

# CHAPTER 1

## INTRODUCTION

### 1.1. Background

Nepal is a landlocked country with no bound of economic progress. Boom in economic condition of Nepal is certain with better condition that prevails in the country. Economic environment plays a vital role in investment policy analysis. Commercial banks are the major financial institutions which occupy quite an important place in the economy. They act as a catalyst by collecting deposits to generate capital for the development of industry, trade, business, and other deficit sectors; thereby contributing to the economic growth of the nation as a whole. *"Investment in the actual sense refers to the sacrifice of current dollars for future dollars."* – Sharpe, W.F., Alexandra G.J. 1995 (Investment Analysis). *"Investment policy involves determining the investors' 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."* - Francis, Jack Clarke, 1991 (Investment Analysis & Management)

The real talent of an investor primarily relies upon selecting proper or suitable area for investment with low or moderate risk. Investment policy should ensure the minimization of risk and maximization of profit while doing business.

In the beginning, commercial banks' functions were confined to accepting deposit and giving loans. Now, their functions have increased substantially. They offer a wider range of services encompassing the needs of people from different walks of life. The main objective of bank involves collecting sum from public in the form of savings and providing short-term as well as long-term loans for the development of industry, trade, and business. Generally, when we talk of banks, we mean commercial banks.

Banking in the modern sense started with the inception of Nepal Bank Ltd on 1994-07-30 B.S. Nepal Bank Ltd had a massive responsibility of attracting people towards the banking sector from the grip of moneylenders and of expanding the services of banking. Being a commercial bank, it was obvious that NBL paid more attention to profit

generating business and preferred opening branches at urban centers rather than in rural areas. However, Government has the onus of stretching banking services to the nook and corner of the country and also managing financial system in a proper way. Hence, there was a central bank mandatory.

This thesis report analysis will be based on Joint Venture Bank where specifically two banks of the type are taken under consideration. Both the banks to be taken are of “A” Class institutions licensed by NRB. Let’s have an overview on the banks:

### **Nabil Bank Limited at a glance**

Nabil Bank Limited is the first foreign joint venture bank of Nepal. which started its operations since July 1984. NABIL Bank Ltd. (erstwhile Nepal Arab Bank Ltd.) was established on July 12<sup>th</sup> 1984 under a technical service agreement with Dubai Bank Ltd., Dubai, which was later, merged with Emirate Bank Ltd., Dubai. NABIL is the first and major joint venture bank in the country with key points of representation all over Nepal. NABIL is the pioneer in introducing many innovative products and marketing concept in banking Nepal with 36 branches and 2 counters in all major cities and over 170 reputed correspondent banks across the globe. It is the only bank to have a counter in Tribhuvan International Airport, the only international airport of the country. 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.

NABIL 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 2004.

The bank provides a complete range of personal, commercial and corporate banking and related financial services through its 36 branches and 2 airport counters, the largest number of branches amongst any JVB's in Nepal. It is the only bank to have a counter in Tribhuvan International Airport, the only international airport of the country. Also, the number of outlets in the country is the highest among the joint venture and private banks operating in Nepal. The bank has recently been awarded "Bank of Year 2004" 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. NABIL 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. NABIL was the first bank to issue credit card in Nepal. NABIL has correspondent banking relationship with banks in 47 countries. NABIL is a member of SWIFT. It has also been providing ATM facilities to its account holders.

The entire NABIL Team embraces a set of Values that acronym is referred to as 'C.R.I.S.P' representing the fact that they consistently strive to be **C**ustomer Focused, **R**esult Oriented, **I**nnovative, **S**ynergistic and **P**rofessionals. By living these values, individually as professionals and collectively as a Team, NABIL Bank is committed to Surge Ahead to be the Bank of 1<sup>st</sup> Choice in Nepal.

### **The Bank's Mission:**

The bank's mission is to be the "Bank of 1<sup>st</sup> Choice" for all its stakeholders, therefore it is for the stakeholders to determine whether the Bank is successful or not, for it is they who have to choose the Bank. This is reflected in NABIL's statement of commitment to always be "**Your Bank at Your Service**" which is a clear reflection that the Bank's stakeholders are at the core of everything it does.

## **Himalayan Bank Limited at a glance**

Himalayan Bank Limited was incorporated in 1992 by a few distinguished business personalities of Nepal in partnership with Employees Provident Fund and Habib Bank Limited, one of the largest commercial Banks of Pakistan. Banking operation was commenced from January 1993. This is the first commercial bank of Nepal whose maximum shares are held by Nepalese private sectors. Himalayan Bank has a total of 26 branches across the Country and 178 correspondent banks internationally. Despite the cut-throat competition in the Nepalese Banking sector, Himalayan Bank has been able to maintain a lead in the primary banking activities- Loans and Deposits. *HBL is not only a Bank, It is committed Corporate Citizen.*

Legacy of Himalayan lives on in an institution that's known throughout Nepal for its innovative approaches to merchandising and customer service. Products such as Premium Savings Account, HBL Proprietary Card and Millionaire Deposit Scheme besides services such as ATMs and Tele-banking were first introduced by HBL. Other financial institutions in the country have been following our lead by introducing similar products and services. Therefore, we stand for the innovations that we bring about in this country to help our Customers besides modernizing the banking sector. With the highest deposit base and loan portfolio amongst private sector banks and extending guarantees to correspondent banks covering exposure of other local banks under our credit standing with foreign correspondent banks, we believe we obviously lead the banking sector of Nepal. The most recent rating of HBL by Bankers' Almanac as country's number 1 Bank easily confirms our claim.

All Branches of HBL are integrated into Globus (developed by Temenos), the single Banking software where the Bank has made substantial investments. This has helped the Bank provide services like 'Any Branch Banking Facility', Internet Banking and SMS Banking. Living up to the expectations and aspirations of the Customers and other stakeholders of being innovative, HBL very recently introduced several new products and services. Millionaire Deposit Scheme, Small Business Enterprises Loan, Pre-paid Visa Card, International Travel Quota Credit Card, Consumer Finance through Credit Card and online TOEFL, SAT, IELTS, etc. fee payment facility are some of the products and services. HBL also has a dedicated offsite 'Disaster Recovery Management System'.

Looking at the number of Nepalese workers abroad and their need for formal money transfer channel; HBL has developed exclusive and proprietary online money transfer software- HimalRemitTM. By deputing our own staff with technical tie-ups with local exchange houses and banks, in the Middle East and Gulf region, HBL is the biggest inward remittance handling Bank in Nepal. All this only reflects that HBL has an outside-in rather than inside-out approach where Customers’ needs and wants stand first.

**Equity Share Participation**

National investments holds about 80% of equity shares & out of that 80% promoters holds about 5% where financial institutions along with general public holds 14% & 15% respectively. The following table along with chart gives a graphical view of the shareholders well as capital structure of HBL.

Table 1: Equity Participation of HBL

**Subscription**

<b><u>National Investment</u></b>	<b>Holding</b>
General Public (Promoters Shareholders)	51%
Financial Institution (Employees Provident Fund)	14%
Nepalese Public Shareholders	15%

**Foreign Investments**

1 Habib Bank Ltd., Pakistan	20%
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**HBL is not only a Bank, It is committed Corporate Citizen**

Corporate Social Responsibility (CSR) holds one of the very important aspects of HBL. Being one of the corporate citizens of the country, HBL has always promoted social activities. Many activities that do a common good to the society have been undertaken by HBL in the past and this happens as HBL on an ongoing basis. Significant portion of the sponsorship budget of the Bank is committed towards activities that assist the society as large.

**The Bank's Vision:**

Himalayan Bank Limited holds of a vision to become a **Leading Bank of the country** by providing premium products and services to the customers, thus ensuring attractive and substantial returns to the stakeholders of the Bank.

**The Bank's Mission:**

The Bank's mission is to become preferred provider of quality financial services in the country. There are two components in the mission of the Bank; **Preferred Provider and Quality Financial Services**; therefore we at HBL believe that the mission will be accomplished only by satisfying these two important components with the Customer at focus. The Bank always strives positioning itself in the hearts and minds of the customers.

**The Bank's Objective:**

To become the Bank of first choice is the main objective of the Bank.

**Status of Financial Institutions of Nepal**

Being a developing country, the number of banks in Nepal is increasing in number. Taking few exceptions under consideration, the functioning of these banks are not as satisfactory as comparison to the increasing number. There are a total of 181 financial institutions consisting 29 Commercial Banks, 63 Development Banks, 15 Rural Development Banks, 77 Finance Companies, 16 Saving and Credit Co-Operatives, and 45 Non-Governmental Organizations.

**Rationale of Topic Chosen**

Covering the financial aspect of the study as well as being the subject of interest, "Investment Policy Analysis on Joint Venture Banks in Nepal (with reference to Nabil Bank Limited and Himalayan Bank Limited)" has been selected for the partial fulfillment as per the requirement for the degree of MBS.

## **1.2. Statement of the Problem**

Commercial banks have huge collection of money 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 and have no clear view towards investment policy. Furthermore, the implementation of policy is not been in practice in an effective way. The main reason attributing to unsound investment policy is lack of proper analysis on financial risks, interest rate risks, liquidity risks, business risks, etc. JVB's have become a role model in the process of improving the mobilization of fund.

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

Thus, the present study will make a modest attempt to analyze investment policy of two joint venture banks vis. NABIL and HBL. This study basically deals with the following issues of JVB's.

- a. Are the JVB's properly utilizing their available fund?
- b. Is the fund mobilization and investment policy of JVB's effective?
- c. What is the relationship of investment, loan and advances with total deposits and net profit of JVB's?
- d. Does the investment decision affect the total earnings of JVB's?

### 1.3. Objective 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 policies and strategies followed by NABIL and HBL. The specific objectives of this study are given below:

- ) To evaluate ratios on the study with liquidity, asset management, profitability, risk position, and growth tools in between the banks
- ) To analyze the relationship between total deposits and investments, loans and advances, interests earned and net profit, net profit to total working fund, loan and advances to interest paid and their comparison
- ) To analyze the trend of deposits, investments, net profit, and loan and advances, for next five years of HBL and NABIL

### 1.4. Hypothesis Formulation

**H<sub>0</sub>:** There is no significant difference between the financial performance of Nabil Bank Limited and Himalayan Bank Limited.

**H<sub>1</sub>:** There is significant difference between the financial performance of Nabil Bank Limited and Himalayan Bank Limited.

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

- i. Test of hypothesis on loan and advances to total deposit ratio of NABIL and HBL.
  - H<sub>0</sub>:** There is no significant difference between the mean loan and advances to total deposit ratio of NABIL and HBL.
  - H<sub>1</sub>:** There is significant difference between the mean loan and advances to total deposit ratio of NABIL and HBL.
- ii. Test of hypothesis on Investment in Government securities to current assets ratio of NABIL and HBL



**H<sub>0</sub>:** There is no significant difference between the mean Investment in Government securities to current assets ratio of NABIL and HBL.

**H<sub>1</sub>:** There is significant difference between the mean Investment in Government securities to current assets ratio of NABIL and HBL.

iii. Test of hypothesis of total investment to total deposit ratio of NABIL & HBL.

**H<sub>0</sub>:** There is no significant difference between the mean total investment to total deposit ratio of NABIL and HBL.

**H<sub>1</sub>:** There is significant difference between the mean total investment to total deposit ratio of NABIL and HBL.

iv. Test of hypothesis of return on loan and advances ratio of NABIL & HBL.

**H<sub>0</sub>:** There is no significant difference between the mean return on loan and advances ratio of NABIL and HBL.

**H<sub>1</sub>:** There is significant difference between the mean return on loan and advances ratio of NABIL and HBL.

### **1.5. Significance of the Study**

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

This study of Investment Policy Analysis on Joint Venture Commercial Banks of Nepal in reference to two major JVB's 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.

## 1.6. Limitation of the Study

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

1. This study will be based on secondary data collected from the banks
2. This study will be limited to only a period of five years of the concerned banks and hence the conclusion drawn only confines to those years.
3. This study will deal with only two JVB's i.e. NABIL and HBL. Other commercial banks have not been considered in this study.
4. This research will be particularly based on data gathered from the published annual report of two banks along with NRB directives issued from time to time.

## 1.7. 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** is the introductory chapter which contains the following topics:

- a. General background of the study
- b. Statement of the Problem
- c. Objectives of the Study
- d. Hypothesis formulation
- e. Significance of the Study
- f. Limitations of the Study
- g. 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.

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

The **third chapter** concentrates on Research Methodology i.e. 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 correlation 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 provides some valuable suggestions to the selected banks.

## **CHAPTER 2 REVIEW OF LITERATURE**

This part of the study tries to describe the conceptual framework, concept of commercial bank and joint venture bank. Apart from these, this chapter highlights the literature that are 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 Commercial Bank**

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" in the bank and probably bankruptcy thereof. 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. *"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 (Principle of Bank Operation, USA). *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 BS. *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.* - Ronald Grywinshki; 1991 (The New function on Banking)

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
- Others

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

### **2.1.2 Joint Venture Banks**

In order to operate a business organization under joint venture basis, there should at least be two partners from two different countries. Joint venture banks are the commercial banks formed by joining two or more enterprises for the purpose of carrying out specific operation such as investment in trade, business and industry as well as in the form of negotiation between various groups of industries or traders to achieve mutual exchange of good and services. JVB's are the mode of trading to achieve mutual exchange of goods and services for sharing competitive advantage by performing joint investment scheme between Nepalese investors and their parent banks each supplying 50 percent of total investment. The parent banks, which have experience in highly merchandised and efficient modern banking services in many parts of the world, have come to Nepal with latest technology and advanced management skills. JVB's are established by joining forces and with ability to achieve a common goal with each of the partners. They are more effective and efficient monetary institution in modern banking fields than other old type of banks in Nepalese context. *"A joint venture is the joining of forces between two or more enterprises for the purpose of carrying out a specific operation (industrial or*

*commercial) investment, production or trade". -Grupt D.P.; 1984 (The Banking System, its Role in Export Development).*

The primary objective of these JVB's is always to earn profit by investing or granting loan and advances to people associated with trade, business, and industry etc.

### **2.1.3 Investment**

We all have heard the word "investment" because it has become a household word and is very popular with people from all walks of life. Let's define it more precisely. Most of the people earn and spend money. Rarely, their current money income exactly balances with their consumption. These imbalances will lead either to borrow or to save.

When current income exceeds current consumption desires, people tend to save the excess. They can do any of several things with these saving. One possibility is to put the money under a mattress or bury it in the ground (as our ancestors used to do) until some future time when consumption desires exceeds current income. When they retrieve their savings from the mattress or ground, they have the same amount they saved because money does not multiply itself. The buried money even fails to preserve its value against the on going (prevailing) inflation. Therefore the saving can be employed in such a way that its value is preserved and some additional income can be generated at a future date. Thus, investment is the current commitment of the savings that compensates for the time involved, the expected rate of inflation and uncertainty involved. To state in other words, an investment in any vehicle into which funds can be placed with the expectation that they will generate positive return and /or their value will be preserved or increased.

### **2.1.4 Features of a Sound Lending and Investment Policy**

The income and profit of a financial institution depends upon 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 underdeveloped 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 from 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     =     Ascertain-ability  
                  S     =     Stability  
                  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, 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 banks' 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 lending.

**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 statutory 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.



## **2.1.5 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 and building, plant and 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 assets.

### ***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 represents 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  $\sigma$  and measures risk.

### ***Variance***

The square of standard deviation is called variance. It is generally denoted by ' $\sigma^2$ '. 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,

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

### ***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 Related Studies**

### **2.2.1 Review of Journal/Article**

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; 2055 B.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:

- a) Higher return which is comparable with alternative opportunities available not undermining the risk taking capability of the investor.
- b) Adequate liquidity with sufficient safety and profitability of investment.
- c) Maximum tax concessions.
- d) Certain capital gain and flexibility of investment.
- e) Economic, efficient and effective mix of investment etc.

With these in view, the following strategies need to be adopted:

- 1) To have a portfolio of different securities and not just holding a single security.
- 2) 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.
- 3) 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.

- a) 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.
- b) To identify variety of securities for investment to reduce volatility of returns and risk.
- c) To develop alternative investment strategies for selecting a better portfolio, which will ensure a trade off between risk and return so as to attain the primary objective of wealth maximization at lowest risk

- d) 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:

- 1) The survival of every bank depends upon its own financial health and various activities.
- 2) 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.
- 3) 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 expenses.

**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, and they do not properly 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 organizations rely heavily on the business deposit and credit disbursement.



Mr. Pradhan has highlighted the following problems of deposit mobilization in the Nepalese context.

- 1) 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.
- 2) Unavailability of institutional services in rural areas.
- 3) Due to lesser office hours of banking system, people prefer holding cash in their personal possession.
- 4) 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 joint venture banks. He writes that the establishment of JVB's a decade ago marks the beginning of modern banking era in Nepal. The JVB's 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.

### 2.2.2 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 joint venture 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 to 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 JVB's 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 deal 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:

- 1) Bank borrowing and retained earnings are the two most widely used financing sources.
- 2) The enterprises have a definite performance for bank loans at a lower level of debt.
- 3) Most enterprises do not borrow from one bank only and they do switch between banks, which ever offer best interest rates.
- 4) Most enterprises find that banks are flexible in interest rates and convenience.
- 5) Generally, there is no definite time to borrow the issue stocks, i.e 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.

### **2.2.3 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:

**Indra Bahadur Bohara** (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:

- a) To find out the liquidity position and profitability position of above mentioned JVB's in comparison with finance companies.
- b) To find out the relationship between profitability and asset structure.
- c) To analyze the deposit utilization trend and its future projections for next five years for JVB's and finance companies.

- d) To study the various risks in investment of JVB'S in comparison with finance companies.
- e) To analyze the relationship between deposits and investment, deposits & loan & advances, net profit and total assets of JVB'S in comparison with finance companies.
- f) To provide suggestion and recommendation on the basis of findings.

The major findings of the study were as follows:

- 1) Liquidity position of JVB's is comparatively better than that of finance companies. Finance companies have made nominal amount of investment in government securities.
- 2) 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.
- 3) 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.
- 4) 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.
- 5) The risk ratios of finance companies are less variable than the JVB's. The interest risk ratio of finance companies is higher where as the capital risk ratios of JVB'S are comparatively higher than that of finance companies.
- 6) 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.

**Jyoti Thapa** (2002) has conducted a research entitled "Investment Policy of Commercial banks in Nepal.

The objectives of the study were:

- a) 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 NABIL and BOKL.
- b) To evaluate the liquidity, efficiency, profitability and risk position.
- c) To evaluate the growth ratios of loans and advances and total investment with other financial variables.
- d) To analyze the trends of deposits utilization towards total investment and loan and advances and its projection for next five years.
- e) To conduct hypothetical test to find out whether there is significant difference between the important ratios of EBL, NABIL & BOKL.
- f) To provide packages of workable suggestions and possible guidelines to improve investment policy of EBL and other banks.

The major findings are enumerated below:

- a) EBL is comparatively better than NABIL and BOKL in terms of liquidity.
- b) EBL has been less successful than NABIL and BOKL in its on balance sheet operation as well as off balance sheet activities.
- c) The profitability position of EBL is worse than NABIL and BOKL.
- d) EBL is exposed to more credit risk and capital risk, but lower interest rate risk than NABIL and BOKL.
- e) EBL has maintained high growth rates in total deposit, loan and advances but it has moderate position in investment.
- g) There is significant relationship between deposit and loan and advances and outside assets and net profit of EBL.

**Dilip Roy** (2003) has conducted a research entitled "An Investment Analysis of RBB in comparison with NBL".

The specific objectives of the study were.

- a) To evaluate liquidity, activity and profitability ratios of RBB in comparison with NBL and industry average.
- b) 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.
- c) 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.
- d) To examine the loan loss provision of RBB and NBL.
- e) To provide suggestion and recommendation on the basis of findings.

The major findings of the study were:

- a) RBB has good deposit collection, enough loan and advance and investment in government securities. It has comparatively better liquidity position than NBL.
- b) 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.
- c) The profitability position of RBB is worse. RBB needs to take immediate steps to increase its profitability.
- d) RBB's fund collection and fund mobilization is satisfactory in comparison to NBL.
- e) There is significant relationship between deposit and loan and advance. There is insignificant relationship between deposit and investment, and outside assets and net profit.

**Kalpna Khaniya** (Banjade) (2003) has conducted a thesis research entitled "Investment portfolio Analysis of JVB's".

The specific objectives of the study were:

- a) To analyze the risk and return ratios of commercial banks.
- b) To evaluate the financial performance of JVB's.
- c) To provide suggestion package based on the analysis of data.
- d) To study existing investment policies taken by NABIL in various sectors.
- e) To study portfolio structure of NABIL in investment as compared to other JVB's.
- f) Preference given by NABIL for investment between,
  - Loan Investment.
  - Investment in real fixed assets.
  - Investment in financial assets.

The main findings of the study were:

- a) SCBNL has the highest return on shareholders fund and total assets. It has also been successful in mobilizing its deposits as investments. NABIL and EBL have invested high amounts of deposits as loan and advances in comparison to SCBNL, NABIL and HBL.
- b) 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 NABIL has invested highest amount of funds in NRB bonds in comparison to other JVB's.
- c) SCBNL has the highest EPS and EBL the lowest EPS among the JVB's.

**Dipak Pandit** (2004) 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:

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

- a) 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.
- b) 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.
- c) The profitability position of all the banks is not satisfactory. The banks have not adopted sound investment policy in utilizing their surplus funds.
- d) BOKL & EBL are exposed to high credit risk and capital risk.
- e) 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.
- f) There is significant relationship between deposits and total investment of BOKL & EBL but the same is not significant in case of NSBIL.

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. NABIL and SCBNL are the best examples of JVB's 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.

**Kalpana Shakya** (2008) in her thesis entitled “An Analysis of Investment Portfolio of Joint Venture Banks” observes the objective and findings as follows.

The major objectives of the study were:

1. To study portfolio structure of Joint Venture Bank in Investment.
2. To analyze the risk and return of joint venture banks.
3. To study and analyze the exiting investment decisions taken by Sample Joint Venture Bank in various sectors.
4. To compare the returns from different portfolio investments.
5. To provide the suggestive ideas based on the analysis of data.

The major findings of the study were:

1. SCBNL and NABIL have better position. HBL has a low position in the industry. But NBBL has a very low position in the industry of having lowest mean return on shareholders' fund.
2. It is therefore, concluded that except HBL and NBBL, all other banks i.e. NABIL, SCBNL have good performance mean return on total assets.
3. As compared to NABIL, SCBNL and HBL indicated that SCBNL has higher mean percentage of investment to total deposit, and in the same manner NABIL bank has a lower return as compared to SCBNL and HBL indicated that SCBNL mobilize the funds in investment title is higher than the standard ratio, whereas NABIL's invested funds is slightly below than the standard ratio.
4. SCBNL and HBL are investing low amount of deposit on loans and advances which is lower than industry average and NABIL and NBBL have invested a high amount of deposits to loans and advances title which is higher than industry average.

5. Similarly looking at the investment portfolio, the industry average investment on government securities is 92.8%. NABIL, SCBNL, HBL have invested above industry average. NABIL, SCBNL and HBL have invested lower than industry average and the industry average in this case is 5.9%. HBL is investing the highest amount of funds on NRB bond as other joint venture banks has not invested on NRB bond.
6. The coefficient between investment in government securities and portfolio return except NABIL other three banks had a positive correlation between investment in government securities and portfolio returns.
7. NABIL and HBL had a negative correlation between loan and advances in private sector and portfolio return; and other banks had vice versa.
8. The significance of correlation coefficient of banks between loan and advance in private sector and portfolio return of NABIL and SCBNL is highly significant and HBL and NBBL are inconclusive.
9. Negative relationship between loan and advances and Portfolio return in NABIL and HBL; Positive relationship between loan and advances and portfolio return in SCBNL and NBBL.
10. Positive relationship between investment in government securities and portfolio return in SCBNL, HBL, NBBL, Negative relationship in NABIL.

**Dipak Bhandari**, Lumbini Baniya Campus (October 2008) on “Comparative study on investment policy of Nabil Bank limited and Himalayan Bank limited” study have following observations.

#### Objectives of the study

1. To evaluate the liquidity, efficiency of assets management, profitability, and risk position of concerned commercial banks and compare with each other.
2. To find out the empirical relationship between the variables, that affecting the investment policy.
3. To make a comparative study on fund mobilization and investment policy of the selected banks.

4. To study the views and ideas of the financial executives and customers regarding the knowledge on the investment policy adopted by commercial bank.

Major findings of the study:

1. Liquidity ratio of HBL in comparison to NABIL in regards to current ratio, cash and bank to total deposit ratio, and investment on government securities to current assets is better.
2. The loan & advances to total deposit / total assets ratio, investment on share and debentures to total assets ratio and loan recovery of NABIL is higher than HBL.
3. The total investment to total deposit and investment on government securities to total assets ratio of HBL is higher than NABIL.
4. Return on loan & advances / total assets / equity of NABIL is higher than that of HBL. Similarly, total interest earned to total assets / total outside assets ratio of NABIL is higher than HBL.
5. Total interest earned to total operating income ratio and total interest paid to total assets ratio of HBL is higher than NABIL.
6. NABIL has better management of Loan and Advances because of having lower non performing Loan and Advances to total loan ratio whereas HBL is successful in making stable non performing loan and advances. Interest rate risk of both banks is high which is not desirable by any bank. Comparatively HBL has higher interest risk rate.
7. The growth rate of total deposit, loan & advances, total investment and interest income of HBL is higher than that of NABIL. This shows strength of HBL in these respective sectors of banks. The growth rates of net profit and interest expenses of NABIL are higher than that of HBL. It shows, though the interest expenses of NABIL are increasing, its net profit is also increasing. It indicates the better performance of NABIL in comparison to HBL.
8. There is positive correlation between deposit and loan and advances, deposit and total investment, total assets and net profit for both banks.

9. Total deposit, loan and advances, net profit of NABIL and HBL are in increasing trend. But NABIL has decreasing trend of total investment. HBL has higher growth rate of these variables.
10. In testing of hypothesis, there is no significant difference between NABIL and HBL in case of Loan and Advances to total deposit ratio and total investment to total deposit ratio but there is significant difference between NABIL and HBL in case of loan loss provision to loan and advance ratio and return on loan and advances ratio.

The entire research study concludes overall financial performance of NABIL is better than HBL. But HBL is operating smoothly and success is becoming the pillar of economic system of the country.

### **Research gap**

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 JVB's as sample viz NABIL and HBL. 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.

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 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 28 commercial banks listed in Nepal Stock Exchange. Samples are taken from this population, which are as follows:

**Table 1**  
**List of Commercial Banks in Nepal**

S.N.	Commercial Banks	S.N.	Commercial Banks
1	Nepal Bank Limited	15	Machhapuchhre Bank Limited
2	Rastriya Banijya Bank	16	Kumari Bank Limited
3	Agriculture Development Bank Ltd.	17	Laxmi Bank Limited
4	NABIL Bank Limited	18	Siddhartha Bank Limited
5	Nepal Investment Bank Limited	19	Global Bank Ltd.
6	Standard Chartered Bank Nepal Limited.	20	Citizens Bank International Ltd.
7	Himalayan Bank Limited	21	Prime Commercial Bank Ltd
8	Nepal SBI Bank Limited	22	Sunrise Bank Ltd.
9	Nepal Bangladesh Bank Limited	23	Bank of Asia Nepal Ltd.
10	Everest Bank Limited	24	Development Credit Bank Ltd.
11	Bank of Kathmandu Limited	25	NMB Bank Ltd.
12	Nepal Credit and Commerce Bank Ltd	26	KIST Bank Ltd.
13	Lumbini Bank Limited	27	Janta Bank Nepal Ltd.
14	Nepal Industrial & Commercial Bank Ltd	28	Mega International Bank

*Source: Nepal Rastra Bank, Mid July 2010, "Banking and Financial Statistics"*

Among them, only two joint venture banks viz. NABIL and HBL have taken into account for research proposes as samples in this research study to compare their investment policy. They are two among the best performing JVB's 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., Shankar Dev Campus Library, Public Youth 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 completed.

### **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 and
- 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 judgment. 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 Ratio

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:

$$\text{Current Ratio} \times \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

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 converted 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. In this research study, remaining term to maturity is taken into consideration from Statement of Liquidity Risk

Analysis on annual reports of concerned banks in order to determine the current assets/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.

Mathematically,

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

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,

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

**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,

$$\text{Investment in Government Securities to current Asset Ratio} \times \frac{\text{Total Investment in Government Securities}}{\text{Current Assets}}$$

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, total loan and advances have been taken into consideration. It shows the percentage of total loan and advances to current assets.

Mathematically,

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

**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,

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

**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,

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

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 high 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 in shares & debenture of other companies by total working fund.

Mathematically,

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

**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,

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

**ii) Return on Total Assets**

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,

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

**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 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,

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

**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,

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

**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 is 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,

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

**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 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.
- vi) Co-efficient correlation between total working fund and net profit.

Karl Pearson's correlation coefficient (r) can be obtained by using the following formulae.

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

- 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) Coefficient of determination:**

This is the measure of the degree of linear association or correlation between variables, one of which happens to be independent and other being dependent variable. It is denoted by  $r^2$ .

**c) Probable Error:**

Probable error is the measure to analyze the reliability of computed value of correlation coefficient.

Mathematically,

$$PEr = 0.64745 \times (1 - r^2) / N$$

Conclusion drawn:



If  $r < PEr$ , the value of  $r$  is not significant

If  $r > 6 PEr$ , the value of  $r$  is significant

**d) Trend Analysis:**

Under this topic we analyze the trend of deposits, loan and advances, investments and net profit of NABIL and HBL from F/Y 2002/2003 to F/Y 2006/2007. It also aids in making forecasting for the next five years up to 2011/2012. 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.

**e) Standard Deviation (S.D)**

The standard deviation measures the absolute dispersion. 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,

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

**f) Co-efficient of Variation (C.V.)**

The coefficient of variation is the corresponding relative measure of dispersion, comparable across distribution. C.V. is the proportion of standard deviation with mean multiplied by 100.

Mathematically,

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

In this study, CV is calculated on ratios.

**g) 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. A statistical hypothesis, which is stated for the purpose of possible acceptance, is called a null hypothesis. Any hypothesis, which is complementary to null hypothesis, is called an alternative hypothesis. This test has been conducted in order to justify the following statement made here under:

- i) Test of hypothesis on loan and advances to total deposit ratio of NABIL and HBL.
- ii) Test of hypothesis on Investment in Government securities to current assets ratio of NABIL and HBL.
- iii) Test of hypothesis of total investment to total deposit ratio of NABIL & HBL.
- iv) Test of hypothesis of return on loan and advances ratio of NABIL & HBL.

## CHAPTER 4

### 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 NABIL and HBL. 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 Tools

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 NABIL and HBL. 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.

The current ratios of NABIL and HBL are given in the table below:

**Table No. 2**  
**Current Ratio (Times) on**  
**Current Assets to Current Liabilities**

<b>F/Y</b>	<b>NABIL</b>	<b>HBL</b>
2004/05	2.08	1.98
2005/06	2.08	2.16
2006/07	1.83	1.17
2007/08	1.35	1.19
2008/09	1.20	1.07
Mean	1.71	1.51
S.D.	0.52	0.49
C.V.	0.31	0.33

**For Details: See Appendix-3**

It is clear from the above table that both NABIL and HBL have maintained current ratio. This is a sign that both banks are capable enough to pay their current obligations. NABIL has the highest current ratio in F/Y 2004/05 & 2005/06 i.e., 2.08 and the lowest in F/Y 2008/09 i.e., 1.20.

Similarly HBL has a high current ratio of 2.16 in F/Y 2005/06 and a low of 1.07 in F/Y 2008/09. The averages mean ratio of NABIL is slightly higher than HBL; i.e.  $1.71 > 1.51$ . This shows that NABIL's liquidity position is slightly better than that of HBL. The lower degree of standard deviation and coefficient of variation suggest that both the banks have maintained consistency in their ratios. The banks can cover the liabilities beyond 1 year term maturity to certain extend.

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.

In order to bring about consistency in this research, only maturity terms have been considered i.e. only one year to maturity is considered as current assets/liabilities.

**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 NABIL and HBL are given below:

**Table No. 3  
Cash and Bank Balance to Total deposit ratio (%)**

<b>F/Y</b>	<b>NABIL</b>	<b>HBL</b>
2004/05	3.83	8.12
2005/06	3.26	6.48
2006/07	6.00	5.85
2007/08	8.37	4.55
2008/09	9.03	8.79
Mean	6.10	6.76
S.D.	0.99	1.04
C.V.	0.16	0.15

**For Details: See Appendix - 4**

The above table shows that the cash and bank balance to total deposit of both NABIL and HBL are in fluctuating trend. NABIL had a high ratio of 9.03% in F/Y 2008/09 and a low ratio of 3.26% in F/Y 2005/06. Similarly, HBL has a high of 8.79% in F/Y 2008/09 and a low of 4.58% in F/Y 2007/08. The averages mean ratio of HBL is higher than NABIL i.e., 6.76% > 6.10%. This shows, HBL readiness to meet customer requirement better than NABIL. The C.V. of NABIL is higher than that of HBL i.e., 0.16 > 0.15. On its basis, it can be concluded that HBL's ratios are more consistent than that of NABIL.

Although the above ratios implies a slightly better liquidity position of HBL, 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 No. 4**  
**Cash and Bank Balance to current asset ratio (%)**

<b>F/Y</b>	<b>NABIL</b>	<b>HBL</b>
2004/05	6.34	9.02
2005/06	4.55	7.22
2006/07	8.26	6.51
2007/08	13.27	4.92
2008/09	19.45	10.23
Mean	10.37	7.58
S.D.	1.29	1.10
C.V.	0.12	0.15

**For Detail: See Appendix-5**

Table No. 4 shows that NABIL has maintained a high ratio of 19.37% in F/Y 2008/09, and a low ratio of 4.55% in 2005/06. Similarly, HBL has a high of 10.23% in F/Y 2008/09 anticipating higher cash requirement depositors in this F/Y. It has a low ratio of 4.92% in F/Y 2007/08.

The average mean ratio of is NABIL higher than HBL. The C.V. of HBL is greater than that of NABIL i.e.,  $0.15 > 0.12$ . It shows HBL ratios are less consistent than that of NABIL. The above table does not show any significant difference between the JVB's with regards to meeting customer's daily cash requirement.

*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 NABIL and HBL are tabulated below:

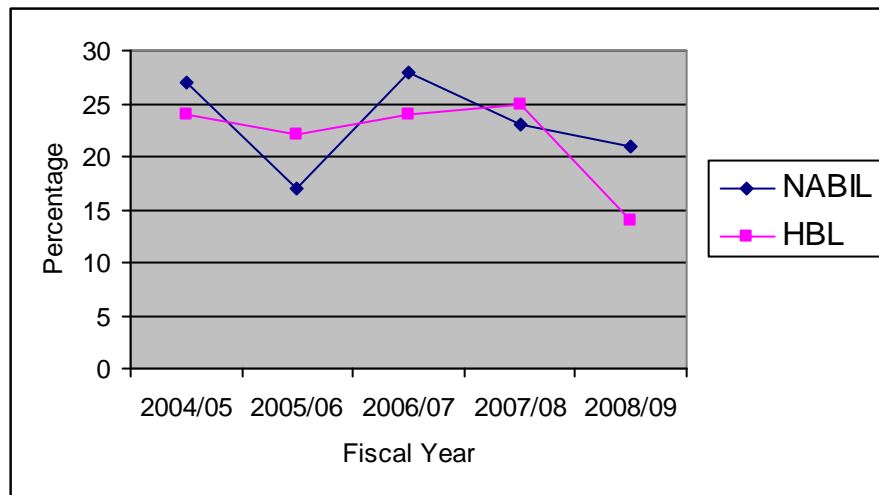
**Table No. 5**  
**Investment on Government Securities to Current Assets Ratio (%)**

<b>F/Y</b>	<b>NABIL</b>	<b>HBL</b>
2004/05	27	24
2005/06	17	22
2006/07	28	24
2007/08	23	25
2008/09	21	14
Mean	23.20	21.80
S.D.	1.93	1.87
C.V.	0.08	0.09

**For Detail: See Appendix-6**

From the above table, it is clear that the average mean ratio of NABIL is higher than that of HBL i.e. 23.20% > 21.80%. There is greater portion of current assets of both the banks on government securities. From the point of view of C.V. HBL's ratios have been more consistent. Investment on government securities to current assets ratio of NABIL & HBL is graphically shown as follows:

**Figure No. 1**  
**Investment on Government Securities to Current Assets Ratio of NABIL and HBL**



*Series 1 = NABIL; Series 2 = HBL*

**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 No. 6**  
**Loan and advances to current assets ratio**

<b>F/Y</b>	<b>NABIL</b>	<b>HBL</b>
2004/05	1.24	0.61
2005/06	0.96	0.62
2006/07	0.94	0.66
2007/08	1.08	0.69
2008/09	1.61	0.86
Mean	1.17	0.69
S.D.	0.43	0.33
C.V.	0.37	0.48

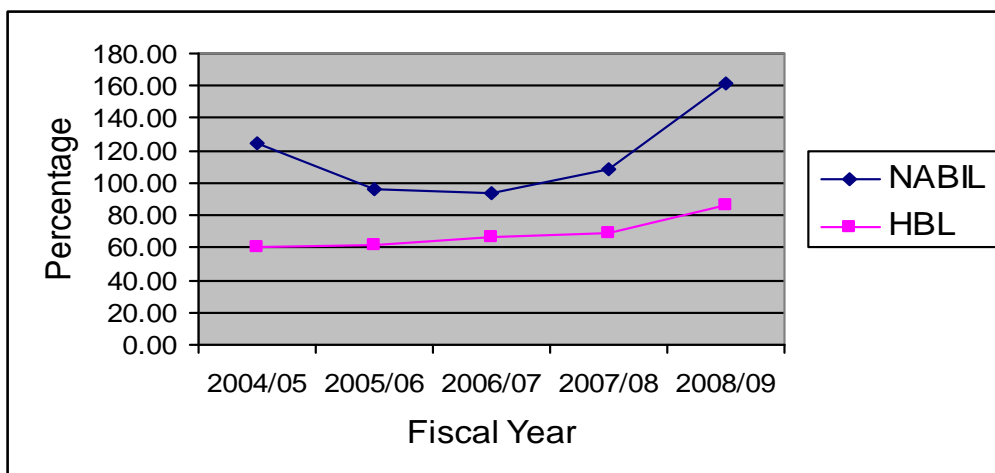
**For Detail: See Appendix-7**

The above table clearly shows the average mean ratio of NABIL is higher compared to HBL i.e.  $1.17 > 0.69$ . NABIL had a high ratio of 161 in 2008/09 and a low ratio of 0.94 in F/Y 2006/07. Similarly HBL has experienced a high ratio of 0.86 in F/Y 2008/09 and a low of 0.61 in F/Y 2004/05.

The above analysis reveals that NABIL has been more successful in identifying profitable investment sectors and increasing its earning.

The loan and advances to current assets ratios of NABIL and HBL are graphically shown as follows:

**Figure No. 2**  
**Loan and Advances to current asset ratio of NABIL & HBL**



*In the figure 2: above line shows the NABIL data likewise below line shows HBL data.*



## B) Asset Management Ratios

The following ratios measure the asset management ability of NABIL and HBL.

### 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 NABIL and HBL.

**Table No: 7**  
**Loan and Advances to Total Deposit Ratio (%)**

F/Y	NABIL	HBL
2004/05	75.05	54.77
2005/06	68.63	55.28
2006/07	68.13	59.22
2007/08	68.18	63.37
2008/09	74.97	73.58
Mean	70.99	61.24
SD	3.37	3.13
CV	0.05	0.05

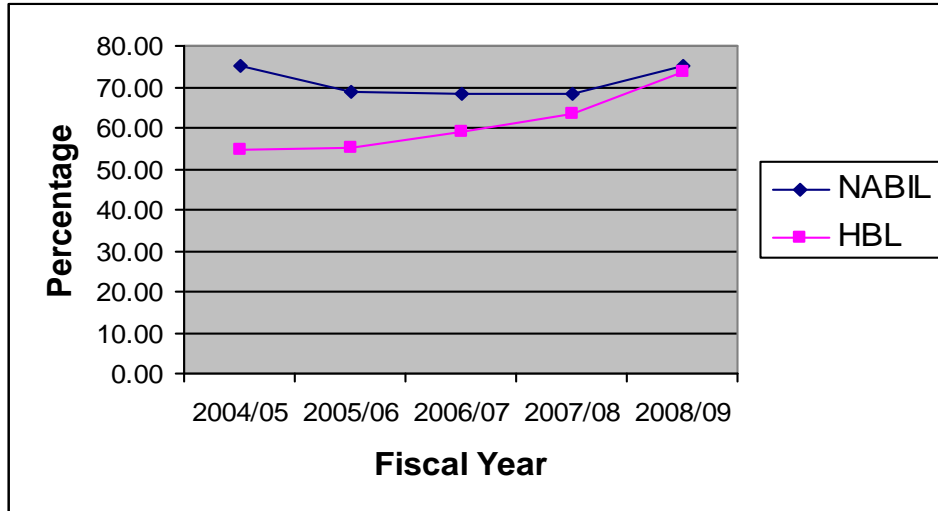
**For Details: See Appendix-8**

The above table shows that NABIL had a high ratio of 75.05% in F/Y 2004/05 and a low ratio of 68.13% in F/Y 2006/07. Accordingly, HBL had a high of 73.58% in F/Y 2008/09 and a low of 54.77% in F/Y 2004/05. The mean ratio of NABIL is greater than HBL i.e. 70.99% > 61.24%. NABIL seems to be strong in terms of mobilization of its total deposits as loan and advances when compared to HBL.

In terms of C.V., both the banks have the consistency. It can be concluded that, NABIL has been more successful in mobilizing its total deposits as loan and advances than HBL. 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.

The loan and advances to total deposits ratios of NABIL and HBL are graphically shown as follows:

**Figure No. 3**  
**Loan and Advances to Total Deposits**  
**Ratio of NABIL and HBL**



*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 NABIL and HBL.

**Table No. 8**  
**Total Investment to Total Deposit Ratios (%)**

F/Y	NABIL	HBL
2004/05	29.31	47.12
2005/06	31.93	41.10
2006/07	38.32	39.35
2007/08	31.14	41.89
2008/09	28.99	25.12
Mean	31.94	38.92
S.D.	2.26	2.50
C.V.	0.07	0.06

**For Detail: See Appendix- 9**

The above table shows a more fluctuating data in NABIL as compared to HBL. NABIL has a high ratio of 38.32% in the F.Y. 2006/07 and a low ratio of 28.99% in the F.Y. 2008/09. HBL, on the other hand had a high ratio of 47.12% in the F.Y. 2004/05 and a low ratio of 25.12% in the F.Y. 2008/09.

HBL has a high mean ratio than NABIL i.e., 38.92% > 31.94%. From mean ratio perspective, HBL has been more successful in mobilization of deposits on various forms of investment.

In conclusion, the above analysis reveals that HBL has been more successful in mobilizing its resources on various forms of investment.

**iii) 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 NABIL and HBL during the study period.

**Table No. 9  
Loan and Advances to Total Working Fund Ratio**

<b>F/Y</b>	<b>NABIL</b>	<b>HBL</b>
2004/05	63.69	48.81
2005/06	59.47	49.70
2006/07	58.35	53.09
2007/08	58.60	55.78
2008/09	63.83	64.90
Mean	60.79	54.46
S.D.	3.12	2.95
C.V.	0.05	0.05

**For Details: See Appendix- 10**

The above table shows that NABIL has maintained highest ratio of 63.83% in F/Y 2008/09 and a low ratio of 58.35% in F/Y 2006/07. Similarly, HBL has maintained a high ratio of 64.90% in F/Y 2008/09 and a low ratio of 48.81% in F/Y 2004/05.

NABIL has a slightly high average mean ratio of loan and advances to total working fund than HBL i.e. 60.79% > 54.46%. It reveals the strength of NABIL in mobilizing its total assets as loan and advances is more than HBL.

**iv) 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 NABIL and HBL.

**Table No. 10**  
**Investment in Government Securities to**  
**Total Working Fund Ratio**

<b>F/Y</b>	<b>NABIL</b>	<b>HBL</b>
2004/05	14.05	19.64
2005/06	10.31	17.59
2006/07	17.64	19.26
2007/08	12.51	20.65
2008/09	8.45	10.71
Mean	12.59	17.57
SD	1.42	1.68
CV	0.11	0.10

**For Details: See Appendix- 11**

The above table reveals that NABIL has a higher ratio 17.64% in F/Y 2006/07 and a low ratio of 8.45% in F/Y 2008/09. Similarly, HBL has had a high ratio of 20.65% in F/Y 2007/08 and low ratio of 10.71% in 2008/09.

As far as the mean ratio is considered, NABIL seems to be slightly weaker than HBL in mobilizing of total assets as Investment in Government securities i.e. 12.59 % < 17.57%.

Also, when we compare C.V. of both, it reflects that ratios of HBL are less consistent than NABIL i.e., 0.11 > 0.10.

From the above analysis, we can conclude that NABIL has invested lower portion of working fund in government securities than HBL.

**v) Investment on Share and Debentures to Total Working Fund Ratio.**

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

**Table No. 11**  
**Investment on Share and Debentures to**  
**Total Working Fund Ratio**

<b>F/Y</b>	<b>NABIL</b>	<b>HBL</b>
2004/05	2.56	0.14
2005/06	0.47	0.13
2006/07	1.05	0.22
2007/08	0.87	0.25
2008/09	0.81	0.24
Mean	1.15	0.20
S.D.	0.43	0.18
C.V.	0.37	0.90

**For Details: See Appendix- 12**

The above table 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 3%. NABIL has invested slightly higher amount of total working fund on shares and debenture than HBL. It also has a mean ratio higher than HBL. It indicates that NABIL has been more successful in mobilizing its funds as Investment on shares and debenture than HBL, though the fund invested is marginal.

In terms of C.V., NABIL is more fluctuating than HBL i.e.  $0.37 > 0.90$ .

### **C) Profitability Ratio**

The following ratios are calculated under profitability ratios:

#### ***i) Return on 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 NABIL and HBL during the study period.

**Table No. 12**  
**Return on Loan and Advances Ratio (%)**

<b>F/Y</b>	<b>NABIL</b>	<b>HBL</b>
2004/05	4.34	2.27
2005/06	4.78	3.12
2006/07	4.24	2.76
2007/08	3.43	3.15
2008/09	3.68	2.95
Mean	4.09	2.85
S.D.	0.81	0.68
C.V.	0.20	0.24

**For Details: See Appendix- 13**

The above table shows that the ratio of return on loan and advances of NABIL are better than HBL in all F/Y. NABIL has recorded a high ratio of 4.78% in F/Y 2005/06, and a low ratio of 3.43% in F/Y 2007/08. Similarly, HBL recorded a high ratio of 3.15% in F/Y 2007/08 and a low of 2.76% in F/Y 2006/07.

The comparison of mean ratio reveals that NABIL has a higher ratio than HBL i.e., 4.09% > 2.85%. This shows that NABIL has been more successful in maintaining its higher return on loan and advances than HBL.

C.V. of HBL is higher than NABIL i.e. 0.24 > 0.20.

In conclusion, it can be said that HBL's profit earning capacity by utilizing available resources is stronger as compared to NABIL.

**ii) Return on 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 NABIL and HBL.

**Table No. 13**  
**Return on total working fund ratio (%)**

<b>F/Y</b>	<b>NABIL</b>	<b>HBL</b>
2004/05	3.02	1.12
2005/06	2.84	1.55
2006/07	2.47	1.47
2007/08	2.01	1.76
2008/09	2.35	1.91
Mean	2.54	1.56
S.D.	0.64	0.50
C.V.	0.25	0.32

**For Details: See Appendix- 14**

The above table reveals that NABIL has high mean ratio than HBL i.e., 2.54% > 1.56%. It reveals that NABIL has been able to earn high profit on total working fund in comparison to HBL. One point worth making here is that HBL has managed and utilized its assets more efficiently than NABIL on the whole study period.

**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 NABIL and HBL during the review period.

**Table No. 14**  
**Total Interest earned to Total asset (%)**

<b>F/Y</b>	<b>NABIL</b>	<b>HBL</b>
2004/05	12.11	6.48
2005/06	9.45	6.84
2006/07	9.36	6.58
2007/08	9.83	6.67
2008/09	16.14	7.86
Mean	11.38	6.89
S.D.	1.35	1.05
C.V.	0.12	0.15

**For Details: See Appendix- 15**

The above table reflects NABIL has had a high ratio of 16.14% in F/Y 2008/09 and a low ratio of 9.36% in F/Y 2006/07. Similarly, HBL has experienced a high ratio of 7.86% in F/Y 2008/09 and a low of 6.48% in F/Y 2004/05.

The average Interest earning ratio of NABIL is 11.38% whereas the same for HBL is 6.89%. This reflects that NABIL has been slightly stronger in terms of interest earning power w.r.t. total working fund than HBL.

From the above analysis, we can conclude that NABIL 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.

**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 NABIL and HBL.

**Table No. 15**  
**Interest Earned to Total Operating Income Ratio (%)**

<b>F/Y</b>	<b>NABIL</b>	<b>HBL</b>
2004/05	89.44	120.95
2005/06	96.36	116.72
2006/07	107.27	127.43
2007/08	118.45	122.92
2008/09	126.00	117.81
Mean	107.50	121.17
SD	4.15	4.40
CV	0.04	0.04

**For Details: See Appendix- 16**

The above table shows that the higher and lower ratios of NABIL are 126% in F/Y 2008/09 and 89.44% F/Y 2004/05 respectively. HBL has had a high of 127.43% in F/Y 2006/07 and a low of 117.81% in F/Y 2008/09.

The mean ratio of HBL is higher than NABIL i.e., 121.17% > 107.50%. On the basis of mean ratio, we can say that HBL 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 the banks is similar. Both banks are more or less consistent in their ratios.

**v) 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 NABIL and HBL for the five-year study period.



**Table No. 16**  
**Total Interest Paid to Total Working Fund Ratio (%)**

<b>F/Y</b>	<b>NABIL</b>	<b>HBL</b>
2004/05	1.42	2.02
2005/06	1.6	2.2
2006/07	2.04	2.29
2007/08	2.04	2.28
2008/09	2.63	2.38
Mean	1.95	2.23
SD	0.56	0.60
CV	0.29	0.27

**For Details: See Appendix- 17**

The above table shows the average ratio of NABIL with regards to total interest paid to total working fund ratio is slightly lower than that of HBL i.e. 1.95 % < 2.23%. In terms of C.V., HBL ratios are more stable than that of NABIL.

Overall, we can say that NABIL is in a better position form interest payment point of view than HBL. NABIL seems to have collected its funds from cheaper sources than HBL.

#### **D) Risk Ratio**

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

##### *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 NABIL and HBL.

**Table No. 17**  
**Liquidity Risk Ratio (%)**

<b>F/Y</b>	<b>NABIL</b>	<b>HBL</b>
2004/05	3.83	8.12
2005/06	3.26	6.48
2006/07	6.00	5.85
2007/08	8.37	4.55
2008/09	9.03	8.79
Mean	6.10	6.76
SD	0.99	1.04
CV	0.16	0.15

**For Details: See Appendix- 4**

The above table shows that NABIL has recorded a high ratio of 9.03% and a low ratio of 3.26%. Similarly, HBL has recorded a high of 8.79% and a low of 4.55%.

When mean ratio are taken it is found that HBL's liquidity risk is higher than that of NABIL i.e.  $6.76 > 6.10$ . NABIL has more cash & bank balance than HBL 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, NABIL ratio's seems to be more fluctuating than HBL.

## 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 NABIL and HBL.

**Table No. 18**  
**Credit Risk Ratio**

<b>F/Y</b>	<b>NABIL</b>	<b>HBL</b>
2004/05	1.24	0.61
2005/06	0.96	0.62
2006/07	0.94	0.66
2007/08	1.08	0.69
2008/09	1.61	0.86
Mean	1.17	0.69
SD	0.43	0.33
CV	0.37	0.48

**For Details: See Appendix- 7**

The above table shows that NABIL has witnessed a high ratio of 1.61 in F/Y 2008/09 and a low ratio of 0.94 F/Y 2006/07. Similarly, HBL has had a high ratio of 0.86 in F/Y 2008/09 and a low ratio of 0.61 in F/Y 2004/05.

The mean ratio of HBL is lower than that of NABIL i.e.  $0.69 < 1.17$ . This indicates that NABIL has more exposure to credit risk than its counterpart. 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 ratios of total deposit
- II) Growth ratio of total Investment
- III) Growth ratio of loan and advances
- IV) Growth ratio of net profit

**Table No. 19**  
**Growth Rate of Total Deposit (%)**

<i>F/Y</i>	<b>NABIL</b>		<b>HBL</b>	
	<b>Total Deposit</b>	<b>Growth %</b>	<b>Total Deposit</b>	<b>Growth %</b>
2004/05	145866.10	0.00	248140.12	0.00
2005/06	193474.00	32.64	264908.52	6.76
2006/07	233422.90	17.11	300484.18	13.43
2007/08	319150.47	26.86	318427.89	5.97
2008/09	373482.56	14.55	346813.45	8.91
Mean		18.23		7.01
S.V.		1.71		1.06
C.V.		0.09		0.15

*Source: Annual Report*

**Table No. 20**  
**Growth Rate of Total Loan and Advances (%)**

<i>F/Y</i>	<b>NABIL</b>		<b>HBL</b>	
	<b>Total Loan and Advances</b>	<b>Growth %</b>	<b>Total Loan and Advances</b>	<b>Growth %</b>
2004/05	109467	0.00	135910	0.00
2005/06	132788	21.30	146430	7.74
2006/07	159030	19.76	177937.2	21.52
2007/08	217594.6	36.83	201796.13	13.41
2008/09	279990.12	28.68	255195.19	26.46
Mean		21.31		13.83
S.V.		1.85		1.49
C.V.		0.09		0.11

*Source: Annual Report*

**Table No. 21**  
**Growth Rate of Total Investment (%)**

<i>F/Y</i>	<b>NABIL</b>		<b>HBL</b>	
	<b>Total Investment</b>	<b>Growth %</b>	<b>Total Investment</b>	<b>Growth %</b>
2004/05	42755.28	0.00	116923.42	0.00
2005/06	61785.33	44.78	108890.31	8.58
2006/07	89453.11	11.12	118229.85	12.83
2007/08	99397.71	8.92	133401.77	-34.70
2008/09	108263.79	44.51	87106.91	-6.87
Mean		21.87		-4.03
S.V.		1.87		0.80
C.V.		0.09		-0.20

*Source: Annual Report*

**Table No. 22**  
**Growth Rate of Net Profit (%)**

<i>F/Y</i>	<b>NABIL</b>		<b>HBL</b>	
	<b>Net Profit</b>	<b>Growth %</b>	<b>Net Profit</b>	<b>Growth %</b>
2004/05	5186.36	0.00	3082.75	0.00
2005/06	6352.62	22.49	4574.58	48.39
2006/07	6739.6	6.09	4918.23	7.51
2007/08	7464.68	10.76	6358.69	29.29
2008/09	10310.53	38.12	7528.35	18.39
Mean		15.49		20.72
S.V.		1.57		1.82
C.V.		0.10		0.09

*Source: Annual Report*

The growth rates of deposits of both the banks are in a fluctuating trend. The average growth rate of deposits of NABIL are significantly higher than HBL i.e. 18.23% > 7.01%. This indicates NABIL dismal performance in collecting more deposits. NABIL has highest growth of deposits by 32.64% in F/Y 2005/06. Likewise HBL has highest growth of deposits by 13.43% in F/Y 2006/07.

In the study period, HBL ratios were highly variable than NABIL. 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 NABIL is better than HBL i.e. 21.31% > 13.83%.

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

The growth rate of total investment of NABIL is in increasing trend where as HBL is in a fluctuating trend. NABIL has witnessed a high growth rate of 44.78% in F/Y 2005/06.

On the other hand HBL has had a high growth rate of 12.83 % in F/Y 2006/07. The average growth ratio of investment of NABIL is higher than HBL i.e., 21.87% > -4.03%.

The growth rate of net profit of both the banks has a fluctuating trend. NABIL has recorded a high growth rate of 38.12% in F/Y 2008/09 and a low growth rate of 6.09% in F/Y 2006/07. Similarly, HBL has had a high growth rate of 48.39% in F/Y 2005/06 and a low growth rate of 7.51% in F/Y 2006/07.

The mean growth rate on net profit of HBL is higher than NABIL i.e., 20.72% > 15.49%.

#### **4.1.2 Statistical tools**

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, 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',  $r^2$ , PEr and 6PEr between total deposits and loan and advances of NABIL and HBL during the study period.

**Table No. 23**  
**Correlation between Deposit and Loan and Advances**

Bank	Evaluation Criteria			
	r	$r^2$	PEr	6PEr
NABIL	0.9901	0.9803	0.0088	0.0528
HBL	0.9778	0.9561	0.0132	0.0795

**For Details: See Appendix A-1 & A-2**

In the above table the coefficient of correlation between deposit and loan and advances in case of NABIL is 0.9901 which indicates that there is a significant relationship between deposit and loan and advances. The calculated value of ( $r^2$ ) or coefficient of determination is 0.9803 which means 98.03% of variation of the dependent variable (loan and advances) has been explained by the independent variable (deposit). When the value of 'r' i.e. 0.9901 is compared with six times the probably error or 6PEr. i.e. 0.0528, we can say that there is significant relationship between deposits and loan advances because 'r' is greater than six times PEr i.e.  $0.9901 > 0.0528$ .

The coefficient of correlation 'r' between deposits and loan and advances incase of HBL is 0.9778, which gives us an indication of positive correlation between them. Similarly, the value of coefficient of determination ( $r^2$ ) is found to be 0.9803. This shows that 98.03% variation of dependent variable (loan and advances) has been explained by the independent variable (deposits). The value

of 'r' is higher than six times PEr. i.e.  $0.0528 < 0.9901$ . This further shows that the value of 'r' is significant. In other words, there is correlation 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 NABIL and the value of ( $r^2$ ) shows higher percentage of dependency. In case of HBL the relationship is insignificant and ( $r^2$ ) shows lower percentage of dependency. It indicates NABIL has been more successful in utilizing its deposits in a proper manner than HBL. 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' ( $r^2$ ) PEr & 6PEr of NABIL and HBL during the study period.

**Table No. 24**  
**Correlation between Deposit and Total Investment**

Bank	Evaluation Criteria			
	r	$r^2$	PEr	6PEr
NABIL	0.9469	0.8966	0.0031	0.1871
HBL	-03313	0.1098	0.3981	2.3887

**For Details: See Appendix A-3 & A-4**

The coefficient of correlation 'r' between deposits and total investment in case of NABIL is 0.9469, which indicates there is significant relationship between deposits and total investment. Coefficient of determination ( $r^2$ ) is 0.8966. This means 89.66% of variation of the dependent variable has been explained by independent variable. The value of 'r' i.e. 0.9469 is also greater than six times PEr

i.e. 0.1871. 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 HBL is -0.3313, which indicates a high degree negative relationship between the two variables. The coefficient of determination ( $r^2$ ) is 0.1098. This indicates that 10.98% of the variation of the dependent variable has been explained by the independent variable. Moreover 'r' is less than six times PEr, which further states that there is insignificant relationship between deposits and total investment.

In conclusion, it can be said that NABIL show significant relationship between total deposits and total investment where as there is insignificant relationship between total deposits and total investment of HBL.

**iii) 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,  $r^2$ , PEr & 6PEr of NABIL and HBL during the study period (for detail see Appendix A5 and A6).

**Table No. 25  
Correlation between Deposit and Net Profit**

Bank	Evaluation Criteria			
	r	$r^2$	PEr	6PEr
NABIL	0.9391	0.8819	0.0528	0.3170
HBL	0.9684	0.9378	0.0278	0.1688

**For Details: See Appendix A5 & A-6**

The coefficient of correlation between deposits and net profit in case of NABIL is 0.9391, which indicates a positive relationship between deposits and net profit.



The coefficient of determination ( $r^2$ ) is 0.8819, which indicates 88.19% of the variation of the dependent variable (net profit) has been explained by the independent variable (deposits). The value of  $\Delta PEr$  is lesser than 'r' i.e.  $0.3170 < 0.931$ . This states that there exists a significant relationship between deposits and net profit.

The coefficient of correlation between deposits and net profit in case of HBL is 0.9684, which indicates a positive relationship between these variables. The value of ( $r^2$ ) is 0.9378 indicates that 93.78% of the variation of the dependent variable has been explained by the independent variable. The value of 'r' is greater than  $\Delta PEr$  i.e.  $0.9684 > 0.1688$ , which further states that there exists a significant relationship between deposit and net profit.

From the above analysis, we can conclude that NABIL and HBL both show positive relationship between deposit and net profit i.e. with increase in deposit there is significant change in net profit of the bank.

***iv) 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 shows the values of r,  $r^2$ ,  $\Delta PEr$  &  $\Delta PEr$  of NABIL and HBL during the study period.

**Table No. 26**  
**Correlation between Deposit and Interest earned**

Bank	Evaluation Criteria			
	r	$r^2$	$\Delta PEr$	$\Delta PEr$
NABIL	0.9717	0.9442	0.0250	0.1498
HBL	0.9760	0.9525	0.0212	0.1273

**For Details: See Appendix A-7 & A-8**

The coefficient of correlation 'r' between deposit and interest earned in case of NABIL is 0.9717, which indicates a positive relationship between these variables. When deposits increased, the interest income subsequently increased but when it fall the interest income will also decrease. The coefficient of determination ( $r^2$ ) is 0.9442, which shows that 94.42% of the variation of dependent variable has been explained by independent variable. The value of six times PEr is less than 'r' i.e.  $0.1498 < 0.9717$ . 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 HBL is 0.9760, which projects a positive relationship between these variables. The coefficient of determination ( $r^2$ ) is 0.9525, which shows that 95.25% of the variation of dependent variable has been explained by the independent variable. The value of 'r' i.e. 0.9760 is higher than six times PEr i.e. 0.1273. This shows that there is significant relationship between interest earned and total deposits.

In conclusion, we can say that the relationship between deposit and interest earned in case of NABIL as well as HBL is highly significant with higher percentage of dependency. Effective mobilization of deposits was a major role to play in its earnings.

***v) 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,  $r^2$ , PEr and 6PEr of NABIL and HBL during the period of study.

**Table No. 27**  
**Correlation between Loan and Advances and Interest Paid**

Bank	Evaluation Criteria			
	r	r <sup>2</sup>	PEr	6PEr
NABIL	0.9945	0.9890	0.0049	0.0295
HBL	0.7590	0.5761	0.1896	1.1374

**For Details: See Appendix A-9 & A-10**

The coefficient of correlation 'r' between loan and advances and interest paid in case of NABIL is 0.9945, which indicates a positive relationship between these variables. The coefficient of determination (r<sup>2</sup>) is 0.9890, which shows that 98.90% of the variation of dependent variable has been explained by independent variable. The value of six times PEr is less than 'r' i.e. 0.9945 > 0.0295. This states that there is significant relationship between loan and advances and interest paid.

The coefficient of correlation 'r' between loan and advances and interest paid in case of HBL is 0.7590, which projects a positive relationship between these variables. The coefficient of determination (r<sup>2</sup>) is 0.5761, which shows that 57.61% of the variation of dependent variable has been explained by the independent variable. The value of 'r' i.e. 0.7590 is lower than six times PEr i.e. 1.1374. This shows that there is no significant relationship between loan and advances and interest paid.

In conclusion, we can say that the relationship between loan and advances and interest paid there is no significant relationship between the variables in case of HBL but there is significant relationship between the variables of NABIL.

**vi) 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  $r$ ,  $r^2$ , PEr, and 6PEr between these two variables of NABIL and HBL.

**Table No. 28**  
**Correlation between Total Assets and Net Profit**

Bank	Evaluation Criteria			
	$r$	$r^2$	PEr	6PEr
NABIL	0.9421	0.8875	0.0503	0.3019
HBL	0.9693	0.9396	0.0270	0.1620

**For Details: See Appendix A-11 & A-12**

The coefficient of correlation ' $r$ ' between total assets and net profit is case of NABIL is 0.9421 which indicates a positive relationship between these variables. The coefficient of determination ( $r^2$ ) is 0.8875, which shows that 88.75% of the variation of the dependent variable has been explained by independent variable. The value of 6PEr is lesser than ' $r$ ' i.e.  $0.3019 < 0.9421$ . This further states that there exists significant relation between the variables.

The coefficient of correlation ' $r$ ' between total assets and net profit is 0.9693, which shows a positive relationship between total working fund and net profit in HBL. The coefficient of determination ( $r^2$ ) is 0.9396, which indicates that 93.96% of the variation of the dependent variable has been explained by the independent variable. The value of 6PEr is lesser than ' $r$ ', which states that there is 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 NABIL and HBL. This topic analyzes the trend of deposits, loan and advances, total investment and net profit and its projection for the next five years on 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 2004/2005 to 2008/09, an attempt has been made to forecast the projection for next five years, i.e. upto F/Y 2013/14.

The following table shows the trend value of deposits from F/Y 2004/2005 to F/Y 2008/09 (For detail refer Appendix A13 & A14)

**Table No. 29**  
**Trend Values of Total Deposit of NABIL and HBL**  
**Rs. in 100 thousands**

F/Y	Trend Values of NABIL	Trend Values of HBL
2004/05	136897.33	245581.63
2005/06	194988.27	270668.23
2006/07	253079.21	295754.83
2007/08	311170.15	320841.44
2008/09	369261.08	345928.04
2009/10	427352.02	371014.64
2010/11	485442.96	396101.24
2011/12	543533.90	421187.85
2012/13	601624.84	446274.45
2013/14	659715.78	471361.05

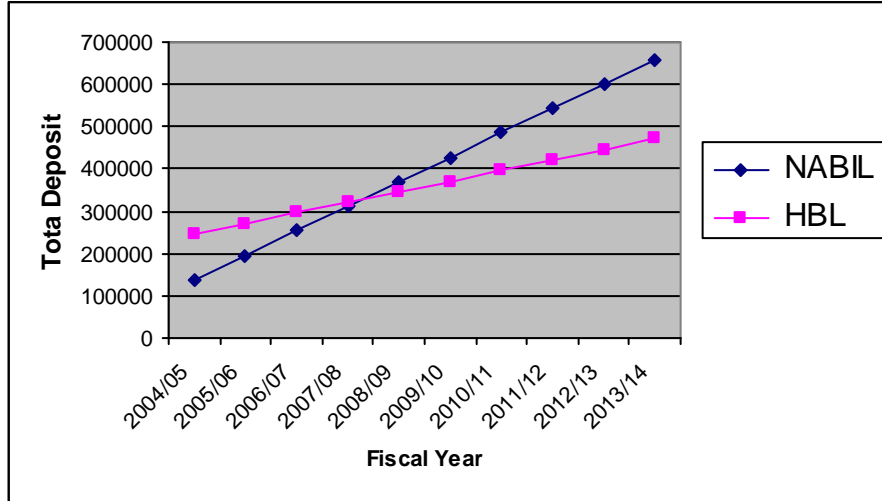
**For Details: See Appendix A-13 & A-14**

From the above comparative table it is clear that trend values of NABIL and HBL are in an increasing trend. If other things remain unchanged the total deposit of NABIL is predicted to be Rs. 659715.78 and that of HBL to be 471361.05 by the end of F/Y 2013/2014 i.e. NABIL has better deposit trend.

From the above trend analysis, it is quite obvious that NABIL's deposit collection is proportionately much better than HBL. There is more speed in

collection of NABIL than that of HBL. The trend values of total deposit of both NABIL and HBL are given in figure No. 4 below.

**Figure No. 4**  
**Trend Values of Total Deposit of NABIL and HBL**



**ii) Analysis of Trend Values of Loan and Advances**

Here, the trend values of loan and advances of NABIL and HBL have been calculated for five years from F/Y 2004/2005 to 2008/2009 and the forecast for next five years. i.e. from F/Y 2009/2010 to F/Y 2013/2014 has been made.

**Table No. 30**  
**Trend Values of Loan and Advances of NABIL and HBL**  
**Rs. in 100 thousands**

F/Y	Trend Values of NABIL	Trend Values of HBL
2004/05	94603.38	124666.40
2005/06	137188.66	154060.05
2006/07	179773.94	183453.70
2007/08	222359.23	212847.36
2008/09	264944.51	242241.01
2009/10	307529.80	271634.66
2010/11	350115.08	301028.31
2011/12	392700.36	330421.96
2012/13	435285.65	359815.61
2013/14	477870.93	389209.26

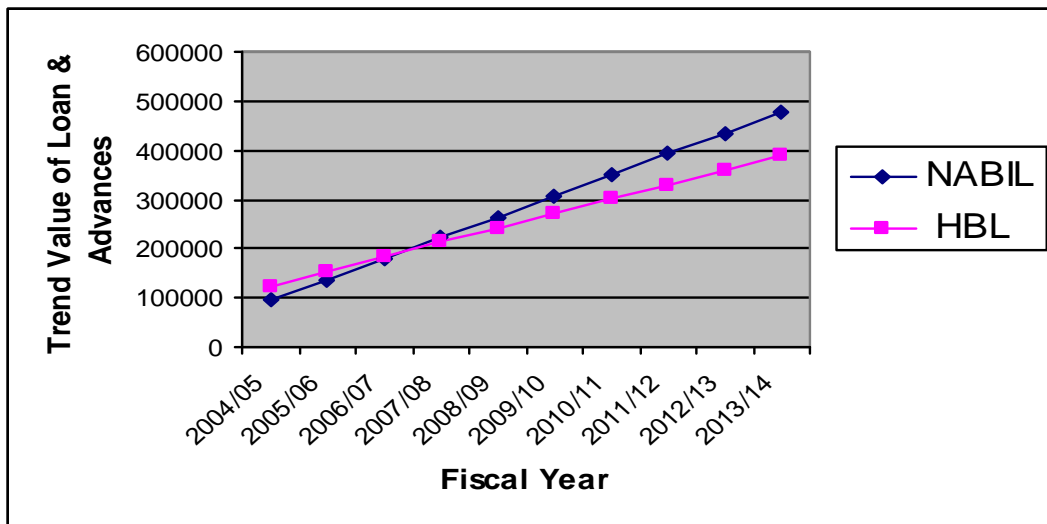
**For Details: See Appendix A-15 & A-16**

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 NABIL at the end of F/Y 2013/2014 is predicted to be Rs.

477870.93. Similarly, the projection for HBL at the end of F/Y 2013/2014 is Rs 389209.26.

From the above trend analysis, it is quite clear that HBL's loan and advances in relation to NABIL is comparatively higher till F.Y. 2006/2007 while through out the rest trend values NABIL has higher trend in comparison to HBL. The above trend values of loan and advances of NABIL and HBL are fitted in the trend line given in Figure No. 5 below.

**Figure No. 5**  
**Trend values of loan and advances of NABIL and HBL**



**iii) Analysis of Trend Values of Total Investment**

Under this topic, based on the trend values of Investment from F/Y 2004/2005 to 2008/2009, an attempt has been made to forecast the projections for next five years i.e. up to F/Y 2013/2014.

The following table shows the trend value investment from F/Y 2004/2005 to F/Y 2013/2014 (for detail refer Appendix A17 and A18)

**Table No. 31**  
**Trend Values of Investment of NABIL and HBL**  
*Rs in 100 thousands*

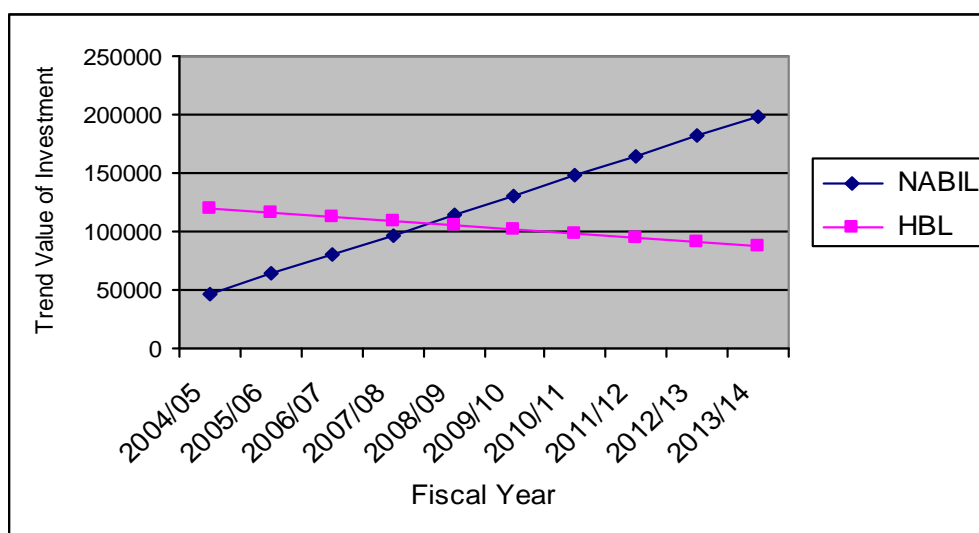
F/Y	Trend Values of NABIL	Trend Values of HBL
2004/05	46605.16	119934.76
2005/06	63468.10	116422.61
2006/07	80331.04	112910.45
2007/08	97193.98	109398.30
2008/09	114056.92	105886.14
2009/10	130919.86	102373.98
2010/11	147782.80	98861.83
2011/12	164645.74	95349.67
2012/13	181508.68	91837.52
2013/14	198371.62	88325.36

**For Details; See Appendix A-17 & A-18**

From the above table it is clear that the trend value of NABIL bank is in an increasing trend where as HBL is in decreasing trend. If other things remain unchanged total investment of NABIL is predicted to be Rs. 198371.62 in F/Y 2013/2014 and that of HBL to be Rs. 88325.36.

The above table reveals that HBL's total investment is lower than that of NABIL. The above calculated trend values of NABIL and HBL are fitted in the trend line given in Figure No. 6 below.

**Figure No. 6**  
**Trend values of Investment of NABIL and HBL**





*iv) Analysis Trend Values of Net Profit*

Under this topic, based on the trend values of net profit from F/Y 2004/2005 to 2008/2009, an attempt has been made to forecast the projections for next five years i.e. up to F/Y 2013/2014.

The following table shows the trend value of net profit from F/Y 2004/2005 to F/Y 2013/2014 (for detail refer Appendix A19 and A20)

**Table No. 32**  
**Trend Value of Net Profit of NABIL and HBL**  
*Rs. in 100 thousands*

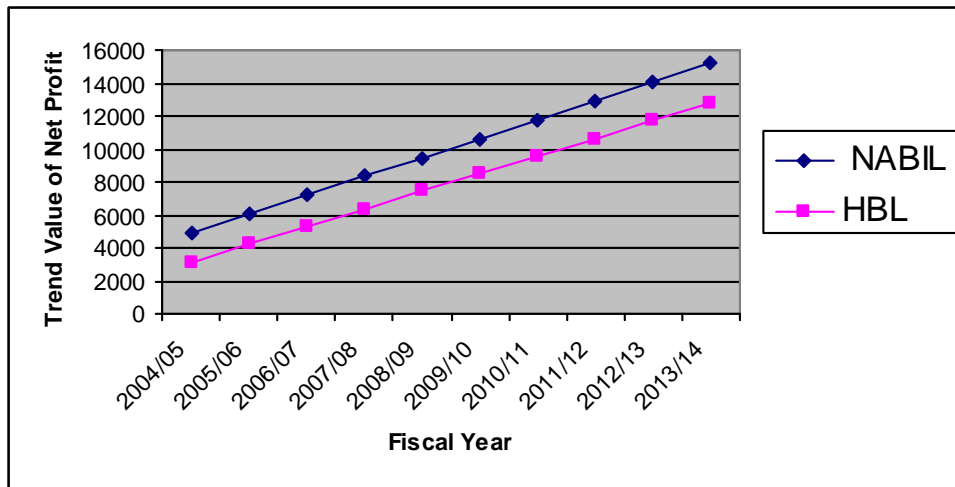
<b>F/Y</b>	<b>Trend Values of NABIL</b>	<b>Trend Values of HBL</b>
2004/05	4938.68	3157.46
2005/06	6074.72	4224.99
2006/07	7210.76	5292.52
2007/08	8346.80	6360.05
2008/09	9482.84	7427.58
2009/10	10618.88	8495.11
2010/11	11754.92	9562.64
2011/12	12890.96	10630.18
2012/13	14027.00	11697.71
2013/14	15163.04	12765.24

**For Details: See Appendix A-19 & A-20**

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 NABIL will be highest in F/Y 2013/2014 i.e. Rs.15163.04. In case of HBL net profit will be Rs 12765.24 in F/Y 2013/2014 which is the highest under the review period.

NABIL's net profit is higher than that of HBL through the review period. It can be said that both the banks have followed the policy of maximizing their net profit. The above calculated trend values of NABIL and HBL are fitted in the trend line given in Figure No. 7 below.

**Figure No. 7**  
**Trend value of Net Profit of NABIL and HBL**



However, we can draw a conclusion that NABIL has utilized its fund better than HBL to earn higher amounts of profit. The above calculated trend values of net profit of NABIL and HBL are fitted in the trend line as given in figure 7.

### 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 steps have been followed in the test of hypothesis:

- i) Formulating of hypothesis
  - Null Hypothesis
  - Alternative Hypothesis
- ii) Computing the test statistic
- iii) Determining 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 whether 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  $H_0: \hat{\mu} = \hat{\mu}$  i.e., the samples have been drawn from the normal population, or the sample means  $\bar{x}$  and  $\bar{y}$  do not differ significantly. Under the assumption that  $\sigma^2 = \sigma^2$  i.e., population variances are equal but unknown, the test statistic under  $H_0$  is:

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

Where,  $\bar{x} = \frac{\sum x}{n_1}$  &  $\bar{y} = \frac{\sum y}{n_2}$

And,  $S^2 = \frac{1}{n_1 + n_2 - 2} [ \sum (x - \bar{x})^2 + \sum (y - \bar{y})^2 ]$

is an unbiased estimate the common population variance  $\sigma^2$  based on both the samples. By comparing the tabulated value of 't' for  $n_1 + n_2 - 2$  d.f. at the desired level of significance. Usually 5% we reject or retain the null hypothesis  $H_0$ .

**a) Test of Hypothesis on Loan and Advances to Total Deposit Ratio of NABIL and HBL**

Let loan and advances to total deposit of NABIL and HBL be denoted by X and Y respectively.

Calculated  $S^2 = 36.53$  (For Details: See Appendix -A21)

**Solution:**

Null Hypothesis ( $H_0$ ):  $\hat{\mu}_1 = \hat{\mu}_2$  i.e., there is no significant difference between mean ratio of loan and advances to total deposit of NABIL and HBL.

Alternative Hypothesis ( $H_1$ ):  $\hat{\mu}_1 \neq \hat{\mu}_2$  i.e., there is significant difference between mean ratio of loan and advances to total deposit of NABIL and HBL.

**Test Statistic**

Under  $H_0$ , the test statistic is

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

$$= \frac{70.99 - 61.24}{\sqrt{36.53} \left( \frac{1}{5} + \frac{1}{5} \right)} = \frac{9.75}{2.42}$$

$$t = 4.03$$

**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  $H_0: \hat{\mu}_1 = \hat{\mu}_2$  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 NABIL and HBL.

***b) Test of Hypothesis on total Investment to Total Deposits Ratio NABIL and HBL.***

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

Calculated  $S^2 = 41.05$  (For Details: See Appendix- A22)

**Solution:**

Null Hypothesis ( $H_0$ ):  $\hat{\mu}_1 = \hat{\mu}_2$  i.e., there is no significant difference between the mean ratios of total investment to total deposit of NABIL and HBL.

Alternative Hypothesis ( $H_1$ ):  $\hat{\mu}_1 \neq \hat{\mu}_2$  i.e., There is significant difference between the mean ratio of total investment to total deposit of NABIL and HBL.

### **Test Statistic**

Under  $H_0$ , the test statistic is

$$\begin{aligned} t &= \frac{\bar{x} - \bar{y}}{\sqrt{S^2 \left( \frac{1}{n_1} + \frac{1}{n_2} \right)}} \quad (\text{with } \dots\dots\dots \text{ d.f.} = n_1 + n_2 - 2) \\ &= \frac{31.94 - 38.92}{\sqrt{41.05 \left( \frac{1}{5} + \frac{1}{5} \right)}} = \frac{-6.98}{2.56} \\ t &= -2.72 \end{aligned}$$

### **Decision:**

The tabulated value of t for 8 d.f. at 5% level of significance is 2.306. Since calculated is greater than tabulated value of 't' it is significant. Hence  $H_0: \hat{\mu}_1 = \hat{\mu}_2$  is rejected at 5% level of significance and  $H_1$  is accepted which means that there is significant difference between mean ratios of total investment to total deposit of NABIL and HBL.

### **c) *Test of Hypothesis on Investment in Government Securities to Current Assets Ratio of NABIL and HBL.***

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

$$\text{Calculated } S^2 = 21.72 \text{ (For Details: See Appendix-A23)}$$

### **Solution:**

Null Hypothesis ( $H_0$ ):  $\hat{\mu}_1 = \hat{\mu}_2$  i.e., there is no significant difference between the mean ratio of Investment in Government securities to current assets of NABIL and HBL.

Alternative Hypothesis ( $H_1$ ):  $\hat{\mu}_1 \neq \hat{\mu}_2$  i.e., there is significant difference between the mean ratio of Investment in Government securities to current assets of NABIL and HBL.

**Test Statistic:**

Under  $H_0$ , the test statistic is

$$t = \frac{\bar{x} - \bar{y}}{\sqrt{S^2 \left( \frac{1}{n_1} + \frac{1}{n_2} \right)}} \quad (\text{with } \dots\dots\dots \text{ d.f.} = N_1 + N_2 - 2)$$

$$= \frac{23.36 - 21.94}{\sqrt{21.72 \left( \frac{1}{5} + \frac{1}{5} \right)}} = \frac{1.42}{4.66} = 0.76$$

$$t = 0.76$$

**Decision:**

The tabulated value of t for 8 d.f. at 5% level of significance is 2.306. Since calculated 't' is less than tabulated 't' it is not significant. Hence null Hypothesis  $H_0$ :  $\hat{\mu}_1 = \hat{\mu}_2$  is accepted at 5% level of significance and we may conclude that there is no significant difference between the mean ratios of Investment in Government securities to current assets ratio of NABIL and HBL.

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

Let the return on loan and advance of NABIL and HBL be denoted by X and Y.

$$S^2 = 0.21 \text{ (For Details: See Appendix – A24)}$$

**Solution:**

Null Hypothesis ( $H_0$ ):  $\hat{\mu}_1 = \hat{\mu}_2$  i.e., there is no significant difference between the mean ratio of return on loan and advances of NABIL and HBL.

Alternative Hypothesis ( $H_1$ ):  $\hat{\mu}_1 \neq \hat{\mu}_2$ , i.e. there is significant difference between the mean ratio of return on loan and advances of NABIL and HBL.

### Test Statistic

Under  $H_0$  the test statistic is

$$t = \frac{\bar{x} - \bar{y}}{\sqrt{S^2 \left( \frac{1}{n_1} + \frac{1}{n_2} \right)}} \quad (\text{with } \dots\dots\dots \text{ d.f.} = N_1 + N_2 - 2)$$
$$= \frac{4.09 - 2.85}{\sqrt{0.21 \left( \frac{1}{5} + \frac{1}{5} \right)}} = \frac{1.24}{0.46} = 6.76$$
$$t = 6.76$$

### **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  $H_0: \mu_1 = \mu_2$  i.e., is rejected and Alternative Hypothesis  $H_1: \mu_1 \neq \mu_2$  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 NABIL and HBL.

## **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 NABIL and HBL are given below.

**a) Liquidity Ratio**

The liquidity position of NABIL and HBL reveals that:

- ✓ From the analysis of current ratio it is found that the mean ratio of HBL is slightly higher than NABIL. Both the banks have healthy and sound current ratios.
- ✓ The mean ratio of cash and bank balance to total deposits of HBL is slightly higher than NABIL. HBL has better liquidity position than NABIL because of high percentage of liquid assets. This shows HBL readiness to meet its customer requirement. On the contrary, a high liquidity also indicates the inability of the bank to mobilize its current assets.
- ✓ The mean ratio of cash and bank balance to current assets of NABIL is slightly higher than HBL. This shows NABIL's greater capacity to meet its customer's daily cash requirement than HBL. The ratios of HBL are more variable and less consistent than NABIL.
- ✓ The mean ratio of investment in Government securities to current assets of NABIL is higher than HBL. This shows that NABIL has invested more of its fund in Government securities than HBL. The ratios of HBL are less variable and more consistent than NABIL.
- ✓ The mean ratio of loan and advances to total deposit ratio of NABIL is comparatively higher than HBL. The variability of ratios of NABIL is slightly greater than HBL.

From the above findings, we can conclude that the liquidity position of HBL is comparatively better than NABIL with regards to highest current ratios, cash and bank balance to total deposit / current assets ratios where HBL is in a better position to meet its daily cash requirement. But, NABIL has a higher mean investment in government securities, mean ratio of loan and advances to current assets than HBL. NABIL's degree



of variability is high in comparison to HBL which states lack of consistency of NABIL in liquidity during the study period.

#### **b) Asset Management Ratio**

The asset management ratio of NABIL and HBL reveals that:

- ✓ The mean ratio of loan and advances to total deposit ratio of NABIL is higher than HBL. In terms of consistency both have been stable in their ratios.
- ✓ The mean ratio of total investment to total deposits of HBL is higher than NABIL. The ratios of HBL are more consistent and less variable than NABIL.
- ✓ The mean ratio of loan and advances to total working fund of NABIL is higher than HBL. The ratios of HBL are less variable and more consistent than NABIL.
- ✓ The mean ratio of Investment in Government securities to total working fund ratio of HBL is higher than NABIL. The ratios of both banks are less variable and more consistent.
- ✓ The mean ratio of Investment in shares and debentures to total working fund ratio of NABIL is slightly higher than HBL. NABIL ratios are more variable than that of HBL.

From the above findings we can conclude that NABIL has been more successful in mobilization of its total deposits and working fund as loan and advances. Similarly NABIL mobilizes total working fund as investment in risk free government securities. HBL investment on shares and debentures more. On the other hand, NABIL appears to be stronger in mobilization total deposits on total investment than HBL. Both the banks have successfully managed their assets towards different income generation activities.

### c) Profitability Ratios

The profitability ratios of NABIL and HBL reveal that,

- ✓ The mean ratio of return on total loan and advances of NABIL has been found to be significantly greater than HBL. The ratios of HBL are more variable and less consistent than NABIL.
- ✓ The mean ratio of return on total working fund of NABIL is slightly higher than HBL. The ratios of NABIL are less consistent and more variable than HBL.
- ✓ The mean ratio of total interest earned to total working fund of NABIL is higher than HBL. NABIL is more successful in earning from total assets than HBL.
- ✓ The mean ratio of total interest earned to total operating income of HBL is higher than NABIL. Both the banks have been fairly consistent in their ratios.
- ✓ The mean ratio of total interest paid to total working fund ratio of NABIL is lower than HBL. However, HBL ratios are less variable than NABIL ratios.

On the basis of above, we can conclude that NABIL has been more successful in maintaining its higher return on loan and advances and total working fund. Similarly, NABIL has been more successful in term of earning power with respect to total working fund. And also NABIL has been more successful in mobilization of its funds in interest bearing assets to earn higher interest income than HBL. On the other hand HBL is in a lesser position than NABIL from interest payment point of view. Overall NABIL's profitability ratios are better in comparison to HBL i.e. NABIL has invested on better source of income.

#### **d) Risk Ratios**

The Risk ratio of NABIL and HBL reveals that,

- ✓ The mean liquidity risk ratio of HBL is higher than NABIL. And also HBL's ratios are more uniform than NABIL.
- ✓ The mean credit risk ratio of HBL is lower than NABIL. Both the banks have been fairly consistent in their ratios.

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

#### **e) Growth Ratio**

- ✓ The mean growth rate of deposits of NABIL is significantly higher than HBL.
- ✓ The mean growth rate of total loan and advances of NABIL is higher than HBL.
- ✓ The mean growth rate of total investment of NABIL is significantly higher than HBL.
- ✓ The mean growth rate of net profit of HBL is higher than NABIL.

Based on the above findings, we can conclude that, NABIL has been more successful in increasing its deposits and total investment during the study period, whereas, NABIL has been more efficient in terms of increasing its investment.

#### **f) Co-efficient of Correlation Analysis**

Co-efficient of correlation analysis between different variables of NABIL and HBL reveals that:

- ✓ NABIL has a higher value of coefficient of correlation between deposits and loan and advances than HBL.
- ✓ The co-efficient of correlation between deposits and total investment of NABIL is slightly higher than HBL.
- ✓ The co-efficient of correlation between deposit and net profit of HBL is slightly higher than NABIL.
- ✓ The coefficient of correlation between deposits and interest earned in case of HBL and NABIL both have higher value of coefficient of correlation.
- ✓ The coefficient of correlation between loan and advances and interest paid of NABIL is higher than HBL.
- ✓ The coefficient of correlation between total working fund and net profit of NABIL is slightly higher than HBL.

In conclusion, we can say that there is a significant relationship between overall ratios of both the banks.

#### **g) 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 (in 100 thousands) of NABIL and HBL reveals that:

- ✓ The deposits of both the banks have an increasing trend. The total deposit of NABIL is predicted to be Rs. 659715.78 and that of HBL to be Rs. 471361.05 at the end of F/Y 2013/2014. The deposit collection of HBL is much better than that of NABIL.
- ✓ The loan and advance of both the banks have an increasing trend. The total loan and advance of NABIL is predicted to be Rs. 477870.93 and

that of HBL to be Rs. 389209.26 at the end of F/Y 2013/2014. The loan and advances of NABIL is not much better as compared to HBL.

- ✓ The total investments of NABIL have an increasing trend and HBL has decreasing trend. The total investment of NABIL is projected at Rs. 198371.62 and that of HBL at Rs. 88325.36 by the end of F/Y 2013/2014. HBL seems to have a much-focused policy with regards to total investment than NABIL.
- ✓ The net profits of both the banks are in an increasing trend. The net profit of NABIL and HBL is predicted at Rs. 15163.04 and Rs. 12765.24 respectively by the end of F/Y 2013/2014. The position of HBL with regard to utilization of the fund to earned profit is better than NABIL. But NABIL will be better off in future.

#### **h) Test of Hypothesis**

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

- ✓ The tabulated value of 't' for 8 d.f. at 5% level of significance is 2.306 where as calculated value of 't' is 4.03, which indicates tabulated 't' is greater than calculated 't'. Thus is significant difference between mean ratio of loan and advances to total deposit of NABIL and HBL.
- ✓ The tabulated value of 't' for 8 d.f. at 5% level of significance is 2.306 where as calculated value of 't' is 2.72, which means calculated 't' is greater than tabulated 't'. Since calculated 't' is greater than tabulated 't' there is significant difference between mean ratio of total investment to total deposit of NABIL and HBL.

- ✓ The tabulated value of 't' for 8 d.f. at 5% level of significance is 2.306 where as calculated value of 't' is 0.76. Since calculated value of 't' is less than tabulated, there is no significant difference between the mean ratio of investment in government securities to current assets ratio of NABIL and HBL.
  
- ✓ The tabulated value of 't' for 8 d.f. at 5% level of significance is 2.306 and calculated value of 't' is 6.76. The calculated value of 't' is greater than tabulated 't'; there is significant difference between mean ratio of return on loan and advances of NABIL & HBL.

## **CHAPTER 5**

### **SUMMARY, CONCLUSION & RECOMMENDATION**

#### **SUMMARY & CONCLUSION**

This study reveals that the current ratios of both the banks are satisfactory. Since NABIL has highest current ratio of 1.71 & HBL has maintained only 1.51. The liquidity position of NABIL is comparatively better than HBL. The mean ratio of cash and bank balance of NABIL is 6.10 where as HBL is 6.76, HBL's w.r.t. deposits are greater than NABIL. This puts, NABIL in a better position w.r.t. meeting customer requirement than HBL. 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 NABIL w.r.t. current assets is higher than HBL. This shows greater capacity of NABIL to meet its customer's cash requirement but that does not mean HBL can not meet its daily customer cash requirement. NABIL needs to invest its funds in more productive sectors.

NABIL has invested more portions of its current assets in government securities than HBL. The mean ratio of NABIL is higher than that of HBL i.e. 23.2% > 21.8%. This is due to lack of other secured and profitable investment sector, whereas HBL has invested more on other productive sectors.

Both banks have successfully managed their assets towards different income generation activities. NABIL has been more successful in mobilization of its total deposits and total investment as loan and advances and achieving higher profits in comparison to HBL. The mean ratio of NABIL is greater than HBL i.e. 70.99% > 61.24%. NABIL seems to be strong in terms of mobilization of its total deposits as loan & advances when compared to HBL. 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.

Also, NABIL has invested more of its funds in purchasing shares and debentures of other companies than HBL.

From the point of view of profitability, NABIL seems to be more successful than HBL w.r.t. profit earning capacity by utilizing available resources. The mean ratio of NABIL is 4.09 where as HBL is 2.85. NABIL has been more successful in terms of interest earning power i.e.  $11.38 > 6.89$ . It has been more successful in mobilizing its funds in interest bearing assets to earn higher interest income. The mean ratio of HBL is higher than NABIL i.e.,  $121.17\% > 10.7.5\%$ . HBL is in a better position to meet its interest expenses as it has utilized its total working fund from cheaper sources than NABIL. Overall NABIL's profitability ratios are better in comparison to HBL. Therefore better source of income is generated on NABIL.

The liquidity risk of HBL is comparatively higher than NABIL, which shows HBL is more prone to liquidity risk. When mean ratio are taken it is found that HBL's liquidity risk is higher than that of NABIL i.e.  $6.76 > 6.10$ . Unlike, the credit risk of HBL is comparatively lower than NABIL. The mean ratio of HBL is lower than that of NABIL i.e.  $0.69 < 1.17$ .

NABIL has been successful in maintaining a steady growth rate on deposits and investment year after year. The average growth rate of total investment and total deposit of NABIL is 21.87% & 18.23% respectively which is higher than HBL i.e. - 4.03% & 7.01% respectively. HBL has higher growth rate on net profit in comparison to NABIL i.e.  $15.49\% > 20.72\%$ . NABIL has higher total loan and advances. This shows NABIL is better in utilizing resources for earning profit and attract more loan and advances in the market than HBL.

From the analysis of coefficient of correlation, we can say that both the banks show positive correlation relationship between overall study i.e. deposit and loan and advances / total investment / net profit / interest earned, loan and advances and interest paid and total working fund and net profit.

The trend value of deposits, loan and advances and net profits of NABIL and HBL are in an increasing trend. Investment is in decreasing trend HBL but NABIL has increasing trend that reveals HBL's total investment is lower than that of NABIL.



The trend values of deposits and investment and loan and advances of HBL are proportionately higher than NABIL on five years time duration. The trend value of net profit of NABIL is proportionately better than HBL in five years time.

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, return on loan and advances of NABIL and HBL. The investment in government securities to current assets of NABIL and HBL has no significant difference.

The test of hypothesis on mean ratios of total investment to total deposit show there is no significant difference in the ratios of NABIL and HBL.

## **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**

HBL, 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, NABIL's strategy of selective shedding of unprofitable deposits seems off the tune. NABIL 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. NABIL, 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. Small depositors and entrepreneurs need to be attracted towards deposits.

NABIL 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**

NABIL has given more priority to invest its fund in government securities and depositors' money has been less utilized as loan and advances. Though securities issued by government are risk free but such instruments offer lower interest rate. NABIL should identify less risky and profitable investment sectors and invest in them. NABIL 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 are good. Once the political and security conditions improve, a good turn-around in the economy is expected and unless NABIL quickly acts it might be left behind in the race.

### **Increase Consumer Lending**

Currently the size of the consumer lending market is estimated very high. Housing and vehicle finance have become two important and viable sectors with minimum risk. However, the market has not been fully exploited. 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 NABIL and HBL 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. The downward trend of share market on December 2008 attracts opportunities. The overall country situations are the major factor for the market price of shares and debentures.

### **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 NABIL and HBL 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. NABIL 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. NABIL and HBL 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 encompassing those who are not responsive to the banking needs of the community, including the underprivileged.

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**Appendix -1**  
**NABIL BANK LTD**

*Rs. in Lakh*

S.N.	F/Y	2004/05	2005/06	2006/07	2007/08	2008/09
1	Current Assets	88192.00	138575.00	169566.00	201221.00	173380.00
2	Current Liabilities	42465.00	66610.00	92585.00	149236.00	144690.00
3	Cash and Bank Balance	5593.80	6302.39	13998.26	26711.41	33725.12
4	Total Investment	42755.28	61785.33	89453.11	99397.71	108263.79
5	Total Deposit	145866.10	193474.00	233422.90	319150.47	373482.56
6	Loan and Advances	109467.00	132788.00	159030.00	217594.60	279990.12
7	Investment in Government Securities	24139.39	23014.63	48083.00	46468.83	37061.03
8	Investment on Share and Debenture	4402.82	1041.19	2869.58	3232.36	3549.31
9	Total Interest Earned	10687.47	13099.99	15877.59	19786.97	27984.86
10	Total Interest Paid	2435.45	3571.61	5557.10	7584.36	11532.80
11	Net Profit	5186.36	6352.62	6739.60	7464.68	10310.53
12	Operating Income	11948.98	13595.13	14801.58	16704.27	22209.83
13	Total Assets/Working Capital	171863.31	223299.71	272533.93	371327.59	438673.98

*Source: Annual Report of the Bank*

**Appendix –2**

**HIMALAYAN BANK NEPAL LTD.**

S.N.	F/Y	2004/05	2005/06	2006/07	2007/08	2008/09
1	Current Assets	223360.00	237850.00	269999.00	294490.00	298130.00
2	Current Liabilities	112690.00	110330.00	231704.50	246960.00	279670.00
3	Cash and Bank Balance	20144.71	17173.52	17573.41	14481.43	30485.27
4	Total Investment	116923.42	108890.31	118229.85	133401.77	87106.91
5	Total Deposit	248140.12	264908.52	300484.18	318427.89	346813.45
6	Loan and Advances	135910.00	146430.00	177937.20	201796.13	255195.19
7	Investment in Government Securities	54697.29	51820.00	64542.80	74716.68	42123.00
8	Investment on Share and Debenture	399.09	385.67	734.24	895.58	938.83
9	Total Interest Earned	14464.68	16264.74	17755.83	19636.47	23421.98
10	Total Interest Paid	5619.64	6488.42	7674.11	8237.45	9347.78
11	Net Profit	3082.75	4574.58	4918.23	6358.69	7528.35
12	Operating Income	11959.22	13935.35	13933.62	15974.95	19880.48
13	Total Assets/Working Capital	278446.95	294603.89	335191.41	361755.32	393203.22

*Source: Annual Report of the Bank*

### Appendix –3

#### NABIL BANK LTD

##### *Current Ratio (Current Assets by Current Liabilities)*

<i>F/Y</i>	<i>Current assets</i>	<i>Current Liabilities</i>	<i>Ratio</i>
2004/05	88192.00	42465.00	2.08
2005/06	138575.00	66610.00	2.08
2006/07	169566.00	92585.00	1.83
2007/08	201221.00	149236.00	1.35
2008/09	173380.00	144690.00	1.20

*Source: Annual Report of the Bank*

#### HIMALAYAN BANK NEPAL LTD

##### *Current Ratio (Current Assets by Current Liabilities)*

<i>F/Y</i>	<i>Current assets</i>	<i>Current Liabilities</i>	<i>Ratio</i>
2004/05	223360.00	112690.00	1.98
2005/06	237850.00	110330.00	2.16
2006/07	269999.00	231704.50	1.17
2007/08	294490.00	246960.00	1.19
2008/09	298130.00	279670.00	1.07

*Source: Annual Report of the Bank*

### Appendix –4

#### NABIL BANK LTD

##### *Cash and Bank Balance to Total Deposit Ratio*

<i>F/Y</i>	<i>Cash &amp; Bank Balance</i>	<i>Total Deposit</i>	<i>Percentage</i>
2004/05	5593.80	145866.10	3.83
2005/06	6302.39	193474.00	3.26
2006/07	13998.26	233422.90	6.00
2007/08	26711.41	319150.47	8.37
2008/09	33725.12	373482.56	9.03

*Source: Annual Report of the Bank*

#### HIMALAYAN BANK NEPAL LTD

##### *Cash and Bank Balance to Total Deposit Ratio*

<i>F/Y</i>	<i>Cash &amp; Bank Balance</i>	<i>Total Deposit</i>	<i>Percentage</i>
2004/05	20144.71	248140.12	8.12
2005/06	17173.52	264908.52	6.48
2006/07	17573.41	300484.18	5.85
2007/08	14481.43	318427.89	4.55
2008/09	30485.27	346813.45	8.79

*Source: Annual Report of the Bank*



## Appendix –5

### NABIL BANK LTD

#### *Cash and Bank Balance to Current Asset Ratio*

<i>F/Y</i>	<i>Cash &amp; Bank Balance</i>	<i>Current Asset</i>	<i>Percentage</i>
2004/05	5593.80	88192.00	6.34
2005/06	6302.39	138575.00	4.55
2006/07	13998.26	169566.00	8.26
2007/08	26711.41	201221.00	13.27
2008/09	33725.12	173380.00	19.45

*Source: Annual Report of the Bank*

### HIMALAYAN BANK NEPAL LTD

#### *Cash and Bank Balance to Current Asset Ratio*

<i>F/Y</i>	<i>Cash &amp; Bank Balance</i>	<i>Current Asset</i>	<i>Ratio</i>
2004/05	20144.7	223360	9.02
2005/06	17173.5	237850	7.22
2006/07	17573.4	269999	6.51
2007/08	14481.4	294490	4.92
2008/09	30485.3	298130	10.23

*Source: Annual Report of the Bank*

## Appendix –6

### NABIL BANK LTD

#### *Investment in Government Securities to Current Asset Ratio*

<i>F/Y</i>	<i>Inv. on Gov Securities</i>	<i>Current Asset</i>	<i>Ratio</i>
2004/05	24139.39	88192.00	0.27
2005/06	23014.63	138575.00	0.17
2006/07	48083.00	169566.00	0.28
2007/08	46468.83	201221.00	0.23
2008/09	37061.03	173380.00	0.21

*Source: Annual Report of the Bank*

### HIMALAYAN BANK NEPAL LTD

#### *Investment in Government securities to Current Asset Ratio*

<i>F/Y</i>	<i>Inv. on Gov Securities</i>	<i>Current Asset</i>	<i>Ratio</i>
2004/05	54697.29	223360.00	0.24
2005/06	51820.00	237850.00	0.22
2006/07	64542.80	269999.00	0.24
2007/08	74716.68	294490.00	0.25
2008/09	42123.00	298130.00	0.14

*Source: Annual Report of the Bank*

## Appendix -7

### NABIL BANK LTD

#### *Loan and Advances to Current Asset Ratio*

<i>F/Y</i>	<i>Loan and Advances</i>	<i>Current Asset</i>	<i>Ratio</i>
2004/05	109467.00	88192.00	1.24
2005/06	132788.00	138575.00	0.96
2006/07	159030.00	169566.00	0.94
2007/08	217594.60	201221.00	1.08
2008/09	279990.12	173380.00	1.61

*Source: Annual Report of the Bank*

### HIMALAYAN BANK NEPAL LTD

#### *Loan and Advances to Current Asset Ratio*

<i>F/Y</i>	<i>Loan and Advances</i>	<i>Current Asset</i>	<i>Ratio</i>
2004/05	135910	223360.00	0.61
2005/06	146430	237850.00	0.62
2006/07	177937	269999.00	0.66
2007/08	201796	294490.00	0.69
2008/09	255195	298130.00	0.86

*Source: Annual Report of the Bank*

## Appendix -8

### NABIL BANK LTD

#### *Loan and Advances to Total Deposit Ratio*

<i>F/Y</i>	<i>Loan and Advances</i>	<i>Total Deposit</i>	<i>Percentage</i>
2004/05	109467.00	145866.09	75.05
2005/06	132788.00	193473.99	68.63
2006/07	159030.00	233422.85	68.13
2007/08	217594.60	319150.47	68.18
2008/09	279990.12	373482.56	74.97

*Source: Annual Report of the Bank*

### HIMALAYAN BANK NEPAL LTD

#### *Loan and Advances to Total Deposit Ratio*

<i>F/Y</i>	<i>Loan and Advances</i>	<i>Total Deposit</i>	<i>Percentage</i>
2004/05	135910.00	248140.12	54.77
2005/06	146430.00	264908.52	55.28
2006/07	177937.20	300484.18	59.22
2007/08	201796.13	318427.89	63.37
2008/09	255195.19	346813.45	73.58

*Source: Annual Report of the Bank*

## Appendix –9

### NABIL BANK LTD

#### Total Investment to Total Deposit Ratio

<i>F/Y</i>	<i>Total Investment</i>	<i>Total Deposit</i>	<i>Percentage</i>
2004/05	42755.28	145866.10	29.31
2005/06	61785.33	193474.00	31.93
2006/07	89453.11	233422.90	38.32
2007/08	99397.71	319150.47	31.14
2008/09	108263.79	373482.56	28.99

*Source: Annual Report of the Bank*

### HIMALAYAN BANK NEPAL LTD

#### Total Investment to Total Deposit Ratio

<i>F/Y</i>	<i>Total Investment</i>	<i>Total Deposit</i>	<i>Percentage</i>
2004/05	116923.42	248140.12	47.12
2005/06	108890.31	264908.52	41.10
2006/07	118229.85	300484.18	39.35
2007/08	133401.77	318427.89	41.89
2008/09	87106.91	346813.45	25.12

*Source: Annual Report of the Bank*

## Appendix -10

### NABIL BANK LTD

#### Loan and Advances to Total Working Fund Ratio

<i>F/Y</i>	<i>Loan and Advances</i>	<i>Total Working Fund</i>	<i>Percentage</i>
2004/05	109467.00	171863.31	63.69
2005/06	132788.00	223299.71	59.47
2006/07	159030.00	272533.93	58.35
2007/08	217594.60	371327.59	58.60
2008/09	279990.12	438673.98	63.83

*Source: Annual Report of the Bank*

### HIMALAYAN BANK NEPAL LTD

#### Loan and Advances to Total Working Fund Ratio

<i>F/Y</i>	<i>Loan and Advances</i>	<i>Total Working Fund</i>	<i>Percentage</i>
2004/05	135910.00	278446.95	48.81
2005/06	146430.00	294603.89	49.70
2006/07	177937.20	335191.41	53.09
2007/08	201796.13	361755.32	55.78
2008/09	255195.19	393203.22	64.90

*Source: Annual Report of the Bank*

**Appendix –11**

**NABIL BANK LTD**

***Investment in Government Securities to Total Working Fund Ratio***

<b><i>F/Y</i></b>	<b><i>Investment in Government Securities</i></b>	<b><i>Total Working Fund</i></b>	<b><i>Percentage</i></b>
2004/05	24139.39	171863.31	14.05
2005/06	23014.63	223299.71	10.31
2006/07	48083.00	272533.93	17.64
2007/08	46468.83	371327.59	12.51
2008/09	37061.03	438673.98	8.45

*Source: Annual Report of the Bank*

**HIMALAYAN BANK NEPAL LTD**

***Investment in Government Securities to Total Working Fund Ratio***

<b><i>F/Y</i></b>	<b><i>Investment in Government Securities</i></b>	<b><i>Total Working Fund</i></b>	<b><i>Percentage</i></b>
2004/05	54697.29	278446.95	19.64
2005/06	51820.00	294603.89	17.59
2006/07	64542.80	335191.41	19.26
2007/08	74716.68	361755.32	20.65
2008/09	42123.00	393203.22	10.71

*Source: Annual Report of the Bank*

**Appendix -12**

**NABIL BANK LTD**

***Investment in Share & Debentures to Total Working Fund Ratio***

<b><i>F/Y</i></b>	<b><i>Investment in Share &amp; Debentures</i></b>	<b><i>Total Working Fund</i></b>	<b><i>Percentage</i></b>
2004/05	4402.82	171863.31	2.56
2005/06	1041.19	223299.71	0.47
2006/07	2869.58	272533.93	1.05
2007/08	3232.36	371327.59	0.87
2008/09	3549.31	438673.98	0.81

*Source: Annual Report of the Bank*

**HIMALAYAN BANK NEPAL LTD**

***Investment in Share & Debentures to Total Working Fund Ratio***

<b><i>F/Y</i></b>	<b><i>Investment in Share &amp; Debentures</i></b>	<b><i>Total Working Fund</i></b>	<b><i>Percentage</i></b>
2004/05	399.09	278446.95	0.14
2005/06	385.67	294603.89	0.13
2006/07	734.24	335191.41	0.22
2007/08	895.58	361755.32	0.25
2008/09	938.83	393203.22	0.24

*Source: Annual Report of the Bank*

### Appendix -13

#### NABIL BANK LTD

##### Return on Loan and Advances Ratio

<i>F/Y</i>	<i>Net Profit</i>	<i>Loan and Advances</i>	<i>Percentage</i>
2004/05	5186.36	109467.00	4.34
2005/06	6352.62	132788.00	4.78
2006/07	6739.60	159030.00	4.24
2007/08	7464.68	217594.60	3.43
2008/09	10310.53	279990.12	3.68

*Source: Annual Report of the Bank*

#### HIMALAYAN BANK NEPAL LTD

##### Return on Loan and Advances Ratio

<i>F/Y</i>	<i>Net Profit</i>	<i>Loan and Advances</i>	<i>Percentage</i>
2004/05	3082.75	135910.00	2.27
2005/06	4574.58	146430.00	3.12
2006/07	4918.23	177937.20	2.76
2007/08	6358.69	201796.13	3.15
2008/09	7528.35	255195.19	2.95

*Source: Annual Report of the Bank*

### Appendix -14

#### NABIL BANK LTD

##### Return on Total Working Fund Ratio

<i>F/Y</i>	<i>Net Profit</i>	<i>Total Working Fund</i>	<i>Percentage</i>
2004/05	5186.36	171863.31	3.02
2005/06	6352.62	223299.71	2.84
2006/07	6739.60	272533.93	2.47
2007/08	7464.68	371327.59	2.01
2008/09	10310.53	438673.98	2.35

*Source: Annual Report of the Bank*

#### HIMALAYAN BANK NEPAL LTD

##### Return on Total Working Fund Ratio

<i>F/Y</i>	<i>Net Profit</i>	<i>Total Working Fund</i>	<i>Percentage</i>
2004/05	3082.75	278446.95	1.12
2005/06	4574.58	294603.89	1.55
2006/07	4918.23	335191.41	1.47
2007/08	6358.69	361755.32	1.76
2008/09	7528.35	393203.22	1.91

*Source: Annual Report of the Bank*

## Appendix -15

### NABIL BANK LTD

#### Total Interest Earned to Total Assets Ratio

<i>F/Y</i>	<i>Total Interest Earned</i>	<i>Total Assets</i>	<i>Percentage</i>
2004/05	10687.47	88192.00	12.11
2005/06	13099.99	138575.00	9.45
2006/07	15877.59	169566.00	9.36
2007/08	19786.97	201221.00	9.83
2008/09	27984.86	173380.00	16.14

Source: Annual Report of the Bank

### HIMALAYAN BANK NEPAL LTD

#### Total Interest Earned to Total Assets Ratio

<i>F/Y</i>	<i>Total Interest Earned</i>	<i>Total Assets</i>	<i>Percentage</i>
2004/05	14464.68	223360.00	6.48
2005/06	16264.74	237850.00	6.84
2006/07	17755.83	269999.00	6.58
2007/08	19636.47	294490.00	6.67
2008/09	23421.98	298130.00	7.86

Source: Annual Report of the Bank

## Appendix -16

### NABIL BANK LTD

#### Total Interest Earned to Total Operating Income Ratio

<i>F/Y</i>	<i>Total Interest Earned</i>	<i>Total Operating Income</i>	<i>Percentage</i>
2004/05	10687.47	11948.98	89.44
2005/06	13099.99	13595.13	96.36
2006/07	15877.59	14801.58	107.27
2007/08	19786.97	16704.27	118.45
2008/09	27984.86	22209.83	126.00

Source: Annual Report of the Bank

### HIMALAYAN BANK NEPAL LTD

#### Total Interest Earned to Total Operating Income Ratio

<i>F/Y</i>	<i>Total Interest Earned</i>	<i>Total Operating Income</i>	<i>Percentage</i>
2004/05	14464.68	11959.22	120.95
2005/06	16264.74	13935.35	116.72
2006/07	17755.83	13933.62	127.43
2007/08	19636.47	15974.95	122.92
2008/09	23421.98	19880.48	117.81

Source: Annual Report of the Bank

**Appendix -17**

**NABIL BANK LTD**

***Total Interest Paid to Total Working Fund Ratio***

<b><i>F/Y</i></b>	<b><i>Total Interest Paid</i></b>	<b><i>Total Working Fund</i></b>	<b><i>Percentage</i></b>
2004/05	2435.45	171863.31	1.42
2005/06	3571.61	223299.71	1.60
2006/07	5557.10	272533.93	2.04
2007/08	7584.36	371327.59	2.04
2008/09	11532.80	438673.98	2.63

*Source: Annual Report of the Bank*

**HIMALAYAN BANK NEPAL LTD**

***Total Interest Paid to Total Working Fund Ratio***

<b><i>F/Y</i></b>	<b><i>Total Interest Paid</i></b>	<b><i>Total Working Fund</i></b>	<b><i>Percentage</i></b>
2004/05	5619.64	278446.95	2.02
2005/06	6488.42	294603.89	2.20
2006/07	7674.11	335191.41	2.29
2007/08	8237.45	361755.32	2.28
2008/09	9347.78	393203.22	2.38

*Source: Annual Report of the Bank*

**Appendix A - 1**

**NABIL BANK LTD**

**Correlation between Total Deposit and Loan and Advances.**

F/Y	Deposit (X)	Loan and Advance (Y)	X=(x- $\bar{x}$ ) (X - 253079.21)	x <sup>2</sup>	y = (y- $\bar{y}$ ) (Y -179773.94)	y <sup>2</sup>	xy
2004/05	145866.10	109467.00	-107213.11	11494650955.80	-70306.94	4943065812.16	7537825691.98
2005/06	193474.00	132788.00	-59605.21	3552781059.14	-46985.94	2207678557.68	2800606820.74
2006/07	233422.90	159030.00	-19656.31	386370522.82	-20743.94	430311046.72	407749315.26
2007/08	319150.47	217594.60	66071.16	4365398183.74	37820.66	1430402322.83	2498854878.16
2008/09	373482.56	279990.12	120403.35	14496966691.20	100216.18	10043282733.70	12066363796.20
	$\phi X= $ 1265396.03	$\phi Y= $ 898869.72		$\phi x^2= $ 34296167412.60		$\phi y^2= $ 19054740472.90	$\phi xy= $ 25311400502.2

*Source: Annual Report of the Bank*

Here, N = 5

$$\bar{x} = \frac{\sum X}{N} = \frac{1265396.03}{5} = 253079.21$$

$$\bar{y} = \frac{\sum Y}{N} = \frac{898869.72}{5} = 179773.94$$

Calculation of correlation coefficient (r):

$$r = \frac{\sum xy}{\sqrt{\sum x^2} \sqrt{\sum y^2}} = \frac{25311400502.20}{\sqrt{34296167412.60} \sqrt{19054740472.90}}$$

r = 0.9901

Or, r = 0.9901                  r<sup>2</sup> = 0.9803

Calculation of Probable error,

$$P. Er. = 0.6745 \frac{1 - r^2}{\sqrt{N}} = 0.6745 \hat{=} \frac{1 - 0.9803}{\sqrt{5}}$$

Or, P. Er.=0.0088                  6 P.Er.= 0.0528



**Appendix A - 2**

**HIMALAYAN BANK NEPAL LTD**  
**Correlation between Total Deposit and Loan and Advances.**

F/Y	Deposit (X)	Loan and Advance (Y)	X=(x- $\bar{x}$ ) (X - 295754.83)	x <sup>2</sup>	y = (y- $\bar{y}$ ) (Y-183453.70)	y <sup>2</sup>	xy
2004/05	248140.12	135910	-47614.71	2267160608.38	-47543.70	2260403409.69	2263779487.82
2005/06	264908.52	146430	-30846.31	951494840.62	-37023.70	1370754361.69	1142044527.54
2006/07	300484.18	177937.20	4729.35	22366751.42	-5516.50	30431772.25	-26089459.28
2007/08	318427.89	201796.13	22673.06	514067649.76	18342.43	336444738.30	415879015.94
2008/09	346813.45	255195.19	51058.62	2606982676.30	71741.49	5146841387.42	3663021476.14
	$\phi X= $ 1478774.16	$\phi y= $ 917268.52		$\phi x^2= $ 6362072526.48		$\phi y^2= $ 9144875669.35	$\phi xy= $ 7458635048.16

*Source: Annual Report of the Bank*

Here, N = 5

$$\bar{x} = \frac{\sum X}{N} = \frac{1478774.16}{5} = 295754.83$$

$$\bar{y} = \frac{\sum Y}{N} = \frac{917268.52}{5} = 183453.70$$

Calculation of correlation coefficient (r):

$$r = \frac{\sum xy}{\sqrt{\sum x^2} \sqrt{\sum y^2}} = \frac{7458635048.16}{\sqrt{6362072526.48} \sqrt{9144875669.35}}$$

$$r = 0.9778$$

$$\text{Or, } r = 0.9778 \quad r^2 = 0.9561$$

Calculation of Probable error,

$$P. Er. = 0.6745 \frac{1 - r^2}{\sqrt{N}} = 0.6745 \frac{1 - 0.9561}{\sqrt{5}}$$

$$\text{Or, } P. Er. = 0.0132$$

$$6 P. Er. = 0.0795$$

**Appendix A - 3**

**NABIL BANK LTD**

**Correlation between Total Deposit and Total Investment.**

F/Y	Deposit (X)	Investment (Y)	X=(x- $\bar{x}$ ) (X- 253079.21)	x <sup>2</sup>	y = (y- $\bar{y}$ ) (Y- 80331.04)	y <sup>2</sup>	xy
2004/05	145866.10	42755.28	- 107213.11	11494650955.80	-37575.76	1411937739.57	4028614090.21
2005/06	193474.00	61785.33	-59605.21	3552781059.14	-18545.71	343943359.04	1105420939.14
2006/07	233422.90	89453.11	-19656.31	386370522.82	9122.07	83212161.08	-179306235.76
2007/08	319150.47	99397.71	66071.26	4365411397.98	19066.67	363537904.89	1259758910.90
2008/09	373482.56	108263.79	120403.35	14496966691.20	27932.75	780238522.56	3363196674.71
	$\phi X= $ 1265396.03	$\phi Y= $ 401655.22		$\phi x^2= $ 34296180626.80		$\phi y^2= $ 2982869687.14	$\phi xy= $ 9577684379.20

*Source: Annual Report of the Bank*

Here, N = 5

$$\bar{x} = \frac{\sum X}{N} = \frac{1265396.03}{5} = 253079.21$$

$$\bar{y} = \frac{\sum Y}{N} = \frac{401655.22}{5} = 80331.04$$

Calculation of correlation coefficient (r):

$$r = \frac{\sum xy}{\sqrt{\sum x^2} \sqrt{\sum y^2}} = \frac{9577684379.20}{\sqrt{34296180626.80} \sqrt{2982869687.14}}$$

$$r = 0.9469$$

$$\text{Or, } r = 0.9469 \quad r^2 = 0.8966$$

Calculation of Probable error,

$$P. Er. = 0.6745 \frac{1 - r^2}{\sqrt{N}} = 0.6745 \frac{1 - 0.8966}{\sqrt{5}}$$

$$\text{Or, } P. Er. = 0.0031$$

$$6 P. Er. = 0.1871$$

**Appendix A - 4**

**HIMALAYAN BANK NEPAL LTD**  
**Correlation between Total Deposit and Total Investment.**

F/Y	Deposit (X)	Investment (Y)	X=(x- $\bar{x}$ ) (X- 295754.83)	x <sup>2</sup>	y = (y- $\bar{y}$ ) (Y-112910.45)	y <sup>2</sup>	xy
2004/05	248140.12	116923.42	-47614.71	2267160608.38	4012.97	16103912.17	-191076315.60
2005/06	264908.52	108890.31	-30846.31	951494840.62	-4020.14	16161541.70	124006554.40
2006/07	300484.18	118229.85	4729.35	22366751.42	5319.40	28295995.08	25157284.29
2007/08	318427.89	133401.77	22673.06	514067649.76	20491.32	419894113.38	464600841.50
2008/09	346813.45	87106.91	51058.62	2606982676.30	-25803.54	665822779.75	-1317493194
	$\phi x= $ 1478774.16	$\phi y= $ 564552.26		$\phi x^2= $ 6362072526.48		$\phi y^2= $ 1146278342.07	$\phi xy= $ -894804829.4

*Source: Annual Report of the Bank*

Here, N = 5

$$\bar{x} = \frac{\sum X}{N} = \frac{1478774.16}{5} = 295754.83$$

$$\bar{y} = \frac{\sum Y}{N} = \frac{564552.26}{5} = 112910.45$$

Calculation of correlation coefficient (r):

$$r = \frac{\sum xy}{\sqrt{\sum x^2} \sqrt{\sum y^2}} = \frac{Z894804829.40}{\sqrt{6362072526.48} \sqrt{1146278342.07}}$$

$$r = -0.3313$$

$$\text{Or, } r = -0.3313 \quad r^2 = 0.1098$$

Calculation of Probable error,

$$P. Er. = 0.6745 \frac{1 Z r^2}{\sqrt{N}} = 0.6745 \hat{=} \frac{1 Z (Z1.098)}{\sqrt{5}}$$

$$\text{Or, } P. Er. = 0.3981$$

$$6 P. Er. = 2.3887$$

**Appendix A - 5**

**NABIL BANK LTD**

**Correlation between Total Deposit and Net Profit.**

F/Y	Deposit (X)	Net Profit (Y)	X=(x- $\bar{x}$ ) (X - 253079.21)	x <sup>2</sup>	y = (y- $\bar{y}$ ) (Y - 7210.76)	y <sup>2</sup>	xy
2004/05	145866.1	5186.36	-107213.1	11494650098.17	-2024.40	4098187.26	217041997.36
2005/06	193474	6352.62	-59605.21	3552780582.30	-858.14	736400.83	51149492.27
2006/07	233422.9	6739.6	-19656.31	386370365.57	-471.16	221989.86	9261225.82
2007/08	319150.47	7464.68	66071.26	4365411926.56	253.92	64476.38	16776947.50
2008/09	373482.56	10310.53	120403.4	14496967654.45	3099.77	9608586.45	373222945.44
	$\phi x= $ 1265396.03	$\phi y= $ 36053.79		$\phi x^2= $ 34296180627.04		$\phi y^2= $ 14729640.78	$\phi xy= $ 667452608.38

*Source: Annual Report of the Bank*

Here, N = 5

$$\bar{x} = \frac{\sum X}{N} = \frac{1265396.03}{5} = 253079.21$$

$$\bar{y} = \frac{\sum Y}{N} = \frac{36053.79}{5} = 7210.76$$

Calculation of correlation coefficient (r):

$$r = \frac{\sum xy}{\sqrt{\sum x^2} \sqrt{\sum y^2}} = \frac{667452608.38}{\sqrt{34296180627.04} \sqrt{14729640.78}}$$

$$r = 0.9391$$

$$\text{Or, } r = 0.9391 \quad r^2 = 0.8819$$

Calculation of Probable error,

$$P. Er. = 0.6745 \frac{1 - r^2}{\sqrt{N}} = 0.6745 \hat{=} \frac{1 - 0.8819}{\sqrt{5}}$$

$$\text{Or, } P. Er. = 0.0528$$

$$6 P. Er. = 0.3170$$

**Appendix A - 6**

**HIMALAYAN BANK NEPAL LTD  
Correlation between Total Deposit and Net Profit.**

F/Y	Deposit (X)	Net Profit (Y)	X=(x- $\bar{x}$ ) X - 295754.83	x <sup>2</sup>	y = (y- $\bar{y}$ ) (Y-5292.52)	y <sup>2</sup>	xy
2004/05	248140.12	3082.75	-47614.71	2267160798.84	-2209.77	4883083.45	105217562.14
2005/06	264908.52	4574.58	-30846.31	951494964.00	-717.94	-2881070.25	22145801.24
2006/07	300484.18	4918.23	4729.35	22366732.51	-374.29	140093.00	-1770147.66
2007/08	318427.89	6358.69	22673.06	514067559.07	1066.17	1136718.47	24173334.25
2008/09	346813.45	7528.35	51058.62	2606982472.07	2235.83	4998935.79	114158389.88
	$\phi x= $ 1478774.16	$\phi y= $ 26462.60		$\phi x^2= $ 6362072526.49		$\phi y^2= $ 8277760.47	$\phi xy= $ 263924939.84

*Source: Annual Report of the Bank*

Here, N = 5

$$\bar{x} = \frac{\sum X}{N} = \frac{1478774.16}{5} = 295754.83$$

$$\bar{y} = \frac{\sum Y}{N} = \frac{26462.60}{5} = 5292.52$$

Calculation of correlation coefficient (r):

$$r = \frac{\sum xy}{\sqrt{\sum x^2} \sqrt{\sum y^2}} = \frac{263924939.84}{\sqrt{6362072526.49} \sqrt{8277760.47}}$$

$$r = 0.9684$$

$$\text{Or, } r = 0.9684 \quad r^2 = 0.9378$$

Calculation of Probable error,

$$\text{P. Er.} = 0.6745 \frac{1 - r^2}{\sqrt{N}} = 0.6745 \hat{=} \frac{1 - 0.9378}{\sqrt{5}}$$

$$\text{Or, P. Er.} = 0.0278$$

$$6 \text{ P. Er.} = 0.1668$$

**Appendix A - 7**

**NABIL BANK LTD**

**Correlation between Total Deposit and Interest Earned.**

F/Y	Deposit (X)	Interest Earned (Y)	X=(x- $\bar{x}$ ) (X - 253079.21)	x <sup>2</sup>	y = (y- $\bar{y}$ ) (Y - 17487.38)	y <sup>2</sup>	xy
2004/05	145866.1	10687.47	-107213.106	11494650098	-6799.906	46238721.61	729039042.8
2005/06	193474	13099.99	-59605.206	3552780582	-4387.386	19249155.91	261511046.3
2006/07	233422.9	15877.59	-19656.306	386370365.6	-1609.786	2591410.966	31642446.21
2007/08	319150.47	19786.97	66071.264	4365411927	2299.594	5288132.565	151937082.3
2008/09	373482.56	27984.86	120403.354	14496967654	10497.484	110197170.3	1263932282
	$\phi x= $ 1265396.03	$\phi y= $ 87436.88		$\phi x^2= $ 34296180627		$\phi y^2= $ 183564591.40	$\phi xy= $ 2438061900

*Source: Annual Report of the Bank*

Here, N = 5

$$\bar{x} = \frac{\sum X}{N} = \frac{1265396.06}{5} = 253079.21$$

$$\bar{y} = \frac{\sum Y}{N} = \frac{87436.88}{5} = 17487.38$$

Calculation of correlation coefficient (r):

$$r = \frac{\sum xy}{\sqrt{\sum x^2} \sqrt{\sum y^2}} = \frac{2438061900}{\sqrt{34296180627} \sqrt{183564591.40}}$$

$$r = 0.9717$$

$$\text{Or, } r = 0.9717 \quad r^2 = 0.9442$$

Calculation of Probable error,

$$\text{P. Er.} = 0.6745 \frac{1 - r^2}{\sqrt{N}} = 0.6745 \frac{1 - 0.9442}{\sqrt{5}} = 0.0250$$

$$\text{Or, P. Er.} = 0.0250$$

$$6 \text{ P.Er.} = 0.1498$$

**Appendix A - 8**

**HIMALAYAN BANK NEPAL LTD**  
**Correlation between Total Deposit and Interest Earned**

F/Y	Deposit (X)	Interest Earned (Y)	X=(x- $\bar{x}$ ) (X - 295754.83)	x <sup>2</sup>	y = (y- $\bar{y}$ ) (Y-18308.74)	y <sup>2</sup>	xy
2004/05	248140.12	14464.68	-47614.71	2267160798.84	-3844.06	14,776,797.28	183033809.81
2005/06	264908.52	16264.74	-30846.31	951494964.00	-2044.00	4,177,936.00	63049861.73
2006/07	300484.18	17755.83	4729.35	22366732.51	-552.91	305,709.47	-2614903.80
2007/08	318427.89	19636.47	22673.06	514067559.07	1327.73	1,762,866.95	30103699.30
2008/09	346813.45	23421.98	51058.62	2606982472.07	5113.24	26,145,223.30	261074967.90
	$\phi x= $ 1478774.16	$\phi y= $ 91543.70	0.00	$\phi x^2= $ 6362072526.49	0.00	$\phi y^2= $ 47168533.00	$\phi xy= $ 534647434.94

*Source: Annual Report of the Bank*

Here, N = 5

$$\bar{x} = \frac{\sum X}{N} = \frac{1478774.16}{5} = 295754.83$$

$$\bar{y} = \frac{\sum Y}{N} = \frac{91543.70}{5} = 18308.74$$

Calculation of correlation coefficient (r):

$$r = \frac{\sum xy}{\sqrt{\sum x^2} \sqrt{\sum y^2}} = \frac{534647434.94}{\sqrt{6362072526.49} \sqrt{47168533}}$$

$$r = 0.9760$$

$$\text{Or, } r = 0.9525 \quad r^2 = 0.0212$$

Calculation of Probable error,

$$\text{P. Er.} = 0.6745 \frac{1 - r^2}{\sqrt{N}} = 0.6745 \hat{=} \frac{1 - 0.9526}{\sqrt{5}}$$

$$\text{Or, P. Er.} = 0.0212$$

$$6 \text{ P.Er.} = 0.1273$$

**Appendix A - 9**

**NABIL BANK LTD**

**Correlation between Loan and advances and Interest Paid.**

F/Y	Loan and Advances (X)	Interest Paid (Y)	X=(x- $\bar{x}$ ) (X - 179773.94)	x <sup>2</sup>	y = (y- $\bar{y}$ ) (Y - 6136.26)	y <sup>2</sup>	xy
2004/05	109467	2435.45	-70306.944	4943066375	-3700.814	13696024.26	260192922.7
2005/06	132788	3571.61	-46985.944	2207678934	-2564.654	6577450.14	120502689.2
2006/07	159030	5557.1	-20743.944	430311212.7	-579.164	335430.9389	12014145.58
2007/08	217594.6	7584.36	37820.656	1430402020	1448.096	2096982.025	54767940.67
2008/09	279990.12	11532.8	100216.176	10043281932	5396.536	29122600.8	540820201.6
	$\phi x= $ 898869.72	$\phi y= $ 30681.32		$\phi x^2= $ 19054740473		$\phi y^2= $ 51828488.17	$\phi xy= $ 988297899.7

*Source: Annual Report of the Bank*

Here, N = 5

$$\bar{x} = \frac{\sum X}{N} = \frac{898869.72}{5} = 179773.94$$

$$\bar{y} = \frac{\sum Y}{N} = \frac{30681.32}{5} = 6136.26$$

Calculation of correlation coefficient (r):

$$r = \frac{\sum xy}{\sqrt{\sum x^2} \sqrt{\sum y^2}} = \frac{988297899.70}{\sqrt{19054740473} \sqrt{51828488.17}}$$

$$r = 0.9945$$

$$\text{Or, } r = 0.9945 \quad r^2 = 0.9890$$

Calculation of Probable error,

$$\text{P. Er.} = 0.6745 \frac{1 - r^2}{\sqrt{N}} = 0.6745 \hat{=} \frac{1 - 0.9890}{\sqrt{5}}$$

$$\text{Or, P. Er.} = 0.0049$$

$$6 \text{ P.Er.} = 0.0295$$



**Appendix A - 10**

**HIMALAYAN BANK NEPAL LTD**  
**Correlation between Loan and advances and Interest Paid.**

F/Y	Loan and Advances (X)	Interest Paid (Y)	$\bar{X} = (\bar{x} - \bar{x})$ (X - 157096.30)	$x^2$	$\bar{y} = (\bar{y} - \bar{y})$ (Y - 7473.48)	$y^2$	xy
2004/05	135910.00	5619.64	-21186.30	448859477.18	-1853.84	3,436,722.75	39276017.81
2005/06	14643.00	6488.42	-142453.30	20292943820.52	-985.06	970,343.20	140325051.64
2006/07	177937.20	7674.11	20840.90	434342946.08	200.63	40,252.40	4181308.96
2007/08	201796.13	8237.45	44699.83	1998074444.43	763.97	583,650.16	34149326.07
2008/09	255195.19	9347.78	98098.89	9623391434.44	1874.30	3,513,000.49	183866742.03
	$\phi x =  $ 785481.52	$\phi y =  $ 37367.40		$\phi x^2 =  $ 32797612122.65		$\phi y^2 =  $ 8543969	$\phi xy =  $ 401798446.51

*Source: Annual Report of the Bank*

Here, N = 5

$$\bar{x} = \frac{\sum X}{N} = \frac{785481.52}{5} = 157096.30$$

$$\bar{y} = \frac{\sum Y}{N} = \frac{37367.40}{5} = 7473.48$$

Calculation of correlation coefficient (r):

$$r = \frac{\sum xy}{\sqrt{\sum x^2} \sqrt{\sum y^2}} = \frac{401798446.51}{\sqrt{32797612122.65} \sqrt{85439869.00}}$$

$$r = 0.759$$

$$\text{Or, } r = 0.759 \quad r^2 = 0.576$$

Calculation of Probable error,

$$P. Er. = 0.6745 \frac{1 - r^2}{\sqrt{N}} = 0.6745 \frac{1 - 0.576}{\sqrt{5}}$$

$$\text{Or, } P. Er. = 0.1896$$

$$6 P. Er. = 1.1374$$

**Appendix A - 11**

**NABIL BANK LTD**

**Correlation between Total Working Fund and Net Profit.**

F/Y	Total Working Fund (X)	Net Profit (Y)	X=(x- $\bar{x}$ ) (X - 295539.70)	$x^2$	y = (y- $\bar{y}$ ) (Y - 7210.76)	$y^2$	xy
2004/05	171863.31	5186.36	-123676.394	15295850433	-2024.398	4098187.262	250370244.7
2005/06	223299.71	6352.62	-72239.994	5218616733	-858.138	736400.827	61991883.97
2006/07	272533.93	6739.6	-23005.774	529265637.3	-471.158	221989.861	10839354.47
2007/08	371327.59	7464.68	75787.886	5743803664	253.922	64476.38208	19244211.59
2008/09	438673.98	10310.53	143134.276	20487420966	3099.772	9608586.452	443683621
	$\phi x= $ 1477698.52	$\phi y= $ 36053.79		$\phi x^2= $ 47274957434		$\phi y^2= $ 14729640.78	$\phi xy= $ 786129315.7

*Source: Annual Report of the Bank*

Here, N = 5

$$\bar{x} = \frac{\sum X}{N} = \frac{1477698.52}{5} = 295539.70$$

$$\bar{y} = \frac{\sum Y}{N} = \frac{36053.79}{5} = 7210.76$$

Calculation of correlation coefficient (r):

$$r = \frac{\sum xy}{\sqrt{\sum x^2} \sqrt{\sum y^2}} = \frac{786129315.70}{\sqrt{47274957434} \sqrt{14729640.78}}$$

$$r = 0.9421$$

$$\text{Or, } r = 0.9421 \quad r^2 = 0.8875$$

Calculation of Probable error,

$$P. Er. = 0.6745 \frac{1 - r^2}{\sqrt{N}} = 0.6745 \hat{=} \frac{1 - 0.8875}{\sqrt{5}}$$

$$\text{Or, } P. Er. = 0.0503$$

$$6 P. Er. = 0.3019$$

**Appendix A - 12**

**HIMALAYAN BANK NEPAL LTD**  
**Correlation between Total Working Fund and Net Profit.**

F/Y	Total Working Fund (X)	Net Profit (Y)	$\bar{X}=(x-\bar{x})$ (X - 332640.16)	$x^2$	$\bar{y}=(y-\bar{y})$ (Y - 5292.52)	$y^2$	xy
2004/05	278446.95	3082.75	-54193.21	2936903793	-2209.77	4883083.45	119754525.20
2005/06	294603.89	4574.58	-38036.27	1446757683	-717.94	515437.84	27307758.25
2006/07	335191.41	4918.23	2551.25	6508886.768	-374.29	140093.00	-954908.11
2007/08	361755.32	6358.69	29115.16	847692658.3	1066.17	1136718.50	31041712.27
2008/09	393203.22	7528.35	60563.06	3667884479	2235.83	4998935.79	135408710.90
	$\phi x= $ 1663200.79	$\phi y= $ 26462.6		$\phi x^2= $ 8905747501		$\phi y^2= $ 11674268.56	$\phi xy= $ 312557798.6

*Source: Annual Report of the Bank*

Here, N = 5

$$\bar{x} = \frac{\sum X}{N} = \frac{1663200.79}{5} = 332640.16$$

$$\bar{y} = \frac{\sum Y}{N} = \frac{26462.60}{5} = 5292.52$$

Calculation of correlation coefficient (r):

$$r = \frac{\sum xy}{\sqrt{\sum x^2} \sqrt{\sum y^2}} = \frac{312557798.60}{\sqrt{8905747501} \sqrt{11674268.56}}$$

$$r = 0.9693$$

$$\text{Or, } r = 0.9693 \quad r^2 = 0.9396$$

Calculation of Probable error,

$$\text{P. Er.} = 0.6745 \frac{1 - r^2}{\sqrt{N}} = 0.6745 \frac{1 - 0.9396}{\sqrt{5}}$$

$$\text{Or, P. Er.} = 0.0270$$

$$6 \text{ P.Er.} = 0.1620$$

**Appendix A - 13**

**NABIL BANK LTD  
The Trend value of Total Deposits**

**(Rs. in 100 Thousands)**

F/Y	Total Deposits (y)	x=T- 2005/2006	x <sup>2</sup>	xy	y = a + bx
					Trend Values
2004/05	145866.10	-2	4	-291732.20	136897.33
2005/06	193474.00	-1	1	-193474.00	194988.27
2006/07	233422.90	0	0	0.00	253079.21
2007/08	319150.47	1	1	319150.47	311170.15
2008/09	373482.56	2	4	746965.12	369261.08
	∑y =	∑x =	∑x <sup>2</sup> =	∑xy =	
	1265396.03	0	10	580909.39	

*Source: Annual Report of the Bank*

Here, N = 5

$$a \times \frac{\sum y}{N} = \frac{1265396.03}{5} = 253079.21 \quad \text{or, } a = 253079.21$$

$$b \times \frac{\sum xy}{\sum x^2} = \frac{580909.39}{10} = 58090.94 \quad \text{or, } b = 58090.94$$

Let the trend line be,

$$y = a + bx \dots\dots\dots (i)$$

... The straight line trend for total deposits is,

$$y = a + bx \quad | \quad 253079.21 + 58090.94 x$$

For year 2009/2010,  $y = a + bx \quad | \quad 253079.21 + 58090.94 \times 3$   
 $x = 3$   $y = \text{Rs. } 427352.02 \text{ hundred thousands}$

Other trend values have been calculated accordingly.

**(Rs. in 100 Thousands)**

Year (t)	x=T- 2005/2006	y (Projected deposit) = a+bx
2009/10	3	427352.02
2010/11	4	485442.96
2011/12	5	543533.90
2012/13	6	601624.84
2013/14	7	659715.78

**Appendix A - 14**

**HIMALAYAN BANK NEPAL LTD  
The Trend value of Total Deposits**

**(Rs. in 100 Thousands)**

F/Y	Total Deposits (y)	x=T- 2005/2006	x <sup>2</sup>	xy	y = a + bx
					Trend Values
2004/05	248140.12	-2	4	-496280.24	245581.63
2005/06	264908.52	-1	1	-264908.52	270668.23
2006/07	300484.18	0	0	0.00	295754.83
2007/08	318427.89	1	1	318427.89	320841.44
2008/09	346813.45	2	4	693626.90	345928.04
	∑y =	∑x =	∑x <sup>2</sup> =	∑xy =	
	1478774.16	0	10	250866.03	

*Source: Annual Report of the Bank*

Here, N = 5

$$a \times \frac{\sum y}{N} = \frac{1478774.16}{5} = 295754.83 \quad \text{or, } a = 295754.83$$

$$b \times \frac{\sum xy}{\sum x^2} = \frac{250866.03}{10} = 25086.60 \quad \text{or, } b = 25086.60$$

Let the trend line be,

$$y = a + bx \dots\dots\dots (i)$$

... The straight line trend for total deposits is,

$$y = a + bx \quad | \quad 295754.83 + 25086.60 x$$

For year 2009/2010,  $y = a + bx \quad | \quad 295754.83 + 25086.60 \times 3$   
 $x = 3$   $y = \text{Rs. } 371014.64$  hundred thousands

Other trend values have been calculated accordingly.

**(Rs. in 100 Thousands)**

Year (t)	x=T- 2005/2006	y (Projected deposit) = a+bx
2009/10	3	371014.64
2010/11	4	396101.24
2011/12	5	421187.85
2012/13	6	446274.45
2013/14	7	471361.05

**Appendix A - 15**

**NABIL BANK LTD  
The Trend value of Loan and Advances**

**(Rs. in 100 Thousands)**

F/Y	Loan and advances (y)	x=T- 2005/2006	x <sup>2</sup>	xy	y = a + bx
					Trend Values
2004/05	109467.00	-2	4	-218934.00	94603.38
2005/06	132788.00	-1	1	-132788.00	137188.66
2006/07	159030.00	0	0	0.00	179773.94
2007/08	217594.60	1	1	217594.60	222359.23
2008/09	279990.12	2	4	559980.24	264944.51
	∑y =	∑x =	∑x <sup>2</sup> =	∑xy =	
	898869.72	0	10	425852.84	

*Source: Annual Report of the Bank*

Here, N = 5

$$a \times \frac{\sum y}{N} = \frac{898869.72}{5} = 179773.94 \quad \text{or, } a = 179773.94$$

$$b \times \frac{\sum xy}{\sum x^2} = \frac{425852.84}{10} = 42585.28 \quad \text{or, } b = 42585.28$$

Let the trend line be,

$$y = a + bx \dots\dots\dots (i)$$

... The straight line trend for total deposits is,

$$y = a + bx \quad | \quad 179773.94 + 42585.28 x$$

For year 2009/2010,  $y = a + bx \quad | \quad 179773.94 + 42585.28 \quad | \quad 3$   
 $x = 3$   $y = \text{Rs. } 307529.80 \text{ hundred thousands}$

Other trend values have been calculated accordingly.

**(Rs. in 100 Thousands)**

Year (t)	x=T- 2005/2006	y (Projected deposit) = a+bx
2009/10	3	307529.80
2010/11	4	350115.08
2011/12	5	392700.36
2012/13	6	435285.65
2013/14	7	477870.93

**Appendix A - 16**

**HIMALAYAN BANK NEPAL LTD  
The Trend value of Loan and Advances**

**(Rs. in 100 Thousands)**

F/Y	Loan and advances (y)	x=T- 2005/2006	x <sup>2</sup>	xy	y = a + bx
					Trend Values
2004/05	135910.00	-2	4	-271820.00	124666.40
2005/06	146430.00	-1	1	-146430.00	154060.05
2006/07	177937.20	0	0	0	183453.70
2007/08	201796.13	1	1	201796.13	212847.36
2008/09	255195.19	2	4	510390.38	242241.01
	∑y =	∑x =	∑x <sup>2</sup> =	∑xy =	
	917268.52	0	10	293936.51	

*Source: Annual Report of the Bank*

Here, N = 5

$$a = \frac{\sum y}{N} = \frac{917268.52}{5} = 183453.70 \quad \text{or, } a = 183453.70$$

$$b = \frac{\sum xy}{\sum x^2} = \frac{293936.51}{10} = 29393.65 \quad \text{or, } b = 29393.65$$

Let the trend line be,

$$y = a + bx \dots\dots\dots (i)$$

... The straight line trend for total deposits is,

$$y = a + bx \quad | \quad 183453.70 + 29393.65$$

For year 2009/2010,  $y = a + bx \quad | \quad 183453.70 + 29393.65 \quad | \quad 3$   
 $x = 3$   $y = \text{Rs. } 271634.65 \text{ hundred thousands}$

Other trend values have been calculated accordingly.

**(Rs. in 100 Thousands)**

Year (t)	x=T- 2005/2006	y (Projected deposit) = a+bx
2009/10	3	271634.66
2010/11	4	301028.31
2011/12	5	330421.96
2012/13	6	359815.61
2013/14	7	389209.26

**Appendix A - 17**

**NABIL BANK LTD  
The Trend value of Total Investment**

**(Rs. in 100 Thousands)**

F/Y	Total Investment (y)	x=T- 2005/2006	x <sup>2</sup>	xy	y = a + bx
					Trend Values
2004/05	42755.28	-2	4	-85510.56	46605.16
2005/06	61785.33	-1	1	-61785.33	63468.10
2006/07	89453.11	0	0	0.00	80331.04
2007/08	99397.71	1	1	99397.71	97193.98
2008/09	108263.79	2	4	216527.58	114056.92
	∑y =	∑x =	∑x <sup>2</sup> =	∑xy =	
	401655.22	0	10	168629.40	

*Source: Annual Report of the Bank*

Here, N = 5

$$a \times \frac{\sum y}{N} = \frac{401655.22}{5} = 80331.04 \quad \text{or, } a = 80331.04$$

$$b \times \frac{\sum xy}{\sum x^2} = \frac{168629.40}{10} = 16862.94 \quad \text{or, } b = 16862.94$$

Let the trend line be,

$$y = a + bx \dots\dots\dots (i)$$

... The straight line trend for total deposits is,

$$y = a + bx \quad | \quad 80331.04 + 16862.94 x$$

For year 2009/2010,  $y = a + bx \quad | \quad 80331.04 + 16862.94 \quad | \quad 3$   
 $x = 3$   $y = \text{Rs. } 130919.86 \text{ hundred thousands}$

Other trend values have been calculated accordingly.

**(Rs. in 100 Thousands)**

Year (t)	x=T- 2005/2006	y (Projected deposit) = a+bx
2009/10	3	130919.86
2010/11	4	147782.80
2011/12	5	164645.74
2012/13	6	181508.68
2013/14	7	198371.62



**Appendix A - 18**

**HIMALAYAN BANK NEPAL LTD  
The Trend value of Total Investment**

**(Rs. in 100 Thousands)**

F/Y	Total Investment (y)	x=T- 2005/2006	x <sup>2</sup>	xy	y = a + bx
					Trend Values
2004/05	116923.42	-2	4	-233846.84	119934.76
2005/06	108890.31	-1	1	-108890.31	116422.61
2006/07	118229.85	0	0	0.00	112910.45
2007/08	133401.77	1	1	133401.77	109398.30
2008/09	87106.91	2	4	174213.82	105886.14
	∑y =	∑x =	∑x <sup>2</sup> =	∑xy = 287.70	
	564552.26	0	10	-35121.56	

*Source: Annual Report of the Bank*

Here, N = 5

$$a \times \frac{\sum y}{N} = \frac{564552.26}{5} = 112910.45 \quad \text{or, } a = 112910.45$$

$$b \times \frac{\sum xy}{\sum x^2} = \frac{-35121.56}{10} = -3512.16 \quad \text{or, } b = -3512.16$$

Let the trend line be,

$$y = a + bx \dots\dots\dots (i)$$

... The straight line trend for total deposits is,

$$y = a + bx \quad | \quad 112910.45 + (-3512.16) x$$

For year 2009/2010,  $y = a + bx \quad | \quad 112910.45 + (-3512.16) \quad | \quad 3$   
 $x = 3$   $y = \text{Rs. } 102373.98 \text{ hundred thousands}$

Other trend values have been calculated accordingly.

**(Rs. in 100 Thousands)**

Year (t)	x=T- 2005/2006	y (Projected deposit) = a+bx
2009/10	3	102373.98
2010/11	4	98861.83
2011/12	5	95349.67
2012/13	6	91837.52
2013/14	7	88325.36

**Appendix A - 19**

**NABIL BANK LTD  
The Trend value of Net Profit**

**(Rs. in 100 Thousands)**

F/Y	Net Profit (y)	x=T- 2005/2006	x <sup>2</sup>	xy	y = a + bx
					Trend Values
2004/05	5186.36	-2	4	-10372.72	4938.68
2005/06	6352.62	-1	1	-6352.62	6074.72
2006/07	6739.60	0	0	0.00	7210.76
2007/08	7464.68	1	1	7464.68	8346.80
2008/09	10310.53	2	4	20621.06	9482.84
	∑y =	∑x =	∑x <sup>2</sup> =	∑xy =	
	36053.79	0	10	11360.40	

*Source: Annual Report of the Bank*

Here, N = 5

$$a \times \frac{\sum y}{N} = \frac{36053.79}{5} = 7210.76 \quad \text{or, } a = 7210.76$$

$$b \times \frac{\sum xy}{\sum x^2} = \frac{11360.40}{10} = 1136.04 \quad \text{or, } b = 1136.04$$

Let the trend line be,

$$y = a + bx \dots\dots\dots (i)$$

... The straight line trend for total deposits is,

$$y = a + bx \quad | \quad 7210.76 + 1136.04 x$$

For year 2009/2010,  $y = a + bx \quad | \quad 7210.76 + 1136.04 \quad | \quad 3$   
 $x = 3$   $y = \text{Rs. } 10618.88 \text{ hundred thousands}$

Other trend values have been calculated accordingly.

**(Rs. in 100 Thousands)**

Year (t)	x=T- 2005/2006	y (Projected deposit) = a+bx
2009/10	3	10618.88
2010/11	4	11754.92
2011/12	5	12890.96
2012/13	6	14027.00
2013/14	7	15163.04

**Appendix A - 20**

**HIMALAYAN BANK NEPAL LTD  
The Trend value of Net Profit**

**(Rs. in 100 Thousands)**

F/Y	Net Profit (y)	x=T- 2005/2006	x <sup>2</sup>	xy	y = a + bx
					Trend Values
2004/05	3082.75	-2	4	-6165.50	3157.46
2005/06	4574.58	-1	1	-4574.58	4224.99
2006/07	4918.23	0	0	0	5292.52
2007/08	6358.69	1	1	6358.69	6360.05
2008/09	7528.35	2	4	15056.70	7427.58
	∑y =	∑x =	∑x <sup>2</sup> =	∑xy =	
	26462.60	0	10	10675.31	

*Source: Annual Report of the Bank*

Here, N = 5

$$a \times \frac{\sum y}{N} = \frac{26462.60}{5} = 5292.53 \quad \text{or, } a = 5292.53$$

$$b \times \frac{\sum xy}{\sum x^2} = \frac{10675.31}{10} = 1067.53 \quad \text{or, } b = 1067.53$$

Let the trend line be,  
y = a + bx..... (i)

... The straight line trend for total deposits is,

$$y = a + bx \quad | \quad 5292.53 + 1067.53 x$$

For year 2009/2010,      y = a + bx | 5292.53 + 1067.53 | 3  
x = 3                              y = Rs. 8495.11 hundred thousands

Other trend values have been calculated accordingly.

**(Rs. in 100 Thousands)**

Year (t)	x=T- 2005/2006	y (Projected deposit) = a+bx
2009/10	3	8495.11
2010/11	4	9562.64
2011/12	5	10630.18
2012/13	6	11697.71
2013/14	7	12765.24

**Appendix A - 21**

**Test of Hypothesis on Loan and Advances to total deposit ratio of NABIL and HBL.**

Calculation of X, Y and S<sup>2</sup>, Assuming  $x = x - \bar{x}$ ,  $y = y - \bar{y}$

NABIL			HBL		
X	$x = (x - \bar{x})$	$x^2$	Y	$y = (y - \bar{y})$	$y^2$
75.05	4.06	16.47	54.77	-6.47	41.91
68.63	-2.36	5.58	55.28	-5.96	35.57
68.13	-2.86	8.19	59.22	-2.02	4.10
68.18	-2.81	7.91	63.37	2.13	4.52
74.97	3.98	15.82	73.58	12.34	152.18
$\Sigma X=1$	$\Sigma x=$	$\Sigma x^2=1$	$\Sigma Y=1$	$\Sigma y=$	$\Sigma y^2=1$
354.96	0.00	53.97	306.22	0.00	238.28

*Source: Appendix-8*

$$\bar{x} = \frac{\Sigma X}{N} = \frac{354.96}{5} = 70.99$$

$$\bar{y} = \frac{\Sigma Y}{N} = \frac{306.22}{5} = 61.24$$

$$S^2 = \frac{1}{N_1 \Gamma N_2 Z 2} \left[ \Sigma x^2 \frac{f_x}{n} \Gamma \Sigma y^2 \frac{f_y}{n} \right]$$

$$= \frac{1}{5 \Gamma 5 Z 2} \left[ 53.97 \frac{(0)^2}{5} \Gamma 238.28 \frac{f_0}{5} \right]$$

$$= \frac{1}{8} \left[ 53.97 Z 0 \Gamma 238.28 Z 0' \right]$$

or,  $S^2 = 36.53$

**Appendix A - 22**

**Test of Hypothesis on Total Investment to Total Deposit ratio of NABIL and HBL.**

Calculation of X, Y and S<sup>2</sup>, Assuming  $x = x - \bar{x}$ ,  $y = y - \bar{y}$

NABIL			HBL		
X	$x = (x - \bar{x})$	$x^2$	Y	$y = (y - \bar{y})$	$y^2$
29.31	-2.63	6.91	47.12	8.20	67.31
31.93	-0.01	0.00	41.1	2.18	4.77
38.32	6.38	40.73	39.35	0.43	0.19
31.14	-0.80	0.64	41.89	2.97	8.84
28.99	-2.95	8.69	25.12	-13.80	190.33
$\Sigma X=159.69$	$\Sigma x=0.00$	$\Sigma x^2=56.96$	$\Sigma Y=194.58$	$\Sigma y=0.00$	$\Sigma y^2=271.44$

*Source: Appendix-9*

$$\begin{aligned} \bar{x} &= \frac{\Sigma X}{N} = \frac{159.69}{5} = 31.94 \\ \bar{y} &= \frac{\Sigma Y}{N} = \frac{194.58}{5} = 38.92 \\ S^2 &= \frac{1}{N_1 \Gamma N_2} \left[ \Sigma x^2 \Gamma \frac{\Sigma x^2}{n} \Gamma \Sigma y^2 \Gamma \frac{\Sigma y^2}{n} \right] \\ &= \frac{1}{5 \Gamma 5} \left[ 56.96 \Gamma \frac{(0)^2}{5} \Gamma 271.44 \Gamma \frac{(0)^2}{5} \right] \\ &= \frac{1}{8} \left[ 56.96 \Gamma 0 \Gamma 271.44 \Gamma 0 \right] \\ \text{or, } S^2 &= 41.05 \end{aligned}$$

**Appendix A - 23**

**Test of Hypothesis on Investment in Government Securities to Current Assets Ratio of NABIL and HBL**

Calculation of X, Y and S<sup>2</sup>, Assuming  $x = x - \bar{x}$ ,  $y = y - \bar{y}$

NABIL			HBL		
X	$x = (x - \bar{x})$	$x^2$	Y	$y = (y - \bar{y})$	$y^2$
27.37	4.01	16.06	24.49	2.55	6.52
16.61	-6.75	45.59	21.79	-0.15	0.02
28.36	5.00	24.98	23.9	1.96	3.86
23.09	-0.27	0.07	25.37	3.43	11.79
21.38	-1.98	3.93	14.13	-7.81	60.93
$\Sigma X=116.81$	$\Sigma x=1$	$\Sigma x^2=90.64$	$\Sigma Y=109.68$	$\Sigma y=1$	$\Sigma y^2=83.13$
116.81	0.00	90.64	109.68	0.00	83.13

*Source: Appendix-6*

$$\bar{x} = \frac{\Sigma X}{N} = \frac{116.81}{5} = 23.36$$

$$\bar{y} = \frac{\Sigma Y}{N} = \frac{109.68}{5} = 21.94$$

$$S^2 = \frac{1}{N_1 \Gamma N_2} \Sigma x^2 \Gamma \Sigma y^2$$

$$= \frac{1}{5 \Gamma 5} \Sigma 90.64 \Gamma \Sigma 83.13$$

$$= \frac{1}{8} \bullet 90.64 \Gamma 83.13$$

or,  $S^2 = 21.72$

**Appendix A - 24**

**Test of Hypothesis on Return on Loan and Advance Ratio of NABIL and HBL**

Calculation of X, Y and S<sup>2</sup>, Assuming  $x = x - \bar{x}$ ,  $y = y - \bar{y}$

NABIL			HBL		
X	$x = (x - \bar{x})$	$x^2$	Y	$y = (y - \bar{y})$	$y^2$
4.34	0.25	0.06	2.27	-0.58	0.34
4.78	0.69	0.47	3.12	0.27	0.07
4.24	0.15	0.02	2.76	-0.09	0.01
3.43	-0.66	0.44	3.15	0.30	0.09
3.68	-0.41	0.17	2.95	0.10	0.01
$\Sigma X=1$	$\Sigma x=1$	$\Sigma x^2=1$	$\Sigma Y=1$	$\Sigma y=1$	$\Sigma y^2=1$
20.47	0.00	1.16	14.25	0.00	0.52

*Source: Appendix-13*

$$\bar{x} = \frac{\Sigma X}{N} = \frac{20.47}{5} = 4.09$$

$$\bar{y} = \frac{\Sigma Y}{N} = \frac{14.25}{5} = 2.85$$

$$S^2 = \frac{1}{N_1 \Gamma N_2 Z} \left[ \Sigma x^2 \frac{f_x}{n} \Gamma \Sigma y^2 \frac{f_y}{n} \right]$$

$$= \frac{1}{5 \Gamma 5 Z} \left[ 1.16 Z \frac{(0)^2}{5} \Gamma 0.52 Z \frac{f_0}{5} \right]$$

$$= \frac{1}{8} \left[ 1.16 Z 0 \Gamma 0.52 Z 0 \right]$$

or,  $S^2 = 0.21$