	301027.80	-120321.14
	X= 71691.63	Y=29021.89		X²=6887773.39		Y²=30132632.46	XY=12537985.38

Here, N = 5

$$\bar{x} = \frac{\sum x}{N} = \frac{71691.63}{5} = 14338.33$$

$$\bar{y} = \frac{\sum y}{N} = \frac{29021.89}{5} = 5804.38$$

We have,

$\Sigma x^2 = 6887773.39$

$\Sigma y^2 = 30132632.46$

$\Sigma xy = 12537985.38$

Calculation of correlation coefficient (r) :

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

$$r = \frac{12537985.38}{\sqrt{6887773.39}\ \sqrt{30132632.46}}$$

$$r = \frac{12537985.38}{14406482.71}$$

or, $r = 0.8703$ $r^2 = 0.7574$

Calculation of Probable error,

P. Er. $= 0.6745\ \dfrac{1-r^2}{\sqrt{N}}\ = 0.6745\ \times\ \dfrac{1-0.7574}{\sqrt{5}}$

Or, P. Er. $= 0.073$

6 P. Er. $= 0.4383$

Annex A - 4

Bank of Kathmandu Ltd. (BOKL)

Correlation between Total Deposit and Total Investment:

Fiscal year	Deposit (X)	Total investment (Y)	$X=(x-\bar{x})$ (x-16750.27)	X^2	$Y = (y-\bar{y})$ (y-8780.59)	Y^2	XY
2005/06	12568.49	3349.87	-4181.78	17487283.97	-5430.72	29492719.72	22710076.28
2006/07	15430.05	9559.18	-1320.22	1742980.85	778.59	606202.39	-1027910.09
2007/08	15835.75	9275.88	-914.82	836346.83	495.30	245322.09	-452961.76
2008/09	18755.63	10357.68	2005.36	4021468.73	1577.09	2487212.87	3162633.20
2009/10	21161.44	11360.33	4417.17	19458420.77	2579.74	6655058	11395150.14
	X= 83751.36	**Y=43902.94**		**X²=43546501.15**		**y²=39486515.54**	**XY= 35786987.77**

Here, N = 5

$$\bar{x} = \frac{\sum x}{N} = \frac{83751.36}{5} = 16750.27$$

$$\bar{y} = \frac{\sum y}{N} = \frac{43902.94}{5} = 8780.59$$

We have,

$\Sigma x^2 = 43546501.15$

$\Sigma y^2 = 39486515.54$

$\Sigma xy = 35786987.77$

Calculation of correlation coefficient (r) :

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

$$r = \frac{35786987}{\sqrt{43546501.15}\sqrt{39486515.54}}$$

$$r = \frac{35786987.77}{41466849.34}$$

or r = 0.863 $r^2 = 0.7448$

Calculation of Probable error,

$$P.\ Er. = 0.6745\ \frac{1-r^2}{\sqrt{N}} = 0.6745 \quad \times \quad \frac{1-0.7448}{2.24}$$

Or, P. Er. = 0.0768   6 P. Er. = 0.461

Annex A - 5

Nepal Investment Bank Ltd. (NIBL)

Correlation between Outside Assets and Net Profit:

Fiscal year	Outside assets (X)	Net profit (Y)	$X=(x-\bar{x})$ (x-13804.27)	X^2	$Y = (y-\bar{y})$ (y-352.74)	Y^2	XY
2005/06	8462.36	329.10	-5341.91	2536002.45	-23.64	558.85	126282.75
2006/07	16028.75	291.38	2224.48	4948311.27	-61.36	3765.05	-136494.09
2007/08	16001.36	271.38	2197.09	4827204.47	-81.1	6577.21	-178184.00
2008/09	14144.26	416.24	339.99	115593.20	63.5	4032.25	21589.37
2009/10	14384.61	455.32	580.34	336794.52	102.58	10522.66	59531.28
	X= 69021.34	**Y=1763.68**		**X²=38763905.91**		**y²=25456.02**	**XY= -107274.69**

Here, N = 5

$$\bar{x} = \frac{\sum x}{N} = \frac{69021.34}{5} = 13804.27$$

$$y = \frac{\sum y}{N} = \frac{1763.68}{5} = 352.74$$

We have,

$\Sigma x^2 = 38763905.91$

$\Sigma y^2 = 25456.02$

$\Sigma xy = -107274.69$

Calculation of correlation coefficient (r) :

$$r = \frac{\Sigma xy}{\sqrt{\Sigma x^2}\,\sqrt{\Sigma y^2}} \qquad r = \frac{-107274.69}{\sqrt{38763905.91}\,\sqrt{25456.02}}$$

$$r = \frac{-107274.69}{993365.37}$$

or $r = 0.108$ $\qquad\qquad$ $r^2 = 0.0117$

Calculation of Probable error,

$$\text{P. Er.} = 0.6745 \; \frac{1-r^2}{\sqrt{N}} = 0.6745 \quad \times \quad \frac{1-0.0117}{\sqrt{5}}$$

Or, P. Er. = 0.2976 $\qquad\qquad\qquad$ 6 P. Er. = 1.786

Annex A - 6

Bank of Kathmandu Ltd. (BOKL)

Correlation between Outside Assets and Net Prof

Fiscal year	Outside assets (X)	Net profit (Y)	$X=(x-\bar{x})$ (x-14550.15)	X^2	$Y = (y-\bar{y})$ (y-469.56)	Y^2	XY
2005/06	8124.14	392.59	-6426.01	41293604.52	-76.97	-76.97	494609.99
2006/07	15240.53	430.83	690.38	476624.54	-38.73	-38.73	-26738.42
2007/08	14974.06	479.21	423.91	179699.69	9.65	9.65	39474.50
2008/09	16357.84	506.93	1807.69	3267743.14	37.37	37.37	67553.38
2009/10	18054.19	537.80	3504.04	12278296.32	68.24	68.24	239115.69
	X= 72750.76	**Y=2347.80**		**X²=57495968.21**		**y²=13570.74**	**XY=778631.37**

Here, N = 5

$$\bar{x} = \frac{\sum x}{N} = \frac{72750.76}{5} = 14550.15$$

$$\bar{y} = \frac{\sum y}{N} = \frac{2347.80}{5} = 469.56$$

We have,

$\Sigma xy = 778631.37$

$\Sigma x^2 = 57495968.21$

$\Sigma y2 = 13570.74$

Calculation of correlation coefficient (r) :

$$r = \frac{\sum xy}{\sqrt{\sum x^2}\ \sqrt{\sum y^2}} \qquad r = \frac{778631.37}{\sqrt{57495968.21}\ \sqrt{814015.14}}$$

$$r = \frac{0.1138}{6841241.75}$$

or r = 0.1138 $\qquad\qquad r^2 = 0.0129$

Calculation of Probable error,

$$\text{P. Er.} = 0.6745\ \frac{1-r^2}{\sqrt{N}} = 0.6745 \quad\times\quad \frac{1-0.0129}{\sqrt{5}}$$

Or, P. Er. = 0.2972 $\qquad\qquad$ 6 P. Er. = 1.7833

Annex A - 7

Nepal Investment Bank Ltd. (NIBL)

Correlation between Deposit and Net Profit:

F /Y	Deposit (X)	Net profit (Y)	$X=(x-\bar{x})$ (x-14338.33)	X^2	$Y = (y-\bar{y})$ (y-352.74)	Y^2	XY
2005/06	12779.51	329.10	-1558.82	2429919.79	-23.64	558.85	36850.5
2006/07	15839	291.38	1500.67	2252010.45	-61.36	3765.05	-92081.11
2007/08	15506.43	271.64	1168.10	1364457.61	-81.1	6577.21	-94732.9
2008/09	13447.66	416.24	-890.67	793293.05	63.5	4032.25	-56557.55
2009/10	14119.03	455.32	-219.3	48092.49	102.58	10522.66	-22495.8
	X= 71691.63	Y=1763.68		X²=6887773.39		Y²=25456.02	XY=229016.86

Here, N = 5

$$\bar{x} = \frac{\sum x}{N} = \frac{71691.63}{5} = 14338.33$$

$$y = \frac{\sum y}{N} = \frac{1763.68}{5} = 352.74$$

We have,

$\Sigma xy = -229016.86$

$\Sigma x^2 = 6887773.37$

$\Sigma y2 = 25456.02$

Calculation of correlation coefficient (r) :

$$r = \frac{\sum xy}{\sqrt{\Sigma x^2} \sqrt{\Sigma y^2}} \qquad r = \frac{-229016.86}{\sqrt{6887773.39} \ \sqrt{25456.02}}$$

$$r = \frac{-229016.86}{418730.58}$$

or r = - 0.547 $\qquad$ $r^2 = 0.299$

Calculation of Probable error,

$$\text{P. Er.} = 0.6745 \ \frac{1-r^2}{\sqrt{N}} = 0.6745 \quad \times \quad \frac{1-0.299}{\sqrt{5}}$$

Or, P. Er. = 0.211 $\qquad\qquad$ 6 P. Er. = 1.266

Annex A - 8

Bank of Kathmandu Ltd, (BOKL)

Correlation between Outside Assets and Net Profit:

F /Y	Deposit (X)	Net profit (Y)	$X=(x-\bar{x})$ (x-16750 .37)	X^2	$Y = (y-\bar{y})$ (y-469.56)	Y^2	XY
2005/06	12568.49	392.59	- 4181.78	17487283.97	-76.97	5924.38	321871.61
2006/07	15430.05	430.83	-1320.22	1742980.85	-38.73	1500.01	-51132.12
2007/08	15835.75	479.21	-914.82	836346.83	9.65	93.12	-8825.12
2008/09	18755.63	506.93	2005.36	4021468.73	37.37	1396.52	74940.30
2009/10	21161.44	537.80	4411.17	19458420.77	69.24	4656.70	301427.68
	X= 83751.36	Y=2347.80		X^2=43546501.15		Y^2=13570.74	XY=638282.35

Here, N = 5

$$\bar{x}=\frac{\sum x}{N}=\frac{83751.36}{5}=16750.37$$

$$\bar{y}=\frac{\sum y}{N}=\frac{2347.80}{5}=469.56$$

We have,

$\Sigma xy = 638282.35$

$\Sigma x^2 = 43546501.15$

$\Sigma y2 = 13570.74$

Calculation of correlation coefficient (r) :

$$r = \frac{\Sigma xy}{\sqrt{\Sigma x^2}\sqrt{\Sigma y^2}} \qquad r = \frac{638282.35}{\sqrt{43546501.15}\sqrt{13570.74}}$$

$$r = \frac{638282.35}{768738.09}$$

or r = 0.8303 $\qquad\qquad$ $r^2 = 0.68994$

Calculation of Probable error,

$$\text{P. Er.} = 0.6745 \; \frac{1-r^2}{\sqrt{N}} = 0.6745 \quad \times \quad \frac{1-0.6894}{\sqrt{5}}$$

Or, P. Er. = 0.0935 $\qquad\qquad$ 6 P. Er. = 0.5612

Annex A - 9

Nepal Investment Bank Ltd. (NIBL)

Correlation between Total Deposits and Interest Earned:

F /Y	Deposit (X)	Interest earned (Y)	$X=(x-\bar{x})$ (x-14338.33)	X^2	$Y=(y-\bar{y})$ (y-1090.68)	Y^2	XY
2005/06	12779.51	1047.03	-1558.82	2429919.79	-43.65	1905.32	68042.49
2006/07	15839	1266.70	1500.67	2252010.45	176.02	30983.04	264147.93
2007/08	15506.43	1120.18	1168.10	1364457.61	29.5	870.25	34458.95
2008/09	13447.66	1017.87	-890.67	793293.05	-72.81	5301.30	64849.68
2009/10	14119.03	1001.62	-219.3	48092.49	-89.06	7931.68	19530.86
	X= 71691.63	Y=5453.4		X^2=6887773.39		Y^2=46991.59	XY=451029.91

Here, N = 5

$$\bar{x} = \frac{\sum x}{N} = \frac{71691.63}{5} = 14338.33$$

$$\bar{y} = \frac{\sum y}{N} = \frac{5453.4}{5} = 1090.68$$

We have,

$\Sigma xy = 451029.91$

$\Sigma x^2 = 6887773.39$

$\Sigma y^2 = 46991.59$

Calculation of correlation coefficient (r) :

$$r = \frac{\sum xy}{\sqrt{\Sigma x^2}\sqrt{\Sigma y^2}} \qquad r = \frac{451029.91}{\sqrt{6887773.39}\sqrt{46991.59}}$$

$$r = \frac{451029.91}{568917.765}$$

or $r = 0.793$ $\qquad\qquad r^2 = 0.6285$

Calculation of Probable Error

$$P.\,Er. = 0.6745 \quad \frac{1-r^2}{\sqrt{N}} = 0.6745 \quad \times \quad \frac{1-0.6894}{2.24}$$

$P.\,E.r. = 0.112$

$6\,P.E.r. = 0.6712$

Annex A - 10

Bank of Kathmandu Ltd. (BOKL)

Correlation between Total Deposits and Interest Earned:

F /Y	Deposit (X)	Interest earned (Y)	$X=(x-\bar{x})$ (x-16750 .37)	X^2	$Y = (y-\bar{y})$ (y-1070.49)	Y^2	XY
2005/06	12568.49	1052.36	- 4181.78	17487283.97	-18.13	328.77	75815.67
2006/07	15430.05	1242.92	-1320.22	1742980.85	172.43	29732.10	-227645.53
2007/08	15835.75	1013.64	-914.82	836346.83	-56.85	3231.92	51990.46
2008/09	18755.63	1001.36	2005.36	4021468.73	-69.13	4778.96	-138630.54
2009/10	21161.44	1042.18	4411.17	19458420.77	-28.31	801.46	-125050.08
	X= 83751.36	Y=5352.46		X^2=43546501.15		Y^2=38873.20	XY=363520.02

Here, N = 5

$$\bar{x} = \frac{\sum x}{N} = \frac{83751.36}{5} = 16750.37$$

$$\bar{y} = \frac{\sum y}{N} = \frac{5352.46}{5} = 1070.49$$

We have,

$\Sigma xy = -363520.02$

$\Sigma x^2 = 43546501.15$

$\Sigma y^2 = 38873.20$

Calculation of correlation coefficient (r):

$$r = \frac{\sum xy}{\sqrt{\Sigma x^2} \, \sqrt{\Sigma y^2}} \qquad r = \frac{-363520.02}{\sqrt{43546501.15} \, \sqrt{38873.20}}$$

$$r = \frac{-363520.02}{1301073.34}$$

or $r = -0.2794$

$$r^2 = 0.07806$$

Calculation of P. Er.

$$P.\,Er. = 0.6745 \; \frac{1-r^2}{\sqrt{N}} = 0.6745 \quad \times \quad \frac{1-0.07806}{\sqrt{5}}$$

P. E.r. $= 0.2776$

6 P.E.r. $= 1.666$

Nepal Investment Bank Ltd. (NIBL)

Correlation between Loan & Advanced and Interest paid:

Fiscal year	Loan & advanced (X)	Interest paid (Y)	$X=(x-\bar{x})$ (x-8000)	X^2	$Y = (y-\bar{y})$ (y- 414.74)	Y^2	XY
2005/06	7211.42	432.96	-788.58	621858.42	18.22	331.97	-14367.93
2006/07	8324.44	578.36	324.44	105261.31	163.62	26771.50	53084.87
2007/08	7801.85	462.08	-198.15	39262.43	47.34	2241.08	-9380.42
2008/09	8113.68	317.35	113.68	12923.14	-97.39	9484.81	-11071.30
2009/10	8548.66	282.95	548.66	301027.80	-131.79	17638.6	-72307.90
	X= 40000	**Y=2073 .70**		**X^2=1080344 .10**		**Y^2=38873. 20**	**XY=54042. 68**

Here, N = 5

$$\bar{x}=\frac{\sum x}{N}=\frac{40000}{5}=8000$$

$$y=\frac{\sum y}{N}=\frac{2073.70}{5}=414.74$$

We have,

$\Sigma xy = 1080344.10$

$\Sigma x^2 = 56197.96$

$\Sigma y^2 = -54042.68$

Calculation of correlation coefficient (r) :

$$r = \frac{\sum xy}{\sqrt{\sum x^2} \sqrt{\sum y^2}} \qquad r = \frac{-54042.68}{\sqrt{1080344.10} \sqrt{56197.96}}$$

$r = -0.2193$ $\qquad\qquad r^2 = 0.048$

Calculation of Probable Error

$$P.\ Er. = 0.6745 \ \frac{1-r^2}{\sqrt{N}} = 0.6745 \quad \times \quad \frac{1-0.048}{2.24}$$

$P.\ Er. = 0.2867$

$6\ P.\ Er. = 1.72$

Annex A - 12

Bank of Kathmandu Ltd. (BOKL)

Correlation between Loan and advances and interest paid:

Fiscal year	Loan & advanced (X)	Interest paid (Y)	$X=(x-\bar{x})$ (x-5769.16)	X^2	$Y = (y-\bar{y})$ (y-346.60)	Y^2	XY
2005/06	4774.27	427.85	-994.89	989806.11	81.25	6601.56	-80834.81
2006/07	5681.35	474.40	-87.81	7710.60	127.8	16332.84	-11222.12
2007/08	5696.18	299.86	-72.98	5326.08	-46.74	2184.63	3411.09
2008/09	6000.16	255.86	231	53361.00	-91.45	8363.10	-21124.95
2009/10	6693.86	275.81	924.7	855070.09	-70.79	5011.22	-65459.51
	X= 28845.82	Y=1733.01		X^2=1911273.88		Y^2=38493.35	XY=175230.30

Here, N = 5

$$\bar{x} = \frac{\sum x}{N} = \frac{28845.82}{5} = 5769.16$$

$$\bar{y} = \frac{\sum y}{N} = \frac{1733.01}{5} = 346.60$$

We have,

$\Sigma xy = -175230.30$

$\Sigma x^2 = 1911273.88$

$\Sigma y^2 = 38493.35$

Calculation of correlation coefficient (r) :

$$r = \frac{\Sigma xy}{\sqrt{\Sigma x^2}\sqrt{\Sigma y^2}} \qquad r = \frac{-175230.30}{\sqrt{1911273.88}\ \sqrt{38493.35}}$$

$$r = \frac{0175230}{271240.36}$$

Or, $r = -0.6460$ $\qquad r^2 = 0.4174$

Calculation of Probable Error

$$\text{P. Er.} = 0.6745 \ \frac{1-r^2}{\sqrt{N}} = 0.6745 \quad \times \quad \frac{1-0.4174}{\sqrt{5}}$$

P. E.r. $= 0.1754$

6 P.E.r. $= 1.0526$

Annex A - 13

Nepal Investment Bank Ltd. (NIBL)

Correlation between Total Working Fund and Net Profit:

Fiscal year	Total working fund (X)	Net profit (Y)	$X=(x-\bar{x})$ (x-17031.45)	X^2	$Y = (y-\bar{y})$ (y-352.74)	Y^2	XY
2005/06	15024.20	329.10	-2007.25	4029052.56	-23.64	558.64	47451.39
2006/07	18367.15	291.38	1356.86	1841069.06	-61.36	3765.05	-83256.93
2007/08	17993.20	271.38	982.91	966112.07	-81.1	6577.21	-79714
2008/09	16668.44	416.24	-447.66	200399.48	63.5	4032.25	-28426.41
2009/10	17104.27	455.32	93.98	8832.24	102.58	10522.66	9640.47
	X= 85157.26	Y=1763.68		X^2=7045465.41		y^2=25456.02	XY= 134305.87

Here, N = 5

$$\bar{x} = \frac{\sum x}{N} = \frac{85157.26}{5} = 17031.45$$

$$\bar{y} = \frac{\sum y}{N} = \frac{1763.68}{5} = 352.74$$

We have,

$\Sigma x^2 = 7045465.41$

$\Sigma y^2 = 25456.02$

$\Sigma xy = -134305.87$

Calculation of correlation coefficient (r) :

$$r = \frac{\sum xy}{\sqrt{\sum x^2} \sqrt{\sum y^2}} \qquad r = \frac{-134305.87}{\sqrt{7045465.41} \sqrt{25456.02}}$$

$r = -0.3191$

$r^2 = 0.1018$

Calculation of Probable Error

$$P.\,Er. = 0.6745 \; \frac{1-r^2}{\sqrt{N}} = 0.6745 \; \times \; \frac{1-0.1018}{2.24}$$

$P.\,Er. = 0.2705$

$6\,P.\,Er. = 1.6228$

Bank of Kathmandu Ltd. (BOKL)

Correlation between Total Working Capital Fund and Net Profit:

Fiscal year	Total working fund (X)	Net profit (Y)	$X=(x-\bar{x})$ (x-20039 .05)	X^2	$Y = (y-\bar{y})$ (y-469.56)	Y^2	XY
2005/06	16832.24	392.59	-3206.81	10283630.37	-76.97	5924.38	246828.17
2006/07	19357.20	430.83	-681.85	464919.42	-38.73	1500.02	26408.05
2007/08	18775.27	479.21	-1263.78	1597139.89	9.65	93.12	-12195.48
2008/09	21304.84	506.93	1265.79	1602224.32	37.37	1396.52	47302.57
2009/10	23925.68	537.80	3886.63	15105892.76	68.24	4656.70	265223.63
	X=100195.23	Y=2347.36		X²=29053806.76		y²=13570.74	XY=573566.94

Here, N = 5

$$\bar{x} = \frac{\sum x}{N} = \frac{100195.23}{5} = 20039.05$$

$$y = \frac{\sum y}{N} = \frac{2347.80}{5} = 469.56$$

We have,

$\Sigma x^2 = -573566.94$

$\Sigma y^2 = 29053806.76$

$\Sigma xy = -13570.74$

Calculation of correlation coefficient (r) :

$$r = \frac{\Sigma xy}{\sqrt{\Sigma x^2}\,\sqrt{\Sigma y^2}} \qquad r = \frac{573566.94}{\sqrt{29053806.76}\sqrt{13570.74}}$$

$$r = \frac{573566.94}{2208821.77}$$

$r = 0.2596$

$r^2 = 0.0674$

Calculation of Probable Error

$$P.\,Er. = 0.6745 \ \frac{1-r^2}{\sqrt{N}} \ = 0.6745 \quad \times \quad \frac{1-0.0674}{\sqrt{5}}$$

$P.\,Er. = 0.2808 \qquad 6\,P.\,Er. = 1.6848$

Annex A - 15

Nepal Investment Bank Ltd. (NIBL)

The Trend value of Total Deposits of NIBL

(Rs. in million)

Fiscal year	Total deposit (y)	x = t - 2006/07	x^2	xy	y = a + bx (Trend values)
2005/06	12779.51	-2	4	-25559.02	14280.79
2006/07	15839.00	-1	1	-15839.00	14309.56
2007/08	15506.43	0	0	0	14338.33
2008/09	13447.66	1	1	13447.66	14367.10
2009/10	14119.03	2	4	28238.06	14395.87
	y = 71691.63	**x=0**	**x^2=10**	**xy=287.70**	

Here, N = 5

$$a = \frac{\sum y}{N} = \frac{71691.63}{5} = 14338.33 \qquad \text{or, } a = 14338.33$$

$$y = \frac{\sum xy}{\sum x^2} = \frac{287.70}{10} = 28.77 \qquad \text{or, } b = 28.77$$

Let the trend line be,

$$y = a + bx \text{ .... (i)}$$

The two normal equations are

$$\Sigma y = na + b\, \Sigma x \quad \text{.............. (ii)}$$

$$\Sigma xy = a\, \Sigma x + b\, \Sigma x^2 \quad \text{............ (iii)}$$

$$\therefore \text{From (ii) } a = \frac{\Sigma y}{N} \quad \text{.............. (iv)}$$

$$\text{From (iii) } b = \frac{\Sigma xy}{\Sigma x^2} \quad \text{................ (v)}$$

The straight line trend for total deposits is,

$$y = a + bx \rightarrow 14338.33 + 28.77\, x$$

For year 2008/2009, $y = a + bx \rightarrow 14338.33 + 28.77 \times 3$

$\quad x = 3 \qquad\qquad\qquad y = \text{Rs. } 14424.64 \text{ million}$

Other trend values have been calculated accordingly.

(Rs. in Million)

Year (t)	x = (t - 2006/07)	y = a + bx (Projected Deposit)
2010/11	3	14424.64
2011/12	4	14453.41
2012/13	5	14482.18
2013/14	6	14424.64
2014/15	7	14453.41

Annex A - 16

Bank of Kathmandu Ltd. (BOKL)

The Trend value of Total Deposits of BOKL:

(Rs. in million)

Fiscal year	Total deposit (y)	x = t - 2006/07	x^2	xy	y = a + bx (Trend values)
2005/06	12568.49	-2	4	-25136.98	12647.97
2006/07	15430.05	-1	1	-15430.05	14699.12
2007/08	15835.75	0	0	0	16750.27
2008/09	18755.63	1	1	18755.63	18801.42
2009/10	21161.44	2	4	42322.88	20852.57
	y = 83751.36	**x=0**	**x^2=10**	**xy=20511.48**	

Here, N = 5

$$a = \frac{\sum y}{N} = \frac{83751.36}{5} = 16750.27 \qquad \text{or, } a = 16750.27$$

$$y = \frac{\sum xy}{\sum x^2} = \frac{20511.48}{10} = 2051.15 \qquad \text{or, } b = 2051.15$$

Let the trend line be,

$$y = a + bx \ldots\ldots\ldots (i)$$

The two normal equations are

$$\Sigma y = na + b \Sigma x \quad \text{............... (ii)}$$

$$\Sigma xy = a \Sigma x + b \Sigma x^2 \quad \text{............ (iii)}$$

$$\therefore \text{From (ii) } a = \frac{\Sigma y}{N} \quad \text{............ (iv)}$$

$$\text{From (iii) } b = \frac{\Sigma xy}{\Sigma x^2} \quad \text{............... (v)}$$

The straight line trend for total deposits is,

$$y = a + bx \rightarrow 16750.27 + 2051.15X$$

For year 2008/2009, $\quad y = a + bx \rightarrow 16750.27 + 2051.15X3$

$x = 3$ $\qquad\qquad\qquad$ $y = Rs.\ 22903.72\ million$

Other trend values have been calculated accordingly.

(Rs. in million)

Year (t)	x = (t - 2006/07)	y = a + bx (Projected Deposit)
2010/11	3	22903.72
2011/12	4	24954.87
2012/13	5	27006.02
2013/14	6	29057.17
2014/15	7	31108.32

Annex A - 17

Nepal Investment Bank Ltd. (NIBL)

The Trend value of Loan and Advances of NIBL

(Rs. in million)

Fiscal year	Loan and advanced (y)	x = t - 2006/07	x^2	xy	y = a + bx (Trend values)
2005/06	7211.42	-2	4	-14422.84	7507.23
2006/07	8324.44	-1	1	-8324.44	7753.62
2007/08	7801.85	0	0	0	8000.01
2008/09	8113.68	1	1	8113.68	8246.40
2009/10	8548.66	2	4	17097.32	8492.79
	y =40000.05	x=0	x^2=10	xy=2463.72	

Let the trend line be,

$$y = a + bx \quad \text{............ (i)}$$

The two normal equations are

$$\Sigma y = na + b \, \Sigma x \quad \text{............... (ii)}$$

$$\Sigma xy = a \, \Sigma x + b \, \Sigma x^2 \quad \text{............ (iii)}$$

$\therefore$ From (ii) $a = \dfrac{\Sigma y}{N}$ .... (iv)

From (iii) $b = \dfrac{\Sigma xy}{\Sigma x^2}$ .... (v)

Here, N = 5

$a = \dfrac{\Sigma y}{N} = \dfrac{40000.05}{5} = 8000.01$ or, a = 8000.01

$y = \dfrac{\Sigma xy}{\Sigma x^2} = \dfrac{2463.92}{10} = 246.39$ or, b = 246.39

The☐☐ straight line trend for total deposits is,

$y = a + bx \rightarrow 8000.01 + 246.39 \times 3$

For year 2008/2009, $y = a + bx \rightarrow 8000.01 + 246.39 \times 3$

    x = 3   y = Rs. 8739.18 million

Other trend values have been calculated accordingly.

(Rs. in million)

Year (t)	x = (t - 2006/07)	y = a + bx (Projected Deposit)
2010/11	3	8739.18
2011/12	4	8985.57
2012/13	5	9231.96
2013/14	6	9478.35
2014/15	7	9724.74

Annex A - 18

Bank of Kathmandu Ltd. (BOKL)

The Trend value of Loan and Advances of BOKL:

(Rs. in million)

Fiscal year	Loan and advanced (y)	x = t - 2006/07	x^2	xy	y = a + bx (Trend values)
2005/06	4774.27	-2	4	-9548.54	4937.56
2006/07	5681.35	-1	1	-5681.35	5353.36
2007/08	5696.18	0	0	0	5769.16
2008/09	6000.16	1	1	6000.16	6184.96
2009/10	6693.86	2	4	13387.72	6600.76
	y = 28845.82	x=0	x^2=10	xy=4157.99	

Let the trend line be,

$$y = a + bx \dots \dots \dots (i)$$

The two normal equations are

$$\Sigma y = na + b \Sigma x \dots \dots \dots (ii)$$

$$\Sigma xy = a \Sigma x + b \Sigma x^2 \dots \dots \dots (iii)$$

$$\therefore \text{From (ii) } a = \frac{\Sigma y}{N} \dots \dots \dots (iv)$$

From (iii) $b = \dfrac{\sum xy}{\sum x^2}$ .... (v)

Here, N = 5

$a = \dfrac{\sum y}{N} \quad = \quad \dfrac{28845.82}{5} \quad = \quad 5769.16 \qquad$ or, a = 5769.16

$y = \dfrac{\sum xy}{\sum x^2} \quad = \quad \dfrac{4157.99}{10} \quad = \quad 415.80 \qquad$ or, b = 415.80

The☐☐ straight line trend for total deposits is,

$y = a + bx \rightarrow 5769.16 + 415.80 \times 3$

For year 2008/2009, $\quad y = a + bx \rightarrow 5769.16 + 415.80 \times 3$

$x = 3 \qquad\qquad\qquad y = Rs.\ 7016.56\ million$

Other trend values have been calculated accordingly.

(Rs. in million)

Year (t)	x = (t - 2006/07)	y = a + bx (Projected Deposit)
2010/11	3	7016.56
2011/12	4	7432.36
2012/13	5	7848.16
2013/14	6	8263.96
2014/15	7	8679.76

Annex A - 19

Nepal Investment Bank Ltd. (NIBL)

The Trend value of Investment of NIBL:

(Rs. in million)

Fiscal year	Investment (y)	x = t - 2006/07	x^2	xy	y = a + bx (Trend values)
2005/06	1250.94	-2	4	-9548.54	4305.01
2006/07	7704.31	-1	1	-5681.35	5054.70
2007/08	8199.51	0	0	0	5804.39
2008/09	6031.18	1	1	6000.16	6554.08
2009/10	5835.95	2	4	13387.72	7303.77
	y = 29021.89	**x=0**	**x^2=10**	**xy=7496.89**	

Let the trend line be,

$y = a + bx$ .... (i)

The two normal equations are

$\Sigma y = na + b \Sigma x$ .... (ii)

$\Sigma xy = a \Sigma x + b \Sigma x^2$ .... (iii)

$\therefore$ From (ii) $a = \dfrac{\Sigma y}{N}$ .... (iv)

From (iii) $b = \dfrac{\Sigma xy}{\Sigma x^2}$ .... (v)

Here, N = 5

$$a = \frac{\sum y}{N} \quad = \quad \frac{29021.89}{5} \quad = \quad 5804.38 \qquad \text{or, } a = 5804.38$$

$$y = \frac{\sum xy}{\sum x^2} \quad = \quad \frac{7496.89}{10} \quad = \quad 749.69 \qquad \text{or, } b = 749.69$$

The☐☐ straight line trend for total deposits is,

$$y = a + bx \rightarrow 5804.39 + 749.69\,x$$

For year 2008/2009, $\quad y = a + bx \rightarrow 5804.39 + 749.69 \times 3$

$x = 3 \qquad\qquad\qquad y = $ Rs. 8053.46 million

Other trend values have been calculated accordingly.

(Rs. in million)

Year (t)	x = (t - 2006/07)	y = a + bx (Projected Deposit)
2010/11	3	8053.46
2011/12	4	8803.09
2012/13	5	9552.78
2013/14	6	10302.47
2014/15	7	11052.16

Annex A - 20

Bank of Kathmandu Ltd (BOKL)

The Trend value of Investment of BOKL:

(Rs. in million)

Fiscal year	Investment (y)	x = t - 2006/07	x^2	xy	y = a + bx (Trend values)
2005/06	3349.87	-2	4	-6699.74	5416.71
2006/07	9559.18	-1	1	-9559.18	7098.65
2007/08	9275.88	0	0	0	8780.59
2008/09	10357.68	1	1	10357.68	10462.53
2009/10	11360.33	2	4	22720.66	12144.47
	y = 43902.94	**x=0**	**x^2=10**	**xy=16819.42**	

Let the trend line be,

$$y = a + bx \quad \ldots\ldots\ldots (i)$$

The two normal equations are:

$$\Sigma y = na + b \Sigma x \quad \ldots\ldots\ldots (ii)$$

$$\Sigma xy = a \Sigma x + b \Sigma x^2 \quad \ldots\ldots\ldots (iii)$$

$$\therefore \text{From (ii) } a = \frac{\Sigma y}{N} \quad \ldots\ldots\ldots (iv)$$

$$\text{From (iii) } b = \frac{\Sigma xy}{\Sigma x^2} \quad \ldots\ldots\ldots (v)$$

Here, N = 5

$$a = \frac{\sum y}{N} = \frac{43902.94}{5} = 8780.596 \qquad \text{or, } a = 8780.59$$

$$y = \frac{\sum xy}{\sum x^2} = \frac{16819.42}{10} = 1681.94 \qquad \text{or, } b = 1681.94$$

The straight line trend for total deposits is,

$$y = a + bx \rightarrow 8780.59 + 1681.94X$$

For year 2008/2009, $\quad y = a + bx \rightarrow 8780.59 + 1681.94 \times 3$

$$x = 3 \qquad\qquad y = Rs.\ 13826.41\ million$$

Other trend values have been calculated accordingly.

(Rs. in million)

Year (t)	x = (t - 2006/07)	y = a + bx (Projected Deposit)
2010/11	3	13826.41
2011/12	4	15508.35
2012/13	5	17190.29
2013/14	6	18872.23
2014/15	7	20544.17

Annex A - 21

Nepal Investment Bank Ltd. (NIBL)

The Trend value of Net Profit of NIBL:

(Rs. in million)

Fiscal year	Net profit (y)	x = t - 2006/07	x^2	xy	y = a + bx (Trend values)
2005/06	329.10	-2	4	-658.20	277.28
2006/07	291.38	-1	1	-291.38	315.01
2007/08	271.64	0	0	0	352.74
2008/09	416.24	1	1	416.24	390.47
2009/10	455.32	2	4	910.64	428.20
	y = 1763.68	**x=0**	**x^2=10**	**xy=377.30**	

Let the trend line be,

$$y = a + bx \ldots\ldots\ldots (i)$$

The two normal equations are

$$\Sigma y = na + b \Sigma x \ldots\ldots\ldots (ii)$$

$$\Sigma xy = a \Sigma x + b \Sigma x^2 \ldots\ldots\ldots (iii)$$

$\therefore$ From (ii) $a = \dfrac{\Sigma y}{N}$ .... (iv)

From (iii) $b = \dfrac{\Sigma xy}{\Sigma x^2}$ .... (v)

Here, N = 5

$a = \dfrac{\Sigma y}{N}$ $=$ $\dfrac{1763.68}{5}$ $= 352.74$ or, a = 352.74

$y = \dfrac{\Sigma xy}{\Sigma x^2}$ $=$ $\dfrac{377.30}{10}$ $= 37.73$ or, b =37.73

Other trend values have been calculated accordingly.

(Rs. in million)

Year (t)	x = (t - 2006/07)	y = a + bx (Projected Deposit)
2010/11	3	465.93
2011/12	4	503.66
2012/13	5	541.39
2013/14	6	579.12
2014/15	7	616.85

Bank of Kathmandu Ltd. (BOKL)

The Trend value of Net Profit of BOKL:

(Rs. in million)

Fiscal year	Net profit (y)	x = t - 2006/07	x^2	xy	y = a + bx (Trend values)
2005/06	392.59	-2	4	-785.18	396.17
2006/07	430.83	-1	1	-430.83	432.82
2007/08	479.21	0	0	0	469.47
2008/09	506.93	1	1	506.93	506.12
2009/10	537.80	2	4	1075.60	542.77
	y = 2347.36	**x=0**	**x^2=10**	**xy=366.52**	

Let the trend line be,

$$y = a + bx \dots \dots (i)$$

The two normal equation are

$$\Sigma y = na + b \Sigma x \dots \dots (ii)$$

$$\Sigma xy = a \Sigma x + b \Sigma x^2 \dots \dots (iii)$$

$$\therefore \text{From (ii) } a = \frac{\Sigma y}{N} \dots \dots (iv)$$

From (iii) $b = \dfrac{\sum xy}{\sum x^2}$ .... (v)

Here, N = 5

$a = \dfrac{\sum y}{N} \quad = \quad \dfrac{2347.36}{5} \quad = 469.47 \qquad$ or, a = 469.47

$y = \dfrac{\sum xy}{\sum x^2} \quad = \quad \dfrac{366.52}{10} \quad = 36.65 \qquad$ or, b = 36.65

The☐☐ straight line trend for total deposits is,

$y = a + bx \rightarrow 469.47 + 36.65X$

For year 2008/2009, $\quad y = a + bx \rightarrow 469.47 + 36.65 \times 3$

$x = 3 \qquad\qquad\qquad y = $ Rs. 579.42 million

Other trend values have been calculated accordingly.

(Rs. in million)

Year (t)	x = (t - 2006/07)	y = a + bx (Projected Deposit)
2010/11	3	579.42
2011/12	4	616.07
2012/13	5	652.72
2013/14	6	689.37
2014/15	7	726.02

Annex A - 23

Test of Hypothesis on Loan and Advances to total deposit ratio of Nepal Investment Bank Ltd and Bank of Kathmandu Ltd.

Calculation of X, Y and S^2, Assuming $x = x - \bar{x}$, $y = y - \bar{y}$

NIBL			BOKL		
X	$x = (x-\bar{x})$	x^2	Y	$y = (y-\bar{y})$	y^2
56.43	0.39	0.1521	38.00	3.12	9.73
52.56	-3.48	12.11	36.82	1.94	3.76
50.31	-5.73	32.83	35.97	1.09	1.19
60.34	4.3	18.49	32.00	-2.88	8.29
60.55	4.51	20.34	31.63	-3.25	10.56
X = 280.19	**x = -0.01**	**x^2=83.92**	**Y = 174.42**	**y = 0.02**	**y^2=33.53**

$$\bar{x} = \frac{\sum X}{N} = \frac{280.19}{5} = 56.04$$

$$\bar{y} = \frac{\sum Y}{N} = \frac{174.42}{5} = 34.82$$

We know that,

$$S^2 = \frac{1}{N_1 + N_2 - 2} \left[\left\{ \sum X2 - \frac{(\sum x)^2}{n} + \sum y^2 - \frac{(\sum y)^2}{n} \right\} \right]$$

$$S^2 = \frac{1}{5+5-2} \left[\left\{ 83.922 - \frac{(-0.01)^2}{5} + 33.53 - \frac{(0.02)^2}{5} \right\} \right]$$

$$= \frac{1}{8} \left[83.92 - 0.00002 + 33.53 - 0.00008 \right]$$

or, $$S^2 = 14.56$$

Annex A - 24

Test of Hypothesis Total Investment to Total Deposit Ratio of Nepal Investment Bank Ltd and Bank of Kathmandu Ltd.

Calculation of X, Y and S^2, Assuming $x = x - \bar{x}$, $y = y - \bar{y}$

NIBL			BOKL		
X	$x = (x-\bar{x})$	x^2	Y	$y = (y-\bar{y})$	y^2
9.79	-29.71	882.68	26.65	-24.57	603.68
48.64	9.14	83.54	61.95	10.73	115.13
52.88	13.38	179.02	58.58	7.36	54.17
44.85	5.35	28.62	55.22	4	16
41.33	1.83	3.35	53.68	2.46	6.05
X = 197.49	x = -0.01	x^2=1177.21	Y = 256.08	y = -0.02	y^2=795.03

$$\bar{x} = \frac{\Sigma X}{N} = \frac{197.49}{5} = 39.50$$

$$\bar{y} = \frac{\Sigma Y}{N} = \frac{256.08}{5} = 51.22$$

We know that,

$$S^2 = \frac{1}{N_1 + N_2 - 2} \left[\left\{ \Sigma X2 - \frac{(\Sigma x)^2}{n} + \Sigma y^2 - \frac{(\Sigma y)^2}{n} \right\} \right]$$

$$S^2 = \frac{1}{5+5-2} \left[\left\{ 1177.21 - \frac{(-0.01)^2}{5} + 795.03 - \frac{(0.02)^2}{5} \right\} \right]$$

$$= \frac{1}{8} \left[1177.21 - 0.00002 + 795.03 - 0.00008 \right]$$

$$\text{or,} \quad S^2 = 246.53$$

Annex A - 25

Test of Hypothesis on Investment in Government Securities to Current Ratio of *Nepal Investment Bank Ltd* and *Bank of Kathmandu Ltd*.

Calculation of X, Y and S^2. Assuming $x = x - \bar{x}$, $y = y - \bar{y}$

NIBL			BOKL		
X	$x = (x-\bar{x})$	x^2	Y	$y = (y-\bar{y})$	y^2
8.35	-9.69	93.90	20.05	-8.22	67.57
15.1	-2.94	8.64	25.03	-3.24	10.50
23.24	6.2	27.04	31.00	2.73	7.45
21.56	3.52	12.39	31.86	3.59	12.89
21.94	3.90	15.21	33.43	5.16	26.63
X = 90.19	x = -0.01	x^2=157.18	Y = 141.37	y = -0.02	y^2= 125.04

$$\bar{x} = \frac{\sum X}{N} = \frac{90.19}{5} = 18.04$$

$$\bar{y} = \frac{\sum Y}{N} = \frac{141.37}{5} = 28.27$$

$$S^2 = \frac{1}{N_1 + N_2 - 2}\left[\left\{\sum X2 - \frac{(\sum x)^2}{n} + \sum y^2 - \frac{(\sum y)^2}{n}\right\}\right]$$

$$S^2 = \frac{1}{5+5-2}\left[\left\{157.18 - \frac{(-0.01)^2}{5} + 125.04 - \frac{(0.02)^2}{5}\right\}\right]$$

$$= \frac{1}{8}\ [157.18 - 0.00002 + 125.04 - 0.00008\ ]$$

$$\text{or,} \quad S^2 = 35.28$$

Annex A - 26

Test of Hypothesis on Return on Loan and Advance Ratio Nepal Investment Bank Ltd and Bank of Kathmandu Ltd.

Calculation of X, Y and S^2, Assuming $x = x - \bar{x}$, $y = y - \bar{y}$

NIBL			BOKL		
X	$x = (x-\bar{x})$	x^2	Y	$y = (y-\bar{y})$	y^2
4.56	0.16	0.026	8.22	0.08	0.0064
3.50	-0.9	0.81	7.58	-0.56	0.3136
3.48	-0.92	0.85	8.41	0.27	0.0729
5.13	0.73	0.53	8.45	0.31	0.0961
5.33	0.93	0.865	8.03	-0.11	0.0121
X = 22	x = 0	x^2=3.08	Y = 40.69	y = -0.01	y^2= 0.5011

$$\bar{x} = \frac{\Sigma X}{N} = \frac{22}{5} = 4.4$$

$$\bar{y} = \frac{\Sigma Y}{N} = \frac{40.69}{5} = 8.14$$

We know that,

$$S^2 = \frac{1}{N_1 + N_2 - 2}\left[\left\{\Sigma X2 - \frac{(\Sigma x)^2}{n} + \Sigma y^2 - \frac{(\Sigma y)^2}{n}\right\}\right]$$

$$S^2 = \frac{1}{5+5-2}\left[\left\{3.08 - \frac{(0)^2}{5} + 0.5011 - \frac{(-0.01)^2}{5}\right\}\right]$$

$$= \frac{1}{8}[3.08 + 0.5011 - 0.00002]$$

or , $S^2 = 0.4476$

Annex A - 27

Test of Hypothesis on Total Interest Earned to Total Outside Assets Nepal Investment Bank Ltd and Bank of Kathmandu Ltd.

Calculation of X, Y and S^2, Assuming $x = x - \bar{x}$, $y = y - \bar{y}$

	NIBL			BOKL	
X	$x = (x-\bar{x})$	x^2	Y	$y = (y-\bar{y})$	y^2
12.37	4.08	16.65	12.95	5	25
7.9	-0.39	0.1521	8.16	0.21	0.044
7	-1.29	1.664	6.77	-1.18	1.39
7.2	-1.09	1.19	6.12	-1.83	3.35
6.96	-1.33	1.77	5.77	-2.18	4.75
X = 41.43	x = -0.02	x^2=21.43	Y =□39.77	y = -0.02	y^2= 34.53

$$\bar{x} = \frac{\sum X}{N} = \frac{41.43}{5} = 8.29$$

$$\bar{y} = \frac{\sum Y}{N} = \frac{39.77}{5} = 7.95$$

We know that,

$$S^2 = \frac{1}{N_1 + N_2 - 2}\left[\left\{\sum X2 - \frac{(\sum x)^2}{n} + \sum y^2 - \frac{(\sum y)^2}{n}\right\}\right]$$

$$S^2 = \frac{1}{5+5-2}\left[\left\{21.43 - \frac{(-0.02)^2}{5} + 34.53 - \frac{(0.02)^2}{5}\right\}\right]$$

$$= \frac{1}{8}\ [\,21.43 - 0.00008 + 34.53 - 0.00008\,]$$

$$\text{or,} \quad S^2 = 55.96$$